Stratification in Brazilian Higher Education

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Abstract

In this chapter we examine the stratification of access to higher education in Brazil between 2001 and 2015, a period of marked expansion of the higher education system. We draw on random samples of the Brazilian population to show the increases in the number of enrollments, as well as in the number of students eligible to make the transition to higher education. Coefficients from logistic regression models show the persistent effects of family background on the probability of achieving a college education, but also show decreasing disadvantages for African Brazilian students. We discuss how shifts in the racial composition of the population, vis-à-vis policies to mitigate inequalities of access, can account for the increasing probability of African Brazilian students to attend college.

Introduction

The expansion of educational systems during the second half of the 20th Century was one of the most important structural changes across the world, whether in democratic contexts or in authoritarian regimes (Meyer, Ramirez, & Soysal, 1992). The expansion of higher education systems is even more pronounced: while in the early 1900s only 1% of young people in college age were enrolled in postsecondary institutions across the world, the latest estimates indicate that 20% of youth in the adequate college age are now enrolled (Schofer & Meyer, 2005).

The Brazilian system of higher education experienced a major expansion over the last two decades. Total enrollments more than doubled during this period, from 3.5 million in 2001 to over 7 million enrolled students by 2015, in all regions of the country, and for all types of institutions. The factors driving this expansion range from policies designed to increase enrollments in federal institutions to a combination of changes in the socioeconomic structure, and in the demographic structure. Throughout the paper we go through these changes in more details and discuss how they affect college enrollments.

The extent to which, however, the expansion of the educational system has been accompanied by changes in the inequalities in access to higher education is not so obvious. As comparative studies in developed nations have shown, the expansion of educational systems does not necessarily lead to decreasing educational inequalities, because it may not change the proportions of students from different socioeconomic strata who have access to the higher levels of the educational system (Shavit and Blossfeld 1993). Other comparative studies, however, argue that the expansion of higher education, combined with differentiation of institutions, have an inclusion effect, mostly because a larger number of students from the working class can achieve the higher levels of the system, even if their relative proportion does not change (Arum, Gamoran and Shavit 2007).

While some developing countries, such as Chile and Argentina, have opted to expand their tertiary sector by also increasing differentiation between institutions (Castro 2004), the expansion of the Brazilian higher education system has been based mostly on the creation of private institutions following the academic model and offering 4-year degrees (Schwartzman, Pinheiro, and Pillay 2015). And even though there has been an increasing number of enrollments, the lack of institutional differentiation, along with poor levels of high school

attendance (only 60% of adolescents between 15 and 17-year-old are enrolled in high school, while 25% are still enrolled in middle school) and graduation, have kept rates of access to high education at considerably low rates. Simultaneously, patterns of access were highly differentiated by social class and race, making higher education one of the main mechanisms by which the socioeconomic structure has been reproduced across generations. In fact, a comparative study of educational stratification in several countries show that Brazil has one of the highest levels, if not the highest level, of educational reproduction around the world (Hout, 2006). That is, the correlation between parental education and their offspring's education, which is one of the main factors behind the persistence of socioeconomic inequalities across generations, has the highest value in Brazil.

Recent policies, however, although not tackling the issues of differentiation, have been trying to attenuate inequalities of access by class and race. Although it may be early to fully understand the impact of such policies, and to disentangle them from changes in the composition of the population, we are able to at least describe the latest trends in inequalities of access to higher education. Throughout the paper we draw upon data from the Brazilian National Household Sample Survey (PNAD) to examine how socioeconomic background and race impact the probability of going to college, in both public and private institutions, during the first two decades of the 21st Century. This cross-sectional survey collected socioeconomic and demographic information for all members of the selected households, between 1973 and 2015. In this study we compare results from the following surveys: 2001, 2006, 2011, and 2015. We believe the focus on those years allows us to understand the most recent trends in college enrollments and inequalities patterns. Coefficients from logistic regression models show the persistent effects of family background on the probability of achieving a college education, but also show decreasing disadvantages for African Brazilian students. We discuss how shifts in the racial composition of the population, vis-à-vis policies to mitigate inequalities of access, can account for the increasing probability of African Brazilian students to attend college.

The Brazilian System of Higher Education: Structure, trends, and inequalities

The Brazilian system of higher education comprises two main types of institutions, based on market sector. Private colleges represent the majority (nearly 80%) of postsecondary

institutions and enrollments and are mostly teaching institutions, with focus on popular degrees, such as law and business. Historically, the Brazilian higher education sector has relied mostly on these private colleges to respond to increasing demand for tertiary education. Public universities, on the other hand, are tuition-free, highly selective institutions. Even though they also offer highly sought majors, like private colleges, they have historically offered liberal arts and education-related majors. They are responsible for most of the graduate education and the scientific research in the country.

