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## Intermarriage and the Intergenerational Transmission of Ethnic Identity and Human Capital for Mexican Americans

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*Centre for Research  
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of Migration*

**CReAM**

Discussion Paper Series

CDP No 02/09

Intermarriage and the Intergenerational  
Transmission of Ethnic Identity and  
Human Capital for Mexican Americans

*Brian Duncan and Stephen J. Trejo*

# **Intermarriage and the Intergenerational Transmission of Ethnic Identity and Human Capital for Mexican Americans**

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## **Non-Technical Abstract**

Using microdata from the 2000 U.S. Census and from recent years of the Current Population Survey (CPS), we investigate whether selective intermarriage and endogenous ethnic identification interact to hide some of the intergenerational progress achieved by the Mexican-origin population in the United States. First, using Census data for U.S.-born youth ages 16-17 who have at least one Mexican parent, we estimate how the Mexican identification, high school dropout rates, and English proficiency of these youth depend on whether they are the product of endogamous or exogamous marriages. Second, we analyze the extent and selectivity of ethnic attrition among second-generation Mexican-American adults and among U.S.-born Mexican-American youth. Using CPS data, we directly assess the influence of endogenous ethnicity by comparing an “objective” indicator of Mexican descent (based on the countries of birth of the respondent and his parents and grandparents) with the standard “subjective” measure of Mexican self-identification (based on the respondent’s answer to the Hispanic origin question). For third-generation Mexican-American youth, we show that ethnic attrition is substantial and could produce significant downward bias in standard measures of attainment which rely on ethnic self-identification rather than objective indicators of Mexican ancestry.

# **Intermarriage and the Intergenerational Transmission of Ethnic Identity and Human Capital for Mexican Americans**

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## **Abstract**

Using microdata from the 2000 U.S. Census and from recent years of the Current Population Survey (CPS), we investigate whether selective intermarriage and endogenous ethnic identification interact to hide some of the intergenerational progress achieved by the Mexican-origin population in the United States. First, using Census data for U.S.-born youth ages 16-17 who have at least one Mexican parent, we estimate how the Mexican identification, high school dropout rates, and English proficiency of these youth depend on whether they are the product of endogamous or exogamous marriages. Second, we analyze the extent and selectivity of ethnic attrition among second-generation Mexican-American adults and among U.S.-born Mexican-American youth. Using CPS data, we directly assess the influence of endogenous ethnicity by comparing an “objective” indicator of Mexican descent (based on the countries of birth of the respondent and his parents and grandparents) with the standard “subjective” measure of Mexican self-identification (based on the respondent’s answer to the Hispanic origin question). For third-generation Mexican-American youth, we show that ethnic attrition is substantial and could produce significant downward bias in standard measures of attainment which rely on ethnic self-identification rather than objective indicators of Mexican ancestry.

## **I. Introduction**

As a self-styled “nation of immigrants,” the United States takes great pride in its historical success as a “melting pot” able to absorb and unify people coming from diverse lands and cultures. At the same time, however, Americans’ pride in their immigrant heritage often seems tempered by the nagging fear that the most recent arrivals are somehow different, that the latest wave of foreigners will not integrate into the mainstream of U.S. society. Certainly, this fear was voiced when Italians and other relatively unskilled immigrants arrived in large numbers at the end of the 1800s and the beginning of the 1900s (Higham 1970). Time has assuaged this particular fear. In terms of outcomes such as educational attainment, occupation, and earnings, the sizeable differences by national origin that initially persisted among earlier European immigrants have largely disappeared among the modern-day descendants of these immigrants (Neidert and Farley 1985; Lieberman and Waters 1988; Farley 1990).

There is considerable skepticism, however, that the processes of assimilation and adaptation will operate similarly for the predominantly non-white immigrants who have entered the United States in increasing numbers over the past several decades (Gans 1992; Portes and Zhou 1993; Rumbaut 1994). Of particular concern are Mexican immigrants and their descendants. Mexicans assume a central role in current discussions of immigrant intergenerational progress and the outlook for the so-called “new second generation,” not just because Mexicans make up a large share of the immigrant population, but also because most indications of relative socioeconomic disadvantage among the children of U.S. immigrants vanish when Mexicans are excluded from the sample (Perlmann and Waldinger 1996, 1997). Therefore, to a great extent, concern about the long-term economic trajectory of immigrant families in the United States is concern about Mexican-American families.

Are Mexicans following the same intergenerational trajectory that earlier European immigrants did? Huntington (2004), among others, is decidedly pessimistic, and he points to several factors that could slow the pace of assimilation by Mexicans today as compared to Europeans in the past. These factors include the vast scale of current immigration flows from Mexico and other Spanish-speaking countries, the substantial (though lessening) geographic concentration of these flows within the United States, and the fact that such flows have remained sizeable over a much longer period of time than did the influx from any particular European country. In addition, the close proximity of Mexico to the United States facilitates return and repeat migration. These unique features of Mexican immigration foster the growth of ethnic enclaves in the United States where immigrants and their descendants could, if they so choose, live and work without being forced to learn English or to Americanize in other important ways. Another salient factor is that many Mexicans enter the United States as illegal immigrants.

Moreover, today's economy provides fewer opportunities for unskilled workers to advance than did the economy that greeted earlier European immigrants (Portes and Rumbaut 2001; Perlmann 2005). Around 1900, high school completion was uncommon for native-born Americans, so while many European immigrants arrived with relatively meager educations, their skill disadvantage was smaller than that faced today by Mexican immigrants who typically lack the additional years of high school and college that have become the norm for U.S. natives. In addition, recent decades have witnessed a large rise in earnings inequality among American workers, driven by substantial increases in the labor market payoffs to education and other indicators of skill (Levy and Murnane 1992; Autor and Katz 1999). As a result, the skill deficit of Mexican immigrants has become even more of a liability in our modern economy that places a higher premium on knowledge and cognitive ability.

In contrast to Huntington (2004), Perlmann (2005) offers a cautiously optimistic assessment of the prospects for assimilation by the descendants of Mexican immigrants. After carefully comparing the intergenerational mobility experienced by low-skill European immigrants arriving in the United States around 1900 with that experienced by modern-day Mexicans, Perlmann (2005) concludes that “Mexican economic assimilation may take more time—four or five generations rather than three or four” (p. 124), but that such assimilation is nonetheless occurring. If this is correct, then the long-term integration of Mexican Americans may not turn out all that differently from the success stories often recounted for previous waves of U.S. immigration.<sup>1</sup>

Several recent studies have explored this issue by comparing education and earnings across generations of Mexican Americans (Trejo 1997, 2003; Fry and Lowell 2002; Farley and Alba 2002; Grogger and Trejo 2002; Livingston and Kahn 2002; Duncan, Hotz, and Trejo 2006; Blau and Kahn 2007). Table 1 illustrates the basic patterns that emerge for men.<sup>2</sup> Between the first and second generations, average schooling rises by three and one-half years and average hourly earnings grow by over 30 percent for Mexicans. The third generation, by contrast, shows little or no additional gains, leaving Mexican-American men with an educational deficit of 1.3 years and a wage disadvantage of about 25 percent, relative to whites. Note that, even for individuals in the third generation and beyond, Mexican schooling levels are low not just in

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<sup>1</sup> Also relevant is a study by MacKinnon and Parent (2005) that documents the slow but eventual assimilation of the descendants of French Canadian immigrants in the United States. For our purposes, French Canadians are a particularly interesting group because their migration to the United States had several of the same features that Huntington (2004) identifies as important obstacles to the past and future assimilation of Mexican Americans.

<sup>2</sup> These averages are calculated using outgoing rotation group data from the 1994-2006 Current Population Survey (CPS); the data are described in more detail below. In Table 1, standard errors are shown in parentheses. The samples include men ages 25-59. The samples for the hourly earnings data are further limited to men employed at wage and salary jobs during the survey week. Earnings have been converted to 2006 dollars using the Consumer Price Index for All Urban Consumers (CPI-U). First-generation Mexicans are individuals who were born in Mexico. Second-generation Mexicans are U.S.-born individuals who have at least one parent born in Mexico. Third- (and higher-) generation Mexicans are U.S.-born individuals who have

comparison with non-Hispanic whites, but also relative to African Americans. Similar patterns emerge for women and when regressions are used to control for other factors such as age and geographic location (Grogger and Trejo 2002; Duncan, Hotz, and Trejo 2006; Blau and Kahn 2007).

The apparent lack of socioeconomic progress between second and later generations of Mexican Americans is surprising. Previous studies have consistently found parental education to be one of the most important determinants of an individual's educational attainment and ultimate labor market success (Haveman and Wolfe 1994; Mulligan 1997). Through this mechanism, the huge educational gain between first- and second-generation Mexican Americans should produce a sizable jump in schooling between the second and third generations, because on average the third generation has parents who are much better educated than those of the second generation. Yet the improvement in schooling we expect to find between the second and third generations is largely absent.

