Immigrant Replenishment and Mexican American High School Dropout

Richard N. Turner

Brown University

Abstract

Though Mexican Americans achieve impressive gains in educational attainment across immigrant generations, they complete high school at substantially lower rates than non-Hispanic whites, irrespective of nativity status. Drawing on recent research into immigrant schooling patterns as well as new developments in assimilation theory (Jimenez, 2010), this paper investigates whether large-scale migration from Mexico ("replenishment") influences Mexican American adolescents' likelihood of graduating high school. There is an expectation that replenishment harms schooling outcomes by hindering students' English acquisition but, at the same time, improves them by reinforcing immigrant optimism - a pro-educational disposition thought to be fostered by the foreign-born. To test these hypotheses, the 2009-2011 files of the American Community Survey are employed to estimate the effect of immigrant concentration in the local Mexican American community on Mexican-origin teenagers' odds of high school dropout. The results suggest that the impact of replenishment may vary by generation. All else equal, Mexican immigrant youth are less likely to drop out when they reside in areas with relatively more foreign-born co-ethnics, but second generation Mexican American students are at greater risk of quitting school under these circumstances.

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INTRODUCTION

Despite making impressive gains in educational attainment across immigrant generations, Mexican Americans complete high school at substantially lower rates than non-Hispanic whites, irrespective of nativity status (Grogger & Trejo, 2002; President's Advisory Commission, 2003). This is problematic from a policy standpoint because the acquisition of education is a critical determinant of upward social mobility and integration for immigrant groups generally. A growing empirical literature examines the demographic bases of Mexican American schooling patterns (e.g. Oropesa & Landale, 2009; Perreira, Harris, & Lee, 2006). On the one hand, this body of research indicates that widespread lack of English proficiency and low household socioeconomic status (SES) largely account for Mexican-origin youths' elevated dropout rates. On the other hand, the educational outcomes of first and second generation Mexican American students appear to benefit from "immigrant optimism" (Kao & Tienda, 1995) - a set of effort-enhancing dispositions thought to be transmitted by foreign-born parents.

The current paper seeks to contribute to the literature by exploring whether large-scale migration from Mexico, or "immigrant replenishment" (Jimenez, 2010), helps to shape the educational attainment of Mexican-heritage youth. Replenishment is expected to negatively influence schooling outcomes by hindering English acquisition but, at the same time, improve them by reinforcing immigrant optimism. To test these hypotheses, the concatenated 2009-2011 files of the American Community Survey (ACS) are used to estimate the relationship between the share of the local Mexican American community consisting of immigrants and the odds of high school dropout among Mexican-origin adolescents. To presage the results, Mexican immigrant youth are found to be at lower risk of dropping out of high school when they reside in

an area containing a higher immigrant proportion while second generation Mexican Americans are more likely to drop out under these circumstances.

BACKGROUND

Mexican American Educational Attainment

The growth of the Mexican American population has dramatically altered the ethnic landscape of the United States in the space of a few decades. According to the US Census Bureau, approximately 32 million persons of Mexican heritage resided in the country as of 2010, up from 21 million in 2000 and 13 million in 1990. They currently represent 63 percent of all Hispanic residents of the US and 10 percent of the total population (US Census Bureau). Not surprisingly, this rapid demographic expansion has been accompanied by increasing attention to and concern over Mexican Americans' prospects for integrating into the wider society.

There has been much focus on educational attainment, given its critical role in the process of economic assimilation. Troublingly, several reports now document that people of Mexican descent are much more likely to drop out of high school than non-Hispanic white Americans (Aud, Fox, & KewalRamani, 2010; Fry, 2003; Grogger & Trejo, 2002; President's Advisory Commission, 2003; Reed, Hill, Jepsen, & Johnson, 2005). These disparities hold special salience because the high school diploma is a minimal qualification for participating in the US labor market. To take but one example, Aud, Fox, and KewalRamani (2010) estimate that 22 percent of Mexican Americans ages 16 to 24 in 2007 were high school dropouts, comparing unfavorably to 6 percent of whites. Members of other major Latino national-origin groups (i.e. Puerto Ricans, Cubans, and Dominicans) and non-Hispanic blacks were also more likely to have graduated high school than Mexican Americans (Aud, Fox, & KewalRamani, 2010, p. 99).

Such inequalities might not be a major cause for concern if Mexican American dropout were overwhelmingly concentrated in the group's comparatively large and disadvantaged immigrant segment and the later generations displayed attainment levels comparable to those of the white majority. However, research reveals that even *US-born* Mexican Americans lag significantly behind whites in high school completion. The President's Advisory Commission on Educational Excellence for Hispanic Americans (2003) reports that roughly 31 percent of US-born, Mexican–origin adults in 2001 had failed to graduate high school. While this is only around one half of the dropout probability of Mexican immigrants (61 percent), it is almost triple the prevalence of non-Hispanic whites (11 percent) (President's Advisory Commission, 2003). Similarly, Grogger and Trejo (2002) estimate that approximately 27 percent of second generation and 24 percent of third generation Mexican American working-age men in the late 1990s had not completed high school, but only 9 percent of comparable whites had failed to earn a diploma (Grogger & Trejo, 2002).

Theory

Several studies have been conducted in recent years that probe the demographic underpinnings of Mexican American or Hispanic schooling patterns (Bachmeiera & Bean, 2011; Bradley & Renzulli, forthcoming; Driscoll, 1999; Hirschman, 2001; Landale, Oropesa, & Llanes, 1998; Lutz, 2007; Olatunji, 2005; Oropesa & Landale, 2009; Perreira, Harris, & Lee, 2006). These papers typically attempt to assess how and why high school dropout rates differ by immigrant generation. Three theoretical perspectives on immigrant incorporation heavily inform this work: classical assimilation, segmented assimilation, and immigrant optimism.

Classical assimilation. Classical assimilation theory (Gordon, 1964) is based on the experiences of European ethnicities in early 20th century America. The model predicts that

immigrant groups will lose their cultural and social distinctiveness with respect to the middle class white population over the course of generations. Since US-born ethnics are exposed to American culture and institutions from a young age, attachment to the traditional values of the sending society has a tendency to wane. Cultural assimilation may pave the way for structural assimilation, reflected in an increase in the number of primary relationships with the host population. In terms of educational attainment, the classical model suggests that first generation immigrant students will have the highest rates of high school dropout among those of their ethnicity owing to a lack of economic resources and English proficiency as well as cultural incompatibilities with educational institutions. On the other hand, the third and later generations should be the least likely to drop out because they are the most integrated into mainstream society (Waldinger & Perlmann, 1998).

Segmented assimilation. Segmented assimilation theory (Portes & Zhou, 1993) holds that integration into the American cultural and social mainstream is only one of several trajectories that a migrant group may take. Other possibilities are downward assimilation into the underclass and upward economic mobility achieved through the maintenance of a cohesive ethnic community. Which path is followed is to a large extent a function of group members' racial origins and degree of exposure to oppositional culture in the destination as well as the structure of economic opportunities they encounter. Immigrants who are also visible minorities face greater barriers to successful incorporation because of the continuation of racial prejudice and discrimination in American society. Settlement in areas home to native-born minorities constitutes another potential source of disadvantage. In such cases, youth belonging to established but marginalized groups (e.g. inner-city African Americans) may impart adversarial, self-defeating outlooks to the children of immigrants. The internalization of these values, in

turn, harms the newcomers' educational outcomes. Finally, assimilation may be hindered by a lack of middle level jobs that make gradual socioeconomic advancement possible ("mobility ladders"). In the wake of industrial restructuring, the US economy has an abundance of low-skilled menial work as well as a sizable number of white collar professional positions, but a declining number of well-compensated blue collar jobs. Unlike their foreign-born parents, the second generation is likely to reject bottom-tier employment. At the same time, though, they are unlikely to meet the educational requirements of the professional jobs. With the decline of middle-level employment, a mismatch between aspirations and opportunities could develop in the second generation that fosters oppositional views or attitudes and thereby reduces educational attainment.

