PAA 2015 Annual Meeting
Extended Abstract

Harmful or helpful? School Racial/Ethnic and Socioeconomic Composition and the Educational Outcomes of Mexican Origin Youth

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Introduction

Mexican origin youth are one of the most educationally disadvantaged racial/ethnic subgroups in U.S. schools. Mexican origin students exhibit large educational gaps with non-Latino white students throughout the schooling pipeline (Schneider, Martinez, and Owens 2006). High school, however, is a critical juncture for this group. Mexican origin adolescents, including the U.S.-born second and third generations, have a significantly higher risk of dropping out of school than their non-Latino peers (Landale, Oropesa, and Llanes 1998). Mexican origin students that remain enrolled in high school are underprepared to pursue a 4-year college degree, with lower than average levels of students taking Advanced Placement and Scholastic Assessment Tests (Schneider, Martinez, and Owens 2006). Mexican origin Latino 18-24 year-olds who stay enrolled in school and attain a high school degree are also less likely to enroll in college than both non-Latino white and non-Latino black high school graduates (Fry 2002).

In this paper, I examine how school racial/ethnic and socioeconomic composition influences the longitudinal educational outcomes of Mexican origin high school students. Research on educational stratification shows that the unequal sorting of students across schools can exacerbate educational disadvantages among racial/ethnic minority and socioeconomically disadvantaged students. The Coleman Report (1966) found that most

variation in student achievement outcomes occurred within schools rather than between schools. However, Coleman also showed that differences in the socioeconomic composition of students across schools contributed significantly to between-school variation in student outcomes, net of individual and household background characteristics. Several more recent studies confirm that the average socioeconomic status of students in schools has a positive association with educational outcomes for students from all socioeconomic backgrounds (Palardy 2013; Rumberger and Palardy 2005). Research on the effects of school racial segregation has also demonstrated the negative impact of school segregation on minority student achievement, and the long-term benefits of school desegregation for students' educational and occupational outcomes (Hanushek, Kain, Rivkin 2002; Wells and Crain 1994).

The theory of segmented assimilation proposes that school composition plays an instrumental role in shaping pathways of immigrant integration, particularly "downward assimilation" (Portes and Rumbaut 2001; Portes and Zhou 1993; Zhou 1997a; Zhou 1997b). Portes and Rumbaut (2001) argue that the children of Mexican immigrants are at risk of downward assimilation because they are vulnerable to the negative influence of high-minority, high-poverty schooling contexts on their educational outcomes. They posit that second-generation Mexican origin youth confront segregated schooling contexts with insufficient protective household and co-ethnic community resources, which increases their risk of detachment from schooling.

Using nationally representative data, Crosnoe (2005) has confirmed that elementary school children from Mexican immigrant families disproportionately attend schools with higher proportions of minority and socioeconomically disadvantaged

students relative to students with similar family background characteristics. He further shows that Mexican origin elementary school students in high-minority, high-poverty schooling contexts have lower levels of math achievement, mental health indicators, and interpersonal functioning relative to comparable peers in other schools.

A number of studies, however, challenge the assertion that Mexican origin youth are harmed educationally by attending high-minority, high-poverty schools. In fact, researchers have shown that low-income Latinos (Crosnoe 2009), low-income second-generation immigrants (Portes and MacLeod 1995), and second-generation Mexican origin youth (Portes and Hao 2006) exhibit worse educational outcomes as they attend schools with higher proportions of non-Latino white and/or non-poor students in schools. This raises a key question: Does increasing exposure to non-Latino white and non-poor students have a positive or negative influence on the educational outcomes of the children and descendants of Mexican immigrants in U.S. high schools?

My research analyzes data from the Educational Longitudinal Study of 2002 in order to answer this question. I evaluate the relationships between the racial/ethnic and socioeconomic composition of schools attended by Mexican origin youth in 10th grade and five longitudinal educational outcomes: Dropout (by 12th grade), college readiness (in 12th grade), academic achievement (in 12th grade), college enrollment (by 2 years after 12th grade), and college persistence (by 2 years after 12th grade). I test the hypothesis that Mexican origin youth experience worse educational outcomes as the proportion of non-Latino white and non-poor students in the school increases. In future research, I also plan to evaluate how the nativity composition of students in the school relates to these five educational outcomes.

