THE INFLUENCE OF PARENTAL CHARACTERISTICS ON A CHILD'S PROBABILITY OF INTERRACIAL MARRIAGE IN BRAZIL

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1. Introduction

Interracial marriage is an important topic in racial studies. In Brazil, different researchers have discussed intermarriage in terms of social closure and racial boundaries (Berquó 1987;. Silva 1987; Petruccelli 2001; Telles 2004; Ribeiro and Silva 2009; Longo 2011). It is agreed that there is an important hierarchy based on skin color in the marriage market. In this hierarchy, browns are more likely to marry whites than blacks, especially brown women; and black women are the least likely to marry a white spouse. However, we do not know if endogamy is intergenerationally influenced, as is the choice between marriage and cohabitation (Thornton, Axinn, and Xie 2007), and the decision to divorce (Wolfinger 2011). Moreover, there is a lack of discussion about how having a white or a nonwhite parent influences the probability of marrying a white spouse. These are the questions this paper aims to answer. More specifically, the paper discusses: 1) whether parental endogamy affects the probability of a child's endogamy, and 2) whether parental race influences the race of a child's spouse. The analysis considers the gender differences in terms of probability of being in an interracial marriage within the marriage market (see for instance, Berquó 1987 and Silva 1987) and other factors, such as age, schooling, and place of residence. The analysis also includes the differences between being children of

interracial parents or same race parents, in order to better assess the role of parental race on partner choice.

Parental characteristics are important factors for better understanding the process of selecting a spouse because they may influence their child's partner choice through three mechanisms. Firstly, socialization influences an individual's preferences. Secondly, parental characteristics influence where children live and go to school, which affects their potential spouses' characteristics—in sum parental characteristics influence the social networks of their children, and therefore have an impact on the marriage market of their children, for example schools and neighborhoods. The third potential mechanism is the direct parental influence or control on who children decide to marry. Therefore, the discussion about parental characteristics helps to elucidate the process of partner choice and reinforces the previous findings that assortative mating is not a random process.

I used data from the Brazilian Social Survey (PESB - *Pesquisa Social Brasileira*) for the year 2002, which is a national representative household survey similar to the GSS (*General Social Survey)* in the United States. I used logistic regression models to answer both questions: the first about the influence of parental endogamy in child's endogamy and the second about the influence of parental race in the race of child's spouse. The dependent variables are: children's type of union (endogamy/exogamy) and race of a child's spouse (white/nonwhite). When analyzing the endogamy of parents and children, I used the following three racial categories for children: white, black, and brown. However, due to sample size, I used only the white or nonwhite classification for the analysis of the influence of parental race (white/nonwhite) on the

race of a child's spouse (white/nonwhite). The results reinforce gender asymmetry and the fact that marrying at an older age and/or higher order within the marriage market has a different pattern. In this sense, one can conclude that parental characteristics are important for a series of intergenerational status transmissions and they also seemed to be essential for the process of family formation, and more specifically they are significant to family racial relations.

This paper has seven sections, which includes this brief introduction. The second section discusses the racial classification system in Brazil and presents the brief historical trend of intermarriage in Brazil. The following section approaches some theories for explaining interracial marriage. The fourth section discusses how parental characteristics influence the characteristics of a child's spouse and union, utilizing potential mechanisms such as, i) socialization, ii) definition of children's marriage market (including neighborhood, school, social networks) and iii) direct parental influence. The fifth section presents the data and methods for the analysis and the sixth section discusses the findings. The last section of the paper presents some conclusions with suggestions for future research.

2. Racial Classification and Intermarriage in Brazil

Racial identity and racial classification in Brazil are considered loosely due to a lack of descent rule, the confounding effect of social class (see Schwartzman 2007), and the fact that racial identity is greatly related to skin color. These factors make an aspect of racial identity subjective, and therefore unstable. However, the official terms- white, brown, and black- seem to capture well the racial categories and the proportion of people classifying themselves in each category is stable over time.

Another important characteristic of race relations in Brazil is the high level of miscegenation. This practice began during slavery, when white men outnumbered white women and they started having nonwhites as formal or informal partners. The high levels of race mixture produced the idea that Brazil was a racial democracy (Freyre 2006) [1933]; Pierson 1942). However, other authors (Azevedo 1966; Fernandes 1978; Pastore and Silva 2000) claimed that although there is a great racial mixing in Brazil, racial prejudice is also present, and therefore racial democracy is a myth. Moreover, other researchers (i.e. Winant 1999; Federico and Sidanius 2002) question whether the racial democracy argument has been used to reinforce racism and to complicate the black movement that seeks to advance race specific government actions. The debate also exists that in Brazil racial mixture comfortably coexists with a racial hierarchy and ideologies of whitening. This approach considers two types of relationships, the vertical one, meaning inequality and discrimination and the second is the horizontal, or sociability dimension. Because horizontal relationships are quite common, such as, racially mixed friendships and intermarriage, racial mixture has been central to the meaning of the nation (Telles 2004; Telles and Sue 2009).

Intermarriage levels are the main representation of the Brazilian miscegenation. Intermarriage is increasing in Brazil. In 1960, one in 10 marriages were racially exogamous, in 1980 this number increased to one in five marriages and in 2000, to one in three marriages (Ribeiro and Silva 2009). Most of these marriages were between browns and whites. Although endogamy is preferred, the levels of interracial unions are higher than in the United States and South Africa, where there is also a statistically significant proportion of blacks, but a more intense segregation and racial relations history (Heaton 2010; Telles 2004). Therefore, it is clear that marriage is far

from being randomly formed and the probability of marrying exogamously is not the same for all racial groups. There is less resistance to marriage between persons of proximate color, meaning browns and blacks, and browns and whites, in comparison with the much higher resistance to marriage between whites and blacks (Telles 1993, 2004). In an interracial union, white people are 10 times more likely to marry a brown spouse than a black one. In 1991, about 14.2% of white men had brown wives and only 1.3% had black spouses (Telles 2004). There is also a gender asymmetry, meaning that nonwhite women are more likely to marry a white spouse than nonwhite men, especially brown women (i.e Berquó 1987; Silva 1987; Telles 2004). In the marriage market, browns seem to be closer to whites than blacks, which is different from their situation during a socioeconomic analysis, in which they are closer to blacks (Silva 1987).

It is worth noting that racial relations in Brazil are quite different from American racial relations. Interracial unions always existed in Brazil and there were never formal sanctions against this practice since the abolition of slavery (Heaton 2010). In addition, the whitening perspective reinforced this type of union. On the other hand, in the United States interracial marriage was illegal until 1967[(1)] (Moran 2003; Romano 2003). The miscegenation in Brazil created not only a racial mixed category in the biological sense, but also an intermediary social position between whites and blacks. This intermediary social position and intermediary skin color are fundamental to understanding the Brazilian racial hierarchy within the marriage market.

3. Theories on Interracial Marriage

Previous studies focused on education or occupation as creating a family's status, and the importance of these characteristics within the marriage market, in this perspective, the influence

of family in the marriage market can be through preferences given socialization or exposure (Mare 2008) or due to the desire of family status maintenance (Blackwell 1998). However, race can also be considered when defining family status and is also a resource that can be traded within the marriage market. The status exchange theory, proposed by Davis (1941) and Merton (1941), states that the white spouse would trade his/her whiteness for a higher social economic position (usually measured through education) provided by the nonwhite spouse. In relation to Brazil, it seems that this explanation only applies to unions between a white man and a black woman (Silva 1987; Telles 2004; Ribeiro and Silva 2009). However, this does not mean that people are not considering race or skin color as an asset within the marriage market. It is known that there is a racial hierarchy within the Brazilian marriage market because racial homogamy-heterogamy rates are far from being random and are not totally explained by the racial composition of the marriage market (see Telles 1993).