Immigrant optimism. The immigrant optimism hypothesis (Kao & Tienda, 1995) posits that foreign-born parents instill positive educational orientations in their children. The argument is that immigrants are often highly confident that their families will climb the economic ladder because they perceive the challenges posed by American society as less severe than those they left behind in the country of origin. In addition, non-white immigrants have greater confidence than US-born racial minorities because they have less knowledge of race-related barriers to upward mobility. If immigrant parents pass this optimistic outlook on to their children, first and second generation students should academically outperform their third generation counterparts, all else equal. Second generation youth are predicted to have the lowest gross dropout rates because they have access to optimistic parents (unlike the third generation) *and* possess English proficiency (unlike the first generation) (Kao & Tienda, 1995).

Key Empirical Findings

For recent Mexican American high school cohorts, as well as the Hispanic population more broadly, research indicates that dropout is most common in the first generation and declines thereafter. Nevertheless, stagnation or even deterioration in high school graduation rates occurs between the second and third generations (see Bachmeiera & Bean, 2011; Llandale, Oropesa, & Llanes, 1998; Perreira, Harris, & Lee, 2006). Two major findings emerge from the literature regarding the underlying sources of this distinctive educational trajectory.

First, consistent with the classical assimilation perspective, the evidence suggests (1) that lack of English proficiency and low parental SES are leading drivers of high school dropout in the Mexican-origin population, but also that (2) these effects recede across immigrant generations due to linguistic and human capital assimilation. For instance, Landale, Oropesa, and Llandes (1998) estimate that in 1990 55 percent of recent Mexican immigrants 16 to 17 years old could not speak English "well" and 85 percent lived with a household head who had not earned a high school diploma. In contrast, the corresponding numbers for third generation Mexican Americans are just 3.8 and 35.2 percent. Since English proficiency and parental human capital (including educational attainment) both have a strong, positive correlation with high school enrollment, controlling for these factors reduces dropout disparities between non-Hispanic whites and Mexican Americans, with especially large declines in inequality occurring for Mexican immigrants (Landale, Oropesa, & Llandes, 1998).

A second key aspect of the literature is evidence suggesting that earlier-generation Mexican American (or Hispanic) youth tend to possess cultural values more conducive to educational success, in keeping with the immigrant optimism hypothesis. Perreira, Harris, and Lee (2006) document that foreign-born students score higher on average than their US-born

counterparts in school attachment and college aspirations, measures of cultural capital negatively associated with dropout among Hispanics. Moreover, after controlling for the full set of independent variables, the authors find that first and second generation Latino youth have lower predicted odds of dropout than third generation co-ethnics. They interpret these unaccounted-for differences as an indication of generational disparities in optimism (Perreira, Harris, & Lee, 2006, pp. 521-533). Likewise, Oropesa and Landale (2009) find that number of years spent in the US is *positively* associated with the odds of high school dropout for Mexican immigrants who have ever enrolled in an American school (p. 253).

CURRENT STUDY

Mexican Americans' relatively low levels of high school completion translate into sharp reductions in their collective labor market opportunities and thus contribute to ethnic stratification. In addition, the tendency to accumulate such a limited amount of human capital combined with the rapid expansion of the Mexican-origin demographic is likely to create major social and economic costs for US society in the long run. For these reasons, the factors potentially influencing the educational outcomes of Mexican Americans merit additional attention.

The current paper extends the literature by investigating whether continuing, large-scale immigration from Mexico, or "immigrant replenishment" (Jimenez, 2010), plays a role in the process of high school dropout for Mexican Americans. An implicit assumption of classical assimilation theory is that immigration streams eventually weaken, diminishing the contact that migrant groups have with co-ethnics newly-arrived from the home country. This aspect of the model corresponds to the steep drop in European immigration to the US following the outbreak of World War I and the enactment of restrictive entry legislation in the early 1920s (Jimenez,

2010, pp. 11-12). One implication is that ethnic communities are expected to lose their distinctive cultural qualities fairly quickly as there are presumed to be few individuals raised in the homeland around to promote the group's traditions. Jimenez (2010) revises the classical model by positing that the later generations may retain important aspects of their ethnic culture when the foreign-born population is continually restocked through immigration.

This theory of immigrant replenishment is based on qualitative research undertaken in California and Kansas, where Jimenez argues that ongoing influx from Mexico is slowing the acculturation of Mexican Americans. Several mechanisms seem to underlie this relationship. For one, contact with Mexican immigrants in various settings gives later generation Mexican Americans opportunities to hone their Spanish skills, which forestalls the development of English monolingualism (Jimenez, 2010, pp. 104-108). Furthermore, people of Mexican descent whose families have been in the US for generations often form intimate friendships with their immigrant counterparts. These relationships, in turn, may increase US-born Mexican Americans' interest in their ethnic heritage and motivate them to explore facets of traditional Mexican culture that their older relatives had failed to hand down (Jimenez, 2010, p. 109). In these ways, Mexican ethnicity can remain "thick" even for those several generations removed from the initial immigration experience.

Considering that replenishment is theorized to have wide-ranging effects on the cultural patterns of Mexican American communities, it seems plausible that the phenomenon could factor into the high school completion patterns discussed above. The current paper attempts to address this issue. The general premise is that ongoing Mexican immigration influences the dropout rates of Mexican American adolescents by altering their likelihood of possessing two

characteristics that earlier research indicates are key determinants of educational attainment within the demographic: English proficiency and immigrant optimism.

First, replenishment is hypothesized to *increase* high school dropout in the Mexican-origin population by limiting the acquisition of English language skills. Jimenez (2010) emphasizes that US-born Mexicans Americans residing in areas with a large number of foreign-born co-ethnics have more chances to learn Spanish (pp. 104-108). By the same token, living around immigrants may reduce exposure to English and slow the pace of linguistic assimilation for some. Given the strong, negative association observed between English proficiency and high school dropout, then, replenishment could lead to a worsening of outcomes. These effects should be most pronounced for immigrant students. Life-long exposure to American mass media and educational institutions is likely to result in near-universal English proficiency for second and later generation adolescents, regardless of the degree of replenishment. However, for first generation students who have not mastered English by the time they reach high school, living in an immigrant-heavy setting might well hinder English acquisition to such an extent as to increase the probability of dropping out.

Second, immigrant replenishment is hypothesized to foster optimism among Mexican American students and thereby *reduce* their probability of dropping out. Mexican-origin youth residing in communities with higher concentrations of Mexican immigrants probably develop more social ties to foreign-born co-ethnics on average. As previously discussed, there is mounting evidence that immigrant parents instill optimistic orientations into their children that enhance school performance (Kao & Tienda, 1995; Oropesa & Landale, 2009; Perreira, Harris, & Lee, 2006). Extending this argument, immigrants might also impart self-confidence and determination to young people who are not related to them but belong to their social network. If

this is the case, replenishment and the consequent expansion of social interaction with the foreign-born should lead to greater optimism among Mexican-origin students and corresponding improvement in their odds of completing high school. This process could conceivably occur for all immigrant generations. A diagram of the hypothesized relationships is presented in Figure 1.

METHODS

Data and Sample Restrictions

To test these hypotheses, the following analysis relies on individual-level data drawn from the merged 2009-2011 files of the American Community Survey (ACS). The ACS, which has replaced the Census "long form", is a 1-in-100 annual sample of the US population that collects data on a variety of social and economic indicators in order to inform policymakers and the general public. A key advantage of using the ACS is large sample size. This is critical in the current context since the goal is to examine a fairly small social group, i.e. Mexican American teenagers.

