# SCHOOL ENROLLMENT AMONG MEXICAN AND NON-HISPANIC WHITE YOUTH: DO ASSUMPTIONS ABOUT THE "AT-RISK" IMMIGRANT POPULATION MATTER?

R.S. Oropesa

Department of Sociology
201 Oswald Tower
The Pennsylvania State University
University Park, PA 16803

phone: (814) 865-1577
fax: (814) 863-7216
e-mail: oropesa@pop.psu.edu

Nancy S. Landale

Department of Sociology
201 Oswald Tower
The Pennsylvania State University
University Park, PA 16803

phone: (814) 863-7276
fax: (814) 863-7216
e-mail: landale@pop.psu.edu

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ABSTRACT

Using data from the 2000 Public Use Sample of the U.S. Census, this research has three objectives relating to school enrollment and school-work activity patterns among adolescents. First, we demonstrate the extent to which estimates of these activities for Mexican adolescents are affected by how the at-risk population is defined, in particular whether immigrants who are unlikely to have ever enrolled in U.S. schools are excluded. Second, we examine the implications of assumptions about the at-risk population for inferences about inter-ethnic differences and intra-ethnic differences in the role of nativity (and length of residence in the U.S. among those born in Mexico). Third, we document the extent to which key demographic and socioeconomic factors account for the observed associations. The results indicate that inferences about the level of school enrollment and intra-ethnic differences in school enrollment depend on how those who are likely to have never enrolled in U.S. schools are treated. Inferences about inter-ethnic differences are less sensitive to this issue.

Over the last several decades, the implications of recent trends in U.S. immigration have been hotly debated. Both the rising volume of immigration and shifts in immigrants' national origins have spurred concerns about the implications of migration for the economic, cultural, and political fabric of American society. At center stage in these debates are concerns about immigration from Mexico because of the large number of Mexican immigrants and the substantial share of undocumented migrants among them. Currently, there are 10-12 million foreign-born persons from Mexico living in the United States, more than half of whom are undocumented (Bean et al. 2001; Grieco 2003; Passel 2002; www.usa.ipums.org). Although evidence on their educational selectivity is mixed, this large number of documented and undocumented Mexican immigrants has raised concerns about whether the educational "quality" of migrants is declining and their long-term prospects for assimilation (see Borjas 1999; Chiquiar and Hanson 2005; Feliciano 2005a; Ibarraran and Lubotsky 2005; Orrenius and Zavodny 2005).

The influx of Mexican immigrants has played a substantial role, along with relatively high fertility among Mexican immigrants and their descendents, in the rapid growth of the Mexican-origin population in recent years (National Research Council 2006). The combination of high fertility and a relatively youthful immigrant population has resulted in an age structure for the Mexican-origin population as a whole that is highly concentrated in the youngest age groups. In fact, 38 percent of Mexicans living in the United States were under age 18 in 2000, compared to 24 percent of non-Hispanic Whites (Therian and Ramirez 2001). Because of this youthful age structure, the long-term social and economic integration of Mexicans will be tied increasingly to the fortunes of youths who are immigrants and the children of immigrants from Mexico.

A key determinant of future outcomes for this group is educational attainment, with completion of high school generally considered to be the minimum level that must be attained to certify competence in basic skills that are necessary to function productively. Unfortunately, the share of Mexican youth who

drop out of high school remains quite high. In 2000, one-fourth of Mexicans aged 16-19 had exited high school before graduating (43% of the foreign born and 14% of the U.S. born), compared to 7% of non-Hispanic Whites (source: www.usa.ipums.org, also Fry, 2003; Schneider, Martinez, and Owens 2006).

Given the importance of education to the social and economic incorporation of the Mexican-origin population, the present research uses data from the 2000 Census to demonstrate the complexities of understanding high school enrollment status (or dropout) in conjunction with employment among youth born in Mexico.[1] Specifically, our first objective is to assess the extent to which estimates of high school dropout and enrollment among adolescents are sensitive to assumptions about who comprises the "at risk" population among migrants; that is, whether all migrant adolescents are considered to be at risk or only those who are likely to have entered the U.S. educational system. The second objective is to examine the implications of these assumptions for inferences about the magnitude of inter-ethnic differences (Mexican vs. White) and intra-ethnic differences (among Mexicans by nativity status and length of residence in the United States) in enrollment and employment. The third objective is to document the extent to which key demographic and socioeconomic factors can account for the observed associations between schooling and employment patterns, ethnicity, and nativity under different assumptions about the at-risk population. In the course of accomplishing these objectives, we also focus on the activities of never-enrolled foreign-born youth for insights into their situations and likely futures.

## *BACKGROUND*

Whether one examines educational attainment among adults or school enrollment among adolescents, it is clear that the educational prospects of Americans have improved over the past several

[1] At the risk of sacrificing linguistic precision, our usage of some terms is guided by the desire to avoid redundancy and cumbersome linguistic constructions. The terms "Mexican" and "Mexican-origin" will encompass "Mexicans," "Mexican Americans," and "Chicanos" who are citizens of the United States as well as those who are citizens of Mexico. The term "non-Hispanic White" will be shortened to "White" from this point on, even though some Hispanics classify themselves as White as well. We also sometimes use the terms "immigrant" and foreign born interchangeably. Needless to say, some of the foreign born are temporary migrants and not immigrants per se.