Data and Sample

I conduct a quantitative analysis of data from the restricted-use Educational Longitudinal Study of 2002 (ELS:2002) from the Institute of Education Sciences/National Center for Education Statistics. The ELS:2002 includes a nationally representative sample of approximately 16,200 students nested in 750 schools throughout the United States. Samples were drawn using a two-stage design; schools were sampled first using a probability proportional to size sampling technique, and students within schools were subsequently sampled via random sampling. As a longitudinal dataset, the ELS:2002 includes three waves of data available for analysis: 1) Baseline data from students in 10th grade; 2) Data from the first follow-up, two years after 10th grade (12th grade); 3) Data from the second follow-up, four years after 10th grade (postsecondary years).

For the extended abstract, I restrict the analysis to the sample of students who participated in the baseline ELS:2002 survey in 10th grade and the first follow-up in 12th grade (n=14,650). I identify five racial/ethnic subgroups in the ELS:2002 sample using variables on racial and Hispanic ethnic identification: Mexican origin Latino/a of any race (n= 1,300), Other Latino/a of any race (n=690), non-Latino white (n=8,080), non-Latino black (n=1,840), non-Latino Asian (n=1,280), and "Other Race" non-Latinos (n=810).[1] (There are approximately 650 cases that are missing data on racial identification and Hispanic ethnicity). I use information on parental nativity and student nativity to categorize students into immigrant generational status groups (Rumbaut 2004). Students are classified as first generation (foreign-born), second generation (U.S.-born

[1] Sample sizes have been rounded in order to comply with the Institute of Education Sciences restricted-use data requirements.

with one or two foreign-born parents), or third and higher generation (U.S.-born with U.S.-born parents).

Variables

The five dependent variables of interest are dropout at the first follow-up (12th grade), college preparation at the first follow-up (12th grade), student achievement at the first follow-up (12th grade), college enrollment by the second follow-up (two years after 12th grade), and college persistence by the second follow-up (two years after 12th grade). I will create a composite measure for college preparation, using data on whether the student took the SAT/ACT and enrolled in Advanced Placement and upper-level math courses. I will create a composite measure of student achievement in 12th grade using a composite English/Math standardized test score in 12th grade and student transcript data on cumulative high school GPA. In this analysis, however, I use SAT/ACT completion and standardized math test scores in 12th grade as dependent variables.

The school-level independent variables of interest are student racial/ethnic and socioeconomic composition in the base-year (10th grade). Although the ELS:2002 dataset includes measures from the Common Core of Data on the percentage of students who are minorities and the percentage of students who are eligible for free and reduced-price lunch, these variables have a high number of missing values. For this reason, I use student-level data in the ELS:2002 to construct aggregate school compositional measures. I assign these aggregate school characteristics to individual students based on the school identification number. The base-year ELS:2002 sample includes approximately 26 students sampled randomly from each school. Some students were oversampled, such as Asians and Pacific Islanders. The ELS:2002 does not include a within-school sample

weight, so there is no way to determine exactly how many students each case in the ELS:2002 represents within his/her school. However, I use the base-year student weights in the ELS:2002 as a proxy for within-school weights.

To calculate the percent of white students in the school, I multiply the number of white students sampled in the school by the corresponding base-year student weights for these cases, and then divide by the total number of students sampled in the school multiplied by their base-year student weights, which approximates the total enrollment of students in the school.

