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# Stratification by Skin Color in Contemporary Mexico

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## Abstract

Latin America is often used as a backdrop against which U.S. race relations are compared. Yet research on race in Latin America focuses almost exclusively on countries in the region with a large recognized presence of individuals of African descent such as Brazil. Racial categories in these countries are based on skin color distinctions along a black-white continuum. By contrast, the main socially recognized ethnic distinction in Indo-Latin American countries such as Mexico, between indigenous and non-indigenous residents, is not based primarily on phenotypical differences, but rather on cultural practices and language use. Many Mexicans today nevertheless express a preference for whiter skin and European features, even though no clear system of skin color categorization appears to exist. In this study, I use data from a nationally-representative panel survey of Mexican adults to examine the extent of skin-color-based social stratification in contemporary Mexico. Despite extreme ambiguity in skin color classification, I find considerable agreement among survey interviewers about who belongs to three skin color categories. The results also provide evidence of profound social stratification by skin color. Individuals with darker skin tone have significantly lower levels of educational attainment and occupational status, and they are more likely to live in poverty and less likely to be affluent, even after controlling for other individual characteristics.

## Keywords

skin color, stratification, race in Latin America, Mexico

In recent years there has been a renewed interest in the study of Latin American race relations among U.S. scholars (Andrews 2004; Bailey 2002, 2004, 2008; Loveman and Muniz 2007; Marx 1998; Nobles 2000; Schwartzman 2007; Sue 2009a; Telles 2004; Twine 1998). Researchers are drawn to the study of race in Latin America in part because racial ideologies in many countries of the region exhibit significant differences from the United States, which is often seen as the paradigmatic case in the study of race relations. Studying how systems of racial categorization and stratification in Latin American countries differ from those of the United States can broaden

our understanding of how race is socially constructed and how racial differences in socioeconomic status are reproduced. Among the key features distinguishing Latin American race relations is a greater ambiguity in racial classification (Duany 2002; Gravlee 2005; Rodríguez 2000; Skidmore 1972, 1995; Telles 2002, 2004). Physical appearance, and in particular skin color, plays

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a more important role than ancestry in the way an individual is racially classified. Multiple racial categories based on individuals' skin tone are often recognized and the boundaries between these categories are more fluid. Finally, many countries in the region embrace race mixture or miscegenation (*mestizaje*) as the foundation of national racial ideologies, instead of segregation based on a belief in "racial purity" (Telles 2004; Wade 1993).

According to the ideologies of *mestizaje*, generations of racial mixing between descendants of Spanish settlers, indigenous peoples, and (in some countries) African slaves produced a single hybrid "mestizo race." Embrace of a national ideology of miscegenation, however, does not preclude skin-color-based discrimination (Telles and Sue 2009). For example, Telles (2004) finds that Brazilians with darker skin color have lower earnings and occupational status than do those with lighter skin; they also have less access to education and experience various forms of discrimination.

Most of what we know about skin color stratification in Latin America comes from countries in the region with a large recognized presence of individuals of African descent such as Brazil. By contrast, little is known about how skin color affects individuals' life chances in Latin American countries with a smaller or less recognized population of African descent. Experts on Latin American race relations often distinguish between countries in the region with a large population of African descent, where racial categories map onto a black-white continuum, and countries in which the primary distinction is between the indigenous population and the *mestizo* or mixed-race majority (Harris 1964; Mörner 1967; Sue 2009b). The former is often referred to as Afro-Latin America and encompasses primarily the Caribbean region and Brazil, while the latter is often referred to as Indo-Latin America and includes Mexico, most of Central America, and the Andean countries.<sup>1</sup> Studies of race and ethnicity in Indo-Latin America focus almost exclusively

on the distinction between the indigenous and *mestizo* populations—the primary socially recognized ethnic categories—rather than on differences in skin color (Clarke 2000; de la Peña 2005, 2006; Friedlander 1975; Frye 1996; Marino Flores 1967). Moreover, because the indigenous population tends to be located in rural areas, ethnographic work on the subject is mostly limited to rural settings. In this study, I use data from a nationally-representative panel survey of Mexican adults to examine the extent of social stratification by skin color in Mexico, an Indo-Latin American country in which the effect of skin color has never been tested before.

Studying how skin color affects individuals' life chances in the context of an Indo-Latin American country such as Mexico is important, because the main categorical distinction between indigenous and *mestizo* residents is not based primarily on phenotypical differences but rather on cultural and linguistic grounds. Whether individuals are considered to be indigenous depends on whether they speak an indigenous language, live in an indigenous community, or share certain cultural traits, rather than their skin color or ancestry (Clarke 2000; Friedlander 1975; Harris 1964; Knight 1990; Marino Flores 1967; Mörner 1967). The social boundary between indigenous and *mestizo* is therefore extremely fluid. In contrast to Brazil, no skin-color-based racial categories are recognized in Mexico's population census or in affirmative action policies implemented by the state (Bailey 2008; Telles 2004). While Mexicans do make color comparisons in everyday life, no clear categorization appears to exist. The Mexican case is therefore one of extreme ambiguity in skin color classification. Finding that stratification by skin color persists in Mexico would demonstrate that color distinctions may play a role even when the primary ethnic categories are not based on phenotypical differences.

In this article I also seek to make several methodological contributions to the study of skin color and race more generally. First,

previous studies examining the effect of skin color on individuals' life chances, in both the United States and Latin America, often use interviewers' classification of respondents' skin color without testing whether there is sufficient agreement among interviewers about who belongs to each category. Establishing the reliability of skin color categories is particularly important in Mexico, given the extreme ambiguity in skin color classification and the fact that such categories have never been used before in statistical analyses. Fortunately, the panel survey of Mexican adults used here contains repeated assessments of respondents' skin tone. In each wave of the panel, interviewers classify respondents according to the color of their skin. These repeated measurements allow me for the first time to formally test the reliability of survey-based measurements of skin color that rely on interviewers' assessments. Second, because the survey not only contains information about the respondent but the interviewer as well, I am also able to examine whether interviewers of different age, gender, education level, and self-reported skin color classify respondents differently. Interviewer effects on racial or skin color classification have rarely been systematically tested in Latin America or any other setting (for an exception in the United States, see Hill [2002]). After establishing the reliability of skin color measurements and accounting for the effect that interviewers may have on how respondents are classified, I examine whether individuals in darker skin-color categories have lower educational attainment and occupational status, and whether they are more likely to live in poverty and less likely to be affluent once other relevant factors are controlled.

## THE IDEOLOGY OF *MESTIZAJE* AND SKIN COLOR DISTINCTIONS IN MEXICO

Like other Latin American countries, Mexico inherited a society that was highly stratified

along racial or ethnic lines from its colonial experience under Spanish rule (1521 to 1821) (McCaa, Schwartz, and Grubessich 1979; Mörner 1967; Seed 1982). Ancestry played a particularly important role in Mexico's colonial system of social stratification. Spanish settlers were at the apex of colonial society, followed by numerous categories of individuals based on the successive intermixing of Spanish settlers, indigenous residents, and African slaves. The largest category, by far, was made up of members of the country's many indigenous groups, despite the death of millions of native inhabitants due to warfare and disease. African slaves constituted a smaller category and were largely absorbed into the *mestizo* or mixed-origin population, such that by the end of the colonial era, they were rarely recognized as a distinct racial or ethnic group (Aguirre Beltrán [1940] 1989, 1970). Individuals of mixed ancestry in colonial Mexico were collectively known as *castas* (roughly translated as castes or estates). Legal restrictions prevented members of the lower *castas* from holding public office, occupying high positions in the church hierarchy, practicing certain trades, and living in some neighborhoods, although there was considerable variation in the severity of restrictions across regions of the country (Fehrenbach 1973; MacLachlan and Rodríguez 1980; Meyer, Sherman, and Deeds 2003; Mörner 1967). Indigenous residents were also forced to pay special taxes to the king or his representative.

Although legal restrictions against non-whites were eliminated and slavery was abolished after Independence in the 1820s, the notion of white superiority survived into the nineteenth century. As Lomnitz (1992:276) notes, "the complex racial dynamics of the colonial period were simplified in the nineteenth century into a bipolar model (Indian/whites) with an intermediate class of '*mestizos*.'" In the more fluid racial classification system that emerged after Independence, skin color was an important signifier but individuals could often redefine themselves into

a whiter category based on their level of education and wealth. Upwardly mobile *mestizos* sought to portray themselves as white, while *indigenas* became *mestizos* through migration to urban areas and by adopting the dominant culture and language.