decades. Education attainment in completed years has increased and the likelihood of dropping out of high school has decreased. Between 1972 and 2004, the dropout rate for 16-24 year olds declined from 15% to 10% (U.S. Department of Education 2006: Table 7). At the same time, gains in educational attainment and declines in school dropout have not been experienced equally by all groups. From 1980 to 2000, for example, the average years of education increased from 12.8 to 13.6 for U.S.-born Whites (aged 25 – 59), but the gain was weaker (from 9.4 to 9.8 years) for Mexicans. This can largely be attributed to the growing share of immigrants in the Mexican population and their relatively low levels of education. In 2000, foreign-born Mexicans averaged 8.5 years of education and U.S.-born Mexicans averaged 12.1 years of education (Duncan, Hotz, and Trejo 2006). Consistent with this pattern, descriptions of teenage "status dropouts" from high school reveal that Mexican immigrant adolescents and young adults are among the most likely to be out of school and without a degree.[2]

An unanswered question is the extent to which the dropout rate for foreign-born Mexicans is inflated due to the fact that a segment of the foreign-born population never enrolled in the U.S. school system. An unknown percentage of immigrant youth dropped out of the educational system in Mexico before they migrated. They were never enrolled in school in the United States because they came to this country to find work rather than to go to school. These youth are of interest because they are a part of the adolescent immigrant population. However, they are irrelevant to understanding the process of dropping out of U.S. schools because they were never at risk of dropping out.

*Economic Circumstances and Employment of Adolescents*

A recent report by the National Research Council (2006) provides suggestive evidence of some of the economic pressures on families that may constrain children's schooling and foster their efforts to contribute economically to their families. Taking labor market experiences, for example, Mexicans have

[2] Status dropouts are those in a given age group "who are not enrolled in school and who have not completed a high school diploma or an equivalency certificate" (http://nces.ed.gov/pubs2002/droppub_2001/type.asp?nav=1; accessed May 22, 2007).

an employment rate (88% for men, 65% for women) that is lower than that of Whites (92% for men, 80% for women). While there is not much difference by nativity for men, 56% of foreign-born Mexican women are employed compared to 76% of their native-born counterparts.

Earnings and wage differences mirror differences in employment. Foreign- and native-born Mexicans earn considerably less than Whites, regardless of gender. However, earnings and employment differentials are largely a function of group differences in human capital in the form of education and language ability (Duncan, Hotz, and Trejo 2006). With one qualification, the relevant dimension of difference is the level of human capital, rather than rates of return to human capital. The qualification concerns those who are foreign born---for earnings, the rate of return to education is somewhat lower for the foreign born than the native born.

The lower levels of employment and earnings among Mexicans, relative to Whites, have repercussions for the economic circumstances of the families in which they live. An indicator of the economic pressure on Mexican families is per capita income, which measures the resources that are available to support various household members. Mexican immigrant households have less than one-third the per capita income of households headed by Whites (Reimers 2006). This is consistent with the relatively high rate of poverty among Mexican families, especially immigrant families. However, foreign-born Mexicans are further constrained by their relatively low utilization of welfare (Reimers 2006). These constraints undoubtedly account for the finding that, compared to Whites, such households rely more on extended family members and children for income.

If family economic hardship is a factor in youth employment, then the relative disadvantage of Mexican-origin families should foster the employment of Mexican adolescents. One might expect both native-born and foreign-born Mexican adolescents to be more likely than White adolescents to combine

work and school or to leave school to find employment because of their greater need to support their families and to provide for their own consumer desires.

## PREVIOUS RESEARCH

The existing literature on the educational and employment situations of youth is extensive. Numerous studies have examined issues related to enrollment/dropout among Hispanics using cross-sectional data from public use files of the U.S. census (Hirschman 2001; Landale, Oropesa, and Llanes 1996; Warren 1996) or longitudinal data from special-purpose surveys (Ahituv and Tienda 2004; Bacalod and Hotz 2006; Driscoll 1999; Glick and White 2003; Perreira, Harris and Lee 2006; White and Glick 2000). For our purposes, the central issue is what existing studies tell us about how education and employment are structured by exposure to the United States. Operationally, this concern is reflected in efforts to document differences in dropout by: (1) time of entry to the United States for those who are foreign born, (2) nativity, and (3) generational status. Typically, studies that include both the native and foreign born use Whites as a comparison group.

These approaches to exposure and dropout have generated a diverse set of findings.[3] Although he did not provide a comprehensive description of school enrollment among their native born co-ethnics, Hirschman (2001) examined the experience of 33 groups of foreign-born 15-17 year olds using the 1990 Census. His results suggest that the likelihood of non-enrollment increases substantially with recency of migration for Mexican immigrants. About 42% of males and 37% of females who came to the United States in the eight years prior to the census were not in school. Although lower, the figures for Mexican male and female migrants who came as young children were generally high as well. It should also be

[3] Although it will be informative to review these studies, it should be noted that the ability to develop firm expectations from this literature is hindered by the advancing age of some datasets such as *High School and Beyond* (started in 1980) and the *National Education Longitudinal Survey* (started in 1988), as well as analytic strategies of some investigations that aggregate specific ethnic-origin groups into pan-ethnic categories and the consideration of nativity/generation separately from ethnicity.

noted that foreign-born Mexican youth were at slightly greater risk of non-enrollment than native-born youth in general (Hirschman 2001) and native-born Mexicans (Warren 1996).

