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Access Without Equity: Longitudinal Analyses of Institutional Stratification by Race and Ethnicity, 1972–2004

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The competitive dynamics that sustain stratification among postsecondary institutions have reinforced racial inequality in selective college enrollment between 1972 and 2004. Using a data set constructed from four nationally representative surveys (National Longitudinal Survey 1972, High School & Beyond 1980, National Educational Longitudinal Survey 1988, and Educational Longitudinal Survey 2002), the authors model how escalating admissions standards—including academic preparation and the growing importance of SAT scores and extracurricular leadership—effectively

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maintain racial inequality in selective college enrollment over time. Black and Latino students have made strides in their pre-collegiate academic preparation. Nevertheless, although access to postsecondary education has expanded since 1972 for all ethnic groups, Black and Latino students' odds of selective college enrollment have declined relative to White and Asian American students.

KEYWORDS: admissions, race, extracurricular, higher education, educational inequality, stratification, selective colleges

Building on a generation of research into expanding higher education access, scholars are attending to the structure of access to specific types of colleges and universities (Astin & Oseguera, 2004; Grodsky, 2007; Hearn, 1991; Karen, 2002; Kingston, 1990; Trow, 1988). Such research recognizes that the U.S. system of postsecondary education is highly stratified by mission, selectivity, and returns to earned degrees—a phenomenon we refer to as *institutional stratification* (Bastedo & Gumpert, 2003). Inequality inheres in stratified systems, but academic leaders and policymakers tacitly accept it as the price to be paid for benefits of efficiency and legitimacy. However, the competitive dynamics that sustain institutional stratification may also reinforce other forms of social inequality. In this article, we examine the intersections of institutional and racial¹ stratification trends since 1972 using a data set constructed from four nationally representative National Center for Education Statistics (NCES) databases.

To assess institutional stratification, we employ a six-category measure of initial postsecondary enrollment ranging from non-enrollment, to enrollment in vocational and community colleges, to enrollment in 4-year institutions with four levels of selectivity. Our analysis reveals that accounting for selectivity captures significant detail about the progress we have made toward equitable postsecondary outcomes. We find that escalating credentials and competition for admission to selective institutions help explain the continued underrepresentation of Latino and Black students in selective institutions. Given America's history of unequal college access on the basis of ascriptive traits such as race and ethnicity, one would expect that an increased emphasis on academic criteria would promote more equitable enrollment outcomes in selective institutions. And, on average, underrepresented minorities have made great strides since 1972 in their academic preparation for selective admissions. But since all groups have realized similar rates of increase in academic achievement, college entrance exam scores are unequally distributed and increasingly valued, and minimum requirements for admission continue to rise, the seemingly more equitable standard has not produced more equitable outcomes. Consideration of additional factors, such as extracurricular leadership, does not sufficiently offset the gaps created by increasing competition and reliance on test scores. Access to the

system as a whole has expanded while patterns of racial stratification within it persist.

Selective institutions do not fit all high school graduates' learning needs, and we do not wish to elevate their intrinsic value over other institutional types. However, the paradox of expanding access and continuing stratification is a pertinent concern given continued enrollment imbalances by race/ethnicity and accumulating evidence about the gains that accompany education in selective institutions. Baccalaureate completion rates increase with institutional selectivity, both nationally (Astin, 1985; Bowen, Chingos, & McPherson, 2009; Carnevale & Rose, 2003; Long & Kurlaender, 2009) and among students of color specifically (Bowen & Bok, 1998; Melguizo, 2010). Graduation from selective institutions is also associated with a range of positive labor market outcomes (Brewer, Eide, & Ehrenberg, 1999; Hoxby & Long, 1998; Monks, 2000). Furthermore, diversifying selective American colleges and universities has the potential over time to help counter racialized patterns of class inequality and, as Justice Sandra Day O'Connor wrote in her opinion for *Grutter v. Bollinger* (2003), "cultivate a set of leaders with legitimacy in the eyes of the citizenry," whose increasing diversity is a demographic fact. In light of the increasing benefits of selective college enrollment and concerns about ethnic diversity in such institutions, it is important to understand changes over time in students' postsecondary destinations.

Research objective and contributions. The objective of our research is to examine institutional stratification by race/ethnicity between 1972 and 2004, a time of significant change in both American race relations and access to postsecondary education. This research makes both empirical and conceptual contributions to the literature. Empirically, we help resolve conflicting findings from previous scholars about Black and Latino enrollment in selective institutions. Some find that students of color are more likely to attend more prestigious institutions than Whites *ceteris paribus* (Bowen & Bok, 1998; Grodsky, 2007), but others conclude underrepresented minorities have stronger odds of enrolling in community colleges and less selective colleges (Hearn, 1991; Karen, 2002; Karen & Dougherty, 2005). To determine whether the contradictory findings may be an artifact of cross-sectional data use, we analyze enrollment trends by linking four time-varying data sets.

One trend that we identify—escalating admissions requirements to selective institutions—bridges our empirical and conceptual contributions to the literature. Increases in the necessary and sufficient credentials for admissions to selective institutions may help explain persistent racial/ethnic stratification over time. We find that admissions requirements affecting racial enrollment trends include not only academic preparation, as Grodsky (2007) documents, but also extracurricular involvement and, increasingly, extracurricular leadership. Students from all racial/ethnic groups have higher grades and more college preparatory coursework in 2004 than 1972, but Black and Latino students' odds of enrolling in selective institutions are declining over

time relative to White and Asian American students. Admissions officers use a range of criteria to select students, but escalating credentials, generally, paired with increasing attention to SAT/ACT scores, specifically, keeps Black and Latino students at a competitive disadvantage. Holding preparation, test scores, and extracurriculars equal, enrollment disadvantages disappear for Black students and become advantages over White students for Latino students.

Through these findings, we suggest selective admissions serves as a microfoundation for effectively maintained inequality (EMI) across race in postsecondary enrollment. Studying socioeconomic status (SES) inequality in high school tracking and college enrollment, Lucas (2001) coined EMI to describe the result of a process in which advantaged groups protect their relative position in educational transitions that have become universal (e.g., year-to-year progress through high school) by seeking qualitative advantages in those transitions (e.g., college preparatory curriculum tracks). We investigate whether this process may also explain selection into institutions in our racially stratified postsecondary system. Baccalaureate aspirations have become universal (Goyette, 2008), and college enrollment rates have risen for all racial/ethnic groups (Grodsky, 2007). On average, however, White and Asian American students maintain a qualitative advantage in the college transition due to their greater access to selective 4-year institutions. Through our focus on escalating admissions credentials, we argue the microfoundations of access to selective institutions since 1972 involve not only family goal setting and seeking, as Lucas and other EMI scholars would assert, but also the dynamics of institutional gatekeeping.

Literature Review and Theoretical Framework

Academic Preparation and the Market for Selective Colleges/Universities

Postsecondary enrollment is the outcome of an iterative process consisting of individual pursuit (i.e., aspiration, application, and choice) and institutional access (i.e., admission). Thresher (1966) noted this 45 years ago in his multilevel analysis for the College Entrance Examination Board: “In the market for higher education, just as in the job market or the marriage market, the process of search, appraisal, and selection go on continuously, on both sides, and emphases shift according to reciprocal needs and scarcities” (p. 3). Since the 1950s, markets for higher education have become progressively more stratified on the basis of selectivity. In a process of “fanning out,” system expansion has occurred in the 2-year sector, while applications to selective institutions have increased much faster than enrollment (Hoxby, 2009).

Attraction to a college’s resources rather than distance from one’s home increasingly motivates the college choice of well-qualified students (Hoxby, 2009). These resource considerations involve the anticipated economic returns,

institutional prestige, and degree completion and graduate school placement rates associated with such institutions (Bound, Hershbein, & Long, 2009; Bowman & Bastedo, 2009; Frank & Cook, 1995; Hoxby & Long, 1998). As the perceived returns to education in a selective institution have risen, more individuals have sought enrollment. The percentage of students applying to 4-year institutions increased from 38% to 53% between 1982 and 2004, including a record high of 12.8% applying to selective public institutions in 2004 (Bound et al., 2009). With minimal growth in the selective sector, demand far outpaces supply, and the system-level results include rising competition and a widening selectivity gap between the most and least selective 4-year colleges from 20 percentiles in the 1950s to 76 percentiles in 2007 (Hoxby, 2009).

However, our focus is on the contributions of admissions offices to stiffening competition. There are clear financial and reputational benefits of enrolling more academically accomplished students (McPherson & Schapiro, 1998). For example, institutional rankings processes create strong incentives for admissions offices to privilege applicants' high school academic achievement in admissions decisions (Alon & Tienda, 2007; Bastedo & Jaquette, 2011). Over time, institutional financial aid offerings have also become more responsive to student academic characteristics and less responsive to financial need (Doyle, 2010).

As in other competitions where the number of aspirants exceeds the number of opportunities, admissions officers assess students not in an absolute sense but relative to other applicants (Frank & Cook, 1995). In a context of rising competition, this comparative evaluation drives up the academic credentials that students seek and institutions reward. Thus, high-achieving students tend toward institutions that ranking systems construct as prestigious, while prestigious institutions use comparative evaluation to admit progressively higher achieving applicants. Students and institutions are caught up in an escalating cycle of reactivity and self-fulfilling prophecies through their evaluations of admissions and rankings processes (Espeland & Sauder, 2007). We hypothesize this process and its implications for equity as follows:

Hypothesis 1a: The academic preparation (i.e., advanced course-taking, grades, and percentage of students taking standardized tests) of high school graduates from each racial/ethnic group has increased over time.

Hypothesis 1b: However, average increases in Black and Latino academic preparation have not eliminated disparities in preparation because White and Asian students' preparation has increased at a similar or higher rate.