Boundaries between the remaining ethnic or racial categories were further blurred in the twentieth century following the Mexican revolution (1910 to 1920). A new generation of Mexican intellectuals and policymakers promoted a nationalist ideology that defined Mexico as essentially a *mestizo* nation (Bonfil Batalla [1987] 1996; Brading 1988; de la Peña 2006; Knight 1990; Lomnitz 1992). Writers such as José Vasconcelos ([1925] 1997), who served as Secretary of Education, glorified the *mestizo* as the only agent capable of leading Mexico into a new era of progress and modernization. In this new racial ideology of *mestizaje* that emerged in post-revolutionary Mexico, no further ethnic or racial categories were recognized within the majority *mestizo* population. Moreover, the difference between *indigenas* and *mestizos* was defined primarily in cultural terms, not by skin color or ancestry (Brading 1988; Doremus 2001; Gamio [1916] 1982; Marino Flores 1967). Policymakers viewed indigenous cultures as inherently backward and inferior; however, the fact that indigenous identity was culturally defined meant it could be changed through educational campaigns. As Knight (1990) argues, government “acculturation” programs constituted an attempt to “mestizo-ize” the indigenous population.

The cultural distinction between *indigenas* and *mestizos* is also reflected in the criteria used to identify indigenous residents in the national census and other government sources. In contrast to the Brazilian census, for example, the Mexican census does not include questions regarding individuals’ skin color. Nor does the Mexican census ask respondents to identify their ancestry. Since the 1930 census, indigenous residents are identified by their ability to speak an indigenous language

(González Navarro 1970). No other criteria for distinguishing racial or ethnic categories are employed. According to the 2000 census, 7.1 percent of Mexicans age 5 years or older speak an indigenous language (INEGI 2004a). More than 80 different indigenous languages are currently recognized.<sup>2</sup>

As Nobles (2000) demonstrates, censuses are not mere exercises in enumeration of individuals based on existing social categories; instead, they constitute an important mechanism by which states help define racial boundaries. In Mexico, not only the state, but also individuals in their everyday lives, distinguish *indigenas* from the rest of the population based on cultural rather than phenotypical differences. The common definition of *indigenas* tends to be more expansive, however, rather than limited to language use (Marino Flores 1967). Harris (1964:38–39) captures this more expansive definition:

Instead of depending upon physical appearance, Indian racial identity flows from the fact that one lives in an Indian community, speaks an Indian language, speaks Spanish with an Indian accent, wears Indian-style clothing or participates in Indian-type fiestas. The status of being Indian, in other words, is essentially a matter of behaving according to patterns which are locally recognized as being Indian specialties.

In her ethnographic study of the village of Hueyapan in central Mexico, Friedlander (1975) finds that many who are considered *indigenas* by the outside world have internalized the negative definition of indigenous identity based on cultural practices. Although some of her subjects note that their ancestry is different from others in Mexican society, they do not consider this an important feature of their indigenous identity. According to Friedlander, Hueyapan residents’ lack of emphasis on racial differences stems from their perception that they do not look that different from the non-indigenous peasants in the area, and



from the influence of the post-revolutionary ideology that defines the *indígena* on cultural instead of phenotypical grounds.

Despite a national ideology that defines indigenous identity in cultural terms and explicitly rejects the importance of phenotypical differences (and race more generally), ethnographic studies acknowledge the persistence of skin color distinctions in Mexican everyday life (Bonfil Batalla [1987] 1996; Fehrenbach 1973; Friedlander 1975; Nutini 1997; Pitt-Rivers 1968; van den Berghe 1967). For example, after explaining how Hueyapan residents define indigenous identity mostly in cultural terms, Friedlander (1975:77) notes the following:

The villagers were well aware of the fact that rich Mexicans as well as Americans were usually fair in contrast to their own brown complexions. Furthermore, Hueyapeños believed that "White was beautiful." Villagers openly expressed their preference for light skin, blue eyes, curly and/or blond hair. Among themselves, families almost always favored their more Caucasian-looking children. When a baby was born invariably one of the first questions asked was about its color. As the children were growing up mothers were continuously warning them to protect their skin from the sun so that they would not get any darker.

A preference for white features therefore coexists with a state-sponsored and popular ideology that racial differences are no longer present in Mexico. Skin color distinctions may be even more important within the *mestizo* population that occupies the middle and upper classes than in indigenous communities. Researchers studying Mexico, however, have paid relatively little attention to skin color's role in social stratification. Most studies mention skin color differences only briefly. Van den Berghe's (1967:55) classic study of comparative race relations, for example, argues that "the concept of race has become almost totally alien to modern Mexican culture"; yet

he notes that "some correlation between phenotype and class status . . . remains; European-looking Mexicans are disproportionately represented in the upper and middle classes." Pitt-Rivers's (1968:278) discussion of the role of skin color in Central America (in which he includes Mexico) mentions the same "correlation between class and color." Contrary to authors who suggest a diminishing importance of phenotype over time, Pitt-Rivers argues that with urbanization and modernization, skin color is becoming even more important in the allocation of social status. In their analysis of ethnic relations in southeastern Mexico, Colby and van den Berghe (1961:772) note that "the genetic continuum overlaps greatly with the social continuum." They argue that while an indigenous person may cross the ethnic line by adopting the dominant culture and language, "his physical appearance handicaps seriously his ascension in the middle and upper classes" (p. 783). Similarly, based on ethnographic research in central Mexico, Nutini (1997) concludes that phenotype continues to play an important role in upward social mobility, particularly for the middle and upper classes.

Finally, researchers interested in skin color distinctions in Mexico have recently turned their attention to areas of the country where the presence of individuals of African descent is most evident (Lewis 2000; Sue 2007, 2009a; Vaughn 2001). The ideology of *mestizaje* has been criticized for ignoring the contribution of individuals of African descent to the racial makeup of contemporary Mexico (Hernández Cuevas 2004; Palmer 1976; Vaughn 2001). This state-sponsored and popular ideology usually defines *mestizo* as solely the result of the mixture of Spanish and indigenous peoples. Nevertheless, communities with a large presence of individuals of African descent can be found in a few localities, namely the Costa Chica region near the border between Oaxaca and Guerrero and in parts of Veracruz on the Gulf coast. A recent ethnographic study by Sue (2007, 2009a) explores

in rich detail the meaning of blackness for residents of the port of Veracruz. She finds that Veracruzanos are reluctant to speak about race but are accustomed to making comparisons about individuals' skin color, which Sue interprets as a proxy for race. Veracruzanos use a variety of discourse techniques to distance themselves from the category "black," which has negative connotations and is often seen as something foreign, in contrast to being a member of an indigenous group. Sue's work vividly illustrates the importance of skin color in Mexican communities with a larger presence of individuals of African descent. Because these communities are somewhat exceptional, however, it is not clear whether her conclusions can be generalized to the rest of the country.

To summarize, the primary ethnic distinction recognized in contemporary Mexico is that between indigenous peoples and the rest of the population, which is generally assumed to be *mestizo* or of mixed-race origin. The boundary between indigenous and *mestizo* residents is defined based on cultural and linguistic differences, rather than on ancestry or skin color, and is therefore extremely fluid. Nevertheless, despite a state-sponsored and popular ideology that explicitly rejects any further racial or phenotypical distinctions within the majority *mestizo* population, many Mexicans today express a preference for whiter skin and European features. Researchers also note a tendency for whiter Mexicans to occupy higher socioeconomic positions. However, the association between skin color and socioeconomic status has never been systematically tested. In the analysis below, I use data from a nationally representative survey to examine stratification by skin color in contemporary Mexico.

## ON THE RELIABILITY AND SOCIAL RECOGNITION OF SKIN COLOR CATEGORIES

While researchers have noted a general preference for whiter skin and the tendency for

wealthier Mexicans to have European features, no clear system of skin color categorization appears to exist in contemporary Mexico, or at least none has been documented. In Harris's (1976) terminology, no socially-meaningful or *emic* color categories have been found among the Mexican population. In the analysis below, I use three skin color categories available in the survey questionnaires. Some authors argue that using a categorization system that may not be socially recognized by the subjects under study imposes a foreign framework and may be an expression of cultural imperialism (Bourdieu and Wacquant 1999). Social recognition of discrete color categories, however, is not strictly necessary for the analysis of skin color stratification.

The case of African Americans in the United States may serve as a point of comparison. Discrete categories based on skin tone are not commonly recognized within the African American population today, yet research shows systematic differences in socioeconomic outcomes for African Americans of different skin tones (Hughes and Hertel 1990; Keith and Herring 1991). Using data from the National Survey of Black Americans (NSBA), Keith and Herring (1991) find that African Americans with darker skin tone have lower income and occupational status than do those with lighter skin. Their statistical analysis indicates that skin tone is a more important predictor of income and occupational status than other characteristics including parents' socioeconomic status. This suggests that the disadvantages faced by darker African Americans are due to continued discrimination by skin color.