Those who go beyond nativity by taking a generational approach utilize a traditional framework based on distinctions between the first, second, and third+ generations (Driscoll 1999, Parreira, Harris, and Lee 2006) or a developmental framework that disaggregates the first generation into various "decimal" generations based on age of entry to the United States (see Landale, Oropesa, and Llanes 1998; Oropesa and Landale, 1997; Rumbaut, 2004). The former approach yields conflicting results. On the one hand, Driscoll (1999) suggests that generational differences in dropout among Hispanics in the National Education Longitudinal Survey are trivial, except in multivariate models, which reveal that the second generation has a relatively low dropout rate. Glick and White's (2003) analysis of the same data, in conjunction with the High School and Beyond Survey, suggests that generation is not a significant predictor of high school dropout and that high school dropout for Mexicans and Whites is similar in multivariate models. However, White and Glick's (2000) earlier analysis of just the High School and Beyond data indicates that first generation students are more likely than the native born to drop out, but once "pre-existing conditions are controlled recent immigrants are, in fact, more likely than those born in the United States to continue to be enrolled…" (White and Glick's 2000: 288). These authors also emphasized that the likelihood of staying in school is generally higher for relatively recent migrants to the U.S. than those who migrated at younger ages.

Landale, Oropesa, and Llanes' (1996) analysis of 16-17 year-old Mexican and White youth in the 1990 Census refined previous approaches by disaggregating the first generation into decimal generations --- those who came to the United States between the ages of 0-5 (1.75 generation), 6-12 (1.5 generation), and 13-17 (1.25 generation). Using Whites as a reference, their analysis suggests a

curvilinear association. The 1st generation and the 3rd generation have particularly high risks of non-enrollment in school (a result that is consistent with Driscoll's findings for 2nd generation Hispanics). Within the first generation, the risk of dropout is higher among more recent migrants.

Much less information is available on differences by nativity or generation in adolescent employment and school-employment linkages. In large part, previous studies of adolescent employment have focused on racial and ethnic differences. Although one study using the 1997 National Longitudinal Survey of Youth (NLSY) suggests that Hispanic adolescents (aged 14-15) are less likely than White adolescents to work, studies of the1966 and 1979 NLSY cohorts suggest that the pattern varies by gender (Bacolod and Hotz 2006). For males in both cohorts, there was little difference between Hispanics and Whites in employment during high school, but Hispanic females in both cohorts were less likely than White females to work during the high school years. Another study that focused on dropouts' reasons for leaving school shows that Latinos are not more likely than their White counterparts to have been pulled from school due to employment-related reasons (Stearns and Glennie 2006). Other studies suggest that the relationship between employment and school continuation is generally not conditioned by ethnicity, but there is some evidence that the link is stronger for Hispanic males with disadvantaged backgrounds (Tienda and Ahituv 1996) and that Hispanic female adolescents are more likely than their White counterparts to be in school (Ahituv and Tienda 2004). The latter finding cannot be attributed to differences in childbearing in high school.

In one of the few studies that focus explicitly on how youth employment is structured by nativity or generation, Perreira, Harris, and Lee (2006) show that Mexicans are less likely than Whites to work during the school year, but the likelihood of work increases with generation (see also White and Glick 2000). The authors suggest that generational effects are not conditioned by race/ethnicity. However, it is important to note that their data source was a school-based sample (the National Longitudinal Survey of

Adolescent Health). Landale, Oropesa, and Llanes' (1996) analysis of census data suggests that there are substantial differences in employment by generation among Mexicans. In comparison to Whites and those who migrate to the United States at younger ages, Mexicans who migrate to the United States during their teens are especially likely to either work or to be idle (neither working or in school). Indeed, employment and idleness decline within the first generation and reach their lowest levels in the 1.75 and 2.0 generations. There is also a slight upturn for third-generation Mexicans.

## THE PRESENT RESEARCH

Focusing on Mexicans and Whites, this study uses the decennial census to examine school enrollment (primarily) and school enrollment in conjunction with employment (secondarily). Unlike many longitudinal data sources, the census is advantageous because it includes large numbers of adolescents in specific ethnic and nativity groups for analysis. In addition, the census provides the opportunity to address an issue that is frequently recognized by researchers, but infrequently addressed. An unknown percentage of foreign-born Mexicans are not enrolled in school because they migrated here after they had already dropped out of school in Mexico. Indeed, many migrated to the United States as part of the transition to post-schooling adulthood. After describing a method to indirectly estimate the never-enrolled segment of the immigrant population, we demonstrate the implications of excluding this group from the "at-risk" population in studies that examine inter-ethnic differences and intra-ethnic differences in the outcomes of interest. Because inferences are contingent upon how this segment of the immigrant population is treated, we also provide some recommendations on how this group should be treated in future investigations.

## DATA AND METHODS

This study utilizes the five percent Public Use Microdata Sample of the 2000 U.S. Census. This dataset consists of approximately one-third of the 16% of all housing units that received the long form of

the census, which includes more detailed questions than the short form about both the household and each person in the household. The analysis is limited to non-institutionalized adolescents who are ages 16-17 and are identified as Mexican or non-Hispanic White. The age cutoffs were guided by both substantive and practical considerations. Sixteen was chosen as the lower age because most states have compulsory school attendance until the age of 16, with the exception of a few states that allow students to drop out of school at earlier ages if they can satisfy other requirements (e.g., parent permission, employment, completion of certain grades). Thus, most adolescents are not legally at risk of dropping out until their 16th birthday.[4] In addition, information on the employment activities of persons is only available in the census for those who are age 16 and older. Seventeen was chosen as the upper age cutoff because of our interest in persons who have not reached the age of majority, persons who could normally be expected to live with at least one parent, and persons who should not have made the transition to college by the reference date of the census.[5]

Our analysis focuses on two dependent variables. We are primarily interested in school enrollment (enrolled vs. not enrolled), but we also examine a measure that combines both enrollment and employment to identify those who are enrolled in school and not employed, those who are enrolled and are employed, those who are not enrolled and are employed, and those who are idle (not enrolled, not employed). One of the virtues of the combined measure is that it captures the full range of situations of adolescents. At the same time, cross-sectional data cannot directly address issues related to the sequencing of employment and enrollment transitions. Some students may have dropped out of school with a job in hand while others may not have found employment or may never have been enrolled in U.S. schools to begin with. We discuss our approach to identifying the latter group below.

