School Stratification in New and Established Latino Destinations

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Abstract

The size, growth, and geographic diversification of the school-age Latino population suggests that schools in areas that previously had very few Latinos now provide the primary source of education for these students. This study uses data from the 1999-2000 Schools and Staffing Survey and the Educational Longitudinal Study 2002 to compare characteristics of public high schools in new and established Latino destinations. Specifically, we examine school demographic characteristics, quality of education, linguistic support services, and Latino students' access to advanced math courses. Findings show that while schools in new Latino destinations appear stronger financially and academically, they offer fewer and less systematic linguistic support services than schools in established destinations. In addition, the Latino-White gap in college preparatory math course-taking is larger in schools in new destinations, suggesting greater educational stratification in those schools.

Key Words

New destinations
Latinos
Hispanics
Education
Schools
Stratification

Introduction

Over the past two decades, the United States has experienced a substantial increase in its Latino population. Numbering an estimated 48.4 million, Latinos now comprise approximately 15% of the country's total population and are the nation's largest minority group (Saenz 2010; U.S. Census Bureau 2008). The Latino youth population in particular represents one of the largest and fastest-growing segments of the U.S. youth population. The share of children under age 17 who are Latino is expected to increase from 20% in 2005 to 35% in 2050 (Passel and Cohn 2008). This growth has occurred alongside an unprecedented geographic diversification of Latinos (Lichter and Johnson 2009). Once characterized by their concentration in a handful of traditional or "established" Latino settlement states such as California, Texas, and Arizona, Latinos are now becoming increasingly dispersed across the country, with many moving to states that previously had very few Latino residents (Fry 2008; Kandel and Cromartie 2004; Liaw and Frey 2007). While established Latino states still remain home to the majority of the country's Latino population, their overall share of Latinos has decreased since the 1990s (Guzmán and McConnell 2002). In contrast, the proportion of Latinos in twenty-two "new growth" states, mainly in the Southeast and Midwest, has increased dramatically (Capps, Fix and Passel 2002; Fischer and Tienda 2006). In particular, North Carolina, Georgia, and Arkansas have experienced the greatest growth in their Latino population since 1990 (Pew Hispanic Center 2009). Recent settlement patterns also point to a shift away from traditional urban centers and toward rural, small town, and suburban areas around the country (Lichter and Johnson 2006; Massey and Capoferro 2008). In fact, Latinos now represent the fastest-growing population in rural and small-town America (Kandel and Cromartie 2004).

This dramatic population growth and redistribution has reshaped the racial and ethnic landscape in new destination communities, and as a result, carry a number of individual and community-level implications that warrant increased research attention. Education represents one realm in which the implications of this population change are likely to be particularly acute. The size and growth of the school-age Latino population and the movement of Latinos into rural, small town, and suburban communities around the country suggests that schools and educators in areas that previously had very few Latinos now provide a primary source of education for these students, many of whom possess socio-demographic characteristics that may place them at a disadvantage in the U.S. public education system. For example, although the majority of Latino students in public schools are native-born, approximately two-thirds of them have at least one foreign-born parent (Fry and Gonzales 2008). Moreover, many Latinos in new destinations are foreign-born (Lichter and Johnson 2009). This implies that many Latino students and parents, especially those in new destinations, may be unfamiliar with the U.S. education system and norms (López 2001). In addition, approximately 70% of Latino public high school students report speaking a language other than English in the home, and of those, approximately 18% report difficulty speaking English. Latino public school students are also disproportionately more likely than their non-Latino counterparts to live in poverty and, of all the major racial and ethnic groups in the U.S., are the least likely to have college-educated parents (Koball, Chau and Douglas-Hall 2006). Furthermore, about half of all Latino public school students identify as nonwhite, placing them at increased risk of racial discrimination (Fry and Gonzales 2008). Thus, research is needed to assess how schools in new Latino destinations are accommodating the academic, social, and linguistic needs of this group of students.

Despite a substantial body of literature that shows that both destination and school factors matter for the educational outcomes and socioeconomic integration of immigrant and minority children (Pong and Hao 2007; Portes and MacLeod 1996; Portes and Zhou 1993), few studies have examined school contexts in new Latino destinations. Still fewer studies have systematically compared school contexts in new and established Latino destinations to test whether significant differences exist (Stamps and Bohon 2006). Indeed, the current literature on Latino education is based almost entirely on the experiences of Latinos in established destinations, in part because the geographic diversification of Latinos is a relatively recent phenomenon (Marrow 2005). Therefore, we know little about the schools that Latinos in new destinations attend and how they compare with schools in established destinations.

The central purpose of our study is to analyze the educational landscape in new Latino destinations in terms of school demographic characteristics, resources, services, and access to learning opportunities for Latino students. Specifically, we investigate the following questions: 1) Do the characteristics of public high schools and educators in new Latino destinations differ from those of public high schools and educators in established Latino destinations? and 2) Does access to learning opportunities for Latino students vary by destination type? We explore these questions through a two-part analysis. The first part addresses our first research question by using data from the 1999-2000 Schools and Staffing Survey (SASS) to create a large-scale comparative descriptive portrait of public school and educator characteristics in new and established Latino destinations. The second part addresses our second research question by using data from the Educational Longitudinal Study 2002 (ELS: 2002) to analyze variation in exposure to advanced courses—which we measure as the Latino-White gap in college preparatory math course-taking—by destination type. Our study fills a gap in the existing literature on education in

new Latino destinations by providing a national-level profile of schools and educational opportunity in those areas. Findings offer insight into the school contexts of Latino high school students in new destinations and contribute to a growing body of research that will help researchers to assess the extent to which the current integration literature captures the experiences of Latino youth in new destinations (Alba et al. 2010; Marrow 2005).

Schools, Place, and the Integration of Latino Youth

Theories of immigrant and minority integration conceptualize contextual factors as important predictors of socioeconomic integration (Portes and Zhou 1993). Segmented assimilation theory in particular underscores the role that context of reception plays—in combination with individual-level characteristics—in shaping the incorporation process for immigrants and minorities. Context of reception is influenced by a number of factors including location of residence, size and structure of the co-ethnic community, and values of the receiving community, among others (Portes and Zhou 1993; Zhou 1997). Our study explores how the intersection of two sets of receiving contexts—school and place-level factors—shapes educational access and learning opportunities for Latino students.