The survey used by Keith and Herring (1991) and Hughes and Hertel (1990:1117n) classifies African Americans into five categories based on interviewers' assessments of their skin color: "(1) very dark brown; (2) dark brown; (3) medium brown; (4) light brown (light-skinned); (5) very light brown (very light-skinned)." These five color categories cannot truly be said to correspond to

socially recognized categories or social groups in the United States. An individual is unlikely to be described as “medium brown” unless an interviewer is prompted by a multiple-choice question. Results of an analysis of the association between skin tone and socioeconomic status among African Americans would presumably be similar if a 3-point or a 10-point scale were used (although the authors do not conduct a sensitivity analysis). In fact, Hughes and Hertel (1990:1118n) argue that a continuous skin color variable would be preferable if it were available.<sup>3</sup>

In the case of African Americans in the United States, socioeconomic differences are found along skin color gradations between two poles (black and white) that are at least partly defined by somatic differences. In the Brazilian case, multiple categories are recognized between the two somatic poles, even if the boundaries between the different categories are extremely blurred and there are competing classification systems (Bailey and Telles 2006; Harris et al. 1993; Telles 1995). What makes the Mexican case interesting is that socioeconomic differences may exist along a skin color continuum, even though the two socially recognized categories (*indígenas* and *mestizos*) are not defined on somatic grounds, as discussed in the previous section.

As in the analysis of skin color among African Americans in the United States, the three categories used to classify Mexican respondents in the analysis (*blanco* or *güero*, *moreno claro*, and *moreno oscuro*) need not be socially recognized. That is, they need not be *emic* categories. But skin color classification based on these three color categories does need to be statistically reliable. In other words, there must be sufficient agreement among interviewers about who belongs to each category. Otherwise, estimates of multivariate regression models used to test the association between skin color and socioeconomic status will be biased (Greene 2003:84–86). One of the first steps in the analysis, therefore, will be to establish the

reliability of skin color classification based on interviewers' assessments in the Mexican case.

## DATA AND MEASUREMENTS

Data for the statistical analysis come from the Mexico 2006 Panel Study (Lawson 2007). The 2006 Panel was designed to measure changes in political attitudes and voting intentions among a nationally representative sample of Mexican adults in the months prior to the presidential election held in July 2006. The survey was designed to measure voting intentions among the Mexican electorate, so the population sampled consisted of all Mexicans eligible to vote in the election (i.e., those who were age 18 years or older on election day). In addition to the national sample, the Federal District in Mexico City and rural areas in the states of Oaxaca, Chiapas, and Jalisco were oversampled, so as to be able to draw inferences about voting intentions in those subpopulations. All interviews were conducted in person by trained personnel in selected individuals' residences. The first wave of the survey, carried out in October 2005, included 2,400 respondents. As many of these initial respondents as possible were re-interviewed in successive waves in April and July of 2006. Successful interviews were completed among 74 (1,776) and 67 (1,594) percent of the initial respondents in the second and third waves of the survey, respectively.<sup>4</sup> Additional interviews were also conducted among new respondents in the second and third waves to compensate for sample attrition (305 new respondents in wave 2; 400 new respondents in wave 3) (Moreno, Macillas, and Gutiérrez 2006). Whenever possible, the statistical analysis uses data from wave 1 to preserve the maximum number of cases.

Although the 2006 Panel is primarily intended for the study of political behavior, it is nevertheless unusually well-suited for an analysis of the association between skin color



and socioeconomic outcomes. First, unlike almost every other survey conducted in Mexico, the 2006 Panel contains information regarding individuals' skin color. As in many surveys conducted elsewhere in the world, interviewers code skin color based on their assessments of respondents' appearance at the time of the interview. Second, the 2006 Panel includes questions about respondents' socioeconomic characteristics such as their educational attainment, occupation, and household income. Third, each wave of the panel includes information about the interviewers, including their age, gender, education, and self-assessments of their own skin color. Such information is crucial for my analysis because it allows me to take into account how interviewers' backgrounds may affect the way they perceive differences in respondents' skin color. While no studies of race in Latin America have systematically examined interviewer effects, research on skin color among African Americans in the United States demonstrates that interviewers of different backgrounds and different races may perceive skin color differently (Hill 2002). Finally, another unusual feature of the 2006 Panel is that respondents' skin color is coded multiple times. In each wave of the survey, interviewers were asked to mark respondents' skin color. These repeated assessments provide a unique opportunity to estimate the reliability of skin color measurements in a context in which skin color categories are not widely recognized.

In the 2006 Panel, interviewers were asked to code respondents' skin color at the beginning of each survey. Four categories were available to choose from: white ("blanco [güero/piel blanca]"), light brown ("moreno claro"), dark brown ("moreno oscuro"), and other ("otro [negro, chino, etc.]"). Interviewers classified relatively few respondents as "other" (less than .25 percent in each wave). Because I am primarily interested in the importance of skin color categories along a white to dark continuum, I removed individuals classified as "other" from the sample. In most of the

analyses, I use a categorical variable or a series of dummy variables for each of the remaining skin color categories. I also use alpha scoring to create a skin-color scale based on repeated measures of respondents' color in successive waves of the panel (see details below).

Because factors other than respondents' phenotype may affect how interviewers code their skin color, I control for other sociodemographic characteristics in the regression models predicting skin tone. First, previous work on perceptions of race in Brazil shows that women tend to be classified in whiter categories than men (Telles 2004). I therefore use respondents' gender as a predictor of skin color in the multivariate regression models. Second, even though the primary distinction between indigenous and non-indigenous residents is based on language use and cultural practices, indigenous respondents may still be less likely to be considered white. I therefore use a dummy variable for indigenous identity in the regression models. Interviewers identified indigenous respondents at the time of the survey; they were instructed to take into account factors such as respondents' language ability, the use of traditional attire, and characteristics of the communities in which respondents lived.<sup>5</sup> Third, following work on perceptions of skin color in the United States, I control for respondents' age (Hill 2002). Fourth, I include regional dummy variables to control for variations in phenotype across areas of the country.<sup>6</sup> Individuals from southern and central Mexico are often described as having a darker skin tone compared with those living in northern border states (Arce, Murguía, and Frisbie 1987; Vila 2000). Finally, I expect populations in rural areas to have darker skin, partly due to greater exposure to sunlight during their daily activities. I therefore include the level of urbanization as a predictor in all the regression models. The 2006 Panel distinguishes three categories of urbanization based on classification of electoral districts by the Mexican Federal Electoral Institute: urban, rural, and mixed urban/rural.

The second part of the statistical analysis examines the association between respondents' skin color and their socioeconomic conditions. I consider four different socioeconomic outcomes. First, I use respondents' educational attainment as a dependent variable in proportional odds ordered logistic regression models. The survey classifies respondents into nine educational categories: no formal schooling, incomplete primary, complete primary, incomplete secondary (middle school), complete secondary, incomplete high school, complete high school, some university education, and complete university education or more. I use ordered logistic regression models instead of linear regressions to avoid imposing a specific scale on the set of educational categories (Greene 2003; Long 1997).<sup>7</sup> Second, I also use ordered logistic regression models to examine the occupational status of all individuals who are currently employed. Respondents are grouped into 12 occupational categories based on information available in the 2006 Panel.<sup>8</sup>

Third, I consider whether respondents with darker skin tones are more likely to live in poverty. I compute a relative measure of poverty using respondents' household income per capita. Respondents in the bottom 20 percent of the income distribution in rural and non-rural areas are defined as poor.<sup>9</sup> The 2006 Panel provides respondents' monthly household income in 10 categories.<sup>10</sup> I compute household income per capita by dividing the midpoint in the income category by the total number of household residents. I estimate the midpoint for the top (open-ended) category by assuming a Pareto distribution. Finally, because ethnographic studies suggest that a darker skin tone may be a greater obstacle to entering the upper classes than to escaping poverty (Colby and van den Berghe 1961; Nutini 1997; van den Berghe 1967), I also consider whether respondents with darker skin color are less likely to live in the most affluent households. Following the definition I use for poverty, I define affluent

households as those in the top 20 percent according to their household income per capita.

As with most measures of poverty and affluence, my measures are based on the income generated by all household members, not just the respondent. Because other household members may contribute to household income but not share a respondent's skin color, the association between respondents' skin color and their likelihood of living in poverty or affluence will be partly mediated by the level of endogamy among individuals in different skin color categories. Unfortunately, the 2006 Panel does not include information regarding respondents' personal income. Nevertheless, given the intuitive appeal of poverty and affluence as measures of respondents' living standards, I present regression models using these two indicators as dependent variables to supplement the analysis of educational attainment and occupational status.

## RESULTS

### *Reliability of Skin Color Classifications and Interviewer Effects*

Table 1 reports the percentage of respondents in each skin color category based on information from wave 1 of the Mexico 2006 Panel Study. The percentage of respondents in each category is broken down by gender, level of urbanization, and region of the country. First, consistent with my expectations based on findings from Brazil, Mexican women tend to be classified in whiter categories than Mexican men. At the national level, 33.5 percent of men are classified as dark brown compared with 27.9 percent of women. Similarly, 16.7 percent of men are classified as white compared with 20.8 percent of women. These gender differences are statistically significant. Second, respondents in rural areas tend to be darker than respondents in urban areas. Whereas 39.0 percent of rural residents are classified as

**Table 1.** Percent Respondents in Each Skin Color Category by Gender, Level of Urbanization, and Region of Mexico (Wave 1) (N = 2,395)

Skin Color	Gender <sup>a</sup>		Urbanization <sup>b</sup>			Region <sup>c</sup>					
	All	Men	Women	Urban	Mixed	Rural	Northwest	Northeast	Center	Center-West	South
White	18.8	16.7*	20.8	20.2**	17.5	14.5	22.3**	23.9**	21.3**	18.4*	11.9
Light Brown	50.5	49.8	51.3	52.3*	46.3	46.5	58.3**	60.0**	46.8	54.8**	44.5
Dark Brown	30.7	33.5**	27.9	27.5**	36.3	39.0	19.4**	16.1**	31.9**	26.7**	43.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

<sup>a</sup>Baseline category for comparisons is women.