There are additional theories for analyzing marriage. One important perspective is the economic theory in which status exchange can also be incorporated, usually in the sense of domestic labor. The economic theory of marriage is analyzed under two mechanisms. The first one is the cost-benefit or gains of marriage, and the second is the market analysis. In this framework, single people are perceived as competing for a spouse within a market and the search for a new spouse ends when the cost of the search is equal to the future benefit. People marry when the sum of the gains of being single is lower than the gains if married. For the traditional economic theory of marriage (Becker 1976, 1981) the division of labor within the household is what drives the process of partner choice, meaning the gains to marriage are mostly based on the division of labor. Men usually specialize in market activities and women in nonmarket activities; therefore,

the gender based division of labor can benefit each spouse because each one would utilize one another's skills. Using this approach follows the concept that positive assortative mating is when both spouses have similar characteristics, or complimentary traits. Negative assortative mating means that the spouses have opposite characteristics, or substitute traits. For Becker (1976), the matching process is more successful when a man has potential for high income and the woman has a lower earning capacity. This approach helps to explain the majority of interracial marriage being between a white man (higher income potential) with a nonwhite woman (lower income potential and probably more likely to dedicated to domestic labor).

The reviews of the economic theory maintain the division of labor as the core of a person's utility. Grossbard-Shechtman (1981 ;1984) developed a more general theory on marriage and considers that the allocation of time is crucial to understanding the marriage market and that intermarriage depends on the extent to which group norms regarding intermarriage have been internalized by individual men and women. This means that each person will be more or less likely to provide more or less household labor to his/her partner depending on his/her preference for homogamy or heterogamy.

Another theory utilized to understand marriage is the social reproduction perspective. In this framework, marriage is a way to maintain one's own social status and the caste or status group boundaries. Endogamy, in this perspective, is considered to be a fundamental part of social stratification in which the elite group uses marriage strategies to preserve its privileges. Status does not necessarily mean economic status, as Weber (1978) had shown classes are different from status groups. Status groups are not determined by their economic situation, but by a

specific positive or negative social estimation of honor, that can be linked to a class situation. Status groups are expressed by life status and consist of a group of people that claim a special social esteem. Ethnic groups are variants of status groups and are different from castes, because blood relations do not define ethnic groups. Racial groups are created not because race is an inherited trait, but because race is subjectively perceived of as a common trait among some people that splits the population into different groups. Because race has very visible characteristics, it is easier to translate these traits into social repulsion or attraction, which creates the sense of group membership. In this sense, family and social networks play an important role in reinforcing and reproducing this sense of group membership. As highlighted by Weber, almost all types of similar or contrasting physical characteristic can induce the belief of affinity or disaffinity. Because of this belief group boundaries are created and based on the fact that"[t]he conventional connubium is far less impeded by anthropological differences than by status differences(…)" (931). In this sense, marriage is regulated in order to keep only those individuals in one's group who have a specific style of life (Weber 1978).

In summation, for the social reproduction perspective, social rules constrain marriage choice and homogamy is perceived of as something fundamental for the process of the intergenerational transmission of status. Therefore, while the economic theory explains the motivation for heterogamy, in the sense that the gender based division of labor is the main driving force within the marriage market, the social reproduction theory better explains homogamy (Blackwell 1998). In both perspectives, the marriage market is a social space for the competition of limited and valued resources. Empirical evidence favors the social reproduction perspective because homogamy is prefered. However it is unclear whether there is a competition for the best potential

partner (whites in the case of race), or high status partner, and people end up with a similar partner, and lower status groups (blacks, for instance) are denied access to higher status groups in order to maintain social privileges. Or, whether everyone simply prefers to marry within their same status group.

4. Interracial Marriage and Parental Characteristics

Parental characteristics are important for explaining a series of outcomes for children, such as, health, education, and occupation. Some studies have also shown that family formation and dissolution are influenced by parental characteristics (Thornton et al. 2007; Mare 2008; Wolfinger 2011). Parental characteristics are also central because they help to define a child's group membership. If having a nonwhite father or a nonwhite mother decreases the probability of a child marrying a white person, controlling for other indicators, then the importance of the social group, which includes social networks, needs to be considered within the marriage market. It is worth pointing out that parental race is the biological and social determinant of an individual's race. Therefore it is also necessary to consider whether the effect of parental race manifests through the race of children, meaning that an independent effect of parental race does not exist. Finally, researchers have found that racial endogamy is stronger than educational homogamy (Ribeiro and Silva 2009; Blackwell and Lichter 2004). Racial endogamy is considered to be a more cultural aspect of the marriage market and educational homogamy is thought of as being a more economic characteristic. Because of this, one can conclude that the cultural component of the marriage market might be more important than the economic one, as highlighted by Kalmijn (1998). On the other hand, we cannot exclude the intimate connection between parental race, socioeconomic characteristics, and the geographical location of their

children out of the discussion. All of these factors influence the marriage market of children and their potential spouses' characteristics. The relationships between these factors are explored in the next section.

4.1. Potential Mechanisms of the Influence of Parental Characteristics

The potential mechanisms noting that parental characteristics may influence the partner choice of children are based on Kalmijn's (1998) discussion about the factors that influence assortative mating. These factors include: 1) individual preferences; 2) marriage market characteristics; and 3) the influence of third parties. Family is directly related to all three of these factors through: i) socialization; ii) direct influence/control and through the indirect effect; and iii) through the local marriage market (place of residence and social networks).

In terms of socialization, there are two ways of explaining its influence on partner choice. First, Mare (2008) states that parents may prefer to socialize their offspring with mates similar to themselves. In this sense, socialization would build a preference for endogamy, and would be even greater among children of racially endogamous couples. The author highlights that "[t]he significance of this effect lies in the capacity for socioeconomic clustering and inequality in one generation to reinforce the same tendency in a subsequent generation" (Mare 2008). This means that marriage is a way of maintaining social group boundaries and privileges. Therefore, people would prefer to marry equals in order to maintain their socioeconomic clustering. In this sense, other groups would be excluded from the children's preferences.

The second way of approaching the relationship between socialization and preferences and their effect on intermarriage refers to Kalmijn (1998) who highlights that "[c]hildren are typically brought up with a sense of group identification"(p.400). The difference from the first explanation is the fact that this sense of group identification is not necessarily given an explicit preference but because of life experience. If both parents are from the same racial group, a preference for marrying someone from the same group might be created. The opposite might also be true. This means that parents with different characteristics might make the children more tolerant and open to racial differences, which influences their openness of marrying someone from a different group. This may occur even if the individual perceives of themselves as being part of one specific group, but they may also consider themselves and their family as a part of more than one group. This view is quite similar to the one expressed by Grossbard-Shechtman (1981) about the internalization of social norms. She highlights the fact that price and market theory takes a "micro" approach; and therefore what matters is the extent to which group norms regarding intermarriage have been internalized by individual men and women (p.175). This occurs in order for them to align themselves accordingly to their individual preferences and to know to what extent women from different (racial) groups are substitutable or not.

The second mechanism (direct family influence) is related to the first one (socialization), but they are not the same. Direct influence means the acceptance or rejection of a potential spouse and the clear intervention of the parents during the partner choice process. Even if a child wants to marry someone, the parents may try to convince or obligate the child to choose an alternative partner. This is different from the influence of socialization because the preference that is established by this process is not forced, but learned as being something "normal or natural" and

thus expected. Therefore, direct family influence takes the form of conversations, including advice and even threats, with parents and/or other relatives about the potential spouse. When one is getting married the individual might be worried about societal and familial support. Parents worried about their children's choices may clearly express the type of person they want or expect to become a part of the family. Moreover, parents might be worried about the acceptance of their potential daughter-in-law or son-in-law into their social networks and the kind of support these friends may be able to provide to the young couple.

Another way parental characteristics may influence the choice of a child's partner is through the marriage market. It is worth noting that it is hard to define one's marriage market. A marriage market usually includes the places where people would potentially find a spouse, such as, in a neighborhood, school, and at the workplace. These are all environments where people build their social networks. Considering the marriage market as a social space, in which people potentially find their partners, children of endogamous parents may be more exposed to a more racially homogenous group because of their parent's social networks, neighborhoods, schools, and other spaces. Marriage markets represent the opportunities and constraints of finding a spouse with certain characteristics. In this sense, socialization and the locations frequented by individuals also influence their social networks. In these environments individuals may find their potential partners and these networks may be more homogeneous if the parents are from the same racial group. The presence or absence of people from different racial groups in one's social networks can also influence a person's perceived support of his/her relationship. In addition, it is widely discussed that characteristics of the marriage market influence partner choice, such as, racial

distribution (Telles 1993) gender ratio (Angrist 2002; Freiden 1974; Queiroz 2004), differences in male/female earnings (Freiden 1974), and others.

