



Positional education and intergenerational status transmission in Brazil

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ABSTRACT

This paper examines the role of education in the intergenerational status transmission process in Brazil against the context of marked educational expansion. We ask whether expansion has been successful in reducing the indirect effects of social origins on destinations, mediated via schooling. Specifically, we consider the positionality of education by adopting a relative measure. Using data from the National Household Sample Survey of Brazil we predict respondents' occupational status from three birth cohorts with path analysis models. We compare the results using absolute and relative measures for education as a mediating variable. Our main findings show that educational expansion did not reduce the indirect association between origin and destination for either men or women, when education is measured as a positional good. Our conclusion challenges the prevailing understanding in Brazil that educational expansion contributes to increasing social fluidity, especially in light of the declining returns to schooling in the labor market. Based on this new evidence, we argue that education is not losing its value as a mediating variable within the status transmission process, which can only be noticed when it is measured in relative terms. Our findings thus provide important new insights on how we interpret the intergenerational status transmission process in middle income countries such as Brazil.

1. Introduction

In recent years there is a growing literature on the positional character of education in social stratification research (Shavit & Park, 2016). Does expansion in education weaken the link between social origin and educational attainment? And does it reduce labor market returns on education? To date, we have some evidence that: first, by using measures that take into account the positionality of education, we usually arrive at less optimistic conclusions regarding the trend of social origin's effect on educational attainment. Second, education seems to become more positional as the educational system expands, especially in less vocational and more universalistic oriented institutional contexts. And third, the declining labor market returns on education in some countries are not as marked as previously found when using only absolute measures (Bol, 2015; Bukodi & Goldthorpe, 2016; Fujihara & Ishida, 2016; Rotman, Shavit, & Shalev, 2016; Stasio, Bol, & Werfhorst, 2016). Consequently, working just with absolute measures of education might lead to a limited or even warped understanding about the role education

plays within the intergenerational status transmission process, especially in a context of educational expansion. If education is positional, sociologists should try to measure it accordingly.

A good is said to be positional if its value arises not from the benefits of its consumption, but from the advantage of possessing relatively more of that good when compared to others (Hirsch, 1978). Most labor market theories recognize education, to a greater or lesser degree, as a positional good (Bills, 2003, 2016). Classic human capital theorists see education as an absolute good in that more education enhances skills, improves productivity, and yields higher labor market returns (Becker, 1964). Yet, education is also used as a screening and sorting device in the labor market, and in this sense, it assumes positional properties (Boudon, 1981; Thurow, 1975). Nonetheless, with the exception of Boylan (1993) and Sorensen (1979), it was not until recently that more substantial attempts in social stratification research have been made to measure education as a positional good.

Much of this literature, however, is concentrated in developed countries in Europe and North America. In other words, the positionality

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of education has not been fully investigated in more diverse social contexts. The case of Brazil, a Latin-American late developed country which experienced radical industrialization processes over the last century, proves to be particularly pertinent to this debate (Salata, 2019). First, because the Brazilian institutional framework is characterized by a universal comprehensive educational system with little differentiation.¹ Second, ambitious educational expansion over the last decades has almost doubled the mean completed years of education from 4.5 to 8.6 between 1985 and 2015.² Given this institutional context, we should expect the positional component of education to be highly relevant in Brazil, with important consequences for intergenerational status transmission (Bol, 2015; Stasio et al., 2016).

Recent research in Brazil finds that educational expansion was followed by a declining indirect effect, mediated by education, of social origins on occupational destinations (Ribeiro, 2012, 2017a; Torche & Ribeiro, 2010). However, it is possible that education is not becoming less important in the social stratification process, but simply that we may have been measuring it inaccurately. If so, we may expect to see different results using a measure of education that captures its positionality, as shown by Bukodi and Goldthorpe (2016) in the case for Britain.

This study aims to investigate if educational expansion in Brazil has reduced the social background effects on occupational destinations. Using both absolute and relative measures of education, we ask if the indirect link between father's and respondent's occupational status, mediated by education, has weakened over time. To do this, we analyze the status attainment process for three birth cohorts, covering individuals born between 1939 and 1984, using data from a nationally representative dataset, the National Household Sample Survey (PNAD-IBGE).

The paper proceeds as follows: we first review how the debate on schooling as a positional good fits into the wider literature of social stratification, against the Brazilian context of ambitious educational reforms over the last few decades. We then formulate the hypotheses to be tested and present the key variables used in the statistical models. After describing how the relative measure of education was developed, we present the results from the models using alternative measures of education. Finally, we discuss the results and their implications in light of the existing literature.

2. Social mobility and educational expansion

The importance of education in the process of stratification in contemporary societies is well documented (Hout & Diprete, 2006). Social stratification scholars asked whether educational-based meritocracy was something inherent in society, and to what extent educational expansion could eradicate inequalities based on ascribed characteristics such as sex, race and, above all, family inheritance. The liberal theory of industrialism has been dominating years of empirical investigation in this field. It pertains that the functional demands of modern society would favor social selection based on achieved instead of ascribed characteristics.

The three most important propositions of that theory were: (1) the association between class origins and educational attainment (OE)³ declines over time; (2) the effect of educational attainment on class

destination (ED) strengthens over time; (3) the association between social origin and destination (OD) weakens over time. Better opportunities would be provided by an expanding educational system, within which attainment would progressively reflect students' efforts and abilities. Consequentially, as the educational system expands, social fluidity increases and society becomes more meritocratic (Bell, 1973; Kerr, Harbison, Dunlop, & Myers, 1973). However, as researchers find a more complex relationships about these processes, the liberal theory has become a straw man against which we read and interpret our empirical results (Jackson & Grusky, 2018).

Regarding the association between social origins and destinations (OD), there are contradictory findings from different countries and periods, some of them showing a growing social fluidity (Breen & Luijckx, 2004), while others supporting the "constant flux thesis" (Bukodi & Goldthorpe, 2009; Ishida & Satoshi, 2005). The evidence on the association between social origins and educational achievement (OE) is also mixed. New evidence indicates that a decreasing class of origin effect on educational achievement could be more widespread than we thought (Breen, Luijckx, Muller, & Pollak, 2010; Breen, Luijckx, Müller, & Pollak, 2009), although there is plenty of research still supporting the "persistent inequality" perspective (Barone, 2009; Bukodi & Goldthorpe, 2012).

Finally, the association between education and destinations (ED) is predicted to strengthen by the liberal-functional theory. However, recent evidence suggests the opposite: the effect of education on labor market outcomes seems to be weakening in many places. Thus, in some countries it has been found that, as the educational system expanded beyond a certain threshold, schooling tended to become less important in predicting labor market returns (Breen & Luijckx, 2004; Goldthorpe & Jackson, 2008; Vallet, 2004).

In Brazil it has been argued that the declining returns to education was the main factor behind the weakening of the association between origins and destination over the last decades (Ribeiro, 2012, 2017a; Torche & Ribeiro, 2010). For those with higher levels of education, the rewards in the labor market are still lucrative. However, some suggests that educational expansion has been lowering it (Menezes-Filho, Fernandes, & Picchetti, 2007). Therefore, it is argued that the indirect link between origins and destinations, mediated through education, is weakening, contributing to a greater social fluidity. Nevertheless, we should be cautious before accepting those results as unequivocal evidence that educational expansion is reducing the social background effects on destinations in Brazil. What they actually show is that the labor market returns to an absolute measure of education are declining. But if education is a positional good, these findings may be misleading (Breen et al., 2009).