<sup>b</sup>Baseline category for comparisons is rural.

<sup>c</sup>Baseline category for comparisons is South.

\* $p < .05$ ; \*\* $p < .01$  (two-tailed tests).

dark brown, only 27.5 percent of urban residents are classified in this category. As noted earlier, such differences may reflect rural residents' greater exposure to sunlight during their daily activities. Finally, as expected, residents of Mexico's southern region are more likely to be classified in the darker skin color categories compared with those in the North, while residents in the central regions occupy an intermediate position. Overall, interviewers' assessments of respondents' skin color conform closely to expected patterns across gender, level of urbanization, and regions of the country. This helps validate the skin color variables constructed from the 2006 Panel.

Next, I examine the reliability of skin color measurements. To do so, I use one of the most important features of the 2006 Panel: the availability of repeated measures of respondents' skin color in successive waves of the survey. Cronbach's alpha is a standard statistic used to assess the reliability of scales composed of separate variables (often called items) that are thought to measure the same underlying phenomenon. If we assume each measurement of a respondent's skin color is an item with a Likert-type scale (where 1 = white, 2 = light brown, and 3 = dark brown), we can use Cronbach's alpha to assess the reliability of a skin color summation score that uses all measurements available for an individual across all waves. The resulting alpha reliability coefficient is .8027. This value is extremely high, especially because the summation score imposes a particular scale to the skin color categories (i.e., the distance between white and light brown is assumed to be the same as that between light brown and dark brown). Naturally, the reliability of the skin color scale is higher when the same interviewer rated a respondent's skin color (intra-rater reliability,  $\alpha = .8529$ ), but it remains high even when different interviewers were used (inter-rater reliability,  $\alpha = .7509$ ).<sup>11</sup> Given the high reliability of the summation score, I use it as an alternative measure of skin color in the statistical analyses.

To further examine the level of agreement regarding a respondent's skin color across waves of the survey, I computed a statistic known as Cohen's kappa (Cohen 1960, 1968; Fleiss 1981). The kappa statistic is generally considered the best measure of agreement available because, unlike other measures, it explicitly takes into account the level of agreement between raters that may be expected simply by chance (for a discussion, see Fleiss 1981:212–36). Kappa has a value of 0 when the level of agreement is what would be expected by chance, and 1 when there is perfect agreement; in most situations, the value of kappa falls somewhere in between.<sup>12</sup> Unlike Cronbach's alpha, kappa does not assume a particular distance between skin color categories. Two additional features of the kappa statistic make it particularly useful in the present context. First, when more than two ratings for a given individual are available, one can compute values of kappa for each specific skin color category. These category-specific values of kappa allow me to empirically test whether there is a greater level of agreement about who is white compared with who is light brown or dark brown. For instance, following research on Brazil, we may expect a greater level of agreement about who is white than about who belongs to the other two categories (Telles 2004). If this is the case, it may be preferable to dichotomize the skin color variable by collapsing the light- and dark-brown categories and then use this variable to compare the socioeconomic status of white versus non-white individuals. Finally, a method for calculating the standard error of kappa is available that allows me to test the hypothesis that the level of agreement regarding the skin color categories is greater than would be expected by chance alone (i.e., kappa is greater than zero).

Table 2 reports kappa statistics for the three skin color categories and the combined kappa for all categories together, along with their corresponding tests of statistical significance.<sup>13</sup> All values of kappa are statistically significant (different from zero) at the .001

**Table 2.** Level of Agreement Regarding Respondents' Skin Color Across All Three Waves of the Survey (Kappas) (N = 1,360)

Skin Color	Kappa	Z	Prob>Z
White	.5417	34.60	0
Light Brown	.2891	18.47	0
Dark Brown	.4313	27.55	0
Combined	.4007	34.83	0

level. The overall level of agreement for all categories is moderately high ( $\kappa = .4007$ ). The values of kappa for each skin color category, however, indicate that there is considerably more agreement regarding who is white (.5417), followed by dark brown (.4313) and light brown (.2891). The greater ambiguity regarding the intermediate color category is consistent with findings from other national contexts. Given the higher level of agreement regarding who is white, I use a dichotomized skin color variable (white versus non-white) as an alternative predictor of socioeconomic outcomes in some of the regression models.

Finally, because assessments of individuals' skin color are necessarily subjective, it is important to examine whether interviewers' sociodemographic backgrounds affect how they perceive respondents' color. In particular, interviewers of different age, gender, education, and self-reported skin color may perceive respondents' skin color differently.<sup>14</sup> Although research on race in Latin America has not systematically considered interviewer effects, empirical work in the United States shows that an interviewer's race has an effect on how respondents' skin color is categorized (Hill 2002). To test the effect that interviewers' backgrounds, especially their self-assessed skin color, may have on their perceptions of respondents' color, I tested a set of ordered logistic regression models in which respondents' skin color is used as a dependent variable. Ordered logistic regression models are preferable to linear models in this instance because they assume the three skin color categories are in order (from whitest to darkest,

with the darkest category arbitrarily assigned the highest category) but do not assume a specific distance between categories (Greene 2003; Long 1997).<sup>15</sup> Because respondents' characteristics also affect how others perceive their skin color, I control for respondents' sociodemographic background, including whether they are members of an indigenous group, their age, their gender, and the region of the country in which they live. I use multilevel models in which respondents are nested within interviewers. These models include separate error terms to capture unmodeled heterogeneity at the respondent and interviewer levels (Raudenbush and Bryk 2002).<sup>16</sup>

Table 3 shows results of the ordered logistic regression models. Contrary to expectations, interviewers' characteristics have no effect on their classification of respondents' skin color. In particular, interviewers with self-categorized darker skin tones are no more likely than others to classify respondents in either darker or whiter categories. Interviewers' age, gender, and education level also have no significant effect on skin color classifications. The coefficients for the respondent-level predictors conform to my expectations and are consistent with the descriptive statistics presented in Table 1. Female respondents are more likely to be classified in whiter categories, while indigenous respondents are likely to be classified in darker categories. Also as expected, respondents living in Mexico's northern and central regions tend to be classified as whiter. Finally, the level of urbanization appears to have only a small effect on skin color categorization. The coefficients for the rural and mixed urban/rural dummy variables are substantially reduced once other variables are controlled.

### *Differences in Socioeconomic Outcomes by Skin Color*

Having demonstrated the reliability of the skin color classification system used in the



**Table 3.** Multilevel Ordered Logistic Regression Models Predicting Skin Color Categorization Using Respondent and Interviewer Characteristics as Predictors (Wave 1)

Variables	Model 1	Model 2	Model 3
<b>Interviewer Characteristics</b>			
Skin Color of Interviewer			
Light Brown	-.395 (.252)	-.242 (.255)	-.234 (.244)
Dark Brown	.116 (.285)	.167 (.284)	.217 (.278)
Female			-.203 (.186)
Age			-.003 (.016)
Education			
Incomplete High School Education			-.212 (.357)
Complete High School Education			-.284 (.307)
Some University			.026 (.390)
<b>Respondent Characteristics</b>			
Female	-.334** (.082)	-.337** (.082)	-.336** (.082)
Age	.000 (.003)	.000 (.003)	.000 (.003)
Indigenous	1.526** (.203)	1.271** (.208)	1.291** (.207)
Region			
Northwest		-1.008* (.425)	-1.005* (.408)
Northeast		-1.078** (.370)	-1.156** (.363)
Center		-.908** (.183)	-.909** (.180)
Center-West		-.920** (.255)	-.922** (.256)
Rural	.811** (.143)	.378* (.171)	.372* (.168)
Mixed Urban/Rural	.587* (.229)	.187 (.244)	.150 (.242)
Constant	-1.001** (.245)	-.190 (.290)	.183 (.634)
$\delta$ (threshold)	2.589** (.067)	2.607** (.068)	2.600** (.067)
Variance Component for Intercept	.701**	.679**	.579**
N	2,383	2,383	2,383

*Note:* Skin color categories are ordered from whitest to darkest, with the darkest category arbitrarily assigned the highest value. Standard errors are in parentheses.

\* $p < .05$ ; \*\* $p < .01$  (two-tailed tests).