4.2. Empirical Evidence

Although, the mechanisms that parental characteristics influence the characteristics of a child's spouse are very important for a better assessment of how people are pairing up within the marriage market, it is the subject of very few analyses. Historically, Johansson (1987) shows how the European elite were concerned with protecting themselves from downward mobility. According to him, "It was through restricting the access of their surviving offspring to marriage that elite couples first practiced a 'traditional' version of the modern two-child family,'' (Johansson 1987, p. 449). The author also discusses the role of dowries and professional career decisions. Dowries are highlighted in some economic literature because the process involves a transfer to a daughter at the time of her marriage with a clear objective within the marriage market. In other words, when one sex was scarce the potential spouses of the opposite sex would pay bride prices or dowries. This practice would also protect the incentive of brothers to continue to increase parental wealthy because of their heritance. Nowadays, this practice has ended in most countries, but the change is due to a change in the environment for producing bridal wealth and not due to a change in the relative price of brides and grooms. Transfers are now more conducted through investments in human capital (Siow 2003).

Part of this parental control may not be present in modern Western societies; however, as Kalmijn (1998) points out there are still ways in which parents can interfere. They can set up meetings with potential spouses, play the role of matchmaker, give advice and opinions about the

candidates, and may withdraw support in the early years of a child's marriage. Nevertheless, they generally don't have strong sanctions when children decide contrary to their recommendations. (Kalmijn 1998: 401). In this sense, Rosenfeld (2007) suggested that the elevated number of children that leave home to pursue higher education opportunities in the United States is one of the explanations for the increase in interracial and homosexual unions, as a result of a decrease in parental control over the partner choice of their children. Although direct parental control seems to be losing its strength, other possible mechanisms may be continuing to have an impact. Some studies have shown that characteristics of a parental union influence the union formation and dissolution of their children.

Parental influence may be even stronger than would be expected, because its influence does not only occur through direct control. Thornton et al. (2007) show that events that occurred in a parent's life even before children were born, influence a child's decisions about whether to marry or cohabit. These events could include whether the parents had a religious wedding ceremony or not, and if the mother had a premarital pregnancy. An interesting finding is the influence of both the maternal and paternal grandmother's religion, which reinforces the importance of not only the parents, but also the influence of other family members and how family formation characteristics may be intergenerationally transmitted. Marital dissolution is also influenced by the parents. Wolfinger (2011) concludes that divorce is also intergenerationally influenced, meaning that having divorced parents increases the probability that children will also get divorced.

Another significant reason for analyzing parental influence in marital choices is the social reproduction process. Mare (2008) considers the intergenerational transmission of endogamy as an instance of socioeconomic reproduction at the family level. This serves as a mechanism for explaining the increase in the aggregate trends in educational assortative mating due to the strong relationship between the educational homogamy of the parents' and children's generations. The results indicate that having parents with the same level of education increases the probability of educational homogamy. For Blackwell (1998), a father's educational level is a family resource traded within the marriage market. Her findings show that paternal education has a positive effect on the endogamy of children. This suggests that children, whose parents have a higher level of education, are more likely to marry at this same educational level. This reinforces the concept of group's social status maintenance, which suggests that people in higher status groups may be the ones more concerned with the process of assortative mating. The effect varies by gender, in such a way that wives appear to benefit more from the added input of paternal education than do husbands. Finally, the author argues that inherited educational status may play a more important role in determining a daughter's eventual marital outcome. From these two studies on educational assortative mating, we learned that there is an intergenerational component to partner choice and it seems to vary based on a child's gender.

Blau and Duncan (1967) present a different perspective and explore the question of how much of the variation in the occupational achievement of a man may be attributed to the difference in the status of the woman he marries, especially in relation to the occupational status of the woman's father. They included information on the educational achievement of each spouse, the husband's occupational status, and the occupational status of the father of both the husband and wife in

order to analyze whether the father-in-law influences an individual's occupational status. The main result concluded that "(...) a man's occupational status is about as much related to that of his father-in-law as to that of this own father" (343).

Lam and Schoeni (1993, 1994) also explored the characteristics of a father-in-law by analyzing how the schooling of both the father and father-in-law influences earnings and schooling. In regards to Brazil, they found that the schooling of a father-in-law has a greater effect than the father's schooling due to strong assortative mating, and not because of work and family relations. It is important to highlight the fact that these effects are modest in comparison to those of the worker's own schooling, which is largely influenced by the father's education. In the United States, the father's education has a stronger association with a child's income than does the father in-law's education. This is probably because of weaker assortative mating and because of the greater significance of unheritated income in a wife's lifetime

5. Data and Method

I used data from the Brazilian Social Survey (PESB - *Pesquisa Social Brasileira*) for the year 2002. This is a nationally representative household survey and has a sample size of 2,364 individuals. What makes this survey significant for this paper is the fact that it is the only national survey with information about parental race and the race of a child's spouse.

The selected variables for the analyses are: an individual's race, which is represented by three categories in the first model (white, brown, and black) and two categories in the second model (white/nonwhite), type of parental union (endogamy/heterogamy), mother's race, and father's

race. However, information on mother's race and father's race are combined into one variable. The racial categories I am using are : white (*branco*), brown (*pardo*), and black (*preto*), therefore I excluded Asian (*amarelo*) and Indigenous (*indígena*) from the analysis, and summed browns and blacks when considering nonwhites Any combination among these three categories is considered interracial marriage when analyzing the relationship between parental and child endogamy. In the second part of the analysis, I'm using only white and nonwhite as racial categories due to the sample size when combining the parents' race and children's race, but the parental interracial marriage variable still considers the combination of browns and blacks as exogamy. I will discuss this in greater detail in the section four.

There is no information about the spouse's parents, therefore, by accounting for differences between men and women I run the models by gender. Other potential effects are summed into the variables: 1) gender, given the differences; 2) an individual's race; 3) years of education (schooling), which are very important because of the association of race and social class within the marriage market; 4) age, because of the lack of information on marriage order and marriage timing, age helps capture part of the timing of marriage. It is also known that educational homogamy and age have an inverted U-shaped relationship: the odds of homogamy may be lower among those who marry at older ages because of the changing nature of the marriage market as people age (Lichter 1990; Mare 1991; Lewis 2000) and also because of the shrinking availability of potential partners (Lichter 1990; Lewis 2000;); (5) region, which is the lowest geographical level of representativeness in the survey. Controlling for a geographic area is necessary because of potential differences between areas, such as, racial composition and racial tolerance. Preliminary analyses have shown that whether or not you are located in the Northeast

is what really matters in terms of regional differences. I also explored the interaction between the Northeast and an individual's own race; 6) state's capital, which indicates whether or not the individual lives in the capital of the state; 7) parental education, in order to get the liquid effect of parental race and not a confounding effect with social class of the parents. Considering the education of the parents is also important because racially homogamous unions tend to be educationally homogamous and vice versa (Blackwell and Lichter 2000). In order to deal with multicolinearity between parental characteristics and a child's (individual's) characteristics, I constrained their coefficients to be equal, which eliminates multicolinearity between an individual's characteristics and those of their parents, as is suggested by Hout and Janus (2011). In addition, previous analyses showed that the race of both the father and mother have the same effect, as does the educational background of the father and mother.

(TABLE 1)

Retrospective questions about parental characteristics usually have a considerable amount of missing data, as reflected by answers such as, "I do not know" or "I do not remember." For parental race, I combined these two answers with Asian and indigenous parents into one category, called "not reported", and included it in the equation in order to control for selectivity. For mother's race, 1.09% of the individuals reported that their mother's race was other and 1.93% did not report it. For father's race 0.47% of the individuals reported other race and 3.72% did not report any race. A very small percentage of individuals, only 0.007% (9 individuals among 1,254), did not report the race of both parents or reported as other race.

There is more missing information for parental education than for parental race: 17.62% of the sample did not report father's education and 11.4% did not report mother's education, and 0.07% did not report either parent's level of education (91 interviewees among 1,254). In order to deal with this problem, I used multiple imputation methods to construct 20 independent data sets composed of all observed data and an imputation for each missing case. The results are an average of the 20 independent samples (Rubin 2004; Treiman 2008). I used the command *mi* in the statistical software Stata, which assumes that missing data are missing at random; that is, missing values do not carry any extra information about why they are missing than what is already available in the observed data. The command *mi impute*, which creates imputations by simulating from an (approximate) Bayesian posterior predictive distribution of the missing data, following Rubin's recommendation (Marchenko 2009).