Vocational education is also a possible path for students graduating high school. Recent investments in the expansion of Federal Institutes of Technology (IFET) have led to increasing enrollments in this more flexible type of education, accounting for approximately 14% of all enrollments (INEP 2014). However, most prospective students tend to confer higher value to the credentials offered by 4-year public and private institutions than for vocational education, limiting overall levels of diversification (Schwartzman 2005; Prates and Barbosa 2015).

Expansion of the higher education system, over the last two decades, increased considerably enrollment numbers for both public and private institutions. Figure 1 shows that, between 2001 and 2015, the total number of annual enrollments increased twofold, and while enrollments in public universities increased by 80%, they more than doubled in private colleges.

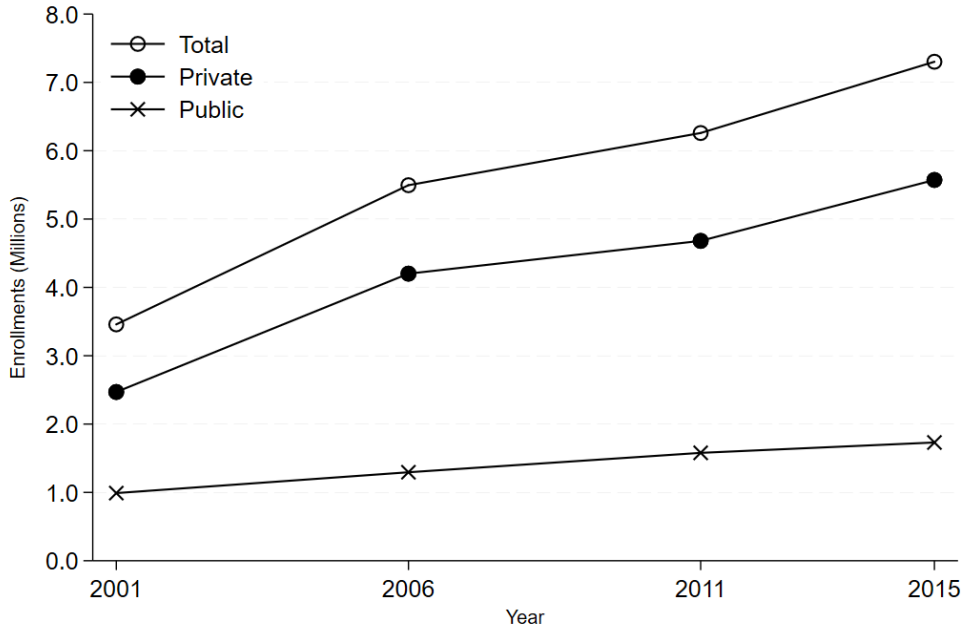

Figure 1. Enrollments in the Brazilian Higher Education System

From a population point of view, an important indicator of the expansion of higher education is the trend in the percentage of young people, between the age of 18 and 24, who are eligible (high school graduates) and enrolled in postsecondary institutions. While the total number of high school students has declined since 2005, because of the decline of this age cohort in the overall population (Corbucci, 2009), improvements in secondary school have led to increasing numbers of high school graduates. Figure 2 shows that, between 2001 and 2015, while the average size of the cohort of young people between 18 and 24 declined, the proportion of youth who enrolled in postsecondary institutions increased from 9% to 18%. Among the eligible students, those who graduated in high school, this proportion was stable until 2011, but increased considerably since then, reaching 34%, in 2015.