2.1. Education as a positional good

Employers are often the main gatekeepers who control access to desirable positions in a status hierarchy in contemporary societies. Understanding the criteria they use to select individuals becomes essential. We start with the assumption that there are two main ways in which education can be used by employers as a criterion for selection (Jackson, Goldthorpe, & Mills, 2005). First, employers rely on education because of its intrinsic value. Suppose a company needs an employee to plan and organize production, the use of technology, financial and human resources. They will probably look for someone with a technical qualification such as a production engineer. In this sense, education is an absolute good, since its value comes from specific abilities that are cultivated by a formal qualification. From the employers' point of view, what matters here is the absolute education, which indicates the possession of certain skills and capacities necessary for fulfilling a given position (Becker, 1964; Bills, 2003; Van de Werfhorst, 2011).

Second, education also plays a screening and sorting role for employers. Soft skills such as discipline, commitment, engagement and trainability, for instance, are not easily certified by any particular credential. Yet, these qualities are generally considered highly desirable

¹ Comprehensive systems of education means there is little or no tracking in schools where all pupils follow broadly the same curriculum. Nevertheless, it is important to stress that there is a relevant differentiation between public and private sector schools in Brazil, where the latter is generally associated with higher status and quality.

² Data from the National Household Sample (PNAD-IBGE), for people between 25 and 64 years old.

³ See Goldthorpe (2014) for a more detailed discussion of the well-known 'OED' triangle.

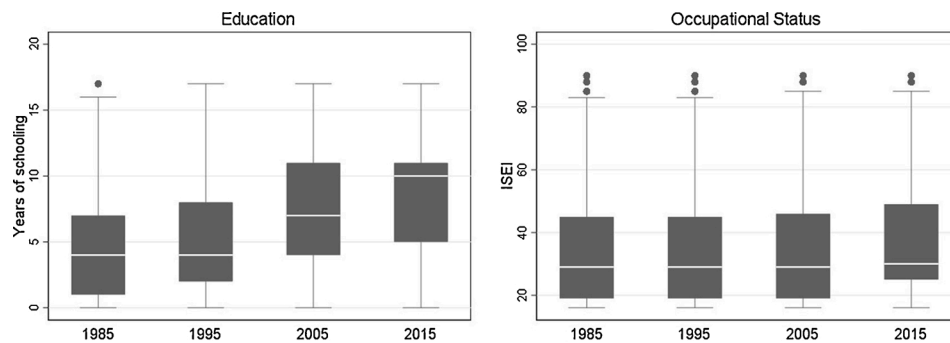


Fig. 1. Boxplot: Years of Schooling and International Socio-economic Index (ISEI) – Brazil, 1985–2015.

by employers, and at the same time correlated with educational level (Arrow, 1973; Spence, 1973). For this reason, education can be used by employers as a screening device to sort individuals according to their likelihood of possessing those desired qualities (Thurow, 1975). Thus, education is also valued according to how much of it you have when comparing to others. In this sense, education is a positional good because here it is the relative, not the absolute level of education, that matters most to employers. In general, the positional character of education seems to be more pronounced in less vocational oriented educational systems (Stasio et al., 2016). The question that follows, then, is how educational expansion can affect the way employers assess education.

A key strand of the Human Capital theory assumes that technological change demands a more skilled workforce and provides the argument for educational expansion, leading to increasing returns to absolute education (Goldin & Katz, 2009). However, what we have witnessed over the last decades in many developed countries was a growing demand for education from families and students, without a corresponding change in the occupational structure, i.e. the increase of ‘knowledge’ or ‘graduate’ jobs in the labor market. This leads to a growing phenomenon of credentials inflation and the weakening of labor market returns to (absolute) education (Goldthorpe, 2014; Horowitz, 2021). From that, one could hastily conclude that education is becoming less important as selection criterion.

Nonetheless, we should ask if this apparent weakening effect is just a result of using an absolute measure for education, such as years of schooling, while employers are more often treating it as relative. If employers use education more as a screening device, under educational expansion they will select the most educated individuals and push the less educated ones further down the job queue (Horowitz, 2018). As a result, the labor market returns for each year or level of education will be lowered, as reflected in a decline of the effect of absolute education. However, this does not necessarily mean that education is becoming less important in the labor market. Employers still need a device to sort and select, and the ones with higher levels of education will still enjoy the best opportunities. In short, as Bol contends (2015), a larger supply of better-educated workers will lead to a situation “where employers [...] increasingly recruit on the basis of the relative position of workers’ education” (p. 117).

On the supply side, we should also consider how students and their families treat education under an educational expansion context. To be sure, educational expansion has brought about widened access for students from lower socio-economic backgrounds. However, more affluent families will almost always ‘up their game’ by targeting their resources to upper educational levels in order to protect their positions and to avoid downward mobility. In other words, they will do their best to

increase the relative value of their education (Van de Werfhorst, 2009). This results in an increasing positional competition for higher qualifications. Absolute educational level will rise for all; but, given their resources, more affluent families will most likely win this positional race, maintaining its advantage over the less privileged (Breen & Goldthorpe, 1997).⁴ Besides, if the positional value of a given educational level reflects the amount of people who reached that level, a logical consequence is that expanding access will undermine its relative value (Thompson & Simmons, 2013). Thus, measuring education as absolute will possibly lead to results that are mistakenly more optimistic – a risk that had already been suggested by Breen et al. (2009).

If this reasoning is correct, in an educational expansion context we should expect not only decreasing returns to absolute education, given credentials inflation, but also steadier returns to relative education. Moreover, we should expect more affluent families to keep their advantage over others in this positional competition. So far, with few exceptions (Triventi et al., 2016), research results that consider the positionality of education goes in that direction (Bukodi & Goldthorpe, 2016; Fujihara & Ishida, 2016; Mok, 2015; Rotman et al., 2016). In the case of Brazil, Salata (2019) has showed that the labor market returns to relative education look more stable over time than those to absolute education. However, intergenerational status transmission remains uninvestigated.⁵ To the best of our knowledge, this paper is the first to apply a relative measure of education to a status transmission model or social mobility research in Brazil.

2.2. The Brazilian context

As late as the 1950s, the Brazilian occupational structure was dominated by a large agricultural sector. Brazilian’s late modernization accelerated from the 1950s to the late-1970s when the country went through one of the fastest and most radical processes of industrialization and urbanization ever seen. This structural transition brought about large-scale migration of rural workers to the urban labor market and a sharp rise in social mobility. Schooling was a key pathway for ascending to the ever-expanding middle-classes (Pastore & Silva, 2000). Since the late-1970s, this dynamic changed considerably. The vast structural change witnessed in the previous decades slowed down and structural mobility within the occupational structure became less frequent. This can be seen in Fig. 1, where the distribution of socio-occupational statuses remains much the same across the three decades since 1985.

Meanwhile, social investments, transition to democracy, the adoption of a socially progressive Constitution in 1988 and the extension of social rights were responsible for improvements in raising the general

⁴ The growing importance of horizontal differentiation of the acquired credentials should also be considered as part of this process. Due to the lack of data, in this paper we focus on the vertical educational stratification only.

⁵ Salata (2019) worked with data for the Brazilian metropolitan areas covering two decades only.