The research summarized in Table 1 suggests that intergenerational progress stalls for Mexican Americans after the second generation. As noted by Borjas (1993) and Smith (2003), however, generational comparisons in a single cross-section of data do a poor job of matching immigrant parents and grandparents in the first generation with their actual descendants in later generations. Indeed, Smith (2003) finds evidence of more substantial gains between second- and third-generation Mexicans when he combines cross-sectional data sets from successive time periods in order to compare second-generation Mexicans in some initial period with their third-generation descendants twenty-five years later. Yet even Smith's analysis shows signs of intergenerational stagnation for Mexican Americans. In his Table 4, for example, five of the six

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U.S.-born parents and who self-identify as Mexican in response to the Hispanic origin question in the CPS. Third- (and higher-)



most recent cohorts of Mexicans experience no wage gains between the second and third generations. Moreover, all studies conclude that large education and earnings deficits (relative to whites) remain for third- and higher-generation Mexicans.<sup>3</sup>

These findings—that the economic disadvantage of Mexican Americans persists even among those whose families have lived in the United States for more than two generations, and that the substantial progress observed between the first and second generations seems to stall thereafter—raise doubts whether the descendants of Mexican immigrants are enjoying the same kind of intergenerational advancement that allowed previous groups of unskilled immigrants, such as the Italians and Irish, to eventually enter the economic mainstream of American society. Such conclusions could have far-reaching implications, but the validity of the intergenerational comparisons that underlie these conclusions rests on assumptions about ethnic identification that have received relatively little scrutiny for Mexican Americans. In particular, analyses of intergenerational change typically assume, either explicitly or implicitly, that the ethnic choices made by the descendants of Mexican immigrants do not distort outcome comparisons across generations.

Consider, for example, the Mexican generations defined in Table 1. First- and second-generation Mexicans are identified using a more or less “objective” indicator of ethnicity: whether the respondent or either of his parents was born in Mexico. Like virtually all large, national surveys, however, the CPS does not provide information on the countries of birth of an adult respondent’s grandparents. As a result, third- and higher-generation Mexicans in these data can be identified only from a “subjective” measure of ethnic self-identification: the

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generation whites and blacks are U.S.-born, non-Hispanic individuals who have U.S.-born parents.

<sup>3</sup> Borjas (1994) and Card, DiNardo, and Estes (2000) investigate patterns of intergenerational progress for many different national origin groups, including Mexicans.

Hispanic origin question.<sup>4</sup> Almost without exception, studies of later-generation Mexican Americans rely exclusively on the Hispanic origin question (or something very similar) to identify the population of interest.

Ethnic identification is to some extent endogenous, especially among people at least one or two generations removed from immigration to the United States (Alba 1990; Waters 1990). Consequently, the descendants of Mexican immigrants who continue to identify themselves as Mexican in the third and higher generations may be a select group. For example, if the most successful Mexican Americans are more likely to intermarry or for other reasons cease to identify themselves or their children as Mexican, then available data may understate human capital and earnings gains between the second and third generations.<sup>5</sup> In other words, research on intergenerational assimilation among Mexicans may suffer from the potentially serious problem that the most assimilated members of the group under study eventually fade from empirical observation as they more closely identify with the group they are assimilating toward.<sup>6</sup>

In previous work (Duncan and Trejo 2007, 2008), we have begun to assess the potential empirical importance of selective ethnic attrition among Mexican Americans. Specifically, we investigate what factors influence whether individuals choose to identify themselves (or their children) as Mexican-origin, and how these ethnic choices may affect inferences about the

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<sup>4</sup> Since January 2003, the CPS has collected information about Hispanic origin as follows. Respondents are asked whether they are “Spanish, Hispanic, or Latino,” and those who answer affirmatively are then asked to designate a specific Hispanic national origin group (Mexican, Puerto Rican, Cuban, Central/South American, or Other Spanish). The Hispanic origin question in the 2000 U.S. Census is similar. Prior to 2003, the CPS elicited Hispanic origin by asking respondents to choose their “origin or descent” from a list of about 20 possibilities that included responses such as “Italian,” “Polish,” and “Afro American (Black, Negro)” in addition to the specific Hispanic national origin groups listed above. Responses for the specific Hispanic groups were coded and reported separately in the public use data files, along with a residual category that combines into a single group all of the non-Hispanic responses.

<sup>5</sup> For groups such as Mexicans with relatively low levels of average schooling, Furtado (2006) shows that assortative matching on education in marriage markets can create a situation whereby individuals who intermarry tend to be the more highly-educated members of these groups.

<sup>6</sup> Bean, Swicegood, and Berg (2000) raise this possibility in their study of generational patterns of fertility for Mexican-origin women in the United States.

intergenerational progress of Mexican Americans. In Duncan and Trejo (2007), we highlight the critical role that intermarriage plays in this process. Using 2000 Census data, we show that intermarriage to non-Mexicans is widespread among U.S.-born Mexican Americans, and also that Mexican Americans who intermarry are substantially more educated and English proficient, on average, than are Mexican Americans who marry co-ethnics (whether they be Mexican Americans or Mexican immigrants). In addition, the non-Mexican spouses of intermarried Mexican Americans possess relatively high levels of schooling and English proficiency, compared to the spouses of endogamously married Mexican Americans. The human capital selectivity of Mexican intermarriage generates corresponding differences in the employment and earnings of Mexican Americans and their spouses. Moreover, the children of intermarried Mexican Americans are much less likely to be identified as Mexican than are the children of endogamous Mexican marriages. These forces combine to produce strong negative correlations between the education, English proficiency, employment, and earnings of Mexican-American parents and the chances that their children retain a Mexican ethnicity. Such findings raise the possibility that selective ethnic attrition might bias observed measures of intergenerational progress for Mexican Americans.

Our prior research documents the selectivity in human capital and labor market performance of Mexican Americans who intermarry and whose children are therefore less likely to retain a Mexican ethnic identification. That research, however, does not directly examine how much of this intermarriage selectivity gets passed from Mexican-origin parents to their children. Building on our previous work, the current paper analyzes explicitly the intergenerational transmission of human capital and ethnic identification for Mexican Americans; as before, intermarriage plays a leading role. First, using 2000 Census data for U.S.-born youth ages 16-17

who have at least one Mexican parent, we estimate how the Mexican identification, high school dropout rates, and English proficiency of these youth depend on whether they are the product of endogamous or exogamous marriages. Second, we analyze the extent and selectivity of ethnic attrition among second-generation Mexican-American adults and among U.S.-born Mexican-American youth. Using CPS data, we assess the influence of endogenous ethnicity by comparing an “objective” indicator of Mexican descent (based on the countries of birth of the respondent, his parents, and, for youth, his grandparents) with the standard “subjective” measure of Mexican self-identification (based on the respondent’s answer to the Hispanic origin question). In this way, we provide direct evidence of the kind of selective ethnic attrition that our previous work could only suggest indirectly. For later-generation Mexican Americans, in particular, we show that ethnic attrition is substantial and could produce significant downward bias in standard measures of attainment which rely on ethnic self-identification rather than objective indicators of Mexican ancestry.<sup>7</sup>

## **II. Ethnic Identification and Ethnic Attrition**

For our purposes, the ideal data set would include the family tree of each individual, enabling us to identify which individuals are descended from Mexican immigrants and how many generations have elapsed since that immigration took place. It would then be a simple matter to compare outcomes for this “true” population of Mexican descendants with the corresponding outcomes for a relevant reference group (e.g., non-Hispanic whites) and also with

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<sup>7</sup> Using a very different approach than ours, Brito (2004) reaches a similar conclusion. He specifies and simulates a model of how selective intermarriage interacts with the parent-child transmission of human capital and ethnic identification to produce the joint distributions of educational attainment and Hispanic identity across generations.

those for the subset of Mexican descendants who continue to self-identify as Mexican-origin.<sup>8</sup> Such an analysis would provide an unbiased assessment of the relative standing of the descendants of Mexican immigrants in the United States, and it would show the extent to which selective ethnic identification distorts estimated outcomes for this population when researchers are forced to rely on standard, self-reported measures of Mexican identity.

Following the 1970 Census, unusually detailed information of this sort was collected for a small sample of individuals with ancestors from a Spanish-speaking country. After each decennial U.S. Census, selected respondents to the Census long form are reinterviewed in order to check the accuracy and reliability of the Census data. The 1970 Census was the first U.S. Census to ask directly about Hispanic origin or descent, and therefore a primary objective of the 1970 Census Content Reinterview Study (U.S. Bureau of the Census 1974) was to evaluate the quality of the responses to this new question. For this purpose, individuals in the reinterview survey were asked a series of questions regarding any ancestors they might have who were born in a Spanish-speaking country. Among those identified by the reinterview survey as having Hispanic ancestors, Table 2 shows the percent who had previously responded on the 1970 Census long form that they were of Hispanic “origin or descent.”<sup>9</sup>

Overall, 76 percent of reinterview respondents with ancestors from a Spanish-speaking

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<sup>8</sup> Detailed ancestry information of this sort would raise complicated issues about how to define ethnic groups. For example, should calculations for the Mexican-American population differentially weight individuals according to their “intensity” of Mexican ancestry? In other words, among third-generation Mexicans, should those with four Mexican-born grandparents count more than those with just one grandparent born in Mexico? The answer might depend on the question of interest. For the questions of intergenerational assimilation and progress that we study here, our view is that all descendants of Mexican immigrants should count equally, regardless of how many branches of their family tree contain Mexican ancestry. This conceptualization allows intermarriage to play a critical role in the process of intergenerational assimilation for Mexican Americans, as it did previously for European immigrants (Gordon 1964; Lieberman and Waters 1988). As we note below, however, some of our analyses can shed light on the direction, but not the ultimate magnitude, of measurement biases arising from selective intermarriage and ethnic identification by Mexican Americans. Our conclusions about the direction of these measurement biases require only that persons of mixed ancestry—i.e., the products of Mexican intermarriage—be included with some positive weight in whatever definition is adopted for the Mexican-American population.

