RESIDENTIAL SEGREGATION BY SKIN COLOR IN BRAZIL*

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I examine residential segregation by skin color in 35 of the largest metropolitan areas in Brazil, using census tract data from the 1980 Brazilian census. Residential dissimilarity among whites, mulattoes (browns) and blacks is only moderate by U.S. standards. White-black dissimilarity is the highest, followed by brown-black and then white-brown dissimilarity. Residential segregation within income groups is lowest for the low income groups and increases with increasing income level. For most of the white middle class, residential separation is ensured by the concentration of blacks and mulattoes in low socioeconomic classes and in distinct regions. Multivariate analysis reveals that an urban area's socioeconomic status and housing market are strong predictors of overall residential segregation: segregation is significantly higher in urban areas with high occupational inequality, low mean income, high levels of housing turnover, and high homeownership. Measures of industrialization, immigrant influence and color heterogeneity were not significant. Implications for Brazilian race relations are discussed.

Residential segregation occupies a central role in the sociological literature on race relations and racial inequality. Although there is a growing recognition of the importance of comparative studies, virtually nothing is known about racial residential segregation outside of the United States. Brazil's African-origin population is the second largest in the world only after Nigeria's. Unlike the United States, Brazil has had no race-based laws that encourage residential segregation since Abolition in 1888, yet segregation by skin color is prevalent. I examine overall levels of white-black, white-brown and brown-black residential segregation as well as segregation patterns among color groups within income groups. I then analyze factors that may contribute to variation among Brazilian metropolitan areas in residential segregation.

BACKGROUND

A resurgent academic interest in race issues in Brazil has been fueled by the recent availability of national statistics that reflect persistent and widespread racial inequalities. For example, in Brazil in 1976, the mean income of African-origin males was 47 percent of that of white males (Silva 1985, p. 45).[1] Blacks and mulattoes are disproportionately represented among the lower social classes — they have considerably lower incomes than whites, experience less social mobility than whites and and are more likely than whites to be in the urban informal labor market (Oliveira, Porcaro, and Araújo 1985; Silva 1985; Hasenbalg 1985; Lovell 1989; Telles forthcoming a).

Since the abolition of slavery in 1888, three important features have distinguished Brazilian race relations: (1) a color continuum rather than a color line, (2) its racial ideology, and (3) an avoidance by the Brazilian government of legislation that mentions race.

An important difference between U.S. and Brazilian race relations is that Brazilians conceive of race as a continuous color variable rather than a categorical variable (Hoetink 1967; Skidmore 1972; Denton and Massey 1989). Throughout it's colonial period, Brazil's white population had a very high ratio of males to females. At the same time, white males had relatively unlimited ac-

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[1] In the United States in 1979, mean income for black males was 61 percent of white male mean income (Farley and Allen 1989, p. 315).

cess to Indian slaves and later, African origin slaves. These two facts led to high levels of miscegenation (Degler [1971] 1986) and in Brazil today racial intermarriage is not uncommon (Silva 1987).[2] Although some localities recognize many color gradients, all Brazilians recognize at least a tripartite color distinction: white, mulatto (brown), and black (Hutchinson 1957; Degler 1986). During slavery, the color distinction often became a social distinction in which the common practice of manumitting the offspring of white males and black slave women made mulattoes predominant among an intermediate social category while "blacks" made up most of the slave population (Harris 1964; Schwartz 1974). This process hastened the acculturation of nonwhites and thus forestalled the development of rigid and legalized color lines, such as emerged in the United States (Schermerhorn 1978; Degler 1986). However, findings based on recent national surveys and census data demonstrate that the earnings of mulattoes are much more similar to black earnings than to white earnings and the earnings "cost" due to racial discrimination is often similar between mulattoes and blacks (Silva 1985; Lovell 1989). By contrast, findings for intermarriage reveal a continuum where white-brown and brown-black marriages are far more common than white-black marriages (Silva 1987; Telles forthcoming b).

The lack of clearly defined color lines has made racial self-identification somewhat flexible in Brazil and Latin America, and sometimes varies depending on social context (Rodriguez and Cordero-Guzman forthcoming; Wood 1991). Persons identifying as white or black often are not "racially pure" but are "relatively white" or "relatively black" and there is a tendency for persons on the border of a color category to "pass" into the lighter category (Hutchinson 1957; Degler 1986). The high value placed on light skin color and the continued importance of the mixed-race category emerges largely out of the Brazilian ideology of *whitening*.