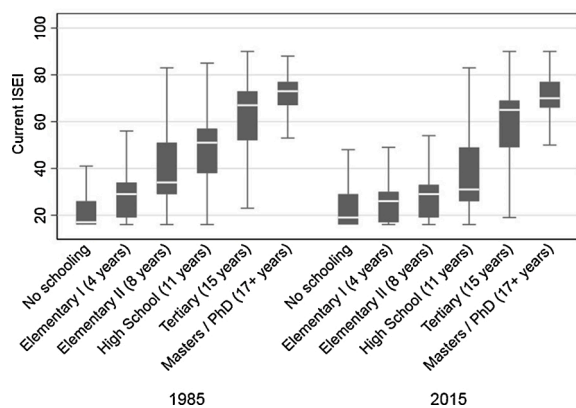


Fig. 2. Boxplot: current occupation socioeconomic status (ISEI), by schooling level – Brazil, 1985, 2015.

standard of living for most (Arretche, 2015). Education reforms brought about major improvements, especially at elementary and high school levels where enrollment was universalized (Franco, Alves, & Bonamino, 2007). As shown in Fig. 1, over the last three decades the median completed years of schooling of the Brazilian population had more than doubled.⁶

The two charts in Fig. 1 graphically represent the Brazilian context over the last three decades while displaying the relationship between educational expansion and the occupational structure. While the educational distribution underwent rapid changes, the median level of occupational status, as measured by the International Socioeconomic Index for occupational status (ISEI), remained much more stable over time. This indicates a decoupling between the educational and the occupational structure over the last three decades in Brazil (Hasenbalg & Silva, 2003; Ribeiro, 2017b).

As a consequence, educational expansion pushed those without the highest schooling levels to inferior occupations. The low ISEI scores of high school graduates in 2015 in Fig. 2 compared to their peers in 1985 amply demonstrates this “demotion”. Therefore, acquiring higher credentials became essential in order to access more prestigious occupations. At the same time, a high school certificate is no longer a sufficient condition for escaping the least desirable jobs. In short, nowadays it is necessary to accumulate more education to stay one step ahead of the others in the job queue.

3. Hypotheses, data and methods

Having reviewed the key literature in positional education, we proceed to develop four hypotheses in the Brazilian context:

H1 (ED). *The relationship between relative schooling and labor market returns is stable over time;*

H2 (OD). *The direct association between father’s and respondent’s occupational status, net of relative schooling, is stable over time;*

H3 (OE). *The association between father’s occupational status and respondent’s relative schooling is stable over time;*

H4 (OED). *The indirect association between origins and destination, mediated through relative education, is stable over time;*

We argue that the declining returns to education previously observed

⁶ In Brazil, the State is constitutionally required to provide free education for all children. Families are legally bound to enroll them in schools. The comprehensive educational system is organized into four stages: pre-school, elementary, high school and tertiary. The current legal minimum school leaving age is 17, which corresponds to high school completion.

in Brazil is a consequence of using an absolute measure for education, which reflects credentials inflation. Yet, those with more education are still better positioned to enjoy the best job opportunities in the labor market whatever their absolute level of schooling. For latter birth cohorts it is necessary to reach higher absolute educational levels to access higher status jobs, but it does not mean that education is becoming less important in the labor market. Hence, we hypothesize the relationship between relative education and labor market returns to be stable over time (H1).

Likewise, it is possible that controlling the ‘OD’ association by an absolute measure of education will lead to a false perception that the net ‘OD’ association is increasing. It is possible that the apparently growing ‘OD’ effect, found in previous analyses for Brazil (Ribeiro, 2012; Torche & Ribeiro, 2010), is the result of the way researchers have been measuring education, which is an essential control variable for the direct effects of origins on destinations. However, if we adopt a positional measure of education which does not suffer from devaluation, we should expect the ‘OD’ association to be stable over time (H2).

There is evidence that educational expansion in Brazil has led to a decline in the social origin effects on educational attainment (Ribeiro, 2011; Salata, 2018). Still, we argue that this decline is only true for absolute education. We hypothesize (H3) that the OE relationship will become more stable over time if education is measured in relative terms. The main reason is that, once more students from lower social class backgrounds reach a certain educational level, those qualifications automatically lose their positional value. Besides, students from more affluent backgrounds will target even higher educational qualifications as a defensive strategy to maintain their advantageous positions.

Finally, the fourth hypothesis is derived from H1 and H3. If labor market returns to relative schooling is stable (H1), and there is no weakening trend in the association between father’s occupational status and respondent’s relative schooling (H3), we hypothesize the indirect association between origins and destinations, – mediated through relative education – to remain stable over time (H4).

3.1. Data source, variables and procedures

Our analysis draws upon the Brazilian National Household Sample Survey (PNAD), a cross-sectional nationally representative sampled survey conducted annually by the Brazilian Institute of Geography and Statistics (IBGE). To capture the entire period of educational expansion in Brazil, we have selected data from the years in 1982, 1996 and 2014.

Not all respondents answered the social mobility questions. Only the head of household and their partner did in 1982 and 1996, as did a subsample of individuals aged 16 or older in 2014.⁷ We therefore select individuals who were head of households or their partners. We also remove data on rural areas of the Northern regions, which were only available in 2014. Not only do we recognize that the highly gendered social stratification process operates differently for men and women, but the changing composition of the working population by gender may also skew the results, we therefore run separate models for men and women.

Since our dependent variable ISEI is measured on an interval scale, we opted for the parsimonious path analysis model, as pioneered by status attainment studies (Blau & Duncan, 1967; Hauser & Featherman, 2013 [1977]). Its greatest advantage is to allow for estimating the three associations simultaneously in the ‘OED’ triangle. We treat education concomitantly as a dependent and as an independent variable. Consequently, the evolution of the mediated link between origins and destinations and the role played by education is examined in a more straightforward way. We utilize sample weights to calibrate the sample according to population figures. We use robust standard errors for all

⁷ In 1996 and 2014 it was asked the father’s occupation when the respondent was 15 years old. But in 1982 it was asked the father’s occupation when the respondent got his first job.

Table 1
Selected Birth Cohorts.

Generation	Birth Years		15 years old		30–43 years old (When data collected)	Sample size	
	From	To	From	To		Men	Women
First	1939	1952	1954	1967	1982	35,652	36,861
Second	1953	1966	1968	1981	1996	25,925	29,182
Third	1971	1984	1986	1999	2014	6989	8174

Table 2
List of Variables.

Name	Type	Description	Categories
Endogenous variables			
Occupational socio-economic status (ISEI)	Interval	International socio-economic index (ISEI) for the current occupation	–
Mediator endogenous variables (alternate)			
Absolute education	Interval	Years of schooling completed	–
Relative education	Interval	Cumulative frequency of the immediately preceding value for years of schooling	–
Exogenous variables			
Social origin	Interval	International socio-economic status (ISEI) for the father's occupation	–
Exogenous control variables			
Age	Interval	Years of age	–
Race	Dummy	Self-declared skin color	0=Whites (ref) / 1=Blacks
Household position	Dummies	Position within the household	1=Head (ref) / 2=Partner
Region	Dummies	Geographic region currently living	1=North / 2=Northeast (ref) / 3=Southeast / 4=South / 5=Center-west
Place of residence	Dummies	Location where currently living	0=Rural (ref) / 1=Urban / 2=Urban-Metropolitan

coefficients, which correct for potential bias in estimates of standard errors introduced by heteroscedasticity.⁸ The estimation method is Maximum Likelihood with Missing Data (MLMV), which does not use the listwise deletion option and thus enables all the information contained in the data to be utilized (Acock, 2013).⁹ All the estimates were performed using Stata 16 with structural equation modeling (SEM) routines.¹⁰

For each of the three cross-sectional surveys, we select individuals aged between 30 and 43. This way we will have an entirely different birth cohort from 1982 to 1996, and also from 1996 to 2014. The age brackets were defined by limiting the interval to 13 years in order to avoid any overlaps between the three birth cohorts represented here, with a good margin from the average age of 24 when graduates are expected to complete their university first degree in Brazil. As summarized in Table 1, the birth cohorts are composed by individuals born between 1939 and 1984, who were 30–43 years old in 1982, 1996 or 2014.

