

# Educational Stratification Among Youth in Brazil: 1960–2010



Carlos Antonio Costa Ribeiro, Ricardo Ceneviva,  
and Murillo Marschner Alves de Brito

**Abstract** The chapter investigates patterns of inequalities of educational opportunities (IEO) among young men and women who lived with their parents in Brazil from 1960 to 2010. We used educational transition models (ETM) applied to census data (1960, 1970, 1980, 1991, 2000, and 2010) in order to analyze socioeconomic inequalities of access and completion of primary, secondary, and tertiary education. We documented how socioeconomic origins shape educational opportunities of young people in Brazil during five decades of intense educational expansion and social change. Our analysis reveals a mixed pattern of changes: inequality of educational opportunities (in terms of parental income and region of birth) decreased at basic educational levels, persisted at secondary level, and increased in terms of access to higher education.

**Keywords** Educational stratification · Inequality of educational opportunities · Educational system in Brazil

Inequality of educational opportunity (IEO) is measured by the effect parents' socioeconomic and cultural characteristics have on the educational accomplishment of their children. We know that the education attained by an individual is the primary source of social mobility in modern societies; thus, a decreasing IEO is essential for increasing social mobility. Several studies on this topic in Brazil have

---

This chapter benefited from comments and suggestions from participants of the first seminar project "Census: how much has Brazil changed in the past 50 years" held by the Center for Metropolitan Studies (CEM) in September 2012. We sincerely thank Marta Arretche for her invitation and support for the accomplishment of this work.

C. A. C. Ribeiro (✉) · R. Ceneviva  
Instituto de Estudos Sociais e Políticos, Universidade Estadual do Rio de Janeiro,  
Rio de Janeiro, Brazil  
e-mail: carloscr@iesp.uerj.br; ceneviva@iesp.uerj.br

M. M. A. de Brito  
Department of Education, Pontifical Catholic University of Rio de Janeiro,  
Rio de Janeiro, Brazil  
e-mail: murillo-marschner@puc-rio.br

revealed that this type of inequality has remained practically unchanged over the years. Although there has been expansion in all educational levels, individuals from families with more socioeconomic resources continue to have advantages when progressing through the system. This conclusion is based chiefly on data pertaining to birth cohorts observed in sample surveys, which introduce retrospective information about families of origin (mainly occupation and educational level of the parents while their children were growing up). To understand this effect on the likelihood of an individual's educational progression, one must have access to information concerning the family's socioeconomic conditions, which, in the case of the census, is available to children in the family (sons and daughters). Thus, the objective of this chapter is to use the microdata from Brazilian censuses for the period of 1960–2010 to assess the evolution of the effects that socioeconomic background has had on the educational progression of Brazilians age 12–25, in order to understand what has changed in Brazil over the past 50 years regarding educational stratification among youth.

## **Educational Progression Models**

A commonly used method to measure IEO in sociological literature on social stratification consists of analyzing educational progression as a string of decisions (Mare 1980, 1981). During the 1980s and 1990s, several studies on the subject resulted in a compilation edited by Shavit and Blossfeld (1993) in which the determinants of educational stratification in 13 countries are comparatively examined through highly standardized tests. The main question was to what extent the association between socioeconomic origin and educational attainment changed over time. The national cases investigated included Western capitalist societies (the United States, the former West Germany, England and Wales, Italy, Switzerland, the Netherlands, and Sweden), non-Western capitalist societies (Japan and Taiwan), and countries having a socialist legacy (Poland, Hungary, and the former Czechoslovakia). Four major educational transitions were analyzed: completion of primary education, entry into secondary education after having completed primary education, completion of secondary education, and entry into postsecondary (university) education after having completed secondary education. The main conclusion reached in this comparative study was that there was no change in inequality over time, regardless of the educational expansion, a claim further supported by Mare (1980) when researching the US case. Indeed, these studies suggest that there was a pattern of persistent inequality, assuming that class differences in completing transitions tend to be constant across older and younger birth cohorts in the twentieth century. Even though school participation rates have increased for all classes at practically every level, the advantages associated with privileged socioeconomic backgrounds remained unchanged. Only the Netherlands and Sweden seemed to escape this general pattern: in these countries, the association between schooling and social origin witnessed a downward trend throughout the twentieth century.

Given that this evidence seemed fairly consistent across the various countries, researchers began to develop models to explain the empirical patterns observed, especially the patterns of persistent inequality. Since then, research efforts in investigating class determinants in educational stratification have produced a fair amount of empirical evidence that attempts to explain persistent inequality. Among the most prominent explanatory hypotheses we find is the maximally maintained inequality (MMI) hypothesis (Raftery and Hout 1993), which states that changes in the correlation between social origin and educational fate tend to occur only in circumstances where transition rates for certain educational levels reach saturation levels that prevent its increase among classes of a privileged socioeconomic background due to a “ceiling effect.” If, on the one hand, this process reduces class inequalities across educational levels where one observes saturation of access for the upper classes, on the other hand, it displaces inequality toward higher educational levels. Thus, where saturation exists, there is no inequality for any class of origin. In this regard, a uniform decrease in educational costs tends to maintain inequalities at a constant level, since its impact is uniform among all classes. Research on the Brazilian case (Valle Silva and Souza 1986; Hasenbalg and Valle-Silva 2002; Fernandes 2004; Torche 2010; Ribeiro 2011; Montalvão 2011) greatly contributed to the understanding of the major patterns of IEO evolution. The fact that disparities are especially prominent among individuals with urban and rural origins and that race inequality, especially at higher educational levels, places the black and brown populations at a disadvantage became firmly established. Furthermore, class-based inequality is pervasive and persists over time. In the past three decades, expansion of Brazil’s educational system primarily targeted lower stages of progression, thus decreasing class inequality in educational access and shifting it, to a large extent, to higher educational levels. It is now possible to demonstrate the correlation between social origin and educational attainment at higher educational levels. From this perspective, the pattern of persistent inequalities remains applicable for studying the evolution of educational stratification in Brazil, and MMI continues to be a thought-provoking research hypothesis for analyzing the effects that expansion of the system has had on the lowest levels of educational opportunities.

Because these studies use information that cover an extended period of time, we plan to investigate the extent to which the conclusions reached, based on birth cohort analysis and retrospective data on class origin (questions regarding parents’ occupation and educational level), can be observed when analyzing educational progression of youth over a long period.

We initially present descriptive statistics regarding the evolution of youth educational level and odds of youth progression within the Brazilian educational system during the period analyzed, regardless of social origin. Then we demonstrate the educational progression model applied to the microdata from Brazilian censuses between 1960 and 2010 and the main results of analysis on the probabilities of youth educational progression in view of socioeconomic background.

## Educational Transitions in Brazil: Operational Definitions and Data Description

During the period analyzed, the Brazilian educational system underwent major reforms through enactment of the Directives and Foundations Laws (LDB 1961, 1971, and 1996), which had an impact on the regulatory structure of the scope of education and, consequently, on how educational levels are measured in censuses. Even though significant changes have occurred, it is possible to devise a set of suitable educational transitions that can be applied to all censuses to represent the levels of education in Brazil since the 1960s. In its most detailed version, the structure contains seven transitions (Chart 1).