2006 Panel, I now examine the association between respondents' skin color and various measures of socioeconomic status. Because

I found no substantive interviewer effects in the classification of respondents by skin color, I do not include interviewer characteristics as

**Table 4.** Ordered Logistic Regression Models Predicting Educational Attainment (Wave 1)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Skin Color of Respondent						
White					.520** (.111)	
Light Brown	-.440** (.134)	-.351** (.111)	-.352** (.109)	-.350** (.107)		
Dark Brown	-.915** (.172)	-.768** (.142)	-.986** (.151)	-.857** (.146)		
Skin Color Scale						-.609** (.088)
Female	-.474** (.070)	-.471** (.072)	-.491** (.072)	-.487** (.072)	-.455** (.068)	-.509** (.072)
Age	-.055** (.004)	-.059** (.004)	-.058** (.004)	-.059** (.004)	-.059** (.004)	-.059** (.004)
Indigenous	-2.019** (.241)	-1.366** (.208)		-1.493** (.230)	-1.639** (.239)	-1.471** (.225)
Region						
Northwest			-.872 (.452)	-1.123** (.433)	-1.024* (.427)	-1.177** (.434)
Northeast			-.586 (.377)	-.821* (.388)	-.719 (.381)	-.870* (.383)
Center			.136 (.305)	-.089 (.307)	-.053 (.297)	-.133 (.290)
Center-West			-.166 (.305)	-.357 (.290)	-.287 (.281)	-.425 (.283)
Rural		-1.601** (.176)	-1.794** (.246)	-1.670** (.239)	-1.675** (.234)	-1.618** (.237)
Mixed Urban/Rural		-.875** (.197)	-.870** (.261)	-.987** (.230)	-1.008** (.237)	-.959** (.220)
Pseudo R-Squared	.0829	.1137	.1112	.1206	.1172	.1232
N	2,379	2,379	2,385	2,379	2,379	2,384

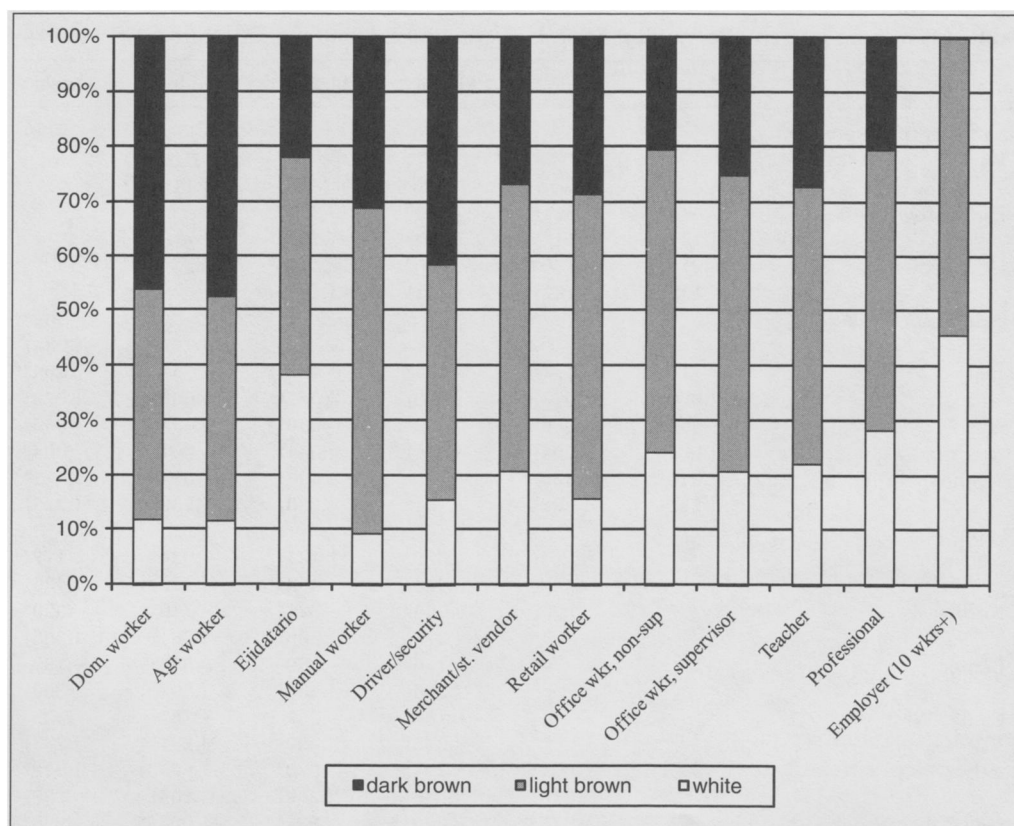
Note: Standard errors (in parentheses) adjusted for within-interviewer clustering using Huber-White estimation technique. Threshold values for each category in the dependent variable are omitted to conserve space.

\* $p < .05$ ; \*\* $p < .01$  (two-tailed tests).

predictors in the regression models for socioeconomic outcomes. However, I use the Huber-White estimation technique with clustering around interviewers to compute standard errors for the coefficients. This technique produces correct standard errors even when cases included within clusters (in this case, interviewers) are not independent, so long as they are independent across clusters (StataCorp 2005). For consistency, I include a similar set of predictors in each set of regressions.

*Educational attainment.* Results of the first set of regression models presented in

Table 4 indicate a very strong association between respondents' skin color and their educational attainment. Individuals with darker skin tones have substantially lower education levels even once other sociodemographic characteristics, such as their age, gender, and indigenous background, are taken into account. Using the top educational category as an example, the regression coefficients for Model 4 indicate that the odds of having a college education or more are 29.5 percent lower for respondents who are light brown compared with those who are white ( $1 - \exp(-.350)$ ). Similarly, the odds of having



**Figure 1.** Percent Employed Respondents in Each Skin Color Category by Occupation (Wave 1)

a college education or more are 57.6 percent lower for respondents who are dark brown compared with those who are white ( $1 - \exp(-.857)$ ). The difference between the coefficients for light- and dark-brown respondents is statistically significant at the .01 level, suggesting that the non-white population should be disaggregated into two separate categories. Nevertheless, because I found a greater consensus about who is white than about who belongs to either of the two other categories, I also compare the educational attainment of whites versus non-whites in Model 5. White respondents have 68.2 percent higher odds of having a college education or more compared with non-whites ( $\exp(.520) - 1$ ). The coefficient for the skin color scale in Model 6 is also statistically significant in the expected direction.

*Occupational status.* The second socioeconomic outcome I examine is respondents' occupational status. Figure 1 shows the percentages of respondents in each of the 12 occupational categories available in the 2006 Panel that are considered white, light brown, and dark brown.<sup>17</sup> While the association between respondents' occupational status and their skin color is not perfect, a clear pattern is discernable: respondents in the lowest occupational categories, such as domestic workers, manual workers, drivers, and security guards, are much more likely to be in the dark-brown category and less likely to be in the white category than are respondents in the highest status occupations, such as office supervisors, professional workers, and employers. For example, only 9.4 percent of manual workers are considered white,

compared with 28.4 percent of professionals. The one occupational group that stands out as an outlier in Figure 1, *ejidatarios*, is specific to the Mexican context. These respondents are members of Mexico's agrarian collectives known as *ejidos*. *Ejidatarios* typically have their own plots of land, as well as access to other resources owned by the community. They are therefore typically better off than other agricultural workers in the sample.

To further examine the association between skin color and occupational status net of other factors, I tested a set of regression models in which respondents' occupation is used as a dependent variable. In addition to including respondents' skin color as a predictor, the models control for basic demographic characteristics such as age, gender, and indigenous background. Because respondents' educational attainment will strongly influence the occupational choices available to them, education is introduced in the regression models as a series of dummy variables (no formal schooling is the baseline category). I again use ordered logistic regressions to avoid imposing a particular scale on the ranking of occupations. I assume occupational categories are ordered according to their status from lowest to highest, but I make no assumptions regarding the difference in status between each successive category.<sup>18</sup>

Results of the regression models shown in Table 5 strongly corroborate the association between respondents' skin color and their occupational status. Respondents with darker skin tones work in occupations with significantly lower status, even once their education levels and other characteristics are taken into account. Using the top two occupational categories as an example, the coefficients from Model 5 indicate that a light-brown individual has 25.2 percent lower odds of being a professional worker or employer than does a respondent who is considered white, while a dark-brown respondent has 35.9 percent lower odds of being in the top two occupational

categories.<sup>19</sup> Among the remaining variables in the regression models, educational attainment stands out as a particularly important predictor of occupational status. A comparison of Models 1 and 2 indicates that the difference in occupational status between light-brown and white respondents, and especially between dark-brown and white respondents, is substantially reduced once education level is introduced as a predictor. In other words, the results of the regression models strongly suggest that a disparity in access to education between respondents in different color categories may explain a large part (but not all) of the observed differences in occupational status.<sup>20</sup>

*Poverty and affluence.* In the final set of regression models, presented in Table 6, I consider whether respondents with darker skin color are more likely to live in poverty and whether they are less likely to be affluent. As noted earlier, a disadvantage of using poverty and affluence as dependent variables is that they are based on the income of the entire household rather than just the respondent. Nevertheless, measures of poverty and affluence are useful because they capture respondents' overall living standards. Another disadvantage of using poverty and affluence as dependent variables is that information about respondents' household income was only asked of respondents who were re-interviewed in waves 2 and 3. The sample size for the regression models for poverty and affluence is therefore smaller than the sample size in some earlier models.<sup>21</sup>