For immigrant and minority youth, schools comprise a critical context of reception since they represent a primary site of social and bureaucratic incorporation and provide the knowledge and skills necessary to pursue postsecondary education and employment. Researchers have identified several school-level characteristics that are associated with the educational outcomes and socioeconomic integration of immigrant and minority youth. Portes and Zhou (1993) emphasize the role of school socioeconomic status and the concentration of minority students within schools. They contend that children of immigrants who reside in low-income urban areas are more likely to attend resource-poor schools where they come into contact with the anti-

education “oppositional culture” of some minority youth of native parentage. Exposure to poor quality of education and/or the adoption of adversarial attitudes toward education may threaten academic success and place these students at greater risk for downward mobility. Portes and MacLeod’s (1996) findings offer some support for this hypothesis. Their study reveals a positive relationship between first and second-generation students’ math test scores and attendance at high SES, suburban schools.

Hao and Pong (2008) stress the importance of other school-level variables, such as curriculum, college preparatory programs, and student-teacher relations. They classify these school factors into two categories: structural attributes and relational attributes. Structural attributes refer to variables such as school sector, demographic composition, enrollment size, curriculum, and course and program offerings. Relational attributes refer to the academic press of the school, teachers and administrators’ sense of collective responsibility for the education of students in the school, teachers’ perceptions of student effort and ability, and teacher-student relations. They find that both sets of school attributes predict post-secondary outcomes of children of immigrants. Determining what these and other school attributes look like in new destinations will inform our understanding of the educational experiences of Latino students in these areas.

In addition to school-level variables, place of residence is also considered influential in the integration process since it is strongly linked to access to resources and social networks that determine quality of life (Fischer 2010). From this literature we derive three non-mutually exclusive hypotheses that guide our analysis. First, we hypothesize that schools in new Latino destinations may be less equipped than schools in established destinations to meet the diverse needs of Latino students. Previous research finds areas with a long-standing tradition of

immigration and/or a sizeable co-ethnic population as better able to facilitate integration because infrastructures and social networks are already in place to aid newcomers in their adjustment to the area (Singer 2004). Emerging research on schools in new Latino destinations (which we discuss in detail in the following section) provides some support for this hypothesis. Such research indicates that schools in new destinations are experiencing difficulties meeting the needs of these new students and are facing problems such as teacher shortages, lack of funding, inadequate English as a Second Language (ESL) services, discrimination toward Latino students, and limited parental involvement (Bohon, Macpherson and Atiles 2005; Griffith 2008; Kandel and Cromartie 2004; Wainer 2006). Although these studies are not comparative in nature, their findings nevertheless imply that schools in new destinations may be less equipped than schools in established destinations to serve Latino students.

Our second hypothesis explores the possibility that Latinos in new destinations may be in areas with stronger schools. To formulate this hypothesis, we draw on the theoretical underpinnings from the segmented assimilation and residential segregation literatures. Segmented assimilation theory asserts that because many Latinos in established destinations live in low income urban areas, their children often attend resource-poor schools that, together with other individual and structural-level factors, may negatively impact their educational outcomes and mobility prospects (Gans 1992; Portes and Zhou 1993). Similarly, the spatial assimilation perspective put forth by studies of immigrant and minority residential segregation has traditionally considered the suburbanization of immigrants and minorities to be positively associated with socioeconomic integration (Alba et al. 1999; Alba and Denton 2004; Massey 1985). The logic of these theoretical models therefore points to the possibility that the movement

of Latinos into new areas of the country may provide Latino students in new destinations access to better schools than in established destinations.

Our third hypothesis, adapted from both the residential and school segregation literatures, posits that Latino students in schools in new destinations may be more stratified relative to White students than are their counterparts in schools in established destinations. Recent research on residential segregation in new destinations suggests that the spatial assimilation model does not neatly fit the experiences of Latinos in these areas and argues instead that the integration of Latinos in new destinations is best explained by a theoretical framework that incorporates both the spatial assimilation perspective and the place stratification perspective (Lichter et al. 2010). The latter theoretical model emphasizes the existence of within-place hierarchies (Alba and Logan 1993). That is, it acknowledges that stratification exists not only across places, but also within them. Therefore, even if Latinos in new destinations are living in neighborhoods with better resources than in established destinations, they may nevertheless occupy a subordinate position relative to Whites within those areas that subjects them to discrimination and inhibits their chances for socioeconomic mobility. Such stratification is evident in the high levels of Latino-White residential segregation in new destinations (Lichter et al. 2010). It is therefore plausible that similar stratification processes may be taking place in schools in new destinations. Within-school stratification often takes the form of differential academic course placement of White and minority students. Disproportionate placement of minority students in lower-level classes resegregates students within schools and results in fewer opportunities to learn for minority students (Mickelson 2001). Recent work finds evidence of this type of academic segregation in racially diverse suburban high schools, which exhibit higher levels of

underrepresentation of Latino students in advanced math courses than urban high schools (Muller et al. 2010).

Testing these three hypotheses requires two sets of comparisons. To assess the first two hypotheses about school resources and quality of education, we compare various school-level characteristics in new and established Latino destinations. To assess the third hypothesis about within-place stratification, we move to the student-level to compare the Latino-White gap in access to advanced math courses.

Schools in New Latino Destinations

Having established the theoretical motivations for our study, we turn now to an overview of the existing research on schools in new Latino destinations, which, along with the aforementioned research on the role of school context in the integration process, will structure our comparison of school characteristics. This group of studies—mostly in the form of qualitative case studies—calls attention to the changes and challenges that have accompanied Latino population growth in schools in new destinations and the ways in which schools are responding. Kandel and Parrado (2006) address this topic through a set of case studies that examine public school response to Latino population growth in two new destination communities in the South. Their analysis of an elementary school in rural Mississippi identifies limited space, funding, and resources as the main problems that the school district faces in accommodating the influx of Latino students. The school relies on assistance from several external organizations, such as local churches and businesses, to offer supplemental resources, such as English language instruction, tutoring, and counseling, to these students. Their analysis of an elementary school in urban North Carolina reveals similar problems. In this case, the district uses a family-oriented approach that provides linguistic support services to parents and students in an effort to better

engage foreign-born parents with their children's school. Other research uncovers systemic discrimination toward Latino students in new destinations (Wainer 2006). Such discrimination often manifests itself in the form of disproportionate placement of Latino students in lower-level or remedial classes. As a principal from a school in a new destination community in North Carolina notes, "Latino students are in the cycle of permanent remediation classes and have become stuck in a lower performing cycle because of the lack of services. The district is creating a lower-performing subgroup" (Wainer 2006: 157).

Perhaps the most commonly cited problem for schools in new destinations is the shortage of qualified ESL or bilingual teachers (Bohon, Macpherson and Atiles 2005; Terrazas and Fix 2009; Wainer 2006). In many cases, the teacher shortage problem is compounded by fiscal crises that limit the recruitment and hiring of new teachers (Terrazas and Fix 2009). In response to the shortage, some districts have implemented strategies such as hiring incentives and alternative teaching certification. Other districts have created binational teacher exchange and foreign teacher recruitment programs to alleviate the teacher shortage (Hamann 2003; Terrazas and Fix 2009).