Level	Transition	Description	T1	T2	T3	T4	T5	T6
Unschooling	Outside the educational system	Illiterate/Never attended school	-	-	-	-	-	-
Primary/Basic Ed.	T1 - Entered the educational system	Entered educational system and completed the 1st, 2nd and 3rd grades (does not include pre-school, day-care, literacy class and adult literacy course)	V	-	-	-	-	-
	T2 - Completed four years of schooling	Entered the Educ. Syst. (T1) and completed the first 4 years of Prim. Ed. (T2)	V	V	-	-	-	-
	T3 - Completed primary education	Entered Educ. Syst. (T1), completed four years of Prim. Ed (T2), and completed Prim. Ed. (up to 8th grade) (T3)	V	V	V	-	-	-
Secondary Ed.	T4 - Completed PEd. and entered SED.	Entered Educ. Syst. (T1), completed four years of Prim. Ed (T2), completed Prim. Ed. (up to 8th grade) (T3), and entered Sec. Ed. (T4)	V	V	V	V	-	-
	T5 - Completed SED.	Entered Educ. Syst. (T1), completed four years of Prim. Ed (T2), completed Prim. Ed. (up to 8th grade) (T3), entered Sec. Ed. (T4), and completed Sec. Ed. (T5).	V	V	V	V	V	-
Higher Ed.	T6 - Completed SED. and entered university	Entered Educ. Syst. (T1), completed four years of Prim. Ed (T2), completed Prim. Ed. (up to 8th grade) (T3), entered Sec. Ed. (T4), completed Sec. Ed. (T5), and entered university (T6)	V	V	V	V	V	V
	T7 - Completed Higher Ed.	Entered Educ. Syst. (T1), completed four years of Prim. Ed (T2), completed Prim. Ed. (up to 8th grade) (T3), entered Sec. Ed. (T4), completed Sec. Ed. (T5), entered university (T6), and completed university (T7)	V	V	V	V	V	V

Chart 1 Educational transition model: Brazil

An illiterate individual or one who has never been enrolled in the educational system made none of the defined transitions; therefore, his or her educational level assumes a value of 0 for any of the transitions. In turn, someone who completed higher education has passed through all the transitions measured by the model (i.e., for this person  $T_1 = 1, T_2 = 1, \dots, T_7 = 1$ ). Other educational levels occupy intermediate positions.

The position of individuals within the educational trajectory basically depends on their age. Just as certain educational levels are not accessible to individuals in some age brackets, we can roughly guess an individual's age by his or her position in the educational trajectory. The association between age and educational progression is particularly true in the early stages of youth educational trajectory, in which age-grade distortion tends to be smaller. It becomes less evident as individuals become older and move forward (or not) in school. We therefore attempted to structure analysis of the evolution of educational transitions starting from the comparison between significant population categories from the standpoint of evolution of individuals' educational trajectories. For presentation purposes, this meant selecting some age brackets within the population spectrum that carry certain expectations regarding position in the educational trajectory that can be used as reference to evaluate the empirical results observed.

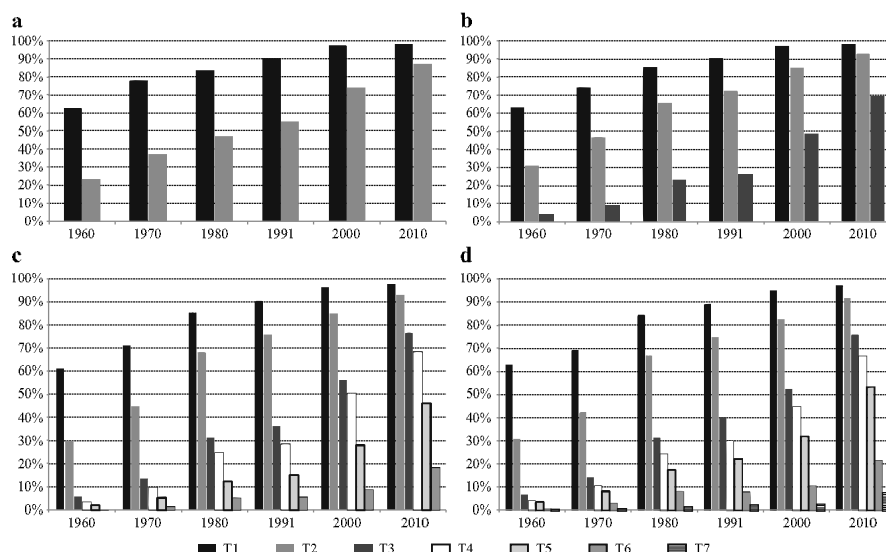
The age brackets selected are the following:

1. **Population, age 12–15:** this population is expected to complete  $T_1$  (entry into the educational system) and  $T_2$  (4 years of schooling completed). Since higher educational levels are not accessible to all individuals in this age group, the analysis is limited to these two transitions.
2. **Population, age 16–18:** all individuals within this age bracket were considered to have reached a position in their life cycle that enabled them to have completed  $T_1, T_2,$  and  $T_3$  (8 years of schooling completed); thus, the analysis is restricted to these three transitions.
3. **Population, age 19–20:** in this age bracket, we analyzed the odds of completing  $T_1, T_2,$  and  $T_3,$  as well as  $T_4$  (entry into secondary education),  $T_5$  (completed secondary education), and  $T_6$  (entry into university).
4. **Population, age 21–25:** for this age range, we evaluated the odds of someone completing the entire transition spectrum, which includes, in addition to those previously described,  $T_7$  (completed higher education).

## Youth Education

### *Youth Educational Level (Age 12–25)*

Analysis of the evolution of indicators compares the population age 12–25 in the 1960 census, the population age 12–25 in the 1970 census, and so on, demonstrating that it is not the same population or even the same cohort. Since the objective is to



**Graph 1** Youth educational level, according to the age groups of interest Brazil (1960–2010). (a) Population age 12–15. (b) Population age 16–18. (c) Population age 19–20. (d) Population age 21–25. (Source: IBGE Demographic Censuses 1960, 1970, 1980, 1991, 2000, 2010 (special tabulations by CEM))

verify the effects of parental resources on their children's odds of progressing through the educational system (IEO), we only worked with individuals who still resided with their families of origin. This is another factor that limits the analysis to the age brackets previously described. While the vast majority of children still reside with their parents, the same cannot be said for adolescents, especially from the age of 19 onward. Consequently, the results are more reliable for early educational transitions since they are based on children and young people who still reside with their parents.

Graph 1 shows improvements in the youth educational level for all age ranges analyzed between 1960 and 2010. The proportion of the population entering the educational system becomes virtually universal between 2000 and 2010 for all age ranges. This did not occur at the beginning of our series. Among the youth population, age 12–15, almost 90% entering the school system completed 4 years of study in 2010. This proportion was just over 20% in 1960. This same movement occurs between 1960 and 2010 regarding these educational levels in all age groups, thus demonstrating the process of universalization of access to the educational system, which is ultimately consolidated within the 2000–2010 period.

We also note significant improvements in the portion of the population that attains 8 years of schooling for groups above age 16. Among the population age 16–18 in 1960, less than 10% of individuals completed their primary education, while nearly 70% did so in 2010. Graphs referring to populations age 19–20 and age 21–25 provide evidence that gains in education also extended to entry into and

completion of secondary and higher education, although by varying degrees across these levels. The results for these populations indicate that a growing number of individuals who complete primary education tend to continue on to secondary education.