In order to better understand how the process of parental race and type of union influences a child's decision about who to marry, I also analyzed the final models, using the same independent variables (if applicable as in Table 1, by gender, individual's racial group (white, brown, and black), age groups (20-30; 30-40; and 40+), educational level (less than high school and high school or more), and type of parental type (endogamy or heterogamy) in order to analyze whether parental race and an individual's own race have different effects within different groups.

There are potential problems when using this data for analyzing marriage. First, the analysis only includes successful marriages at the time of the survey, and if intermarriage is associated with more instability and dissolution, (see for instance Ho and Johnson 1990; Kreider 2000; Bratter

and King 2008) same race unions are more likely to be better represented. Another problem is the interpretation of only one time period, hence no conclusions about changes over time can be made. Lastly, there is no information on whether the relationship between parents and child is formal or informal, and as Longo (2011) showed, cohabitation unions tend to have higher levels of racial exogamy. Moreover, parents involved in formal unions might be more concerned about their child's union and encourage them to have formal unions rather than cohabiting relationships. In the absence of the differentiation between the varying types of union, I use the terms marriage and union interchangeably throughout the text.

5.1. Logistic Regression Model

I used logistic regression models for analyzing i) the influence of parental endogamy on the endogamy of children and ii) the effect of parental race on a child's decision about the race of their spouse, because both dependent variables are dichotomous. The first analysis includes type of union (endogamy=1 and exogamy=0) as the dependent variable, and in the second analysis, the dependent variable is the race of the child's spouse, meaning white (1) or nonwhite (0). I'm using the classification of white and nonwhite for the race of a child's spouse, and not white, black, and brown, because of the sample size. When analyzing the combinations between parental race, an individual's race, and the race of a child's spouse for some groups, such as, black mother, black father, black child and white spouse, the sample size is very small. This limitation does not substantively affect the analysis because the main interest here is to answer the question of whether having a white father or mother increases the probability that a nonwhite marries a white person. However, it is worth highlighting that blacks and browns have different social positions within the marriage market (see for example, Silva 1987; Telles 2004; Ribeiro

and Silva 2009), so it would be interesting to investigate whether a white mother or a white father has a different impact on the race of their child's spouse. I also included parents for whom race information was missing (not answered or did not know) to control for selectivity.

5.2. What are the main differences between the two models?

As stated in the previous section, there are two main models in the analysis. One model has the endogamy of the children as the dependent variable and the second model represents the race of a child's spouse. Both models aim to answer how parental race influences the choice of the race of a child's spouse. The first difference between the models that should be noticed is how a spouse's race is incorporated into the dependent variable. In the first equation, a spouse's race is incorporated into the odds of both spouses having the same race (endogamy) in contrast to the odds of both spouses having a different race (exogamy). In this situation, the model explains whether both spouses are from the same racial group or not and the fact that they are white or nonwhite does not matter, but the equation expresses the individual's own race as an independent variable. In the second equation, the dependent variable is the race of a child's spouse, so the individual's race (in other words, its relationship to the other spouse's race) is only considered as an independent variable. Therefore, the influence of the independent variables might be different, especially for the individual's own race, since it is part of the dependent variable of the first equation. Moreover, it is important to think about the kind of information each equation provides. In general, people are more likely to marry equals, when comparing religious, educational, age, and racial groups; therefore, the first equation just points out which variables are significant to explaining this overall pattern. In the second analysis, the focus is on the variables associated to the possibility of marrying someone who is from a different racial group.

6. Findings for Racial Assortative Mating

6.1. Descriptive Analysis

After selecting only adults who were 20 years-of-age or older and people from the three more expressive racial groups: white, black, and brown[(3)]; the final total sample size includes 1,254 individuals. 48.80% are men and 51.20% are women. The ages range from 20 to 86 years-of-age, with an average age of 41.12 years-of-age. In the sample, 48.01% are white; 40.43% are brown, and 11.56% are black. The racial distribution of the fathers is 50.50% are white; 34.02% are brown; 11.19% are black, and 4.20% were classified as other racial group or not reported. The mother's race is distributed as 60.82% being white; 30% brown; 6.16% black, and 3.02% reported as other or no reported racial group. The average of years of schooling for parents is 6.5 years; where whites have on average 7.9 years of education, browns 6.1 years, and blacks 5.2 years. The proportion of homogamous marriage is quite similar for both parents and children; 52.23% and 55.58%, respectively (Table 2). It is worth highlighting that studies have shown that homogamy has been decreasing and that interracial marriage was at about 33% in 2000 (Silva and Ribeiro 2009); however previous research usually utilized census data and had a different sample represented by couples between 20 and 34 years-of-age. In addition, as Duncan (1966) discussed regarding social mobility, parental information does not represent the sample of the previous generation, because when using retrospective data we do not have full access to information on the previous generation[(2)]. In this case, the fact that a parent had more than one child may inflate parental information. Another way to interpret this information is by considering that 62.70% of endogamous couples have parents in endogamy situations. In Table 3, the relationship between the union of the parents and the union of their children is clear, since children tend to have the same kind of marriage as their parents.

(TABLE 2)

(TABLE 3)

Analyzing the crude odds ratio, we observe that racial endogamy is 161.37% more likely to happen among children of parents in endogamous relationships than among children of parents in exogamous unions. The Spearman correlation between spousal race is actually low, only 0.3, and is about the same as the correlation between the race of a spouse and parental race. The correlation between parental education is 0.46 in this sample and the correlation between the sum of the years of education for both parents and the individual's years of education is 0.49 (0.3925 from the father and 0.4923 from the mother).

6.2. Analysis of the Endogamy of Parents and Children

The main question of this analysis is whether parental endogamy affects the endogamy of their children and in to what extent this relationship differs between males and females; among racial groups; among people with less than a high school education compared to people with high school or more; and for different age groups (20-30; 30-40; and 40 or more years-of-age). And, I also compared children of endogamous and exogamous couples.

I report the results in Table 4 and in order to select the best model and to consider the role of parental endogamy, the race of the parents and an individual's own race is considered separately, I present six models. The first model only includes parental endogamy, which is significant to explaining the children's union type. In the second model I added parental race and, although

they are both significant, when adding the children's race the parental race loses significance (Model 4). In Model 3 I tested parental endogamy and an individual's own race. Both elements are important to explaining the dependent variable and in the following model I used all three variables: parental endogamy, parental race, and the respondent's race. The main conclusion is that Model 3 and Model 4 do not differ (the difference of the Wald test is 0.83 and the chi-squared test for 2 degrees of freedom is 5.99, and is statistically significant at the 95% confidence level). Therefore, I excluded parental race from the subsequent models, remembering that parental race is included in the parental endogamy variable. This inclusion in the parental endogamy variable may be the reason that parental race is not statistically significant, as well as the fact that what really matters is the type of parental union. In Model 5, I included the control variables and, in Model 6 I included the interaction terms between the Northeast and an individual's own race. Model 6 adjusts better to the data. The Wald test for the difference between Model 5 and Model 6 is 20.17. Considering 2 degrees of freedom, the chi-squared test is 9.21, and is statistically significant at the 99% confidence level (see Table 4). Therefore I interpret Model 6, and used Models 5 and 6 for analyzing possible differences within groups (see Tables 5 and 6). The coefficients reported in the tables are analyzed as percentages through the $\text{text}\left(=\left(e^{\beta}-1\right)*100\right)$.

Considering Model 6 in Table 4, the main conclusion is that, on average, children of parents in endogamous unions are about 78.8% $\left(=\left(e^{0.581}-1\right)*100\right)$ more likely to also be in same race unions. Compared to the crude odds ratio of 161.37, calculated in the descriptive analysis, there is a decrease of 82.6 p.p. when controlling by a variety of variables. An individual's own race is important, and the region where one lives is intimately related when analyzing the probability of

a person being in a homogamous or heterogamous relationship. This is because of the different characteristics of the local marriage market, such as, racial and gender distributions, and variations in racial relations. Browns outside of the Northeast compared to whites outside of the Northeast have a 66.2% lower probability of marrying a white spouse. Blacks outside of the Northeast have an 84.8% lower probability of marrying a white spouse than whites outside of the Northeast. Whites in the Northeast are 75.5% less likely to have a white partner than whites outside of the Northeast. The Northeast is the region where nonwhites are mainly concentrated. Because of this, whites in this region are more exposed to nonwhites and racial relations tend to have more fluidity than in areas like the Southeast and South. Parental education is also important, and the higher it is the more likely that children are in racial homogamous unions. Other variables, such as, gender, age schooling, and whether an individual lives in the state's capital are not important for explaining endogamy. Thus, the first lesson is the fact that endogamy has an important intergenerational component given socialization and preferences developed through the marriage market or through direct parental influence. Race has a different influence depending on where people are located.