The goal of whitening was made explicit in nineteenth century debates among the Brazilian elite about how to replace the largely slave labor force that would soon be manumitted through Abolition. The elite were concerned about Brazil's international status in which the scientific racism of the time caused European countries to look down on Latin America because of its large African and Indian populations (Skidmore 1974). The Brazilian legislature decided to encourage the immigration of European workers to increase the proportion of whites in the population. These white immigrants would also be expected to marry with the nonwhite population to eventually create a "whiter" population (Degler 1986; Vainner 1990). The whitening ideology has subsequently been blamed for preventing the formation of ethnic identities based on race and for defeating attempts to form a black consciousness (Skidmore 1974; Nascimento 1982).

Another feature of Brazil's racial ideology that dates to the 1920s is its claim to being a racial democracy in which race makes no difference to opportunity or status. Gilberto Freyre popularized this idea in his historical accounts by extolling the virtues of the Brazilian race system while overlooking its subtle forms of racism (Freyre 1933).[3] The racial democracy idea was grafted into official ideology by the mostly conservative and military elite that had ruled Brazil since the 1930s to forestall racial uprisings and to showcase Brazil internationally as a positive example of race relations (Skidmore 1972).

With one exception, laws in post-Abolition Brazil have not been directed at racial segregation or integration (Eccles 1991). Furthermore, there has never been a legal basis for racial categorization, unlike the United States or South Africa. Brazilian law has also never been used to encourage racial equality, probably because this would mean acknowledging the existence of racism and racial inequalities (Skidmore 1972). The only exception to this generalization was the reluctantly passed Alfonso Arinas law of 1951, which made racial discrimination in public places a misdemeanor sanctioned by fine or imprisonment (Eccles 1991). The rare cases prosecuted under this law have been of a blatantly racist nature, leaving the subtler institutionalized forms of racism — including clear cases of housing discrimination — free of penalty or reparation (Skidmore 1972; Eccles 1991).

[2] Silva (1987) showed that in 1980, about 21 percent of currently-married couples reported being in racially mixed unions: 16.1 percent were between whites and browns, 3.2 percent between browns and blacks, and 1.4 percent between whites and blacks.

[3] Freyre left his native Brazil to study in the U.S. South between 1917 and 1920. It is easy to imagine how the contrast between the two systems at that time may have led him to such conclusions. Donald Pierson, an American sociologist, later upheld Freyre's findings and effectively promoted the racial democracy thesis in the U.S. academic community (Pierson 1942). Notably, both scholars had studied the mostly nonwhite Brazilian Northeast.

RESIDENTIAL SEGREGATION BY SKIN COLOR

Work on racial residential segregation in Brazil is scant. Pierson (1942) investigated residential segregation in his seminal study of Salvador, Bahia, a predominantly nonwhite city in Brazil's Northeast. Based on his impressions of various parts of the city, he observed that the skin color of residents varied according to the quality of the neighborhood: The poorest and most overcrowded areas of the city were inhabited by blacks, dark-skinned mulattoes, and a limited number of light-skinned mulattoes, while whites and occasional light-skinned mulattoes lived in the middle-class sectors of town. Thus, he painted a picture of considerable residential segregation by color although he concluded that it existed only to the extent that color and class were coterminous. He noted that, unlike the United States, there was no attempt to segregate races and class distinctions were the result of the Afro-Brazilians' recent emergence from a servile status.

During the 1950s and early 1960s, research sponsored by UNESCO reported substantial residential segregation in Rio de Janeiro, a city with a large minority population (roughly 30 percent nonwhite) and in Florianópolis, a city with a small minority population (roughly 10 percent nonwhite) but concluded that in both cases, segregation was highly conditioned by social class (Ianni and Cardoso 1959; Pinto 1953).[4] However, surveys of racial attitudes conducted during the 1950s (the same period), found considerable racial prejudice, including resistance by many whites to having blacks and mulattoes as neighbors (Ianni and Cardoso 1959; Bastide and Van den Berghe 1957; Fernandes 1955). A recent historical study of the two largest metropolitan areas showed that the African origin population tends to live in certain poor neighborhoods, near other "co-ethnics" and generally near Afro-Brazilian cultural and religious institutions. These neighborhoods often grew around the cores of former slave neighborhoods (Rolnik 1989).

Two studies noted that racial residential segregation appears to be particularly high in the Brazilian South (Willems 1949; Turner 1985). Regional and metropolitan area variations in race relations in general were suggested by the UNESCO scholars and others (Degler 1986). Scattered evidence suggests that the less developed and mostly nonwhite Northeast has a particularly amicable system of race relations, while the state of São Paulo and the three southern states are particularly racist (Degler 1986).