On the other hand, completion of secondary education continues to be a relevant barrier to young people age 19–25. Entry into and completion of higher education has also shown gains over the years, although access to university education continues to be limited, even in 2010.

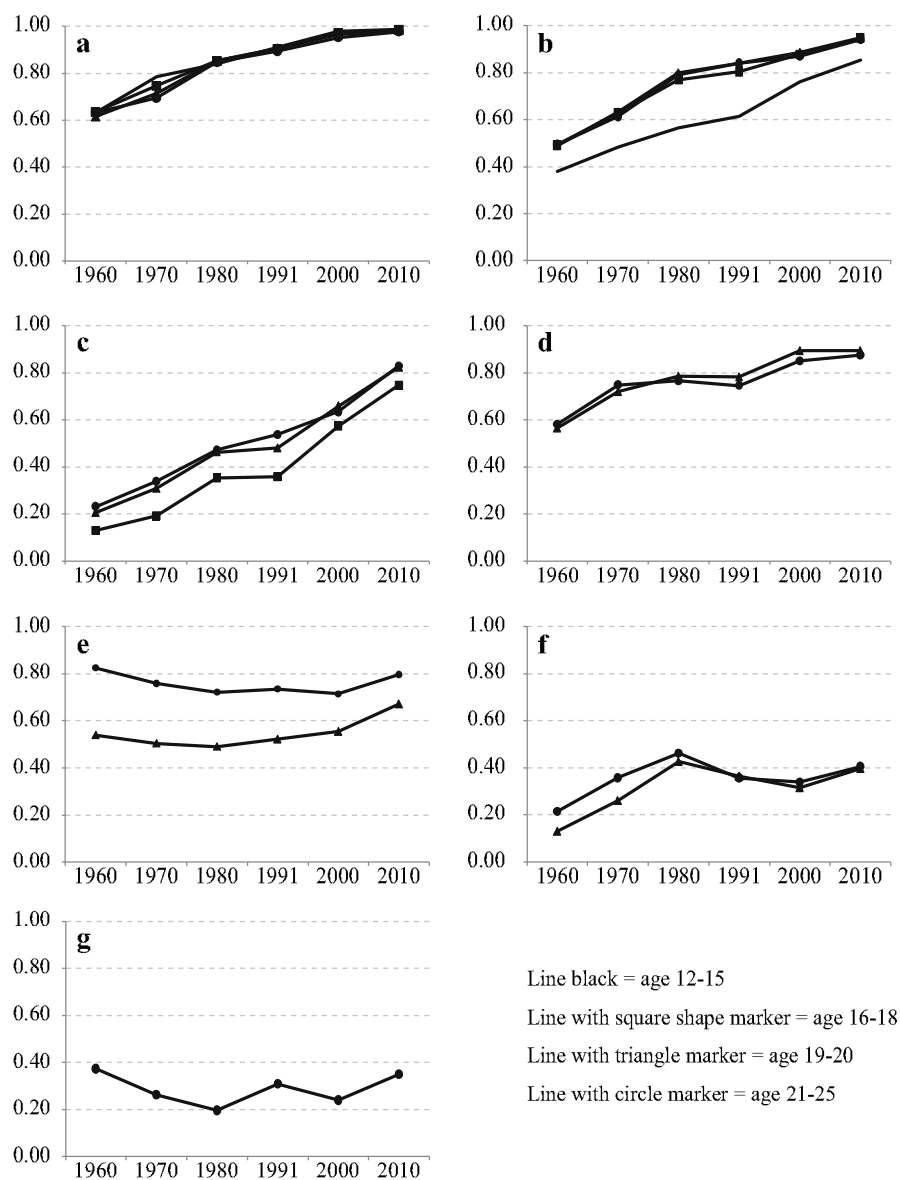
The results show significant changes in youth educational levels, with a constant upward trend between 1960 and 2010. Moreover, universalization of access for the first two educational levels and very significant advances in completion of secondary education were noted. Even if the educational trajectory of many young people still ends at these levels, there has been an increase in the number of young people attaining access to higher education between 1960 and 2010.

### ***Youth Educational Progression (Age 12–25)***

Little has been said regarding the likelihood of actually accomplishing the transitions, i.e., the proportion of individuals who complete transition  $T_n$  to go on to actually complete  $T_{n+1}$ . We could refer to the population that completes  $T_n$  as the one with the probability of completing  $T_{n+1}$ , and accessibility to different educational levels can be measured by the system's ability to transform the population at a probability of  $T_{n+1}$  into one that actually completes it. The relation between the total number of individuals capable of completing  $T_{n+1}$  and those who actually complete it may be measured by conditional transition rates. These are important indicators of the educational system's capacity to absorb populations across several levels. Thus, the population completing  $T_{n+1}$  is always decreasing in relation to those who actually complete  $T_n$ , since the latter constitutes a subset of the former (only individuals who complete  $T_1$  are capable of completing, e.g.,  $T_2$ , and so on).

In the transitional structure used here, there are six educational transition movements, ranging from  $T_0$  to  $T_1$  (entry into the educational system) and from  $T_6$  to  $T_7$  (completed higher education once having entered university). In Graph 2, we can see the conditional transition rates for the age brackets to which a transitional movement pertains.

Analysis of conditional transition rates illustrates the differences in the evolution of parameters for youth educational progression in Brazil across basic levels (up to  $T_3$ ), middle levels ( $T_4$  and  $T_5$ ), and advanced levels ( $T_6$  and  $T_7$ ). Transition rates between  $T_0$  and  $T_1$  are virtually universal in 2010 for all age brackets (Graph 2a), and their increase indicates that the educational system had a progressive capacity to absorb individuals since 1960, with the same occurring in movements from  $T_1$  to  $T_2$  (Graph 2b) and from  $T_2$  to  $T_3$  (Graph 2c). In the first case, this is almost universal, like the transition from  $T_0$  to  $T_1$ , indicating continuity in the educational progression up to 4 years of schooling in 2010 for practically all individuals entering the system.



**Graph 2** Conditional transitional rates, by age brackets and transitional movements Brazil (1960–2010). (a)  $T_0$  to  $T_1$ . (b)  $T_1$  to  $T_2$ . (c)  $T_2$  to  $T_3$ . (d)  $T_3$  to  $T_4$ . (e)  $T_4$  to  $T_5$ . (f)  $T_5$  to  $T_6$ . (g)  $T_6$  to  $T_7$ . (Source: IBGE Demographic Census (special tabulations by CEM))

Completion of primary education, once an individual has finished 4 years of schooling (transition from  $T_2$  to  $T_3$ ), also became, over the course of this period, a very common educational target under which we find more than 70% of the population within the age brackets analyzed. Up to 1970, only the first 4 years of primary edu-



education were compulsory, but in 1971 the Brazilian government expanded the minimum level of schooling to 8 years of primary education. An increase in completion of this transition ( $T_2$  to  $T_3$ ) really occurred after 1970. However, even in 2010 only around 20% of people who had finished 4 years of schooling managed to complete primary education (8 years).