Hypothesis 1c: Over time, the proportions of White and Asian high school graduates enrolling in highly selective institutions will remain higher than the proportion of Latino and Black students.

Hypothesis 2a: The positive effect of academic preparation on enrollment in selective colleges and universities has grown over time, nationally and for each racial/ethnic group separately.

Affirmative Action in Principle and Practice

Although institutions have a stronger incentive than ever to enroll students with the highest academic credentials, key admissions criteria (e.g., scores on college entrance exams) are not equally distributed across race and SES (Alon & Tienda, 2007; Grodsky & Jackson, 2009; Rothstein, 2004). Reacting to political mobilizations for civil rights in the 1960s and 1970s (Skrentny, 1996), up to half of moderately and highly selective institutions report having practiced affirmative action (Grodsky & Kalogrides, 2008). The policy received continued support into the 1980s as norms about the value of diversity diffused throughout the American consciousness, often supplanting norms about institutional mandates to remedy past injustices (Goldberg, 1998; Karabel, 2005). However, that support may be waning.

Supreme Court judgments in *Regents of the University of California v. Bakke* (1978), *Grutter v. Bollinger* (2003), and *Gratz v. Bollinger* (2003) ruled that the diversity rationale provides sufficient legal grounds for public universities to consider race in a narrowly tailored holistic evaluation, but lower court decisions and ballot initiatives have banned consideration of race in public institutions in five states (i.e., California in 1996, Texas in 1996, Washington in 1998, Florida in 2000, and Michigan in 2006). Changes in the policy environment may also affect institutional decision making outside of these states. According to College Board survey data, nearly half of the 1,300 4-year institutions surveyed report consideration of “minority status” at some point between 1986 and 2003, but its relative importance declined significantly in the mid-1990s (Grodsky & Kalogrides, 2008).

In principle, affirmative action was intended to remediate the social injustices that led Black, Latino, and Native American students to be underrepresented in selective institutions (Chen & Stulberg, 2007; Karabel, 2005). In practice, affirmative action involves sensitivity to an applicant’s race vis-à-vis his academic profile and the institution’s objectives, plus consideration of nonacademic traits (e.g., extracurricular leadership) that may signal the student’s potential to succeed academically and contribute to the institution (Gurin, Dey, Hurtado, & Gurin, 2002; Karen, 1990; Klitgaard, 1985; Takagi, 1992). According to Karabel (2005) and Grodsky (2007), admissions offices in moderately and highly selective colleges and universities changed their definitions and criteria of merit—sometimes softening criteria such as the SAT and other times adding criteria—to construct cohorts that reflect stakeholders’ perceptions of a just society. Given White and Asian American students’ higher average academic preparation and achievement, and the fact that affirmative action conditioned the environment for admissions decisions during the years we study, we expect that controlling for indicators of academic achievement will reduce White students’ enrollment advantage in selective institutions:

Hypothesis 2b: Holding academic preparation constant, disparities between Whites and other groups' odds of enrolling in selective institutions will decline over time.

Intersections of Race With Extracurricular Involvement and Socioeconomic Status

We know that selective institutions are looking for more than academic credentials in their students and that race/ethnicity is hardly the only student category that is factored into admissions evaluations. For example, elite colleges also value high school extracurricular (including athletic) involvement and leadership as a signal of positive character and personality traits (Stampnitzky, 2006; Stevens, 2007). They also prize legacy status, which encourages loyalty and financial generosity across generations (Espenshade, Chung, & Walling, 2004). Such considerations further institutional objectives around leadership development, campus culture, and financial solvency (Klitgaard, 1985; Soares, 2007), but they also serve another function: that of simplifying selection.

As early as 1985, economist Robert Klitgaard discussed Harvard University's admissions challenge of selecting from "the right tail of the distribution of talent" (Klitgaard, 1985, p. 9). Since then, academic escalation has made it increasingly difficult to distinguish academically qualified applicants to top-tier institutions from one another, such that we are approaching ceiling effects for key measures of academic quality such as grades and test scores (Hoxby, 2009). Here, the admissions practice of comparative evaluation gives an edge to those who surpass necessary academic thresholds *and* who sufficiently distinguish themselves from conventional high achievers (Bennett, Lutz, & Jayaram, in press; Klitgaard, 1985). We hypothesize that the rising bar of admissions has both academic and extracurricular components:

Hypothesis 3: Extracurricular involvement and leadership will be increasingly important predictors of enrollment in selective institutions, nationally and for each racial/ethnic group separately.

Families with higher socioeconomic status are more likely to attain the academic preparation and extracurricular experiences that elite colleges value, and no evidence to date suggests that these trends differ across ethnic groups. If anything, research indicates that students of color, on average, hold higher aspirations and ambitions than White students (Carter, 1999; Kao & Tienda, 1998; Pascarella, Wolniak, Pierson, & Flowers, 2004). Over the past 30 years, American higher education and selective institutions in particular have become more stratified by socioeconomic status (Astin & Oseguera, 2004; Hoxby, 2009). In particular, high SES families increasingly strive to maximize status and opportunity by pursuing the most prestigious college education they can (Bourdieu & Passeron, 1977; Kingston & Lewis,

1990), both in initial enrollment (Bastedo & Jaquette, 2011) and transfer to elite colleges (Dowd, Cheslock, & Melguizo, 2008; Dowd & Melguizo, 2008). The college admissions process now represents the culmination of a long effort by many high SES parents to engage children in opportunities that others will read as distinctive human, social, and cultural capital (Lareau, 2003; Levey, 2010; Stevens, 2007). We expect that extracurricular activities are a primary source of such opportunities and therefore hypothesize the following:

Hypothesis 4a: An increasing proportion of students of color in highly selective institutions will be from families with high socioeconomic status.

Hypothesis 4b: Students of color with strong academic profiles, extracurricular leadership, and high SES will have the highest probability of enrollment in highly selective institutions.

Method

Data and Sample

Our data consist of a nationally representative sample of high school completers from the 1972, 1982, 1992, and 2004 high school senior classes, utilizing data from National Longitudinal Survey 1972 (NLS), High School & Beyond 1980 (sophomore cohort) (HSB), National Educational Longitudinal Survey 1988 (NELS), and Educational Longitudinal Survey 2002 (ELS). We only included students who completed high school within 1.5 years of their high school graduating class, because the most recent wave of the ELS survey interviewed students 1.5 years after the high school graduating class of (June) 2004. We constructed the sample to be consistent across cohorts. To be consistent with NLS, which begins with a nationally representative sample of 12th graders in 1972, we excluded students who are not in 12th grade when the rest of their cohort begins 12th grade. Because only ELS 2002 utilizes hot-deck imputation for key covariates, we set ELS-imputed variable values equal to missing.

Weights. To make inferences about change over time in the national population of high school completers, we select a weight variable that is consistent across all surveys. Table S1 in the online supplementary materials (all appendices and tables/figures noted with an S may be accessed in the online version of the journal) shows the availability of weights by survey for the restricted data used in our study. We selected a weight variable, which we have named “LONGWGT,” which is non-zero for students who were survey respondents in 12th grade and who were survey respondents 2 years later, when students identify initial postsecondary attendance. Consistent with Bound et al. (2009), we also created a single data set, with

results weighted so results are nationally representative of the high school graduate population.

Dependent variable. We created three different measures of first institution attended (1) using only Postsecondary Education Transcript (PETS) data (available only for NLS72, HS&B, and NELS), (2) using only survey response data, and (3) using a combination of PETS and survey data. This research used the measure created using only survey data because missing postsecondary transcripts led to weighted postsecondary attendance rates that were lower for NLS (52%) and HSB (57.3%) using PETS data than for survey data (57.0% and 65.6%, respectively). Moreover, we wished to use a consistent data type across cohorts, and PETS is not available for ELS 2002.

Next, we merged data from Barron's (1971, 1981, 1991, 2003) *Profiles of American Colleges* to create a seven-category outcome variable: (1) does not attend postsecondary education, (2) attends a 2-year or a less than 2-year institution, and attends a 4-year institution categorized by Barron's as (3) noncompetitive, (4) competitive, (5) very competitive, (6) highly competitive, or (7) most competitive. In order to compare categories over time, we assign each institution the selectivity category Barron's assigned it in the year that the most recent cohort would be applying to college (i.e., 2003). Barron's categorizations derive from a combination of high school grade point average (GPA), average SAT, high school class rank, and percentage of applicants who are admitted. Across the Barron's categories, the mean high school GPA of a student in a Category 7 school is 3.6, compared to 3.43 in Category 6, 3.33 in Category 5, and 3.11 in Category 4. The proportion of private institutions increases with selectivity, from 9.52% of the 2-year institutions, to 35.92% of open 4-year colleges, to 44.92% of highly competitive, and 77.00% of the most competitive institutions. Due to very low numbers of students of color enrolled in the most competitive institution category, we combined Categories 6 and 7, resulting in a six-category postsecondary enrollment outcome measure ranging from no postsecondary education to most competitive. (See Appendix B and Table S2 in the online supplementary materials for distribution of GPA, SAT, and colleges across the six categories.)