The analysis follows the classic 'OED' triangle scheme with three main variables – social origin (O), education (E) and destination (D). As

⁸ Default standard errors is not an available option in *Stata* when using sample weights for SEM.

⁹ We further tested this using traditional ML estimation and there were no substantial changes in our results and/or conclusions. Details available from authors upon requests.

¹⁰ It is important to note that one of the limitations of our analysis, which is familiar to social stratification researchers in Brazil, is that the data we use do not allow us to access occupational information for individuals who were unemployed. The fraction not reporting an occupation (among the economically active) ranges from 1.6% in 1982 up to 5.7% in 1996 for men; and from 3.5% in 1982 up to 8.9% in 1996 among women. Most (58%) missing values are due to the lack of the necessary occupational information to build the ISEI scale for those had a job. The remaining 42% is due to unemployment. We assessed its selectivity by cross-tabulating it with educational level - a variable that is highly correlated to most of the other variables used in our models - and we found no systematic pattern of missingness.

usual, education is treated as an endogenous variable mediating an indirect path from origin to destination. The main novelty here, as far as social mobility analysis for Brazil is concerned, is the alternation of absolute and relative measures.

Social origin (O) is operationalized by the father's occupation score as defined by the ISEI. As one of the best-known measures used in social stratification research, the ISEI was developed to estimate the attributes of occupations that convert education into income, being strongly correlated to mean income and schooling (Ganzeboom, Graaf, & Treiman, 1992). The same index is used to operationalize respondent's occupation. All statistical models control for age, race and geographical region as described in Table 2.¹¹

Unlike most recent literature on positional education, where discrete class analysis is used, we prefer a unidimensional hierarchical approach to stratification, in which social positions are measured by an interval variable (Ganzeboom & Treiman, 2007). While some may argue this approach has its limitations, it can better capture the occupational variability hidden within the few categories normally used for class social mobility analysis. This is distinctly relevant in the Brazilian context where short distance mobility predominates (Silva & Roditi, 2002).¹²

3.2. Absolute and relative measures of education

To measure absolute education we use the information on completed years of schooling from zero to 17. It is absolute in the sense that it presupposes that each year of schooling has the same intrinsic value, regardless of how much education other people have in the population.

¹¹ Despite the known complexity of the Brazilian racial classification, many studies have shown that the main gap is found between whites and non-whites. For this reason, as commonly practiced among researchers of social stratification in Brazil, we use a binary variable that combines "blacks" and "browns" as "non-whites".

¹² For previous studies on status attainment in Brazil, see Neves, Fernandes, and Helal, (2007)) and Xavier and Neves (2012).

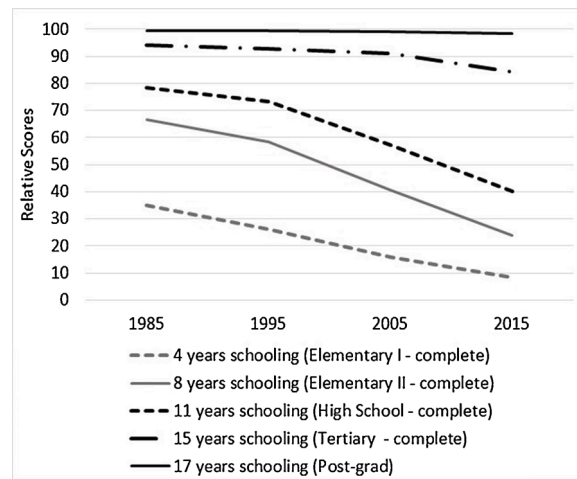


Fig. 3. Relative Values of Education, by Absolute Levels of Schooling – Brazil, 1985–2015.

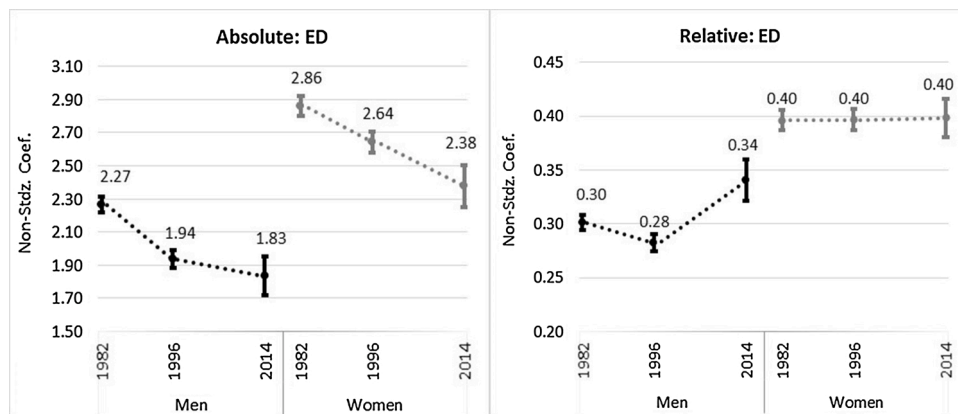


Fig. 4. Education (E) effects on current ISEI (D) – Brazil, 1982, 1996 and 2014.

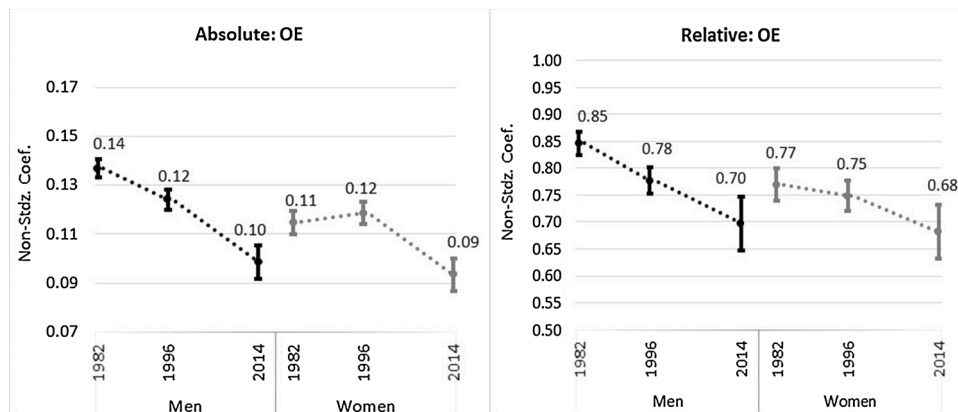


Fig. 5. Father's ISEI (O) effects on education (E) – Brazil, 1982, 1996 and 2014.

The advantage of using years of education as a “uniform comparable metric that can be applied to any institutional context” is well recapitulated by Fujihara and Ishida (2016:26) and Bol (2015:109).

The relative measure of education we developed follows a similar logic as the ones used by Bol (2015), Ortiz and Rodriguez-Menés (2015)

and Triventi, Panichella, Ballarino, Barone, and Bernardi (2016). We first calculated the percentage cumulative frequency for completed years of schooling. For each value, we assigned the percentage frequency accumulated by the immediately preceding one.¹³ We then repeated this for each year (1982, 1996 and 2014). As a result, this

¹³ The computation of positional education included both males and females, since the tests for separate measures resulted in scores highly correlated. It was calculated using the educational distribution for the economically active population in each year.