As for the intermediate and advanced levels of youth educational progression, trends are somewhat different. The conditional transition from  $T_3$  to  $T_4$  (Graph 2d), which indicates entry into secondary education after completion of primary education, shows a growth rate similar to those found at basic levels, thus indicating a considerable accessibility gain with very high growth rates throughout the period. However, it is in the transition from  $T_4$  to  $T_5$  (completed secondary education, on Graph 2e) that trends shown by the conditional transition rates are more clearly distinguished than those observed for basic levels. The behavior of these rates indicates that the system's ability to transform the population eligible for  $T_5$  into one that actually completes the transition remained constant between 1960 and 2000, recovering slightly in 2010. Thus, the proportion that completes this movement remained unchanged – which can be explained by the increasing number of individuals eligible for this transition coupled with the educational system's inability to increase the number of vacancies at this educational level at the same rate of growth as the eligible population.

At higher educational levels, we find the lowest conditional transition rates among Brazilian youth. The transition for entry into university, after completion of secondary education (from  $T_5$  to  $T_6$ , on Graph 2f), was very low in 1960: within the population age 19–20, only 12.9% of those who completed secondary education went on to university. As for the population age 21–25, this proportion was 21.5% in 1960, rising in 1970 and reaching its peak in 1980, when it was approximately 40%. From 1991 on, there is a drop in the rate of conditional transition to  $T_6$ , with a slight recovery through 2010. In this case we also observe that the evolution of the educational system in terms of absolute numbers was unable to increase the conditional transition rate, that is, the proportion of students entering university. Among all the transitional movements, the conditional rate for completing higher education demonstrated the most erratic behavior. It is also the transitional movement that has the lowest conditional rates, indicating that Brazilian youth (up to age 25) who reach university frequently fail to complete this educational level (or complete  $T_7$ ). The only age bracket that allows assessment of the transition rates from  $T_6$  to  $T_7$  (age 21–25) shows results that indicate a decrease in the odds of completing university (once having entered). Between 1960 and 1980, only 19.6% of entrants completed higher education, with the rate recovering from 1991 through 2010 when it reaches 35% of young people in the age bracket of 21–25 years (Graph 2g).

The evolution of transition rates among young Brazilians shows that the capacity of the educational system increased substantially between 1960 and 2010 at the basic educational levels. If in 1960 it was highly unlikely for young people to complete 8 years of study, by 2010 the odds of educational progression for  $T_1$ ,  $T_2$ , and  $T_3$  are practically universal. Regarding intermediate levels, there are important gains for conditional access to entry into secondary education ( $T_4$ ), but it is not yet pos-

sible to identify movements with the same magnitude in the transition toward  $T_5$  (completed secondary school), for which the Brazilian educational system continues to present transitional parameters in 2010 similar to those observed in 1980. When looking at higher levels, access restriction decreased within the period of 1960–2010. Throughout almost this entire period (except for 1960), the odds of young people completing university – once admitted – are smaller than the odds of entry into university after having completed secondary education.

## Statistical Analysis and Results

Among the restricted set of variables available in census data, we decided to use those with the fewest compatibility problems:

- *Gender*: in light of the evolution of average educational levels for women in Brazil (a phenomenon also observed in other countries), to a point where it has surpassed the level of men, we believe women have a higher likelihood of completing transitions.
- *Color*: color/race is a dimension that is very present (and relevant) in studies on educational inequality in Brazil, ranging from dichotomous specifications that separate whites and nonwhites (Hasenbalg and Valle-Silva 2002) to those that distinguish brown, black, and white (Fernandes 2004; Ribeiro 2011; Montalvão 2011). The results of these studies demonstrate the relevance of the operationalization of race by using a three-category variable due to significant differences found in the educational opportunities for blacks and browns. We use this variable to classify three categories: black, brown, and white.
- *Residence status*: differences in the educational supply of rural and urban areas justify the inclusion of a control variable for region of residence. Results of Brazilian studies demonstrate a significant effect that decreases the likelihood that students who live in rural areas will complete transitions (Hasenbalg and Valle-Silva 2002; Montalvão 2011). Rural or urban origin (and not necessarily current residence) is also used as a social origin indicator in international studies (Mare 1981; Hout et al. 1993; Lucas 2001) and in studies dealing with the Brazilian case (Fernandes 2004; Ribeiro 2011), generally presenting an effect of decreasing the odd of completing transitions.
- *Family composition*: we chose to incorporate two indicators concerning family composition when estimating the odds of someone reaching a particular educational transition – (1) the absence of a spouse, an indicator of single-parent families, and (2) a variable indicating whether the individual is the firstborn child.
- *Family income*: per capita household income is commonly used as an indicator of the family's economic status. National and international studies that have introduced this variable have demonstrated its positive effects on the odds of transition (Lucas 2001; Hasenbalg and Valle-Silva 2002, Milesi 2010; Montalvão 2011; Roksa and Velez 2010). The income variable employed in this study under-

went a monotonic transformation using a logarithmic transformation to reduce excessive data dispersion.

- *Mother's educational level*: the total number of years of education attained by the parent is a commonly used variable to indicate an individual's social origin. Most studies use the total number of years of schooling attained by both the father and the mother (Mare 1981; Hout et al. 1993; Lucas 2001; Hout 2006; Fernandes 2004; Torche 2010; Ribeiro 2011). Valle-Silva and Hasenbalg (2000) use only the mother's educational level and, in other cases, employ variables that summarize schooling by the average of both parents (Ayalon and Shavit 2004) or by using the highest level of education attained between the two (Kesler 2003; Milesi 2010; Roksa and Velez 2010; Karlson 2011). This study uses the mother's educational level, operationalized via dichotomous variables for complete or incomplete educational levels. Regardless of how this variable is used, studies indicate that the higher the educational level, the greater the odds of completing transitions at the basic educational level.

## Statistical Models

The basic model, adjusted to capture correlations between observable attributes of youth, their family, social and economic environment, and the likelihood of completing educational transitions, is described by Eq. (1) below.

$$T_{ij} = \alpha_0 + \beta_1 S_{ij} + \beta_2 C_{ij} + \beta_3 R_{ij} + \beta_4 F_{ij} + \beta_5 Lg(R)_{ij} + \beta_6 E_{ij} + \varepsilon_{ij} \quad (1)$$

where, in Eq. (1):

- $T_{ij}$  is an ordinal categorical variable (with eight levels), which identifies whether individual  $i$  from age bracket  $j$  completed a particular educational transition.
- $\alpha_0$  is a constant that indicates the cutoff point between the different levels in ordinal models.
- $S_{ij}$  is a dummy variable that identifies whether individual  $i$  from age bracket  $j$  is female.
- $C_{ij}$  is a vector of dummy variables that identifies whether individual  $i$  from age bracket  $j$  is black, brown, or white.
- $R_{ij}$  is a dummy variable that identifies if the residence of individual  $i$  from age bracket  $j$  is located in the rural area.
- $F_{ij}$  is a vector of dummy variables that identifies whether individual  $i$  from age bracket  $j$  lives in a single-parent family and if he or she is a firstborn child.
- $Lg(R)_{ij}$  is a scalar variable indicating the natural log of per capita household income of the residence of individual  $i$  from age bracket  $j$ .
- $E_{ij}$  is a vector of dummy variables identifying the educational level of the mother of individual  $i$  from age bracket  $j$  and if she concluded primary, secondary, and higher education.

- $\varepsilon_{ij}$  is the random error term.