Covariates. Demographic and admissions credential covariates were included in the models. Demographic variables included race/ethnicity, gender, socioeconomic status quartile, and urbanicity. The National Center for Education Statistics has collected data on race and ethnicity in their surveys in accordance with the five standard federal categories: White, non-Hispanic; Black, non-Hispanic; Hispanic; Asian or Pacific Islander; and American Indian or Alaskan Native.² In addition, ELS provided respondents an option of Multiracial/Other, which we include in analyses for the 2004 cohort. We established cut points for the SES quartile variable by sorting the weighted sample of high school graduates by continuous SES in ascending order and dividing the sample into four groups of equal size. We then created

dichotomous variables for each SES quartile in anticipation of nonlinearity between SES and postsecondary outcomes.³

Precollegiate academic preparation variables include SAT/ACT score, high school GPA, highest math course passed, and highest science course passed. We constructed the SAT/ACT score variable by (1) determining composite SAT and ACT scores, (2) recentering ACT test scores for HSB and SAT scores for HSB and NELS to reflect modifications to the ACT in 1989 and the SAT in 1995, (3) converting ACT scores to SAT scores with standardized concordance tables, and (4) selecting the higher composite score if students took both the SAT and the ACT. Of the students who indicated taking the SAT and/or ACT, test scores were missing for 3.3% in NLS, 38.7% in HSB, 23.9% in NELS, and 10% in ELS. We imputed missing SAT/ACT test scores for students who indicate taking the SAT/ACT, using the average of the math and reading components from the standardized senior year test taken by all NCES survey respondents. See Appendix D in the online supplemental material for sensitivity tests of the imputed SAT score data.⁴

The variables we created for high school GPA, highest math course passed, and highest science course passed utilize raw course-level high school transcript data not available for NLS72. Given the centrality of academic preparation to our research questions, we therefore excluded the 1972 cohort from multivariate analyses. Math and science course-taking were defined using measures developed by Burkam, Lee, and Owings (2003) and used by Dalton, Ingels, Downing, and Bozick (2007) (see Table S3). Highest math course passed is defined as follows: 1 = No math or “low” math; 2 = Algebra 1 or plane geometry; 3 = Algebra 2; 4 = Algebra 3, trigonometry, or analytic geometry; 5 = Pre-calculus; and 6 = Calculus. Highest science course passed is defined as follows: 1 = No science or “low” science; 2 = Basic biology or secondary physical science; 3 = General biology; 4 = Chemistry 1 or Physics 1; 5 = Chemistry 1 *and* Physics 1; 6 = Chemistry 2, Physics 2, or advanced biology.

To examine whether rising admissions standards include both extracurricular and academic dimensions, we also included in our model self-reported measures of one’s participation in key extracurricular activities (student government, honors society, athletics, vocational club, academic club). For NELS and ELS, a self-reported, dichotomous report of whether the student had been a leader in any extracurricular activities was also available and included in the model.

Finally, we included controls for characteristics found in previous research to influence selective college enrollment. These variables include degree expectations (less than bachelor’s, bachelor’s, master’s, and doctoral/professional degrees), high school urbanicity (urban, suburban, and rural), high school control (public, Catholic, other private), and high school region. Where it was available (i.e., in NELS and ELS), we created covariates for immigrant status (first generation, second generation, nonimmigrant).

Analysis

For hypotheses requiring multivariate analysis, the structure of our dependent variable prompted our choice of methodology. One could interpret non-enrollment and the Barron's categories as ordinal ranked, implying an ordinal logistic regression. However, we found that the parallel regression assumption (Long & Freese, 2005) on which ordinal logistic regression rests was violated for our dependent variable. That is, the slope between a covariate and the dependent variable was not the same for all categories of the dependent variable. Instead, we employed a multinomial logistic regression model (MNL), which creates M logistic regression equations for the M outcome variable categories minus one for the base outcome J , nonselective 4-year institution. Therefore, for each covariate there are $M - 1$ coefficients. Equation 1 shows the general equation used in our multinomial logistic regression model:

$$p_{ij} = \frac{e^{x_i \beta_j}}{\sum_{l=1}^m e^{x_i \beta_l}}, \quad (1)$$

where p_{ij} is the probability of individual i experiencing postsecondary outcome j out of a total number of m possible outcomes; x_i is a vector of race/ethnicity, demographic, degree expectation, and academic preparation variables; and β_j is the vector of coefficients for these covariates on the probability of experiencing postsecondary outcome j .

In Multinomial Logistic Regression (MNL), coefficients (b) are expressed in terms of log odds. A unit change in the independent variable is associated with a b unit change in the log of the odds of the outcome occurring. To simplify interpretation, we report most findings in terms of odds ratios, which raise e to the power of b . The odds ratio represents the factor change in the odds of an outcome associated with a one-unit change in the independent variable (i.e., one unit on the scale of continuous variables and 0/1 for dichotomous variables). We also calculated predicted probabilities of admission to selective institutions for select student profiles.

Each of the four surveys in our data set utilizes a stratified random sample, first sampling U.S. high schools and then students within them. We therefore specified the variance-covariance matrix to be estimated with robust standard errors. Students within high schools are more likely to be similar than students in different high schools; therefore, less variation exists within a sample that selects students within specific high schools than a sample that selects students entirely at random. We use clustered, robust standard errors—clustering on the high school—to acknowledge the correlation within high schools. Therefore, our standard errors are higher than they would be if students were selected entirely at random.

Table S4 outlines the weighted and unweighted sample sizes for each cohort. White students comprise a majority of the weighted sample in each cohort (Figure S1), but previous research shows that the factors predicting White students' postsecondary outcomes may not be the same ones explaining outcomes among Asian American, Black, and Latino students (e.g., St. John, Paulsen, & Carter, 2005). Therefore, in addition to the general model, we estimated the model separately for each race category to determine whether there are differences across race and cohort in the factors that predict postsecondary enrollment. For these analyses, we also took advantage of the availability of data in NELS and ELS on students' immigrant status and extracurricular leadership and included these factors in the model. To determine the value added by these additional variables, we calculated scalar measures of logistic model fit for nested models (e.g., Akaike's Information Criterion [AIC] and Bayesian Information Criterion [BIC]) as recommended by Raftery (1996) and Long and Freese (2005).

Limitations

The principal limitations of our study derive from the demands of constructing a longitudinal data set. While use of a consistent categorization scheme across time is a paramount concern in constructing a longitudinal data set, the coarse NCES and U.S. census race/ethnicity scheme obscures considerable intragroup diversity in academic preparation and postsecondary outcomes. Aggregating all Asian American students is problematic, for example, given that the mean preparation, SES, and postsecondary outcomes of students with Southeast Asian origins often more closely resemble that of Black and Latino students than the East Asian ancestry students who comprise the majority in the Asian American category (Chang & Kiang, 2002; Hune, 2002; Kiang, 2004). Through analyses of trends in each racial/ethnic category we try to examine diversity within groups and cohorts, such as by SES and immigrant status; however, we do not advise that our findings be interpreted to structure programs or policies that affect "Asian" students' college opportunities, writ large.

One advantage of the Barron's criteria is that they are well defined across levels of selectivity and have changed little since 1972 (see Appendix C in the online supplemental material). This stability is important since it allows us to apply Barron's 2003 rankings to all years and thus make cross-cohort comparisons, an approach used in previous longitudinal research on selective college access (e.g., Astin & Oseguera, 2004). However, fixing the 2004 rankings means that a small proportion of institutions were counted as more selective in 1972, 1982, or 1992 than they may have been.

Analytically, growth in the African American, Asian American, and Latino/a populations during the time period we study means that group

averages take into account more variation in 2004 than in 1972. Similarly, high school graduation rates determine our analytic samples for each cohort, and our models do not account for increases since 1972 in the national high school graduation rate. Defining enrollment within 1.5 years of high school graduation may downwardly bias estimates of Black and Latino students' postsecondary enrollment, since those groups are more likely to delay initial college enrollment.

Finally, our data have not allowed us to control for whether changes in tuition and financial aid—two factors that may incline students toward particular institutional types—may have affected stratification by race and socioeconomic status during this period. Available resources have not kept pace with the rising costs of higher education since 1972. Specifically, the mid-1970s shift from grants to loans (Hearn & Holdsworth, 2005; Posselt, 2009; St. John & Asker, 2003) and the rise and fall of need-blind admissions in a context of rising tuition (Heller, 2008) could each negatively affect the odds of enrollment for students of color given their lower than average SES. We intend in future research to examine this possibility more closely.

Results

Hypothesis 1: Institutional Stratification and Rising Academic Preparation

To test Hypothesis 1, we examine weighted descriptive statistics about changes over time in the average academic preparation of U.S. high school graduates. We find evidence supporting Hypothesis 1a, that average pre-college academic achievement has significantly increased along the dimensions of high school science and math course-taking, high school grades, and percentage of students taking college entrance exams (see Table 1 for details of each cohort's composition and Table S5 for significance tests across cohorts).

Per Hypothesis 1b, we find that academic preparation increases occur in similar rates across race, so that initial disparities are preserved over time (Figures 1a and 1b and Table S5). Nationally, the mean highest science course taken increased from 3.28 to 4.10 ($p < .001$), which corresponds practically to an increase from general biology to Chemistry 1 or Physics 1. We also find mean increases for students from each racial/ethnic category, with Asian students consistently displaying the highest mean math and science course-taking ($p < .001$). While the gap in course taking narrowed for Black students and widened for Latino students in 1992, the pattern in 2004 closely resembles that of 1982 (Figure 1a and 1b).

High school graduates of all backgrounds are also earning significantly higher grades. In the sample as a whole, mean cumulative grade point average increased from 2.62 in 1982 to 2.86 in 2004 ($p < .001$). However, as with math and science course-taking, relative gaps in average GPA across race are preserved even as each group realizes overall increases.