Griffith (2008) highlights other innovative school responses to demographic change in his comparative study of four new immigrant-receiving communities in the South and Midwest. School administrators in the two Midwestern towns went beyond offering standard ESL instruction to make immigrant students feel more welcome by hosting cultural training sessions for faculty and staff, establishing a bilingual education program, and organizing community service trips to immigrants' sending communities. Jones-Correa's (2008) study of the impact of demographic change on the public education system in suburban Washington D.C. offers another example of a case in which education policymakers and school administrators went to great

lengths—often against the wishes of their White, middle class constituents—to facilitate the educational incorporation of immigrant and minority students by allocating funds and resources for special programs designed to address the needs of these students.

Taken together, these studies suggest that schools in new destinations can be characterized both by challenge and creativity in the face of demographic change. They also underscore considerable variation in the types of school responses to Latino population growth. As helpful as these studies are in assessing some of the ways in which schools and educators in new destinations are serving Latino students, they provide only a partial picture of the educational settings in these communities. To our knowledge, our study is the first to use large-scale educational survey data to determine the extent to which schools in new destinations across the country experience similar challenges and employ similar strategies to serve Latino students and whether or not these school-level characteristics adversely affect access to learning opportunities for Latino students.

Educational Outcomes in New Latino Destinations

Despite evidence of potential school-level barriers to education in new Latino destinations, research has yet to explore whether such contextual factors negatively impact the educational experiences of Latino students in new destinations. However, existing studies have documented differences in educational outcomes by destination type. Stamps and Bohon (2006) use data from the 2000 U.S. Census to examine the educational attainment of Latin American immigrants by destination type. They find that, on average, Latin American immigrants in new destinations have higher levels of education than their counterparts in established destinations. They acknowledge the possibility that certain structural characteristics of new destinations, such as smaller community size and less prejudice toward newcomers, may explain the difference in

educational attainment. However, sample restrictions and data limitations preclude a direct test of whether or not the immigrants in their sample attended school in a new destination and thus whether or not school context played a role in their attainment outcomes. Their findings therefore reveal little about contextual effects on educational attainment in new destinations, and instead point to the selectivity of immigrants to new destinations as one possible explanation for the difference in attainment.

Fischer's (2010) comparative study of high school dropout among adolescents in new and established immigrant destinations paints a bleaker portrait. Also using data from the 2000 U.S. Census, but focusing on the entire foreign-born adolescent population, she finds that the odds of dropping out of high school are 1.4 times greater for adolescents in new destinations than in established destinations, even after controlling for individual and household-level characteristics, and that Mexican and Guatemalan youth in fast-growing immigrant destinations have the greatest risk of dropout.

Although these two studies present somewhat opposing pictures of educational outcomes in new destinations (in part because of different research questions and analytical samples and strategies), both identify educational disparities in new and established destinations. Taken together, the studies suggest a complex picture of the role of the school in providing Latino students opportunities to learn, whereby opportunities may take a different form in new and established destinations. Further research is needed to determine the role that schools play in contributing to disparities in opportunities to learn. Our study begins to address this need by employing educational datasets with detailed school and student-level measures to determine 1) if the characteristics of public high schools and educators in new Latino destinations differ from

those in established Latino destinations and 2) if Latino students' exposure to college preparatory math courses varies by destination type.

Data and Methods

Our analysis of schools and educational access in new Latino destinations proceeds in two parts. The first part describes differences in characteristics of public high schools in new and established Latino destinations. The second part analyzes variation in the Latino-White gap in college preparatory math course-taking by destination type. Since no single dataset best addresses our research questions, we rely on two nationally representative datasets and employ two different analytical strategies. We discuss the data, samples, and analytical strategies separately for each analysis. However, before doing so, we first describe our method of classifying new and established Latino destinations.

Defining new Latino destinations

Researchers have defined new and established Latino destinations on various geographic levels including region, state, metropolitan area, county, and place (Lichter and Johnson 2009). Though the cutoff points vary, most operationalizations of new and established destinations consist of two standard components: the concentration of Latinos in a specified area and the percent change in the Latino population in that area between two time periods (Fischer 2010). For our analysis, we define new and established Latino destinations on the school district level. We obtain estimates of the Latino student population from the National Center for Education Statistics' School District Demographic System (SDDS), which uses 1990 and 2000 U.S. Census data to provide tabulations of Latino students enrolled in all public school districts in the U.S. We retain only those districts that were in existence in both 1990 and 2000.

We adapt Fischer's (2010) typology of immigrant destinations to construct our indicators of new and established Latino school districts. We classify districts that were below the 50th percentile for the percent Latino students enrolled in 1990, at or above the 50th percentile for percent change in the Latino student population between 1990 and 2000, and had at least 25 Latino students in 2000 as "new" Latino destination districts[1]. We categorize districts that were above the 50th percentile for percent Latino students enrolled in 1990 as "established" Latino destination districts. School districts that were below the 50th percentile for percent Latino students enrolled in 1990 and did not experience exceptionally high rates of growth in their Latino student population (i.e. growth rates below the 50th percentile) during the 1990s are classified as "other" districts.[2] After assigning Latino destination types to each district, we then use the NCES district identification number to link the schools in the SASS and ELS data with their corresponding districts in the SDDS data in order to determine which schools in our SASS and ELS samples are located in new, established, or other districts.

Analyzing school characteristics: Data, sample, and analytical strategy

Our analysis of school characteristics in new and established Latino destinations uses data from the 1999-2000 Schools and Staffing Survey (SASS) of public schools and public school teachers. SASS is the ideal dataset for our research questions as it is the largest and most comprehensive dataset of detailed district, school, and educator characteristics in the U.S. and is representative of public schools on the national level.

Our sample consists of only those public schools whose districts are represented in the merged SDDS datasets (for 1990 and 2000) (N= 6,285 schools). We then restrict our sample to schools serving grades 10-12 since our subsequent analysis of math course-taking focuses on a

[1] We chose 25 Latino students as this is a typical small class size in a high school.

[2] To test the robustness of our findings, we ran all analyses using alternate cutoff points for our district classification scheme and observed results consistent with those presented.

cohort of high school sophomores, thereby reducing our sample size by 3,774 schools. Finally, we include only those schools that have 1 or more Latino students enrolled, which eliminates an additional 217 schools. These selection filters bring our final sample size to 2,294 public high schools. We also analyze characteristics of teachers from the schools included in our sample (N=14,211 teachers).