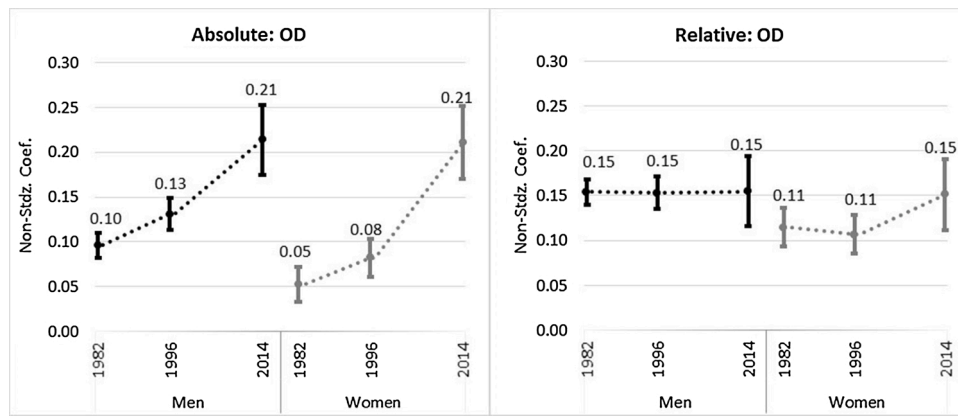


Fig. 6. Father's ISEI (O) effects on current ISEI (D) – Brazil, 1982, 1996 and 2014.

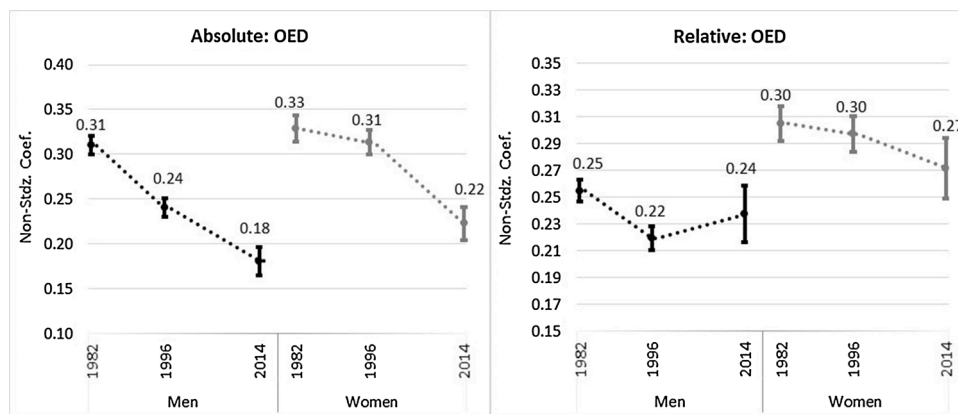


Fig. 7. Indirect effects of father's ISEI (O) on current ISEI (D) – Brazil, 1982, 1996 and 2014.

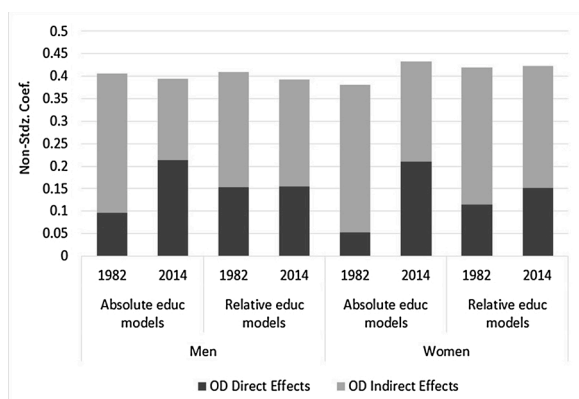


Fig. 8. Direct, indirect and total effects of father's ISEI (O) on current ISEI (D) – Brazil, 1982 and 2014.

relative measure of education can be understood as the percentage of the economically active population that had a schooling level lower than the considered value in a given point in time. We can also interpret it as the position individuals occupy in an imaginary educational queue: the higher the relative education score, the more ahead the person is in the queue. On the contrary, the lower the score, the farther behind the person is. Our approach is heavily inspired by Thurow's (1975) queuing theory since we assume that it is the relative, and not absolute education that matters to employers.

A very important property of this measure is that the scores are not fixed but vary according to the distribution of education each year. Fig. 3

provides a clear graphical illustration of that by presenting relative scores for the corresponding absolute values of education over the three decades under observation. As expected, given the massive increase in average schooling, the relative scores present a general downward trend between 1985 and 2015, especially for low and middle levels of education. For instance, an individual with eleven completed years of education had a score of 0.78 in 1985 but experienced a massive drop to 0.40 in 2015. This means that 78 % of people had a lower educational level than them in 1985 but only 40 % of people in the labor force had completed less than 11 years of education in 2015. In other words, their position in the imaginary queue of education has rapidly spiraled down by 38 points. On the other hand, for those with tertiary qualifications, the effects of educational expansion on their positional scores are much lower. Consequently, in a context of educational expansion, those at the top of the educational distribution will be able to maintain or even increase their advantage over the others. Put simply, what really matters is how many people are behind you in the queue. The correlation among those two measures – absolute and relative - is very high at 0.9 as expected. For this reason, we ran separate models instead of inserting both variables within the same model, as usual in the literature.

4. Results

In order to analyze how the association between father's and respondent's occupational position evolves over time,¹⁴ and the mediating role played by education, we estimated two models for each birth cohort: the first uses an absolute measure of education and the second employs relative schooling for both sexes.¹⁵ Figs. 4–6 detail the main coefficients of the absolute and relative models for both men and women across birth cohorts.

Results from absolute schooling models (Fig. 4 left panel) show a very similar picture to the findings of previous social mobility studies in Brazil. First, there is a clear reduction in the occupational returns to schooling (ED) since 1982.¹⁶ Among men, in 1982 each year of education raised the ISEI by 2.27 points, in 2014 this only yields 1.83 points, a reduction of almost 20 %. Similarly for women, there was a 16 % decrease in the absolute ED effect, from 2.86 to 2.38.

Second, this was combined with a decreasing influence of social origin on educational attainment (OE), which was more pronounced for men (Fig. 5). Among men, every 10 ISEI points of father's occupation added 1.4 years of schooling for the first birth cohort, but just 1 for the third. Among women, those corresponding figures also dropped from 1.1 to 0.9. Taken together, these two trends should weaken the indirect association between origins and destinations.

The third movement we see from the absolute education models is a substantive increase in the direct effects of social origin on current occupation (OD), which has commonly been interpreted as a reaction against the first two trends (Fig. 6). For men in the first birth cohort, each 10 ISEI points increase in father's occupation directly added 1 point to respondent's ISEI. For the third birth cohort, however, the effects of the same origin points have more than doubled to 2.1 points. Similarly for women, the direct effect of father's ISEI has soared from 0.5 to 2.1 between the first and last birth cohorts. In sum, the absolute education models show an increase on the direct effect of social origin on destination (OD), but a substantive decline in the schooling effects on occupational status (ED) as well as in the social origin effects on educational attainment (OE).