The variable of interest in this chapter,  $T_{ij}$  – educational level of an individual – was built as a series of educational transitions that an individual  $i$  from age bracket  $t$  could complete throughout his or her academic life. Therefore, transitions have a dichotomous outcome: an individual completes a given educational transition, for example, primary school, within the appropriate age bracket,<sup>1</sup> or an individual does not complete it until the age of 18. Thus, educational transitions have been operationalized as an ordered categorical variable – with levels from zero to seven – indicating the highest transition completed by an individual within a certain age bracket. In other words, educational transitions assume discrete values, which correspond to sortable categories  $k$ . While it is possible to organize categories  $k$  in the shape of educational transitions, the actual distance between each category is ignored, and, most importantly, we cannot presume that the distance between categories remains constant.

In this chapter, we opted to use a proportional odds model (POM), mainly because of two characteristics present within the educational transition data in Brazilian censuses: (1) this type of model is more suitable for analyzing ordinal variables derived from a continuous variable, which, in turn, was grouped in the same manner as the educational transitions analyzed in this chapter<sup>2</sup>; (2) the POM rests on the assumption that proportional odds between categories are empirically valid. Recent uses of this type of model when analyzing educational transitions may be found in Hauser and Andrew (2006) and Torche (2010).

## Results

Tables 1, 2, 3 and 4 show the results of estimates obtained by the proportional odds model (POM) fit to census data from 1960 to 2010.<sup>3</sup> The results report the odds ratios of educational progression of young people, age 12–25, for the covariates that refer to personal characteristics, family environment, and social origin.

---

<sup>1</sup>In this chapter, we considered broader age brackets than those employed by the Ministry of Education (MEC) for measuring the age-grade distortion rate. For example, according to MEC criteria, the ideal age for completing primary education (transition T3, according to the classification hereby adopted) is age 15. In the present analysis, we consider that the individual can complete T3 up to the age of 18. We make use of broader age brackets because it is not our intention to measure the age-grade distortion rate but rather to examine the factors associated with the social and economic status of families that can affect youth educational performance and progression.

<sup>2</sup>This methodological choice is theoretically justified in section “Educational Transitions in Brazil: Operational Definitions and Data Description” of this chapter.

<sup>3</sup>All models had controls for state, since we consider that Brazilian states played a relevant role in providing basic education. More importantly, the coverage of state-level public supply shows significant variations across the different states as well as throughout the period analyzed (1960–2010). Consequently, standard errors were clustered by states. Cutoff points for the categories have been omitted so as to preserve greater simplicity in presenting the results.

**Table 1** Estimated odds ratios for completing  $T_2$  Brazil (1960–2010)

	1960	1970	1980	1991	2000	2010
Women	1.203*** (0.0408)	1.264*** (0.0524)	1.510*** (0.0544)	1.667*** (0.0549)	1.687*** (0.0524)	1.739*** (0.0723)
Blacks	0.341*** (0.0254)	NA	0.543*** (0.0165)	0.532*** (0.0150)	0.638*** (0.0219)	0.772*** (0.0182)
Browns	0.548*** (0.0306)	NA	0.687*** (0.0166)	0.713*** (0.0153)	0.816*** (0.0101)	0.912*** (0.0206)
Rural	0.202*** (0.0256)	0.298*** (0.0380)	0.394*** (0.0503)	0.524*** (0.0565)	0.607*** (0.0382)	0.875** (0.0356)
Monoparental	0.740*** (0.0267)	0.808*** (0.0186)	0.884*** (0.0200)	0.949* (0.0252)	1.0100 (0.0217)	0.9950 (0.0264)
Firstborn	1.215*** (0.0304)	1.111*** (0.0224)	1.151*** (0.0406)	1.245*** (0.0381)	1.238*** (0.0198)	1.216*** (0.0203)
Income (Log)	0.614*** (0.0334)	0.552*** (0.032)	0.545*** (0.043)	0.434*** (0.024)	0.437*** (0.0133)	0.283*** (0.0154)
Mother Prim. ed.	4.399*** (0.6910)	2.919*** (0.1870)	2.091*** (0.1040)	1.731*** (0.0556)	1.723*** (0.1110)	1.563*** (0.0662)
Mother Second. ed.	0.9830 (0.1860)	1.1700 (0.1050)	1.376*** (0.0732)	1.571*** (0.0927)	1.401*** (0.0721)	1.533*** (0.0555)
Mother Higher ed.	0.8460 (0.4410)	0.7060 (0.1510)	0.9670 (0.0739)	1.2270 (0.1290)	0.819*** (0.0432)	1.332*** (0.1010)
N	67.482	403.119	423.313	205.853	206.605	162.826
Control p/ FU (state)	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

Source: Census data (IBGE); IBGE Demographic Census (special tabulations by CEM)

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ 

These results can be read both synchronously, by analyzing the effects of each covariate (while all others are kept fixed) over the odds of success in completing certain transitions, and diachronically, by analyzing the dynamics of specific covariates throughout the 50 years of the 1960–2010 censuses.

Over 50 years, Brazil has experienced significant changes in its social and economic structure. Once predominantly agricultural, the economy has now become mostly industrial, and the population went from essentially rural to urban. Women gained ground in the labor market and, most importantly, a major expansion took place in public basic educational systems.

Table 1 shows the odds ratios estimated for a successful transition from  $T_1$  to  $T_2$ . The odds ratio compares the odds of success – that is, the odds that an individual  $i$  from age bracket  $j$  will complete 4 years of education and fall in a category greater than or equal to  $T_2$  – from one group over another group. An odds ratio of 1 indicates that the odds of completing transition  $T_2$  is just as likely to occur in both groups compared. A ratio greater than 1 indicates a higher probability of transition in the first group. Therefore, an odds ratio of 1.20 for women in 1960 means that the odds of success in completing transition  $T_2$  is 1.20 times higher for women than for men,

**Table 2** Estimated odds ratios for completing  $T_3$  Brazil (1960–2010)

	1960	1970	1980	1991	2000	2010
Women	1.219*** (0.0652)	1.341*** (0.0744)	1.568*** (0.0898)	1.586*** (0.1020)	1.440*** (0.0767)	1.381*** (0.0468)
Blacks	0.323*** (0.0225)	NA	0.577*** (0.0224)	0.605*** (0.0261)	0.757*** (0.0307)	0.863** (0.0473)
Browns	0.522*** (0.0255)	NA	0.755*** (0.0189)	0.768*** (0.0161)	0.873*** (0.0133)	0.9740 (0.0283)
Rural	0.186*** (0.0205)	0.242*** (0.0252)	0.372*** (0.0390)	0.483*** (0.0438)	0.720*** (0.0560)	1.0520 (0.0481)
Monoparental	0.629*** (0.0230)	0.724*** (0.0189)	0.866*** (0.0203)	1.0050 (0.0265)	1.0120 (0.0176)	0.9920 (0.0193)
Firstborn	1.145*** (0.0249)	1.062** (0.0194)	1.0350 (0.0232)	1.183*** (0.0216)	1.102*** (0.0186)	0.909*** (0.0155)
Income (Log)	0.587*** (0.0462)	0.525*** (0.0349)	0.433*** (0.0402)	0.351*** (0.0255)	0.268*** (0.0134)	0.135*** (0.0164)
Mother Prim. Ed.	6.220*** (1.2930)	2.937*** (0.2020)	1.368*** (0.1090)	3.095*** (0.2170)	2.444*** (0.1020)	3.286*** (0.1900)
Mother Second. Ed.	1.0230 (0.3280)	1.261*** (0.0523)	0.8950 (0.0711)	0.493*** (0.0361)	0.553*** (0.0506)	0.377*** (0.0227)
Mother Higher Ed.	0.151*** (0.0799)	1.2100 (0.1350)	0.717*** (0.0672)	0.757*** (0.0590)	0.460*** (0.0623)	0.8220 (0.0876)
N	39.993	230.974	216.761	111.518	95.523	50.169
Control p/ FU (state)	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