<sup>9</sup> The information in Table 2 is reproduced from Table C of U.S. Bureau of the Census (1974, p. 8).

country had self-identified as Hispanic in the 1970 Census, but the correspondence between Hispanic ancestry in the reinterview and Hispanic identification in the Census fades with the number of generations since the respondent's Hispanic ancestors arrived in the United States. Virtually all (99 percent) first-generation immigrants born in a Spanish-speaking country identified as Hispanic in the Census, but the rate of Hispanic identification dropped to 83 percent for the second generation, 73 percent for the third generation, 44 percent for the fourth generation, and all the way down to 6 percent for higher generations of Hispanics. Interestingly, intermarriage seems to play a central role in the loss of Hispanic identification. Almost everyone (97 percent) with Hispanic ancestors on both sides of their family identified as Hispanic in the Census, whereas the corresponding rate was only 21 percent for those with Hispanic ancestors on just one side of their family. Given the small number of Hispanics in the reinterview sample (369 individuals reported having at least one ancestor from a Spanish-speaking country), the percentages in Table 2 should be regarded with caution, especially those for the very small samples of Hispanics who are fourth generation or higher. Nonetheless, these data do suggest that self-identified samples of U.S. Hispanics might omit a large proportion of later-generation individuals with Hispanic ancestors, and that intermarriage could be a fundamental source of such intergenerational ethnic attrition.

Unfortunately, the microdata underlying Table 2 no longer exist, so we cannot use these data to examine in a straightforward manner how selective ethnic attrition affects observed measures of intergenerational progress for Mexican Americans.<sup>10</sup> Out of necessity, we instead

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<sup>10</sup> Starting in 1980, the Census has included an open-ended question asking for each person's "ancestry" or "ethnicity," with the first two responses coded in the order that they are reported (Farley 1991). For the purposes of identifying individuals with Mexican or Hispanic ancestors, however, the Census ancestry question is not a good substitute for the detailed battery of questions included in the 1970 Census Content Reinterview Study. Indeed, many 1980-2000 Census respondents who identified as Hispanic in response to the Hispanic origin question failed to list an Hispanic ancestry in response to the ancestry item that comes later on the Census long form questionnaire, perhaps because they thought it redundant and unnecessary to indicate their

adopt the less direct and less comprehensive strategies for trying to shed light on this issue that are described in detail below. Before turning to the empirical analysis, however, we first discuss some prior research on intermarriage and ethnic identification that is especially relevant for our study.

Frequent intermarriage is one of the strongest signals of social assimilation by an ethnic group (Gordon 1964; Alba and Nee 2003). After a few generations in the United States, so much intermarriage had taken place among the descendants of earlier European immigrants that most white Americans could choose among multiple ancestries or ethnic identities (Alba 1990; Hout and Goldstein 1994; Waters 1990). For such individuals, ethnicity has become subjective, situational, and largely symbolic, and the social boundaries between these ethnic groups have been almost completely erased. In this context, it is interesting to note that exogamy is increasingly common for Mexican Americans. Rosenfeld (2002, Table 1) shows that the intermarriage rate of Mexican-American women grew substantially between 1970 and 1980 and even more sharply between 1980 and 1990. As of 2000, more than a third of married, U.S.-born Mexicans have non-Mexican spouses, with the overwhelming majority of these non-Mexican spouses being U.S.-born, non-Hispanic whites (Duncan and Trejo 2007). Because it takes two Mexican-origin spouses to create an endogamous Mexican marriage, whereas a Mexican intermarriage requires only one Mexican-origin spouse, the observed rate of intermarriage implies that almost half of Mexican-American marriages involve a non-Mexican spouse. Indeed, Perlmann and Waters (2004) argue that the proclivity for intermarriage by second-generation

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Hispanic ethnicity a second time. Comparatively few respondents listed an Hispanic ancestry after identifying as non-Hispanic when answering the Hispanic origin question, so the ancestry question actually produces a lower overall count of Hispanics than does the Hispanic origin question (Lieberson and Waters 1988; del Pinal 2004). See Duncan and Trejo (2008) for an analysis of how Mexican Americans respond to the Hispanic origin and ancestry questions in the 2000 Census. The patterns of responses are complex and strongly associated with human capital, labor market outcomes, intermarriage, and the Mexican identification of children. Emeka (2008) investigates some of these issues for Hispanics as a whole, rather than specifically for Mexicans.

Mexicans today is similar to what was observed for second-generation Italians in the early 1900s. This argument has potentially provocative implications for ethnic attachment among future generations of Mexican Americans, because intermarriage became so commonplace for subsequent generations of Italian Americans that Alba (1986) characterized this group as entering the “twilight of ethnicity.”

In the U.S. context, analyses of ethnic responses in large national surveys have focused primarily on whites of European descent (Alba and Chamlin 1983; Lieberman and Waters 1988; 1993; Farley 1991), and therefore new insights could be gained from an analysis such as ours that highlights ethnic choices among the Mexican-origin population. For other minority groups, existing research illustrates how selective ethnic identification can distort observed socioeconomic characteristics. American Indians are a particularly apt example, because they exhibit very high rates of intermarriage, and fewer than half of the children of such intermarriages are identified as American Indian by the Census race question (Eschbach 1995). For these and other reasons, racial identification is relatively fluid for American Indians, and changes in self-identification account for much of the surprisingly large increase in educational attainment observed for American Indians between the 1970 and 1980 U.S. Censuses (Eschbach, Supple, and Snipp 1998). In addition, Snipp (1989) shows that those who report American Indian as their race have considerably lower schooling and earnings, on average, than the much larger group of Americans who report a non-Indian race but claim to have some Indian ancestry.

To cite another example, Waters (1994, 1999) observes selective ethnic identification among the U.S.-born children of New York City immigrants from the West Indies and Haiti. The teenagers doing well in school tend to come from relatively advantaged, middle-class families, and these kids identify most closely with the ethnic origins of their parents. In contrast,



the teenagers doing poorly in school are more likely to identify with African Americans. This pattern suggests that self-identified samples of second-generation Caribbean blacks might overstate the socioeconomic achievement of this population, a finding that potentially calls into question the practice of comparing outcomes for African Americans and Caribbean blacks as a means of distinguishing racial discrimination from other explanations for the disadvantaged status of African Americans (Sowell 1978).

Existing studies (Stephan and Stephan 1989; Eschbach and Gomez 1998; Ono 2002; Brown, Hitlin, and Elder 2006; Choi, Sakamoto, and Powers 2008; Perez 2008) demonstrate that the process of ethnic identification by Hispanics is fluid, situational, and at least partly voluntary, just as has been observed for non-Hispanic whites and other groups. Most work in this area, however, analyzes Hispanics as an aggregate group, even though available evidence suggests that the ethnic responses of Mexican Americans may differ in fundamental ways from those of other Hispanics (Eschbach and Gomez 1998; Portes and Rumbaut 2001, Perez 2008). More importantly, earlier studies do not directly address the issue that we focus on here: the selective nature of Mexican identification and how it affects our inferences about intergenerational progress for this population. Though previous research has noted the selective nature of intermarriage for Hispanics overall (Qian 1997, 1999) and for Mexican Americans in particular (Fu 2001; Rosenfeld 2001), this research has not examined explicitly the links between intermarriage and ethnic identification, nor has previous research considered the biases that these processes might produce in standard intergenerational comparisons of economic status for Mexican Americans. Closer in spirit to our analysis is recent work by Alba and Islam (2008) that tracks cohorts of U.S.-born Mexicans across the 1980-2000 Censuses and uncovers evidence of substantial declines in Mexican self-identification as a cohort ages. In contrast with our

analysis, however, Alba and Islam (2008) are able to provide only limited information about the socioeconomic selectivity of this identity shift, and they focus on the identity shifts that occur within rather than across generations of Mexicans.

Although most research in this area has been conducted by social scientists outside of economics, an emerging literature within economics explicitly recognizes the complexity of ethnic identification and has started to investigate the implications of this complexity for labor market outcomes and policy.<sup>11</sup> In particular, economic models emphasize the potential endogeneity of identity and suggest mechanisms through which ethnic identification could be associated with both observed and unobserved characteristics of individuals. To date, however, most empirical work in the relevant economics literature has focused on immigrants. The analysis presented here demonstrates that some of the same issues can apply to native-born members of minority groups. In addition, we emphasize the complications that intergenerational shifts in ethnic identify can create for measuring the socioeconomic progress of later-generation descendants of immigrants.