Turning to the charts on the right, the relative schooling models give very different results. Principally, there is no decreasing trend in the occupational returns to education (ED). In 1982, each 10 units a male advanced in the educational queue would add 3 ISEI points (Fig. 4). Despite a small but significant dip in 1996, the same 10 units in the educational queue in 2014 would return 3.4 ISEI points. For women there is also no increase, but a clear stability across the years: from 1982 through to 2014 those 10 units of positional education score would add 4 ISEI points.¹⁷

When it comes to the origin and destination link (OD), the results are starkly different from the absolute education models (Fig. 6). Here we see a persistent association when controlling for relative education across cohorts for both sexes. For men, each 10 ISEI of father's

¹⁴ Due to radical processes of industrialization and urbanization, the overall status mobility for the birth cohorts we analyze is remarkable. As seen in Fig. A1, compared to their fathers, respondents were more likely to reach higher status occupations. This pattern is similar for the first two birth cohorts but not the third, possibly due to the slowing down of the industrialization process in the late 1990s and early 2000s.

¹⁵ Model fit statistics can be found at Table A1. Tables A2 and A3 present all coefficients along with standard errors and statistical significance.

¹⁶ The parentheses in Figs. 4–7 represent the 95% confidence interval for the coefficients.

¹⁷ From a statistical point of view, the relative measure of education is basically a mathematical transformation of years of schooling (absolute education). With educational expansion, we find decreasing ISEI scores for lower-medium absolute educational values, as graphically expressed by Fig. 3. And, as could be inferred from Fig. 2, using those relative scores we find a better fit to ISEI for more recent birth cohorts

occupation would return an additional 1.5 ISEI of respondent's current occupation for all three birth cohorts. For women, this changes from 1.1 to 1.5 from the first to the third birth cohort, although the results are statistically non-significant.

Finally, a decline of the social origin effects on relative schooling (OE) is observed (Fig. 5). For males in first birth cohort, every 10 points of father's ISEI added 8.5 units of positional education score, but just 7 for those in the third birth cohort. For women those same figures were 7.7 and 6.8 respectively. Nevertheless, the decreasing effect of social origin on relative schooling is less pronounced compared to absolute schooling. For instance, the male OE coefficients dropped 27 % for absolute education but only 17 % for relative education; for women, those figures were 19 % and 11 % respectively.

Our findings using a relative measure of education has enabled us to reach three key observations: first, there is a stable direct effect of social origin on destination (OD). Second, the schooling effects on occupational status (ED) is stable for males and increasing for females. Third, social origin effects on relative education attainment (OE) is declining, though less markedly compared to the absolute education models.

Our evidence so far supports the first and second hypotheses. For the ED association, we were right to expect very different results for the relative and absolute schooling models. As for the OD association, the direct effect of social origins on destinations remains stable when controlling for relative education. However, the results cast some doubts on our third hypothesis, which stated that there was no weakening trend in the association between father's occupational status and respondent's relative schooling. Even for relative education there was a (less pronounced) declining effect of social origin on schooling over time.

4.1. Mediated effects of origins on destinations

Fig. 7 presents the indirect effects of social origin on destination mediated via education (H4: the OED relationship). The absolute schooling models show a significant drop for the mediated effects of origins on destinations, but for relative schooling models there was no significant change over time. For instance, each 10 points in the father's ISEI would raise respondents' ISEI through absolute education by 3.1 points among the males in first birth cohort, 2.4 ISEI for the second, and just 1.8 for the third. However, when using a relative measure, these figures were remarkably stable at 2.5 and 2.4 for the first and last cohorts, with no statistical difference between those estimates. For women the pattern is again very similar, with a substantive drop in the effects of absolute education, but those for relative education remains constant.

Therefore, while absolute education models show a marked decline in the indirect effects of origins on destinations, taking into account the positionality of education makes those results much more stable for both men and women. This evidence supports our fourth hypothesis of a stable trend in the indirect association between origins and destinations mediated through relative education.

Our last analysis examines the total effects of social origin on destinations and its composition. When it comes to the total effect size, Fig. 8 shows no substantive difference between the absolute and relative education models. However, depending on how education is measured, the composition of the total effect of origins on destinations varies considerably across birth cohorts. For men in the first birth cohort, the indirect effect of absolute education accounts for 76 % of the total effect but it drops to 45 % for the last birth cohort. In contrast, the portion of the indirect effect for relative education models remains pretty constant at 62 % and 60 % for those two birth cohorts. The pattern for women is once again remarkably similar. The indirect effect of absolute education drops from 86 % of the total effect for the first birth cohort to just 51 % for the last. However, a much smaller change is found in the relative education models, with only an 8% decline between cohorts - and the variation is not statistically significant.

Although both education measures produce a highly similar pattern of the OD total association, our findings have demonstrated that they

explain through very distinct processes how this might have happened. In the absolute schooling models, educational expansion is followed by decreasing returns in the labor market and by a diminishing influence of social background on educational attainment. Nevertheless, the increase in social fluidity as a result of expansion is fully cancelled out by a growing direct influence of origins on destinations. In stark contrast, in the relative education models, educational expansion is not followed by a significant decline in the indirect effects of origins on destinations, and neither by increasing direct inheritance. As a result, our absolute education models attribute the stability of the total origins-destinations association to a reaction of direct inheritance against the democratizing effect of educational expansion. On the contrary, evidence using a relative education measure casts doubts on the capacity of educational expansion to reduce the mediated effect of the social background on occupational status. It is the stability, and not changing composition that explains the constant total effect of origins on destinations.

5. Discussion and conclusion

Few would doubt that rapid educational expansion in Brazil over the last three decades has been truly remarkable. Universal access to free and compulsory education up age 17 has led to a doubling of absolute mean years of education over the last decades. In this paper we asked a simple question: has educational expansion increased social fluidity in Brazil? If so, has this been achieved by a decreasing mediated effect of social origins on destinations? The answer depends on whether one takes into account the positionality of education. To explore the alternative to absolute education, we adopted a relative measure based on the position individuals occupy in an imaginary educational queue. A key contribution of this paper is the new evidence it brings to the understanding of the role of education in intergenerational status transmission, in particular, against a context of marked educational expansion in a late-developed Latin-American country.

Our results show that, when using a relative measure of education, we could not find any significant evidence of a weakening mediated connection between fathers' and respondents' current occupational status for either sex in Brazil over the three birth cohorts we analyzed. Although the family background effects on relative education attainment seems to be decreasing, the returns to education in the labor market for the last cohort look very stable for women or even increasing for men. Our results are consistent with those found by Bukodi and Goldthorpe (2016) in Britain, in the sense that the Brazilian 'OED' triangle relationships become much more stable using a measure of education that is more sensitive to its positionality.

We could tell two different stories about what happened to intergenerational status transmission in Brazil during the last three decades. The first story contends that, due to educational expansion, the returns to education in the labor market have dropped, reducing the status inequalities between the more and less educated. Moreover, educational expansion allowed students from lower socio-economic backgrounds to accumulate more years of schooling, reducing the advantage of students from more affluent families. In this sense, educational expansion was very successful in weakening the association between origins and destinations. However, more affluent parents were able to draw on other resources and assets such as social networks and wealth to pass on to their offspring. As a result, the positive outcomes of educational expansion were offset by the strengthening of direct inheritance.

The second story paints a rather different picture. Despite educational expansion, those at the top of the educational distribution were still able to secure the best opportunities in the labor market. To be sure, educational expansion raised the schooling levels for all but, to the extent that it automatically lowers the positional value of the educational levels which students from lower social background are now accessing, the achievement gap between students from lower and higher social background was only moderately abridged. Taken together, those two trends resulting from educational expansion were unable to

substantively reduce the mediated effect of social origins on destinations. Certainly for the case of Brazil, as our empirical results amply demonstrates, education continues to be the main path through which social background persistently shapes individual's outcomes, without any sign of retreat.