For each student *i* in school *j*, the percent white in the school is calculated as follows:

$[(\Sigma\ (=1 \text{ if } Student_{ij} \text{ is White})*(\text{Base-Year Weight for } Student_{ij} \text{ if } Student_{ij} \text{ is White}))/$

$\Sigma\ (=1 \text{ if } Student_{ij})*(\text{Base-Year Weight for } Student_{ij})] * 100$

The average socioeconomic status of students in the school is similarly calculated by using student-level data to create an aggregate school-level measure that is assigned to students through the school identification number. The ELS:2002 includes a student-level index variable for household socioeconomic status that incorporates information on household income, parental education, and parental occupational characteristics. The student-level composite SES variable is normally distributed with a mean of zero and a standard deviation of 1.0. I multiply the socioeconomic index variable for each student sampled in the school by the corresponding base-year student weight, and divide this amount by the total number of students in the school multiplied by their corresponding sample weights, representing the total number of students in the school.

For each student *i* in school *j*, the average SES of the school is calculated as follows:

$(\Sigma\ (=\text{SES of } Student_{ij})*(\text{Base-Year Weight for } Student_{ij}))/$

Σ (=1 if $Student_{ij}$)*(Base-Year Weight for $Student_{ij}$)

Analytic Approach

I begin by examining the distribution of Mexican origin Latino/a youth across schools on measures of school racial/ethnic and socioeconomic composition. I evaluate differences in school composition between Mexican origin youth and their peers.[2] To account for differences in student-, household-, and school-level factors that may influence the distribution of students across schools, I calculate predicted school compositional characteristics by estimating ordinary least squares models that adjust for factors such as household socioeconomic status, family composition, student mobility, and school sector and location.

After characterizing the distribution of Mexican origin youth across schools, I evaluate the relationships between school racial/ethnic and socioeconomic compositional characteristics in 10th grade and the five dependent variables of interest at the first and second follow-ups. In this analysis, I focus only on the dependent variables at the first follow-up (12th grade). In future work, I will focus on the dependent variables at both the first and second follow-ups. I will also use multilevel statistical models to examine whether the outcomes of interest vary between Mexican origin youth across schools according to school compositional characteristics. Finally, I will control for student- and household-level variables related to selection into schools (socioeconomic status, prior achievement, mobility), and school-level variables that may mediate the relationship between school compositional characteristics and student outcomes (school structure, school resources, etc.)

[2] I incorporate the ELS:2002 weights into all descriptive analyses in order to account for non-response and unequal sampling probabilities.

Preliminary Results

Figures 1 and 2 display how Mexican origin youth are distributed across schools by the percent of non-Latino white students in the school and average school socioeconomic status (SES), respectively. These figures show that Mexican origin Latino/a 10th graders attend schools with the lowest proportion of white students, and the highest proportion of socioeconomically disadvantaged students, compared to any other racial/ethnic subgroup in the ELS:2002.

[Figures 1 and 2 about here]

Figures 3 and 4 plot the predicted percentage of non-Latino white students in the school and predicted average school SES, respectively, adjusting for differences in student and household background characteristics such as socioeconomic status and family composition, and school characteristics such as school sector (public/private) and urbanicity. Even after adjusting for student, household, and school background characteristics, Mexican origin youth still attend schools with lower percentages of non-Latino white students and lower mean SES compared to non-Latino white students. Additionally, Mexican origin youth show limited evidence of spatial assimilation across schools by immigrant generational status. Third and higher generation Mexican origin youth attend schools with higher percentages of non-Latino white students and higher mean SES than their foreign-born and second-generation counterparts. However, even third and higher generation Mexican origin youth have large gaps in the percent of non-Latino white students in the school and mean school SES with third and higher generation non-Latino white students.

[Figures 3 and 4 about here]

Next, I characterize the bivariate relationships between school compositional characteristics and three educational outcomes at the first follow-up (12th grade) for Mexican origin youth: dropout, SAT/ACT completion, and math achievement. The dropout measure assesses whether students ever dropped out of school at any time between 10th grade and the first follow-up (12th grade). The SAT/ACT completion measure assesses whether students have taken or plan to take the SAT or ACT exam/s. The math achievement measure is a norm-referenced standardized test score from proficiency exams that were administered to students in the ELS:2002 in the first follow-up (12th grade). For all students in the ELS:2002, the standardized math test score is normally distributed with a mean of 50.0 and a standard deviation of 10.0.