### **III. Census Analyses of Youth**

Our initial analyses employ the five-percent microdata sample from the 2000 U.S. Census. Among other things, the Census provides detailed information regarding nativity, race, ethnicity, marital status, English proficiency, education, earnings, and labor supply. For our purposes, a crucial advantage of Census data is the huge sample sizes that allow for precise inferences to be made even about relatively small segments of the overall U.S. population (e.g.,

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<sup>11</sup> Examples include Akerlof and Kranton (2000); Bisin and Verdier (2000); Darity, Hamilton, and Dietrich (2002); Bisin, Topa, and Verdier (2004); Mason (2004); Darity, Mason, and Stewart (2006); Constant, Gataullina, and Zimmermann (2006); Bodenhorn and Ruebeck (2007); Manning and Roy (2007); and Nekby and Rodin (2007). Constant and Zimmermann (2007) and Zimmermann (2007) survey some of the relevant literature.

boys ages 16 and 17 from families in which one parent is a U.S.-born Mexican and the other parent is non-Mexican). The primary disadvantage of these data is the absence of questions about the birthplace of each respondent's parents (such information was dropped from the Census beginning in 1980), making it impossible to distinguish among U.S.-born adults between the children of immigrants (i.e., the so-called "second generation") and later generations of immigrant descendants.

To investigate the role that intermarriage plays in the intergenerational transmission of human capital and ethnic identification for Mexican Americans, we adapt the approach used by Hirschman (2001) in his study of immigrant youth. We construct samples from the 2000 Census of U.S.-born youth ages 16 and 17 living in intact families in which at least one of the parents is Mexican-origin (i.e., at least one parent either was born in Mexico or else is a U.S.-born individual identified as Mexican by the Census question regarding Hispanic origin). Given our interest in ethnic identification, we exclude families in which the parents or youth have allocated information about Hispanic origin. Finally, to the extent possible with the information available in the Census, we exclude families in which the relevant youth are suspected of being stepchildren. For comparisons purposes, we construct analogous samples of U.S.-born youth living in intact families in which both parents are U.S.-born, non-Hispanic whites, and of U.S.-born youth living in intact families in which both parents are U.S.-born, non-Hispanic blacks. We choose to study youth ages 16 and 17 because they are old enough for persistent patterns in educational attainment, English proficiency, and ethnic identification to emerge, yet they are young enough to still be living with their parents so that parental information is available in the

Census.<sup>12</sup>

Our previous research (Duncan and Trejo 2007) indicates that, in terms of nativity and ethnicity, the marital choices of Mexican Americans can be usefully classified into three fundamental categories of spouses: foreign-born Mexicans, U.S.-born Mexicans, and non-Mexicans. Based on this insight, we construct a simple typology of marriages involving Mexican Americans. For our samples of U.S.-born youth who have at least one Mexican parent, Table 3 shows the nativity/ethnicity distributions of the parents. Patterns are similar for boys and girls. Overall, about 30 percent of these youth are the products of mixed marriages between a Mexican and a non-Mexican. Among those families in which neither parent is a Mexican immigrant, the rate of intermarriage is much higher, exceeding 50 percent (i.e., families with two U.S.-born, Mexican parents are slightly less prevalent than families with one U.S.-born, Mexican parent and one non-Mexican parent). As has been documented previously (Rosenfeld 2002; Duncan and Trejo 2007, 2008), intermarriage is widespread among Mexican Americans.

Table 4 reports average outcomes for the U.S.-born youth in our samples, differentiated by the nativity and ethnicity of their parents. Standard errors are shown in parentheses. We focus on three youth outcomes: (1) the percentage of high school “dropouts,” with dropouts defined here as youth who are not attending school and who have not yet completed high school

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<sup>12</sup> To identify children who are the products of Mexican intermarriage, we require information about the ethnic origins of both biological parents. In Census data, such information is available on a consistent basis only when the mother and father are married to each other and living in the same household as the child. Therefore, the sample here is restricted to married, intact families, and our analysis regrettably excludes children from divorced or cohabitating households. Of all Mexican-origin families in the United States, Landale, Oropesa, and Bradatan (2006) report that 69 percent include a married couple, 6 percent include a cohabitating couple, 18 percent are headed by a partnerless woman, and 7 percent are headed by a partnerless man. By comparison, 80 percent of non-Hispanic white families include a married couple, and just 46 percent of non-Hispanic black families include a married couple. For all groups, but particularly for blacks, the fact that our sample is limited to intact families should be kept in mind when interpreting the results. Available evidence suggests that endogamy is more prevalent in marriage than in cohabitation and in out-of-wedlock childbearing, so restricting our sample to married, intact families is likely to understate ethnic attrition among Mexican Americans. After reviewing the relevant literature, Perlmann and Waters (2004, page 275) conclude that “formal marriage and the children born in wedlock provide us with a conservative view of the degree of intermixing—both in terms of interethnic couples and in terms of the production of mixed-ancestry children.”

(either through classes or by exam); (2) the percentage who are “deficient” in English, defined here as those who speak a language other than English at home and report speaking English worse than “very well;”<sup>13</sup> and (3) the percentage identified as Mexican by the Hispanic origin question.<sup>14</sup>

In the marriage typology used here, the first three rows of Table 4 represent endogamous Mexican marriages in which both parents are Mexican-origin, with these marriages distinguished by whether both parents are foreign-born Mexicans, both are U.S.-born Mexicans, or one Mexican parent is foreign-born and the other is U.S.-born. The next two rows represent intermarriages between a Mexican and a non-Mexican, with these marriages distinguished by whether the Mexican is foreign-born or U.S.-born. Finally, for purposes of comparison, the last two rows represent endogamous white and black marriages.

Table 4 shows that youth who are the products of Mexican intermarriages enjoy large attainment advantages over their counterparts who are the products of endogamous Mexican-American marriages. Consider first the patterns for boys. The high school dropout rate is almost 50 percent higher for boys with two U.S.-born Mexican parents rather than one (4.5 percent versus 3.1 percent, respectively), and the dropout rate for this latter group of boys approaches the rate for white boys from endogamous marriages (this “white” dropout rate is 2.8 percent). In addition, Table 4 reveals that boys with one U.S.-born Mexican parent (and one non-Mexican

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<sup>13</sup> The Census asks people whether they “speak a language other than English at home,” and those who answer affirmatively then are asked how well they speak English, with possible responses of “very well,” “well,” “not well,” or “not at all.”

<sup>14</sup> We do not know who filled out the Census form, but parents are likely to be responding for their children. An important question is how these children will respond to survey questions about ethnic identification when they answer from themselves. See Portes and Rumbaut (2001, Chapter 7) for a discussion of parental and other influences on the evolving ethnic identities of second-generation adolescents. Eschbach and Gomez (1998) analyze changes in the Hispanic identification of adolescents between the first and second waves, two years apart, of the High School and Beyond panel, and Brown, Hitlin, and Elder (2006) and Perez (2008) do similar types of analyses using data from the National Longitudinal Study of Adolescent Health.

parent) are much more likely to either speak English exclusively or else speak it “very well” than are boys from endogamous Mexican marriages. Finally, there is a very tight link between Mexican intermarriage and ethnic identification: virtually all of the boys with two Mexican-origin parents are identified as Mexican by the Census question regarding Hispanic origin, whereas the corresponding rate drops below two-thirds for boys with only one Mexican-origin parent.<sup>15</sup> For girls, the patterns are similar, although the human capital advantages arising from Mexican intermarriage are somewhat smaller than those observed for boys.

Table 5 indicates that a likely source of the human capital advantages enjoyed by Mexican-American youth with intermarried parents is the higher human capital of these parents themselves. For example, the mothers and fathers in families with one U.S.-born Mexican parent (and one non-Mexican parent) average over a year more schooling than do the mothers and fathers in families with two U.S.-born Mexican parents.<sup>16</sup> Not surprisingly, the mothers and fathers in these intermarried families are also much less likely to be deficient in speaking English. Our finding of positive human capital selectivity for intermarried Mexican Americans is not unexpected (Qian 1999). First of all, opportunities for meeting and interacting with people from other racial/ethnic groups are better for more educated Mexican Americans, because highly-educated Mexican Americans tend to live, study, and work in less segregated environments (Massey and Denton 1992; Alba and Logan 1993). Second, given the sizeable

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<sup>15</sup> For a wide range of groups, previous research has employed U.S. Census data to investigate the racial/ethnic identification of children in intermarried families. Lieberman and Waters (1988, 1993), for example, consider the ancestries assigned to children when the mother’s ancestry differs from the father’s ancestry. Along the same lines, Xie and Goyette (1997) study the determinants of Asian identification among children produced by intermarriages between an Asian and a non-Asian. Qian (2004) extends this analysis to examine the racial/ethnic identification of children produced by intermarriages between U.S.-born, non-Hispanic whites and several different minority groups: African Americans, Hispanics, Asians, and American Indians.

<sup>16</sup> Beginning in 1990, the Census questions about educational attainment were changed to ask specifically about postsecondary degrees obtained rather than years of schooling. We follow Jaeger’s (1997) recommendations for how to construct a completed years of schooling variable from the revised education questions.

educational deficit of the average Mexican American, better-educated Mexican Americans are likely to be closer in social class to the typical non-Mexican (Furtado 2006). Third, attending college is an eye-opening experience for many students that may work to diminish preferences for marrying within one's own racial/ethnic group. Finally, the theory of "status exchange" in marriage formulated by Davis (1941) and Merton (1941) predicts that members of lower-status minority groups (such as Mexican Americans) would tend to need higher levels of socioeconomic attainment to attract spouses who are members of higher-status majority groups.