[4] This issue is likely to be less relevant to undocumented immigrants, who are less visible than others to the legal system and cannot be identified with the census.

[5] The reference date for the census is April 1, 2000, but the census question on educational enrollment asks for school attendance since February 1, 2000.

The existing literature on school enrollment and employment among Mexican youth focuses on two primary independent variables: nativity and generation. Unfortunately, the census is more amenable to analyses of the role of nativity than the role of generation because it does not provide information on the birthplace of the parents of each person in the household. Thus, we focus on differences between Mexicans who were born in Mexico (N = 11,826), Mexicans who were born in the United States (N = 24,503), and Whites who are foreign born (N = 3,967) and native born (N = 257,492).[6,7] It should be noted that in some analyses of those born in Mexico, we also include a measure of exposure to the U.S.; that is, the number of years here based on the year of entry.

*Independent Variables*

The multivariate analysis includes several covariates that describe both youth characteristics and the characteristics of their families. In addition to age (16 vs. 17) and gender, we examine the youth's status in relationship to the household head. Using those who are children of the head as the reference category, we utilize dummy variables that separately identify youth who are "heads, spouses, or unmarried partners," siblings, grandchildren, cousins (and aunts/uncles), other relatives and other non-relatives. Another variable indicates the number of parents each youth has residing in the household. Those with no parents or one parent are contrasted with those who live with two parents. These measures are potentially important control variables given variation by ethnicity and nativity in various indicators of family structure and living arrangements that may be associated with educational outcomes

[6] Because the census does not ask for parental birthplace, a measure of generation can only be constructed from the census by linking records for children to the records of their co-resident parents (identified by "relationship to head" codes). Although this may be a viable strategy for identifying the second and third generations for the majority of children, there are "blind spots" for children who do not live with their parents, children who live with single parents (e.g., a child with a single native-born parent and an absent foreign-born parent might be misclassified as third+ generation), and children in blended families. The first blind spot is likely to be especially important for young migrants who were never enrolled. This is one reason why we focus on nativity differences rather than generational differences.

[7] Those born abroad of American parents (e.g., children of military personnel) are excluded (see Hisschman 2001).

(Landale, Oropesa, and Bradatan 2006).

Investigations of both educational and employment outcomes among immigrants draw attention to the role of language proficiency as an indicator of human capital (Duncan, Hotz, and Trejo 2006). English language proficiency is determined from a census question on how well the youth speaks English. Those who are reported to speak English "not at all" or "not well" are contrasted to youth who speak English "well" or "very well." We also include a measure of the linguistic isolation of the household in which the adolescent lived. Linguistically isolated households are defined by the absence of at least one person age 14 and over who speaks only English or who speaks English "very well."

Because children from more advantaged backgrounds are better prepared when they enter the school system and are less likely to leave school than others, we control for a variety of socioeconomic characteristics (Schneider, Martinez, and Owens 2006). First, we identify children from families whose income falls below the official federal poverty threshold. Given the interest in new immigrant destinations and school policy, we also include measures of region of residence and each state's age of required school attendance. Region is described by 9 dummy variables that contrast standard census regions (e.g., New England, Mid-Atlantic, East North Central) with a reference category that consists of states along the U.S.-Mexico border (California, Arizona, New Mexico, and Texas). We also include an indicator of the age of required school attendance in each state to describe the institutional environment for school enrollment (see Angrist and Krueger 1991). We distinguish between states with compulsory enrollment up to the ages of 16, 17, and 18.

## ANALYSIS PLAN

As noted above, one challenge to studying school enrollment or school dropout with cross-sectional data is identification of the "at risk" population. Although all youth in the age group we consider are theoretically at risk for school enrollment, this is a moot issue for youth who left school prior to

emigrating from Mexico to find employment and had no intention of entering school in the United States. We utilize information on the age at immigration and the last grade of school completed to identify the segment of the 16-17 year-old migrant population that is not at risk of enrollment. This segment is *ultimately* defined below as non-enrolled youth whose age at migration is greater than or equal to their highest completed grade plus six.[8] For example, a 17 year old whose highest completed grade is the 6th grade (normally completed at the age of 12) and who entered the United States at the age of 15 is unlikely to have been enrolled in school in this country. A 17 year old who completed the 10th grade and entered this country at the age of 12 was probably enrolled in school in the United States. It should be noted that this is an indirect method for identifying the never-enrolled segment. Some imprecision may be introduced by variation in the ages of entry into school, grade placement, and inconsistency in the responses of serial migrants to census questions that ask for year of migration (Redstone and Massey 2005).[9] Regardless, we will demonstrate how different assumptions about the highest grade completed, the age of entry into school (used to determine age of completion), and those who migrate during the same year that they complete school affect estimates of the size of the never-enrolled population. We subsequently demonstrate the sensitivity of findings to the distinction between the "at risk" and the "not at risk" populations.

We first present information on the impact of assumptions in estimates of the relative size of the "not at risk" population, followed by a description of how this affects estimates of school enrollment and

[8] Similar procedures have been employed in prior studies of education and labor market processes among adults (Betts and Lofstrom 2000; Chiswick 1978; Dávila and Mora 2000), but there has been less attention to youth (Fry 2003 is a limited exception). This is possible because age at migration can calculated from the census as:
$\text{age}_{\text{at census}} - [2000_{\text{census year}} - \text{year of migration}]$.

