

Endogenous Race in Brazil: Affirmative Action and the Construction of Racial Identity among Young Adults

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In this paper, we study the construction of racial identity among students at a university that recently adopted racial quotas in admissions. Using data collected by the authors, we find that parents' race, family socioeconomic status, gender, and racial quotas have a significant effect on self-reported race. The evidence indicates that students in mixed-race families are systematically more likely to identify with their mother's race than with their father's. Conditional on skin tone quintile, higher socioeconomic status is associated with lighter racial self-classification and lower socioeconomic status with darker racial self-classification. Additionally, the results demonstrate that being male is associated with lighter racial self-classification and being female with darker self-classification. Policy changes may also impact racial identity. Following the adoption of racial quotas, students in the darkest two quintiles were less likely to self-identify as *branco*, those in the fourth quintile were more likely to self-identify as *pardo*, and those in the darkest quintile were more likely to self-identify as *preto*.

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I. Introduction

In 2001, two state universities in Rio de Janeiro became the first to adopt racial quotas in admissions, and the Ministry of Agrarian Development became the first to adopt racial quotas in federal employment. Since then, a debate about affirmative action has raged in Brazil. The stakes are high, for not only is the debate about the content of labor and education policy but also about the meaning of racial terms and the boundaries of race (Bailey, 2008; Bailey and Peria, 2010; Bailey and Telles, 2006; Beato, 2004; Telles, 2003). On one side, the black political movement (*Movimento Negro*) aims to institutionalize a range of race-targeted programs and promote Afro-Brazilian consciousness to all people with discernible African origins (Bailey, 2008; Bailey and Telles, 2006; Telles, 2003). On another side, the white elite aims to suppress race-based public policies typically arguing that they are inefficient or unjust and occasionally arguing that race is not a socially relevant concept in Brazil or even that race does not exist (Pereira, 2009; Zakabi and Camargo, 2007). It is against this backdrop that we study the construction of racial identity among students at a university that recently adopted racial quotas in admissions.

In this paper, we estimate the effect of parents' race, family socioeconomic status, gender, and racial quotas on racial self-classification. To this end, the authors conducted a survey of University of Brasilia (UnB) undergraduates who matriculated between 2003 and 2005, a period including two admissions cycles before the implementation of quotas and three admissions cycles after. Two survey questions measure self-reported racial identity. One of them is the standard race question utilized by the Brazilian Statistical Agency, and its principal answer choices are "branco" (white or light-skinned), "pardo" (brown or brown-skinned), and "preto" (black or dark-skinned). The other question asks respondents whether or not they consider themselves "negro" (black or Afro-Brazilian). Note that quotas at UnB are for students who self-

identify as *negro*.¹ In addition, photos of respondents are utilized to measure non-self-reported skin tone. We asked a panel of Brazilian reviewers to rate the skin tone of the subject in each photo from 1 (light) to 7 (dark). Scores were standardized by reviewer, standardized scores were averaged by photo, and average standardized scores were sorted into quintiles.

In summary, we find that a number of factors play a significant role in the construction of racial identity. The evidence indicates that students in mixed-race families are systematically more likely to identify with their mother's race than with their father's. Conditional on skin tone quintile, higher family socioeconomic status is associated with lighter racial self-classification and lower socioeconomic status with darker self-classification. It appears that socioeconomic status has the greatest influence on individuals near the boundaries between racial categories on the skin tone continuum, particularly those who fall into the second and fourth quintiles of skin tone. Additionally, the results demonstrate that being male is associated with lighter racial self-classification and being female with darker self-classification. Policy changes may also impact racial identity. Following the adoption of racial quotas, students in the darkest two quintiles were less likely to self-identify as *branco*, those in the fourth quintile were more likely to self-identify as *pardo*, and those in the darkest quintile were more likely to self-identify as *preto*. Thus, the findings in this paper contribute insights about the contexts in which race is made and unmade.

The remainder of the paper is organized as follows. Section II reviews related literature and provides background information on affirmative action in Brazil. Section III describes the data and empirical strategy. Section IV presents the results, and Section V concludes.

¹ To maximize precision, we use Portuguese racial terms throughout the paper. Although we translate *negro* into English as black or Afro-Brazilian, please be aware that respondents who self-identified as *negro* on the multiple choice question rarely used the term "afro-brasileiro" to describe their racial identity on the open-ended question. There is considerable discussion in Brazil about the meaning of *negro*. To some, *negro* is equivalent to *preto*. To others, all who self-identify as *pardo* or *preto* are *negro*. In this study, we do not place any restrictions on the relationship between *negro*, on one hand, and *branco/pardo/preto*, on the other. Respondents are asked separately whether they consider themselves *negro*. According to our data, most *pretos* and some *pardos* consider themselves *negro*, while most *brancos* and some *pardos* do not.

II. Background

Related Literature

First, this paper contributes to the literature on racial identity in sociology and ethnic studies (Harris and Sim, 2002; Kibria, 1997; Lee and Bean, 2004; Nagel, 1994) as well as to the literature on race in Brazil. Indeed, a number of studies document the complex, fluid, and dynamic nature of racial terms and racial self-classification in Brazil (Bailey, 2008, 2009; Bailey and Telles, 2006; Carvalho et al., 2004; Marteleto, forthcoming; Schwartzman, 2007; Telles, 2002, 2004; Telles and Lim, 1998; Theodoro et al., 2008; Wood and Carvalho, 1988).

One line of research investigates changes in racial classification across time. Demographic analysis of census data reveals a "whitening" of the population from the late 1800s to about 1940 and a "browning" of the population from 1940 or 1950 to about 1990 (Carvalho et al., 2004; Telles, 2003; Theodoro et al., 2008; Wood and Carvalho, 1988). For example, Carvalho et al. (2004) find that a large proportion of individuals who self-identified as *preto* on the 1950 census reclassified themselves as *pardo* on the 1980 census. Recent research uncovers a phenomenon of "darkening with education". Using nationally representative data, Marteleto (forthcoming) discovers a convergence in educational attainment between *pardos* and *pretos* from 1982 to 2007. Intriguingly, her evidence indicates that this was attributable to both structural changes and changes in racial identification, as higher-educated parents became increasingly likely to identify themselves and their children as *preto* rather than *pardo* or *branco*.