Table 1 displays patterns of school dropout, ACT/SAT completion, and math achievement for the Mexican origin population and Mexican origin immigrant generational subgroups by the percent of non-Latino white students in the school. Students are divided into quartiles based on the overall distribution of the Mexican origin population across schools by the percent of non-Latino white students in the school. If attending a high-minority school has a negative impact on Mexican origin educational outcomes, then Mexican origin youth should exhibit better educational outcomes—lower probabilities of dropout, higher probabilities of SAT/ACT completion, and higher test scores—as the percentage of non-Latino white students in the school increases. Table 1 largely confirms this pattern, both for the overall Mexican origin population and for Mexican origin generational subgroups. Mexican origin groups in the first quartile, the schools with the greatest concentrations of non-white students, have the highest probability of dropout, lowest probability of taking the SAT and/or ACT, and the lowest

math achievement scores.[3] These outcomes improve from the first to the fourth quartile of the percent non-Latino white students in the school, with the largest degree of improvement between the first and the second quartile.

[Table 1 about here]

Table 2 reveals a similar pattern for the relationship between school socioeconomic composition and dropout, SAT/ACT completion, and math achievement for the overall Mexican origin population in the ELS:2002. The probability of dropout decreases, the probability of SAT/ACT completion increases, and math test scores increase as the average socioeconomic status of the school increases. This pattern is also apparent in the mean estimates for the two U.S.-born Mexican origin groups, but is less striking for the Mexican origin foreign-born groups.

[Table 2 about here]

The bivariate results in Tables 1 and 2 support the claim in the educational stratification and segmented assimilation literatures that segregation in high-minority, high-poverty schools is associated with disadvantaged educational outcomes among the children and descendants of Mexican immigrants. However, bivariate models do not account for mechanisms of selection into schools. Students may be sorted across schools by background factors that also influence dropout, college preparation, and achievement. In future work, I will control for these factors using multilevel statistical models. I will also incorporate continuous measures of school composition into multilevel models, rather than dividing students into quartiles. In this way, I can determine whether

[3] The Mexican origin third and higher generation subgroup in the first quartile appears to be somewhat anomalous, with lower levels of dropout, higher levels of SAT/ACT completion, and higher test scores than would be expected given the overall patterns in the data. I will explore these results further in future research.

Mexican origin educational outcomes change significantly given a proportional increase in the percent of non-Latino white students in the school and average school SES, controlling for background factors related to sorting into schools. I will also examine variables at the school level that may mediate the relationships between school composition and Mexican origin outcomes, such as school structure and school resources.

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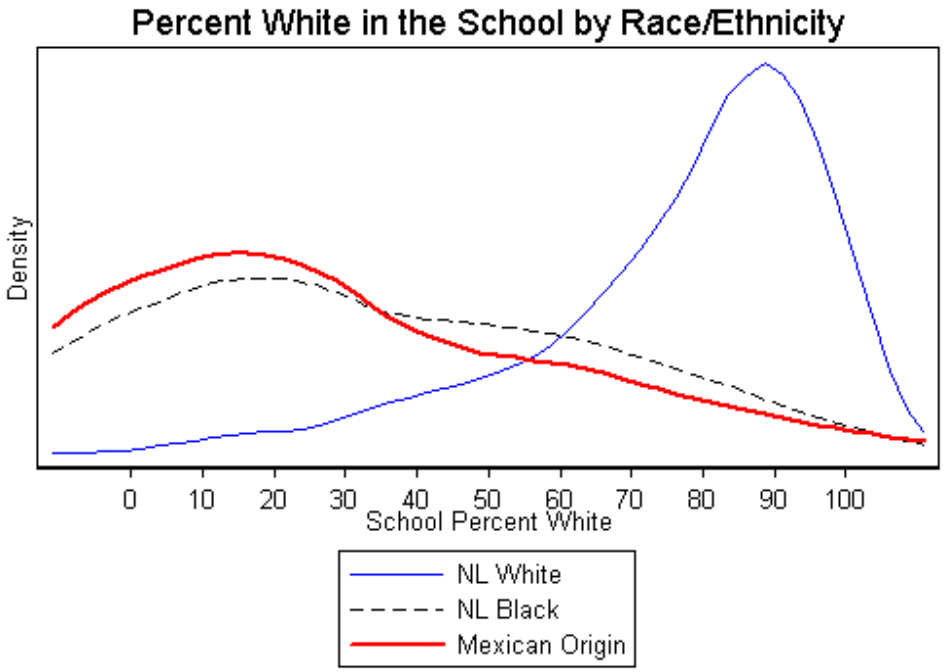