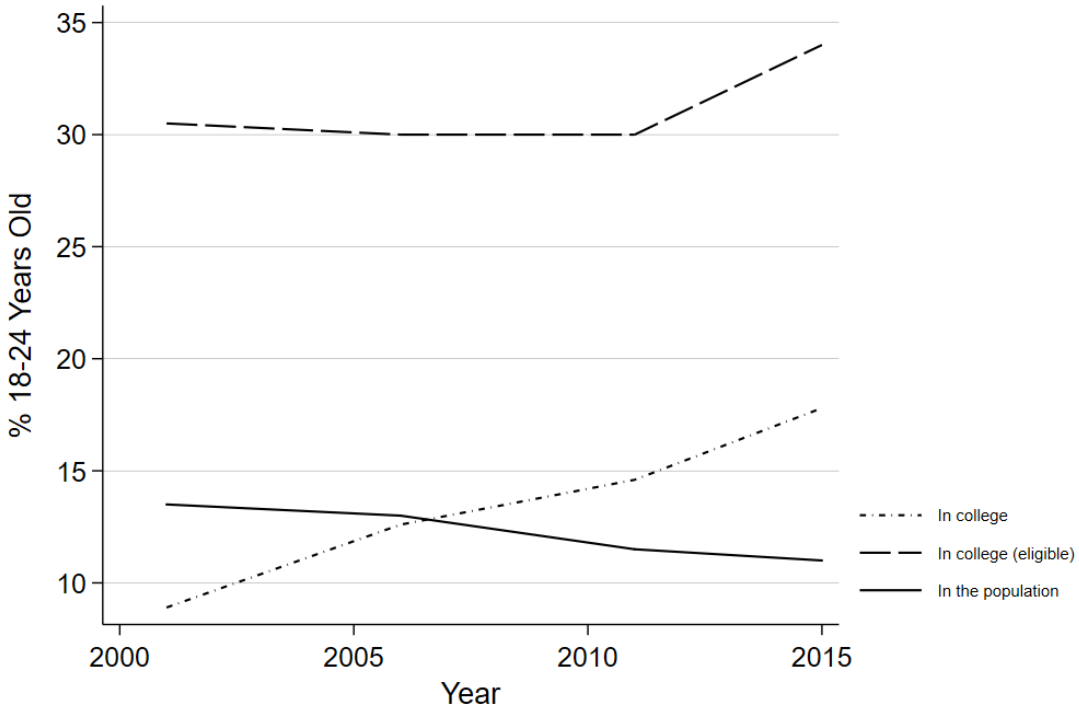

Figure 2. College enrollments and young people (18-24)

Inequalities in access to higher education have been an important factor in overall social inequality patterns in Brazil. Over the last two decades, several studies have shown that, despite increasing enrollments, educational inequalities are persistent in the Brazilian higher education, especially regarding the effects of family background (parental education, income and

occupation) on students' advancement opportunities – see Collares (2010), Ribeiro (2011), and Mont'Alvão (2011). Parental education and occupational status, as well as family income, are strong predictors of the probability of attending college, for both public and private institutions. In fact, data from the 2015 National Household Sample Survey (PNAD) show that students who attend postsecondary institutions come from families with significantly higher socioeconomic status (an average of 11 years of education and a score of 45 in occupational status) compared to students who are not enrolled in any educational institution after concluding high school (9 years of education and a score of 33 in occupational status).

Findings regarding racial inequalities also show high levels of advantage for white students, irrespective of family background. Later in this chapter we examine in more details, for example, how the proportion students enrolled in higher education who are African Brazilian is comparatively much lower than the proportion of youth who are African Brazilian and did not enroll in any postsecondary institution. However, show a slight reduction in racial stratification, allowing increasing numbers of African Brazilian students to pursue a postsecondary degree (Schwartzman, 2004; Collares, 2010).

Horizontal stratification also differentiates students' pathways in the higher education system (Gerber and Cheung 2008). Socioeconomic, gender, and racial inequalities not only differentiate students' access to this educational level, but also what kinds of institutions and fields are available for students who are able to make the transition. Students from higher socioeconomic status have higher likelihood of having access to more prestigious institutions (Mont'Alvao 2015) as well as degrees with higher returns in the labor market, such as medicine and odontology, while female students are more likely to pursue educational and care fields (Collares 2010; Carvalhaes and Ribeiro 2019).

Are there reasons to believe in the decline of inequalities in access to higher education in Brazil?

Improvements in family living conditions, change in the composition of social classes, especially the shrinking of the ranks of rural workers, as well as demographic changes and expansion of educational systems, have led to weakening educational inequalities in several countries (Breen et al., 2009).

Brazil also experienced major structural changes (economic, demographic, and political) during the second half of the 20th century that helped to create a more favorable educational environment for younger cohorts of children. Intense internal migration from rural areas to urban centers; changes in the labor market structure, from a rural to an urban service-centered economy; demographic transition leading to fertility rate decline (6.2 in the 1960s to 1.8 currently) and smaller family sizes; and delayed entry into the labor market are some of the most important populational changes that have favored an extended educational cycle for Brazilian youth (Silva and Hasenbalg 2000).

These interconnected processes led to enhanced general living standards, which, along with expansion of educational systems and public policies encouraging schooling and limiting child and adolescent work, have prolonged educational trajectories for most young Brazilians and increased the number of young people eligible to attend college.

However, the expansion of basic education co-existed with high rates of grade repetition and school dropout. These rates are highly differentiated by family socioeconomic status and race, leading to marked differences in educational trajectories for working vs upper class students, as well as racial differences between white and African Brazilian students. These differential trajectories, consequentially, affected the chances of achieving higher education.

During the first two decades of this century, important policies have been designed to mitigate these persisting inequalities. The Program for Expansion and Restructuring of Public Universities (Reuni) was responsible, between 2007 and 2012, for an increase of 20% in the number of federal universities across the country, and over 70% in the overall number of enrollments in these institutions. The program College for All (Prouni), by which the federal government pays tuition for low-income students to attend private colleges, has offered partial or full tuition for over 2.5 million students since 2005. The program of Educational Financial Credit (FIES), gives subsidized credit for students attending private colleges. Finally, since the early 2000s, public universities have implemented affirmative action programs to facilitate the access of high-performing low income and minority students to public higher education (Daflon, Feres, Jr. and Campos 2013; see also Feres et al in this volume). Most state universities and all federal institutions have since then been reserving at least 50% of their freshman classes to underprivileged students.