Results of the logistic regression models for poverty and affluence presented in Table 6 once again confirm that individuals with darker skin color face disadvantages. However, the results reveal important differences in the likelihood of being poor or affluent for individuals in different skin color categories. The association between skin color and poverty is generally weaker than that between skin color and affluence. For example, individuals in the dark-brown category are significantly more likely than whites to live in

**Table 5.** Ordered Logistic Regression Models Predicting Occupational Status, 2006 (Wave 1)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
<b>Skin Color of Respondent</b>							
White						.344*	
						(.137)	
Light Brown	-.506**	-.312*	-.293*	-.296*	-.291*		
	(.172)	(.139)	(.141)	(.143)	(.145)		
Dark Brown	-.905**	-.416**	-.409**	-.494**	-.445**		
	(.212)	(.152)	(.146)	(.158)	(.158)		
<b>Skin Color Scale</b>							
							-.218*
							(.094)
Female	.862**	.690**	.628**	.614**	.629**	.642**	.647**
	(.126)	(.132)	(.136)	(.133)	(.136)	(.134)	(.134)
Age	-.017**	.006	.001	.002	.000	.000	.001
	(.004)	(.005)	(.005)	(.005)	(.005)	(.005)	(.005)
Indigenous	-1.886**	-.996**	-.550*		-.591*	-.625*	-.595*
	(.294)	(.263)	(.281)		(.271)	(.272)	(.266)
<b>Education</b>							
Incomplete Primary Education		.214	.108	.197	.131	.133	.151
		(.240)	(.223)	(.225)	(.221)	(.221)	(.220)
Complete Primary Education		1.349**	.975**	1.085**	.971**	.989**	.962**
		(.297)	(.298)	(.303)	(.289)	(.290)	(.288)
Incomplete Secondary Education		1.937**	1.257**	1.335**	1.242**	1.272**	1.256**
		(.339)	(.347)	(.349)	(.337)	(.335)	(.336)
Complete Secondary Education		1.933**	1.413**	1.524**	1.390**	1.410**	1.392**
		(.332)	(.322)	(.316)	(.315)	(.314)	(.312)
Incomplete High School Education		2.893**	2.312**	2.414**	2.278**	2.297**	2.282**
		(.356)	(.334)	(.330)	(.324)	(.324)	(.321)
Complete High School Education		3.121**	2.513**	2.582**	2.464**	2.499**	2.454**
		(.323)	(.329)	(.323)	(.321)	(.321)	(.322)
Some University		3.311**	2.621**	2.682**	2.549**	2.580**	2.540**
		(.407)	(.418)	(.424)	(.415)	(.416)	(.415)
Complete University or More		6.220**	5.631**	5.719**	5.580**	5.612**	5.584**
		(.321)	(.329)	(.356)	(.325)	(.323)	(.327)
<b>Region</b>							
Northwest				-.602	-.703	-.663	-.713
				(.560)	(.568)	(.568)	(.564)
Northeast				.065	-.027	.006	-.039
				(.284)	(.277)	(.273)	(.279)
Center				.100	.021	.031	.020
				(.192)	(.186)	(.189)	(.187)
Center-West				-.015	-.098	-.080	-.100
				(.225)	(.215)	(.221)	(.219)
Rural				-1.474**	-1.571**	-1.503**	-1.495**
				(.206)	(.220)	(.221)	(.223)
Mixed Urban/Rural				-1.018**	-1.068**	-1.072**	-1.069**
				(.275)	(.298)	(.277)	(.279)
Pseudo R-Squared	.0498	.2009	.2203	.2205	.2220	.2217	.2219
N	1,247	1,245	1,245	1,249	1,245	1,245	1,249

*Note:* Standard errors (in parentheses) adjusted for within-interviewer clustering using Huber-White estimator. Threshold values for each category in the dependent variable are omitted to conserve space.  
 \* $p < .05$ ; \*\* $p < .01$  (two-tailed tests).



**Table 6.** Logistic Regression Models Predicting Relative Household Poverty and Affluence (Wave 2)

Variables	Poverty			Affluence		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<b>Skin Color of Respondent</b>						
White		-.295 (.249)			.578** (.169)	
Light Brown	.185 (.261)			-.523** (.167)		
Dark Brown	.506* (.258)			-.712** (.215)		
Skin Color Scale			.283* (.142)			-.352** (.134)
Female	.556** (.140)	.536** (.137)	.552** (.139)	-.411** (.142)	-.402** (.143)	-.414** (.140)
Age	-.008 (.005)	-.008 (.005)	-.008 (.005)	.021** (.005)	.022** (.005)	.022** (.005)
Indigenous	.521 (.272)	.565* (.279)	.509 (.266)	-.798 (.436)	-.821 (.427)	-.813 (.433)
<b>Education</b>						
Incomplete Primary Education	-.322 (.300)	-.370 (.296)	-.324 (.296)	.416 (.406)	.431 (.406)	.428 (.405)
Complete Primary Education	-.833* (.327)	-.878** (.323)	-.835* (.327)	.480 (.413)	.506 (.414)	.477 (.411)
Incomplete Secondary Education	-.824* (.417)	-.881* (.411)	-.794 (.425)	-.226 (.697)	-.214 (.695)	-.247 (.693)
Complete Secondary Education	-.813* (.348)	-.881** (.344)	-.802* (.350)	.250 (.471)	.281 (.473)	.241 (.468)
Incomplete High School Education	-1.096* (.438)	-1.182** (.432)	-1.081* (.442)	.190 (.598)	.222 (.601)	.186 (.599)
Complete High School Education	-1.897** (.422)	-1.988** (.421)	-1.897** (.425)	1.573** (.473)	1.614** (.475)	1.607** (.473)
Some University	-2.656** (.555)	-2.739** (.547)	-2.637** (.547)	2.346** (.484)	2.385** (.483)	2.325** (.482)
Complete University or More	-3.182** (.521)	-3.277** (.516)	-3.173** (.527)	2.815** (.434)	2.856** (.436)	2.809** (.431)
<b>Region</b>						
Northwest	-1.130** (.265)	-1.182** (.267)	-1.159** (.262)	-.333 (.591)	-.307 (.587)	-.350 (.579)
Northeast	-1.049** (.318)	-1.105** (.322)	-1.080** (.324)	.406 (.278)	.434 (.270)	.426 (.284)
Center	.079 (.171)	.039 (.174)	.055 (.174)	.174 (.293)	.193 (.290)	.148 (.296)
Center-West	-.450* (.215)	-.516* (.219)	-.477* (.219)	.377 (.262)	.420 (.256)	.353 (.256)
Rural	-.815** (.211)	-.789** (.208)	-.808** (.214)	.912** (.167)	.895** (.167)	.911** (.165)
Mixed Urban/Rural	.110 (.252)	.129 (.264)	.117 (.261)	-.638** (.224)	-.654** (.228)	-.659** (.240)
Constant	-.272 (.535)	.154 (.445)	-.621 (.627)	-3.106** (.625)	-3.743** (.589)	-2.856** (.661)
Pseudo R-Squared	.1240	.1213	.1237	.1814	.1807	.1789
N	1,553	1,553	1,563	1,553	1,553	1,563

Note: Standard errors (in parentheses) adjusted for within-interviewer clustering using Huber-White estimation technique.

\* $p < .05$ ; \*\* $p < .01$  (two-tailed tests).

poverty, but the same is not true of those in the light-brown category. Similarly, when the two brown categories are combined and compared against whites, we find that the former are no more likely to live in poverty once all other individual characteristics are taken into account. By contrast, non-white individuals are significantly less likely than whites to be affluent. This is particularly true of dark-brown individuals, who have 50.9 percent lower odds than whites of being affluent. This result confirms ethnographic studies of Mexican communities that find skin color is a greater obstacle for entrance into the upper classes (Colby and van den Berghe 1961; Nutini 1997).

## METHODOLOGICAL AND MEASUREMENT PROBLEMS

Some research on race in Latin America suggests that individuals' racial or skin color classification is affected by their socioeconomic status, rather than only the other way around (Schwartzman 2007; Telles and Lim 1998; Twine 1998). Researchers examining racial classification in Brazil find that wealthier and more educated Brazilians systematically tend to classify themselves and be classified by others in whiter categories (Telles 2004; Telles and Lim 1998; Twine 1998). This phenomenon is captured, for example, in the popular Brazilian saying that "money whitens." If the same whitening effect is taking place in Mexico, the difference in socioeconomic status observed between individuals in different skin color categories may result from interviewers classifying respondents they perceive to be of higher socioeconomic status as white or light brown.