Another line of research investigates the construction of racial identity, emphasizing that while race is ambiguous, it is not random but patterned and constrained in systematic ways. Exploring these questions with micro data, Bailey and Telles (2006) and Telles (2002) find that

racial ambiguity is greater at the dark end of the color continuum, and that contexts—including education, age, gender, and local racial composition—play an important role in shaping racial identity. Examining the phenomenon of whitening across generations, Schwartzman (2007) discovers that more educated non-*branco* parents are more likely to classify their children as *branco* than less educated non-*branco* parents. To explain this, the evidence indicates that not only are more educated non-*branco* parents more likely to marry *brancos*, but also more educated interracial couples are more likely to classify their children as *branco* than less educated interracial couples.

Furthermore, work by Bailey (2008, 2009) analyzes the societal struggles in Brazil to define the meaning of racial terms and the boundaries of race. He theorizes about the potential effects of race-targeted policies, particularly affirmative action in higher education, on racial self-identification. Accordingly, he outlines three possible scenarios that may arise: nonboundary effects (no activation of any social boundaries), reactive boundary effects (boundaries activated but not the ones institutionalized by the state), and race-making boundary effects (internalization of state-sponsored racial categories).

This paper aims to build on previous work on race in Brazil by studying the construction of racial identity among students enrolled at a university that recently adopted racial quotas in admissions. Given the availability of data on skin tone derived from photo ratings, this paper is able to extend knowledge about the relationship among socioeconomic status, gender, and race and to provide new insight about the effect of racial quotas on racial identity.

Second, this paper contributes to the economics of skin tone. Most existing papers model race with simple dummies for white, black, etc., ignoring phenotypic heterogeneity within racial groups. However, recent studies find that economic outcomes vary by skin tone (Bodenhorn,

2006; Goldsmith et al., 2006, 2007; Hersch, 2006; Rangel, 2007). For example, Goldsmith et al. (2007) find disparities in wages and Hersch (2006) finds disparities in educational attainment among black Americans with different skin tone. While the literature primarily studies the link between socioeconomic status and skin tone, this paper studies a complementary piece of the puzzle—the link between socioeconomic status and self-identified race conditional on skin tone.

Third, this paper contributes to the economics of identity. Not only are recent papers applying economic models to study the construction of identity, but they are also demonstrating the relevance of identity in market and non-market behaviors (Akerlof and Kranton, 2000, 2002; Austen-Smith and Fryer, 2005; Darity, Dietrich, and Hamilton, 2005; Darity, Mason, and Stewart, 2006; Francis, 2008; Fryer et al., 2008; Golash-Boza and Darity, 2008; Ruebeck, Averett, and Bodenhorn, 2009). Notably, Akerlof and Kranton (2000) propose a model of identity that helps to explain a plethora of behaviors and outcomes, and Darity, Mason, and Stewart (2006) propose a model that sheds light on the interaction between racial identity and interracial disparities. This paper builds on the literature by studying the construction of racial identity empirically in the context of a policy change.

Finally, this paper contributes to the literature on racial quotas at UnB. Francis and Tannuri-Pianto (2012a) find that race, socioeconomic status, and gender were considerable barriers to college attendance and achievement. First-difference regressions involving pairs of siblings indicate that *negro* identity and female gender had a negative effect on entrance exam scores. Also, Francis and Tannuri-Pianto (2012b) find that racial quotas raised the proportion of *negro* and dark-skinned students at UnB, and that displaced applicants were, by many measures, from families with significantly lower socioeconomic status than displaced applicants. While in theory affirmative action might increase or decrease effort, the evidence indicates that racial

quotas did not reduce the pre-university effort of either applicants or students. Additionally, there may have been modest racial disparities in college academic performance among students in selective departments, though the policy did not seem to impact these in any way. The findings also suggest that racial quotas induced some individuals to misrepresent their racial identity but inspired other individuals, especially the darkest-skinned, to genuinely consider themselves *negro*.

While these papers introduce the notion that *negro* identity is endogenous as part of an analysis of affirmative action in higher education, this paper develops a more comprehensive treatment of the construction of racial identity among young adults in Brazil.

Affirmative Action in Brazil

Challenging the myth of racial democracy, scholars have gathered statistical evidence to demonstrate the persistence of significant racial disparities in child mortality, life expectancy, education, and income (Lovell and Wood, 1998; Silva, 1980, 1985; Telles, 2003, 2004; Theodoro et al., 2008; Wood and Lovell, 1992). A number of factors led to the recent adoption of race-targeted affirmative action programs for the first time in Brazil, including societal awareness of racial inequality, acknowledgement of race issues by the Cardoso administration, and growth of the black political movement or *Movimento Negro* (Bailey, 2004, 2008, 2009; Hooker, 2005; Htun, 2004; Skidmore, 2003). In 2001, the Ministry of Agrarian Development became the first federal ministry to adopt racial quotas in employment. Although a number of universities had quotas for low income students, it was not until 2001 that two state universities in Rio de Janeiro became the first to adopt racial quotas in admissions.

In 2004, the University of Brasilia (UnB) enacted racial quotas, becoming the first federal university in the country to have a race-targeted admissions policy. At UnB, most admissions are conducted according to the "vestibular" system.² Admissions candidates, including those applying under racial quotas, take a UnB-specific entrance exam called the vestibular. Their performance on the exam is the primary basis for admission. They are either accepted into their chosen department of study or they are rejected. Departments vary widely by selectivity (see Francis and Tannuri-Pianto 2012b). Twenty percent of each department's vestibular admissions slots are reserved for candidates who self-identify as *negro*. Thus, candidates who elect to apply under racial quotas compete only with other candidates who apply under quotas. To prevent abuse of the policy by those who may attempt to misrepresent their racial identity, a university panel interviews all candidates selected for admission under the quota system. Upon matriculation, quota students have access to a range of programs to support their academic and social development, including tutoring services, seminars on the value of blacks in society, and meeting space for work and leisure.