The full impact of these programs on the stratification of access to higher education is not yet completely clear, but two sources of information point to promising results. First, recent research suggests that students admitted through affirmative action, in both public and private universities, perform at least as well as those who were admitted through regular paths (standardized tests called *vestibular*) (Valente and Berry 2017). Second, data from the National Household Sample Survey (PNAD) shows that the percentage of African Brazilian students has increased considerably over the last two decades (see also figure 4 below), from less than 20% to 40% between 2001 and 2015.

Expansion and Inequalities

In this section we examine trends in the stratification of access to higher education during the 21st Century, by family background and race, drawing on data from the National Household Sample Survey (PNAD).

Effects of Family Background

Figure 3 shows the probabilities of making the transition to higher education for students from different levels of parental educational (3a) and parental occupational status (3b), estimated from logistic regression models. A series of controls were included in the models (gender, race, family structure, metropolitan area, and region) but their coefficients are not examined here. Figure 3A shows that the higher the parental educational level, the higher the chances of attending postsecondary institutions. It also shows that, between 2001 and 2015, students whose parents did not attain any formal education had increased chances of attending higher education, while for students whose parents attained at least college the probabilities of making the transition actually went downwards. Figure 3b shows the coefficients for three levels of parental occupational status, and the results indicate that the higher the parental occupational status, irrespective of the parental educational level, the higher the probabilities of attending college.[1]

[1] Occupational status was measured using the International Socioeconomic Index (Ganzeboom, De Graaf, and Treiman 1992), a continuous scale based on average educational attainment and average wages for each occupation.

Similarly to patterns for parental education, students whose parents had low occupational status had increased probabilities of attending higher education between 2001 and 2015.