[9] Misclassifications may occur in the absence of information on specific dates and places of enrollment. This method will correctly classify those who delayed entry into school and experienced grade retention in Mexico. A few false negatives (incorrectly classifying someone as "never enrolled in the U.S.") may occur for those who enrolled in the U.S. during their year of migration but dropped out after completing that year here. This would describe a 16 year old who entered the 10th grade here during the year of migration and never returned to school after completing it. A few false positives (incorrectly counting someone as "ever enrolled in the U.S.") may occur as well for any student who skipped a grade in Mexico, but did not enroll in the U.S. Both of these types of misclassifications are probably the exception rather than the rule (discussed further below).

employment patterns of the ethno-nativity groups of interest. Information on schooling and work is presented for the total population, the "at risk" population (likely to have been enrolled in the United States), and the "not at risk" population (not likely to have been enrolled in the United States). We then extend this analysis by considering covariates such as gender and living arrangements in order to gain insights into the circumstances of those who never enrolled in U.S. schools. Lastly, we present the results of a multivariate analysis that focuses on the consequences of ethnicity and nativity for schooling and work, after the aforementioned covariates are taken into account. Because some of the 16-17 year olds in our sample are not independent observations (i.e., more than one 16-17 year old in the sample can live in a household), the multivariate statistical analysis is conducted using SUDAAN to adjust for the nesting of observations within households. In addition, all analyses are based on weighted data, with the weights adjusted to retain the unweighted sample size of each group.

## RESULTS

Table 1 presents a range of estimates of the percentage of foreign-born Mexican youth aged 16-17 who never enrolled in U.S. schools. The estimates differ as a result of assumptions used about the age of entry into first grade, the grade level of the highest year of completed education for those who fall into census intervals (e.g., 5th or 6th, 7th or 8th grade),[10] and whether school dropout occurred before or after migration when both events occurred in the same year. The top figure is based on the assumption that those who ended their education in the same year that they migrated completed their education in Mexico (or elsewhere for foreign-born Whites). The bracketed figure is based on the assumption that school dropout occurred subsequent to immigration for this group.

-- TABLE 1--

[10] The census uses grouped categories (intervals) before the 9th grade and single years for grades 9 thru 12 to describe completed education. Among the grouped categories are "5th or 6th grade" and "7th or 8th grade." The "low" assumption is that the typical person in these intervals completed 5 and 7 years of schooling (respectively). The "mid-point" assumption is that the typical person in these intervals completed 5.5 and 7.5 years. The "high" assumption is that the typical person in each category completed 6th and 8th grade.

A cursory inspection of Table 1 reveals that attention should focus primarily on the Mexico-born population since variation across the estimates is trivial for foreign-born Whites. Among those born in Mexico, within-column comparisons reveal that the estimates are relatively unaffected by decisions about how to treat education levels when the census reports an interval for completed education. However, within-row comparisons reveal that estimates of the relative size of the never-enrolled population do depend somewhat on the assumed age of entry into first grade and the treatment of those who migrated at the same age that they completed their schooling. Focusing on the most common ages of entry into the first grade in Mexico (6 or 7) and assuming that school dropout preceded migration for those who left school and migrated at the same age, the estimates of the never enrolled range from 14.2% to 17.5%. If we assume that migration preceded school dropout, then estimates range from 10.8% to 14.8% (bracketed figures in columns 3 and 5). In additional analyses (not shown), we determined that the majority of cases in which migration and school completion occurred in the same year involve individuals who ended their schooling after the 9$^{th}$ or 10$^{th}$ grade. Given that this is a common stopping point for education in Mexico, it likely that most of these adolescents finished school in Mexico and subsequently migrated to the United States. Thus, we rely on the middle estimate (17.0% rather than 14.8%) to identify immigrant children who are unlikely to have enrolled in school in the United States.[11] It should be noted that none of the following results are sensitive to this decision.

To facilitate comparisons both across and within ethno-nativity groups, school enrollment and activity patterns of Mexican and White youth are provided in Table 2. For Mexicans, information is

[11]Article 65(I) of the current General Education Law of Mexico stipulates that the minimum age of entry into first grade is six (by December 31$^{st}$ of the school year). Some sources describe Mexican federal law as mandating compulsory education from ages 6-14 (International Labour Office 1998) and others describe compulsory education through the ninth grade (the last level of secundaria, see Post 2001; U.S. Department of State 2007). Regardless, many Mexicans in the past exited the educational system upon the completion of the 6$^{th}$ grade and about two-thirds of children who enter the first grade in Mexico currently complete nine years of education (U.S. Department of State 2007). Thus, a case can be made for using the high estimate instead of the middle estimate ( 6$^{th}$ grade is the upper bound of the 5$^{th}$ - 6$^{th}$ grade category and 8$^{th}$ grade for the 7$^{th}$-8$^{th}$ grade category). Inferences are not sensitive to the choice of either of these estimates. (or the low estimate).

presented for "never" enrolled immigrants (column 1), "ever" enrolled immigrants (column 2, calculated by excluding those estimated to be never enrolled in U.S. schools from the at-risk population), the total immigrant population (column 3, never-enrolled and ever-enrolled combined) and the native born. Because the never enrolled population among Whites is small (N=49), we just present figures for the total foreign-born and native-born segments of this group in the last two columns of the table.