Source: Own calculations based on Census data (IBGE); IBGE Demographic Census (special tabulations by CEM)

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

that is, approximately 20% higher for women. An odds ratio of less than 1, on the other hand, indicates that the probability is lower in the first group. For example, an odds ratio of 0.53 for black youths in 1991 means that the odds of success in completing  $T_2$  among young blacks is 0.53 times the chance of young whites – the reference category – in completing the same transition in 1991. In other words, the odds of success among young blacks is approximately 47% lower than among young whites.

Graph 1 shows that in 1960 nearly 25% of young people age 12–15 had completed 4 years of education. That means that for every 100 young people who entered the school system, only 25 completed four school years before the age of 16. The estimated odds ratio of 1.20 for women, therefore, means that in a sample of 200 young people, consisting of 100 men and 100 women, we would expect an average of 25 men to have completed  $T_2$  before reaching age 16, while 30 women would have the same success in completing 4 years of study by age 15. Similarly, in 1991, only 55% of young people up to age 15 completed  $T_2$ . That means that out of every 100 young people who entered the school system, only 55 completed 4 years

**Table 3** Estimated odds ratios for completing  $T_3$  Brazil (1960–2010)

	1960	1970	1980	1991	2000	2010
Women	1.428*** (0.054)	1.586*** (0.070)	1.788*** (0.079)	1.489*** (0.065)	1.672*** (0.061)	1.687*** (0.059)
Blacks	0.321*** (0.024)	NA	0.501*** (0.025)	0.585*** (0.015)	0.690*** (0.028)	0.758*** (0.028)
Browns	0.533*** (0.038)	NA	0.676*** (0.022)	0.761*** (0.020)	0.822*** (0.013)	0.847*** (0.015)
Rural	0.195*** (0.022)	0.234*** (0.027)	0.311*** (0.033)	0.414*** (0.034)	0.537*** (0.037)	0.805*** (0.040)
Monoparental	0.642*** (0.021)	0.708*** (0.020)	0.812*** (0.023)	1.099*** (0.030)	1.046 (0.028)	1.008 (0.016)
Firstborn	1.030 (0.040)	1.068 (0.036)	1.067 (0.046)	1.672*** (0.065)	1.791*** (0.064)	1.643*** (0.033)
Income (Log)	0.671*** (0.056)	1.177*** (0.0359)	0.736*** (0.0659)	0.545*** (0.0369)	0.584*** (0.0232)	0.369*** (0.022)
Mother Prim. Ed.	7.342*** (1.616)	3.245*** (0.117)	2.030*** (0.123)	2.453*** (0.111)	1.845*** (0.160)	1.441*** (0.093)
Mother Second. Ed.	1.442 (0.322)	1.507*** (0.100)	1.284*** (0.058)	2.296*** (0.168)	2.318*** (0.131)	3.634*** (0.187)
Mother Higher Ed.	0.461* (0.156)	0.910 (0.121)	0.869** (0.045)	0.595*** (0.038)	0.657*** (0.064)	0.527*** (0.052)
N	18,813	114,851	125,914	79,654	98,396	74,629
Control p/ FU (state)	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

Source: Own calculations based on Census data (IBGE); IBGE Demographic Census (special tabulations by CEM)

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

of study before age 16. An odds ratio of approximately 0.53 for blacks, therefore, means that in a sample of 200 young people, made up of 100 blacks and 100 whites, we would expect, on average, that only 30 blacks would achieve success, whereas approximately 55 whites would complete  $T_2$ .

In Table 1 we can see that the gender variable played a relevant role in the odds of completing this transition as early as the 1960s. The estimated effect indicates that the odds of women completing 4 years of school prior to age 15 was approximately 20% higher than men, a trend accentuated between 1960 and 2010. Women's advantage over men in such early decades as the 1960s is a noteworthy finding, since in most countries around the world, men tended to have an advantage until at least the 1970s.

Comparisons between racial groups demonstrate that inequality in educational opportunities among browns, blacks, and whites (the reference category) in completing  $T_2$  is stable throughout the entire period analyzed and may be considered one of the striking characteristics of the Brazilian educational stratification structure, even if such inequality has decreased significantly since the beginning of this

**Table 4** Estimated odds ratios for completing  $T_2$ ; Brazil (1960–2010)

	1960	1970	1980	1991	2000	2010
Women	1.266*** (0.0485)	1.566*** (0.0721)	1.871*** (0.0717)	1.457*** (0.0745)	1.749*** (0.0552)	1.776*** (0.0502)
Blacks	0.328*** (0.0264)	NA	0.527*** (0.0136)	0.647*** (0.0178)	0.700*** (0.0211)	0.714*** (0.0136)
Browns	0.493*** (0.0287)	NA	0.662*** (0.0196)	0.756*** (0.0198)	0.777*** (0.0180)	0.768*** (0.0145)
Rural	0.205*** (0.0225)	0.254*** (0.0268)	0.321*** (0.0341)	0.458*** (0.0345)	0.525*** (0.0287)	0.726*** (0.0236)
Monoparental	0.617*** (0.0240)	0.713*** (0.0159)	0.800*** (0.0135)	1.177*** (0.0381)	1.082*** (0.0231)	1.047* (0.0195)
Firstborn	0.9940 (0.0433)	1.062* (0.0258)	1.104** (0.0383)	3.093*** (0.1740)	2.979*** (0.1770)	2.822*** (0.0762)
Income (Log)	0.763*** (0.0608)	0.879*** (0.0544)	1.023*** (0.0804)	0.668*** (0.0289)	0.747*** (0.0367)	0.631*** (0.0356)
Mother Prim. Ed.	6.663*** (0.8590)	3.105*** (0.1500)	2.419*** (0.1440)	3.214*** (0.1370)	2.502*** (0.1040)	1.911*** (0.1100)
Mother Second. Ed.	1.666*** (0.2050)	1.371*** (0.0495)	1.330*** (0.0359)	3.066*** (0.0834)	3.100*** (0.1200)	3.491*** (0.1020)
Mother Higher Ed.	0.6310 (0.1950)	0.9520 (0.0532)	1.0320 (0.1010)	2.870*** (0.1590)	2.512*** (0.1220)	3.240*** (0.1130)
N	26.013	152.283	192.828	200.252	237.026	229.691
Control p/ FU (state)	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

Source: Own calculations based on Census data (IBGE); IBGE Demographic Census (special tabulations by CEM)

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

historical series. The same could be said for inequality pertaining to residence in rural areas, even though we can observe a more drastic decrease for this inequality throughout the 50 years analyzed here.