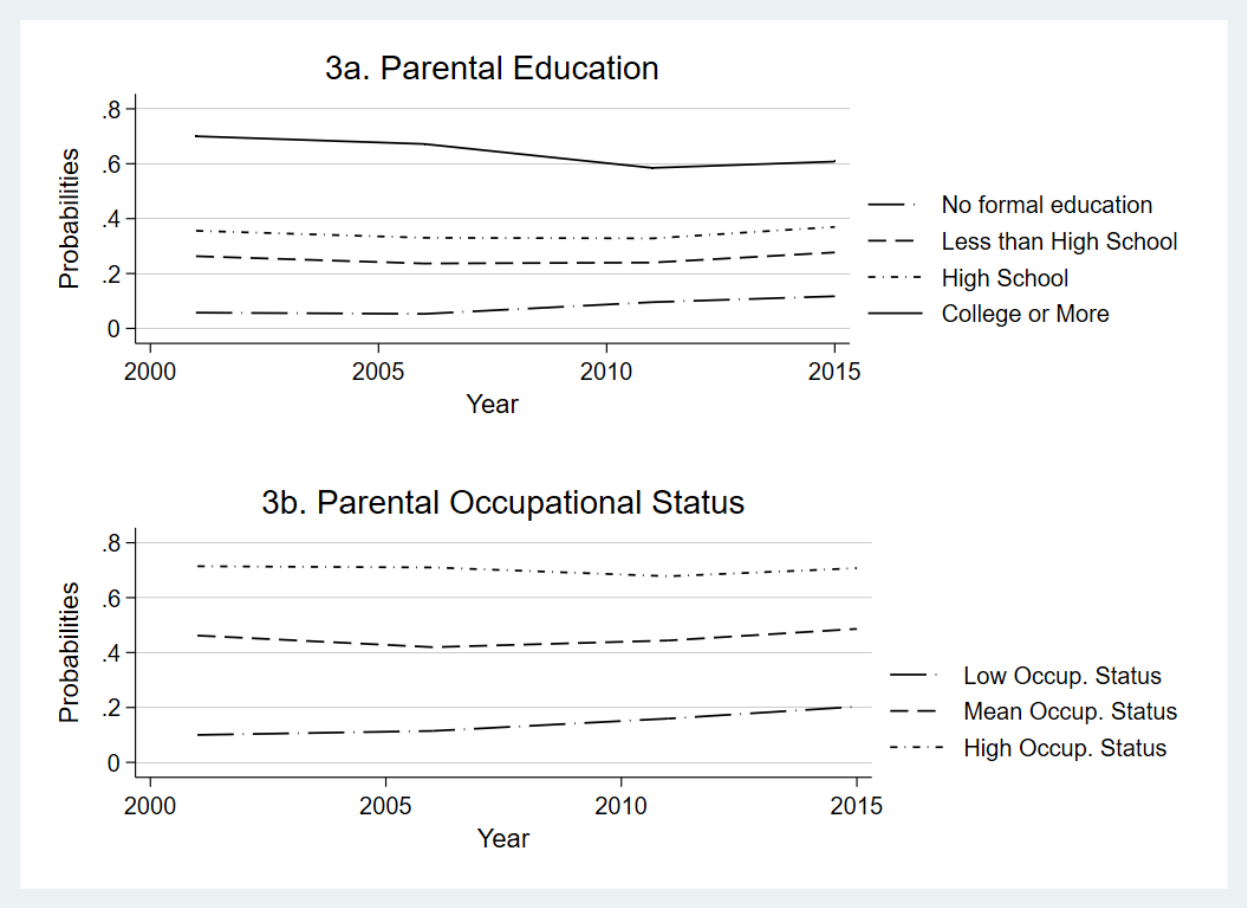

Figure 3. Probability of making the transition to higher education, by parental education and occupational status, in Brazil, 2001-2015

The racial gap in college education

Racial discrimination is a marked characteristic of the Brazilian society, creating markedly different socioeconomic trajectories for white and African Brazilians.

Discrimination also creates different trajectories in the educational system, as African Brazilian students present lower school achievement, higher rates of grade retention and school dropout, and lower educational attainment (Barcelos 1993; Soares e Alves 2003). The transition from high school to higher education is one of the most selective of the educational system, and racial barriers are important components of this selectivity (Mont'Alvao 2011). African Brazilian

However, racial inequalities in educational transitions, which were stable in the 1990s (Fernandes, 1999), have been declining since then, improving the educational opportunities for many African Brazilian students (Marteleto 2012; Collares, 2010; Mont'Alvao 2011).

Figure 4 shows trends in the relation between race and higher education access over the last two decades. First, it shows that the relative size of African-Brazilian group (dashed and dotted line) in the youth population grew from 48% in 2001 to 57% in 2015. Thus, while the overall size of the youth cohort is getting smaller over time, the presence of African Brazilians is increasing, which can be the result of several simultaneous process, including differences in reproductive patterns over time by race, as well as changes in self-identification over time. African Brazilian women have higher fertility rates than white women, but their fertility rates are also declining faster than white women fertility rates (Cavenaghi and Berquó 2014; Berquó and Cavenaghi 2004; Bercovich 1989). As for changes in racial identification, although there are inconsistencies in racial self-classification, they do not affect patterns of racial inequalities (Muniz and Bastos 2017), and recent research shows that between 1940 and 2010 there was a growing propensity of self-identification as brown and black (Miranda 2013).

Figure 4 also shows that among high school graduates who do not enroll in college, the proportion of young African Brazilians increased from 39% to nearly 60%, which indicates an improvement in high school barriers to students of color. Simultaneously, among those who made the transition to college, the proportion who are African Brazilians grew from 18% to 40%. Thus, although there were considerable improvements, African Brazilians represent almost 60% of the cohort in 2015, but only 40% of college students.