III. Data and Empirical Strategy

Student Sample (PSEU)

The authors conducted a survey of UnB students who were admitted through the vestibular or PAS system and matriculated between 2003 and 2005, a period including two admissions cycles before quotas (2-2003 and 1-2004) and three after quotas (2-2004, 1-2005, and 2-2005). We refer to this survey by its Portuguese acronym PSEU. Interviews were done online and face-to-face with an interviewer. They covered a variety of topics: family background, pre-

² While most students are admitted through the vestibular system, one-fourth of slots are reserved for admission through the PAS system. PAS was instituted in 1999, and admission is based on a series of exams taken throughout secondary school.

university education, university admissions, university education, employment, expectations, and self-identified race. 2,814 students in the population of interest completed the PSEU. Francis and Tannuri-Pianto (2012b) provide additional information on data collection.

Most of the analysis in this paper uses the sub-sample of PSEU respondents who participated in face-to-face interviews and had their photo taken. With consent, a photo was taken of the respondent's student identification card, which had a standard photo taken upon matriculation. As detailed in the next subsection, a measure of skin tone was constructed from these photos. 915 face-to-face interviews had viable photos. Also, one of the tables in this paper (Table 8) uses the sub-sample of PSEU respondents who participated in a survey of applicants conducted by the university. We refer to this survey by its Portuguese acronym QSC. Applicants submitted the 18-question QSC upon applying to UnB. 1-2004 was the first admissions cycle that included questions on self-identified race. A caveat is that QSC response rates were falling during the period from roughly 84% in 2-2003 to 36% in 2-2005, although PSEU participants were about as likely to complete the QSC as PSEU non-participants. 982 students completed both the PSEU and QSC and self-identified as *branco*, *pardo*, or *preto*.

It is worth assessing the representativeness of the PSEU photo sample. Appendix Table 1 compares the sample and population along a number of observable characteristics. The table shows that the sample and population are not substantially different from each other. The statistically significant differences that emerge are relatively modest. Females are overrepresented in the sample, but this is a regularity of many surveys including the General Social Survey. The difference in Grade Point Average (GPA) between the sample and population amounts to roughly 17% of a standard deviation. That the largest difference is with respect to "social science" is not surprising. Face-to-face interviews took place in the Department of

Economics, which was located near other social science departments. Nevertheless, it may be useful to address potential bias through weighting. Following Francis and Tannuri-Pianto (2012b), we run a probit regression of sample participation on the set of characteristics in Appendix Table 1 and construct sample weights equivalent to the inverse of the predicted probability of participation.

Empirical Strategy

As previous research demonstrates, self-reported and non-self-reported race are interrelated but distinct; the former is especially relevant in the study of personal behavior and characteristics, whereas the latter is especially relevant in the study of racial discrimination and income inequality (Bailey and Telles, 2006; Telles, 2002; Telles and Lim, 1998). In this paper, we are primarily interested in the determinants of self-reported racial identity conditional on non-self-reported skin tone. Race was measured in several different ways. On the survey, respondents were initially asked to describe their racial identification in one or two words. They were then asked to place themselves into one of five categories: *Branco*, *Pardo*, *Preto*, Asian, or Indigenous. This is the standard race question utilized by the Brazilian Statistical Agency (IBGE, 2010). They were also asked to place each of their parents into one of the five categories. A separate question asked respondents whether they considered themselves *negro*. Recall that racial quotas at UnB are for students who self-identify as *negro*.

Making use of the photos obtained in the face-to-face interviews, we constructed a non-self-reported measure of skin tone. The interviewer took a picture of the respondent's student identification card, which had a standardized photo taken by the university upon matriculation. Photos were cropped and shuffled randomly. We asked a panel of 12 Brazilian reviewers to rate

the skin tone of the subject in each photo from 1 (light) to 7 (dark). The panel consisted of the interviewers (UnB undergraduate students, one recent UnB student, and one student from another university), UnB graduate students, and college-educated friends of one of the authors. Scores were standardized by reviewer (mean 0, standard deviation 1), standardized scores were averaged by photo, and average standardized scores were sorted into quintiles. In the tables and text, “lightest quintile” indicates the lowest 20 percent of average standardized scores, “second quintile” indicates the next 20 percent, and so on.

Summary statistics reflect the complexity of race among UnB students. Tabulations of PSEU data show that the most homogeneous responses to the open-ended question pertained to respondents on the ends of the racial continuum (those who selected *branco* or *preto* on the multiple-choice question), whereas the most heterogeneous responses pertained to respondents in the middle of the continuum (those who selected *pardo* on the multiple-choice question). Approximately 80.6% of those who selected *branco* on the multiple-choice question self-identified as "branco" on the open-ended question, and 87.7% of those who selected *preto* self-identified as "negro" (80.8%) or "preto" (6.8%) on the open-ended question. In contrast, *pardos* had relatively heterogeneous responses to the open-ended question. Only 55.4% used the term "pardo" to describe themselves. The next most common terms were "moreno" (9.8%), "mestiço" (7.2%), "negro" (4.2%), and "misturado" (3.7%). About 70.9% of those who reported that they considered themselves *negro* on the multiple-choice question self-identified as "negro" (45.5%) or "pardo" (25.5%) on the open-ended question.

Illustrating the relationship between self-reported race and non-self-reported skin tone, Figure 1 displays cumulative distribution functions of average standardized skin tone based on ratings of student photos. Light skin tone is toward the left and dark skin tone toward the right.

Self-identified *pardos* tend to be darker-skinned than self-identified *brancos*, and self-identified *pretos* tend to be darker-skinned than self-identified *pardos*. Nevertheless, there exists heterogeneity in skin tone within each of the three racial groups. The figure reveals considerable overlap between the skin tone distributions of *brancos* and *pardos* and some overlap between the skin tone distributions of *pardos* and *pretos*. In short, these descriptive statistics underscore the complexity of race among UnB students.

In what follows, we employ linear regression models to estimate the effect of parents' race, family socioeconomic status, and gender on self-reported race. The following equations are estimated: $Y = \lambda \cdot Z + \varepsilon$ (Table 2) and $Y = \gamma \cdot X + \sum_q \delta^q * Q^q + \varepsilon$ (Table 5), where Y is self-reported race, Z is a vector of indicators for parents' race, X is a vector of measures of socioeconomic status and gender, and Q is an indicator for skin tone quintile (fourth quintile, darkest quintile, etc.). We also employ a difference-in-difference model to estimate the effect of racial quotas on self-reported race. The following equation is estimated:

$Y = \sum_q \tau^q * (I^{post-quotas} * Q^q) + \beta * I^{post-quotas} + \sum_q \delta^q * Q^q + \gamma \cdot X + \varepsilon$ (Table 7), where Y is self-reported race, I is an indicator for matriculation post-quotas, Q is an indicator for skin tone quintile, and X is a vector of controls for socioeconomic status and gender.