Among family characteristics, we observe that inequality in the odds of completing  $T_2$  as a result of belonging to a single-parent family declined between 1960 and 1991 and from 2000 onward. This effect is no longer significant, thus indicating the inexistence of inequalities in the odds of completing this transition among individuals from single-parent families, or families with a relative and spouse. On the other hand, the effect of being the eldest child in the family remains relatively constant throughout the historical series, and the firstborn have significantly higher odds of completing  $T_2$ . The effect of per capita household income clearly decreases during the period, suggesting that completing  $T_2$  was increasingly less a condition of family income due to the expansion of access to primary education (completion of the first 4 and 8 years of school, which currently make up the basic education system in Brazil).



The mother's educational level shows the expected effect, suggesting that children born to mothers who completed primary education (8 years) are more likely to complete  $T_2$ . For other levels of maternal education, the effects are ambiguous and sometimes even contradictory, which is probably due to the variation in maternal levels of schooling throughout the period.

Table 2 presents the odds ratios of completing  $T_3$ , which indicates the completion of primary education (8 years).

Just as in the case of  $T_2$ , women display a greater likelihood of completing  $T_3$ , although one can observe a decreasing trend in inequality among men and women since 1991. Racial inequalities in completing  $T_3$  also persist but decrease between 1960 and 2010 and disappear among browns and whites in 2010. Significant inequalities still persist in 2010 among blacks and whites. Disadvantages associated with rural residence for the completion of primary education, very prominent in 1960, declined during the period and since the last census are no longer statistically significant.

The effect of family characteristics indicates a decrease in the negative effect of belonging to a single-parent family – a trait that ultimately has no influence on the odds of completing primary education as of 1991 – and a change in such an effect among the eldest child and other siblings: even if inequalities associated with this trait are small, the odds that the eldest child will complete  $T_3$  are higher in every year except 2010, when they actually become lower. Inequality as a condition of income, on the other hand, undergoes a monotonic decline and demonstrates that, just as in the case of  $T_2$ , the completion of primary education is increasingly dissociated from household income levels. The effect of maternal levels of schooling indicates higher odds for individuals whose mothers completed at least primary education, with the effects being less clear for other categories of mother's educational level.

Table 3 presents the odds ratios for completing  $T_5$ , indicating completion of secondary education. As in all other transitions, women maintained their advantage in the odds of completing secondary education throughout the entire period, even though it is not possible to identify a clear upward or downward trend in inequality compared with men. Even if racial inequalities have been decreasing since 1960, they are still significant when we analyze completion of secondary education, and both browns and blacks are less likely than their white counterparts to complete this level. The negative effect of living in a rural residence suffers a considerable decrease, accompanying the general observations regarding the completion of  $T_1$  and  $T_2$ .

The odds of completing secondary education for individuals from single-parent families are significantly lower until 1980. In 1991, the odds are slightly higher, but since 2000 the differences are not significant. The effect of being the eldest child presents the opposite dynamic; it becomes significant as of 1991, when there are greater odds of completion for the firstborn, which indicates prioritization of the firstborn in the family's educational investment for progression to this level. Household income has an increased effect between 1960 and 1970, from which point it declines, undergoing a period of stability between 1991 and 2000, and reaching its lowest historical levels in 2010. Regarding the effect of the mother's

educational level, individuals whose mothers have completed primary and secondary education are more likely to complete secondary education. Inequalities based on maternal levels of schooling are especially prominent among individuals whose mothers completed secondary education, and the results indicate that the general trend points to an increase in these inequalities.

Table 4 shows the odds ratios of completing  $T_7$ , i.e., holding a university degree. The odds of completing this transition are also significantly higher for women. Gender inequalities also tended to widen throughout the period, except for 1980. Racial inequalities are also significant for this level and at higher levels than those observed for other transitions, although there has been a decrease in inequality between the beginning and the end of the period. Evolution of rural residence coefficients also indicates a decrease in inequality pertaining to the odds of completing higher education among rural and urban residents.

Individuals from single-parent families had significantly lower odds of completing higher education. Since 1980, these odds increased, although the difference is still not very prominent. On the other hand, the effect of being the eldest or only child, which was not significant at the beginning of the period, becomes highly relevant for the odds of completing higher education as of 1991.

Finally the effect of household income displays a different behavior for this transition when compared to other transitions analyzed here. Besides being significantly higher, thus indicating a stronger correlation between income and odds of completion, inequalities tended to increase in 1960 and 1980 – when they reach their peak – and decline thereafter but still at levels above those seen in other transitions. Finally, the effect of the mother's educational level on the odds of completing higher education is the most stable among all transitions analyzed, indicating that the higher the mother's educational level, the higher the odds of holding a university degree, especially for offspring of mothers who have completed secondary and higher education.

In general, the main findings of the analysis indicate that women have always presented positive and statistically significant coefficients, indicating that, when compared to men (omitted category), they presented higher odds of completing educational transitions.

Over the 50 years we observed, in all age brackets and educational levels considered, the race/color variable demonstrates that the odds of access and ascent by young blacks and browns within the educational system are considerably lower when compared to the progression of whites (category omitted). Moreover, young blacks have even lower odds than browns when attaining access to and progressing through Brazil's educational system. We can see that over time, there is a decrease in the magnitude of the effect that race has on the estimated odds of success in completing educational transitions, meaning that there has been a slight improvement in access to and progression through on the part of blacks and browns over these 50 years.

The residence status variable indicates that individuals living in rural areas have much lower access and educational progression odds than urban youth. Odds ratios lower than 1, statistically significant for all the transitions analyzed, show that

inequality by census residence status operates across all educational levels and all age brackets. The behavior of this variable indicates that there is a significant increase in the odds of success, suggesting that educational opportunities for young people in rural areas have improved throughout the period, although their odds of progressing are persistently lower. Variables related to family status of young people show that in 1960, the odds of access and educational advancement for children of single-parent families were smaller when compared to children of families with two parents, a trend that continues into the 1980s but decreases from 1991 onward. This variable has a significant negative effect when not controlled by socioeconomic background covariates (i.e., income and mother's educational level); however, it loses explanatory strength once inserted in the models. This fact may indicate that the effect of this variable is subject to covariates pertaining to income and the mother's educational level.<sup>4</sup>

The second variable pertaining to family situation, indicating whether a young person is a firstborn or only child, displays different effects for educational access and progression, especially when analyzing the data from 1960 and 1970. Being the first or only child increases the odds of completing the first three educational transitions, but from then on the effect is no longer detected. It could be speculated that in the 1960s and 1970s, the opportunity cost of a job for the first or only child was very high and it would not have been worthwhile to delay entry into the labor market at the expense of progressing in educational levels, especially in a context where the presence of young people in the labor market was more prevalent. However, as the country became progressively modernized, being the first or only child began to have a positive effect on the chances of access and educational progression. From the 1990s on, this status greatly increases the likelihood of access and especially of progression within the educational system, a trend that has intensified in the decades of 2000 and 2010.