Observations are limited to adolescents ages 16 and 17 who, at the time of the survey, had not yet earned a high school diploma and were living in a household with at least one parent. General Equivalency Degree (GED) holders are not classified as high school graduates since past research indicates that they are closer to dropouts in terms of labor market outcomes than to traditional high school graduates lacking a college degree (Cameron & Heckman, 1993). The 16-to-17 age range is chosen as this is the peak time for high school dropout and there is a marked tendency for youth to leave home after this point. Moreover, restricting the sample to respondents living with a parent allows for the measurement of background characteristics which

are believed to play an important role in educational success (e.g. parental income).[1] In addition, this study is focused on high school dropout occurring *within* the American educational system, so immigrants who quit school before relocating to the US are not considered part of the at-risk population. Following Oropesa and Landale (2009), foreign-born youth who entered the US at an age greater than or equal to their highest completed grade of school plus 6 are regarded as belonging to this category and thus expunged from the sample.

Variable Definitions

In order to be considered a person of Mexican ethnicity, the respondent had to be identified as such through the ACS Hispanic origin question. First generation Mexican Americans are defined as Mexican-heritage individuals who were born outside of the 50 US states and the District of Columbia. The second generation consists of US-born Mexican Americans living with at least one parent originating abroad. Finally, the third generation is made up of respondents born in the US and residing only with US-born parents.

The dependent variable in the multivariate portion of the analysis, occurrence of high school dropout, is coded 1 if the youth was reported to have not attended school in the past three months. Immigrant replenishment, the central explanatory variable, is operationalized as the percentage of all Mexican-origin people in the respondent's Public Use Microdata Area (PUMA) who were born abroad. As this number rises, the amount of social contact that Mexican American teenagers have with foreign-born co-ethnics can be expected to increase. PUMAs are contiguous areas that follow the boundaries of counties, Minor Civil Divisions, Census tracts, and Census places. They are utilized here to measure local immigrant density because they are the smallest geographic unit for which the ACS provides information on the location of

[1] The omission of adolescents not living with a parent probably has only a limited impact on the final estimates. According to the 2009-2011 ACS, the vast majority (92.6 percent) of Mexican American 16 to 17 year old non-graduates who likely entered the American educational system co-resided with at least one parent.

individual observations. The Census Bureau specifies that zones containing 200,000 or more inhabitants are to be divided into as many PUMAs with at least 100,000 occupants as possible. Only Public Use Microdata Areas that contained at least 200 foreign-born Mexican cases for 2009-2011 are incorporated into this analysis so as to ensure adequate sample size for estimating replenishment values in addition to the average tenure and age of the local Mexican immigrant population (discussed below). The restriction leaves 385 PUMAs, which together encompass 20,039 Mexican American observations corresponding to 579 cases of dropout. This represents nearly three fourths (72.9 percent) of all Mexican-origin youth within the US satisfying the aforementioned analytical sample criteria.

Mexican immigrant populations residing in different areas may vary substantially in how much time they have spent in the US on average. Furthermore, Mexican-born individuals who have resided in the country for a shorter period should be less assimilated and thus more likely to rely on Spanish in daily interaction and possess immigrant optimism, the salient features of replenishment in the present context. If immigrants' mean level of exposure to American culture is for some reason correlated with the relative size of the foreign-born population, then, the estimated effect of replenishment could be biased. To address this issue, controls for the average age at entry and average age of Mexican immigrants in the respondent's PUMA are included alongside the replenishment variable.

The remaining predictor terms consist of individual-, household-, and community-level characteristics that previous research suggests influence the odds of high school dropout. The individual-scale variables are age, gender, English proficiency, and race. Age and gender are measured with dummy terms indicating whether the respondent was 17 years old (reference = age 16) and female, respectively. English proficiency is represented by a binary variable coded 1

if the person was reported to speak only English at home or speak English "very well." Finally, Mexican Americans whose recorded race is anything other than white alone are categorized simply as non-white.

Family structure is captured with three variables measuring (1) the number of parent figures in the household (single-parent versus two-parent), (2) the number of co-resident siblings of the respondent, and (3) whether the household head is not also a parent. Parental education is represented by the highest level of completed schooling of the better-educated parent in the household: high school dropout (reference), high school graduate only, some college, and bachelor's degree or more. The regressions also control for the combined wage and salary earnings of all parents in the household (adjusted to 2011 dollars). This measure is used instead of total family income because the latter is likely to be endogenous to the incidence of dropout. That is, the decision to quit school is presumably accompanied in many cases by the adolescent's entry into paid employment, which should augment the family's total economic resources. Since undocumented immigrant status could conceivably harm educational outcomes independently of parental human capital, a variable distinguishing households in which no parent lacks US citizenship is included as well. Finally, residential instability is incorporated into the analysis because family relocation and student mobility across schools are documented risk factors for high school dropout (Rumberger & Larson, 1998; South, Haynie, & Bose, 2007). This characteristic is specified as a set of dummy terms denoting the number of years since the respondent's household head moved into their current residence: 10+ (omitted), 5-9, 1-4, and <1.

Socioeconomic conditions within the respondent's PUMA are controlled for with the percent of all residents who fell below the official poverty line along with the shares of the labor force unemployed and in professional occupations. These characteristics are measured over

2009-2011. A variable indicating whether the PUMA's population lived primarily or entirely in nonmetropolitan counties (Johnson, 2010) is also included to represent the effect of rural residence. Furthermore, local ethnoracial composition is captured with the proportions of the PUMA's total population consisting of non-Hispanic whites/"others", blacks, and Asians as well as non-Mexican Hispanics; the reference variable is percent of Mexican-origin. Nearly one half (48 percent) of the Mexican-heritage adolescents covered by the analytical sample lived in California and an additional 30 percent resided in Texas; no other state contained more than 10 percent of the demographic (see Figure 2). Given the very heavy concentration of Mexican Americans in California and Texas, residence in each is represented with a binary term. Finally, survey year (reference = 2009) is included in all regressions to net out time trends in high school completion.

Plan of Analysis

The analysis has three key steps. First, high school dropout rates are estimated for Mexican American youth (disaggregated by generation) and, for the purposes of comparison, other ethnoracial groups. Second, a series of binary logistic regressions of Mexican American dropout is performed to provide additional empirical support for the theorized role of English proficiency and immigrant optimism in high school completion. Lastly, a second set of regressions is carried out that examines the relationship between PUMA-level immigrant replenishment and high school dropout among Mexican-origin youth.

Two models are estimated in this final stage, the first incorporating all predictors except for English proficiency and the second including English proficiency as well. The hypothesis that replenishment inhibits high school graduation by slowing linguistic assimilation would receive support if the addition of the English proficiency variable results in the association

between immigrant concentration and dropout becoming substantively less positive (or more negative). The estimation of a significant negative relationship between proportion of the Mexican American community that is foreign-born and dropout *after* the full set of controls is in place would be interpreted as support for the hypothesis that replenishment reduces the risk of non-completion by improving optimism. A residual approach is adopted here because the ACS does not contain any variables that directly capture optimism. Since the impact of replenishment is likely to vary by degree of nativity, these regressions are also run separately for each Mexican immigrant generation. Cluster-robust standard errors are calculated in every case to address potential non-independence of observations within PUMAs.

RESULTS

Figure 3 displays a map of the selected Public Use Microdata Areas. Reflecting Mexican immigrants' long-established settlement patterns, these zones are heavily concentrated in the border states of the Southwest. Nevertheless, several PUMAs in the Pacific Northwest and the Southeast also meet the sample size requirement – an indication of the growing diffusion of Mexican-origin people into "new destinations" (Crowley, Lichter, & Qian, 2006). Figure 4 presents national estimates of status dropout rates for 16 to 17 year olds who likely entered the American educational system and were living with a parent at the time of the survey. These figures suggest that high school non-completion levels remain comparatively high for students of Mexican heritage; the share who had not attended school in the past 3 months (3.5) is roughly 20 percent larger ($p < 0.01$) than that observed for non-Hispanic whites (2.9). Mexican-origin teenagers are also much more likely to have dropped out than their Asian counterparts (1.5), but are similar to non-Mexican Hispanics (3.5) and African Americans (3.3) in this regard.