For our comparative descriptive analysis of schools, we select school and educator variables that previous research has shown to be associated with the educational outcomes of Latinos and/or are related to problems described in the case studies of schools in new Latino destinations. We classify these characteristics into three categories: demographic and compositional attributes, quality of education indicators, and linguistic support services. The demographic and compositional attributes provide information about the racial, ethnic, linguistic, and socioeconomic makeup of the schools. Specifically, we use continuous measures of the mean percentage of students who are minority, students who have limited English proficiency (LEP), and students who were eligible for free or reduced lunch, a commonly used measure of school-level SES.

The quality of education indicators include student-teacher ratio, the percentage of schools reporting any teaching vacancies in the last year, the percentage of schools at, above, or below their total enrollment capacity, the mean percentage of 12^{th} graders who graduated in 2000, and the mean percentage of graduates who enrolled in a 4-year college, 2-year college, or technical school. On the teacher-level, the quality of education indicators include measures of experience (years teaching in public schools), educational background (percentage of teachers with a Bachelor's degree, Master's degree, and state certification in his/her main teaching field), and perceptions of the degree to which certain issues, such as parental involvement, poverty,

student health, drop out, absenteeism, and student preparedness, are problematic at their schools. The perceived school problems variable is a scale variable ranging from 1 (not a problem) to 4 (serious problem). We report the average perception by destination type.

Our first measure of linguistic support services indicates the percentage of schools that report using one or more of the following eight methods to identify LEP students: information from parents, teacher observation or referral, home language survey, student interview, student records, achievement tests, and language proficiency tests. Additional measures of linguistic support services include the percentage of schools offering a specific program for LEP students, and if so, the type of LEP instruction offered (ESL/bilingual/structured immersion, native language maintenance instruction, and/or instruction in regular English classroom), the language of subject matter courses for LEP students, and additional methods of LEP instruction. Other indicators include the percentage of schools reporting any ESL teacher vacancies and the average number of outreach and translation services offered for LEP parents. Our teacher-level linguistic support service characteristic is the percentage of teachers that have recently participated in professional development training in LEP instruction.

We compare our selected school and teacher-level characteristics in new and established Latino destinations by using one-way ANOVA and chi-square tests to test for significant differences in means and proportions. We weight our analysis using the “svy” command in Stata and the school and teacher weights provided by SASS in order to account for the probability of selection into the sample.

Analyzing access to advanced math courses: Data, sample, and analytical strategy

Data for our analysis of variation in access to college preparatory math courses by destination type come from the Educational Longitudinal Study 2002 (ELS 2002), a nationally

representative study of a cohort of 10th grade students. The ELS is an ideal dataset for this research question as it permits detailed analysis of students' academic experiences. In particular, it provides complete high school transcript information for 91% of the student sample. An additional benefit is that, as with the SASS data, we are able to match schools in the ELS data to their corresponding districts in the SDDS data using the NCES district identification number and can thus attach a Latino destination type indicator to each school.

Our ELS sample consists of students who are in public schools whose districts are represented in the SDDS datasets (both 1990 and 2000) (N= 10,428 students). We then exclude any students who did not participate in the transcript component of the study since we do not have reports of what courses they took during high school (N=1,015 students) as well as any students whose report of highest math course taken in high school was missing (N=27 students). Lastly, since we are interested in examining access to advanced math courses for Latino students in particular, we further limit our sample to students in schools with at least one Latino student, thereby eliminating an additional 2,074 students. These selection filters bring our final sample size to 7,312 students nested within 351 schools.

College preparatory math course-taking serves as the dependent variable for our analysis. We define college preparatory math course-taking as enrollment in Algebra II or above. This is a well-established cut-off point for college preparatory math courses since enrollment in or above the Algebra II level is highly predictive of college-going (Adelman 1999). In addition, enrollment in Algebra II is particularly informative for our purposes as it is a strong indicator of access to advanced course offerings (Callahan, Wilkinson and Muller 2010). Math courses follow a more rigid sequencing than other subjects in high school. Students who do not take the appropriate prerequisite courses are not able to enroll in the next level. If students are placed in

lower level math courses early in their high school career, they may not have the opportunity to take college preparatory math courses by the end of high school. We take this measure from students' transcript report of the highest-level math course taken by the end of high school. We construct this indicator as binary dummy variable in which we code students who completed Algebra II or above as 1 coded as 1 and all others as 0. Courses above the Algebra II level include Advanced Math (Algebra III or Statistics), Pre-Calculus, and Calculus. Courses below the Algebra II level include Geometry, Algebra I, Pre-Algebra, General or Applied Math, Basic or Remedial Math, and no math courses.

Our primary independent variable of interest is Latino destination type. This school-level characteristic takes the form of three dummy variables that indicate whether the school is located in a new, established, or other district. The other key independent variable is students' race/ethnicity, which we code as five dummy variables: White, Black, Latino, Asian, and other race. We then interact the Latino variable with the Latino destination type variable, creating a cross-level interaction term that allows us to test if the relative odds of Latino students taking college preparatory math courses vary by destination type.

We also include various sets of student- and school-level control variables. The first set consists of students' demographic characteristics, specifically sex, generational status, native English language proficiency, and family background. Our indicator of generational status takes the form of three dummy variables. We coded students who were born abroad as first generation, students who born in the U.S. and have at least one foreign-born parent as second generation, and students who were born in the U.S. to native-born parents as third-plus generation. Native English proficiency is a dichotomous variable in which students received a 1 if their native language is English and a 0 otherwise. Family socioeconomic status is an NCES-constructed

variable that is based on parent education and total family income, divided into quartiles and coded as binary dummy variables. We code family structure as a binary dummy variable that assigns a 1 to students who live with both biological parents and a 0 to all other students. The third set of control variables considers students' prior academic achievement in the form of their base year math and reading standardized test scores, and their 9th grade math grade point average. We also control for students' postsecondary educational expectations. These expectations are collapsed into three dummy variables depending on whether the student expects to obtain less than a 4-year college degree, a 4-year college degree, or more than a 4-year college degree. The final set of control variables are school-level characteristics that include dummy variables for school locale (urban, suburban, or rural) and continuous indicators of the percentage of students enrolled who are a racial/ethnic minority, the percentage of students enrolled who are Latino, and the percentage of students enrolled who are eligible for free or reduced-cost lunch.