Figure 1. Kernel density distribution of Mexican origin, non-Latino white, and non-Latino black 10th grade students in the ELS:2002 across schools by the percent of non-Latino white students in the school.

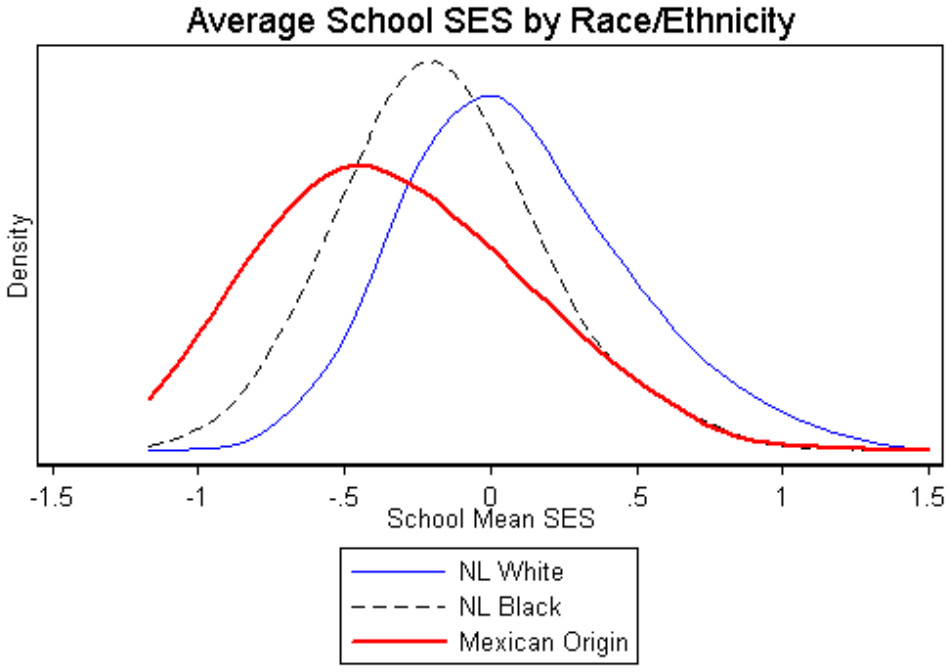

Figure 2. Kernel density distribution of Mexican origin, non-Latino white, and non-Latino black 10th grade students in the ELS:2002 across schools by the average socioeconomic status of students in the school.