High school dropout *among* Mexican Americans peaks in the first generation, troughs in the second, and rebounds in the third – a trajectory similar to the one documented by Landale, Oropesa, and Llanes (1998) and consistent with the immigrant optimism model. While 6.3 percent of Mexican immigrants had not recently attended school, just 2.7 percent of the second generation had not. Interestingly, members of the second generation are slightly less likely than non-Hispanic whites in total to have dropped out. Nonetheless, clear deterioration in Mexican American schooling outcomes occurs after this point, with the non-attending portion of the third generation reaching 3.5 percent. All intergenerational dropout rate disparities are statistically significant at $p < 0.01$.

In order to provide context for the multivariate analysis, the mean values of the predictor variables are presented in Table 1. The first three rows display information on the replenishment-related factors. Over 2009-2011, the average Mexican American respondent lived in a PUMA where roughly 36 percent of the co-ethnic population was born abroad. Furthermore, these immigrants - on average - arrived in the US at age 20 and were close to 40 years old at survey time. Taken together, the figures suggest that Mexican American adolescents continue (for the most part) to inhabit ethnic communities heavily shaped by recent immigration trends. Estimates do not vary much by generation, though the third generation appears to have somewhat less exposure to Mexican immigrants than others.

The descriptive statistics also provide additional evidence that later generations enjoy substantial linguistic and human capital advantages over their counterparts from more recently-arrived families. For example, the share of Mexican-origin teenagers who were English proficient rises from 73 to 96 percent between the first and third generations. There is marked improvement in parental education and earnings as well. Third generation Mexican American

adolescents were over twice as likely as foreign-born peers to live with a parent who had earned at least a high school diploma (79 versus 38 percent), and the average earnings of their co-residential parents were roughly 80 percent greater. Despite such huge gains, third generation youth had more contact with non-intact family arrangements. A slight majority of them (52.2 percent) resided in a single parent household, compared to around 28 percent of both the first and second generations.

Turning to the contextual characteristics, second generation Mexican American students are more heavily concentrated in California than others, while members of the third generation have a greater probability of residing in Texas. Regardless of nativity, the typical Mexican-origin respondent lived in a PUMA with a 20 percent poverty rate, a 12 percent unemployment rate, and slightly more than 20 percent of workers in professional occupations. There is also a fair degree of uniformity across generational groups in rural residence and area racial composition.

Table 2 displays the results from the first series of binary logistic regressions of Mexican American high school dropout. Model 1 includes only the generational status and survey year dummies. Paralleling the findings shown in Figure 4, the dropout odds of the second and third generations are estimated to be 43 and 57 percent as large, respectively, as those of the first generation. Notably, differences between the second and third generations are also statistically significant ($p < 0.05$).

Model 2 adds the individual-level covariates to the regression equation. The likelihood of not attending school is significantly greater for older and male adolescents. In keeping with expecations, speaking English "very well" or exclusively is predicted to reduce the odds of dropout by 43 percent. Identification as non-white is not significantly associated with the

outcome. The estimated disparities in dropout between the first and later generations narrow once this group of factors is controlled for, though they remain large and significant.

Model 3 incorporates the household-level characteristics. Not surprisingly, unconventional living situations are associated with poorer outcomes. The results indicate that living in a single-parent family increases Mexican-origin youths' odds of dropping out by more than 30 percent, and that residing in a household in which the head is someone other than a parent raises the risk by close to 50 percent. Residential instability also appears to put upward pressure on the probability of non-completion. Conversely, parental education and earnings have significant, negative relationships with dropout. The non-attendance gap between the first and third generations loses statistical significance after netting out the effects of the household variables.

Model 4 introduces the contextual terms. Curiously, none of the items measuring PUMA socioeconomic conditions (i.e. the poverty, unemployment, and professional employment rates) is significantly associated with quitting school early. However, a one percentage point increase in the proportion of the local population that is African American is estimated to raise Mexican Americans' odds of dropping out by 1.2 percent. Furthermore, net of individual and family attributes, living in California or Texas is associated with a smaller risk of non-attendance. This pattern might be related to a tendency for the traditional Mexican immigrant destinations of the Southwest to offer a more supportive social and cultural atmosphere for people of Mexican descent (Singer, 2004). With the full set of controls in place, second generation Mexican Americans still have significantly lower odds of high school dropout than their first *and* third generation peers, which is fairly consistent with the immigrant optimism hypothesis (Kao & Tienda, 1995). It is important to note that educational advantages potentially stemming from

optimism may not be apparent in the case of the first generation because of the occurrence of unobserved migration-related disruptions within this group.

Table 3 displays results from the regressions of high school dropout on immigrant replenishment for all Mexican Americans in the sample. The risk ratio associated with the replenishment variable is in the expected direction (i.e. it's less than 1), but is not close to being statistically significant. In addition, the association between foreign-born concentration and dropout becomes more negative with the addition of the English proficiency term. However, the change in the estimated relationship is very small. Thus, these initial exercises provide little support for the two hypotheses concerning the effects of immigrant density on schooling outcomes.

The results yielded by the generation-specific regressions are shown in Tables 4 through 6. They suggest that the impact of continuing Mexican migration on high school attrition among Mexican American youth differs by degree of exposure to American society. Indeed, the null findings reported in Table 3 can be attributed to this associational heterogeneity. First, the relationship between replenishment and dropout within the first generation is *negative* and weakly significant in Model 2 ($p = 0.099$). This is to an extent consistent with the hypothesis that Mexican immigrants contribute to the educational attainment of co-ethnic youth in their communities by fostering optimistic attitudes. Interestingly, first generation Mexican American students also tend to fare better in school when they live in proximity to older immigrants. Additionally, the replenishment coefficient declines noticeably after the English proficiency variable is added to the regression equation. Though the change is again small, its direction is in keeping with the supposition that immigrant concentration in some cases constrains the acquisition of English skills and thereby harms high school graduation rates.

Contrary to expectations, there is a marginally significant, *positive* association between replenishment and the risk of dropout for members of the second generation ($p = 0.058$). A one percentage point increase in the share of local Mexican Americans who were born abroad is predicted to raise their odds of not attending high school by 2.4 percent. To illustrate the substance of this finding, Figure 5 presents the second generation's predicted probability of dropout by level of immigrant replenishment. As the foreign-born proportion of the local Mexican-origin population rises from 10 to 70 percent (roughly corresponding to the range of the replenishment variable), their expected probability of non-attendance increases from 0.9 to 3.5 percent. In contrast to Mexican Americans with a foreign-born parent, there is little relationship between immigrant density and the dropout odds of the third generation, net of other socio-demographic variables (see Table 6).[2]

DISCUSSION

The relatively low educational attainment levels of the rapidly-growing Mexican American population are increasingly recognized as a pressing social problem. This paper sought to extend research on the topic by using newly-released ACS data to investigate the impact of immigrant replenishment on high school dropout among Mexican-origin teenagers. Jimenez's (2010) replenishment hypothesis holds that the continuing influx of Mexican migrants into the US slows the acculturation of Mexican Americans by strengthening adherence to the customary behaviors and values of the homeland. Drawing on this theory, it was hypothesized that ongoing immigration raises Mexican-origin students' likelihood of quitting high school by hindering their accumulation of English language skills but, simultaneously, reduces their

[2] To test for non-linear effects, each of the regressions in Tables 3 through 6 was run again with a quadratic replenishment variable. However, in no case does the modification yield significant estimates (figures not shown).

chances of dropping out by increasing their exposure to the optimistic views typical of immigrants (Kao & Tienda, 1995).

The analysis reveals that youth of Mexican heritage continue to drop out of high school at a high rate in comparison to non-Hispanic whites. Non-attendance is most common among Mexican immigrants, declines sharply in the second generation, but rises in the third. As in previous studies, lack of English proficiency and low family SES appear to be leading contributors to high school dropout within the Mexican-origin demographic. Furthermore, these factors account for much of the first generation's especially large educational disadvantages. Net of all covariates, second generation Mexican Americans are predicted to have significantly lower dropout odds than their first and third generation peers. This finding seems to constitute additional empirical support for the immigrant optimism perspective, which posits that second generation youth benefit academically both from having foreign-born (optimistic) parents and from being raised within American society from birth.