IV. Results and Discussion

Parents' Race

To begin, we investigate the relationship between self-reported race and parent race, as reported by PSEU respondents. Table 1 depicts the joint distribution of parents' race for students in the PSEU sample. Mother's race is on the left side of the box and father's race is on the top side. To simplify, the table only includes students and parents classified as *branco*, *pardo*, or

preto, which covers the vast majority of cases. About 54% of respondents reported that their parents were the same race as each other. 37.1% said that both of their parents were *branco*, 15.4% said both were *pardo*, and 1.5% said both were *preto*. However, the proportion of mixed-race families was substantial, as 46% of respondents reported that their parents were of different races. In mixed-race families, it was more typical that the mother was the lighter-skinned race and the father the darker-skinned one. That is, *branca-pardo* (19.4%) was more prevalent than *parda-branco* (13.0%), *branca-preto* (6.8%) more prevalent than *preta-branco* (2.6%), and *parda-preto* (3.1%) more prevalent than *preta-pardo* (1.1%). Thus, the sample of UnB students mirrors the high rate of interracial marriage in Brazil and exhibits the feature that in mixed-race families, students tend to classify their mothers as lighter-skinned than their fathers.

Table 2 displays linear regressions. Column (1) shows that about 94% of respondents who classified both of their parents as *branco* also considered themselves *branco*. 42% with a *branca* mother and a *pardo* father self-identified as *branco*, while 36% with a *parda* mother and *branco* father did. Post-estimation tests confirm that these coefficients are significantly different from each other. Likewise, column (2) shows that respondents who classified both of their parents as *pardo* were extremely likely to consider themselves *pardo*, while more than 50% of those with one *branco* parent and one non-*branco* parent identified as *pardo*. Moreover, respondents with a *parda* mother and a *preto* father were almost three times more likely to self-identify as *pardo* than those with a *preta* mother and a *pardo* father. The difference in coefficients is significant. As column (3) demonstrates, nearly all students who classified both of their parents as *preto* also classified themselves as *preto*. About 86% of respondents with a *preta* mother and a *pardo* father and about 60% of those with a *parda* mother and a *preto* father self-identified as *preto*. Reflecting an analogous trend, about 39% of respondents with a *preta* mother

and a *branco* father and 26% of those with a *branca* mother and a *preto* father classified themselves as *preto*. We are able to confirm that both of these differences in coefficients are significant. Column (4) concerns *negro* identity measured by a separate survey question. All respondents who reported both parents were *preto* considered themselves *negro*. At least 80% of those with one *preto* parent and one *pardo* parent self-identified as *negro*, while about 60% of those with one *preto* parent and one *branco* parent did so. Also, a significantly higher percentage of respondents with a *parda* mother and a *branco* father self-classified as *negro* than respondents with a *branca* mother and a *pardo* father.

In sum, the findings imply that students' self-reported race is closely related to their classification of their parents' race. This strengthens the implications of Schwartzman (2007), who studies parents' classification of their children's race. Additionally, the evidence indicates that the gender of the darker/lighter parent matters. In mixed-race families, students are systematically more likely to identify with their mother's race than with their father's. This pattern indicates that racial self-identification goes well beyond phenotype. We further develop this idea as we investigate the effects of socioeconomic status and gender.

Socioeconomic Status and Gender

As we have seen, Figure 1 revealed overlap between the *branco* and *pardo* distributions of skin tone as well as between the *pardo* and *preto* distributions. We now aim to understand why some individuals of roughly similar skin tone self-identified differently, focusing on socioeconomic status and gender.

Table 3 presents distributions of self-reported race by skin tone quintile (based on ratings of student photos) and socioeconomic status. Four dichotomous measures of family

socioeconomic status were constructed: whether a respondent's mother had a college education, whether a respondent's family employed a domestic worker, whether a respondent's family resided in the city of Brasilia, and whether a respondent attended private secondary school.³ The most significant differences in self-reported race between high and low socioeconomic status groups are found in the second and fourth skin tone quintiles. In the second quintile, all four measures of socioeconomic status exhibit significant differences. For example, of those respondents whose families employed a domestic worker, 70.3% self-identified as *branco* and 26.4% as *pardo*, whereas of those whose families did not employ a domestic worker, 39.2% self-identified as *branco* and 56.9% as *pardo*. In the fourth quintile, three measures of socioeconomic status exhibit significant differences. For example, of respondents who attended private secondary school, 35.9% classified themselves as *branco* and 57.7% as *pardo*; of those who attended public school, 19.7% classified themselves as *branco* and 72.4% as *pardo*. Furthermore, two of the measures exhibit significant differences in the darkest quintile. For example, of respondents whose families lived in Brasilia, 66.3% self-identified as *pardo* and 28.6% as *preto*, while of those whose families lived in DF outside of Brasilia, 43.5% self-identified as *pardo* and 48.8% as *preto*. However, no measures of socioeconomic status have significant differences in the lightest quintile and only two measures have significant differences at the 10% level in the third quintile.

Table 4 presents distributions of self-reported race by skin tone quintile and gender. Although differences in self-reported race between high and low socioeconomic status groups tend to be relatively large and concentrated in certain skin tone quintiles, differences in race between males and females tend to be smaller and occur across all quintiles. For example, in the

³ Note that the average household income of families living in Brasilia was much higher than that of families living in Distrito Federal outside of Brasilia (PDAD, 2004).

second quintile, 67.7% and 28.8% of male respondents classified themselves as *branco* and *pardo*, respectively, while 54.7% and 41.9% of female respondents classified themselves as *branco* and *pardo*. In the darkest quintile, 59.8% and 34.6% of male respondents self-identified as *pardo* and *preto*, respectively, while 43.9% and 48.2% of female respondents self-identified as *pardo* and *preto*.