Table 1
Traits of 1972, 1982, 1992, and 2004 U.S. High School Graduates (Weighted)

	1972 (<i>N</i> = 11,820)	1982 (<i>N</i> = 9,550)	1992 (<i>N</i> = 10,070)	2004 (<i>N</i> = 11,730)
Race/ethnicity				
White	84.9%	79.3%	72.9%	62.7%
Black	8.3%	11.9%	11.8%	12.9%
Latino	3.5%	6.3%	9.7%	14.8%
Asian American	1.1%	1.3%	4.4%	4.4%
Controls				
Female	51.0%	51.4%	49.7%	51.3%
Expect less than bachelor's degree	58.6%	52.5%	28.4%	21.7%
Expect bachelor's degree	26.0%	23.1%	34.5%	34.4%
Expect master's degree	10.2%	10.7%	17.5%	22.9%
Expect doctoral/professional degree	4.9%	8.0%	14.2%	13.5%
First-generation immigrant	NA	NA	4.1%	7.5%
Second-generation immigrant	NA	NA	8.4%	12.7%
Nonimmigrant	NA	NA	87.5%	79.8%
High school in urban area	NA	18.2%	28.5%	28.8%
High school in rural area	NA	32.4%	30.5%	19.8%
High school in suburban area	NA	49.4%	41.1%	51.3%
Public high school	NA	89.0%	89.3%	91.3%
Catholic high school	NA	7.4%	6.7%	4.9%
Private high school	NA	3.6%	4.0%	3.8%
Academic preparation/extracurricular involvement				
Mean high school GPA (<i>SD</i>)	NA	2.62 (.66)	2.66 (.68)	2.86 (.67)
Mean SAT (<i>SD</i>)	1,050.7 (180.8)	971.3 (195.4)	1,003.2 (193.1)	1,003.9 (202.5)
Mean highest science taken (<i>SD</i>)	NA	3.28 (1.52)	3.84 (1.52)	4.10 (1.25)
Mean highest math taken (<i>SD</i>)	NA	2.66 (1.43)	3.32 (1.51)	3.74 (1.47)
High school athletics	44.7%	52.4%	43.0%	44.8%
High school honor society	15.6%	17.5%	19.7%	23.2%
High school extracurricular leader	NA	NA	18.6%	37.3%
Postsecondary outcome				
Not enrolled	44.0%	35.7%	28.3%	21.8%
2 year	23.4%	30.0%	27.9%	30.9%
Noncompetitive 4 year	8.9%	8.7%	10.5%	12.8%
Competitive	12.2%	13.4%	16.6%	18.3%
Very competitive	7.2%	7.3%	9.3%	9.8%
Most competitive	4.3%	5.0%	7.4%	6.4%

The percentage of students taking entrance exams and mean scores on these exams both point to increased preparation for postsecondary

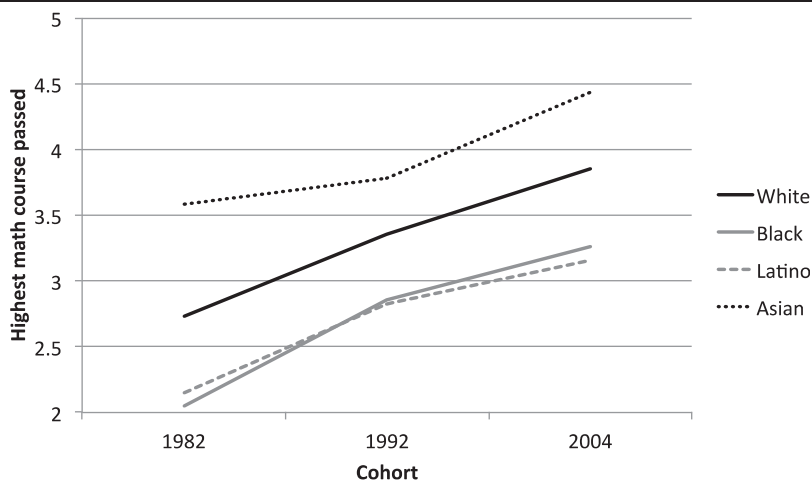


Figure 1a. Mean highest high school math course passed.

Note. Highest math course passes is defined as follows, per Burkam, Lee, and Owings (2003): 1 = no math or “low” math; 2 = Algebra 1 or plane geometry; 3 = Algebra 2; 4 = Algebra 3, trigonometry, or analytic geometry; 5 = pre-calculus; and 6 = calculus.

education. The two statistics are related, for with an increase in the size of the test-taking pool, we expect lower average scores. Indeed, the mean SAT score has declined by about 50 points, which is likely due to a rising population of test-takers. Between 1982 and 2004, the proportion of students taking either the SAT or ACT increased, both overall and within racial/ethnic groups (Figure S5). Nevertheless, we still observe increases in the mean SAT scores of Black, Latino, and Asian American students (Table S7). Asian Americans have the highest mean SAT score in each cohort, despite a higher proportion of them taking the exams than White, Latino, and Black students in each cohort.

Focusing on those who enroll in the most selective institutions, we observe widening differences in mean SAT scores by race, from 141 points between White and Black students’ mean scores in 1972 to 202 points between Asian American and Black students’ mean scores in 2004 (Figure 2).

As is expected given rising postsecondary preparation, the percentage of each racial/ethnic cohort enrolling in any postsecondary education within 18 months of graduation increases between 1972 and 2004 (Figure 3). With steeper gains in overall enrollment coming from the most underrepresented racial groups, the enrollment gap reduces by more than half, from 44 percentiles to 20 percentiles. Notably, the percentage of Black students not enrolling in postsecondary education is cut in half, from 52.6% to 26.3%.

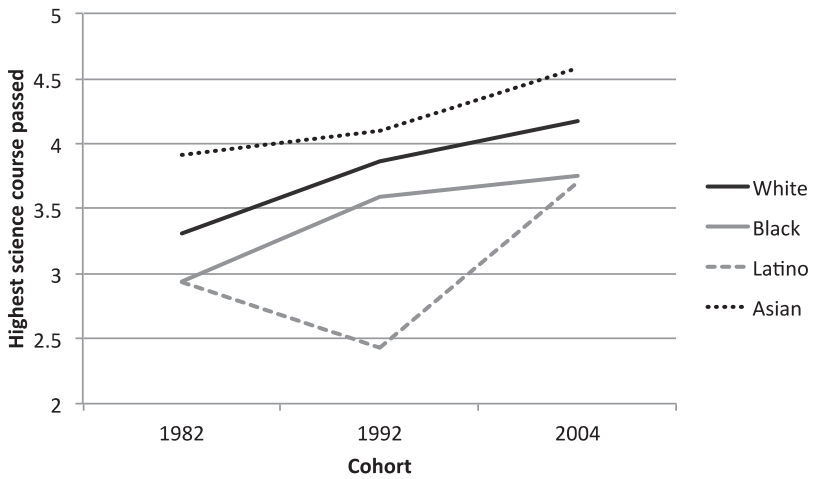


Figure 1b. Mean highest high school science course passed.

Note. Highest science course passed is defined as follows, per Burkam, Lee, and Owings (2003): 1 = no science or “low” science; 2 = basic biology or secondary physical science; 3 = general biology; 4 = Chemistry 1 or Physics 1; 5 = Chemistry 1 and Physics 1; 6 = Chemistry 2, Physics 2, or advanced biology.

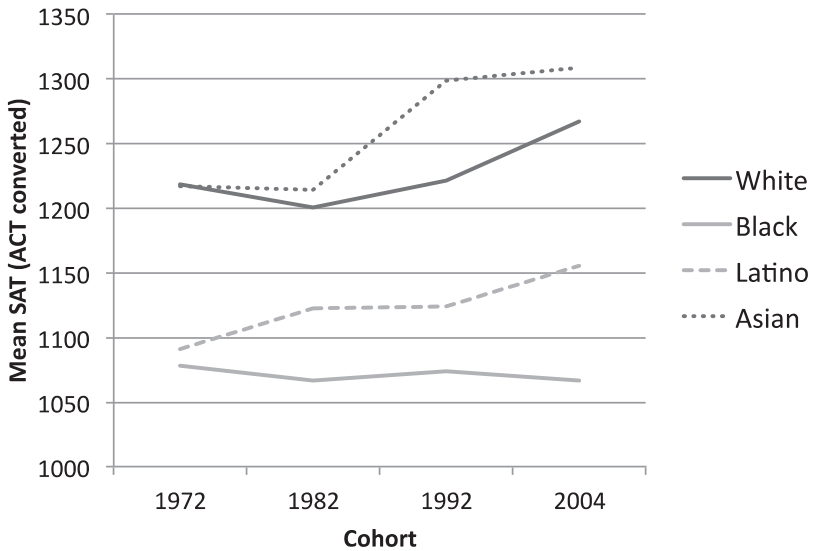


Figure 2. Mean SAT score in most selective institutions by race/ethnicity.

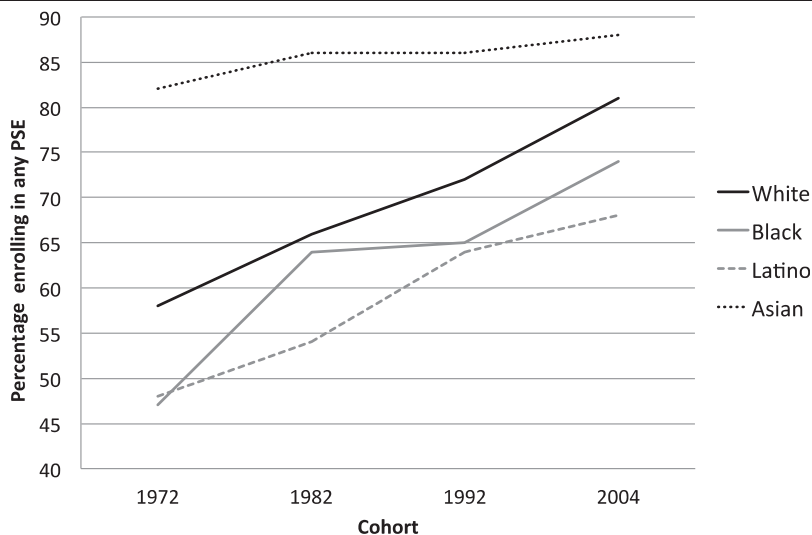


Figure 3. Percentage of high school graduates enrolling in any type of postsecondary education (PSE) within 18 months of graduation.