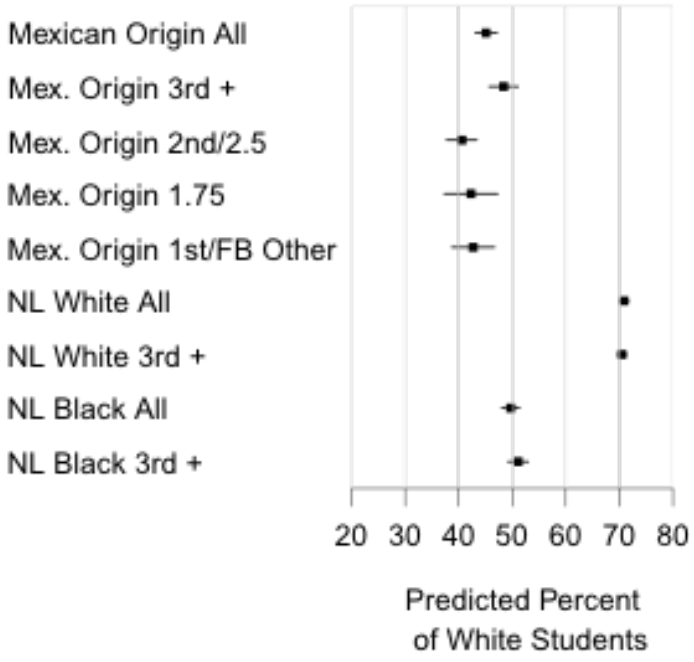

Figure 3. Predicted percent of non-Latino white students in the school for Mexican origin, non-Latino white, and non-Latino black 10th graders, by immigrant generational status, ELS:2002.

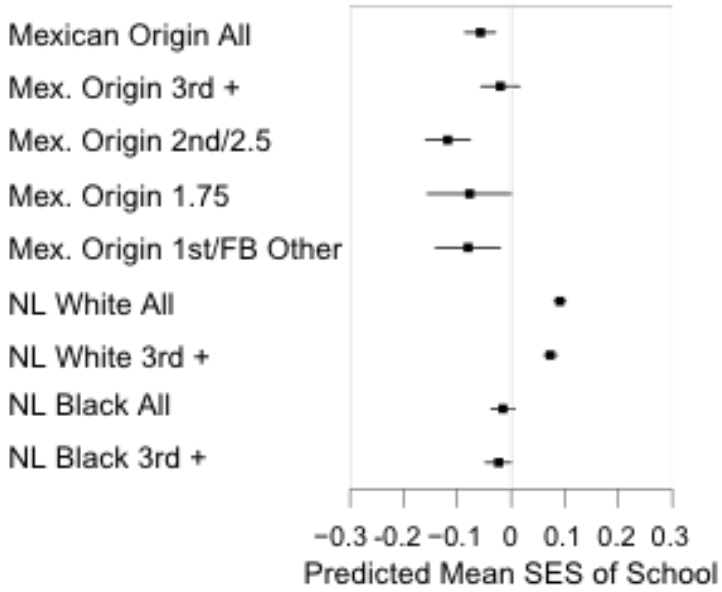

Figure 4. Predicted average socioeconomic status of the school for Mexican origin, non-Latino white, and non-Latino black 10th graders, by immigrant generational status, ELS:2002.

Table 1. School dropout, ACT/SAT completion, and Math achievement at first follow-up (12th grade), by race/ethnicity, generational status, and school racial/ethnic composition in 10th grade, ELS:2002.

	School Dropout		Took SAT/ACT		Math Achievement		
	Est.	S.E.	Est.	S.E.	Est.	S.E.	n[a]
Non-Mexican Origin (Overall)	6.2%	0.3%	73.2%	0.6%	43.9	0.3	13350
Mexican Origin (Overall)	11.0%	1.2%	58.0%	1.8%	35.8	0.8	1310
Mexican Origin:							
School % White- 1st Quartile[b]	16.2%	2.1%	52.8%	4.4%	32.2	1.8	330
School % White- 2nd Quartile	10.9%	2.0%	56.7%	2.9%	33.9	1.1	310
School % White- 3rd Quartile	9.9%	2.9%	58.6%	3.7%	36.5	1.9	270
School % White- 4th Quartile	7.0%	1.8%	63.6%	3.7%	40.6	1.4	400
Mexican Origin 3rd + Generation:							
School % White- 1st Quartile	2.7%	2.5%	66.7%	7.7%	43.7	1.8	70
School % White- 2nd Quartile	12.0%	4.3%	61.2%	6.6%	34.1	3.5	80
School % White- 3rd Quartile	10.1%	4.6%	61.7%	5.2%	38.2	2.7	100
School % White- 4th Quartile	7.0%	2.7%	71.9%	5.0%	42.1	1.9	190
Mexican Origin 2nd Generation:							
School % White- 1st Quartile	18.0%	4.0%	45.7%	6.1%	30.5	2.9	120
School % White- 2nd Quartile	8.3%	2.9%	57.5%	5.4%	36.5	2.0	120
School % White- 3rd Quartile	8.9%	4.7%	56.7%	7.6%	36.9	2.8	90
School % White- 4th Quartile	5.5%	2.8%	60.9%	5.3%	40.6	2.6	114
Mexican Origin Foreign Born:							
School % White- 1st Quartile	19.7%	5.4%	49.5%	5.8%	29.9	3.0	90
School % White- 2nd Quartile	8.4%	3.2%	57.4%	5.5%	34.4	1.9	70
School % White- 3rd Quartile	5.6%	3.5%	62.7%	8.9%	38.3	2.3	60
School % White- 4th Quartile	8.5%	4.3%	47.0%	7.5%	38.0	4.1	54