----TABLE 2----

Focusing first on the cross-ethnic comparisons, there is little difference in the likelihood of school enrollment between U.S.-born Mexicans (94%) and Whites (96%). However, there is a surprising difference in the work patterns of those who are in school. Native-born Whites (35%) are more likely than their Mexican counterparts (21%) or foreign-born Whites (23%) to be in school *and* working. The results also demonstrate the extent to which school enrollment is structured by nativity for Mexicans, as well as the sensitivity of estimates to the exclusion of the never-enrolled population. As noted, 94% of native-born Mexicans are in school and 73% are in school and not working. In comparison, just 71% of foreign-born Mexicans are in school and 58% are in school and not working. These differences are substantial, but about one-half of each difference is due to the inclusion of the never enrolled in the calculations. Indeed, about 86% of foreign-born Mexicans who were ever enrolled are in school and 70% are enrolled and not working. Conversely, the foreign born (29%) are much more likely than the native born (7%) to be out of school, but the magnitude of the difference is sensitive to the treatment of the never enrolled. If the never enrolled are excluded from calculations for those born in Mexico, the non-enrollment rate is substantially less at about 14%.

Table 3 provides additional insights into the circumstances of both never-enrolled and ever-enrolled youth by showing their demographic and socioeconomic characteristics. Although figures are presented for Whites as well as Mexicans, we focus on the results for foreign-born Mexicans. This will permit us

to highlight the unique circumstances of the never enrolled and to determine whether the group that we identify as never enrolled has a profile that is consistent of that we might expect for labor migrants.

The first column shows that never-enrolled foreign-born Mexican youth are extremely different from their ever-enrolled counterparts. Unlike the Mexico-born who are ever enrolled, the never enrolled have been in the United States for a relatively short period of time. Indeed the, mean number of years in the U.S. for the never enrolled is 1.5. This is substantially lower than the mean of 7.5 years for those who have attended U.S. schools. The never enrolled also are dissimilar to the ever enrolled and native-born Mexicans on other characteristics. Specifically, the never enrolled are relatively old (64% are 17 vs. 50% for the ever enrolled) and much more likely to be male (74%). Moreover, only 18% of never-enrolled foreign-born Mexicans are children of the householder and 81% do not live with at least one parent.[12] Three-fourths of this group lives with non-relatives (26%), siblings (26%), cousins (20%) or other relatives (4%). Thus, the figures for the never enrolled are consistent with the situation of labor migrants, who are more likely than not to be "emancipated" from their families of origin.

----TABLE 3----

As for language, just 17% of the never enrolled speak English well or very well and two-thirds live in a household that is linguistically isolated. In keeping with their living situations, they are also relatively likely to be living in poverty. Somewhat surprisingly, never-enrolled foreign-born Mexican youth are less likely than their native-born co-ethnics to live in border states. Instead, they are more likely to live in the Mid-Atlantic, South Atlantic and East North Central states. Their distribution across states classified according to the minimum age at which youth can leave school is relatively unremarkable.

Up to this point, we have established that: (1) a non-trivial share of Mexico-born youth are likely to

[12] The difference between the fact that 18% are "children" of the head and 19.5% live with at least one parent is due to the fact that some children live with a parent in a subfamily that is headed by someone other than a parent.

have never enrolled in U.S. schools; (2) purging the never enrolled from the foreign-born segment of the Mexican population attenuates ethnic and nativity differences in school and work patterns because the never-enrolled population inflates estimates of the share of foreign-born Mexican youth who drop out of high school; and (3) the never-enrolled segment largely consists of males who have been emancipated from their parents. The next two tables more fully examine the implications of these patterns for school enrollment and school-work activities. Specifically, school enrollment is examined with logistic regression models in Table 4 for the total sample of Mexicans and Whites, Mexicans born in the U.S. and Mexico, and those born in Mexico. The first two samples provide information on the roles of ethnicity and nativity in school enrollment. The Mexico-born sample provides insights into the role of length of residence in the United States. These analyses are conducted for all youth, regardless of the likelihood of ever having enrolled in high school (Panel A), and for youth who are likely to have enrolled in U.S. high schools (Panel B). All results control for the full set of predictors.

------TABLE 4--------

The first column of Table 4 provides results that are consistent with the previous tables. Regardless of how the never enrolled are treated, Mexicans are less likely than Whites to be enrolled in school. In contrast to foreign-born Whites, who are more likely than native-born Whites to be enrolled, the odds of school enrollment for foreign-born Mexicans are just one-third the odds for native-born Whites when the never enrolled are included and one-half the odds when the never enrolled are excluded. Moreover, native-born Mexicans are less likely than their White counterparts to be enrolled in school.

The second and third columns show that among Mexicans, the foreign born are less likely to be enrolled in school than the native born. The exclusion of the never enrolled generates an odds ratio of .81 (Panel B) and the inclusion of the never enrolled generates an odds ratio of .51 (Panel A). Although the odds ratio is substantially closer to 1.0 when the never enrolled are excluded, those born in Mexico

remain less likely than U.S.-born to be enrolled in school.

At the same time, the last column reveals that conclusions about the effect of years of residence in the United States are sensitive to how the at-risk population is defined. In Panel A the odds ratio for years in the United States is 1.08; this indicates that the likelihood of being enrolled increases with time in the United States. However, the odds ratio for the sample restricted to the ever enrolled in Panel B is .95, indicating that the relationship between enrollment and length of residence is negative. After controls, the risk of enrollment declines with years in the United States among the foreign born.

The latter finding is counterintuitive and inconsistent with some previous research. Additional analysis (not shown) indicates that in models restricted to the ever enrolled, the negative relationship between duration of residence and school enrollment in the multivariate model is due to the inclusion of the language variables. The parameter estimate is positive in bivariate models (not shown) and not significant in multivariate models restricted to all of the covariates except for the language variables. Apparently, the newest ever-enrolled Mexican immigrants are the least likely to be in school primarily because of background factors and they are less proficient in English than earlier immigrants. Once their difficulty with English is controlled in multivariate models, however, they are actually more likely to be in school than those who have lived in the United States longer. Thus, inferences are contingent on how the never enrolled are identified and treated, as well as how models are specified.