Against this backdrop of expanded access and improved academic preparation, however, lower initial enrollment rates in selective institutions persist among Black and Latino students compared to White and Asian students.

Per Hypothesis 1c, we find that similar rates of increase in academic preparation result in little change in institutional stratification (see Figure 4). Black and Latino students do realize significant gains in access to selective colleges and universities, if we define them as any 4-year institution employing a competitive admissions process. By 2004, 22.7% of Black high school graduates enroll in a selective college or university (up from 14.8% in 1972) compared with 16.2% of Latinos, 40.3% of Whites, and 50.9% of Asian Americans. However, all racial/ethnic categories make such gains during this time period, such that the overall selective college enrollment gap—one marker of institutional stratification by race—is slightly wider in 2004 than it was in 1972.

Looking at the most selective institutions (Figure 4), stratification by race appears even more pronounced than in selective colleges, generally. Enrollment rates between 1972 and 2004 modestly increase from 1.6% to 1.9% among Black students and from 1.4% to 3.4% among Latino students. Consistent with Asian American and White students' higher mean grades, entrance exam scores, and advanced course-taking, a greater percentage of those students enroll in the most selective category of colleges and universities over time (from 11.6% in 1972 to 16.4% in 2004 for Asian Americans

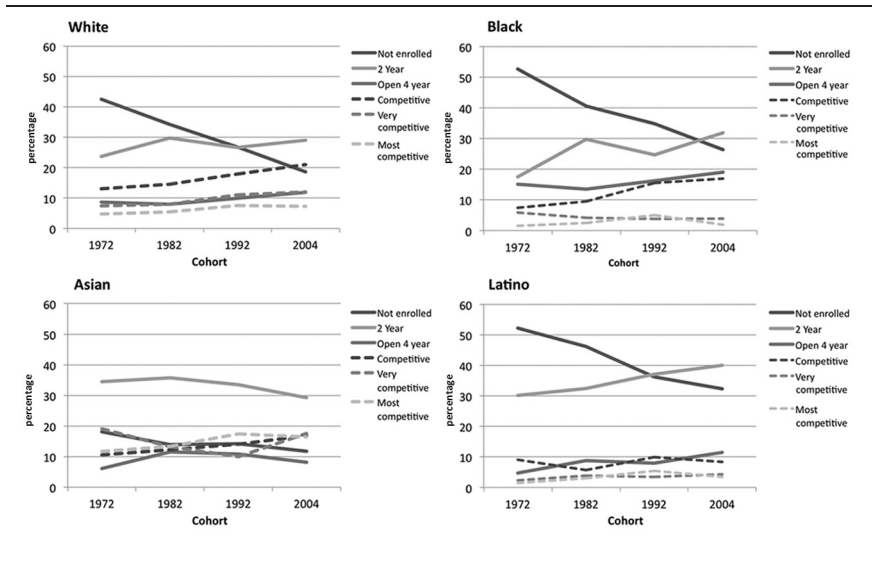


Figure 4. Postsecondary enrollment of high school graduates 18 months after graduation, as percentage of racial/ethnic group.

and 4.7% to 7.3% of Whites). Put another way, for every 100 Asian American high school graduates, 16 enrolled in one of the most selective colleges in 2004, compared to only 2 of every 100 Black high school graduates.

It is possible that gains in elite college enrollment may be driven by expansion of the elite categories or greater academic preparation; to more closely examine the academic preparation hypothesis, we employ multinomial logistic regression (Hypothesis 2).

Hypothesis 2: Academic Preparation and Odds of Enrolling in Selective Institutions

Tables 2 and 3 display the findings of our MNL models. High school GPA, SAT scores, and highest math and science courses taken are all associated with significantly higher odds of enrollment in one of the most selective institutions relative to an open 4-year institution. Of these, GPA, SAT, and highest high school math course support our hypothesis that the positive effect of academic preparation on enrollment in selective colleges has grown over time (Table 2). The increasing importance of SAT scores is perhaps the strongest longitudinal trend. In 1982 a standard deviation increase in SAT is associated with a 2.7 times higher odds of enrolling in one of the most selective institutions ($p < .001$), but by 2004 it is associated with a 5.4 times higher odds ($p < .001$). The positive relationship of grades and enrollment also

strengthens. By 2004, each standard deviation increase in GPA is associated with 40% higher odds of enrolling in a very competitive ($p < .001$) and 69% higher odds of enrolling in a most competitive ($p < .001$) institution relative to an open 4-year institution. Coefficients for highest math course taken also trend upward, indicating that advanced math courses increasingly predict enrollment.

In further support of Hypothesis 2a, academic preparation indicators are among the strongest factors in the models run separately for each racial/ethnic group (Table 3). An exception to this is high school grade point average and highest math course taken for Latino students (but which trends toward significance between 1992 and 2004).⁵ While highest science course taken is associated with enrollment for the sample as a whole, this is not the case for individual racial groups. Together, we find support for Hypothesis 2a, that the positive effect of preparation on enrollment has grown. However, we find SAT scores are the most important component of academic preparation for the national sample and individual racial groups, and highest science course taken is less important in 2004 than in 1972.

As in most demographic-level, longitudinal research, cohort effects (i.e., the traits of one cohort do not hold for the cohort preceding and/or following it) help explain nonlinearity in our coefficient changes over time. The more time points one has, the easier it is to spot data that do not generalize to a trend that holds over a longer period of time. In our case, some data from 1992 seem to defy the trend apparent in 1972, 1982, and 2004. Other research on access to selective institutions using multiple NCES databases also finds some anomalous data on the 1992 NELS cohort (Bound et al., 2009).

Next, we test Hypothesis 2b, which suggests that equal levels of academic preparation will be associated with reduced enrollment disparities across race. We compare a baseline model including only the racial/ethnic categories of interest with a full model including demographic controls and our indicators of academic preparation. Across all three cohorts, the baseline model confirms Black and Latino students' lower odds of enrolling in competitive, very competitive, and most competitive institutions compared to Whites (Table 2). From 1982 to 2004, Black students' odds of enrollment *decrease* relative to Whites in more selective institutions. In 2004, Black students had 83% lower odds than White students of enrolling in one of the most selective institutions compared to a 73% lower odds in 1982. Asian American students' odds of enrolling in institutions with the highest selectivity relative to a nonselective 4-year institution increase over time and, in all years except 1982, are significantly higher than White students' odds ($p < .001$). The overall trend in regression coefficients, however, corroborates the hypothesis that Black students' odds of enrolling in the most selective institutions is declining relative to other types of institutions and relative to Whites' and Asians' opportunities (Table 4). Running a similar model in

Table 2
Coefficients Over Time for Full Multinomial Logistic Regression (Log-Odds of Enrolling in Most Selective 4-Year Compared to Nonselective 4-Year Institution)

Model	Baseline				Model 2 With Controls				Model 3 With Academic Preparation			
	1972	1982	1992	2004	1982	1992	2004	2004	1982	1992	2004	2004
Cohort												
Black	-1.67***	-1.29***	-.90***	-1.79***	-.52	-1.61***	-1.46***	.34	.46	.34	.34	
Asian	1.24**	.53	.75***	1.20***	.45	1.25***	1.23***	.22	-.04	1.13***		
Latino	-.58	-.69*	-.12	-.71***	.06	-.29	-.28	.34	.67	.94***		
Multi/Other	NA	NA	NA	-.40†	NA	NA	-.08	NA	NA	.34		
Female			.01		-.15		-.03	.28	-.02	.17		
SES Quartile 1					-1.17***		-2.01***	-.89**	-.41	-.87***		
SES Quartile 2					-1.48***		-1.67***	-.96**	-1.20***	-.99***		
SES Quartile 3					-.93***		-1.17***	-.63***	-.53*	-.72***		
Rural high school					-.68***		-.37*	-.51†	-.86***	-.44*		
Private high school					.54		.50**	1.26**	.42	.39*		
High school in Northeast					.70***		.58***	1.37***	.99***	.79***		
Degree expected: BA/BS					1.30**		1.40***	1.32***	.74	1.06*		
Degree expected: Master's					2.10***		2.32***	2.16***	.87	1.50**		
Degree expected: Doctorate/ professional					2.56***		3.18***	3.04***	.97 †	2.09***		
High school GPA								.63**	.42*	.88***		
SAT score								.005***	.006***	.008***		
Highest math taken								.09	.15*	.34***		
Highest science taken								.20***	.28**	.16*		

Note. Whites, highest socioeconomic status (SES) quartile, and expect some college excluded as reference groups. NA = data not available for this cohort. Sample sizes are as follows: N(1972) = 11,820, N(1982) = 9,550, N(1992) = 10,070, N(2004) = 11,730.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3
Coefficients Over Time for Models Estimated Within Each Racial/Ethnic Category