To account for the fact that students in our sample are clustered within schools, we employ a series of multilevel models to examine the variation in the Latino-White gap in college-prep math enrollment by Latino destination type. Because our outcome variable is binary, we use a Hierarchical Generalized Linear Model (HGLM), a derivative of Hierarchical Linear Models that uses an identity link function. We begin with a baseline unconditional model (Model 1) with no predictors in order to determine whether our math course-taking outcome varies significantly across schools. After confirming significant variation across schools in our dependent variable, we proceed with the following modeling strategy: Model 1 includes the level-1 student demographic characteristics (sex, race/ethnicity, family structure, family socioeconomic status, and native English speaker), prior academic achievement variables (base-

year math and reading scores, 9th grade math grade point average) and post-secondary educational expectation variables. Model 2 builds on the previous model by adding the level-2 school-level predictors to the model. The final model, Model 3, includes all level-1 and level-2 variables and the cross-level interaction term for Latino by district type, which indicates whether the relative odds of Latino and White students enrolling in college-preparatory math courses vary significantly by destination type. We impute missing level-1 data using mean and modal substitution. We weight all analyses using the ELS cross-sectional transcript weight in order to account for the probability of selection into the transcript study. We grand-mean center all independent variables and run all analyses using HLM 6.0 software. We present results for the HGLM models in the form of odds ratios and interpret the cross-level interaction term in the form of predicted probabilities.

Results

Figure 1 displays the geographic distribution of new Latino destination districts. As the map shows, new Latino districts are located within in the Southeastern and Midwestern regions of the country. The rapid growth in the Latino student population is most evident in North Carolina, South Carolina, and Georgia, where more than two-thirds of the school districts in those states are new Latino districts. In contrast, Texas, Arizona, New Mexico, and California are among the states with the smallest percentage of new Latino districts since most of the districts in those states are established Latino districts.

[INSERT FIGURE 1 HERE]

Schools in new and established Latino destinations

Table 1 presents the results of our comparative descriptive analysis of public high schools and teachers in new and established Latino school districts. We show the weighted means and

proportions for each of our selected variables by district type, denoting significant differences in means or proportions. We call attention first to the demographic and compositional attributes of schools. Our findings show that schools in new and established Latino districts differ significantly in terms of their location, racial and ethnic composition, and socioeconomic status. Schools in new Latino districts are significantly more likely than schools in established Latino districts to be located in rural or small town areas, while schools in established districts are more likely than schools in new districts to be located in urban settings. On average, schools in established Latino districts have a significantly lower percentage of minority students and LEP students enrolled. Additionally, schools in new Latino districts have a smaller percentage of students eligible for free or reduced-cost lunch enrolled.

[INSERT TABLE 1 HERE]

The lower average percentage of students eligible for free lunch suggests that schools in new Latino districts may be better off financially than schools in established districts and thus offer better resources and educational opportunities. Indeed, we find some evidence of this in both the school and teacher-level quality of education indicators. For example, schools in new Latino districts significantly outrank schools in established Latino districts on high school graduation and 4-year college enrollment rates. On average, 91% of 12^{th} grade students graduated from high school in new Latino districts, compared to only 86% in established Latino districts. Of the 12^{th} grade students who graduated from schools in new Latino districts, 40% enrolled in a 4-year college, while only 33% of high school graduates from schools in established Latino districts enrolled in a 4-year college. Although teachers in schools in new and established Latino districts look fairly similar to each other with regard to age, teaching experience, and educational background, a slightly higher proportion of teachers in schools in new Latino

districts is certified in their main subject area. Furthermore, teachers in schools in new Latino districts also report a lesser degree of school problems. Of particular interest is the finding that teachers in schools in new Latino districts perceive lack of parental involvement to be less of a problem than do teachers in schools in established districts, which is surprising given that previous studies (Donato and Marschall 2010; Kandel and Parrado 2006) have highlighted parental involvement as a concern in schools in new destinations. However, it is important to note that this measure refers to overall parental involvement and does not distinguish parental involvement by race, ethnicity, or nativity. Thus, we are not able to assess whether the involvement of Latino parents is perceived as more problematic in schools in new destinations or established destinations. Nevertheless, this indicator, along with teachers' perceptions of other types of school problems, still provides insight into general school climate in new and established Latino districts.

Despite ranking higher on important quality of education indicators, schools in new destinations appear to be under greater staffing strain than schools in established destination districts. Although our results do not reveal any significant difference in over-enrollment rates by district type, we do find higher rates of teacher vacancies and a larger average student-teacher ratio in schools in new destination districts. Nearly 92% of schools in new destinations reported having one or more teacher vacancies in the survey year, compared to only 85% of schools in established destinations. In addition, there are approximately four more students per teacher in schools in new destination districts than in schools in established destination districts. Taken together, these two indicators provide evidence that staffing represents one area in which schools in new destinations are struggling to keep up with the growth of their Latino student population.

Schools in new destination districts also appear to lag behind schools in established destinations in the development of their linguistic support infrastructure. Differences by destination type exist in both the methods used to identify LEP students and the services offered to LEP students. For example, schools in new destination districts rely most heavily on observational and referral methods—such as teacher observations, parent information, student interviews, and student records—to identify students with limited English proficiency. While schools in established destination districts also rely on observational and referral methods in similar numbers, they are significantly more likely than schools in new destination districts to supplement those methods with systematic diagnostic evaluations such as language proficiency tests, achievement tests, and home language surveys. This suggests that schools in established destinations districts have a wider range of diagnostic instruments available and thus may be better equipped to identify students' linguistic needs.

Of schools that report having any LEP–identified students enrolled (N=1,480 schools), 92% of schools in established destination districts offer some type of specific LEP instruction for these students, while only 84% of schools in new destination districts offer such instruction. There is also some variation by destination in the type of LEP instruction offered. Of schools that offer specific LEP instruction (N=1,307 schools), schools in new and established districts are equally likely to offer ESL/bilingual/structured immersion instruction and/or instruction in the regular English classroom and to teach subject matter courses to LEP students in English. However, a significantly higher proportion of schools in established districts offers native language maintenance instruction for LEP students and teaches subject matter courses to LEP students in their native language. This is likely the result of having a larger co-ethnic community in established destinations and thus a bigger pool of teachers with native language fluency in

those areas. While there may be more teachers with native language proficiency in established destinations, filling ESL teaching positions appears to be difficult in schools in both new and established destination districts alike. In line with findings from the case studies that cited the shortage of ESL teachers as a major problem for schools in new destinations, our results show that a substantial proportion—more than one-third—of schools in new destination districts reported having one or more ESL teaching vacancies. However, the shortage of ESL teachers is not unique to schools in new destination districts. An even larger percentage—nearly half—of schools in established destinations reported an ESL teaching vacancy. Given that schools in established destination districts have higher percentages of LEP students enrolled, the higher ESL vacancy rate in schools in established districts may reflect greater need in those areas.