The multivariate results suggest that the effect of immigrant replenishment on Mexican Americans' probability of dropping out of high school is sensitive to generational status. First, there is a slight indication that living in an immigrant-heavy area may constrain first generation students' English acquisition somewhat and thereby contribute to high school attrition. Furthermore, controlling for English proficiency, a marginally significant negative relationship is estimated between foreign-born concentration and Mexican immigrant youths' high school dropout odds. This is in keeping with the expectation that replenishment acts to reinforce pro-education optimism.

Unexpectedly, though, the local Mexican American community's percent foreign-born is positively associated with the second generation's dropout risk. One potential explanation is that

replenishment fuels anti-immigrant sentiment that harms the educational outcomes of second generation students specifically. Since area racial composition was controlled for in the multivariate models, the concentration of foreign-born individuals among local Mexican Americans should be positively correlated with the size of the Mexican immigrant population relative to the total PUMA population. The presence of a large number of impoverished and culturally dissimilar migrants in the local area is likely to provoke social hostility from non-Hispanics (Jimenez, 2010, pp. 138-178). Expressions of nativist attitudes ought to have little impact on first generation teens if immigrant status sharply limits their contact with individuals outside of the ethnic community. Third generation Mexican Americans, on the other hand, should be quite aware of anti-immigrant sentiment in the broader social environment. Nonetheless, they may not internalize these negative views since neither they nor their parents are foreign-born. In contrast, second generation youth could be vulnerable to nativist rhetoric because they are (1) not as socially isolated from non-Hispanics as are their first generation co-ethnics but (2) are more likely than the third generation to identify with immigrants on account of their parents' foreign birth. For this subgroup of Mexican American students especially, then, replenishment might be accompanied by a perception of growing antagonism from local residents that causes discouragement and increases the likelihood of leaving high school without graduating.

This analysis has yielded some evidence suggesting that the educational attainment of Mexican Americans is influenced by a previously unstudied contextual variable: immigrant replenishment. Future work might build upon this paper by using more circumscribed geographic units to delineate replenishment contexts. Although PUMAs are the smallest geography distinguished by the ACS microdata files, they may still be too large and socially

heterogeneous for effectively estimating the impact of foreign-born concentration on the educational behaviors of Mexican American youth. Replenishment-dropout associations measured at more limited levels of geographic aggregation (e.g. counties) could well be considerably stronger than those reported here. Such research would greatly aid our understanding of the implications of immigration flows for the social integration of the burgeoning Mexican American demographic.

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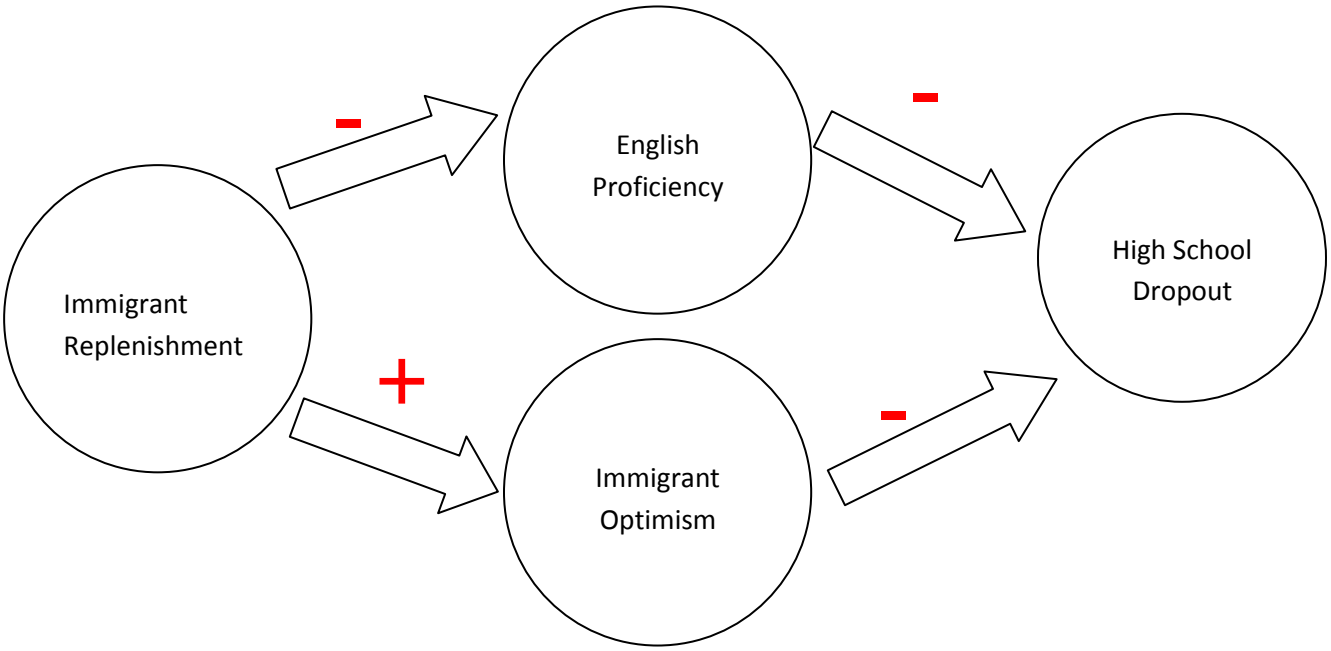

Figure 1. Hypothesized Relationship between Immigrant Replenishment and Mexican American High School Dropout Rates