The first story is the one that has been told by previous research on social fluidity in Brazil (Ribeiro, 2012, 2017a) that uses absolute measures of education. By adopting a measure that takes the positional properties of education into account, we reach a more nuance understanding of how intergenerational status transmission has been evolving, and the role of educational expansion therein, as described in our second story above. All this leads us to a conclusion somewhat different from the prevailing interpretation on social fluidity in Brazil. For more recent birth cohorts, social origin appears to be just as important as it was for older cohorts when explaining intergenerational status transmission. Our evidence suggests that educational expansion in Brazil was not as effective as intended in reducing the social background effects on occupational destinations.

Building on the work of Salata (2019), we empirically demonstrated that treating education as a positional good has implication not only for understanding labor market returns, but also for the interpretation of the process of intergenerational status transmission in Brazil. Our original evidence has advanced the understanding of the positional education on intergenerational status transmission in a context of marked educational expansion. It also lays bare the ineffectiveness of the educational system in reducing persistent inequalities in a late-developed Latin-American country. Brazil ranks seventh in government expenditure in education among OECD countries (OECD, 2020). Yet, this level of educational investment was not matched by substantial increase in desirable jobs in the labor market. The need to get more educated to stand still in the educational queue has never been more compelling, making education less effective than intended in the quest for more equality in Brazil.

Finally, it is important to highlight the limitations of our analysis. First, we believe that the gender differences we identified should be further developed in future research. Our results suggest status transmission for men and women operates differently when using a relative measure of education. In this sense, the positional education element could illuminate the long-standing debates on gender stratification (Breen et al., 2010). Second, we did not test the composition effect of educational expansion on social fluidity (Torche, 2011). If the direct link between origins and destinations is lower for those with higher schooling, educational expansion could also reduce social inheritance by increasing the size of higher educated strata. However, previous research found no compositional effect in Brazil (Torche & Ribeiro, 2010). The fact that the overall correlation between origins and destination is not weakening despite the huge educational expansion should also cast doubts on that possibility. Furthermore, our preliminary analysis indicates that, as a higher educational level expands, the direct effects of origins on destinations are much the same for the highly educated and the least qualified (Fig. A2).¹⁸ This process needs more unpacking and merits further investigation.

Data availability

No data was used for the research described in the article.

¹⁸ For this test we ran separate models for two different groups: those who completed at least High School (11 years of schooling at least), and those who reached, at most, the end of Elementary School (8 years of schooling at most). The models were estimated for both men and women, together, and gender was inserted as an independent variable in both equations. The OD coefficients, for the first and the third birth cohorts, are presented in Fig. A2.

Declaration of Competing Interest

We have no conflict of interests to declare.

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Appendix A

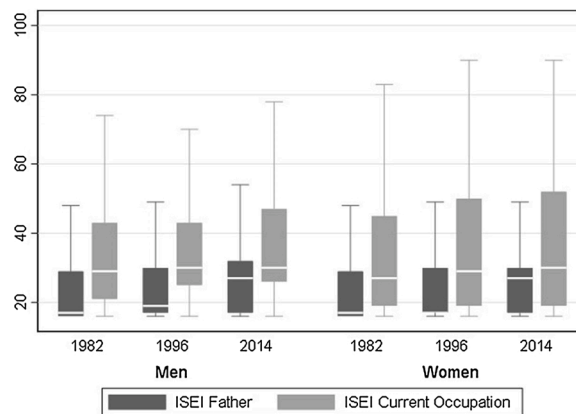


Fig. A1. Boxplot: father's and respondent's socio-occupational status (ISEI), for males between 30-43 years old – Brazil, 1982, 1996 and 2014.

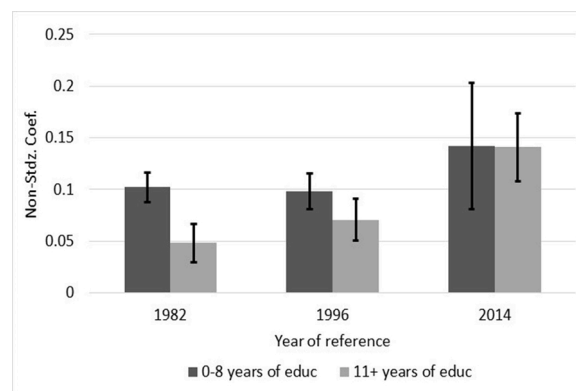


Fig. A2. Direct effects of origins on destinations, for lower and higher educational levels – Brazil, 1982, 1996 and 2014.

Table A1

Fit Statistics – Brazil, 1982, 1988, 1996 and 2014.

Statistic	Models	Men			Women			
		1982	1996	2014	1982	1996	2014	
R-Squared	Current ISEI	Absolute	0.574	0.454	0.401	0.557	0.491	0.440
		Relative	0.528	0.433	0.451	0.539	0.474	0.476
	Education	Absolute	0.403	0.339	0.306	0.351	0.294	0.263
		Relative	0.417	0.338	0.313	0.369	0.294	0.270
	Overall	Absolute	0.453	0.377	0.360	0.385	0.317	0.311
		Relative	0.467	0.380	0.353	0.411	0.320	0.306
CD	Absolute		0.419			0.348		
	Relative		0.430			0.364		

Table A2
Coefficients, for absolute schooling models – Brazil, 1982, 1996 and 2014.