Table 5 displays regressions of self-reported race on measures of socioeconomic status, gender, and skin tone quintiles. As the table shows, the set of four measures of socioeconomic status is jointly significant in each of the specifications. It is especially significant for *branco* and *negro*, columns (1) and (4). Individual measures with the greatest number of significant coefficients include having a family that employed a domestic worker and having a family that resided in Brasilia. Having a family domestic worker raises the likelihood of self-identifying as *branco* by about 9 percentage points, lowers the likelihood of self-identifying as *preto* by about 3 percentage points, and lowers the likelihood of self-identifying as *negro* by about 5 percentage points. Having a family residence in Brasilia lowers the likelihood of self-identifying as *preto* and *negro* by approximately 5 percentage points. Additionally, gender is significant in three of the four specifications. Female respondents are 7 percentage points less likely to classify themselves as *branco* and 5 percentage points more likely to classify themselves as *preto* and *negro*. As expected, skin tone quintiles are significant as well. They roughly capture the relationship between non-self-reported skin tone and self-reported race illustrated by Figure 1.

Taken together, the findings in this subsection suggest that although phenotype plays a role, family socioeconomic status and gender also play a significant role in the construction of racial identity. Multiple pieces of evidence indicate that, conditional on skin tone quintile, higher socioeconomic status is associated with lighter racial self-classification and lower socioeconomic

status with darker self-classification. It appears that socioeconomic status has the greatest influence on racial identity for individuals near the boundaries between racial categories on the skin tone continuum, particularly those who fall into the second and fourth quintiles of skin tone. The results also demonstrate that, conditional on skin tone quintile, being male is associated with lighter racial self-classification and being female with darker self-classification.

Racial Quotas

At UnB, quotas are for *negros*. Francis and Tannuri-Pianto (2012b) find that racial quotas raised the proportion of students in the darkest quintile that self-identified as *negro*, which is consistent with the incentives created by the policy. Indeed, the incentive to apply under the quota system was substantial given the competitiveness of admissions, and programs for quota students reinforced and fostered investments in *negro* identity. It is still an open question what the impact was on the standard categories of racial classification (*branco, pardo, preto*).

Table 6 presents distributions of self-reported race by skin tone quintile pre- and post-quotas. As the table illustrates, a "whitening" of the lightest and third lightest quintiles and a "darkening" of the darkest two quintiles appear to coincide with the implementation of racial quotas. For example, in the lightest quintile, the percentage of *brancos* increased from 78.3% pre-quotas to 86.1% post-quotas; in the third quintile, the percentage increased from 34.9% to 47.9%. However, patterns shift with proximity to the dark end of the racial continuum. In the fourth quintile, the percentage of *pardos* increased from 57.8% pre-quotas to 67.3% post-quotas, while in the darkest quintile, the percentage of *pretos* increased from 27.0% to 44.7%. Hence, the table raises the intriguing possibility that racial quotas affected the use and meaning of race terms.

Table 7 displays difference-in-difference models with and without controls for family socioeconomic status and gender. In columns (1) and (2), where the dependent variable is self-classification as *branco*, the coefficients on both the fourth and darkest quintiles in the post-quota period are negative and significant. In columns (3) and (4), where the dependent variable is *pardo*, the coefficient on the fourth quintile in the post-quota period is positive and significant. In columns (5) and (6), where the dependent variable is *preto*, the coefficient on the darkest quintile in the post-quota period is positive and significant. This may suggest that racial quotas decreased the likelihood that a student in the fourth or darkest quintile self-identified as *branco*, raised the likelihood that a student in the fourth quintile self-identified as *pardo*, and raised the likelihood that a student in the darkest quintile self-identified as *preto*. Alternatively, this may suggest that racial quotas attracted dark-skinned applicants who tended to consider themselves *pardo* or *preto*, rather than *branco*. Appendix Table 2, which compares the profile of UnB applicants pre- and post-quotas, may help to shed light on the issue of selection into the applicant pool. Post-quotas the applicant pool became about 6.5 percentage points more *pardo*, 2 percentage points less *branco*, 2 percentage points less *preto*, and slightly more socioeconomically advantaged. Thus, most of the observable characteristics of the applicant pool were not considerably different pre- and post-quotas. That more socioeconomically advantaged *pardos* applied to UnB does not easily explain the significant rise in the proportion of *pardos* and *pretos* in the fourth and darkest skin tone quintiles, respectively. But this certainly does not rule out the possibility that the findings are attributable to selection.

Using students who completed both surveys, Table 8 investigates the role of quotas in the evolution of responses between the QSC and PSEU. They responded to the same race questions at two points in time, first as an applicant and later as a student. About 80% of students reported

consistent responses pre- and post-quotas, which testifies to the relative stability of these racial categories between the time students apply for college and the time they attend college. As the table shows, the proportion of respondents self-reporting as *branco* on both surveys decreased from 43.1% pre-quotas to 30.9% post-quotas, the proportion self-reporting as *pardo* on both surveys increased from 33.1% to 41.3%, and the proportion self-reporting as *preto* on both surveys increased from 4.6% to 8.2%. These results echo the patterns exhibited by Table 7. Furthermore, the proportion of respondents who self-identified as *pardo* on the QSC but *preto* on the PSEU increased sharply from 0.7% pre-quotas to 6.1% post-quotas. This is direct evidence of change in racial identity from *pardo* to *preto*, which is unlikely an artifact of selection into the applicant pool. It is notable that there was no strategic incentive to self-identify as *pardo* while an applicant and as *preto* while a student. After all, self-identified *negros* had access to quotas, regardless of whether they classified themselves as *pardo* or *preto*; and survey respondents had already matriculated and understood their responses were absolutely confidential. Therefore, this may be more an example of internalization of racial identity than an example of opportunistic deployment of it. This may represent direct evidence of "darkening with education" (see Marteleto forthcoming).