The least squares regressions reported in Table 6 show how the human capital of U.S.-born, Mexican-American youth differs by family type, after conditioning on the influence of various controls. The dependent variables are dummies identifying youth who are dropouts and those who are deficient in English.<sup>17</sup> Here, the samples are limited to youth with at least one Mexican parent, and the key independent variables are dummies identifying the type of family that each youth comes from (i.e., the parental nativity/ethnicity combinations listed in Table 3), with the reference group consisting of endogamous marriages in which both parents are U.S.-born Mexicans. In addition to these dummies for family type, the first regression specification (i.e., the columns labeled (1) in Table 6) includes controls for the age of the youth, the ages of his mother and father, and geographic location (dummy variables identifying the nine Census divisions, the individual states of California and Texas, and whether the family resides in a metropolitan area). The second regression specification (i.e., the columns labeled (2)) adds variables describing the human capital of each youth's parents (either parents' completed years of schooling or dummies indicating their English proficiency, depending on the youth outcome

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<sup>17</sup> Although the dependent variables are dichotomous, we choose to report least squares estimates (i.e., linear probability models) because the coefficients are easier to interpret, but probit estimates imply similar marginal effects. In order to account for the heteroskedasticity that arises with linear probability models, Table 6 reports robust standard errors (White 1980) in parentheses.

being considered). This specification enables us to estimate directly the parent-child transmission of these outcomes and also to measure how much of the impact of Mexican intermarriage on youth outcomes works through the selectivity of intermarriage in terms of parental characteristics.

The estimates in Table 6 confirm the earlier evidence of significant human capital advantages for Mexican-American youth produced by intermarriages. Specification (1) implies that, for boys, having one rather than two U.S.-born Mexican parents lowers dropout rates by 2.2 percentage points and reduces English deficiency by 4.4 percentage points. Specification (2) reveals that, although parental human capital is an important determinant of youth outcomes, conditioning on parental human capital attenuates (by about a third) but does not eliminate the advantages associated with intermarriage. This finding suggests that much of the impact of Mexican intermarriage on youth human capital derives from factors that are independent of observable parental human capital. The patterns are similar for girls, except that in this case the effect of Mexican intermarriage on dropout rates is not statistically significant. Overall, these findings provide further support for the notion that selective intermarriage and ethnic attrition might bias observed measures of intergenerational progress for Mexican Americans.<sup>18</sup>

#### **IV. CPS Analyses of Ethnic Attrition**

For our remaining analyses, we employ microdata from the Current Population Survey (CPS) for all months from January 1994 through December 2006. The CPS is a monthly survey

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<sup>18</sup> We should emphasize that our goal in Table 6 is *not* to estimate the causal effects of parental education or English proficiency on child outcomes. Instead, we seek only to describe the linkages between Mexican intermarriage and the human capital of parents and their children, in order to better understand the selectivity of ethnic attrition among Mexican Americans and its potential implications for measuring their intergenerational progress. See Oreopoulos, Page, and Stevens (2006) and Bleakley and Chin (2007) for recent attempts to estimate the causal effects of parental education and English proficiency, respectively, on child outcomes.



of about 50,000 households that the U.S. government administers to estimate unemployment rates and other indicators of labor market activity. In addition to the detailed demographic and labor force data reported for all respondents, the CPS collects earnings information each month from one-quarter of the sample, the so-called “outgoing rotation groups.” The data we analyze come from these outgoing rotation group samples. The CPS sampling scheme is such that surveys for the same month in adjacent years have about half of their respondents in common (e.g., about half of the respondents in any January survey are re-interviewed the following January). To obtain independent samples, we use only data from the first time a household appears in the outgoing rotation group samples (i.e., we use only data from the fourth month that a household appears in the CPS sample). By pooling together these 13 years of monthly CPS data, we substantially increase sample sizes and improve the precision of our estimates. A key feature of recent CPS data is their inclusion of the information about parental countries of birth that is currently missing from the Census. As a result, the CPS is now the best large-scale U.S. data set for investigating how outcomes vary by immigrant generation.

#### *A. Second-Generation Mexican-American Adults*

Our next set of analyses will focus on second-generation Mexican Americans. Because the CPS provides information regarding country of birth for the respondent and each of his parents, with these data we can construct for U.S.-born individuals an “objective” indicator of Mexican descent—namely, whether at least one of the respondent’s parents was born in Mexico—and compare this indicator with the standard “subjective” measure of Mexican self-identification based on the respondent’s answer to the Hispanic origin question. This empirical strategy is adopted from Rumbaut (2004), who used it to show that a large and highly-selective

segment of the population of second-generation Cubans is missed by the self-reported measure of Cuban ethnic affiliation available in CPS data.

Table 7 reports the results. From the 1994-2006 CPS data described above, we extract all U.S.-born individuals between the ages of 25-59 who have at least one parent born in Mexico (after first excluding individuals with missing or imputed information about Hispanic origin or the country of birth of themselves or either parent). These individuals comprise a sample of second-generation Mexicans in which ethnicity is based on parents' countries of birth. For these individuals, Table 7 shows the percentage who self-identify as Mexican and how average years of schooling varies with such self-identification. Standard errors are shown in parentheses. To increase sample sizes, Table 7 pools together men and women, but results that distinguish by sex are similar.

The bottom row of Table 7 indicates that the vast majority, 90 percent, of U.S.-born individuals with a parent born in Mexico identify as Mexican in response to the Hispanic origin question. Those who do *not* self-identify as Mexican, however, average over a half year more schooling than those who do so self-identify (i.e., 12.9 versus 12.3 years of schooling). These data thus provide some direct evidence of the kind of selective ethnic attrition among Mexican Americans that our previous work (Duncan and Trejo 2007) could only suggest indirectly. Note that the rate of Mexican self-identification is highest when both parents are Mexican-born, somewhat lower when one parent is Mexican-born and the other parent is U.S.-born (which includes U.S.-born Mexican Americans as well as non-Mexicans), and substantially lower in the small number of cases when we can be all but certain that one parent is non-Mexican (because this parent was born in a foreign country other than Mexico).

For our purposes, an analysis of second-generation Mexicans using CPS data has some

important advantages over Census-based analyses such as those in our previous paper (Duncan and Trejo 2007) or in the preceding section. First, as noted above, for second-generation individuals the CPS provides an objective indicator of Mexican descent (i.e., whether either parent was born in Mexico), and therefore we can use self-reported Mexican identification to directly measure the extent and selectivity of ethnic attrition for this population. Second, because the CPS analysis employs information on ethnic self-identification and socioeconomic outcomes for *adults*, it avoids measurement problems that could arise in Census analyses if the information reported for children and youth conveys a misleading forecast of their adult outcomes. Finally, the CPS sample of second-generation adults in Table 7 is more representative than the Census samples of Mexican-American youth analyzed above (or the CPS samples of third-generation children and youth described below), because the adult sample in Table 7 does *not* require that attention be restricted to married, intact families so that we can merge data for parents and their co-resident children. Important limitations of the analysis in Table 7, however, are the smaller sample sizes and the fact that individuals with a foreign-born parent are likely to retain relatively strong ethnic attachments (as evidenced by the high rate of Mexican self-identification in Table 7), so by focusing on the second generation we miss the more extensive ethnic attrition that occurs in later generations. Given the different strengths and weaknesses of the two types of analyses, our Census and CPS analyses complement one another.

#### *B. U.S.-born Mexican-American Children*

By matching first- and second-generation Mexicans in the CPS with their relevant family members, we can push this analysis one step further and try to learn something about selective ethnic attrition in the third generation. For children living with both parents, the CPS data reveal

how many grandparents were born in Mexico. By examining how the ethnic identification of these children varies with the numbers of parents and grandparents born in Mexico, we can directly estimate the extent of ethnic attrition among second- and third-generation Mexican children.

Here, the analysis sample consists of U.S.-born children ages 17 and below who live in intact families and who have some identifiable Mexican ancestry. We describe as “second-generation Mexicans” those U.S.-born children with at least one parent born in Mexico, and we designate as “third-generation Mexicans” those U.S.-born children with no parents but at least one grandparent born in Mexico. For comparison purposes, we create one final category of U.S.-born Mexicans, the “fourth-and-higher generation,” which denotes U.S.-born children with no parents or grandparents born in Mexico but with at least one parent identified as Mexican by the CPS question regarding Hispanic origin. For expositional convenience, we will refer to this group as the “fourth generation.” Note that, whereas second- and third-generation Mexican children can be identified using “objective” criteria (i.e., the countries of birth of their parents and grandparents), fourth-generation Mexican children are revealed only by “subjective” indicators (i.e., whether either parent self-identifies as Mexican). Consequently, for our purposes, the fourth-generation category is flawed, because it misses children descended from Mexican immigrants if neither parent self-identifies as Mexican. Data from the 1970 Census Content Reinterview Study, presented earlier in Table 2, indicate that we could be missing a large share of later-generation Mexican-origin families. Nonetheless, we think it informative to include statistics for this flawed fourth-generation category in the tables that follow, but interpretation of these statistics should take into account the incomplete and potentially selective nature of this category.

For the U.S.-born children of Mexican descent in our CPS sample, Table 8 shows their distribution by generation and the rates at which these children subjectively identify as Mexican. Given our definitions, the vast majority (61 percent) of these U.S.-born Mexican-American children are second generation, 13 percent are third generation, and the remaining 26 percent are higher generation. The heterogeneity *within* generations of Mexican Americans is striking, however, and perhaps somewhat surprising. Almost a third of second-generation Mexicans have a parent who was *not* born in Mexico, and only 17 percent of third-generation Mexicans have a majority of their grandparents born in Mexico. Among so-called fourth-generation Mexicans, 57 percent have a parent who does *not* self-identify as Mexican.