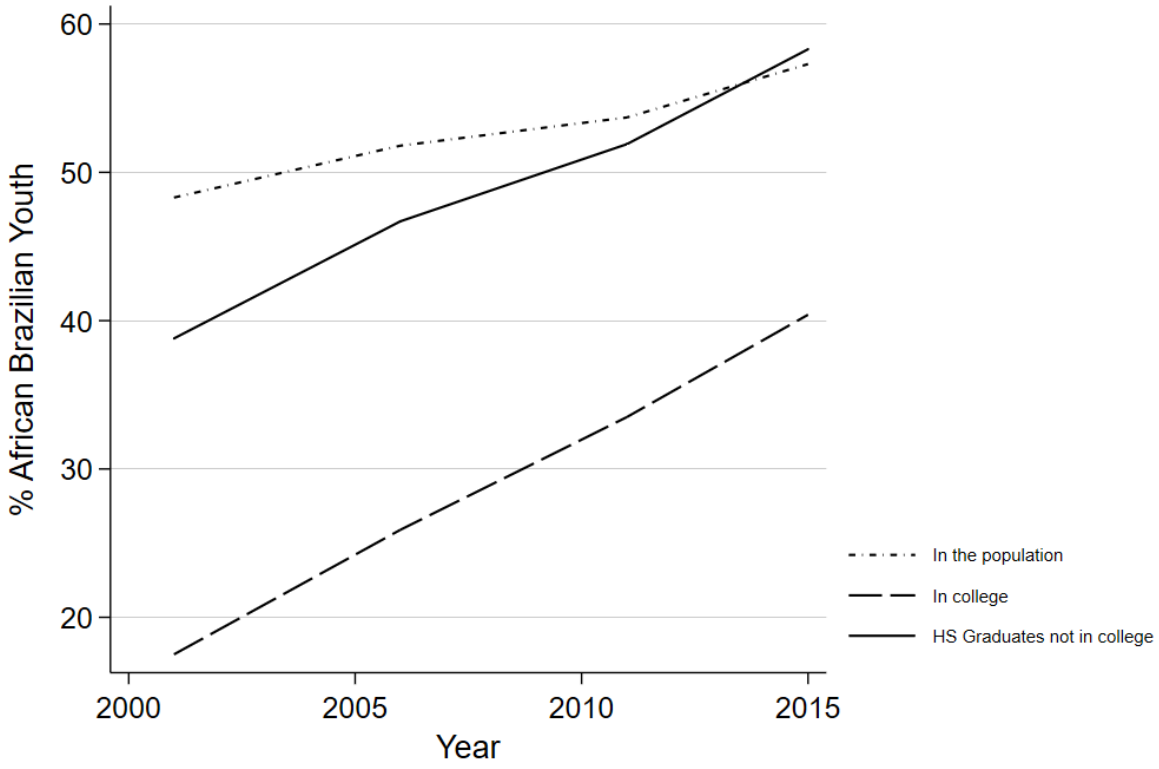

Figure 4. Race and college enrollments in Brazil, 2001-2015

In order to understand the effect of race on the transition to higher education, net of socioeconomic resources and family structure, we plot the predicted probabilities of white and African Brazilian students between 2001 and 2015. Figure 5 shows these trends. First it indicates that the probabilities of making the transition are much lower for African Brazilians than for whites, for each year studied, no matter their socioeconomic standing. Second, the trends indicate that the probabilities are going upwards for both white and black students by the end of the period. Finally, the upward change in the probability trends are much more accentuated for African Brazilian students, that is, these students have benefited more from the recent changes in the demographic and socioeconomic structures. Therefore, racial inequality in the transition to higher education declined in more recent years.

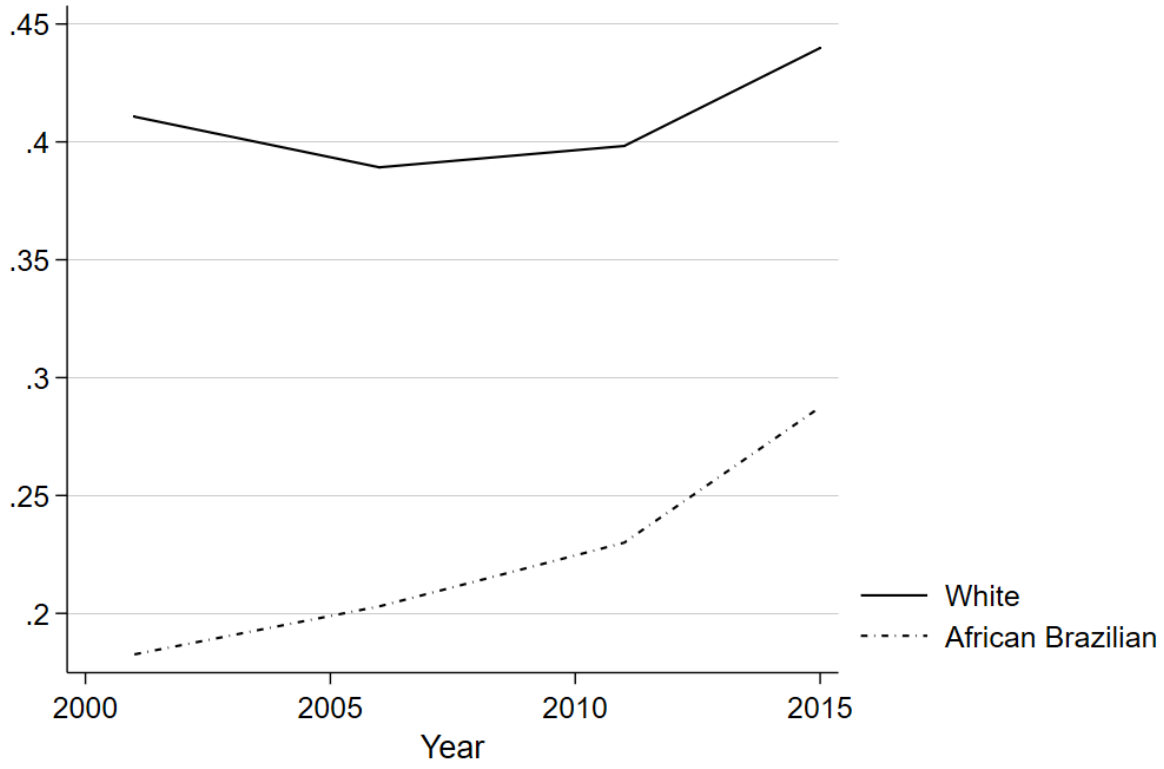

Figure 5. Probability of college enrollment by race in Brazil, 2001-2015.