Such variation in race relations within Brazil is said to be the result of local industrialization and/or immigrant influences. Bastide and Van den Berghe have argued that race relations are more competitive and racism heightened in more industrialized areas (Bastide and Van den Berghe 1957; Bastide 1965; Van den Berghe 1967). By contrast, Fernandes (1969) contended that with industrialization the salience of race in the labor market would diminish and consequently racism would diminish. The immigration hypothesis theorizes that European immigration since Abolition affected race relations in those areas where immigrants settled. One variant argues that the predominantly Italian and German immigrants competed for jobs with the African-origin population, thus creating a high level of racial animosity (Andrews 1988). Another version suggests that these immigrants brought with them ideologies that were more racist than those of the native Luzo-Brazilian culture (Frazier 1942; Willems 1949). Fernandes (1955) disputed these theories with evidence that cities like Campinas that had relatively few immigrants were clearly more racist than other cities in the state of São Paulo with large immigrant populations.

An alternative explanation derives from Blau's (1977) focus on the effects of racial heterogeneity. Blau hypothesized that social group differences are more noticeable when one group is numerically predominant and less obvious when the population is most heterogeneous. Where there is greater heterogeneity, racial differences are less conspicuous and interracial exchange is less constrained. This theory has particular appeal in Brazil, given its wide variation in racial composition. The five urban areas with the highest white-brown segregation (Salvador, Teresina, Florianópolis, Joinville and Caxias do Sul), also have the least heterogeneity, where nonwhites are a large majority in the first two areas and whites are a large majority in the latter three areas.

[4] The flurry of UNESCO-supported research showed widespread racial prejudice and inequality in Brazil, contrary to the earlier findings of scholars like Freyre and Pierson who believed that any racial prejudice could be attributed almost entirely to class prejudice and that the social position of nonwhites was a result of their recent emergence from slavery in a society where upward mobility was very limited for persons of any race (Skidmore 1974; Degler 1986).

METHODS AND DATA

I focus on the traditional conception of residential segregation — *evenness*, i.e., the extent to which minority and majority group members are evenly distributed across an urban area (Massey and Denton 1988). Evenness is measured with the traditional index of dissimilarity, D, defined as the proportion of one group that would have to change census tracts to achieve the same spatial distribution as the other group (Duncan and Duncan 1955). D is mathematically independent of a metropolitan area's racial composition (Massey and Denton 1988).

The value of D varies from 0, when two racial groups are evenly distributed throughout the urban area, to 1, when there is complete segregation.

$$D = .5 \times \sum |(x_i/X) - (y_i/Y)| , \qquad (1)$$

where X and Y are the metropolitan area populations of the groups being compared and x_i and y_i are their respective populations in census tract i.

Residential dissimilarity indices among whites, browns and blacks in 35 metropolitan areas were computed for the total population and within family income groups. The 1980 Population Census of Brazil, produced by the *Instituto Brasileiro de Geografia e Estatistica* (IBGE) is the only source for computing segregation indexes based on color.[5] Segregation indexes are based on census tract data from the 25 percent sample of households that answered the long form of the census questionnaire. The independent variables in the regression analysis were also calculated from this sample.

Metropolitan areas are defined as contiguous urbanized areas in one or more municipalities and were defined in a previous IBGE publication (Vetter 1988). I chose 35 of the 40 metropolitan areas with populations over 200,000 in 1980. The five excluded areas are in the North and Central-West regions (the Brazilian frontier) where a higher concentration of Indians and their descendants among persons identifying as whites, browns, and blacks suggests a system of race relations distinct from most of Brazil in which there is a continuum from European to African. The 35 metropolitan areas include 36.1 percent of Brazil's total population in 1980 and 53.5 percent of its urban population.

The study of residential segregation in Brazil has been impeded by the lack of data available at the neighborhood level. Because data had been available only for large districts, the study of segregation in a context in which squatter settlements (*favelas*) are often located amidst formally-zoned housing was highly problematic. However, an agreement by the IBGE to compute segregation indexes using census tract level data overcame this problem.

In Brazil, census tracts in urban areas contain about 250 to 300 households. At each decennial census since 1940, the IBGE has updated census tract boundaries to conform to this size specification. Although a strict policy about disclosure of census tract level data prevents the IBGE from making such data publicly available, the IBGE agreed to compute the segregation indices themselves while allowing me to closely monitor the process. When comparing these indices with those of other countries it should be kept in mind that the average census tract population in Brazilian urban areas is about 1150, because "D" tends to mathematically increase as the size of the aerial unit decreases (Massey and Denton 1988).

The 1980 census asked respondents to identify themselves as to their color. Possible responses were white *(branco)*, brown *(pardo)*, black *(preto)*, yellow *(amarello)*, and other. Fully 99 percent of the responses were in the first three categories. *Brown* refers to both Indians and mixed race persons, i.e., those whose skin color is between black and white.