The generational complexity evident in Table 8 has two sources: intermarriage between Mexican ethnics and non-Mexicans, and marriage between Mexican Americans of different generations. The only way that a third-generation Mexican child can have three or four of his grandparents born in Mexico, for example, is if both parents are second-generation Mexicans (i.e., the mother and father are both the U.S.-born children of Mexican immigrants). By contrast, if a second-generation Mexican marries either a non-Mexican or a later-generation Mexican (i.e., a Mexican American from the third generation or beyond), then the children resulting from such a marriage can have at most two Mexican-born grandparents. The generational categories for U.S.-born Mexican-American children listed in Table 8, based on how many of a child's parents and/or grandparents were born in Mexico, show in finer detail than usual how far removed each child is from his Mexican immigrant origins.

Moreover, this generational complexity is closely related to the children's subjective Mexican identification. Children are virtually certain of identifying as Mexican if both parents or three or more grandparents were born in Mexico, or if both parents self-identify as Mexican.

In contrast, rates of Mexican identification fall to 81 percent for second-generation children with only one Mexican-born parent, 79 percent for third-generation children with two grandparents born in Mexico, 58 percent for third-generation children with just one Mexican-born grandparent, and 50 percent for fourth-generation children with only one parent who identifies as Mexican. Among all U.S.-born children in the CPS with some identifiable Mexican ancestry, 16 percent do not subjectively identify as Mexican, and this rate of ethnic attrition rises to almost 30 percent for children in the third generation and beyond.

Table 9 reports how children's rates of Mexican identification vary with which household member answered the CPS questionnaire (father, mother, or other household member) and with which parent provides the child's Mexican origins (father, mother, or both). For the most part, these distinctions do not greatly matter. This is particularly true when the father is the most immediate source of a child's Mexican ancestry (i.e., for second-generation children, the father but not the mother was born in Mexico; for third-generation children, the father but not the mother has at least one Mexican-born parent; for fourth-generation children, the father but not the mother reports being of Mexican descent). In such cases, rates of Mexican identification for children are the same whether the father or the mother happened to respond to the survey. When Mexican ancestry derives from the mother's side of the family, however, children are somewhat more likely to be identified as Mexican if she responds to the survey rather than the father (82 percent versus 78 percent in the second generation and 67 percent versus 62 percent in the third generation, with identical rates of 55 percent in the fourth generation). Rates of Mexican identification also tend to be higher, especially for third-generation children, when a household member other than the child's parents responds to the survey. Perhaps surprisingly, the presence of a Spanish surname does not seem to exert a strong influence on Mexican identification, as the

rates for second- and third-generation children are similar whether the primary source of Mexican ancestry is paternal or maternal. Indeed, among fourth-generation children, rates of Mexican identification are considerably higher when the mother rather than the father reports being of Mexican descent. This is opposite the pattern we would expect if having a Spanish surname played a leading role in ethnic identification, given that a child usually takes his father's surname. Because of the necessarily subjective and selective nature of the fourth-generation category, however, we view this finding as merely suggestive.

Table 10 begins to explore the selectivity of Mexican identification, in this case by showing how parents' education varies with the Mexican identification of their children. In all generations, children of Mexican descent who fail to identify as Mexican have parents with much higher levels of educational attainment than do the corresponding children who retain a Mexican identification. Consider, for example, the fathers of third-generation Mexican-American children. Compared to their counterparts whose children identify as Mexican, the fathers whose children do not so identify average almost a year more schooling (13.3 versus 12.4 years), are about half as likely to be high school dropouts (12 versus 22 percent), and are over twice as likely to be college graduates (23 versus 11 percent). Analogous differences for mothers are similar but slightly less dramatic. The strong correlation between parents' education and children's Mexican identification is not surprising, given previous evidence<sup>19</sup> of the human capital selectivity of Mexican intermarriage and of the powerful influence that intermarriage exerts on the ethnic identification of Mexican-American children.

The preceding analyses of Census data in Section III indicate that much of these differences in parents' education will be transmitted to their children. Nonetheless, the numbers

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<sup>19</sup> See Duncan and Trejo (2007), as well as Tables 4 and 5 of the current paper.

in Table 10 suggest that selective intermarriage and ethnic attrition have only a modest impact on the observed schooling levels of third-generation Mexicans. From Table 8, we know that 28 percent of third-generation Mexican children are *not* identified as Mexican in the CPS. In Table 10, the columns labeled “All Children” show parents’ educational attainment when these potentially “missing” families are restored to the sample, so that the third-generation now includes all relevant children with a Mexican-born grandparent, whether or not the child subjectively identifies as Mexican. Using this “objective” definition of third-generation Mexican children, rather than the “subjective” definition employed in the columns labeled “Mexican,” raises average years of schooling by .25 years for fathers (from 12.36 to 12.61) and by .19 years for mothers (from 12.36 to 12.55). Existing estimates of intergenerational correlations suggest that less than half of any educational gains for parents get transmitted to their children (Couch and Dunn 1997; Mulligan 1997; Card, DiNardo, and Estes 2000). Therefore, the magnitudes of the differences in Table 10 can substantiate only a small amount of “hidden” schooling progress for third-generation Mexicans, something on the order of 0.1 years, with similarly small biases implied for the rates of high school dropout and college completion. Calculations such as these, however, only account for aspects of the intergenerational transmission process that operate directly through the somewhat crude measures of parental education available in CPS data. The limited scope of these calculations is potentially important, because the regressions reported earlier in Table 6 suggest that most of the human capital advantage passed on to children in intermarried Mexican families derive from unobserved factors.

By examining an indicator of human capital available for a subset of the Mexican-American children analyzed in Tables 8-10, Table 11 provides an initial glimpse at the ultimate



impact of selective ethnic attrition. For U.S.-born youth ages 16-17, we undertake an analysis of their Mexican identification and high school dropout rates that is similar in spirit to the Census analysis described in Section III (unfortunately, the CPS does not also provide information about English proficiency).<sup>20</sup> Information about school enrollment pertains to the CPS survey week, so we exclude observations from the months of June, July, and August when students typically are on summer vacation. Table 11 reports how dropout rates vary by generation and Mexican identification. For comparison purposes, the table also displays the corresponding dropout rates for U.S.-born, non-Hispanic white and black youth (with two U.S.-born parents of the same race).

When we do not limit the sample to those who subjectively identify as Mexican, the dropout rate falls sharply from 5.6 percent for second-generation Mexicans to 2.7 percent for the third generation. These data thus suggest that by the third generation, Mexican-American youth have converged to the same dropout rate observed for third- and higher-generation non-Hispanic white youth. Moreover, the dropout rate of third-generation Mexican youth is 25 percent higher (3.4 percent versus 2.7 percent) when the sample is limited to those youth who self-identify as Mexican. Though the sample sizes are small and the estimates are therefore imprecise, Table 11 provides some direct evidence that selective ethnic attrition could produce sizeable downward bias in standard measures of attainment for later-generation Mexicans which typically rely on ethnic self-identification rather than objective indicators of Mexican ancestry. Certainly, the apparent extent of such ethnic attrition—in our CPS sample, about 30 percent of third-generation Mexican youth fail to self-identify as Mexican—creates the potential for endogenous ethnicity to

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<sup>20</sup> Note that the CPS sample in Tables 8-10 includes all U.S.-born children ages 17 and below (who live in married, intact families and have some identifiable Mexican ancestry). In order to analyze high school dropout rates, we now further restrict the sample in Table 11 to the subset of these children who are ages 16 or 17.

affect our inferences about the progress of Mexican Americans.

## V. Conclusion

In this paper, we investigate the role that intermarriage plays in the intergenerational transmission of human capital and ethnic identification for Mexican Americans. First, using 2000 Census data for U.S.-born youth ages 16-17 who have at least one Mexican parent, we estimate how the Mexican identification, high school dropout rates, and English proficiency of these youth depend on whether they are the product of endogamous or exogamous marriages. We find that youth who are the products of Mexican intermarriages enjoy large and statistically significant human capital advantages over their counterparts who are the products of endogamous Mexican marriages. In addition, only Mexican-American youth with intermarried parents face a significant risk of *not* being identified as Mexican by the Census question regarding Hispanic origin.

Second, we analyze the extent and selectivity of ethnic attrition among second-generation Mexican-American adults and among U.S.-born Mexican-American youth. Using CPS data, we directly assess the influence of endogenous ethnicity by comparing an “objective” indicator of Mexican descent (based on the countries of birth of the respondent and his parents and grandparents) with the standard “subjective” measure of Mexican self-identification (based on the respondent’s answer to the Hispanic origin question). For second-generation Mexican-American adults, we find direct evidence of the kind of selective ethnic attrition that our previous work (Duncan and Trejo 2007) could only suggest indirectly. For third-generation Mexican-American youth, we show that ethnic attrition is substantial and could produce significant downward bias in standard measures of attainment which rely on ethnic self-

identification rather than objective indicators of Mexican ancestry.