(TABLE 4)

6.2.1. Comparing groups

When analyzing different groups (by running separate equations for the groups, see Tables 5 and 6), one observes that parental endogamy is significant at a 5% level, for all groups (male, female, white, black, less than high school and high school or more, 30-40 years-of-age, and more than 40 years-of-age), except for browns and the age group of 20-30 years-of-age. While there is no significance for browns, parental endogamy has a greater impact on blacks than whites, although

the differences are not statistically significant between them when comparing the confidence intervals. These differences by race reflect the tendency that blacks and whites have higher rates of endogamy and browns have higher levels of intermarriage (see for example, Silva 1987; Telles 2004).

Parental education is only significant among whites. I would anticipate that education would also be significant among nonwhites, because it could serve as an asset to be exchanged within the marriage market, based on Blackwell's (1998) results. On the other hand, it could be expected that a white person who comes from a less advantageous family has a higher probability of marrying a nonwhite person. Following this logic, a white person coming from a higher social status would most likely have parents more concerned with maintaining this status, and therefore; parental education in this case would serve as an indicator of an individual's social status background and mark a level of concern for maintaining this specific social status and thus, would not function as an asset that could be exchanged within the marriage market.

The differences among age groups, meaning the fact that parental endogamy and being brown is not statistically significant among the youngest age group (20-30 years-of-age), are the result of two possible explanations. The first is a generational change that suggests that parental characteristics may have less of an influence on children from younger cohorts. The second possible explanation is that later marriages or higher-order marriages result in a different pattern for partner choice. Blackwell and Lichter (2004) found that women in first marriages are more educationally homogamous than women in second or higher-order marriages. However, Blackwell and Lichter (2004) did not find substantive differences, in terms of racial assortative

mating, between first and higher-order marriages. In this sense, it seems that the first explanation better describes the results.

The differences between males and females are interesting (see Tables 5 and 6). Parental education is not statistically significant for women and has a positive effect among men (7.68%), meaning that higher parental education increases the probability that males will marry endogamously, but the marital outcomes of women is not influenced. Being brown compared to being white has a minimal, but positive influence on females (0.4%) and a greater, negative effect on males (-71.6%). Being black, as opposed to being white, has no significant effect on females and decreases by about 93% the probability of men marrying endogamously. These results reinforce the gender asymmetry within the marriage market, in terms of race and gender, which suggests browns, especially brown women, are more likely to marry a white spouse (see for instance Berquó 1987 and Silva 1987). The results also suggest that blacks, followed by whites, have higher endogamy, after controlling for group size (Petruccelli 2001). The fact that black males have a lower endogamy, may be explained by the fact that black women are the group that is least desired within the marriage market. Thus, black men who have the opportunity to marry a brown or white spouse, choose to do so.

For educational groups there is no difference on the effect of parental endogamy. Although education does have an effect on endogamy, meaning that more education leads to a greater chance of being in a homogamous union, the effect for each group is quite similar. The other differences are the fact that parental educational is important only among less educated children (less than high school) and an individual's race has a much greater effect on more educated

children (brown with less than high school=-27.1%, while brown with at least high school= -65.5%, black with less than high school=-74.3%, while black with high school or more = 93.07%). This means that nonwhites have a lower probability of endogamy if they have a higher level of education. These results are very significant in order to better understand the interaction between education and race within the marriage market. Social origin (parental education) is more important if the person has less education. This indicates that parental education is also a component traded within the marriage market (Blackwell 1998) and that if the person has a higher level of education, the main difference seems to be the result of an individual's own race. These results also point to another notable role of education, which is the importance of schooling as a marriage market in itself (Mare 1991).

(TABLE 5)

(TABLE 6)

6.2.2. Comparing the Effect of Parental Race by Type of Parental Union

Children may have different choices within the marriage market depending on the type of union shared by their parents. Because of this face, I analyzed the same models by type of parental union (endogamy and exogamy). For children of same race couples I included parental race and the individual's race in the analysis, whereas for children of interracial couples, I used only their own race, because all of them have a white parent and a nonwhite parent. It is worth noting that although one would expect all children of mixed race unions to be brown, about 49% of them are not. There are 33.22% who self-declare as white, 51.08% as brown, and 15.7% as black. This distribution contributes to the argument about the fluidity present within the racial classification

system in Brazil, thus emphasizing the importance of reporting a respondent's race. Hence, the main objective of this comparison is to analyze the possible differences of people from the same racial group (or more precisely, self-declaring the same racial category)[4] and their probability of marrying endogamously or exogamously based on type of parental union.

When analyzing the effect of parental and an individual's own race on the probability of their marrying endogamously or exogamously based on the situation of their parents' union (Table 7), one observes that considering the Wald test, the best model for children of same race couples is Model 4. Model 1 is the best model for children of interracial couples. However, it is worth highlighting that although Model 2 does not differ in statistical significance from Model 1 (the difference of the Wald test is 4.97 with 6 degrees of freedom, the chi-squared test is 12.59 with a confidence level of 95%), parental education is statistically significant and has a similar effect on both groups.

The results for children of parents in racially endogamous couples show that having nonwhite parents has a negative effect and is significant only when not controlling for an individual's own race. The explanation may be the fact that parental race and an individual's own race among children of same race couples is the same. An individual's own race drives the process of children of racially endogamous couples, meaning that browns have a lower probability, and blacks the lowest probability, of being in an endogamous union. Brown children of exogamous couples have a 30.65% less chance of marrying endogamously than white children. Blacks basically have the same result in both cases (-87.4% and -80.2%, interracial parents and same race parents respectively). Whites are the ones with the highest probability of having a same race

union. This result may indicate a strong preference among whites to marry whites, or their exposure is highly correlated to the influence of their families. The difference between browns who are children of interracial couples and those who are children of same race couples, may demonstrate the fact that having one white parent may help them marry a white spouse. Thus, the probability of their marrying a brown spouse is lower than that of children of exogamous parents.

The only two other variables that are important for children of endogamous couples are region and parental education. Higher parental education means a higher probability of marrying endogamously even when controlling by parental and an individual's race (an increase of about 4.6% for each year of education). This result corroborates the discussion about higher social status origin, which suggests that the parents and the children may be more concerned about maintaining this status. Although this result does not point to a specific mechanism, it demonstrates that families are concerned about who the next generation is marrying, and/or children are concerned about keeping their status, or they are socialized in an environment that facilitates a positive assortative mating. On the other hand, being located in the Northeast is not significant when parents are in an interracial union and parental education has a slightly greater effect (5.87% higher for each year of schooling - Model 3). The interaction terms show that for children of same race couples, whites outside of the Northeast are the ones with the highest probability of marrying endogamously. For children of interracial couples, although being brown and in the Northeast is not statistically significant and the Wald test is also not statistically significant when comparing Models 1 and 3, almost all interaction terms are statistically significant.

(TABLE 7)

6.3. The relationship between parental race and the race of a child's spouse

The main objective of the second part of the analysis is to discuss whether parental race influences a child's choice of their spouse's race. Particularly of note is whether having a white parent influences the probability that a nonwhite individual will marry a white spouse and vice-versa. The results of this analysis are in Table 8. There are five models and the fifth one adjusted better to the data compared to the fourth model without other variables (Wald test = 185.99-144.39=41.6 with 5 degrees of freedom; the chi-squared test with 5 degrees of freedom is 11.070). In this analysis, I did not explore the interaction terms between an individual's race and whether they lived in the Northeast because an individual's race is not statistically significant. The first model includes the parental endogamy, then I added the individual's race and/or the parental race in order to assess whether the parental race effect is only a reflection of an individual's own race or whether it is associated with endogamy. When parental race and parental endogamy are in the same model, the latter loses its significance. When an individual's race and parental race are in the model, they are both statistically significant with the same signal of when they are by themselves (Model 4) and the coefficient for an individual's own race decreases significantly. This decrease indicates that part of the effect of the individual's own race is due to parental race. On the other hand, when other variables are considered, an individual's own race loses its significance, and for this reason I did not use the interaction terms when analyzing the different groups (being white is only statistically significant among females at the 10% level).