While it is impossible to measure the extent to which this reverse causal effect between socioeconomic status and skin color may account for the strong association found in the statistical analysis, several factors suggest that the association is not fully explained

in this way. First, observed differences in occupational status, poverty, and affluence by skin color are net of respondents' educational levels. Respondents' educational attainment should serve as a proxy for the shift in skin color categories that may occur with increasing socioeconomic status. In fact, education is often used to measure the whitening effect in Brazil (Schwartzman 2007; Telles 2002). Second, if interviewers' assessments of respondents' skin color are indeed affected by interviewers' perceptions of respondents' socioeconomic status, we would expect interviewers' own socioeconomic backgrounds to play a role. Judgments about respondents' socioeconomic status may be based, in part, on the social distance between interviewer and respondent. Yet I found no significant interviewer effects in the coding of skin color. Third, interviewers coded respondents' skin color at the beginning of the survey (i.e., the second item in the questionnaire), before they had an opportunity to find out respondents' educational level or household income.<sup>21</sup>

A second measurement problem that could explain the observed association between skin color and socioeconomic status is the tendency for individuals who are more exposed to direct sunlight in their daily lives to have darker skin. Because individuals of lower socioeconomic status—in particular individuals occupying lower occupational positions such as agricultural workers, drivers, and street vendors—are more likely to work outdoors and to be exposed to sunlight, they may have darker skin tones as a result of their lower occupational status and not the other way around. However, three pieces of evidence suggest this is not the case. First, the "skin color" variable actually includes other phenotypical differences besides respondents' skin tone. The white category in the survey includes the term "*güero*," which refers to respondents with blond or light-colored hair. Hair color does not darken with sunlight, so this "skin color" category should be more stable. Second, the rural dummy variable introduced in all the regression models should

control for rural residents' greater exposure to sunlight, while the regional dummy variables should control for differences in exposure to sunlight across regions of the country. Finally, if exposure to sunlight affects respondents' skin color classification, we would expect a shift in respondents' skin color in the summer, when individuals are typically exposed to more sunlight. No such shift is evident, however, when comparing the proportion of respondents in each skin color category in the different waves of the panel (conducted in October, April, and July). Moreover, in separate regression models in which the same respondent's skin color classification was examined over time, I found no statistically significant shift, even for respondents in lower status occupations.

## CONCLUSIONS

Research on race in Latin America has focused almost exclusively on countries in the region with a large recognized presence of individuals of African descent such as Brazil. Racial categories in these countries are based on skin color distinctions along a black-white continuum. By contrast, the main socially recognized ethnic distinction in Indo-Latin American countries such as Mexico, between indigenous and non-indigenous residents, is not based primarily on phenotypical differences but rather on culture and language. A state-sponsored ideology explicitly denies the existence of any further racial or color distinctions among the Mexican population. Yet many Mexicans today express a preference for whiter skin and European features, even though no clear system of skin color categorization appears to exist. The Mexican case may therefore be described as one of extreme ambiguity in skin color classification.

Despite this ambiguity, I found evidence of profound social stratification by skin color in contemporary Mexico. Individuals with darker skin tone have significantly lower levels of

educational attainment and occupational status, and they are more likely to live in poverty and less likely to be affluent, even after controlling for other individual characteristics. Differences in socioeconomic status between Mexicans of different skin tones are indeed large. Although measurement differences preclude precise cross-country comparisons, the differences between Mexicans in the three color categories used in this study, and particularly between individuals classified as white and non-white, are comparable to the differences between African Americans and non-Hispanic whites in the United States.<sup>22</sup>

These differences in socioeconomic outcomes are, of course, insufficient to demonstrate the persistence of discriminatory practices against individuals based on the color of their skin. However, the fact that differences in occupational status across skin color categories cannot be fully explained by other factors, such as respondents' age, gender, education, or the region of the country in which they live, suggests that Mexicans with darker skin tones may in fact face discrimination in the labor market. Alternatively, the observed differences in socioeconomic status could be at least partly the result of discrimination in the nineteenth century or as far back as the colonial era, when racial discrimination was more explicit and sanctioned by the state. In a society known for its historically low levels of social mobility, stratification by skin color may result from class reproduction even without continued racial or color discrimination. Differences in socioeconomic status for Mexicans of different skin tones during the colonial era could be perpetuated if there is little class mobility and if individuals with high socioeconomic status tend to marry each other.

Although more research is required to properly disentangle the role of past and present discrimination in stratification by skin color in Mexico, the few available ethnographic studies on the subject suggest that many Mexicans continue to associate whiter

skin with positive traits. This could certainly affect the success that individuals with a darker phenotype have in the labor market. Interestingly, the preference for a whiter skin tone coexists with a denial of the existence of racial distinctions (Sue 2007, 2009a). By effectively subsuming all previously existing categories of individuals into a single racial category, the ideology of *mestizaje* impedes social mobilization to address disparities across individuals of different skin color. As Winant (2001) argues with regard to the Brazilian myth of racial democracy, an ideology of nonracialism that is avowedly antiracist may actually deter the kind of mobilization that could bring about the social reforms necessary to realize racial equality. In recent years, social mobilization in Mexico has instead taken place along the socially recognized boundary between indigenous and non-indigenous (*mestizo*) residents. The rise of indigenous movements, epitomized by the Zapatista rebellion in southeastern Mexico, brought to the fore the disadvantages faced by Mexico's indigenous groups. It is difficult to imagine a similar movement for individuals with darker skin color in contemporary Mexico.

The Mexican case is important because it demonstrates that stratification by skin color may exist in a society in which the primary ethnic distinction is not based on phenotypical differences. In other cases, such as that of African Americans in the United States (Hughes and Hertel 1990; Keith and Herring 1991), socioeconomic differences along skin color gradations occur in the context of a primary racial division (i.e., between African Americans and whites) that is at least partly defined on somatic grounds. One possible explanation for the continued role of skin color distinctions in Mexico, despite their lack of importance in defining the primary ethnic cleavage, is that color differences may matter more in the higher end of the socioeconomic spectrum than among the lower socioeconomic strata where the boundary between *indigenas* and *mestizos* is located.

In other words, while a darker skin tone may not distinguish *indigenas* from lower-class *mestizos*, a darker skin tone may be a greater barrier for entry into the middle and upper classes (Colby and van den Berghe 1961; Nutini 1997). This interpretation is consistent with the finding that whiter skin is a more important predictor of affluence than of poverty in Mexico.

I argued that social recognition of discrete color categories is not strictly necessary for stratification by skin color to occur, so long as a general preference for whiter skin persists. In an oft-quoted passage, Harris (1964:54) argues that without a clear method for distinguishing racial groups, systematic discrimination is not possible. However, discrimination may take place without well-defined boundaries. For example, employers could discriminate between applicants based on relative comparisons of skin color without necessarily attaching specific labels to each of them. What is essential for the analysis of stratification by skin color is that the categories used lead to the reliable classification of individuals. The statistical analysis presented in the first part of this study reveals considerable agreement among Mexican interviewers about who belongs to three basic categories: white, light brown, and dark brown. (There was even more agreement about who is white and who is non-white.) But this agreement does not mean that these categories are socially recognized. People can agree on how to classify individuals on what amounts to a three-point color scale even if the three points do not correspond to internal cognitive categories that shape their behavior. For example, interviewers were also asked to classify respondents' households into five socioeconomic categories based on their dwellings' physical characteristics (the categories were labeled A through E). While there was considerable agreement among interviewers about households' socioeconomic status along the five-point scale, it cannot be said that these five specific categories are meaningful to most Mexicans. Like the skin color

categories, the socioeconomic categories capture agreement among interviewers about respondents' location along a continuum.

In short, the reliability of skin color classification systems should not be equated with the social recognition of the categories used. This insight may have implications beyond the Mexican case. For example, researchers studying racial categorization in Brazil have debated the relative merits of different classification schemes for analyzing social stratification. Harris and colleagues (1993, 1995) criticize the use of the three skin color categories recognized in the Brazilian census by arguing that they are not socially recognized. They prefer the category *moreno*, instead of the intermediate category *pardo* used in the Brazilian census, because the former is more commonly used in everyday life. By contrast, Telles (1995, 2004) argues that the term *moreno* is too ambiguous to be analytically useful (see also Bailey and Telles 2006). Activists have proposed a third classification system in which individuals are categorized as either black or white without any intermediate categories. The Brazilian state has also used this classification system in affirmative action policies (Bailey 2008; Telles 2004). The use of such analytic categories in the census and for other official purposes may of course have a feedback effect on social life by reinforcing or creating social boundaries (Bailey 2008; Nobles 2000). Yet for the analysis of social stratification by skin color, what is important is not whether these categories are socially recognized but whether they are statistically reliable (i.e., consistently coded), because most scholars agree that individuals with darker skin tone in Brazil are more disadvantaged. Future work on skin color in Latin America and elsewhere in the world should seek to establish the reliability of categorization systems that may be used in the analysis of social stratification.