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**Table 1: Average Years of Education and Log Hourly Earnings, Men Ages 25-59**

	Mexicans			3 <sup>rd</sup> +	3 <sup>rd</sup> +
	1 <sup>st</sup> Generation	2 <sup>nd</sup> Generation	3 <sup>rd</sup> +	3 <sup>rd</sup> +	3 <sup>rd</sup> +
Years of education	8.78 (.03)	12.26 (.04)	12.36 (.03)	13.64 (.004)	12.70 (.01)
Log hourly earnings	2.409 (.004)	2.734 (.009)	2.727 (.007)	2.953 (.001)	2.678 (.003)

Source: 1994-2006 CPS data.

Note: Standard errors are shown in parentheses. The samples include men ages 25-59. The samples for the hourly earnings data are further limited to men employed at wage and salary jobs during the survey week. Earnings have been converted to 2006 dollars using the Consumer Price Index for All Urban Consumers (CPI-U). First-generation Mexicans are individuals who were born in Mexico. Second-generation Mexicans are U.S.-born individuals who have at least one parent born in Mexico. Third- (and higher-) generation Mexicans are U.S.-born individuals who have U.S.-born parents and who self-identify as Mexican in response to the Hispanic origin question in the CPS. Third- (and higher-) generation whites and blacks are U.S.-born, non-Hispanic individuals who have U.S.-born parents.

**Table 2: Hispanic Identification of Individuals with Ancestors from a Spanish-Speaking Country, as Reported in the 1970 Census Content Reinterview Study**

<u>Hispanic Ancestry Classification in Reinterview</u>	<u>Percent Who Identified as Hispanic in the Census</u>	<u>Sample Size</u>
Most recent ancestor from a Spanish-speaking country:		
Respondent (i.e., 1 <sup>st</sup> generation)	98.7	77
Parent(s) (i.e., 2 <sup>nd</sup> generation)	83.3	90
Grandparent(s) (i.e., 3 <sup>rd</sup> generation)	73.0	89
Great grandparent(s) (i.e., 4 <sup>th</sup> generation)	44.4	27
Further back (i.e., 5 <sup>th</sup> + generations)	5.6	18
Hispanic ancestry on both sides of family	97.0	266
Hispanic ancestry on one side of family only	21.4	103
Father's side	20.5	44
Mother's side	22.0	59
All individuals with Hispanic ancestry	75.9	369

Source: Table C of U.S. Bureau of the Census (1974, p. 8).

Note: Information regarding the generation of the most recent ancestor from a Spanish-speaking country was missing for 68 respondents who nonetheless indicated that they had Hispanic ancestry on one or both sides of their family.

**Table 3: Nativity/Ethnicity Distributions of the Parents of U.S.-Born, Mexican-American Youth Ages 16-17**

<u>Nativity/Ethnicity of Parents</u>	<u>Percent of Sample</u>	
	<u>Boys</u>	<u>Girls</u>
Two Mexican parents:		
Both foreign-born	40.9	39.7
Foreign-born and U.S.-born	11.3	10.4
Both U.S.-born	19.2	20.1
One Mexican parent:		
Foreign-born	9.0	9.5
U.S.-born	19.6	20.3
	<u>100.0%</u>	<u>100.0%</u>

Source: 2000 Census data.

Note: The samples include U.S.-born youth ages 16 and 17 living in intact families in which at least one parent is identified as Mexican by the Census question regarding Hispanic origin. Suspected stepchildren are excluded. The sample sizes are 7,314 boys and 6,913 girls.

**Table 4: Human Capital and Mexican Identification of U.S.-Born Youth Ages 16-17, by Nativity/Ethnicity of Parents**

Nativity/Ethnicity of Parents	Boys				Girls			
	Dropout Rate	Deficient English	Identified as Mexican	Sample Size	Dropout Rate	Deficient English	Identified as Mexican	Sample Size
Two Mexican parents:								
Both foreign-born	4.18 (.37)	14.43 (.64)	97.03 (.31)	2,994	2.88 (.32)	13.14 (.64)	96.07 (.37)	2,747
Foreign-born and U.S.-born	3.64 (.65)	11.76 (1.12)	97.33 (.56)	825	4.44 (.77)	11.93 (1.21)	96.39 (.69)	721
Both U.S.-born	4.48 (.55)	9.88 (.80)	98.22 (.35)	1,407	3.52 (.49)	9.06 (.77)	98.20 (.36)	1,391
One Mexican parent:								
Foreign-born	3.65 (.73)	12.77 (1.30)	61.25 (1.90)	658	2.75 (.64)	8.72 (1.10)	57.49 (1.93)	654
U.S.-born	3.08 (.46)	3.85 (.51)	65.73 (1.26)	1,430	2.79 (.44)	4.93 (.58)	68.43 (1.24)	1,400
Two non-Mexican parents:								
Both U.S.-born, non-Hispanic white	2.76 (.06)	1.58 (.05)	.10 (.01)	76,180	2.11 (.05)	2.14 (.05)	.09 (.01)	70,057
Both U.S.-born, non-Hispanic black	3.17 (.23)	1.42 (.16)	.10 (.04)	5,772	2.45 (.20)	2.73 (.22)	.14 (.05)	5,746

Source: 2000 Census data.

Note: Standard errors are shown in parentheses. The samples include U.S.-born youth ages 16 and 17 living in intact families. Suspected stepchildren are excluded. The “dropout rate” represents the percentage of youth who are not attending school and have not yet completed high school (either through classes or by exam). “Deficient English” represents the percentage of youth who speak a language other than English at home and report speaking English worse than “very well.” “Identified as Mexican” represents the percentage of youth who are identified as Mexican by the Census question regarding Hispanic origin.

**Table 5: Parental Human Capital of U.S.-Born Youth Ages 16-17, by Nativity/Ethnicity of Parents**

Nativity/Ethnicity of Parents	Boys				Girls			
	Mother		Father		Mother		Father	
	Avg. Yrs. of Educ.	Deficient English	Avg. Yrs. of Educ.	Deficient English	Avg. Yrs. of Educ.	Deficient English	Avg. Yrs. of Educ.	Deficient English
Two Mexican parents:								
Both foreign-born	7.09 (.08)	77.69 (.76)	6.97 (.08)	77.56 (.76)	7.11 (.08)	78.09 (.79)	7.08 (.08)	78.09 (.79)
Foreign-born and U.S.-born	10.32 (.13)	34.06 (1.65)	9.53 (.15)	41.09 (1.71)	10.10 (.14)	32.59 (1.75)	9.46 (.15)	45.77 (1.86)
Both U.S.-born	11.63 (.08)	16.56 (.99)	11.72 (.08)	17.13 (1.00)	11.74 (.07)	15.74 (.98)	11.74 (.08)	15.10 (.96)
One Mexican parent:								
Foreign-born	10.46 (.16)	41.34 (1.92)	9.66 (.19)	50.46 (1.95)	10.28 (.16)	38.69 (1.91)	9.45 (.19)	44.50 (1.94)
U.S.-born	12.93 (.06)	4.90 (.57)	12.91 (.07)	5.17 (.59)	12.86 (.06)	6.07 (.64)	13.01 (.07)	5.43 (.61)
Two non-Mexican parents:								
Both U.S.-born, non-Hispanic white	13.51 (.008)	.65 (.03)	13.61 (.009)	.52 (.03)	13.50 (.008)	.63 (.03)	13.66 (.009)	.48 (.03)
Both U.S.-born, non-Hispanic black	12.93 (.03)	.69 (.11)	12.57 (.03)	.38 (.08)	12.92 (.03)	.66 (.11)	12.53 (.03)	.45 (.09)

Source: 2000 Census data.

Note: Standard errors are shown in parentheses. The samples include U.S.-born youth ages 16 and 17 living in intact families. Suspected stepchildren are excluded. "Avg. yrs. of educ." represents the average completed years of schooling of parents. "Deficient English" represents the percentage of parents who speak a language other than English at home and report speaking English worse than "very well."

**Table 6: Human Capital Regressions for U.S.-Born, Mexican-American Youth Ages 16-17**

Regressor	Boys				Girls			
	Dropout		Deficient English		Dropout		Deficient English	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
<b>Two Mexican parents:</b>								
Both foreign-born	.0003 (.0069)	-.0202 (.0081)	.0579 (.0103)	-.0217 (.0142)	-.0030 (.0061)	-.0198 (.0072)	.0487 (.0102)	-.0252 (.0142)
Foreign-born and U.S.-born	-.0072 (.0086)	-.0150 (.0087)	.0223 (.0137)	-.0040 (.0139)	.0096 (.0091)	.0028 (.0091)	.0318 (.0143)	.0046 (.0147)
Both U.S.-born (reference group)								
<b>One Mexican parent:</b>								
Foreign-born	-.0100 (.0094)	-.0172 (.0095)	.0454 (.0153)	.0074 (.0157)	-.0072 (.0081)	-.0139 (.0083)	.0057 (.0137)	-.0260 (.0143)
U.S.-born	-.0217 (.0075)	-.0161 (.0074)	-.0442 (.0097)	-.0306 (.0093)	-.0098 (.0069)	-.0059 (.0069)	-.0316 (.0100)	-.0221 (.0097)
<b>Parental education (in years):</b>								
Mother		-.0021 (.0007)				-.0023 (.0007)		
Father		-.0024 (.0007)				-.0014 (.0006)		
<b>Parental English deficiency:</b>								
Mother				.0759 (.0114)				.0658 (.0115)
Father				.0543 (.0108)				.0526 (.0110)

Source: 2000 Census data.