Model	White		Black		Latino		Asian	
	1992 (N = 3,750)	2004 (N = 4,640)	1992 (N = 330)	2004 (N = 720)	1992 (N = 370)	2004 (N = 640)	1992 (N = 430)	2004 (N = 700)
Cohort								
Extracurricular leader	0.34†	0.52***	-1.69*	1.27*	-0.83	0.52	-0.78†	0.78†
Immigrant (first generation)	-0.42	-0.66	-43.26	-0.15	0.65	1.03†	2.04**	-1.36
Immigrant (second generation)	0.83*	0.16	1.08	-1.67	1.71*	0.75	2.09**	-0.32
Female	-0.10	0.29*	1.09†	-1.62**	-1.04	-0.06	0.25	0.79†
Rural high school	-0.66**	-0.49**	-1.35†	-1.58	-3.20**	-1.49*	-0.17	3.04***
Private high school	0.47	0.30	2.36†	1.67*	23.35***	-0.44	-0.94	1.35†
High school in NE	1.28***	0.79***	-0.88*	2.54***	-0.02	0.04	-0.49	0.67
Degree expected: Some college	-0.20	-32.66	-44.27***	-34.56***	-9.48***	-27.73***	-35.01	-26.83***
Degree expected: BA/BS	-0.28	0.03	-1.96	-1.53	20.03**	2.51†	3.78*	3.74**
Degree expected: Master's	0.15	0.422	-1.63	-2.79*	21.83***	2.35†	3.99*	3.70**
Degree expected: Doctorate/professional	0.31	0.92	0.29	-1.75	22.63***	3.08	4.09*	4.43***
High school GPA	0.70***	0.72***	0.50	1.99***	-0.16	0.63	-0.16	1.47**
SAT score	0.01***	0.01***	0.01*	0.01**	0.01***	0.01***	0.01**	0.01***
Highest math taken	0.11	0.28**	0.55**	0.72†	-0.34	0.36	0.53*	0.56*
Highest science taken	0.25*	0.10	-0.34	0.03	0.94*	-0.02	0.46†	0.32
SES Quartile 1	-1.92***	-1.46**	-0.06	-0.73	-0.23	0.09	0.24	0.26
SES Quartile 2	-1.45***	-1.41***	-0.70	-0.23	-1.60	-0.11	-0.57	0.56
SES Quartile 3	-0.87***	-0.88***	-0.98	0.52	-0.98	-0.12	0.96	0.57

Note. Log-odds of enrolling in most selective 4-year compared to nonselective 4-year institution. Nonimmigrant, highest socioeconomic status (SES) quartile, and expect high school diploma excluded as reference groups. NA = data not available for this cohort.

† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

which Asian American students were excluded as the reference group confirmed this finding.

Controlling for demographic factors, degree expectations, and academic preparation changes the relationships considerably. Differences in enrollment odds between Black and White students are no longer statistically significant in any of the cohorts, suggesting enrollment disparities may be attributed in part to associated disparities in academic preparation. Holding academic preparation constant not only equalizes Latinos' odds of enrollment by 2004 but produces a 156% higher enrollment odds than White students, *ceteris paribus* ($p < .0001$). In summary, our results clearly support Hypothesis 2b, that racial disparities in selective college enrollment decline over time if academic preparation and other variables in our model are held constant. Differences in academic preparation—which are an outcome of racialized and unequal K–12 schools—help explain why Black and Latino high school graduates are less likely than their White counterparts to enroll in America's most selective colleges and universities.

Hypothesis 3: Extracurricular Leadership and Enrollment in Selective Institutions

Descriptive and multivariate evidence converge to support our hypothesis that extracurricular involvement and leadership is increasingly important for enrollment in highly selective schools. In each racial/ethnic category, the percentage of students enrolled in the most competitive institutions reporting high school extracurricular leadership more than doubles from 1992 to 2004 (Figure 5). In the two cohorts in which we have leadership data, Black students in the most selective institutions report extracurricular leadership at the highest rates (35% up to 74%), followed by Whites (30% up to 69%).

According to the MNL of the whole sample (Table 3), leadership does not predict enrollment in a highly selective institution for the 1992 cohort, but it is strongly, positively associated with enrollment in the most selective institutions in 2004 ($p < .001$). Controlling for everything else in the model, extracurricular leaders in high school in the 2004 cohort have 75% higher odds of enrolling in the most selective institutions relative to noncompetitive 4-year schools ($p < .001$). Leaders are also more likely to enroll in competitive and very competitive institutions relative to noncompetitive 4-year colleges.

In the models disaggregated by race/ethnicity, extracurricular leadership predicts enrollment in the most selective institutions among White, Black, and Asian American students but not Latinos. Latino students enrolled in the most selective institutions also have the lowest self-reported rates of high school extracurricular leadership. It deserves noting that we report coefficients for the models by race/ethnicity for two purposes: (1) within-model comparison of factors' relative importance and (2) between-model comparison of coefficient significance and sign direction. These models' analytic sample sizes

Table 4
Percentage Difference in Odds of Attending Selective Institution for Students of Color Compared to White Students

	1982			2004		
	Competitive Versus Open 4-Year	Very Competitive Versus Open 4-Year	Most Competitive Versus Open 4-Year	Competitive Versus Open 4-Year	Very Competitive Versus Open 4-Year	Most Competitive Versus Open 4-Year
Baseline model						
Black	-61%***	-69%***	-73%***	-49%***	-80%***	-83%***
Latino	-65%***	-56%***	-50%***	-52%***	-62%***	-51%***
Asian	-42%†	+14%	+70%†	+18%	+117%***	+233%***
Full model						
Black	-53%*	-11%	+40%	-28%*	-25%	+41%
Latino	-43%	+17%	+40%	-29%*	-1%	+156%***
Asian	-42%	+9%	+25%	+32%	+136%***	+209%***

Note. Negative numbers correspond to lower odds of enrollment than Whites; positive numbers correspond to higher odds of enrollment than Whites.

† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

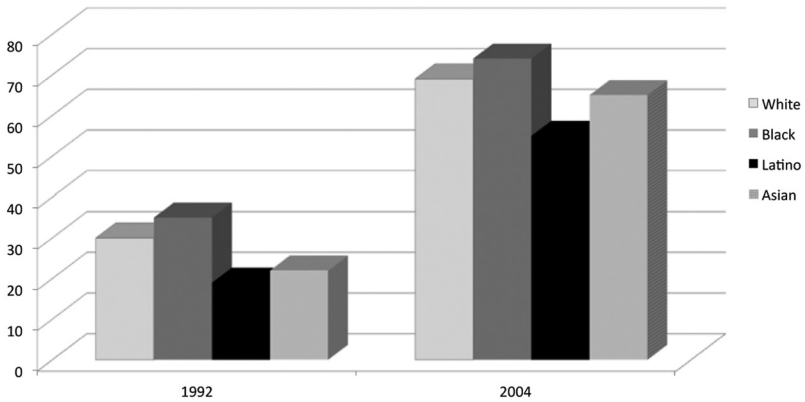


Figure 5. Percentage in the most selective institutions reporting extracurricular leadership in high school.

range from a low of 330 African Americans in 1992 to a high of 4,640 Whites in 2004, and Long and Freese (2005) admonish against direct comparisons of coefficients for models with different sample sizes. The results of likelihood ratio tests, Long and Freese argue, will be skewed due to differences between the samples (p. 67). Although we are only able to compare two cohorts, these data support Hypothesis 3, that extracurricular leadership is an increasingly important predictor of enrollment in selective institutions.

Hypothesis 4: Race, Socioeconomic Status, and Institutional Stratification

Descriptive statistics provide clear backing for Hypothesis 4a, that an increasing proportion of students of color in highly selective institutions will be from families with high socioeconomic status. White students still comprise the majority in selective colleges nationally, but enrollment has become more racially diverse over time (see Figure 6a). However, with this diversity we also observe declining SES diversity among students of color, as increasing proportions are from the highest SES quartile (Figure 6b). The proportion of White students in the most competitive institutions who are from the highest SES quartile has hovered around 70% since 1972. By contrast, only 9% of Black and 9% of Latino students in the most selective colleges were from the highest SES quartile in 1972, but by 2004 this had risen to 49% and 35%.

Finally, to examine Hypothesis 4b, that students of color with strong academic achievements and high SES have the highest probability of enrolling in highly selective institutions, we calculate predicted probabilities from our model of the national sample. Figure 7 displays the 2004 probability of enrollment for honor society members whose SAT and high school GPA

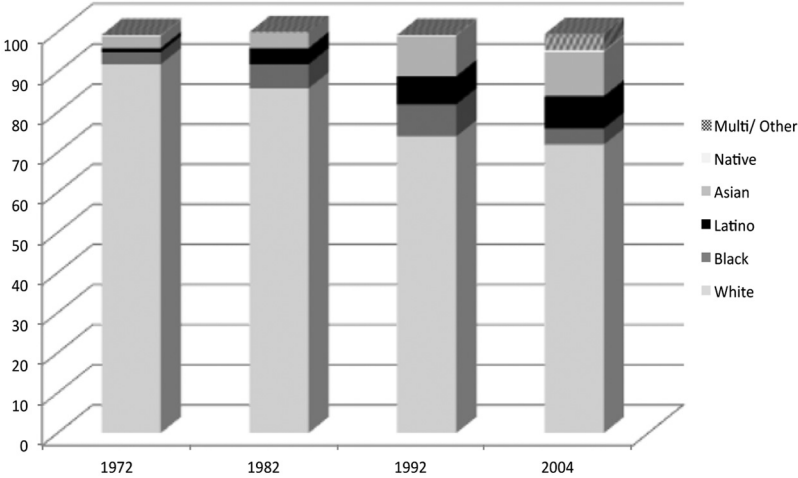


Figure 6a. Composition of most selective institutions by race/ethnicity.