Although the native Indian population is categorized as brown in this census, a survey showed that persons who would identify themselves as "Indian" comprise a very small proportion of the national population although they are a significant proportion of the population in the Amazon (North) region and in the Central-West (Oliveira Filho 1987). Since the beginnings of European colonization, disease and war have led to huge declines in the size of the Brazilian Indian population (Denevan 1976; Hemming 1978). However, many Brazilians today, including some identifying themselves as white, have Indian slave ancestors (Monteiro 1985). The extent to which the Brazilian population has Indian ancestry is difficult to ascertain except by self-identification.

[5] The 1970 Census of Brazil, the only other available census with machine readable files, omitted the race question. The Census scheduled for 1990 was actually taken in September of 1991. Skidmore (1974) interprets the lack of data on race in the 1970 Census as reflecting the military government's concern that such data that would point to racial inequalities and thus encourage racial opposition. Officially, they claimed that race was not a statistically meaningful category.

Table 1. Regional Distribution of Total Population by Region for Color Groups: Brazil, 1980

Region	Color			
	White	Brown	Black	Total
Northeast	14.5	49.6	33.2	29.3
Central-East	24.0	16.8	33.6	22.5
São Paulo	29.0	11.5	17.9	21.1
South	24.8	5.0	8.5	16.0
North	1.8	9.7	2.2	4.9
Central-West	5.7	7.6	4.5	6.3
Total	99.8	100.2	99.9	100.1

Source: Instituto Brasileiro de Geografia e Estatistica 1983, Table 1.11.

Perhaps most Brazilians identify as white, black, or mulatto rather than Indian or part-Indian because extensive miscegenation with Indians occurred mostly in the sixteenth and seventeenth centuries as compared to more recent miscegenation with blacks (Monteiro 1985) and because of a racial ideology that emphasizes a continuum from white to black. The concentration of Indians and their descendants in the two regions of the Brazilian frontier along with current struggles for indigenous land rights (Oliveira Filho 1987) contributed to a system of race relations and concerns in those areas that differs from the eastern half of the country where about 90 percent of Brazilians reside. Thus, the problems of including large numbers of Indians with the mulatto population and of classifying persons with Indian admixture as "white" are attenuated by eliminating North and Central-West metropolitan areas from the analysis.

RESULTS

Regions

In Brazil, nonwhites are clearly a numerical minority in the more developed areas of the country while they are a clear majority in the less developed Northeast, which was the center of the slave based economy prior to 1888. Table 1 shows the distribution of color groups by region. The majority (53.8 percent) of whites live in the industrialized, highly populated and relatively wealthy state of São Paulo and the South, a region comprising three slightly less developed states. Conversely, about one-half of browns and one-third of blacks live in the poor and underdeveloped Northeast. Indexes of dissimilarity computed by region reveal that browns and whites are more regionally segregated from each other (D = .447) than are blacks from whites (D = .286) or blacks from browns (D = .268).

Metropolitan Areas

The final column of Table 2 shows that the racial composition of individual metropolitan areas varies widely, from Joinville where whites are 95.2 percent of the local population to Teresina, where they are 15.0 percent. Whites are a minority in all 13 urban areas of the less developed Northeast, but make up more than 80 percent of the population in 10 of the 14 areas in São Paulo and the South. Brazil's two giant cities, São Paulo and Rio de Janeiro, both have white majorities (71.5 and 60.0 percent) but have African origin populations surpassing three million.

By U.S. standards, values of D between .3 and .6 are considered moderate (Massey and Denton 1987). Table 2 thus shows that residential segregation by color in Brazil is moderate — all but one of the dissimilarity indexes are below .6. One factor that may depress these indexes is the tendency for domestic workers and building guards and their families, who are predominately nonwhite, to live in the same household or building as their employers. On the other hand, the smaller average population size of Brazilian census tracts (1,150 compared to 4,000 in the United States) may operate to inflate Brazilian segregation indexes.

The mean segregation of blacks versus whites (.450) for these 35 urban areas is only slightly greater than that for browns versus whites (.397), a pattern typified in 29 of the 35 urban areas. In the remaining six urban areas, four of which are in the Central-East region, the black-white segregation index was lower than the brown-white index. White-black dissimilarity was highest in all 13 metropolitan areas of the Northeast.

Interestingly, the mean index of brown-black segregation (.407) was higher than that for white-brown segregation (.397). The brown-black segregation index was the highest of the three indexes in five metropolitan areas, including three in the South, and the lowest in 15 areas. In the Northeast, brown-black dissimilarity was between white-black and white-brown dissimilarity in eight of the 13 areas and in São Paulo state it was the lowest of the three indexes in five of the seven metropolitan areas. However, white-brown and white-black segregation indexes may be misleadingly low and thus not directly comparable to brown-black segregation indexes because of the

tendency for many nonwhite domestic workers to reside with their white middle-class employers. Nevertheless, the moderate level of segregation between browns and blacks, who are of similar socioeconomic status, demonstrates the importance of the color continuum.