All in all, the evidence suggests that the implementation of racial quotas might have had an effect on racial identity. With and without controls for socioeconomic status and gender, students in the darkest two quintiles were less likely to self-identify as *branco*, those in the fourth quintile were more likely to self-identify as *pardo*, and those in the darkest quintile were more likely to self-identify as *preto*. Although change in the applicant pool could potentially account for these estimates, additional evidence from students who completed two surveys at different points in time demonstrates that the adoption of quotas coincided with an increased number of

respondents who classified themselves as *pardo* as an applicant and *preto* as a student. UnB's racial quotas incentivized self-classification as *negro*, given the competitiveness of admissions and programs for quota students. The findings in this paper imply that investments in *negro* identity and investments in *pardo/preto* identity are closely related. In this way, the policy may have placed some students on a new life path, the initial steps in the dynamic construction of racial identity. Indeed, the debate about affirmative action in Brazil is also about the meaning of race itself, as race may respond to policy changes.

V. Conclusion

In this paper, we have analyzed the construction of racial identity among students at a university that recently adopted racial quotas in admissions. We find that parents' race, family socioeconomic status, gender, and racial quotas have a significant effect on self-reported race. The evidence indicates that students in mixed-race families are systematically more likely to identify with their mother's race than with their father's. Conditional on skin tone quintile, higher socioeconomic status is associated with lighter racial self-classification and lower socioeconomic status with darker racial self-classification. It appears that socioeconomic status has the greatest influence on individuals near the boundaries between racial categories on the skin tone continuum, particularly those who fall into the second and fourth quintiles of skin tone. Additionally, the results demonstrate that being male is associated with lighter racial self-classification and being female with darker self-classification. Policy changes may also impact racial identity. Following the adoption of racial quotas, students in the darkest two quintiles were less likely to self-identify as *branco*, those in the fourth quintile were more likely to self-identify as *pardo*, and those in the darkest quintile were more likely to self-identify as *preto*.

The findings contribute to research on racial identity in sociology, ethnic studies, and economics. The notion that race is endogenous in certain places and certain circumstances may help future studies to better interpret regression coefficients on race variables, better measure racial inequality, and better evaluate the effects of public policies involving race.

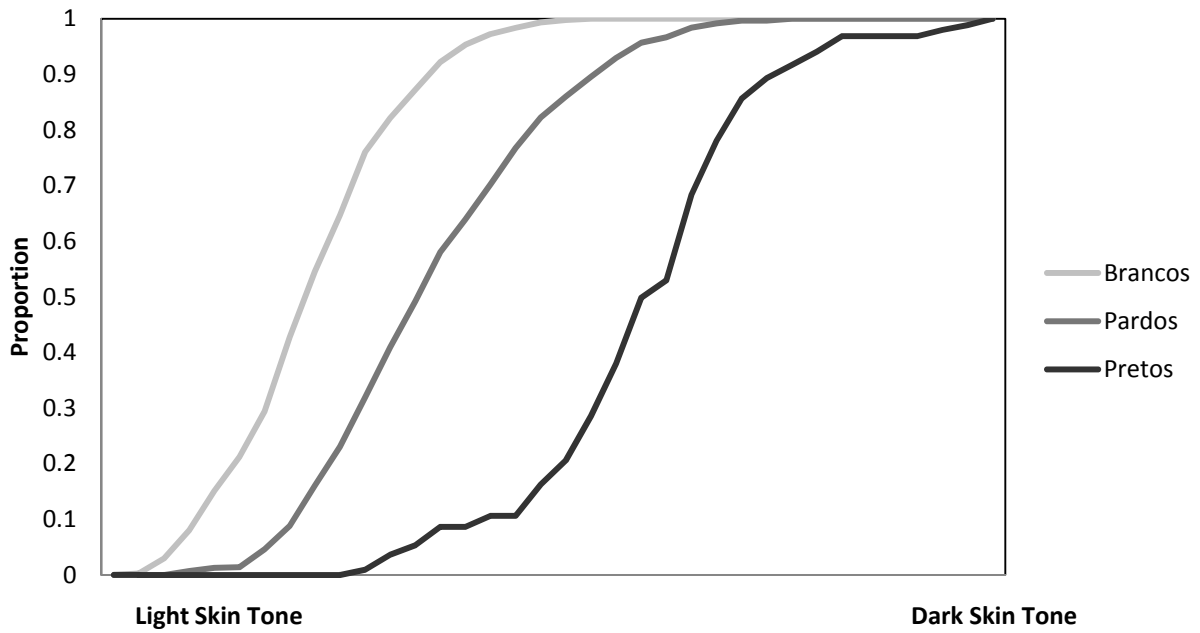
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Figure 1
Cumulative Distribution of Skin Tone



NOTE. Cumulative distribution functions of average standardized skin tone are based on ratings of student photos. Light skin tone is toward the left and dark skin tone toward the right. Sample weights are used. Data source: PSEU.

Table 1
Joint Distribution of Parents' Race

		Father		
		Branco	Pardo	Preto
Mother	Branca	37.1%	19.4%	6.8%
	Parda	13.0%	15.4%	3.1%
	Preta	2.6%	1.1%	1.5%

NOTE. Sample only includes students and parents who are *branco*, *pardo*, or *preto*. Data source: PSEU.

Table 2
Parents' Race

Variable	Student Self-Reported Race				
	Branco (1)	Pardo (2)	Preto (3)	Negro (4)	
<i>Same-Race Families</i>					
<u>Mother</u>	<u>Father</u>				
Branca	Branco	0.939 (0.008)**	0.060 (0.008)**	0.001 (0.001)	0.020 (0.004)**
Parda	Pardo	0.037 (0.009)**	0.928 (0.013)**	0.035 (0.009)**	0.200 (0.020)**
Preta	Preto		0.025 (0.025)	0.975 (0.025)**	1.000 (0.000)**
<i>Mixed-Race Families</i>					
<u>Mother</u>	<u>Father</u>				
Branca	Pardo	0.421 (0.022)**	0.571 (0.022)**	0.008 (0.004)**	0.087 (0.013)**
Parda	Branco	0.357 (0.026)**	0.625 (0.026)**	0.018 (0.007)**	0.134 (0.019)**
Branca	Preto	0.119 (0.024)**	0.621 (0.037)**	0.260 (0.033)**	0.582 (0.037)**
Preta	Branco	0.072 (0.031)**	0.536 (0.060)**	0.391 (0.059)**	0.594 (0.059)**
Parda	Preto		0.402 (0.054)**	0.598 (0.054)**	0.805 (0.044)**
Preta	Pardo		0.138 (0.064)**	0.862 (0.064)**	0.897 (0.057)**
N		2,614	2,614	2,614	2,607

NOTE. Numbers in parentheses are robust standard errors. A double asterisk indicates significance at the 5% level, and a single asterisk indicates significance at the 10% level. Sample only includes students whose parents are *branco*, *pardo*, or *preto*. Regressions suppress constant term. Data source: PSEU.