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## Notes

1. Harris (1964) refers to these two parts of Latin America as the "coastal lowland" and the "highland" regions, respectively. Researchers also identify Euro-Latin America as a third region that includes Uruguay, parts of Chile, and northern Argentina. This region experienced large-scale European immigration during the late-nineteenth and early-twentieth centuries.
2. In addition to asking whether a household member spoke an indigenous language, the long form of the 2000 census (applied to 10 percent of the population) also asked, for the first time, whether household residents belonged to an indigenous group. This could be considered a self-identification measure of ethnicity, although a single person within a household could provide information about all household residents. Interestingly, this self-identification measure yields a lower estimate of the indigenous population than the language question (6.3 percent). For a discussion of the debates leading to the inclusion of this self-identification question in the long form of the 2000 census, see Friedlander (2006:206–209).
3. Research also finds that skin color is an important factor affecting the socioeconomic conditions of Hispanic men and women in the United States. Early work by Arce, Murguía, and Frisbie (1987) and Telles and Murguía (1990) used data from the 1970 Chicano Survey to show that individuals with darker skin and Native American phenotype have lower levels of educational attainment and income. As in Hughes and Hertel's (1990) and Keith and Herring's (1991) studies, these studies measure skin color and physical appearance with a 5-point scale, even though the five categories are not commonly recognized within the Mexican American population (see also Espino and Franz 2002; Murguía and Saenz 2002).
4. These re-interview rates are comparable to those of other longitudinal surveys (e.g., Fitzgerald, Gottschalk, and Moffitt 1998). Further analysis reveals no statistical difference in the skin color of respondents who were re-interviewed in waves 2 and 3 versus those that were not.
5. Based on personal communication with Alejandro Moreno, director of survey field operations for the 2006 Panel. As described earlier, indigenous identity is traditionally defined based on cultural characteristics, particularly language use. The population census, for example, identifies indigenous residents



- by their ability to speak an indigenous language. Language use, however, is a rather restricted definition of indigenous identity. In everyday life, other cultural characteristics may be taken into account. The more expansive definition used in the 2006 Panel is therefore preferable.
6. INEGI (2009) defines the five geographical areas. INEGI includes three states in two different regions, I assigned each to one region as follows: Puebla is considered part of the Central region, Chihuahua is considered part of the Northeastern region, and Durango is considered part of the Northwestern region. The Southern region is the baseline category in all regression models.
  7. This is particularly important because the exact number of years of education is not known. However, in separate analyses not presented here, I tested OLS regression models using a continuous variable for education constructed by assigning respondents the mid-point in each educational category. Results of these linear regressions are consistent with those of the ordered logistic regression models in Table 4.
  8. See Figure 1 for the names of the 12 occupational categories. Also, see the later discussion of the relative ranking of the occupational categories. In separate analyses not presented here, I tested OLS regression models using a continuous variable for occupation. I converted respondents' occupational status into a continuous variable by using the normal score transformation technique (Powers and Xie 2000). Results of these linear regressions are consistent with those of the ordered logistic regression models in Table 5.
  9. Alternatively, one could use an absolute poverty line similar to those defined by the Mexican Ministry of Social Development (SEDESOL 2002, N.d.). The Ministry defines three separate poverty lines based on the amount of income required to purchase three different baskets of goods; the Ministry estimates these poverty lines using extremely detailed questions regarding all sources of income in the National Survey of Household Income and Spending. As López Calva and colleagues (2005) and Székely and colleagues (2005) document, however, using the same poverty lines with data sources that lack such detailed questions about respondents' income (e.g., the 2000 census) leads to dramatic overestimation of the number of households living in poverty, sometimes by a factor of two. Following the standards set by the Ministry of Social Development, I estimate the relative location of households in the income distribution of rural and non-rural areas separately to partially adjust for differences in the cost of living (SEDESOL N.d.).
  10. The 10 categories in Mexican pesos are: 0 to 1,299; 1,300 to 1,999; 2,000 to 2,599; 2,600 to 3,999; 4,000 to 5,199; 5,200 to 6,499; 6,500 to 7,899; 7,900 to 9,199; 9,200 to 10,499; and 10,500 or more.
  11. Wave 1 of the survey was carried out by 96 interviewers, each conducting an average of 25.0 interviews. Waves 2 and 3 were carried out by 106 and 110 interviewers with an average number of 19.6 and 18.1 respondents per interviewer, respectively (this includes the fresh set of respondents added to deal with sample attrition). I calculated intra-rater reliability using 1,126 cases in which a respondent was interviewed either two or three times by the same interviewer; inter-rater reliability is based on 1,553 cases in which a respondent was interviewed by two or three different interviewers.
  12. As a general rule, values of kappa greater than .4 are considered relatively high. Values of kappa are not comparable in scale to alpha coefficients.
  13. Standard errors for kappa can be estimated only when the same number of ratings is available for all individuals. Therefore, I estimate kappas using only cases where information is available in all three waves ( $n = 1,360$ ). The values of kappa presented in Table 2, however, are very close to those obtained when all available cases are used.
  14. Interviewers who have traveled to the United States for extended periods of time may be influenced by that country's racial ideology and standards for color distinctions. This may in turn shape how they assess respondents' skin color. Unfortunately, no information is available regarding interviewers' experiences in the United States. Because emigration rates to the United States vary considerably across Mexican regions, the regional dummy variables introduced in the regression models in Table 3 should partially control for interviewers' exposure to U.S. racial ideology. In general, the percentage of Mexican residents who have traveled to the United States for extended periods is quite low. Results from a nationally representative sample of Mexicans age 12 to 65 years indicate that only 7.4 percent have ever been to the United States, and only 3.5 percent have been in the United States for a total of one year or more (author's calculations based on the National Survey of Addictions [INEGI 2004b]). Travel to the United States is thus unlikely to have a large effect on the coding of respondents' skin color.
  15. In separate analyses not presented here, I tested OLS regression models using the continuous measure of skin color as a dependent variable. The results are consistent with those presented in Table 3; I found no substantive interviewer effects.
  16. I found a relatively small number of discrepancies when examining interviewers' sociodemographic characteristics. In particular, there is variation in some interviewer characteristics within and across waves that cannot be easily explained (e.g., their

- birth year, state of birth, and level of education). In some cases, I resolved these discrepancies by assuming that two different interviewers conducted the interviews attributed to a single interviewer. A list of all changes are available from the author upon request.
17. The 12 occupational categories are arranged from lowest to highest based roughly on Ganzeboom and Treiman's (1996) definition of the International Socio-Economic Index of Occupational Status (ISEI). I further validated this ranking using respondents' educational levels. With the exception of the top category, the average educational level of each successive occupational category is statistically the same or higher than the previous category.
  18. I include only employed individuals in the analysis of occupational status. Removing respondents who are unemployed or out of the labor market does bring up the possibility of selection bias because individuals in different skin color categories may select themselves or be selected out of the labor market at different rates. However, I found no evidence of a selection effect. Specifically, in separate logistic regression models using the full sample of respondents, I found no significant association between skin color and the odds of being unemployed or out of the labor market (results not presented here).
  19. The results are even stronger when agricultural workers and *ejidatarios* are removed from the sample and when all rural residents are excluded.
  20. If the same unmodeled individual characteristics influence individuals' educational attainment and their occupational status, estimates of the regression models presented in Table 5 will be biased due to endogeneity. To examine this possibility, I tested the regression models for educational attainment and occupational status using seemingly unrelated regressions. Results of the Breusch-Pagan test of independence indicate that the errors terms for both equations are uncorrelated. Because seemingly unrelated regressions require two continuous dependent variables, I transformed respondents' educational attainment and occupational status into continuous variables.
  21. Because the interviews are conducted in the respondents' place of residence, interviewers can form an opinion about respondents' socioeconomic status based on the quality of the dwelling. Fortunately, the Mexico 2006 Panel contains information about interviewers' perceptions of households' socioeconomic levels based on dwellings' characteristics. In each wave, interviewers were asked to rate a household's socioeconomic level on a five-point scale, taking into account factors such as the dwelling's size, the materials from which it is constructed, whether there is a yard or a garage with cars, and whether the household has basic services like running water and electricity. In statistical analyses not presented here, I used this subjective assessment of household socioeconomic status as a predictor of respondents' skin color categorization. I then used respondents' skin color as an endogenous predictor of occupational status in a two-stage least squares model. The results continue to indicate a significant effect of skin color on occupational status.
  22. Using data from the 2000 Public Use Microdata Sample (PUMS), Saenz and Morales (2005) find that among the native-born population age 25 to 44 in the United States in 2000, 30.2 percent of whites and 14.4 percent of African Americans have a college degree. Among individuals in the same age groups in the Mexico 2006 Panel Study, 26.4 percent of respondents classified as white have a college degree or more, compared with 16.2 and 12.6 percent of individuals who are classified as light brown and dark brown, respectively. Similarly, whereas the median household income per capita for African Americans was 41.5 percent lower than for whites in the United States in 2004 (DeNavas-Walt, Proctor, and Lee 2005), the median household income per capita for Mexicans categorized as light brown and dark brown was 12.2 and 42.1 percent lower than for those categorized as white, respectively.

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