Average residential dissimilarity by region is highest in the Northeast and South, followed by São Paulo and finally, the Central-East. Previous studies, based on impressionistic evidence, suggested that the Northeast was the least segregated of all regions (Willems 1949; Turner 1985). It is clearly the most segregated in terms of white-black dissimilarity. As long as segregation is not extreme, there will be a noticeable presence of nonwhites in areas of the Northeast where whites live because nonwhites are a majority in the Northeast. This gives the impression to a casual observer that white segregation is lowest in the Northeast.

Socioeconomic Segregation

To examine the extent to which color segregation is independent of social class, I computed residential dissimilarity indexes among the three color groups within household income brackets. These indexes provide a reasonable control for the "money whitens" effect — if color identification changes when individuals move up the economic ladder, then overall segregation may reflect not only inequality, but the misreporting of color by high income nonwhites.

Dissimilarity indexes within income levels were calculated using households as the unit of analysis and defining color as the color of the family head. Results are presented in Table 3. Indexes were not calculated if either of the two color groups in an income bracket averaged less than three households per tract. This was done to avoid random departures from evenness that might otherwise occur by using very small populations in the calculation of D. This criterion meant that indexes could not be calculated for many income groups in many of the urban areas, which reflects the concentration of nonwhites in low-income categories. Thus, *residential isolation of whites is virtually assured by the absence of a significant nonwhite middle class.*

Household income is measured as the the number of "minimum salaries," a common procedure in Brazil where high inflation makes actual dollar or *cruzeiro* values less meaningful. In September 1980 when the census was taken, one minimum salary was worth about 75 U.S. dollars

Table 2. Indexes of Dissimilarity Among Whites, Browns, and Blacks by Metropolitan Areas: Brazil, 1980

Region and Metropolitan Area	Index of Dissimilarity: White vs. Black	White vs. Brown	Brown vs. Black	Percent White
Northeast	*.509*	*.405*	*.434*	*30.1*
Recife	.499	.389	.424	37.1
Salvador	.534	.488	.353	22.8
Fortaleza	.563	.409	.562	30.6
Belem	.495	.376	.431	27.1
João Pessoa	.541	.439	.482	33.0
Natal	.596	.393	.585	47.2
Teresina	.500	.486	.469	15.0
Maceio	.495	.379	.450	36.5
Aracaju	.467	.381	.398	27.0
São Luis	.471	.362	.320	28.0
Feira de Santana	.504	.409	.375	20.5
Campina Grande	.468	.356	.444	45.0
Itabuna	.488	.395	.343	21.1
Central-East	*.381*	*.367*	*.344*	*61.3*
Rio de Janeiro	.427	.383	.312	60.0
Belo Horizonte	.419	.427	.341	54.1
Vitoria	.455	.356	.371	48.6
Barra Mansa-Volta Redonda	.297	.318	.324	65.2
Juiz de Fora	.364	.358	.327	71.1
Ipatinga	.356	.396	.393	50.0
Uberlandia	.381	.388	.363	75.5
Campos	.346	.312	.319	66.0
São Paulo	*.402*	*.380*	*.364*	*78.3*
São Paulo	.412	.394	.364	71.5
Santos	.441	.424	.369	67.4
Campinas	.429	.412	.359	78.6
São Jose dos Campos	.370	.332	.389	80.1
Sorocaba	.377	.305	.358	85.5
Ribeirão Preto	.406	.387	.337	82.1
Jundiai	.378	.405	.369	83.0
South	*.467*	*.433*	*.476*	*86.4*
Porto Alegre	.422	.407	.421	85.3
Curitiba	.477	.417	.467	84.1
Pelotas-Rio Grande	.386	.352	.440	84.6
Florianópolis	.461	.492	.516	91.8
Londrina	.449	.397	.404	74.3
Joinville	.526	.470	.624	95.2
Caxias do Sul	.546	.495	.457	89.2
Mean	*.450*	*.397*	*.407*	*58.1*

Table 3. Indexes of Dissimilarity Among Whites, Browns, and Blacks by Family Income Group: Seven Metropolitan Areas in Brazil, 1980