Table 3
Self-Reported Race and Socioeconomic Status by Skin Tone Quintile

Lightest quintile										
Race/skin tone (self-reported)	Mother College		Domestic Worker		Brasilia		Private School			
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Branco	85.3	77.3	84.4	79.4	83.2	82.0	82.6	83.3		
Pardo	13.2	22.7	15.6	16.9	15.3	18.0	16.0	16.7		
Preto	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Second quintile										
Race/skin tone (self-reported)	Mother College		Domestic Worker		Brasilia		Private School			
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Branco	68.5	** 50.4	70.3	** 39.2	67.8	** 47.3	65.6	** 48.5		
Pardo	25.4	** 49.6	26.4	** 56.9	27.0	** 52.8	29.7	** 51.5		
Preto	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Third quintile										
Race/skin tone (self-reported)	Mother College		Domestic Worker		Brasilia		Private School			
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Branco	41.3	45.6	44.9	41.2	45.9	38.3	48.0	*	35.2	
Pardo	46.0	50.4	46.0	51.7	44.5	54.5	43.0	*	56.5	
Preto	4.0	* 0.0	3.3	0.8	2.3	2.1	2.3		2.2	
Fourth quintile										
Race/skin tone (self-reported)	Mother College		Domestic Worker		Brasilia		Private School			
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Branco	30.5	27.4	38.1	** 17.8	32.7	24.2	35.9	** 19.7		
Pardo	66.2	61.5	58.1	* 71.4	58.0	* 71.0	57.7	** 72.4		
Preto	2.0	3.5	0.7	* 5.2	1.9	3.7	2.6		2.9	
Darkest quintile										
Race/skin tone (self-reported)	Mother College		Domestic Worker		Brasilia		Private School			
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Branco	4.0	3.7	4.9	2.9	3.9	3.8	3.4		4.2	
Pardo	55.0	51.6	59.0	47.2	66.3	** 43.5	54.7		50.9	
Preto	37.2	42.4	32.8	** 47.4	28.6	** 48.8	38.7		42.5	

NOTE. A double asterisk indicates significant difference in proportions at the 5% level, and a single asterisk indicates significance at the 10% level. Skin tone quintiles are based on ratings of student photos. Sample weights are used. Data source: PSEU.

Table 4
Self-Reported Race and Gender by Skin Tone Quintile

Race/skin tone (self-reported)	Lightest quintile		Second quintile		Third quintile	
	Male %	Female %	Male	Female	Male	Female
Branco	86.3	79.0	67.7	* 54.7	49.4	* 37.0
Pardo	11.8	* 21.0	28.8	* 41.9	43.9	52.2
Preto	0.0	0.0	0.0	0.0	0.0	** 4.5

Race/skin tone (self-reported)	Fourth quintile		Darkest quintile	
	Male	Female	Male	Female
Branco	31.4	25.0	2.8	5.0
Pardo	65.2	63.2	59.8	** 43.9
Preto	0.6	** 5.6	34.6	* 48.2

NOTE. A double asterisk indicates significant difference in proportions at the 5% level, and a single asterisk indicates significance at the 10% level. Skin tone quintiles are based on ratings of student photos. Sample weights are used. Data source: PSEU.

Table 5
Self-Reported Race, Socioeconomic Status, and Gender

Variable	Self-Reported Race			
	Branco (1)	Pardo (2)	Preto (3)	Negro (4)
Mother college	-0.022 (0.036)	-0.016 (0.040)	0.019 (0.016)	-0.019 (0.027)
Domestic worker	0.094 (0.036) **	-0.034 (0.039)	-0.032 (0.018) *	-0.048 (0.029) *
Brasilia	0.046 (0.033)	-0.019 (0.038)	-0.048 (0.018) **	-0.055 (0.027) **
Private school	0.053 (0.037)	-0.077 (0.042) *	0.011 (0.021)	-0.050 (0.032)
Female	-0.074 (0.030) **	0.024 (0.034)	0.045 (0.016) **	0.047 (0.024) **
Second quintile	-0.212 (0.049) **	0.186 (0.048) **	-0.002 (0.005)	0.035 (0.025)
Third quintile	-0.373 (0.050) **	0.302 (0.050) **	0.018 (0.013)	0.063 (0.027) **
Fourth quintile	-0.506 (0.048) **	0.445 (0.049) **	0.021 (0.013)	0.116 (0.033) **
Darkest quintile	-0.740 (0.038) **	0.322 (0.053) **	0.390 (0.039) **	0.583 (0.042) **
Constant	0.735 (0.048) **	0.261 (0.051) **	0.014 (0.021)	0.135 (0.034) **
N	898	898	898	896
Joint significance of SES variables (p-value)	0.0012	0.0558	0.0194	0.0009

NOTE. Numbers in parentheses are robust standard errors. A double asterisk indicates significance at the 5% level, and a single asterisk indicates significance at the 10% level. Skin tone quintiles are based on ratings of student photos. Sample includes all races. Sample weights are used. Data source: PSEU.

Table 6
Self-Reported Race and Racial Quotas by Skin Tone Quintile

Race/skin tone (self-reported)	Lightest quintile		Second quintile		Third quintile	
	Pre-quotas %	Post-quotas %	Pre-quotas	Post-quotas	Pre-quotas	Post-quotas
Branco	78.3	86.1	64.5	57.4	34.9	* 47.9
Pardo	21.7	12.2	32.4	38.9	53.6	44.8
Preto	0.0	0.0	0.0	0.0	4.2	1.1

Race/skin tone (self-reported)	Fourth quintile		Darkest quintile	
	Pre-quotas	Post-quotas	Pre-quotas	Post-quotas
Branco	34.9	25.7	13.8	** 0.9
Pardo	57.8	67.3	50.1	53.3
Preto	4.1	2.2	27.0	** 44.7

NOTE. A double asterisk indicates significant difference in proportions at the 5% level, and a single asterisk indicates significance at the 10% level. Skin tone quintiles are based on ratings of student photos. Sample weights are used. Data source: PSEU.