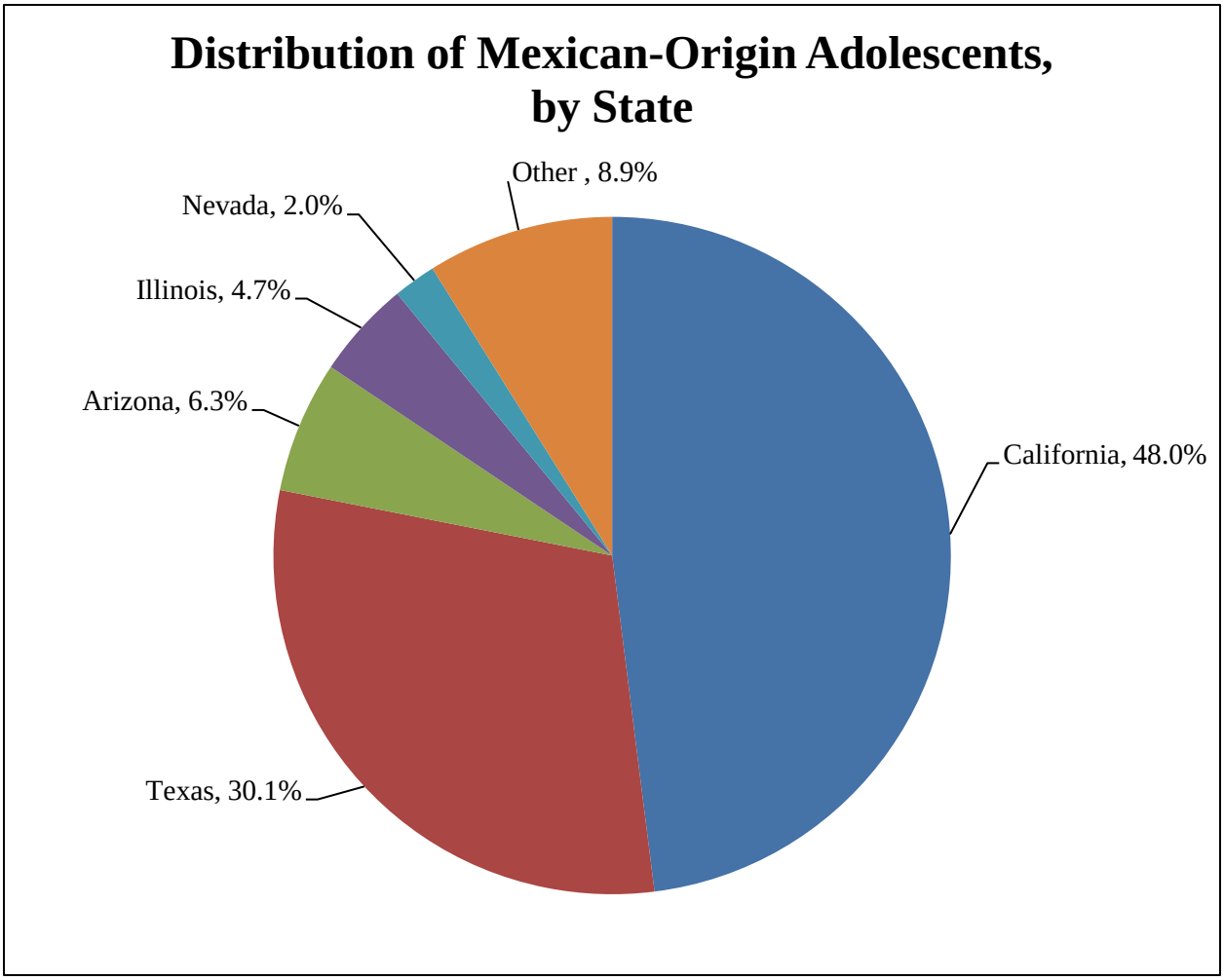

Figure 2. Percentage Distribution of Mexican-origin Adolescents, by State

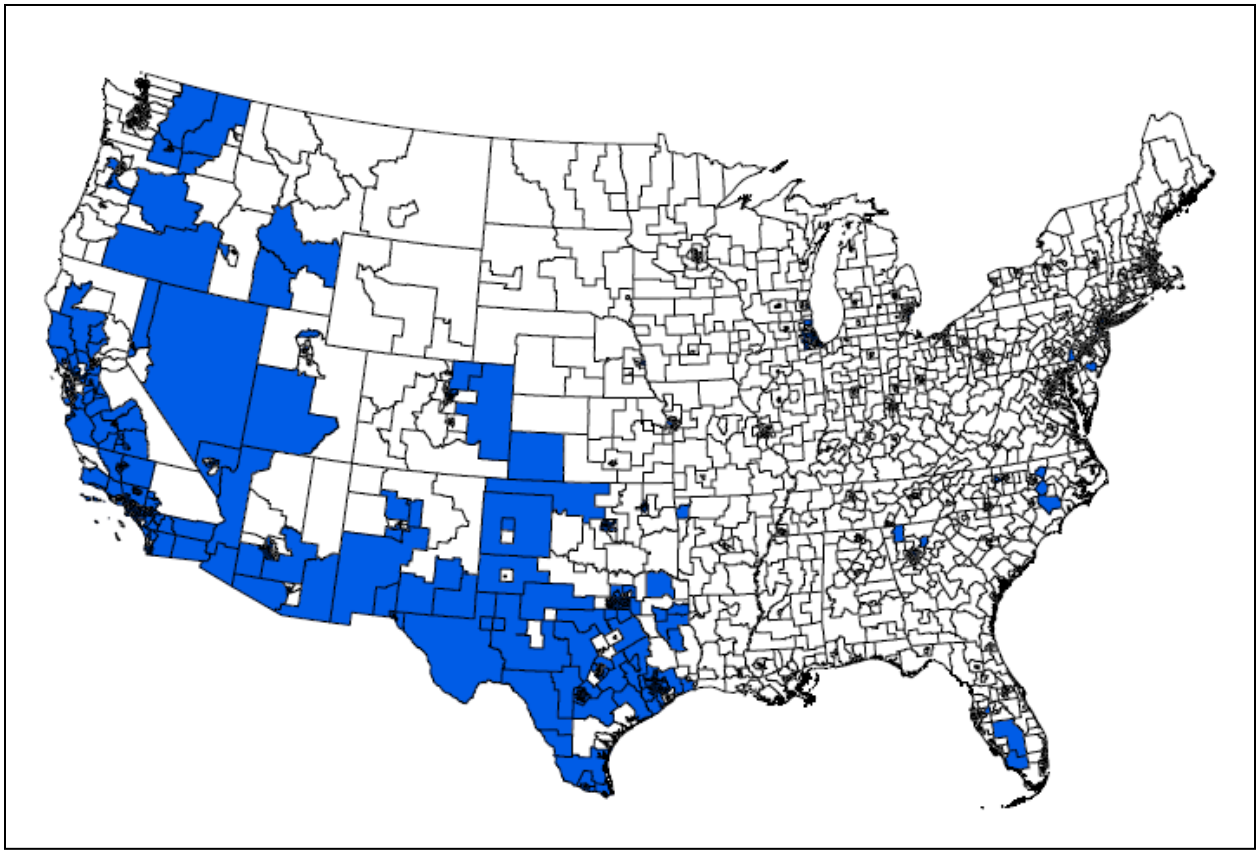

Figure 3. Selected Public Use Microdata Areas

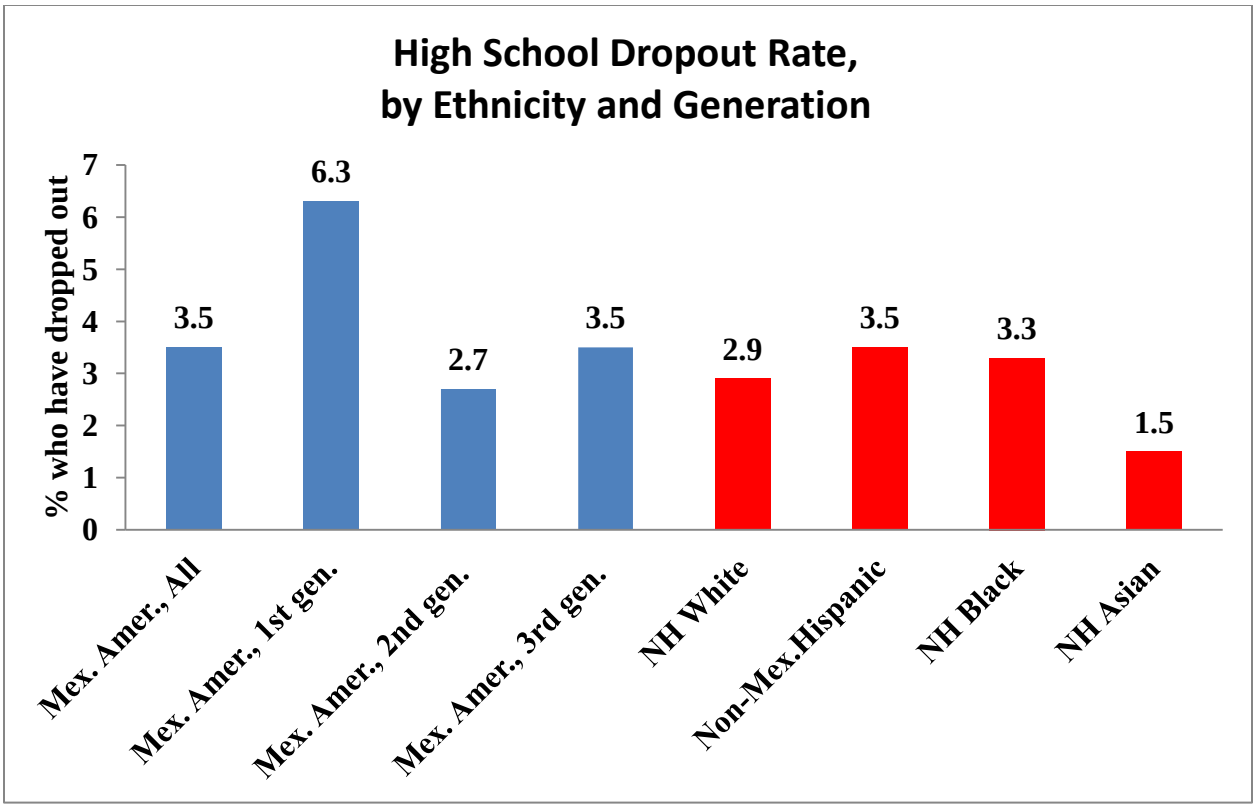

Figure 4. High School Dropout Rate, by Ethnicity and Generation

Table 1. Mean Values of Independent Variables: Mexican Americans, by Generation

Independent variable	All	1st gen.	2nd gen.	3rd gen.
Immigrant replenishment				
% foreign-born, Mexican-origin	36.3	39.0	37.8	32.2
Mean age at arrival, Mexican immigrants	19.9	20.0	19.9	19.9
Mean age, Mexican immigrants	39.9	38.8	39.9	40.4
Individual characteristics				
Age 17	0.476	0.482	0.471	0.482
Female	0.482	0.471	0.483	0.484
English proficient	0.895	0.733	0.903	0.963
Non-white	0.329	0.355	0.339	0.296
Household characteristics				
Family structure				
Single parent family	0.355	0.283	0.287	0.522
Number of co-resident siblings	1.9	2.0	2.0	1.6
Household head is not parent	0.061	0.064	0.042	0.095
Parental education				
High school dropout	0.451	0.616	0.532	0.210
High school graduate	0.214	0.212	0.210	0.222
Some college	0.240	0.106	0.184	0.417
Bachelor's degree or higher	0.095	0.066	0.073	0.151
Total parental earnings ($ 1000s)	37.5	26.3	34.9	48.2
Parents have US citizenship	0.479	0.087	0.311	1.000
Residential stability				
No move past decade	0.346	0.161	0.392	0.356
Changed residences 5 to 9 years ago	0.250	0.290	0.261	0.210
Changed residences 1 to 4 years ago	0.271	0.373	0.243	0.273
Changed residence past year	0.132	0.177	0.104	0.161
Contextual characteristics				
Poverty rate	20.2	20.5	20.5	19.6
Unemployment rate	12.1	11.9	12.4	11.6
Percent in professional occupations	22.4	22.5	21.7	23.6
Nonmetro	0.058	0.056	0.044	0.087
Ethnoracial composition				
% Mexican	46.5	43.7	47.4	46.3
% White/other	33.3	35.2	31.5	35.7
% Non-Mexican Hispanic	6.0	6.1	6.5	5.1
% Black	7.9	8.8	8.1	6.9
% Asian	6.4	6.1	6.6	6.0
State of residence				
California	0.480	0.395	0.536	0.417
Texas	0.301	0.314	0.251	0.389
Other States	0.219	0.291	0.213	0.194
Percent of all Mexicans	100.0	15.2	55.6	29.2
N (unweighted)	20,039	3,011	11,191	5,837

Table 2. Binary Logistic Regression of Mexican American High School Dropout (Odds Ratios)

Independent Variable	Model 1	Model 2	Model 3	Model 4
Immigrant generation (ref. = first generation)				
Second generation	0.429***	0.480***	0.555***	0.616***
Third generation	0.571***	0.663***	0.835	0.869
Individual characteristics				
Age 17	---	2.230***	2.265***	2.279***
Female	---	0.789**	0.781**	0.785**
English proficient	---	0.566***	0.623***	0.617***
Non-white	---	0.973	0.944	0.987
Household characteristics				
Family structure				
Single parent family	---	---	1.322**	1.309**
Number of co-resident siblings	---	---	1.056	1.060
Household head is not parent	---	---	1.476**	1.549**
Parental education (ref. = high school dropout)				
High school graduate	---	---	0.823	0.825
Some college	---	---	0.695**	0.722**
Bachelor's degree	---	---	0.412***	0.417***
Total parental earnings (in $1000s)	---	---	0.993***	0.993***
Parents have citizenship	---	---	0.975	0.996
Residential stability (ref. = no move past decade)				
Moved 5-9 years ago	---	---	1.264	1.247
Moved 1-4 years ago	---	---	1.336**	1.357**
Moved past year	---	---	1.673***	1.640***
Contextual characteristics				
Poverty rate	---	---	---	1.013
Unemployment rate	---	---	---	0.991
% in professional occupations	---	---	---	0.998
Nonmetro	---	---	---	0.752
Ethnoracial composition (ref. = % Mexican)				