Panel B also presents the odds ratios for the covariates, which are of secondary interest. Focusing primarily on Mexicans, we see from the results in the second and third columns that enrollment is less likely for 17 year-olds and males. In addition, the risks of dropping out are tied to transitions out of the child role. Enrollment is positively associated with the number of parents in the household and being the grandchild of the head. It should be noted that the results for relationship to head must be interpreted in light of the fact that the number of parents in the household is controlled. In models that do not include

the number of parents, school enrollment is negatively associated with additional categories for relationship to head (e.g., non-relative). These associations are due to the fact that no parents are present in the household.

Enrollment status is also associated with human capital, socioeconomic circumstances, and location. Risk factors for school dropout include not speaking English well, living in a household that is linguistically isolated, and living in poverty (except for those born in Mexico). In addition, Mexicans who live outside of the border region in East North Central states and South Atlantic states tend to be less likely to be enrolled in school than their counterparts in the border states of California, Arizona, New Mexico and Texas. This is despite the fact that Mexicans who live in states that require education until age 18 are *less* likely to be enrolled in school than those who live in states that require education to age 16 (unlike the relationship for the total sample).

Table 5 presents a more detailed examination of the activity patterns of youth by considering employment and school enrollment simultaneously. The multinomial regression models summarized in this table contrast three groups to the reference group (enrolled, not employed): those who are in school and employed, those who are employed and not in school, and those who are neither in school nor employed. The latter group is of interest because they represent the school-age children who are idle. It should be noted that these odds ratios are generated from multivariate models that include all of the covariates of interest. The odds ratios for the covariates are excluded for the sake of parsimony in the presentation of results, but they are available upon request.

-------TABLE 5--------

Column 3 shows that, regardless of whether the never enrolled are included or excluded from the analysis, Mexicans are more likely than Whites to be idle (versus in school and not employed). This is especially the case for foreign-born Mexican youth, but native-born Mexicans also are more likely than

native-born Whites to be idle. Moreover, the results indicate that among youth who are in school, all groups are less likely than native-born Whites to be employed. This is somewhat surprising given the popular image that economic activity is part of growing up among the least well off segments of society.

Another important set of findings concerns the differences in the parameter estimates for Panels A and B. For the majority of cross-panel comparisons involving those born in Mexico, the inclusion of the never enrolled amplifies differences between Mexicans and Whites. In column 3 of Panel A, the odds of being idle are 2.5 times higher for those born in Mexico than for the reference group. In Panel B, which excludes the never enrolled, the odds ratio falls substantially to 1.6. In column 6 of Panel A, there is an odds ratio of 1.6 for those born in Mexico (indicating their greater likelihood of idleness), but the odds ratio is much closer to one (1.05) and non-significant when the never enrolled are excluded. Similar patterns are evident for contrasts involving the likelihood of being out of school with a job. Needless to say, the parameter estimates for employment among those who are in school (i.e. columns 1, 4, and 7) are unaffected because purging the sample of the never enrolled only affects the composition of the sample that is not in school.

As in the previous results for school enrollment, a more complicated pattern is found for years of residence in the United States for those born in Mexico (columns 7 – 9). Panel A suggests that the more time spent in the United States, the *less* likely adolescents are to leave school for employment or idleness. This conclusion must be modified substantially if those who were never enrolled in U.S. schools are excluded. Among the ever enrolled, time in the United States makes adolescents *more* likely to be idle and to be out of school with a job, once English language proficiency is controlled.[13] Again,

[13] Although we do not present the parameter estimates for the covariates in the table, these results are available on request. The results show that the likelihood of being in school and working or out of school (working or not working) increases with age. Among Mexicans, males are more likely to out of school with a job and less likely to be idle, a fact that may be partly due to childcare responsibilities of Mexican girls. In keeping with this pattern, Mexican youth who are living apart from their parents and who are living with non-relatives are more likely to be employed either in school or out of school than being in school without a job. Among the Mexicans and the Mexico-born, employment and idleness among those who are out of school are promoted by a lack of English proficiency

additional analyses suggest that this reversal of sign is a function of how the model is specified; that is, whether English proficiency is included.

## CONCLUSION

This research had three objectives. Focusing on Mexican and White youth, the first objective was to determine the extent to which estimates of school enrollment and school/employment activity patterns are affected by the large number of youth who migrate to the United States without enrolling in school. This is an important question because much of the existing literature on group differences in school dropout is based on estimates derived from population surveys or censuses that are unable to identify those who never enrolled in U.S. schools or longitudinal surveys that exclude those who never enrolled because they are administered solely to those in school. Thus, it is important to determine the extent to which the never enrolled deflate estimates of school enrollment among racial and ethnic groups such as Mexicans that are comprised of non-trivial numbers of migrants who never entered the U.S. educational system.

Using an indirect method to identify the never-enrolled population by utilizing information on age at migration to the United States and the likely age at completion of the highest grade of education, the foregoing analysis indicates that for Mexicans, estimates of adolescent school enrollment and school-employment activity patterns are highly sensitive to the inclusion of the never enrolled. This is because a relatively large share of the Mexican population in the United States was born in Mexico and a relatively large share of those born in Mexico (perhaps 17%) may have already completed their education by the time that they migrated to the United States.

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and linguistic isolation. As one might expect, poverty also increases the chance of idleness among these groups, but it also decreases the chance of holding a job among those who are both in and out of school. Although the results for compulsory education are less straightforward, being located outside the border states increases the likelihood of both working and idleness among both all Mexicans and the foreign born. This is consistent with the previous results which showed both groups are less likely to be in school. They are less likely to be in school because they are working or idle in non-traditional destinations.