Access to college-preparatory math courses in new and established Latino destinations

We turn now to the results of our analysis of exposure to college-preparatory math courses. Table 2 displays the summary statistics for the sample of students and schools in our analysis sorted by district type. We find patterns of variation in school characteristics by district type that are similar to the ones we found in our analysis of schools in the SASS data. Most notably, we see again that schools in new destination districts are mostly located in suburban and rural settings and have lower percentages of minority students and low-SES students enrolled. We also note that schools in new destinations have higher rates of college-preparatory math course-taking than schools in established destination.

[INSERT TABLE 2 HERE]

Table 3 displays the results from the multilevel models predicting enrollment in college-preparatory math courses. The variance component from our unconditional model (not shown) confirmed statistically significant variation in college-preparatory math course-taking across

schools. Model 1 accounts for students' demographic characteristics, post-secondary educational expectations, base year math and reading test scores, and 9th grade math GPA. Model 2 introduces the school-level indicators. Overall, students in schools in new destination districts are 72% (odds ratio=1.72) more likely than their counterparts in schools in established destination districts to take college-preparatory math courses. This finding is in line with the finding from the SASS analysis about higher rates of college-going in schools in new destinations. Together, these findings suggest that schools in new destinations may be better equipping students for college than are schools in established destinations.

[INSERT TABLE 3 HERE]

The final model, Model 3, also includes all student and school-level variables, as well as the cross-level interaction term for Latino by district type. The odds ratio for the interaction term (.533) indicates that Latino students in schools in new destinations have lower relative odds of taking college-preparatory math courses compared to White students than do their counterparts in schools in established destinations, even after accounting for differences in demographic characteristics, prior academic achievement, and school characteristics. In other words, Latino students attending schools in new destinations do not take as advanced math courses compared to their White peers. We depict this relationship graphically in the form of predicted probabilities in Figure 2. We see that the Latino-White gap in the probability of taking college-preparatory math courses is greater in schools in new Latino destinations than in schools in established Latino destinations. Latino students in schools in new destinations have a .79 probability of enrolling in college preparatory math courses, while White students in those same schools have a probability of .87. In contrast, Latinos in schools in established destinations have a slightly higher probability of enrolling in college preparatory math courses than whites (.82 vs. .80). This

suggests that there is greater educational stratification within schools in new destination districts, and thus echoes findings from some of the qualitative case studies that document discrimination against Latinos students in the form of disproportionate placement in lower-level and remedial courses (Wainer 2006).

[INSERT FIGURE 2 HERE]

Conclusion

This study provided a national-level comparative descriptive portrait of schools and access to learning opportunities in new and established Latino destinations. We extended previous work on education in new Latino destinations by examining differences in school context. Our comparison of school characteristics showed that schools in new Latino destination districts differ significantly from schools in established destination districts in terms of their demographic and compositional attributes, quality of education, and linguistic support services. Schools in new Latino destinations are largely located in rural and suburban settings and have much lower percentages of minority students enrolled. Schools in new Latino destinations also appear stronger both financially, as evidenced by their lower percentage of students eligible for free lunch and lesser degree of school problems such as poor student health and poverty, and academically, as evidenced by their higher rates of college preparatory math course-taking, high school graduation, and 4-year college enrollment. However, our results also indicated that schools in new destinations are struggling to keep up with the staffing demands and linguistic needs that have accompanied rapid Latino population growth in their areas. Furthermore, despite attending stronger schools, Latino students in new destinations are more stratified relative to Whites than are their counterparts in schools in established destinations. The Latino-White gap in college-preparatory math course-taking is greater in schools in new destinations than in schools

in established destinations. The larger gap in advanced coursework may be indicative of greater educational stratification in schools in new destination districts.

Our findings carry theoretical implications about the integration of Latino youth in new destinations. Broadly, our results highlight important substantive differences in school contexts in new and established Latino destinations and provide evidence in support of all three of our hypotheses. Our comparison of linguistic support services revealed that on average, schools in new destinations are indeed less equipped to accommodate certain special needs of their growing population of Latino students. However, the findings from our quality of education comparison indicate that movement of Latinos into different areas of the country does provide their children with exposure to better schools than in established Latino areas. Lastly, our analysis of college-preparatory math course-taking provides insight into the within-place hierarchies in new destinations. Exposure to better schools does not necessarily guarantee equal access to learning opportunities since Latinos may be subject to a greater stratification in schools in new destinations.

These findings reinforce the need for researchers to examine how school and place-level characteristics shape the educational integration of Latino youth. Future research should examine how other school characteristics, such as teachers' perceptions of Latino students, differ by destination type, and if and how differences in school characteristics affect the educational outcomes of Latinos in new and established Latino destinations.

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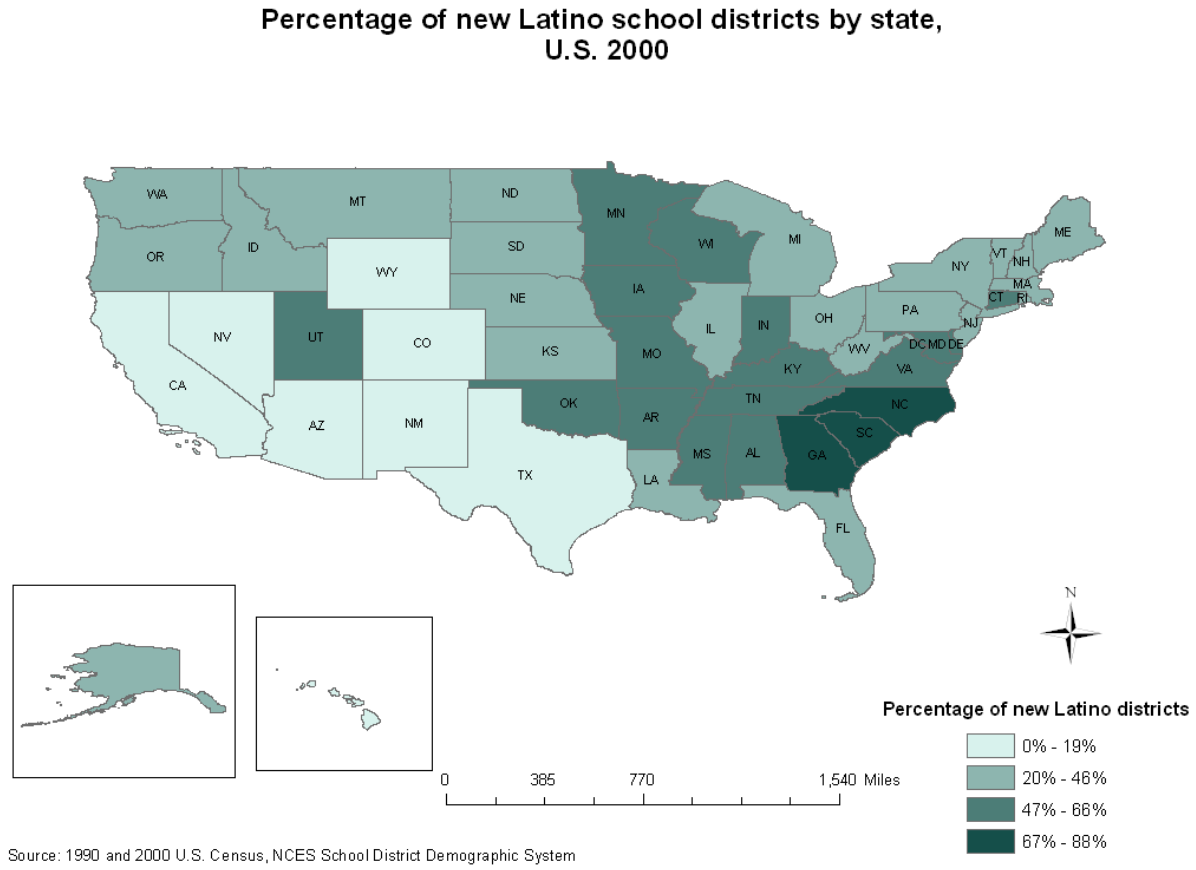
Figure 1. Percentage of new Latino destination school districts by state