Estimates for covariates pertaining to socioeconomic background, income, and mother's educational level displayed the expected signs and effects, especially concerning completion of secondary and higher education. From a synchronic point of view, we note a decrease in its effect on the odds of youth educational development, especially from the 1990s on, particularly for primary levels – up to 8 years of school. We should stress that for (the natural logarithm of) per capita family income, we have reported the coefficients and not the odds ratios. In relation to the basic transitions, the level of household income since 1960 has been associated with the odds of entry into and completion of 4 years of study among young Brazilians. However, this effect has been decreasing for the two basic transitions since 1980, which indicates gains in accessibility at these levels for people who come from poorer families. For completion of 8 years of study, the effect of income is generally smaller than in transitions that pertain to entrance and completion of 4 years of study, and it tends to decline monotonically between 1960 and 2010, indicating greater equality of access among the income strata with regard to completion of

---

<sup>4</sup>This effect becomes clear in the linear and binomial regression models when different specifications are tested. These were omitted in the present analysis.

basic education. The odds of completing secondary education are increasingly associated with family income between 1960 and 1980, decreasing from 1980 onward. The evolution of the effect of family income on secondary education completion is quite similar to that on primary education and even greater on the educational progression points on which young people obtain credentials. The acquisition of a university degree, on the other hand, which is strongly related to income levels at the beginning of the historical series, displays a downward trend starting in 1991.

The second variable of social origin, the mother's educational level, was operationalized in three dichotomous categories, indicating the mother's highest level of education attained. Yet the category for uneducated was omitted and serves as basis for comparing the results of the other categories. When examining the effect of the mother's educational level on the odds of youth educational progression, we notice that completion of *at least* basic education is significantly associated with progression across all educational levels, for all analyzed age ranges and all years. As for higher educational level coefficients, the effects are less clear and sometimes even contradictory. It can be argued, especially for 1960, 1970, and 1980, that this is attributable to the very low percentage of mothers with higher education in the samples analyzed.

In the transitional movement of secondary school completion, evidence of correlation between mother's educational level and educational progression of her children is also quite robust. As of 1970, the positive effect of the mother having completed secondary education over the odds of her offspring also completing secondary education is significant, with an upward trend between 2000 and 2010, especially among older age groups. For upper level transitions, for which only one age bracket observed is eligible, we note that especially as of the 2000 census, youth whose mothers held college degrees are significantly more likely to complete higher education.

## Final Considerations

In this chapter, we presented the initial results of an analysis concerning the correlation between socioeconomic characteristics of families and the odds of youth educational progression over 50 years. From an operational standpoint, the exercise has shown to be successful and demonstrates that it is possible to conduct a comparative analysis both from a synchronic and a diachronic perspective based on census data.

The main descriptive results confirm the process of expanded access to basic educational levels in Brazil over the past 50 years. Barriers to entry into the educational system, and especially to completion of primary education, which were so prominent in 1960, 1970, and 1980, are gradually being replaced by obstacles that stand in the way of educational progression toward secondary education completion and university entrance, especially since the 1990s. Brazil's recent history of educational opportunities shows signs of very substantial gains in basic level education access and less obvious gains in access to other levels.

Over the 50 years examined, a youth's social origin has significantly shaped his or her odds of educational progression although differently and depending on the educational level considered or period analyzed. With gains in accessibility, the effects of social origin tended to decrease at basic levels, indicating a decrease in inequality of educational opportunities at these stages. This is the case in the first three transitions in Brazil's educational progression structure, where gains in accessibility derived from educational expansion tended to decrease the effects of social origin. Upon entry into secondary education, the decrease in unequal educational opportunities subject to social origin is not as clear, and inequality levels tended to stabilize throughout the period analyzed.

The effects of the mother's educational level, per capita family income, and social characteristics of the family environment demonstrate that in these 50 years, the social origin of young Brazilians had a strong impact on their educational trajectory, whether it was in educational access or educational progression. While in the past, barriers to educational progression were imposed on youth at the early stages of their educational trajectory, throughout this half-century they have been displaced to more advanced stages of progression. Currently, educational system access up to completion of the first 8 school years is much less conditioned by the social background of young people than in the past. The same cannot be said for the highest educational levels, for which the effect of social origin on the odds of progression among young people has had a historical tendency to be stable or even to display signs of worsening inequality, as is the case with higher education.

Consequently, the analysis presented here suggests a mixed pattern and not one of persistent inequalities. It could be said that from 1960 to 2010, there has been a decrease in inequality of educational opportunity at basic educational levels, persistent inequality across middle levels, and an increase in inequality at the upper level.

## References

- Ayalon, H., & Shavit, Y. (2004). Educational reforms and inequalities in Israel. The MMI hypothesis revisited. *Sociology of Education*, 77, 103–120.
- Fernandes, D. C. (2004). Estratificação educacional, origem sócio-econômica e raça no Brasil: as barreiras da cor. In IPEA. *Prêmio IPEA 40 Anos*. Monografias premiadas. Brasília.
- Hasenbalg, C., & Valle-Silva, N. (2002). Recursos familiares e transições educacionais. *Cadernos de Saúde Pública*, 18, 67–76.
- Hauser, R. M., & Andrew, M. (2006). Another look at the stratification of educational transitions: the logistic response model with partial proportionality constraints. *Sociological Methodology*, 36, 1–26.
- Hout, M. (2006). Maximally maintained inequality and essentially maintained inequality cross-national comparisons. *Sociological Theory and Methods*, 21(2), 237–252.
- Hout, M., Rafferty, A. E., & Bell, E. (1993). Making the grade. Educational stratification in the United States, 1925-1989. In Y. Shavit & H. P. Blossfeld (Eds.), *Persistent inequality. Changing educational attainment in thirteen countries*. Boulder: Westview Press.
- Karlson, K. B. (2011). Multiple paths in educational transitions. A multinomial transition model with unobserved heterogeneity. *Research in Social Stratification and Mobility*, 29, 323–341.

- Kesler, C. (2003). Educational stratification and social change: Evidence from German unification. *European Sociological Review*, 19(5), 467–482.
- Lucas, S. (2001). Effectively maintained inequality: Education transitions, track mobility, and social background effects. *American Journal of Sociology*, 106(6), 1642–1690.
- Mare, R. (1981). Change and stability in educational stratification. *American Sociological Review*, 46(1), 72–87.
- Mare, R. (1980). Social background and school continuation decisions. *Journal of the American Statistical Association*, 75, 295–305.
- Milesi, C. (2010). Do all roads lead to Rome? Effect of educational trajectories on educational transitions. *Research in Social Stratification and Mobility*, 28, 23–44.
- Montalvão, A. (2011). Estratificação educacional no Brasil no século XXI. *Dados*, 54(2), 389–430.
- Rafferty, 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. (2011). Desigualdade de oportunidades e resultados educacionais no Brasil. *Dados*, 54(1), 41–87.
- Roksa, J., & Velez, M. (2010). When studying schooling is not enough: Incorporating employment in models of educational transitions. *Research in Social Stratification and Mobility*, 28, 5–21.
- Shavit, Y., & Blossfeld, H. P. (1993). *Persistent inequality. Changing educational attainment in thirteen countries*. Boulder: Westview Press.
- Torche, F. (2010). Economic crisis and inequality of educational opportunity in Latin America. *Sociology of Education*, 83(2), 85–110.
- Valle Silva, N., & Hasenbalg, C. (2000). Tendências da desigualdade educacional no Brasil. *Dados*, 43(3), 423–425.
- Valle Silva, N., & Souza, A. M. (1986). Um modelo para a análise da estratificação educacional no Brasil. *Cadernos de pesquisa*, Fundação Carlos Chagas, no. 58.