		Men			Women		
		1982	1996	2014	1982	1996	2014
Absolute schooling<							
Social origin	b	0.137***	0.124***	0.0986***	0.115***	0.118***	0.0935***
	sd	[0.00189]	[0.00207]	[0.00354]	[0.00242]	[0.00232]	[0.00341]
Age	b	-0.0796***	-0.0419***	-0.114***	-0.103***	-0.0603***	-0.118***
	sd	[0.00505]	[0.00643]	[0.0127]	[0.00548]	[0.00653]	[0.0118]
Race	b	-1.491***	-1.697***	-1.151***	-1.565***	-1.605***	-1.337***
	sd	[0.0440]	[0.0568]	[0.114]	[0.0481]	[0.0572]	[0.106]
Place of residence: urban	b	1.980***	2.146***	2.270***	1.699***	2.072***	2.332***
	sd	[0.0476]	[0.0647]	[0.166]	[0.0511]	[0.0661]	[0.168]
Place of residence: metropolis	b	2.857***	2.589***	2.939***	2.387***	2.421***	2.830***
	sd	[0.0515]	[0.0722]	[0.180]	[0.0557]	[0.0736]	[0.176]
Region: north	b	0.522***	0.649***	0.771***	0.355***	0.650***	0.547***
	sd	[0.0982]	[0.128]	[0.198]	[0.104]	[0.123]	[0.179]
Region: southeast	b	0.529***	0.772***	1.122***	0.00445	0.145*	0.422**
	sd	[0.0522]	[0.0677]	[0.138]	[0.0573]	[0.0673]	[0.128]
Region: south	b	0.812***	0.718***	1.157***	0.364***	0.0704	0.373*
	sd	[0.0623]	[0.0816]	[0.168]	[0.0676]	[0.0814]	[0.165]
Region: center-west	b	0.767***	1.028***	1.035***	0.545***	0.575***	0.964***
	sd	[0.0684]	[0.0862]	[0.172]	[0.0755]	[0.0883]	[0.161]
Intercept	b	2.341***	2.727***	7.669***	3.980***	4.019***	9.067***
	sd	[0.197]	[0.252]	[0.506]	[0.215]	[0.255]	[0.468]
Occupational socio-economic level (ISEI) <							
Absolute schooling	b	2.265***	1.936***	1.833***	2.858***	2.643***	2.379***
	sd	[0.0233]	[0.0275]	[0.0597]	[0.0307]	[0.0312]	[0.0649]
Social origin	b	0.0962***	0.131***	0.214***	0.0526***	0.0824***	0.211***
	sd	[0.00708]	[0.00902]	[0.0199]	[0.0100]	[0.0107]	[0.0207]
Age	b	0.164***	0.183***	0.196***	0.114***	0.237***	0.175**
	sd	[0.0166]	[0.0213]	[0.0505]	[0.0266]	[0.0279]	[0.0577]
Race	b	-0.691***	-0.911***	-1.450***	-1.784***	-1.525***	-2.451***
	sd	[0.143]	[0.187]	[0.431]	[0.238]	[0.245]	[0.503]
Place of residence: urban	b	6.768***	5.555***	5.042***	4.386***	2.856***	3.732***
	sd	[0.164]	[0.218]	[0.520]	[0.295]	[0.304]	[0.732]
Place of residence: metropolis	b	7.220***	5.912***	5.578***	3.190***	2.253***	4.435***
	sd	[0.178]	[0.251]	[0.617]	[0.306]	[0.342]	[0.813]
Region: north	b	-1.057***	0.57	-0.561	-2.928***	-1.902***	-2.121*
	sd	[0.285]	[0.392]	[0.662]	[0.436]	[0.498]	[0.825]
Region: southeast	b	-0.404*	-1.218***	-0.951	-3.622***	-3.572***	-0.535
	sd	[0.165]	[0.214]	[0.492]	[0.275]	[0.281]	[0.574]
Region: south	b	-0.783***	-0.925***	-0.5	-6.366***	-5.177***	0.421
	sd	[0.208]	[0.271]	[0.610]	[0.312]	[0.332]	[0.713]
Region: center-west	b	0.0969	0.403	-0.0822	-2.145***	-2.553***	-0.271
	sd	[0.217]	[0.276]	[0.597]	[0.365]	[0.373]	[0.734]
Household position: partner	b	-3.714*	0.47	-0.286	0.918***	-0.262	0.552
	sd	[1.624]	[0.552]	[0.480]	[0.254]	[0.266]	[0.462]
Intercept	b	10.31***	8.458***	3.922	14.50***	7.246***	-0.573
	sd	[0.635]	[0.827]	[2.009]	[1.082]	[1.135]	[2.308]
N.		35,652	25,925	6,989	36,861	29,182	8,174

* p < 0.05.
** p < 0.01.
*** p < 0.001.

Table A3
Coefficients, for relative schooling models – Brazil, 1982, 1996 and 2014.

		Men			Women		
		1982	1996	2014	1982	1996	2014
Relative schooling<							
Social origin	b	0.847***	0.777***	0.697***	0.769***	0.749***	0.682***
	sd	[0.0110]	[0.0128]	[0.0257]	[0.0152]	[0.0145]	[0.0251]
Age	b	-0.651***	-0.405***	-0.536***	-0.781***	-0.494***	-0.575***
	sd	[0.0343]	[0.0415]	[0.0794]	[0.0384]	[0.0423]	[0.0762]
Race	b	-10.31***	-10.65***	-7.968***	-11.33***	-10.05***	-9.106***
	sd	[0.316]	[0.371]	[0.719]	[0.350]	[0.373]	[0.688]
Place of residence: urban	b	16.19***	14.67***	10.43***	13.42***	14.22***	11.54***
	sd	[0.351]	[0.430]	[0.861]	[0.381]	[0.436]	[0.877]
Place of residence: metropolis	b	22.26***	17.72***	14.79***	18.67***	16.63***	14.71***
	sd	[0.364]	[0.473]	[1.011]	[0.408]	[0.482]	[0.962]
Region: north	b	6.051***	4.581***	3.936***	4.905***	4.628***	2.458*
	sd	[0.675]	[0.839]	[1.124]	[0.738]	[0.805]	[1.075]
Region: southeast	b	5.936***	5.274***	5.024***	1.724***	1.159**	0.869

(continued on next page)

Table A3 (continued)

		Men			Women		
		1982	1996	2014	1982	1996	2014
Region: south	sd	[0.376]	[0.442]	[0.801]	[0.412]	[0.438]	[0.787]
	b	8.380***	5.078***	4.777***	4.977***	0.763	1.955
Region: center-west	sd	[0.444]	[0.531]	[1.030]	[0.484]	[0.528]	[1.033]
	b	6.901***	7.044***	5.698***	5.031***	4.251***	5.785***
Intercept	sd	[0.487]	[0.561]	[1.006]	[0.541]	[0.574]	[1.019]
	b	26.16***	23.52***	26.52***	35.39***	30.42***	33.91***
Occupational socio-economic level (ISEI) <	sd	[1.338]	[1.632]	[3.164]	[1.512]	[1.655]	[2.993]
	b	0.301***	0.282***	0.340***	0.396***	0.397***	0.398***
Relative schooling	sd	[0.00354]	[0.00424]	[0.00990]	[0.00493]	[0.00496]	[0.00930]
	b	0.154***	0.153***	0.155***	0.115***	0.107***	0.151***
Social origin	sd	[0.00741]	[0.00927]	[0.0201]	[0.0107]	[0.0109]	[0.0201]
	b	0.179***	0.217***	0.170***	0.114***	0.276***	0.132*
Age	sd	[0.0174]	[0.0218]	[0.0490]	[0.0282]	[0.0286]	[0.0554]
	b	-0.972***	-1.184***	-0.886*	-2.163***	-1.871***	-1.851***
Race	sd	[0.149]	[0.190]	[0.410]	[0.254]	[0.250]	[0.480]
	b	6.393***	5.567***	5.712***	4.023***	2.702***	4.723***
Place of residence: urban	sd	[0.172]	[0.221]	[0.489]	[0.312]	[0.310]	[0.655]
	b	7.008***	5.914***	5.966***	2.730***	2.120***	5.271***
Place of residence: metropolis	sd	[0.190]	[0.256]	[0.574]	[0.328]	[0.350]	[0.728]
	b	-1.720***	0.524	-0.571	-4.139***	-1.972***	-1.699*
Region: north	sd	[0.303]	[0.399]	[0.635]	[0.468]	[0.511]	[0.746]
	b	-1.014***	-1.208***	-0.621	-4.423***	-3.669***	0.149
Region: southeast	sd	[0.174]	[0.217]	[0.471]	[0.291]	[0.286]	[0.541]
	b	-1.478***	-0.967***	-0.114	-7.512***	-5.340***	0.702
Region: south	sd	[0.221]	[0.276]	[0.577]	[0.334]	[0.339]	[0.684]
	b	-0.252	0.406	-0.13	-2.696***	-2.723***	-0.277
Region: center-west	sd	[0.229]	[0.281]	[0.565]	[0.385]	[0.382]	[0.696]
	b	-4.368*	0.457	-0.0463	0.860**	-0.166	0.381
Household position: partner	sd	[1.753]	[0.564]	[0.454]	[0.269]	[0.274]	[0.437]
	b	7.711***	7.042***	8.993***	11.98***	5.552***	7.274***
Intercept	sd	[0.667]	[0.846]	[1.928]	[1.144]	[1.163]	[2.204]
	N.	35,652	25,925	6,989	36,861	29,182	8,174

* p < 0.05.

** p < 0.01.

*** p < 0.001.

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