Source: 1990 and 2000 U.S. Census, NCES School District Demographic System

Table 1. Weighted descriptive statistics for U.S. public high schools and teachers by Latino district type

District type	New N=705 schools	Established N=1,204 schools	Other N=385 schools
	M or P	*M or P*	*M or P*
Demographic and compositional attributes [1]			
Urbanicity			
Urban [a, b, c]	0.10	0.33	0.18
Suburban [b, c]	0.45	0.44	0.56
Small town/rural [a, b]	0.45	0.24	0.26
Mean percentage of Latino students enrolled [a, c]	2.77	23.20	1.42
Mean percentage of minority students enrolled [a, c]	19.73	44.53	23.34
Mean percentage of LEP students enrolled [a, c]	1.39	5.50	0.61
Mean percentage of students eligible for free lunch [a, c]	26.75	40.90	26.86
Quality of education indicators			
Over-crowding			
Any teaching vacancies [a, c]	0.92	0.85	0.94
Student-teacher ratio [a]	19.81	15.72	15.90
Over-enrollment	0.12	0.15	0.13
Number of services offered to promote parental engagement(0-10) [a]	7.85	8.20	8.05
Graduation and college-going rates[2]			
Percent of 12 graders who graduated this year [a]	90.98	85.65	88.21
Percent of graduates who enrolled in 4-year college [a, c]	40.42	33.69	41.49
Percent of graduates who enrolled in 2-year college [a, c]	20.45	24.21	18.73
Percent of graduates who enrolled in tech school	8.64	8.74	8.63
Teacher background characteristics[3]			
Teacher's age [a, b]	42.17	43.08	42.85
Years teaching in public schools [b, c]	14.38	14.10	15.04
Has bachelor's degree	0.99	0.99	0.99
Has master's degree [b, c]	0.51	0.50	0.56
Certified in main field [a, b, c]	0.96	0.94	0.97
Teachers' perceptions of school problems (1=not a problem, 4=serious problem)			
Parental involvement [a, b, c]	2.73	2.94	2.81
Students unprepared to learn [a, c]	2.95	3.10	2.96
Student absenteeism [a, b, c]	2.76	3.00	2.82
Drop out [b, c]	2.31	2.52	2.31
Poverty [c]	2.29	2.59	2.23
Poor student health [a, c]	1.87	2.05	1.90

Note: Subscripts a, b, and c denote that the following differences in means or proportions are significant at p<.05 level:
a=signifcant difference between schools in new and established Latino districts
b= significant difference between schools in new and other Latino districts
c=significant difference between schools in established and other Latino districts

[1] N=2,294 schools

[2] N=2,273 schools with 12th grade students enrolled at time of survey

[3] N=14,211 teachers

Table 1. Weighted descriptive statistics for U.S. public high schools and teachers by Latino district type (cont'd)

District type	New	Established	Other
	M or P	*M or P*	*M or P*
Linguistic support services			
Methods used to identify LEP students[4]			
Information provided by parent	0.91	0.92	0.92
Teacher observation or referral [c]	0.88	0.86	0.93
Home language survey [a, c]	0.63	0.81	0.59
Student interview	0.90	0.87	0.90
Student records	0.93	0.95	0.94
Achievement tests [a, c]	0.51	0.61	0.48
Language proficiency tests [a, c]	0.67	0.84	0.63
Number of methods used [a, c]	5.43	5.85	5.39
Number of services offered for LEP parents (0-3) [a, b, c]	1.75	2.37	1.43
Specific LEP instruction offered [a, c]	0.84	0.92	0.79
Type of LEP instruction offered [5]			
ESL/bilingual/structured immersion	0.94	0.95	0.91
Native language maintenance instruction [a, c]	0.28	0.40	0.23
Instruction in regular English classroom	0.89	0.91	0.90
Language of subject matter courses for LEP students			
Native language [a, b, c]	0.08	0.18	0.03
English	0.93	0.91	0.95
Both languages [a, c]	0.74	0.80	0.70
Additional methods of LEP instruction			
Remedial/compensatory classes	0.60	0.61	0.68
Special education [a, c]	0.28	0.38	0.26
Regular classes [a, b, c]	0.94	0.97	0.99
Any ESL teaching vacancies [a, b, c]	0.38	0.46	0.27
Teachers with training in LEP instruction [a, c]	0.09	0.28	0.09

Source: Schools and Staffing Survey 1999-2000

Note: Subscripts a, b, and c denote that the following differences in means or proportions are significant at p<.05 level:
a=significant difference between schools in new and established Latino districts

b= significant difference between schools in new and other Latino districts

c=significant difference between schools in established and other Latino districts

[4] N=1,480 schools with any LEP students enrolled

[5] N=1,307 schools offering specific LEP instruction

Table 2. Weighted descriptive statistics of sample of students and schools by district type