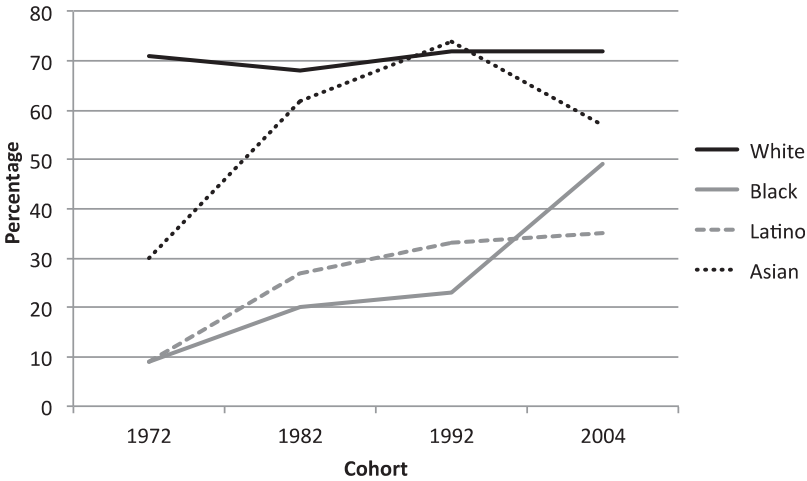


Figure 6b. Percentage of students in most selective institutions who are from the highest socioeconomic quartile.

are one standard deviation above the national mean and how this probability changes across the range of observed values of SES. As anticipated, high SES students from all racial/ethnic groups are significantly more likely to

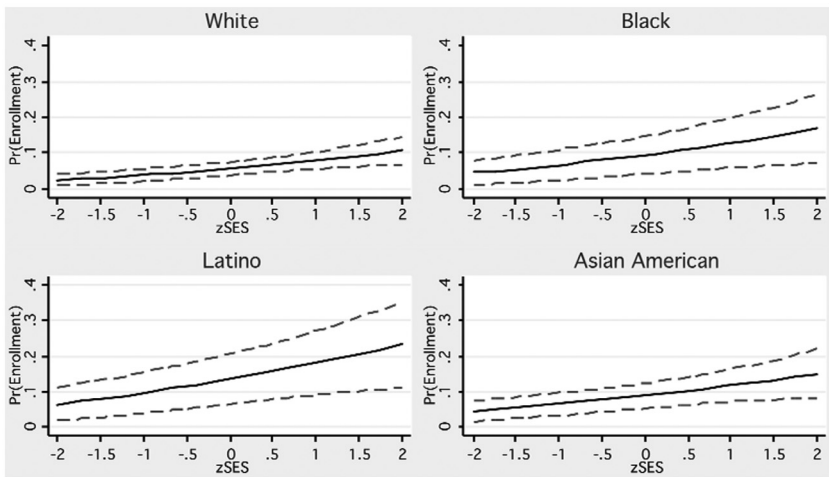


Figure 7. Race, socioeconomic status (SES), and predicted probability (Pr) of enrollment in the most selective institutions for honor society members with SAT and grade point average 1 SD above the mean (95% confidence intervals).

enroll in selective institutions than lower SES students. Although small sample sizes lead to relatively large confidence intervals for Black and Latino students, the probability of enrolling in one of the most selective universities is 13 percentile points higher for Latinos than Whites and 9 percentile points higher for Black than White students. Moreover, we find that while Hypothesis 4b holds in 1982, 1992, and 2004, the probabilities of selective college enrollment given the same academic profile are much higher for all groups in 1982 than in 2004, suggesting stiffening competition over time for spaces in highly selective institutions.

When we estimate the model separately by race/ethnicity categories, SES is a significant predictor of enrollment in each type of selective institution for White students but not for Black, Latino, or Asian American students (Table 3). These results seem to contradict our earlier finding that students of color attending selective institutions are increasingly from the highest SES quartile and may be due to (1) the effect of high SES on minority students operating through academic preparation or (2) the low numbers of high SES students of color in selective institutions, weakening our statistical power. What the data clearly show is that high SES White students are more likely to enroll in each type of selective institution relative to a nonselective 4-year institution in both 1992 and 2004. In comparison to enrolling in a nonselective 4-year school, White students in 2004 from the lowest SES quartile had 77% lower odds of enrolling in most selective institution ($p <$

.01), a 52% lower odds of enrolling in a very selective institution ($p < .01$), and a 40% lower odds of enrolling in a selective institution ($p < .001$).

In summary, we find conditional support for Hypothesis 4b, that students of color with high SES and strong SAT scores have the highest probability of enrolling in selective institutions. High SES students of color do have significantly higher probabilities of enrolling in selective institutions than high SES White students, but only where academics are equal. However, we know that most academic preparation is not equal, that Black and Latino students do not often have SAT scores one *SD* above the national mean, and that at mean and lower levels of SES the enrollment advantage becomes nonsignificant. While capturing detail at one end of the SES, institutional, and academic spectra, the probabilities we calculate do not pertain to the majority of high school graduates.

Discussion and Implications

Rising academic standards for admission, especially SAT scores, have negative consequences for equitable enrollment in selective colleges. With each cohort of high school graduates, high school grade point average, SAT scores, and high school math curriculum are associated with greater odds of enrolling in institutions that are even minimally selective. Academic preparation among Black and Latino students has improved across the board, but similar rates of improvement among White and Asian students on some indicators paired with institutions' increasing reliance on SAT scores help to preserve institutional stratification by race. While the share of Latino high school graduates enrolling in these institutions has more than doubled since 1972, it remains half the national average. Similarly, Black high school graduates' enrollment in highly selective institutions remains less than one-third of the national average. When we do not hold constant students' academic profiles—as is the case in schools and society—Black students' odds of enrollment have *decreased* relative to White students' since 1982.

The importance of academic preparation holds when we estimate the model separately by each racial/ethnic group. We pose two possible explanations for the surprising findings that high school grade point average and highest math course passed are not significantly associated with Latino students' enrollment in the most selective universities. First, these findings may simply be a function of the small number of Latino students in this sample who enroll in this institutional type. We know that modeling "rare events" carries with it a greater risk of Type II errors (i.e., that the regression misses what may in reality be a significant association). A related possibility has to do with Latino students' clustering in particular institutional types and U.S. regions. Nationally generalizable data constructed from the NCES survey efforts may not actually reflect trends for Latino students, who are not distributed equally over the country, but rather concentrated in the Southwest and California.

They are also concentrated in particular institutional types, with approximately 50% enrolling in Hispanic Serving Institutions that, together, represent just 5% of colleges and universities (Mercer & Stedman, 2008, p. 30).

Holistic Evaluation and Institutional Preferences

We find evidence that academic preparation is a necessary but insufficient basis for selective college admission and that additional factors are considered. Both affirmative action and admissions in selective institutions rest upon the practice of holistic evaluation, in which decision makers judge applicants not only on the basis of academic accomplishment but also personal traits perceived to predict college success and leadership in society. In looking for applicants with “character” and “leadership,” some selective universities already practiced holistic admission when affirmative action was introduced (Soares, 2007; Stampnitzky, 2006; Wechsler, 1977). Previous experience with leadership in extracurricular activities, the argument goes, is a prime signal of potential for future leadership (Bennett, 2012; Klitgaard, 1985; Soares, 2007).

Universities like UC-Berkeley, however, also made holistic evaluation a cornerstone of their rationale for affirmative action policies (Takagi, 1992). In combination with high achievers’ efforts to distinguish themselves in the pool of applicants, a significant consequence of affirmative action may have been to institutionalize the value that selective institutions place on nonacademic indicators that are more equally distributed across race (Sternberg, 2010; Takagi, 1992). Affirmative action may not change admissions opportunities for the majority of underrepresented students, but it has clear effects in the most selective universities—as it has intended to do (Bowen & Bok, 1998; Grodsky & Kalogrides, 2008).

As selective institutions approach ceiling effects in the ability of test scores, grades, and curriculum to distinguish applicants on the basis of academic preparation alone (noted by Hoxby, 2009), escalation in the requirements for admission to selective institutions has come to include both academic and non-academic traits. And, as Bennett (2012) writes, “When elite universities began to use participation in structured activities as part of their assessment of students’ merit for admission, it became a mechanism for stratification” (p. 48). Our data confirm the growing importance of extracurricular activities while challenging Bennett’s conclusion that schools should therefore be more concerned with equalizing activity participation than with equalizing academic opportunities. Controlling for extracurricular leadership and demographics alone does not eliminate the gap in the probability of enrollment between Blacks, Latinos, and Whites. Put another way, valuing nonacademic indicators—whether it is race, extracurricular leadership, or other psychosocial traits—does not minimize the central and increasing role that prior academic achievement has come to play in selective admissions.

Moreover, we find that selective universities are increasingly stratified by socioeconomic status, both within and across racial groups. Our predicted probabilities confirm Bowen, Kurzweil, and Tobin's (2005) finding that high SES students of color with strong academic profiles have the best chances of enrolling in selective institutions. However, in separate MNL regressions by racial group, we find SES is only a statistically significant factor in White students attending a highly selective college or university. This finding may trace to the very small numbers of high SES students of color in selective universities. As this number increases and approaches the 70% rate that Whites have had since 1972, and given the upward trend in our coefficients, SES may soon become a significant predictor of enrollment across racial categories. In the meantime, that students of color at selective colleges are significantly higher in SES than they used to be may help explain the observed increases in their average academic preparation and enrollment.

Implications

Together, the trends we have identified allow the postsecondary system to remain stratified while fulfilling competing demands for overall growth, a modicum of racial diversity, and in the selective sector, high rankings. Yet over the long term, and given pressure to roll back race-sensitive admissions, it will require a multidimensional agenda to resolve the tension between access and equity (St. John, Hu, & Fisher, 2010). Here, the two discourses of diversity in American higher education that Chang (2002) identifies are instructive. The discourse of preservation protects existing practices and arrangements of power, emphasizing short-term solutions to the problem of underrepresentation. The diversity discourse of transformation, on the other hand, considers long-term, structural dimensions of access and how diversity may transform institutions. There are implications of our research associated with both discourses. To confront questions about structural diversity in America and elite American universities over the long term will require us to fundamentally rethink our values and how they are reflected in admissions criteria and practices. However, we do a disservice to current Black and Latino students by not striving to accelerate their qualifications relative to White and Asian students on criteria that affect enrollment.⁶

Beginning with the latter, our findings corroborate the importance of reducing racial/ethnic gaps in academic preparation (Alon & Tienda, 2007; Espenshade, Hale, & Chung, 2005). Unequal rates of enrollment have led policymakers to set high school curriculum and course-taking standards as levers for improving postsecondary access (Allensworth, Nomi, Montgomery, & Lee, 2009; Chazan, 1996), and we do find that holding course-taking equal significantly reduces enrollment gaps for underrepresented students of color. However, raising curriculum standards without

strengthening support systems may exacerbate socioeconomic inequality by favoring students whose parents can provide academic support. Moreover, while raising standards for all sounds like a laudable goal, it may have the unintended consequence of fomenting the academic escalation trend on which, we argue, institutional stratification by race is based. The problem is not that Black and Latino students have not improved their performance on the measures selective colleges require. Rather, because all groups have improved at similar rates on measures unequally distributed by race, underrepresented students' competitive disadvantage is preserved.