Metropolitan Area and Income Group (Numbers of Minimum Salaries)	Dissimilarity Between: White vs. Black	White vs. Brown	Brown vs. Black
Salvador			
1.01 to 2	.519	.499	.391
2.01 to 3	.547	.519	.411
3.01 to 5	.547	.511	.418
5.01 to 10	.618	.497	.483
10.01 to 20	—	.509	—
20.01 and over	—	.507	—
Feira de Santana			
1.01 to 2	.514	.468	.348
2.01 to 3	.572	.464	.439
3.01 to 5	.585	.481	.445
5.01 to 10	.615	.465	.549
10.01 to 20	—	.518	—
Rio de Janeiro			
1.01 to 2	.419	.382	.399
2.01 to 3	.456	.389	.424
3.01 to 5	.452	.387	.409
5.01 to 10	.543	.421	.479
10.01 to 20	—	.546	—
Belo Horizonte			
1.01 to 2	.435	.412	.405
2.01 to 3	.450	.419	.437
3.01 to 5	.462	.416	.450
5.01 to 10	.568	.454	.518
10.01 to 20	—	.554	—
Barra Mansa-Volta Redonda			
1.01 to 2	.355	.387	.423
2.01 to 3	.360	.358	.406
3.01 to 5	.377	.362	.422
5.01 to 10	.421	.361	.439
10.01 to 20	—	.549	—
Juiz de Fora			
1.01 to 2	.318	.337	.337
2.01 to 3	.380	.415	.408
3.01 to 5	.410	.436	.449
5.01 to 10	.568	.465	.556
Campos			
1.01 to 2	.377	.335	.376
2.01 to 3	.411	.374	.451
3.01 to 5	.448	.384	.461
5.01 to 10	.618	.450	.604

per month. Indexes were not presented for the "less than one minimum salary" category because results were inconsistent with those for the other income categories, suggesting substantial misreporting at the low end of the income spectrum.

The seven metropolitan areas presented in Table 3 are those for which the greatest number of indexes could be calculated based on the above criterion. Table 3 shows that in metropolitan areas in which blacks and mulattoes *are* represented in the various income groups, moderate segregation persists independent of income. In fact, segregation indexes tend to *increase* with income. This pattern is unmistakable for white-black dissimilarity and the general pattern also holds for brown-black and white-brown segregation. In addition, the increase in white-black segregation over the income groups is greater in all seven areas than that for white-brown segregation while brown-black segregation increases are intermediate. Salvador, the only metropolitan area with a significant nonwhite elite, is typical of the first four cities in Table 3. Although white-black segregation in the lowest income group (.519) is clearly higher than brown-black segregation (.391), both increase by similar amounts between the first and fourth income categories (.092 and .099). On the other hand, white-brown segregation in the lowest income category is only slightly less than black-white segregation but is little changed by the fourth category (.497) and increases only slightly in the two highest income groups. In Barra Mansa-Volta Redonda, a highly industrialized area, white-brown segregation actually decreases slightly with increasing income until the highest category where it jumps to a relatively high level (.549). These cases demonstrate the importance of the color continuum in which black is perceived as lower status than brown and brown-black distinctions are made even by nonwhites. The pattern becomes clearer as income increases — segregation is greater among high income households where housing options are greater.

Two urban areas, Juiz de Fora and Campos, show a different pattern — segregation indexes for all color comparisons increase sharply as income rises. However, the difference between the lowest and the highest income group is greatest for white-black segregation (.250 and .241) compared to those for brown-black segregation (.219 and .228) and white-brown segregation (.128 and .115). Segregation in these two areas is particularly low among the lowest income groups where, for example, white-black segregation resembles white-brown segregation. However, white-black segregation, which in the other five areas is the highest of the three indexes at each income level, is the highest of the three income groups only at the highest income group (5.01 to 10 minimum salaries) in Juiz de Fora and Campos.

The fact that residential segregation by color is lowest among the very poor may help explain

why race relations among the poor have been comparatively amicable — historically there has been little race-related violence (Skidmore 1974). The low levels of segregation among the poor may also reflect the precarious living conditions of the poorest sectors of the Brazilian population. Residential choices are extremely limited and must often be made on the basis of survival chances. For the poor, the decision about where to live is especially likely to be based on criteria like walking distance to work (because bus fares are often not affordable) or where friends live who can assist in tasks such as child care or housing construction. This often means living illegally in makeshift housing. A context of extreme poverty coupled with an absence of overwhelming social pressures to segregate by color make concerns about color a low priority. If segregation is to occur in a context where extremely segregated residential patterns do not already exist or segregation is delegalized, it is most likely to occur at income levels where housing options are greater and color can become a criterion in neighborhood selection.

Salvador is significant in that it is one city which has a significant mulatto middle class (Azevedo 1953). Tables 2 and 3 show that Salvador has high white-brown and white-black segregation but relatively low brown-black segregation. The relatively high segregation between whites and nonwhites may promote social solidarity, as manifested spatially, between browns and blacks in Salvador. Also important in Salvador is the strong presence of African-origin culture and institutions which further differentiates the social lives of Afro-Salvadorans from Salvadorans of European origin.