Interaction between race and family socioeconomic background

Whereas the effects of family background have barely changed over the period, the racial gap has narrowed. In this section we estimate the interaction between these two dimensions in order to understand whether African Brazilian students from more advantaged socioeconomic backgrounds have benefited more from the expansion of the higher educational system than African American students from working class families.

Figure 6 shows the results of the interaction term. First, the figure shows that the lower the parental educational attainment, the lower the probability of a student making the transition to higher education, no matter the racial identification. This result is consistent with findings from Figure 3. Second, African Brazilian students are less likely to make the transition than white students at every level of parental educational attainment, all else constant. Third, the higher the parental attainment, the higher the gap between white and black students. Fourth,

between 2001 and 2015, the distances between the two curves (one for whites and one for blacks) have apparently narrowed, indicating a decline in the interaction over time. Finally, between 2001 and 2015, there was an increase in the probability that eligible African Brazilian students completed the transition, at every level of parental education. Among white students, the result is similar at lower educational attainment, but for those whose parents have higher attainment the probabilities have somewhat declined during this period.

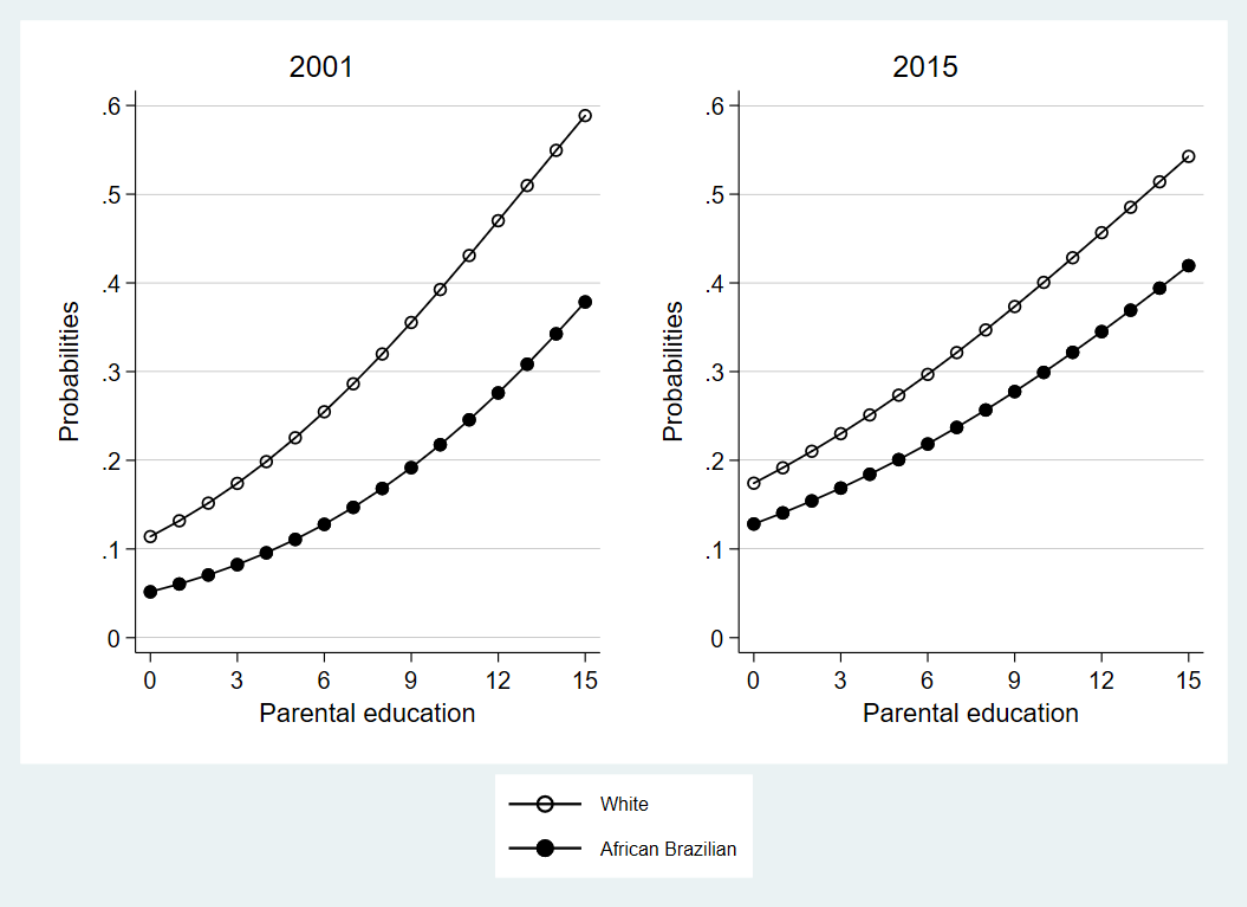

Figure 6. Interaction between race and parental education on the transition to high education in Brazil, 2001-2015