At the same time, it should be recognized that this method for identifying the never enrolled is indirect in the sense that it is not based on detailed information gathered directly from individuals on their school enrollment histories. Nonetheless, there is substantial evidence that the segment of the 16-17 year old Mexican immigrant population that we classified as having never been enrolled in U.S. faces unique circumstances that are likely tied to their experiences as migrants. Most notably, the never-enrolled segment is disproportionately comprised of male adolescents who have spent a relatively short period of time in the United States and have other characteristics that fit the profile of labor migrants (Durand, Massey, and Zenteno 2001; Massey, Durand, and Malone 2002). They are likely to be emancipated from their parents in the sense that they are no longer living with them; rather, they live in households with their siblings, other relatives, and roommates. Moreover, Mexico-born males who were never enrolled have the highest likelihood of any group of being employed. Their female counterparts, while less numerous, are less likely to be working and more likely to be idle.

The second objective was to determine the extent to which different sets of assumptions about the at-risk population affect inferences about the nature and magnitude of intra-ethnic and inter-ethnic differences in school enrollment and activity patterns. The bivariate results suggest that taking the never enrolled into account reduces, but does not eliminate, inter-ethnic differences. This reflects the increase in the share that is enrolled in school among those born in Mexico when the never enrolled are excluded. There is also a reduction of the intra-ethnic difference between Mexico-born and native-born Mexicans in school enrollment and idleness (lack of enrollment coupled with lack of employment) when the never enrolled are excluded. Indeed, differences between these groups are reduced by nearly half. This is a substantial reduction that is important to recognize in determining the magnitude of school dropout as a social problem.

The third objective focused on the robustness of estimates under different sets of assumptions in

multivariate analyses that control for various demographic and socioeconomic characteristics. The results from these analyses both reinforce and extend conclusions from the bivariate results. Inferences about the *nature* of differences between Whites and Mexicans are not affected by excluding the never enrolled, although the *magnitude* of the differences is reduced. Not surprisingly, both Mexico-born and U.S.-born Mexicans are less likely than Whites to be enrolled in school and more likely to be idle. However, the inferences in multivariate analyses about intra-ethnic differences in school enrollment and activity patterns are sensitive to how the never enrolled are treated. The *inclusion* of the never enrolled leads to the conclusion that: (1) both school enrollment and idleness are lower for youth born in Mexico than for U.S.-born Mexican youth, and (2) among those born in Mexico, school enrollment increases and idleness decreases with years of residence in the United States. When the never enrolled are *excluded*, the magnitude of the nativity differences in school enrollment and idleness is reduced, the latter to non-significance. Among the Mexico born, the exclusion of the never enrolled reduces the positive effect of years of residence to insignificance when all variables except the language variables are controlled (not shown). When language variables are included the sign of the relationship for length of residence becomes negative (see also White and Glick 2000). A prudent description of these results would emphasize the basic fact that time in the United States increases the likelihood of enrollment in bivariate analyses, regardless of how the never enrolled are treated. The fact that the exclusion of the never enrolled and the inclusion of covariates such as language reverse this relationship is an important caveat, but variables are not controlled or adjusted for in the real world. Nevertheless, future investigations should recognize that inferences are sensitive to the exclusion of the never enrolled and how models are specified.

There is another sense though in which future investigations should recognize the possibility of a negative relationship between time in the United States and enrollment among the at-risk population.

Specifically, the notion of immigrant optimism is often invoked in the literature to explain academic achievement among foreign-born minorities. The basic idea is that immigrants and their children are infused with a sense of optimism and a determination to take advantage of the educational opportunities in the United States. The negative relationship between exposure to the United States and enrollment after the at-risk population is identified and language is controlled is consistent with this hypothesis (see also White and Glick 2000). Indeed, it suggests that once the language barrier is overcome, later arriving immigrant adolescents may have a greater chance of staying in high school. Although the support for the optimism hypothesis is weaker and less straightforward for Hispanics than Asians, this finding is consistent with an emphasis found elsewhere of an "immigrant advantage," despite socioeconomic disadvantages, once language barriers are overcome (Kao 2004a, 2004b; Kao and Tienda 1995). Nevertheless, caution is warranted because of the inherent limitations of census data for ascertaining academic attitudes and achievements, the fact that selectivity may be involved in both migration flows and education for Mexican migrants (Feliciano 2005b, 2006), and the sensitivity of this finding to model specification and omitted variable bias.

In keeping with the general thrust of Vélez and Saenz's (2001) appeal for greater attention to conceptual and measurement issues in the study of school dropout, a remaining issue is whether future investigations should exclude or include the never enrolled given the sensitivity of some inferences to whether this segment is defined as part of the at-risk population. To some extent, a blanket recommendation on the basis of these results would be premature without determining the sensitivity of results for other groups to these procedures (work in progress). Indeed, Mexicans may represent a special case because of the volume of Mexican migration, their special role as labor migrants, and various other dynamics of U.S.-Mexico migration. In addition, the appropriate treatment of the never enrolled will ultimately depend upon the research objectives. Researchers who are interested in using

population surveys and census data to investigate school dropout among migrants as a way to assess the performance of the educational system should seriously consider excluding the never-enrolled population as a group that never "dropped in" to U.S. schools. Those who are more interested in describing the population of Mexican adolescents with an eye toward understanding their current socioeconomic circumstances and their future prospects should include never-enrolled migrants, given their non-trivial numbers. This is probably less of an issue for other groups, but the final word awaits future research.

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