% White/Other	---	---	---	1.006
% Non-Mex. Hispanic	---	---	---	1.005
% Black	---	---	---	1.012**
% Asian	---	---	---	0.995
State of residence (ref. = other states)				
California	---	---	---	0.458***
Texas	---	---	---	0.768*
Survey year (ref. = 2009)				
2010	0.784**	0.788**	0.787**	0.801*
2011	0.826	0.813*	0.820	0.828
Wald chi2	56.10	155.79	285.57	387.58
Pseudo R2	0.0130	0.0353	0.0616	0.0794

Note: *p<0.10; **p<0.05;***p<0.01

Table 3. Estimated Effect of Replenishment on High School Dropout: All Mexican Americans

Independent Variable	**Model 1**	**Model 2**
Immigrant Replenishment		
% foreign-born, Mexican-origin	0.998	0.997
Mean age at arrival, Mexican immigrants	1.015	1.012
Mean age, Mexican immigrants	0.989	0.989
Immigrant generation (ref. = first)		
Second	0.567***	0.617***
Third	0.776	0.866
Individual characteristics		
Age 17	2.265***	2.280***
Female	0.782**	0.785**
English proficient	---	0.617***
Non-white	0.982	0.987
Household characteristics		
Family structure		
Single parent family	1.319**	1.309**
Number of co-resident siblings	1.063	1.059
Household head is not parent	1.543**	1.549**
Parental education (ref. = high school dropout)		
High school graduate	0.814	0.826
Some college	0.714**	0.723**
College graduate	0.414***	0.418***
Total parental earnings (in $1000s)	0.993***	0.993***
Parents have citizenship	0.985	0.997
Residential stability (ref. = no move past decade)		
Moved 5-9 years ago	1.251	1.246
Moved 1-4 years ago	1.357**	1.354**
Moved past year	1.637***	1.633***
Contextual characteristics		
Poverty rate	1.011	1.012
Unemployment rate	0.990	0.992
% in professional occupations	0.999	0.999
Nonmetro	0.771	0.768
Ethnoracial composition (ref. = % Mexican)		
% White/Other	1.004	1.005
% Non-Mex. Hispanic	1.004	1.005
% Black	1.011*	1.011*
% Asian	0.993	0.994
State of residence (ref. = other states)		
California	0.468***	0.466***
Texas	0.759*	0.754*
Survey year (ref. = 2009)		
2010	0.801*	0.802*
2011	0.819	0.828
Wald chi2	373.92	390.64
Pseudo R2	0.0764	0.0795

Note: *p<0.10; **p<0.05;***p<0.01

Table 4. Estimated Effect of Replenishment on High School Dropout: First Generation Mexican Americans

Variable	Model 1	Model 2
Immigrant replenishment		
Percent foreign-born, Mexican-origin	0.975	0.973*
Mean age at arrival, Mexican immigrants	1.184	1.173
Mean age, Mexican immigrants	0.925*	0.923*
Individual characteristics		
Age 17	1.716***	1.777***
Female	0.770	0.787
English proficient	---	0.519***
Non-white	0.898	0.927
Household characteristics		
Single parent family	1.569*	1.609*
Number of co-resident siblings	1.101	1.093
Household head is not parent	1.562	1.523
Parental education		
High school graduate	0.582*	0.606*
Some college	0.559*	0.596
Bachelor's degree	0.349*	0.367*
Total parental earnings (in $1000s)	0.992	0.993
Parents have citizenship	1.142	1.112
Residential stability (reference = no move past decade)		
Changed residence 5-9 years ago	0.932	0.878
Changed residence 1-4 years ago	1.367	1.273
Changed residence past year	1.194	1.111
Contextual characteristics		
Poverty rate	1.000	1.002
Unemployment rate	1.006	1.009
Percent in professional occupations	0.988	0.989
Nonmetro	0.757	0.725
Ethnoracial composition (ref. = % Mexican)		
% White/Other	1.003	1.004
% Non-Mex. Hispanic	1.003	1.006
% Black	1.021*	1.021*
% Asian	1.005	1.005
State of residence (ref. = other states)		
California	1.073	1.036
Texas	0.799	0.790
Survey year		
2010	0.727	0.743
2011	0.919	0.963
Wald chi2	68.49	84.17
Pseudo R2	0.0617	0.0729