College access programs and targeted standardized test preparation are two possible, short-term solutions. First, programs such as Upward Bound encourage underrepresented students' college access by providing college knowledge, test preparation, and advanced curriculum that selective institutions desire but that are not available in all families and secondary schools (Gándara, 2001; Perna, 2005; St. John et al., 2010; Swail & Perna, 2002). Multisite evidence is needed, however, about these programs' outcomes, the mechanisms by which outcomes are achieved, and the programmatic components that most contribute to outcomes. Second, one study finds that targeted preparation on the SAT and ACT for Black and Latino students reduces test score gaps (Buchmann, Condron, & Roscigno, 2010), suggesting test preparation may also indirectly reduce selective college enrollment gaps. Test preparation might include training to counter the tendencies toward stereotype threat that standardized tests can induce in Black and Latino students (Steele, 1997; Taylor & Antony, 2000). A very high score does not ensure admission, but a very low one precludes it, and we find that SAT scores are the single strongest predictor of enrollment.

However, we do not presume that the SAT *should* be the strongest factor in enrollment. Often efforts to close gaps on criteria that historically hurt Black and Latino students' attainment are really short-term solutions to a longer term social justice challenge: whether and how America's values and patterns of power will be transformed with its increasing racial and ethnic diversity. For decades, education scholars have identified high-stakes testing as a barrier to social justice (Banks, 1995). In college admissions, notions of equal opportunity are compromised by the SAT and ACT's entrenched role in determining access to the educational sector that produces the greatest long-term economic benefits. This incompatibility is also problematic because underrepresented groups are also growing most quickly in the overall population (National Academy of Sciences, 2011). We need additional ways of identifying talent.

The incentive for highly selective institutions to preserve conventional academic achievement as their primary admissions consideration is powerful, without a doubt, for contemporary institutional stratification relies on ranking systems constructed from academic selectivity statistics (Bowman & Bastedo, 2011; Espeland & Sauder, 2007). However, highly selective

institutions are also best positioned to reshape the cultural landscape of what is valued in American higher education. Institutions can reward talents and skills that our increasingly multicultural democracy demands, for example (Guinier, 2003; Sternberg, 2010). As we find, extracurricular involvement and leadership improve the odds of admission for Black and Latino students, suggesting that more balanced definitions of merit may encourage diversity. Another step in the direction of talent identification and social justice is the practice of contextualizing an applicant's attributes based on their high school characteristics and opportunities to learn.

Finally, researchers and institutions should continue to consider the merits of diversity itself (Gurin, Dey, Hurtado, & Gurin, 2002; Milem, 2003). We reiterate that given the considerable heterogeneity within the White and Asian American categories (and the imperfection of the categories), our findings should not be interpreted to structure policy or programs that may affect these groups' opportunities, writ large. In general, intersecting race with gender, SES, immigrant status, and urbanicity better captures the complex structure of postsecondary access more accurately than accounting only for race/ethnicity (Bastedo & Jaquette, 2011; Kao & Tienda, 1998; Perna & Titus, 2004; Schmidt, 2007).

Conclusion

Although disparities in postsecondary enrollment writ large continue to narrow, we must attend to the possibility that stratification—both in postsecondary access and in the labor market outcomes that derive from this access—is being shifted to other sources within the system. Advanced degree attainment and institutional prestige, which go hand-in-hand with institutional stratification, are two additional foundations of racial inequality requiring our attention. In this article, we have analyzed the expansion of postsecondary access and persistence of inequitable enrollment in the most selective colleges and universities.

Specifically, we have examined how escalation since 1972 in the necessary and sufficient conditions for admission to selective colleges and universities may be hindering more equitable enrollment outcomes. For instance, having a minimum SAT score and taken calculus seems to have become a necessary but not sufficient condition for enrollment in very selective institutions. Admissions committees at selective institutions clearly care a great deal about students' academic profiles and are increasingly unwilling to admit applicants' whose numbers are 1 to 2 standard deviations below that of their average student. Taking this approach with measures unequally distributed by race—such as the SAT—encourages unequal enrollment.

Yet the trends we identify suggest that attending to academic preparation may not be enough. Even controlling for test scores and academic preparation, extracurriculars contribute positively and significantly to Black and Latino

students' odds of enrollment in selective institutions. As we approach ceiling effects in the ability of standardized tests, coursework, and grades to meaningfully distinguish among the growing number of students pursuing selective institutions, we should track the growing use of so-called noncognitive criteria such as leadership and how opportunities to cultivate such criteria are distributed across social origins. Extracurricular leadership in addition to excellent academic qualifications may have constituted sufficient grounds for admission through the early 1990s, but it appears to be a necessary condition in the 21st century. If the escalation in recent history can be taken as our guide, what ensures a student's admission today may be insufficient in the near future.

We focused on demographic-level trends in preparation, but we also need research that clarifies the micro-level processes admissions officers use to make meaning of applicant information. What is holistic evaluation like in practice? How do admissions officers handle differences in SAT scores (Zwick, 2002) and extracurricular achievements (Kaufman & Gabler, 2004), for example? Such research could also capture additional detail about particularistic criteria that admissions officers employ to distinguish among students who are qualified along the universal criterion of academic performance (Klitgaard, 1985; Stevens, 2007). Regression analysis is suitable for picking up the criteria that are necessary for getting in to competitive institutions, but not the idiosyncrasies and experiences (e.g., taking first prize in state debate contest, starting a nonprofit organization) that are sufficient for setting apart particular candidates from conventional academic achievers.

Fundamentally, however, it is not only how merit is defined (i.e., which criteria are considered), but also the nature of the admissions competition itself that make equitable outcomes so difficult to achieve. The logic of Lucas' (2001) theory of effectively maintained inequality helps illustrate the challenge. As the transition to postsecondary education has become nearly universal, advantaged individuals are increasingly seeking access to selective institutions to distinguish themselves in a professional labor market saturated with bachelor's degree holders (Frank & Cook, 1995). Their pursuit of such institutions, combined with elite colleges' multiple imperatives to protect low rates of admissions and high academic qualifications, compel the use of comparative evaluation in choosing who *most* deserves admission. When evaluation is comparative, admissions becomes a competition and "winner take all" market (Frank & Cook, 1995) in which applicants try to present themselves with ever greater levels of academic and personal distinctions (Bourdieu & Nice, 1984; Bourdieu & Passeron, 1977). Unfettered escalation makes it more difficult to reduce disparities, and system stratification continues and/or intensifies. Admissions officers may try to mitigate these tendencies through considerations of the high school environment, but tendencies toward inequality are deeply institutionalized. As affirmative action policy options are limited, realizing racial equity will therefore require ongoing efforts to reduce pre-college disparities

among students seeking opportunity, as well as creative efforts among those with the power to provide it.

Notes

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¹The National Center for Education Statistics (NCES) databases we use (National Longitudinal Survey 1972 [NLS], High School & Beyond 1980 [HSB], National Educational Longitudinal Survey 1988 [NLS], and Educational Longitudinal Survey 2002 [ELS]) apply the same race/ethnicity classification scheme as the U.S. census. Due to extremely small sample sizes of Native Americans/American Indians in our institutions of interest, we focus our analyses on individuals who identify as White, Black/African American, Asian American, and Hispanic/Latino/a in the wave of data collection following high school graduation. Since two census categories are explicitly racial (i.e., White and Black) and two are ethnic (i.e., Asian American and Latino), we use the language of *race/ethnicity* to describe the groups. Race and ethnicity are distinct constructs, but given America's racialized society and education system, we use *racial* to describe trends across racial/ethnic groups.

²Recognizing many individuals select Hispanic as the closest category in data collection efforts but disapprove of that label and instead identify with the broader Latino/a community (Alcoff, 2005), we opt for using *Latino* in our discussion of results.

³Building on other research of socioeconomic status (SES) across cohorts, we tested alternate measures of SES, including (1) continuous SES for all students in all cohorts and (2) parental education and logged family income. Cross-tabulations of the quartile measures with parental education levels and logged family income reflect expected trends. Sensitivity tests of the full model with each SES measure yielded Akaike Information Criterion measures equal to the .0001 place and McFadden's R^2 equal to the .001 place. See Appendix A in the online supplemental material for results of the sensitivity analyses.

⁴Sensitivity tests compare results of our MNL with true SAT scores to the MNL with imputed SAT scores. The coefficients were not statistically different, but the model with imputed SAT scores had better model fit due to larger sample size. Therefore, our final models employ imputed SAT scores.

⁵Small samples of Latino students enrolling in highly selective institutions result in low statistical power and thus possible Type II errors in estimating the factors predicting their enrollment.

⁶Although our longitudinal data set did not allow for such analyses over time, Perna and Titus (2004) convincingly demonstrate the important role played by state-level policies regarding financial aid, tuition, K–12 education, and general appropriations in both institutional and SES stratification.

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