Unlike the analysis of the endogamy of children, other variables besides an individual's own race seem to be more important when explaining a child's decision about the race of their spouse. This result is very interesting because it indicates that people within the marriage market may consider a set of different characteristics during the process of partner choice. The main conclusions are: Firstly, that parental endogamy is not important for explaining the probability of a child marrying a white or a nonwhite spouse. Secondly, nonwhite parents decrease the probability of their child marrying a white spouse by about 56.4% (Model 5). This is quite an interesting result, because it reinforces the intergenerational cycle. When analyzing the effect of other variables, one can observe that being a male, of an older age, with a higher level of education, can increase the probability of marrying a white person as opposed to a nonwhite. More educated people tend to marry at an older age than less educated people. Whites tend to have later marriages and be more educated, and it is know that later marriages (also represented by the positive effect of age) tend to have a positive assortative mating (Mare 1991). Moreover, schools also represent a part of one's marriage market, meaning that the longer a person remains in school the higher the probability of their marrying someone with a higher level of education, who would most likely be white (Mare 1991). While living in the Northeast and in the state's capital decreases this probability. As was discussed previously, living in the Northeast increases the probability of a person's exposure to more nonwhites. The main difference between this analysis and the previous one, in which the dependent variable is the endogamy of children, is the effect of being a man; here the effect is positive and in the other equation the effect is negative (Table 8). This result is very meaningful because previous studies have found that nonwhite women are more likely to marry a white spouse than the opposite (Berquó 1987; Silva 1987; Telles 2004). Results in this study indicate that when controlling for an individual's own

race, men are more likely to marry a white person. One possible explanation is that previous works utilized a different kind of analysis that only used loglinear models without control variables and the gender difference may be explained by other variables, as the present discussion demonstrates. Another explanation could be the age group of the sample and the period that was analyzed. On the other hand, as I show in the next section, being white is not as statistically significant for men as it is for women, and all other variables have a very similar effect for both genders.

(TABLE 8)

6.3.1. Comparing groups

Because there may be differences in how people from different educational levels, age groups, genders, and races choose their partners, and the fact that parental race may influence this process, I analyzed the effect of parental race on the race of a child's spouse among different groups (see Table 9). The results show that there is no significant difference in the effect of parental race on a spouse's race among the groups. The main differences are: 1) the fact that an individual's own race only matters among females, meaning that white women have a higher probability of marrying a white husband (55.91%); and 2) the fact that many variables are not statistically significant for the age group representing individuals between 20 and 30 years-of-age. This result is very important because previous studies have reported that assortative mating has a different pattern between first and higher-order marriages (Mare 1991). Following this logic, most results presented here seem to be valid when analyzing the prevailing marriages in Brazil in 2002. Parental race seems to be the driving force behind a child's decision about the

race of their spouse. Therefore, parental influence is very important, although the main mechanism cannot be uncovered in this analysis. This paper suggests that parental influence does not only manifest through an individual's race, but has a direct influence on the race of a child's spouse, which may be expressed through socialization, direct familial influence, or even through the marriage market. This means that parents influence the neighborhoods their children frequent, their social networks, schools they attend, and so on. Moreover, because parental education is not important for explaining the race of a child's spouse, the cultural aspect of the marriage market seems to be more important at the parental level. The economic aspect (education) is more pertinent at the individual level, because an individual's own race is not significant, but his/her education is relevant. However, it is worth highlighting that when analyzing the endogamy of children, parental education is important. This means that higher parental education translates into a higher probability of their children having an endogenous union.

(TABLE 9)

6.3.2. Comparing the Effect of Parent's Race by Type of Parental Union

It is also interesting to analyze the race of a child's spouse by type of parental union. For children of racially endogamous parents, the best model is the fourth one (including the interaction terms), and for children of interracial couples the second model is the best one (without the interaction terms), according to the Wald tests. The models have a higher explicative power (almost double) in order to explain the race of a child's spouse for children of same race couples (see the Pseudo-R^2). It seems that for children of heterogamous couples, other

variables that are not included in the model may better explain their partner choice. These factors may be more related to marriage market characteristics, personal preferences, and social norms that are not expressed by the selected variables (Table 10).

Among children of same race couples, having nonwhite parents decreases their probability of marrying endogamously. For children of exogamous couples, his/her own race is not as important as for children of endogamous couples. For this group, being white increases the probability of marrying a white person on average 105% (model 3). On the other hand, being white has no effect among children of interracial couples.

Parental education is not as statistically significant as it was in the previous analysis of endogamy, reinforcing the importance of the parental cultural aspect in contrast to the economic one. The explicative power of some other variables is also different. These include gender and schooling for both groups. Being a man and having more education also translates into a higher probability of marrying a white, especially among children of endogamous couples (the effect is almost double for these children compared to the children of interracial couples). Age is also important for children of interracial couples (the probability of having a relationship with a white person increases by 2.9% with the addition of each year). This is very interesting because it may indicate, together with the results regarding education, that older people and more educated people are more likely to be selected by a white in the case of having parents from different racial groups.

(TABLE 10)

7. Conclusions

This paper analyzed one aspect that has not been explored in previous analyses of interracial marriage—whether parental characteristics influence their children's choice of partner. First, I analyzed the relationship between parental racial endogamy and the racial endogamy of the children, meaning to what extent having same race parents influences the probability of marrying someone from the same racial group. The second part of the analysis focused on the relationship between parental race and the race of a child's spouse. One of my objectives was to investigate whether the fact that a nonwhite person with a white father or mother would increase his/her probability of marrying a white spouse. Moreover, I sought to determine whether this relationship changed between distinct groups, especially between males and females, given the fact that there are important variations in the process of assortative mating (e.g. Berquó 1987; Telles 2004) and different effects as a result of a father's education on educational assortative mating (Blackwell 1998).

Endogamy unions represent the majority and the results suggest a strong intergenerational influence. First, having parents in an endogamous union increases by about 78.8% the probability of being in a same race relationship, controlling for a variety of other characteristics. This is a much more significant effect than was observed for the United States where children of educationally homogamous parents are between 5 to 10% more likely to be in homogamous unions themselves (Mare 2008). Although Mare's results are for the American marriage market, Heaton (2010) showed that American educational homogamy rates are similar to Brazilian rates. In addition, other studies have also discussed the greater effect race has on the paring process than that of education (see for instance, (Ribeiro and Silva 2009 for Brazil and Blackwell and

Lichter 2004 for the U.S.). Considering this result, one can say that although interracial marriage is more common in Brazil than in other countries, families are still quite closed to members from a different racial group. Parental education is also significant, meaning that the higher the parental education the higher the probability is of their children being in an endogamous union. Secondly, the results by type of parental union show that parental race matters only for exogamous couples, and an individual's own race is more relevant among children of endogamous parents. Thirdly, the results for the analysis of parental race and the race of a child's spouse show that having nonwhite parents decreases the probability of marrying a white spouse and that parental education is insignificant for explaining the race of a child's spouse. In this second part of the analysis, parental endogamy has no effect when controlling by parental race and individual race has no effect when considering a series of control variables. These results are similar to the ones noted by Hout and Janus (2011): "[a] common observation in inequality studies is that "like goes with like" across generations. The most important family factor in a study of income inequality is the parents' incomes, the most important family factor in a jobs study is the parents' jobs, and the most important family factor in an educational study like this one is the parents' education."

The strong relationship between family racial origin and race of a child's spouse reflects how racial groups are closed. Some people may think that the racial groups are not closed because the brown or mixed race population is increasing, however, part of this increase is due to changes in how people report themselves and differential fertility, because the fertility level of nonwhites is higher than whites, and most browns marry browns. Thus, mixed race people are not all born to interracial couples.