	District type					
Level-1 Variables (N=7,312 students)	New (N=1,760 students)		Established (N=4,244 students)		Other (N=1,308 students)	
	M or P	*SD*	*M or P*	*SD*	*M or P*	*SD*
Female	0.52		0.49		0.50	
White	0.71		0.43		0.71	
Black	0.16		0.16		0.15	
Latino	0.06		0.29		0.06	
Asian	0.02		0.06		0.03	
Other	0.05		0.06		0.05	
First generation	0.04		0.10		0.04	
Second generation	0.05		0.16		0.06	
Third-plus generation	0.91		0.74		0.90	
Native English speaker	0.94		0.77		0.93	
Family socioeconomic status	0.21		0.29		0.19	
Lives with 2 biological parents	0.56		0.55		0.59	
Expects to obtain less than 4-year college degree	0.26		0.25		0.22	
Expects to obtain 4-year college degree	0.45		0.46		0.44	
Expects to obtain more than 4-year college degree	0.29		0.29		0.34	
Base-year math test scores	38.54	11.60	35.60	11.91	39.07	11.71
Base-year reading test scores	30.28	9.56	28.09	9.68	30.42	9.47
9th grade math GPA	6.36	2.88	5.96	3.00	6.39	2.94
Enrollment in college preparatory math courses	0.72		0.65		0.70	
Level-2 Variables (N=351 schools)	(N=78 schools)		(N=213 schools)		(N=60 schools)	
Urban	0.14		0.43		0.25	
Suburb	0.49		0.48		0.50	
Rural	0.37		0.09		0.25	
Percent of minority students enrolled	25.68	23.46	52.76	30.13	26.52	25.08
Percent of students eligible for free lunch	19.62	15.52	27.53	19.35	21.66	17.09
Percent of Latino students enrolled	6.91	4.03	28.92	23.91	7.36	5.49

Source: ELS 2002

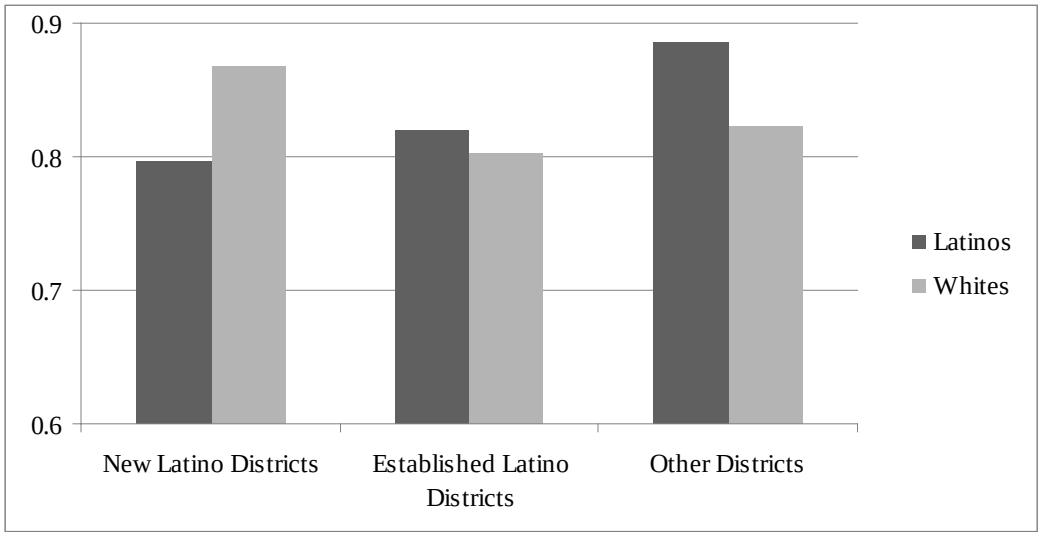
Table 3. Odds ratios from multilevel logistic regression models predicting enrollment in college preparatory math courses

	Model 1		Model 2		Model 3	
	β	S.E.	β	S.E.	β	S.E.
Intercept	4.130***	(0.080)	4.131***	(0.076)	4.093***	(0.077)
School-level variables						
District type (ref=Established district)						
New district			1.722*	(0.215)	1.608*	(0.221)
Other district			1.207	(0.231)	1.142	(0.237)
Urbanicity (ref=Urban)						
Suburban			0.807	(0.175)	0.887	(0.175)
Rural			0.779	(0.230)	0.824	(0.230)
Percent minority students			1.019***	(0.004)	1.018***	(0.004)
Percent Latino students enrolled			0.995 ~	(0.004)	0.992 ~	(0.004)
Percent of students eligible for free lunch			0.996	(0.005)	0.998	(0.005)
Cross-level interaction terms						
Latino*New district					0.533*	(0.306)
Latino*Other district					1.487	(0.329)
Student-level variables						
Female	1.429***	(0.075)	1.431***	(0.075)	1.426***	(0.075)
Race/ethnicity (ref=White)						
Black	1.819***	(0.111)	1.527***	(0.122)	1.532***	(0.122)
Latino	1.262*	(0.122)	1.159	(0.129)	1.117	(0.131)
Asian	2.063***	(0.167)	1.827***	(0.167)	1.810***	(0.170)
Other race	1.095	(0.151)	1.004	(0.155)	1.003	(0.155)
Generational status (ref=Third-plus generation)						
First generation	1.407*	(0.145)	1.396*	(0.147)	1.425*	(0.148)
Second generation	1.029	(0.126)	1.023	(0.127)	1.034	(0.127)
Native English speaker	0.909	(0.123)	0.942	(0.125)	0.934	(0.126)
Two biological parent household	1.229**	(0.077)	1.240***	(0.079)	1.241***	(0.079)
Family socioeconomic status (ref=2nd quartile)						
1st quartile	0.830*	(0.094)	0.824*	(0.096)	0.823*	(0.096)
3rd quartile	1.344***	(0.110)	1.345***	(0.111)	1.348***	(0.112)
4th quartile	1.553***	(0.119)	1.564***	(0.120)	1.559***	(0.123)
Post-secondary expectations (ref=Obtain 4-year college degree)						
Obtain less than 4-year college degree	0.346***	(0.090)	0.348***	(0.091)	0.347***	(0.092)
Obtain more than 4-year college degree	1.170	(0.117)	1.170	(0.118)	1.167	(0.118)
Prior academic achievement						
Base-year math test scores	1.084***	(0.005)	1.084***	(0.005)	1.084***	(0.005)
Base-year reading test scores	1.038***	(0.006)	1.038***	(0.006)	1.038***	(0.006)
9th grade math GPA	1.185***	(0.013)	1.189***	(0.013)	1.190***	(0.013)
School-level variance component	1.322***		1.109***		1.107***	

Source: ELS 2002

Note: N = 7,312 cases in level 1; 351 cases in level 2; ***p<.001; **p<.01; *p<.05; ~p<.10

Figure 2. Predicted probability of college preparatory math course-taking for Latinos and White students by destination type



Source: ELS 2002