Note: *p<0.10; **p<0.05;***p<0.01

Table 5. Estimated Effect of Replenishment on High School Dropout: Second Generation Mexican Americans

Variable	Model 1	Model 2
Immigrant replenishment		
Percent foreign-born, Mexican-origin	1.024*	1.024*
Mean age at arrival, Mexican immigrants	0.982	0.980
Mean age, Mexican immigrants	1.046	1.047
Individual characteristics		
Age 17	2.267***	2.254***
Female	0.726**	0.728**
English proficient	---	0.685*
Non-white	1.014	1.011
Household characteristics		
Family structure		
Single parent family	1.316	1.299
Number of co-resident siblings	1.141**	1.139**
Household head is not parent	2.151***	2.169***
Parental education (ref. = high school dropout)		
High school graduate	1.115	1.120
Some college	0.959	0.963
College graduate	0.221***	0.220***
Total parental earnings (in $1000s)	0.997	0.997
Parents have citizenship	0.918	0.931
Residential stability (ref. = no move past decade)		
Moved 5-9 years ago	1.390	1.389
Moved 1-4 years ago	1.251	1.257
Moved past year	1.950**	1.960**
Contextual characteristics		
Poverty rate	1.013	1.014
Unemployment rate	0.982	0.984
% if professional occupations	0.993	0.994
Nonmetro	0.889	0.896
Ethnoracial Composition (ref. = % Mexican)		
% White/Other	1.010	1.011
% Non-Mex. Hispanic	0.990	0.990
% Black	1.009	1.009
% Asian	0.997	0.997
State of residence		
California	0.336***	0.337***
Texas	0.952	0.946
Survey year (year = 2009)		
2010	0.805	0.798
2011	0.705*	0.707*
Wald chi2	178.26	180.02
Pseudo R2	0.0804	0.0820

Note: *p<0.10; **p<0.05;***p<0.01

Table 6. Estimated Effect of Replenishment on High School Dropout: Third Generation Mexican Americans

Variable	Model 1	Model 2
Immigrant replenishment		
Percent foreign-born, Mexican-origin	0.989	0.989
Mean age at arrival, Mexican immigrants	0.903	0.903
Mean age, Mexican immigrants	0.971	0.971
Individual characteristics		
Age 17	2.902***	2.902***
Female	0.778	0.777
English proficient	---	1.068
Non-white	1.027	1.027
Household characteristics		
Family structure		
Single parent family	1.108	1.109
Number of co-resident siblings	0.931	0.932
Household head is not parent	1.076	1.075
Parental education		
High school graduate	0.670	0.669
Some college	0.579**	0.578**
Bachelor's degree	0.568*	0.568*
Total parental earnings (in $1000s)	0.988***	0.988***
Parents have citizenship	---	---
Residential stability (ref. = no move past decade)		
Moved 5-9 years ago	1.316	1.316
Moved 1-4 years ago	1.300	1.301
Moved past year	1.618*	1.618*
Contextual characteristics		
Poverty rate	1.027	1.027
Unemployment rate	0.977	0.977
% in professional occupations	1.022	1.022
Nonmetro	0.714	0.714
Ethnoracial composition (ref. = percent Mexican)		
% White/Other	0.998	0.998
% Non-Mex. Hispanic	1.038**	1.038**
% Black	1.011	1.011
% Asian	0.970	0.970
State of residence (ref. = other states)		
California	0.406**	0.406**
Texas	0.529**	0.529**
Survey year (ref. = 2009)		
2010	0.841	0.840
2011	0.875	0.874
Wald chi2	140.61	140.69
Pseudo R2	0.1043	0.1043

Note: *p<0.10; **p<0.05;***p<0.01

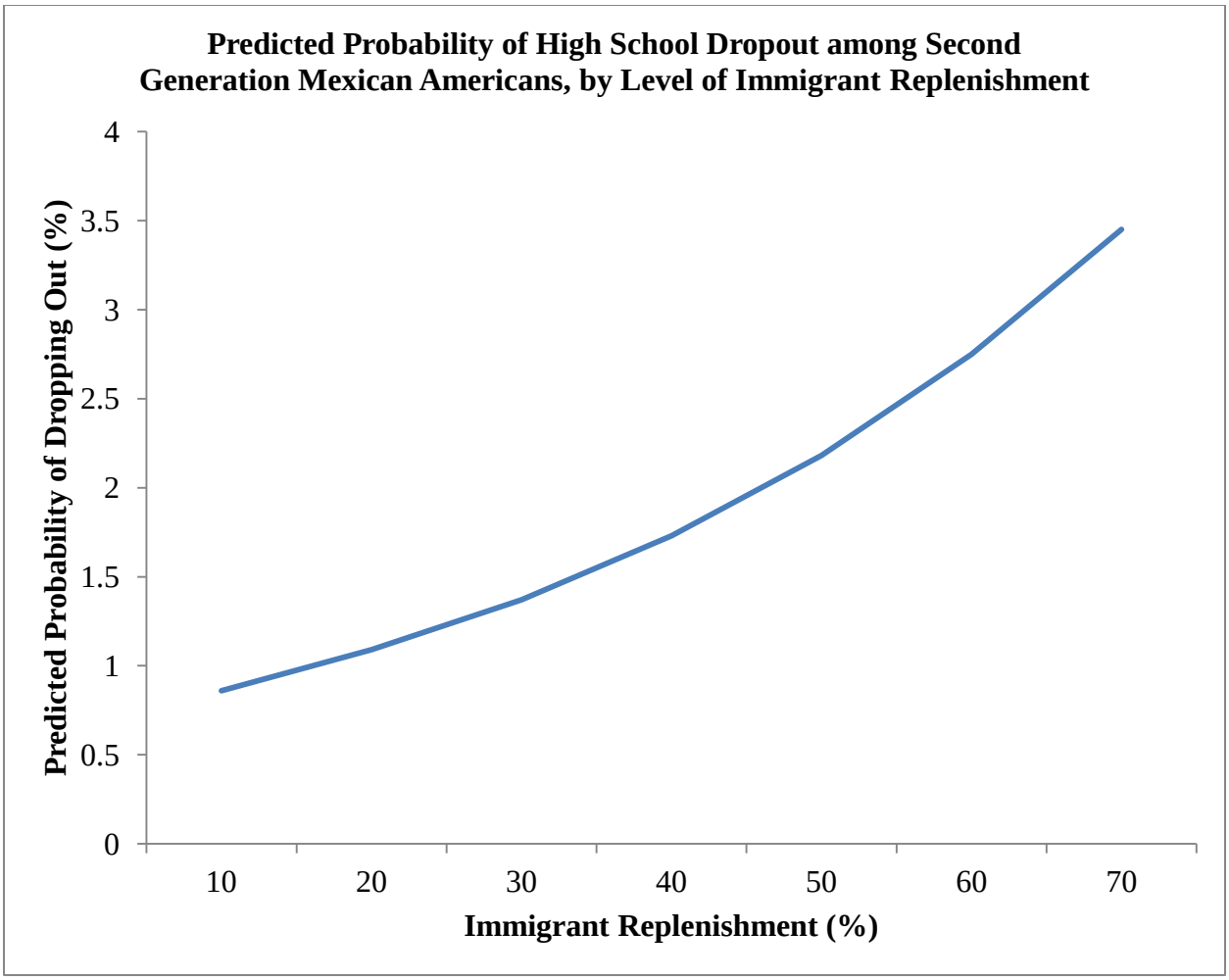

Figure 5. Predicted Probability of High School Dropout among Second Generation Mexican Americans, by Level of Immigrant Replenishment