Explaining Inter-Urban Patterns

The causes of differential segregation are tested using an OLS regression model that considers urban segregation indexes as a function of social context, socioeconomic status, and housing market variables. Dissimilarity indexes (presented in Table 2) are transformed into logits because of their limited range. Social context variables include industrialization, immigrant influence, and heterogeneity. Industrialization is the percent of the total labor force in manufacturing. Immigrant influence is estimated by the percent Italian- and German-born individuals among the white population aged 60 and over in 1980 because such immigration continued only until the 1930s (Merrick and Graham 1979). In the absence of ethnicity data, this admittedly approximates the relative immigrant influence. Heterogeneity is calculated using the following formula:

$$H = 1 - (w^2 + m^2 + b^2), \qquad (2)$$

where w is the percent white, m is the percent brown and b is the percent black (Gibbs and Martin 1962).

Socioeconomic status is measured using two variables: (1) male occupational dissimilarity indexes between paired color groups in each metropolitan area and (2) mean household income for the entire population of each area. Color inequality is commonly postulated as the sole source of residential segregation in Brazil where housing markets merely reflect a social division of labor; income provides the economic resources that permit residential mobility.

Any analysis of residential segregation must consider the local housing market. I control for three housing related factors: residential turnover, homeownership, and density. High housing turnover in an area indicates a high level of internal movement and migration. Turnover is measured as the percent of households living less than two years in their current dwelling. Persons in high turnover areas are freer to choose their residences than are those in the tight markets typical of some large Brazilian metropolitan areas. Movers are often channeled into relatively homogeneous neighborhoods through social networks. This may either increase segregation or contribute to expanding areas of transition, thus reducing segregation. Homeownership is the percent of households that are owner-occupied. Homeowners see their homes as long-term investments so they are more likely than renters to be concerned about who their neighbors are. If neighborhood homogeneity is preferred, then segregation is likely to be higher where homeownership is high. Finally, a given level of segregation is entirely different in a dense urban area where persons live in close proximity to each other compared to areas that are more spread out. If whites want to avoid nonwhites, they would be physically closer to African-origin neighbors in a dense neighborhood, thus making segregation more likely in dense areas. Density is operationalized as the percent of households living in apartment buildings.

Table 4 shows the results of the regression analysis. The coefficients are fairly consistent across the three models although levels of significance vary. Overall, variables representing socioeconomic status and the housing market are better predictors of segregation than are the so-

Table 4. Regression Coefficients for Residential Dissimilarity Indexes on Selected Independent Variables: Metropolitan Areas in Brazil, 1980

Independent Variable	White vs. Brown	White vs. Black	Brown vs. Black
Social context			
Percent in manufacturing	.009 (.006)	.006 (.004)	.008 (.006)
Percent of whites age ≥ 60 born in Italy/Germany	.073 (.056)	.006 (.039)	.040 (.061)
Color heterogeneity	-.004 (.005)	-.004 (.003)	-.012 (.006)
Socioeconomic status			
Occupational dissimilarity	.026* (.012)	.027* (.010)	.013 (.022)
Mean household income	-.032* -(.016)	-.007 (.010)	-.039* (.017)
Housing market			
Percent < 2 years in dwelling	.026* (.009)	.020* (.006)	.028* (.010)
Percent homeowners	.019* (.008)	.020* (.005)	.013 (.009)
Percent living in apartments	.012 (.007)	.009 (.004)	.010 (.008)
Intercept	-2.425	-2.773	-1.196
R^2	.496	.577	.537
Adjusted R^2	.341	.447	.394
Number of cases	35	35	35

* $p \leq .05$

Note: Numbers in parentheses are standard errors. Dissimilarity indexes were transformed into logits.

cial context variables. None of the social context variables are significant. Areas with high industrialization, greater immigrant influence and lower racial heterogeneity tend to have higher segregation but these relationships are not significant.[6]

As expected, occupational dissimilarity has a significant positive relationship with white-brown segregation and white-black segregation, but its relationship is not significant for brown-black segregation. The lack of a relationship for brown-black segregation is not surprising given the small differences in status between browns and blacks. Mean household income has a significant negative relationship for white-black segregation and brown-black segregation — residential segregation between blacks and both whites and browns is especially high in low income urban areas.

Urban areas with high residential turnover clearly have higher segregation as indicated by the significant positive coefficients in all three models. Urban areas with high levels of homeownership are significantly associated with greater white-brown and white-black segregation.

DISCUSSION AND CONCLUSION

By U.S. standards, residential segregation among color groups in Brazil is generally moderate. Although an absence of legal segregation throughout its modern history may explain the absence of extreme segregation such as is found in other parts of the world, moderate segregation is a fact of urban Brazilian life.