Note: The reported figures are estimated coefficients from least squares regressions. Heteroskedasticity-robust standard errors are shown in parentheses. The samples include U.S.-born youth ages 16 and 17 living in intact families in which at least one parent is identified as Mexican by the Census question regarding Hispanic origin. Suspected stepchildren are excluded. The sample sizes are 7,314 boys and 6,913 girls. The dependent variable “dropout” is a dummy identifying youth who are not attending school and have not yet completed high school (either through classes or by exam). The dependent variable “deficient English” is a dummy identifying youth who speak a language other than English at home and report speaking English worse than “very well.” In addition to the regressors listed above, all specifications include variables describing the age of the youth, the ages of the mother and father, and geographic location (dummy variables identifying the nine Census divisions, the individual states of California and Texas, and whether the family resides in a metropolitan area).



**Table 7: Educational Attainment of Second-Generation Mexican Adults, by Mexican Identification**

Parents' Countries of Birth	Percent of All 2 <sup>nd</sup> Gen. Mexicans	Percent Identified as Mexican	Avg. Yrs. of Education by Ethnic Self-Identification		Sample Size
			Mexican	Not Mexican	
Both parents born in Mexico	50.9	95.8 (.3)	12.07 (.04)	11.97 (.20)	4,877
One parent born in Mexico and other parent: Born in Hispanic country other than Mexico	2.0	60.3 (3.6)	12.65 (.25)	13.15 (.32)	189
Born in non-Hispanic foreign country	1.4	68.4 (4.0)	13.31 (.32)	13.87 (.32)	136
Born in United States	45.7	86.3 (.5)	12.43 (.04)	13.16 (.10)	4,380
All 2 <sup>nd</sup> generation Mexicans	100.0	90.4 (.3)	12.25 (.03)	12.92 (.08)	9,582

Source: 1994-2006 CPS data.

Note: Standard errors are shown in parentheses. The sample includes U.S.-born men and women ages 25-59 who have at least one parent born in Mexico. "Identified as Mexican" represents the percentage of adults who are identified as Mexican by the CPS question regarding Hispanic origin.

**Table 8: Generation and Mexican Identification of U.S.-born Children of Mexican Descent**

Generation	Percent of All U.S.-born Mexicans	Percent of Generation	Percent Identified as Mexican	Sample Size
2 <sup>nd</sup> generation Mexicans:				
Both parents born in Mexico	41.9	68.4	97.9	17,235
One parent born in Mexico	19.3	31.6	80.6	7,959
All 2 <sup>nd</sup> generation Mexicans	61.2	100.0	92.4	25,194
3 <sup>rd</sup> generation Mexicans:				
Neither parent born in Mexico and Four grandparents born in Mexico	1.3	10.0	96.2	524
Three grandparents born in Mexico	0.9	7.1	95.2	375
Two grandparents born in Mexico	4.4	34.5	78.7	1,815
One grandparent born in Mexico	6.2	48.5	58.4	2,551
All 3 <sup>rd</sup> generation Mexicans	12.8	100.0	71.8	5,265
4 <sup>th</sup> + generation Mexicans:				
No parents or grandparents born in Mexico and Both parents identified as Mexican	11.2	42.9	98.4	4,592
One parent identified as Mexican	14.8	57.1	50.1	6,112
All 4 <sup>th</sup> + generation Mexicans	26.0	100.0	70.8	10,704
All U.S.-born Mexicans	100.0		84.2	41,163

Source: 1994-2006 CPS data.

Note: The sample includes U.S.-born children ages 17 and below who live in intact families and either have at least one parent or grandparent born in Mexico or else have at least one parent identified as Mexican in response to the CPS question regarding Hispanic origin. Suspected stepchildren are excluded. "Identified as Mexican" represents the percentage of these children who are identified as Mexican by the CPS Hispanic origin question.

**Table 9: Generation and Mexican Identification of U.S.-born Children of Mexican Descent, by Who Responded to Survey and Which Parent Has Mexican Ancestry**

Generation	Percent of Generation	Percent Identified as Mexican			
		All Respondents	Household Member Responding to Survey		
			Father	Mother	Other
<b>2<sup>nd</sup> generation Mexicans:</b>					
Parent born in Mexico on					
Both sides of family	68.4	97.9	97.9	97.8	97.8
Father's side only	18.9	80.8	80.4	80.5	84.0
Mother's side only	12.7	80.4	78.4	82.0	78.8
All 2 <sup>nd</sup> generation Mexicans	100.0	92.4	92.2	92.0	94.6
<b>3<sup>rd</sup> generation Mexicans:</b>					
Grandparent born in Mexico on					
Both sides of family	21.2	94.5	95.1	93.8	96.3
Father's side only	41.1	65.7	65.1	65.0	75.3
Mother's side only	37.6	65.5	62.0	66.6	74.4
All 3 <sup>rd</sup> generation Mexicans	100.0	71.8	70.5	71.5	79.7
<b>4<sup>th</sup>+ generation Mexicans:</b>					
Parent identified as Mexican on					
Both sides of family	42.9	98.4	98.6	98.4	97.8
Father's side only	28.6	45.0	45.8	45.0	39.3
Mother's side only	28.5	55.2	55.1	55.4	54.2
All 4 <sup>th</sup> + generation Mexicans	100.0	70.8	70.4	70.6	76.3
All U.S.-born Mexicans		84.2	83.3	83.6	90.4

Source: 1994-2006 CPS data.

Note: The sample includes U.S.-born children ages 17 and below who live in intact families and either have at least one parent or grandparent born in Mexico or else have at least one parent identified as Mexican in response to the CPS question regarding Hispanic origin. Suspected stepchildren are excluded. "Identified as Mexican" represents the percentage of these children who are identified as Mexican by the CPS Hispanic origin question.

**Table 10: Parental Education of U.S.-born Children of Mexican Descent, by Child's Generation and Mexican Identification**

	Parental Education, by Mexican Identification of Child								
	Average Years of Education			Percent without High School Diploma			Percent with Bachelor's Degree		
	Mexican	Not Mexican	All Children	Mexican	Not Mexican	All Children	Mexican	Not Mexican	All Children
<b>Father's Outcomes</b>									
Child's generation:									
2 <sup>nd</sup> generation Mexicans	9.00 (.03)	11.04 (.08)	9.16 (.02)	63.61 (.32)	37.31 (1.11)	61.61 (.31)	4.22 (.13)	11.36 (.73)	4.76 (.13)
3 <sup>rd</sup> generation Mexicans	12.36 (.04)	13.26 (.06)	12.61 (.03)	22.02 (.67)	11.90 (.84)	19.16 (.54)	11.36 (.52)	23.40 (1.10)	14.76 (.49)
4 <sup>th</sup> + generation Mexicans	12.31 (.03)	13.20 (.04)	12.57 (.02)	21.09 (.47)	9.77 (.53)	17.79 (.37)	12.17 (.38)	21.72 (.74)	14.96 (.34)
<b>Mother's Outcomes</b>									
Child's generation:									
2 <sup>nd</sup> generation Mexicans	9.24 (.02)	11.26 (.08)	9.39 (.02)	62.28 (.32)	36.05 (1.10)	60.29 (.31)	3.84 (.13)	10.78 (.71)	4.37 (.13)
3 <sup>rd</sup> generation Mexicans	12.36 (.04)	13.05 (.05)	12.55 (.03)	20.30 (.65)	11.97 (.84)	17.95 (.53)	10.35 (.50)	18.63 (1.01)	12.69 (.46)
4 <sup>th</sup> + generation Mexicans	12.21 (.03)	13.04 (.03)	12.45 (.02)	21.52 (.47)	9.96 (.53)	18.15 (.37)	10.56 (.35)	16.63 (.67)	12.33 (.32)

Source: 1994-2006 CPS data.

Note: Standard errors are shown in parentheses. The sample includes U.S.-born children ages 17 and below who live in intact families and either have at least one parent or grandparent born in Mexico or else have at least one parent identified as Mexican in response to the CPS question regarding Hispanic origin. Suspected stepchildren are excluded.

**Table 11: Dropout Rates of U.S.-Born Youth Ages 16-17, by Generation and Mexican Identification**

Generation/Ethnicity	Percent Identified as Mexican	Dropout Rate		All Youth	Sample Size
		Identified as Mexican	Not Identified as Mexican		
2 <sup>nd</sup> generation Mexicans	92.6 (.7)	5.75 (.69)	3.30 (1.88)	5.57 (.65)	1,238
3 <sup>rd</sup> generation Mexicans	68.9 (2.7)	3.43 (1.28)	1.09 (1.09)	2.70 (.94)	296
4 <sup>th</sup> + generation Mexicans	70.6 (1.7)	4.13 (.86)	2.70 (1.09)	3.71 (.69)	755
No grandparents born in Mexico and Both parents U.S.-born, non-Hispanic whites				2.78 (.10)	25,334
Both parents U.S.-born, non-Hispanic blacks				2.70 (.37)	1,924

Source: 1994-2006 CPS data.

Note: Standard errors are shown in parentheses. The sample includes U.S.-born youth ages 16 and 17 living in intact families. Suspected stepchildren are excluded. "Identified as Mexican" represents the percentage of youth who are identified as Mexican by the CPS question regarding Hispanic origin. The "dropout rate" represents the percentage of youth who are not attending school and have not yet completed high school (either through classes or by exam).