Decomposition of predicted probabilities

Predicted probabilities of college enrollment, resulting from the logistic models discussed above, were used as dependent variables in a decomposition of means. This type of decomposition, mostly used to understand gender wage gaps (Oaxaca 1973; Blinder 1973), can be employed to any continuous variable, including the probability of going to college. The

decomposition is based on counterfactuals, and the results indicate what would happen to coefficients of one group if this group had the same characteristics (explained part) as the other group, or the same regression slopes (unexplained part). Here, instead of groups, we decompose the difference between years.

For this model, we use the same sample of eligible students to make the transition to higher education, that is, those who graduated high school and enrolled or not in a postsecondary institution, in 2001 and 2015. Table 1 displays the results of the decomposition for the probability of going to college in general. The coefficients indicate that, in general, the probability of going to college is higher in 2015 (0.350) than in 2001 (0.324), and the difference between the probabilities in these two years (0.026) is the object of the decomposition.

Changes in the explained part of the model, which corresponds mainly to changes in the demographic structure of the population, have a negative impact on the probabilities of making the transition to higher education. The main factor here is the increasing proportion of African Americans in the youth population, which accounts for 60% of the explained part. If everything else had changed and the racial composition kept constant, the explained part would be 0.016 (0.040 - 0.024), the difference between 2001 and 2015 would be -0.05 (0.016 – 0.066) and the mean probability in 2015 would be 0.374 (0.324 + 0.05). Thus, had the race composition of the population in 2015 been the same as in 2001, the overall probability (0.374) would be 6.9% higher than the observed probability (0.350).

Coefficients for parental education, on the other hand, work in the opposite direction. If the educational levels of the families had stayed the same as in 2001 and everything else had changed, the explained portion of the change would be 0.059 (0.040 + 0.019), the difference between 2001 and 2015 would be -0.007 (0.059 – 0.066), and the mean overall probability in 2015 would be 0.331 (0.324 + 0.007). Thus, the overall probability would be 5.4% lower in 2015 if the parental educational attainment had been constant over time.

Table 1 – Decomposition of means

Parameters	Predicted probabilities of going to college	
	Coef.	**Std. Err.**
2001	0.324	(0.0022)
2015	0.350	(0.0018)
Difference	-0.026	(0.0028)
Explained	0.040	(0.0028)
Unexplained	-0.066	(0.0006)
Explained		
Race (black)	0.024	(0.0008)
Parental education	-0.019	(0.0014)
Unexplained		
Race (black)	0.008	(0.0005)
Parental education	0.000	(0.0020)

Discussion

Over the last several decades, educational systems around the world expanded greatly, providing access to millions of students and driving upwards educational attainment in most countries. The extension to which this expansion improved the access of students from disadvantaged backgrounds to higher educational levels, however, has been debated by many studies. In this chapter we examined the stratification of access to higher education in Brazil during a period of great expansion of the higher education system. Drawing upon data from a national sample of households, we showed, that, between 2001 and 2015, the expansion of the higher education system allowed a growing proportion of young people to enroll in postsecondary institutions, even though the size of the cohort has been decreasing for more than a decade. Both the total number of enrollments and the proportion of young people enrolled in college more than doubled during the period.

Regression models estimated the probabilities of making the transition to higher education for youth who graduated in high school. Our analyses focused on the effects of family socioeconomic background and students' racial identification on these probabilities over time. The main results showed that these variables are important predictors of the probability of attending college in Brazil. That is, the higher the socioeconomic background the higher the likelihood of attending college, and white students have consistently higher probabilities of

making the transition than African Brazilian students. Between 2001 and 2015, however, students from lower socioeconomic backgrounds and African Brazilian students, irrespective of their background, have increased probabilities of attending postsecondary institutions. The interaction between socioeconomic status and race shows that the gaps in the probabilities of attending college have closed considerably during the period, especially for students from higher socioeconomic status.

Whereas these results might, at first, indicate that the expansion of the system, along with affirmative action programs has had a positive effect on the racial attainment gap, we also showed that shifts in the racial composition of the youth population have led to an increasing proportion of students who identify as African Brazilians, from 48% to 57% between 2001 and 2015. A decomposition of means confirmed that these shifts in the racial composition of the youth population, as well as the increase in parental educational attainment, have been important factors in the changing structure of stratification in higher education and must be accounted for when examining the effects of policies on educational outcomes.

Further research is needed, however, to fully understand how shifts in population structure and educational policies interact to influence educational outcomes. As more data is collected in the next few years, we should also be able to identify how stable these trends are and how inequalities in access to higher educational can be mitigated.

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