Results show that residential segregation among color groups cannot be accounted for by socioeconomic status, as previous literature has claimed — moderate residential segregation along color lines occurs among members of the same income group. Furthermore, segregation levels increase with rising income in those metropolitan areas with substantial numbers of whites, blacks and mulattoes in the income categories. Thus, the Afro-Brazilian middle class is more spatially dissimilar from middle-class whites than poor Afro-Brazilians are from poor whites. For the white middle class in most metropolitan areas, though, the mere absence of a significant African origin middle class ensures that middle-class neighborhoods remain predominately white. The relatively low color segregation among the large urban poor population suggests that the extremely limited housing options make color a low priority when choosing a place to live.

Despite the suggestion in the literature that industrialization and immigration in Brazil are crucial to understanding regional differences in Brazilian race relations (Bastide 1965; Van den Berghe 1967; Fernandes 1969), my analysis shows that these factors have weak effects at best. On the other hand, an area's socioeconomic status and its housing market are significantly associated with patterns of segregation. Urban areas with relatively high occupational inequality tend to be more segregated and high income urban areas tend to be more segregated. Urban areas with high housing turnover or a high rate of homeownership also tend to have higher segregation among color groups in Brazil.

The existence of a color continuum in Brazil from white to brown to black is thus supported in

[6] There is evidence of regional subcultures of racism that may not be captured by by industrialization, immigration or racial composition (Telles forthcoming b). However, dummy variables for regions added to the multivariate models were not significant.

the case of residential segregation. Whites are generally more segregated from blacks than from mulattoes, both overall and within income groups. There is also significant residential segregation between blacks and mulattoes, often higher than white-brown segregation (but lower than white-black segregation), suggesting that mulattoes also disdain blacks, presumably encouraged by an ideology that stresses whitening. Thus, secondary race relations, including residential segregation and intermarriage (Telles forthcoming b), tend to reflect a color continuum while primary relations (labor market) are more indicative of a color line between white and nonwhite (Silva 1985; Lovell 1989). Also, the fact that segregation increases at a faster rate with increasing income for both white-black and brown-black segregation than for white-brown segregation suggests that black skin color is especially salient for higher income groups in the same area. Both bivariate and multivariate findings also indicate that segregation of *blacks* from both whites and browns is clearly greater than white-brown segregation in poorer and less developed areas.

Moderate segregation has widespread implications for other features of Brazilian race relations, especially when compared to other countries with large populations of African and European descent. These are: (1) a relatively low level of race consciousness and organization among the African origin population, and (2) relatively high levels of interracial interaction. Whereas extreme segregation in South Africa and the United States has led to a high degree of race consciousness and corporate organization, moderate segregation and the absence of clearly-defined racial categories have led to their relative absence in Brazil. Along with an ideology that denies racism, the fact that blacks, mulattoes, and whites live in similar neighborhoods may strengthen a general perception that race has little or no effect on life chances, at least for individuals of the same social class. In this sense, the pervasive racism and racial inequality of Brazilian society is less conspicuous. Also, the absence of extreme segregation in Brazil has precluded the formation of parallel institutions, a condition that was fundamental to the rise of black social movements in South Africa and the United States. Finally, Brazil's less extreme segregation has meant greater interracial exposure as evidenced by far greater prevalence of interracial friendship and intermarriage, at least among Brazil's large poor population.

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Appendix A: Correlation Matrix for Variables in Table 4

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. White-brown dissimilarity	—	—	—	—	—	—	—	—	—	—	—	—	—
2. White-black dissimilarity	.616*	—	—	—	—	—	—	—	—	—	—	—	—
3. Brown-black dissimilarity	.446*	.680*	—	—	—	—	—	—	—	—	—	—	—
4. Percent of whites age ≥ 60 born in Italy/Ger	.162	-.158	-.148	—	—	—	—	—	—	—	—	—	—
5. Percent in manufacturing	-.009	-.245	.096	.548*	—	—	—	—	—	—	—	—	—
6. Color heterogeneity	-.304	.012	-.393*	-.345*	-.520*	—	—	—	—	—	—	—	—
7. Mean income	.085	-.369*	-.286	.795*	.531*	-.352*	—	—	—	—	—	—	—
8. White-brown occupational dissimilarity	.225	.271	-.303	.111	-.450	.431*	.042	—	—	—	—	—	—
9. White-black occupational dissimilarity	.101	.344*	-.149	-.470*	-.792*	.662*	-.554*	.702*	—	—	—	—	—
10. Brown-black occupational dissimilarity	.056	.371*	.055	-.717*	-.702*	.592*	-.773*	.269	.839*	—	—	—	—
11. Percent < 2 years in dwelling	.125	.148	.233	-.040	-.027	.069	.025	-.026	-.048	-.031	—	—	—
12. Percent living in apartments	.140	-.134	-.296	.397*	.002	.051	.538*	.284	-.123	-.384*	-.233	—	—
13. Percent homeowners	.380*	.401*	.374*	-.275	-.241	-.273	-.386*	-.161	.165	.347*	-.403*	-.206	—

* $p \leq .05$

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