[a]Sample sizes have been rounded to comply with the restricted-use data regulations from the Institute of Education Sciences.

[b] Quartiles are established by evaluating the distribution of the (weighted) Mexican origin sample across schools: 1st quartile=0-5.1% non-Latino White, 2nd quartile=5.2-15.1% NL White, 3rd quartile=15.2-43.3% NL White, 4th quartile=43.4-99.3% NL White.

Table 2. School dropout, ACT/SAT completion, and Math achievement at first follow-up (12th grade), by race/ethnicity, generational status, and average school socioeconomic composition in 10th grade, ELS:2002.

	School Dropout		Took SAT/ACT		Math Achievement		
	Est.	S.E.	Est.	S.E.	Est.	S.E.	n[a]
Non-Mexican Origin (All)	6.2%	0.3%	73.2%	0.6%	43.9	0.3	13350
Mexican Origin (All)	11.0%	1.2%	58.0%	1.8%	35.8	0.8	1310
Mexican Origin:							
School % White- 1st Quartile[b]	15.5%	2.2%	52.9%	3.9%	32.0	1.6	240
School % White- 2nd Quartile	12.5%	2.3%	56.2%	3.6%	33.7	1.5	380
School % White- 3rd Quartile	8.6%	2.1%	54.9%	4.0%	37.1	1.4	310
School % White- 4th Quartile	7.6%	2.3%	67.6%	3.2%	40.5	1.8	380
Mexican Origin 3rd + Generation:							
School % White- 1st Quartile	6.7%	5.7%	55.8%	11.0%	39.4	5.0	40
School % White- 2nd Quartile	16.2%	5.8%	62.1%	6.0%	34.4	3.6	90
School % White- 3rd Quartile	4.6%	2.1%	60.7%	5.4%	40.5	1.6	120
School % White- 4th Quartile	6.5%	2.9%	76.1%	4.3%	42.5	2.3	190
Mexican Origin 2nd Generation:							
School % White- 1st Quartile	21.0%	4.0%	45.4%	5.7%	29.9	2.8	100
School % White- 2nd Quartile	6.8%	2.1%	54.5%	6.4%	35.4	1.9	140
School % White- 3rd Quartile	5.2%	2.3%	60.7%	6.5%	37.7	2.4	100
School % White- 4th Quartile	7.5%	4.4%	61.1%	5.4%	42.2	2.5	110
Mexican Origin Foreign Born:							
School % White- 1st Quartile	9.3%	4.9%	59.2%	6.0%	34.4	3.0	70
School % White- 2nd Quartile	13.2%	4.4%	54.0%	6.3%	33.2	2.5	90
School % White- 3rd Quartile	11.9%	4.2%	47.0%	7.1%	37.4	2.9	60
School % White- 4th Quartile	11.3%	5.5%	55.3%	9.0%	33.1	3.9	50

[a]Sample sizes have been rounded to comply with the restricted-use data regulations from the Institute of Education Sciences.

[b] Quartiles are established by evaluating the distribution of the (weighted) Mexican origin sample across schools: 1st quartile=-1.018- -.654, 2nd quartile=-.653- -.388, 3rd quartile=-.387- -.044, 4th quartile=-.044- 1.285