Table 7
Self-Reported Race and Racial Quotas

Variable	Self-Reported Race					
	Branco		Pardo		Preto	
	(1)	(2)	(3)	(4)	(5)	(6)
Second quintile x post-quotas	-0.149 (0.099)	-0.131 (0.099)	0.161 (0.097) *	0.154 (0.098)		-0.013 (0.009)
Third quintile x post-quotas	0.052 (0.099)	0.069 (0.101)	0.007 (0.100)	-0.023 (0.102)		-0.040 (0.032)
Fourth quintile x post-quotas	-0.169 (0.098) *	-0.172 (0.100) *	0.190 (0.100) *	0.212 (0.102)**	-0.011 (0.028)	-0.033 (0.028)
Darkest quintile x post-quotas	-0.207 (0.086)**	-0.188 (0.092)**	0.128 (0.115)	0.094 (0.118)	0.184 (0.086)**	0.187 (0.085)**
Post-quotas	0.078 (0.061)	0.072 (0.063)	-0.095 (0.059)	-0.090 (0.061)	-0.008 (0.009)	0.006 (0.007)
Second quintile	-0.139 (0.070)**	-0.139 (0.071)**	0.107 (0.069)	0.101 (0.070)		0.006 (0.006)
Third quintile	-0.434 (0.076)**	-0.421 (0.078)**	0.319 (0.079)**	0.321 (0.081)**		0.045 (0.030)
Fourth quintile	-0.434 (0.079)**	-0.393 (0.084)**	0.361 (0.081)**	0.306 (0.085)**	0.028 (0.025)	0.044 (0.025) *
Darkest quintile	-0.645 (0.076)**	-0.606 (0.082)**	0.284 (0.100)**	0.263 (0.104)**	0.258 (0.074)**	0.245 (0.073)**
Mother college		-0.015 (0.036)		-0.022 (0.040)		0.018 (0.016)
Domestic worker		0.094 (0.036)**		-0.034 (0.039)		-0.032 (0.018) *
Brasilia		0.045 (0.033)		-0.019 (0.038)		-0.046 (0.018)**
Private school		0.051 (0.036)		-0.078 (0.042) *		0.015 (0.020)
Female		-0.069 (0.030)**		0.018 (0.034)		0.046 (0.016)**
Constant	0.783 (0.047)**	0.688 (0.061)**	0.217 (0.047)**	0.322 (0.065)**	0.012 (0.009)	0.005 (0.022)
N	915	898	915	898	915	898

NOTE. Numbers in parentheses are robust standard errors. A double asterisk indicates significance at the 5% level, and a single asterisk indicates significance at the 10% level. Sample includes all races. Sample weights are used. Data source: PSEU.

Table 8
Changes in Self-Reported Race between the QSC and PSEU

Race/skin tone (self-reported)		Pre-quotas		Post-quotas
QSC	PSEU	%		%
Branco	Branco	43.1	**	30.9
Pardo	Pardo	33.1	*	41.3
Preto	Preto	4.6		8.2
Branco	Pardo	9.3	*	5.3
Branco	Preto	0.0		0.1
Pardo	Branco	6.0		6.1
Pardo	Preto	0.7	**	6.1
Preto	Branco	0.0		0.4
Preto	Pardo	3.3		1.6
Column total		100.0		100.0

NOTE. A double asterisk indicates significant difference in proportions at the 5% level, and a single asterisk indicates significance at the 10% level. Sample consists of students who completed both the PSEU and QSC and self-identified as *branco*, *pardo*, or *preto*. Data sources: PSEU, QSC.

Appendix Table 1
PSEU Sample Characteristics

Variable	Students	
	Photo Sample	Population
	%	%
Female	51.3	** 46.9
Family residence		
Brasilia	51.4	50.3
Distrito Federal, not Brasilia	39.6	40.5
Outside of Distrito Federal	9.1	9.2
Quota student	15.8	** 11.4
Semester		
2-2003	19.6	17.7
1-2004	18.5	18.8
2-2004	21.0	20.9
1-2005	18.9	21.1
2-2005	22.1	21.5
Subject area		
Humanities and arts	10.7	11.8
Social science	26.6	** 17.2
Natural and physical science	13.2	14.4
Other science	10.6	9.2
Engineering	9.5	** 12.4
Business	6.3	** 9.1
Health	7.8	7.5
Professional	5.8	7.0
Teaching	9.5	* 11.4
PAS student	18.3	19.8
Number of times applied	2.59	2.53
College GPA	3.87	** 3.75
Completed QSC	59.5	* 56.3
<i>N</i>	915	7,629

NOTE. A double asterisk indicates significant difference in proportions at the 5% level, and a single asterisk indicates significance at the 10% level. All numbers are % except number of times applied and college GPA. Data source: PSEU.

Appendix Table 2
Composition of Applicant Pool

	Pre-quotas		Post-quotas
	%		%
Black racial identity (negro)	20.6	**	26.1
Race/skin tone			
Branco	46.2	**	44.3
Pardo	29.9	**	36.4
Preto	8.3	**	6.4
Asian	4.0	**	3.4
Indigenous	0.9	*	0.7
No answer	10.7	**	8.8
Female	50.6		50.5
Family residence			
Brasilia	40.7	**	38.8
Distrito Federal, not Brasilia	41.7	**	39.1
Outside of Distrito Federal	17.6	**	22.1
Family income			
Less than R\$ 500	6.9	**	5.8
R\$ 500-1,500	21.0	**	18.9
R\$ 1,500-2,500	16.7		16.3
R\$ 2,500-5,000	25.2		25.9
More than R\$ 5,000	20.4	**	22.5
Don't know	9.7	**	10.7
Mother's education			
Primary school incomplete	12.8	**	10.0
Primary school complete	6.9	**	6.1
Secondary school complete	33.1		32.6
College	46.0	**	50.1
Don't know	1.1		1.1
Public secondary school attendance	36.9	**	32.1
First-time applicant	32.0	**	35.9
<i>N</i>	7,098		20,978

NOTE. A double asterisk indicates significant difference in proportions at the 5% level, and a single asterisk indicates significance at the 10% level. Sample weights are used. Data source: QSC.