Unfortunately, there is little evidence for specifying which mechanism is most important as to whether the lower status group (nonwhite, especially black) is denied access to spouses from the higher status group (whites) or if people in general just prefer to marry endogamously. On the other hand, there are some hints that indicate a general preference for whites and the importance of parental race over parental education, thus in general, there is no strong evidence for an exchange at the parental level. Individual characteristics also play a relevant role, especially among children of interracial couples. The characteristics of gender, schooling, and age are more significant than the children's own race. These results suggest that the main exchange, if any, between education and race is at the individual level and not at the parental level. Moreover, the race and gender interaction within the marriage market is quite significant because of the notable differences between males and females. Finally, it is worth highlighting that it seems having the race of a child's spouse as the dependent variable is a better way to associate the effect of individual parental characteristics on who people marry, and the models presented here have a higher explicative power for children of racially endogamous parents.

In the end, it is also worth noting that the addition of other variables would help to better understand the intergenerational relationship between parents' and their children's union formation, including the type of union for both parents and children. The exploration of potential interactions between parental characteristics and marriage market characteristics (gender ratio, racial distribution, etc) would also be interesting. Another issue related to this interaction is the place where spouses meet. These locations could include the gym, school, or work and may differ according to parental characteristics, since they are related to class and childbearing style.

A final aspect to be considered in future research about interracial union is the use of skin color gradation. This would be significant to allow for better capturing the nuances of racial boundaries and especially to linking this information to the racial classification based on the official categories.

Endnotes

(1) Interracial unions were forbidden during different periods in the United States and 10 states have never made this kind of union illegal, they are: Alaska, Connecticut, Hawaii, Minnesota, New Hampshire, New Jersey, New York, Vermont, Wisconsin, and the District of Columbia (source: www.lovingday.org)

(2) This has nothing to do with the fallibility of retrospective reports on parental information. The issue is a matter of human demography, because inter-annual changes are not necessarily generational changes. This is because the whole generation is not correctly represented by the survival of children (those who are alive to answer the question) and the occupational history of children (those who are economically active to answer the question), while these factors may decrease the representativeness, fathers who have more than one surviving child may be over represented.

(3) This selection is due to sample size, there are very few cases of asians and indigenous and an inexpressive number of intermarriage among these groups. There are also few married people under age 20. This age range includes different cohorts and different marriage orders, which

means that people probably experienced different influences in their marriage market, therefore, in order to minimize this problem I controlled by age and also ran models for age groups.

(4) If we consider descent rule as an essential part of racial group membership, people who have two parents of the same race and people who have parents from two different racial groups, may not be considered in the same racial group even if they self-declare themselves in the same category. A great example of this is whites whose parents are both white, and the ones who have one white and one nonwhite parent.

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Tables

Table 1 - Independent Variables

Variable	Name	Description
Parents' race	Nonwhite parents/Parents' race not reported	Categorical (White=1 -reference, Nonwhite=2 and Other/Not reported=3)
Individual's race	Brown/Black	Categorical (White=1-reference, Brown=2, Black=3)
Individual's sex	Male	Categorical (Male=1 and Female=0)
Age	Age	Continuous
Years of education	Schooling	Continuous
Northeast	Northeast	Categorical (Northeast=1 and Other regions=0)
State's capital	Capital	Categorical (Capital=1 and Noncapital=0)
Parents' education	Parental education	Continuous (sum of mother's and father's years of education)

Table 2 - Distribution of parents' and children's type of union - Brazil, 2002

	N	%
Parental Endogamy	**655**	**52.23**
White/White	435	34.69
Brown/Brown	189	15.07
Black/Black	31	2.47
Mixed Unions	**599**	**47.77**
Children's Endogamy	**697**	**55.58**
White/White	413	32.93
Brown/Brown	249	19.86
Black/Black	35	2.79
Mixed Unions	**557**	**44.42**
Total	**1254**	

Data source: PESB, 2002.

Table 3 - Distribution of parents' and children's type of union - Brazil, 2002

		Parents' union type		
		Exogamy	Endogamy	Total
Children's type of union	Exogamy	339	218	557
		60.9%	39.1%	100%
	Endogamy	260	437	697
		37.30%	62.70%	100%
	Total	599	655	1254

Data source: PESB, 2002.

Table 4 -Results from Logistic Regression Models for Endogamy - Brazil, 2002

Variables	Model 1	Model 2	Model 3	Model 4	*Model 5*	*Model 6*
Parental endogamy	0.997**	0.807**	0.755**	0.793**	*0.674**	*0.581**
Parent's race						
Nonwhite parents		-0.551**		-0.134		
Not reported		-0.046		0.369		
Individual's race						
Brown			-0.818**	-0.716**	*-0.596**	
Black			-1.94**	-1.831**	*-1.722**	
Male					*-0.056*	*-0.080*
Age					*0.009*	*0.01*
Schooling					*0.010*	*0.010*
Northeast					*-0.383**	
Capital					*-0.315*	*-0.229*
Interactive Terms						
NOT Northeast*Brown						*-1.084**
NOT Northeast*Black						*-1.883**
Northeast*White						*-1.407**
Northeast*Brown						*-0.782**
Northeast*Black						*-2.440**
Parental education (SUM)					*0 .055**	*0.051**
Constant	-0.276**	0.300*	0.391**	0.406**	*-0.163*	*0.0999*
N				1254		
Wald test	57.18	84.71	129.33	130.16	*143.63*	*163.8*
DF	1	3	3	5	*9*	*11*
Pseud-R2	0.0431	0.0708	0.1011	0.1046	*0.1188*	*0.1369*

Data source: PESB, 2002.

Notes: The dependent variable is the children's racial endogamy, meaning 1=endogamy and 0 = exogamy

*p<0.05; ** p<0.01

Table 5 - Results of Model 5 for Children's Endogamy - Different Groups, Brazil 2002

Variables	ALL	Male	Female	White	Brown	Black	<HS	HS and more	20-30	30-40	40 and more
Parental endogamy	0.674*	0.702**	0.717**	0.878**	0.147	1.123*	0.534**	0.839**	0.452	0.656**	0.762**
Individual's race											
Brown	-0.596**	-1.258**	0.004**				-0.316	-1.064**	-0.330	-0.466	-0.816**
Black	-1.722**	-2.668**	-0.969				-1.357**	-2.669**	-1.442**	-2.064**	-1.604**
Male	-0.056			0.591**	-0.575**	-0.863	-0.180	0.116	0.177	-0.007	-0.171
Age	0.009	-0.002	0.017*	0.028**	-0.014	-0.011	0.009	0.007	-0.014	0.063	0.006
Schooling	0.010	-0.010	0.025	0.107**	-0.068*	-0.135	0.017	0.080	0.020	-0.020	0.030
Northeast	-0.383*	-0.043	-0.656**	-1.273**	0.316	-0.695	-0.288	-0.559	-0.751**	-0.150	-0.401
Capital	-0.315	-0.567*	-0.208	-0.764**	0.146	0.398	-0.561*	-0.001	0.537	-0.421	-0.636
Parental education (SUM)	0 .055**	0.074**	0.034	0.035**	0.042	0.071	0.096**	0.024	0.031	0.079**	0.054
Constant	-0.163	0.637	-0.813	-1.728**	0.828	-0.357	-0.302	-0.652	0.349	-2.147	0.129
N	1254	612	642	602	507	145	808	446	310	409	535
Wald test	143.63	104.84	56.03	87.58	18.09	11.96	66.06	73.34	32.23	61.45	75.09
DF	9	8	8	7	7	7	9	9	9	9	9
Pseud-R2	0.1188	0.1884	0.0834	0.1755	0.0306	0.1096	0.0813	0.1809	0.1029	0.1314	0.1438

Data source: PESB, 2002.

Notes: The dependent variable is the children's homogamy, meaning 1=endogamy and 0=exogamy

*p<0.05; ** p<0.01

Table 6 - Results of Model 6 for Children's Endogamy - Different Groups, Brazil 2002

Variables	ALL	Male	Female	<HS	HS and more	20-30	30-40	40 and more
Parental endogamy	0.581**	0.597**	0.631**	0.452**	0.732**	0.354	0.598*	0.685**
Male	-0.080			-0.188	0.073	0.153	-0.030	-0.178
Age	0.01	-0.002	0.017*	0.009	0.006	-0.012	0.056	0.007
Schooling	0.010	-0.015	0.029	0.019	0.094	0.024	-0.017	0.029
Northeast								
Capital	-0.229	-0.455	-0.134	-0.51*	0.158	0.553	-0.366	-0.486
Interaction terms								
NOT Northeast*Brown	-1.084**	-1.763**	-0.467	-0.765**	-1.639**	-0.669	-0.849**	-1.428**
NOT Northeast*Black	-1.883**	-3.036**	-1.055**	-1.427**	-2.772**	-1.587**	-2.114**	-1.785**
Northeast*White	-1.407**	-1.242**	-1.585**	-1.196**	-1.679**	-1.399*	-1.070*	-1.606**
Northeast*Brown	-0.782**	-1.235**	-0.342	-0.447**	-1.288**	-1.041*	-0.368	-0.942**
Northeast*Black	-2.440**	-2.809**	-2.264**	-2.064**	-4.495**	-2.390**	-2.615**	-2.475**
Parental education (SUM)	0.051**	0.073**	0.026	0.094*	0.016	0.026	0.076	0.046
Constant	0.0999	0.951	-0.610	-0.088	-0.467	0.495	-1.697	0.365
N	1254	612	642	808	446	310	409	535
Wald test	*163.8*	115.19	69.66	77.43	84.72	34.28	66.32	87.11
DF	*11*	10	10	11	11	11	11	11
Pseud-R2	*0.1369*	0.2067	0.1023	0.0968	0.2038	0.1097	0.1449	0.1714

Data source: PESB, 2002.

Notes: The dependent variable is the children's homogamy, meaning 1=endogamy and 0=exogamy

*p<0.05;** p<0.01

Table 7 - Results from Logistic Regression Models for Endogamy by Type of Parental Union- Brazil, 2002

	Endogamous				*Exogamous*		
Variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 1**	**Model 2**	**Model 3**
Parent's race							
Nonwhite parents	-0.630**	-0.060	0.009	0.051			
Individual's race							
Brown		-1.285**	-0.915**		-0.241	-0.188	
Black		-1.906**	-1.618**		-1.739**	-1.681**	
Male			0.05	0.037		-0.145	-0.174
Age			0.01	0.011		0.004	0.004
Schooling			0.022	0.027		-0.014	-0.014
Northeast			-0.749**			-0.006	
Capital			-0.341	-0.196		-0.336	-0.292
Interactive Terms							
NOT Northeast*Brown				-1.511**			-0.594*
NOT Northeast*Black				-1.762**			-1.866**
Northeast*White				-1.981**			-0.777*
Northeast*Brown				-1.394**			-0.1168
Northeast*Black				-2.828**			-1.987**
Parental education (SUM)			0.054*	0.045		0.053*	0.050*
Constant	1.168**	1.362**	0.565	0.653	0.066	-0.084	0.155
N			655			599	
Wald test	41.47	62.8	77.88	93.3	24.99	29.96	37.87
DF	1	3	9	11	2	8	10
Pseud-R2	0.0615	0.0947	0.1302	0.1531	0.0471	0.0572	0.0694

Data source: PESB, 2002.
Notes: The dependent variable is the children's racial endogamy , meaning 1=endogamy and 0 = exogamy
*p<0.05; ** p<0.01
† there is no case of not reported or other racial category among parents who were in a racially endogamous union.

Table 8 - Results from Logistic Regression Models for the Race of a Child's Spouse - Brazil, 2002

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Parental endogamy	0.661**	0.375**	0.19	0.165		
Parent's race						
Nonwhite parents			-1.052**	-0.908**	*-0.829***	*-0.784***
Not reported			-0.798**	-0.694**	*-0.618**	*-0.604**
White		1.153**		0.368*	*0.208*	
Male					*0.820***	*0.808***
Age					*0.018***	*0.019***
Schooling					*0.086***	*0.088***
Capital					*-0.543***	*-0.503***
Northeast					*-0.766***	
Interaction terms						
NOT Northeast*White						*0.470**
Northeast*Nonwhite						*-0.448**
Northeast*White						*-0.875***
Parental education (SUM)					*0.010*	*0.006*
Constant	-0.116	-0.519**	1.094**	0.80**	*-0.550*	*-0.745*
N			1254			
Wald test	26.09	95.27	133.54	144.39	*185.99*	*194.58*
DF	1	2	3	4	*9*	*10*
Pseud-R2	0.0192	0.0719	0.1145	0.1178	*0.1653*	*0.1697*

Data source: PESB, 2002.
Notes: The dependent variable is the race of a child's spouse, meaning 1=white and 0=nonwhite
*p<0.05; ** p<0.01

Table 9 - Results of Model 6 for Race of a Child's Spouse - Different groups, Brazil 2002

Variables	ALL	Male	Female	White	Nonwhite	<HS	HS and more	20-30	30-40	40 and more
Parent's race										
Nonwhite parents	*-0.829***	-0.873**	-0.785**	-0.928**	-0.691**	-0.755**	-0.934**	-1.197**	-0.563**	-0.945**
Not reported	*-0.618**	-0.784*	-0.450	-0.552	-0.571	-0.707*	-0.189	-1.449*	-0.179	-0.706
White	*0.208*	-0.05	0.444			0.102	0.412	-0.176	0.395	0.238
Male	*0.820***			0.636**	0.930**	0.603**	1.173**	0.557	1.207**	0.696**
Age	*0.018***	0.017*	0.021**	0.025**	0.012	0.022**	-0.001	0.037	-0.006	0.021
Schooling	*0.086***	0.120**	0.055	0.099**	0.076**	0.109**	0.446**	0.070	0.129**	0.056
Capital	*-0.543***	-0.400	-0.678**	-0.725**	-0.245	-0.514*	-0.635*	-0.198	-0.774**	-0.555
Northeast	*-0.766***	-0.710**	-0.852**	-1.247**	-0.469	-0.707**	-0.858**	-0.408	-0.754*	-1.099
Parental education(SUM)	*0.010*	0.022	-0.003	0.060	-0.055	0.006	-0.004	0.008	0.082	-0.034
Constant	*-0.550*	0.195	-0.511	-0.566	-0.539	-0.689	-3.975*	-0.195	-0.773	-0.189
N	1254	612	642	602	652	808	446	310	409	535
Wald test	*185.99*	96.66	87.44	91.23	52.2	101.76	70.78	51.24	65.93	95.01
DF	*9*	8	8	8	8	9	9	9	9	9
Pseud-R2	*0.1653*	0.1748	0.1681	0.1865	0.0855	0.1382	0.2263	0.1698	0.1942	0.2011

Data source: PESB, 2002.
Notes: the dependent variable is the race of a child's spouse, meaning 1=white and 0=nonwhite
*p<0.05; ** p<0.01

Table 10 - Results from Logistic Regression Models for the Race of a Child's Spouse by Type of Parental Union - Brazil, 2002

	Endogamous				*Exogamous*		
Variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 1**	**Model 2**	**Model 3**
Parent's race							
Nonwhite parents	-0.985**	-0.535**	-0.543**	-0.501**			
White		1.171**	0.721*		0.281	0.198	
Male			0.779**	0.767**		0.895**	0.888**
Age			0.008	0.009		0.030**	0.029**
Schooling			0.109**	0.117**		0.076	0.076**
Northeast			-1.169**			-0.432*	
Capital			-0.790	-0.711**		-0.400	-0.384
Interaction terms							
NOT Northeast*White				1.089**			0.337
Northeast*Nonwhite				-0.622			-0.290
Northeast*White				-0.931**			-0.401
Parental education (SUM)			-0.008	-0.014		0.020	0.019
Constant	1.234**	0.238	-0.487	-0.825	-0.215	-2.13**	-2.183**
N			655			599	
Wald test	91.41	103.11	117	128.76	2.05	46.31	47.23
DF	1	2	8	9	1	7	8
Pseud-R2	0.1421	0.164	0.2379	0.247	0.0032	0.0752	0.0767

Data source: PESB, 2002.
Notes: The dependent variable is the children's racial endogamy, meaning 1=endogamy and 0 = exogamy
* p<0.1; **p<0.05; *** p<0.01
† there is no case of not reported or other racial category among parents who were in a racially endogamous union.

APPENDIX

Table 1A - Descriptives

	Mean	Std Dev
Age	41.12	14.087
Schooling	6.51	3.976
	%	
Male	48.80	
Northeast	27.43	
Capital	23.37	
White	48.01	
Brown	40.43	
Black	11.56	
White mother	58.85	
Brown mother	31.34	
Black mother	6.62	
Mother other race or not reported	3.19	
White father	48.72	
Brown father	35.41	
Black father	11.64	
Father other race or not reported	4.23	

Source: PESB, 2002