High School Hangover and Minority College Achievement

Jason M. Fletcher
Yale University

Marta Tienda
Princeton University

Abstract

This paper uses 10 years of enrollment data at four Texas public universities to examine whether, to what extent, and in what ways racial and ethnic differences in college achievement can be traced to high school attended. To identify school attributes responsible for unequal college readiness, we estimate fixed effects models for three high school strata defined by their socioeconomic composition. We find that high school affluence does not insulate minority students from achievement disparities vis-à-vis their same school classmates beyond the first semester. Furthermore, high school influences on academic achievement carry over through the college career at least through 4-year graduation, but only at institutions with selective admissions.


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Introduction

Competition for access to selective institutions intensified during the 1990s, as the number of high school graduates soared (WICHE, 2008). Nationally the number of high school graduates peaked in 2007-08, and is projected to continue growing well into the next decade, albeit at a slower pace. At the same time the college-age population became more diverse, driven both by immigration and differential fertility. Judge Powell’s opinion in the Bakke decision identified diversity as a key ingredient for post-secondary institutions to achieve their educational mission. In his words:

The atmosphere of ‘speculation, experiment and creation’—so essential to the quality of higher education—is widely believed to be promoted by a diverse student body….it is not too much to say that the ‘nation’s future depends upon leaders trained through wide exposure’ to the ideas and mores of students as diverse as this Nation of many peoples.

As the “Nation of many peoples” became more diverse, so did the college applicant pool (Long and Tienda, forthcoming). The post-secondary system expanded more slowly than the population of high school graduates, however, which produced a college squeeze that is particularly intense in states like Texas and California where non-Hispanic whites represent less than half of all high school students. Partly in response to the intensified competition for access to selective institutions and partly owing to organized efforts to end affirmative action, in 1996 California voters passed Proposition

1 High school graduation cohorts also were large during the 1970s as the baby boomers generation reached college age, but at that time college enrollment rates were lower. The demand for college is a function both of the number of high school graduates and college application rates.

209, which outlawed race preferences in college admissions. In Texas the 1996 *Hopwood* decision\(^3\) imposed a judicial ban on use of race preferences in college admissions throughout the jurisdiction of the 5th Circuit Court.

In one of the boldest of college admissions experiments, the 75th Texas legislature passed HB 588, which guarantees seniors who graduate in the top 10 percent of their class admission to any Texas public college or university. Admissions decisions for students who do not graduate in the top 10 percent of their class are based on a broad range of objective and subjective criteria (Barr, 2002). HB 588—popularly known as the top 10% law—sought to broaden the range of high schools that sent students to the four-year public universities in an effort to increase both geographic and socioeconomic representation at the public flagships (Montejano, 2001; Barr, 2002). Political support for HB 588 derived from its adherence to race-neutral admission criteria that were applied uniformly to all high schools, irrespective of size, wealth, or location.

Three features distinguish the Texas college admission regime post-*Hopwood*: (1) a disregard of standardized test scores for students who graduate in the top decile of their class; (2) allowing high schools to devise criteria for ranking students;\(^4\) and (3) permitting students eligible for the admission guarantee to elect which public institution to attend.\(^5\) Other things equal, the top 10% law should benefit black and Hispanic applicants ranked in the top decile of their high school class because their test scores are disregarded for purposes of admission.

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\(^3\) *Hopwood v. University of Texas* (5th Cir. 1996)

\(^4\) This includes whether and how to weight honors and advanced placement courses, as well as classes that are not part of a college preparatory curriculum.

\(^5\) By contrast, students admitted to the University of California system can only indicate their preferred campuses. Further, the calculation of class rank is based on a specific set of required courses with consistent weights statewide.
Because the top 10% law leveled the playing field by rendering rank-eligible applicants of all high schools admissible to the most selective public post-secondary institutions, detractors argue that the law favors students from less competitive, resource-poor high schools, who are more likely than not to be members of underrepresented minority groups. Not only are these schools less likely to offer advanced placement courses, but their graduates also average lower scores on the standardized entrance exams. Notwithstanding ample evidence demonstrating that standardized test scores are less reliable predictors of college success compared with grades (Bowen and Bok, 1998; Alon and Tienda, 2007; Niu and Tienda, 2009), critics of the top 10% law cite the lower average scores of black and Hispanic students to argue that they are ill-prepared to pursue postsecondary work, particularly at the most competitive institutions.

Former UT-Austin President Faulkner refuted this allegation, claiming that top 10% admittees outperformed students ranked lower in their high school class who achieved much higher test scores (Faulkner, 2000). Our analysis builds on several recent studies that affirm President Faulkner’s claim, but do not fully consider whether and how high school quality interacts with educational selectivity to influence postsecondary academic performance. Specifically we extend Fletcher and Tienda’s (forthcoming) analysis showing that high schools contribute to postsecondary achievement gaps by asking (1) whether high school economic status influences race differences in college achievement depends on high school quality, and (2) whether the salience of high school quality for collegiate performance depends on the institutional selectivity. Both issues are policy relevant inasmuch as social class variation remains an important consideration for postsecondary institutions committed to broadening access to underrepresented groups.
The next section summarizes prior studies that link pre-collegiate achievement and post-secondary outcomes, with a focus on variation in high school quality. Section III describes the administrative data analyzed and formulates an estimation strategy that builds on and extends studies of race differences in academic achievement by considering whether variation in high school quality moderates the associations. Empirical results are discussed in Section IV and the conclusion considers policy implications of our results.

We find that high school affluence does not insulate minority students from achievement disparities vis-à-vis their same school classmates beyond the first semester. Furthermore, high school influences on academic achievement carry over through the college career at least through 4-year graduation, but only at selective institutions.

**Background**

Empirical studies about “school effects” on academic outcomes date back to the landmark Coleman report (1966), which concluded that family socioeconomic status has a far greater influence on educational outcomes than any measured school characteristics. In fact, a large body of prior research demonstrates that race and ethnic differences in college success stem not only from group variation in family background, but also achievements through graded schooling, typically measured by grades and class rank, AP course-completion, and standardized test scores (see Rothstein 2004; Bowen and Bok, 1998). Minority students are disproportionately concentrated in low-performing, under-resourced high schools, which complicates the task of teasing out unique influences of family background and school quality on academic outcomes (Schneider, et al., 2006). Growing racial and ethnic segregation in public high schools suggests the plausible
hypothesis that socioeconomic differences in the types of high schools minority students attend contribute to observed collegiate performance gaps in addition to family background (Niu and Tienda, 2009; Fletcher and Tienda, forthcoming).

Rather than accept the sweeping conclusion of the Coleman report, which in many ways defied social science intuition, researchers searched for sources of variation in academic outcomes that cannot be traced directly to family background. The release of more sophisticated econometric tools and longitudinal data sources not available to Coleman permitted later analysts to identify “school effects” on academic outcomes using multi-level modeling techniques, but with few exceptions researchers have failed to identify large “school effects” on achievement outcomes beyond the second grade (Fletcher an Tienda, forthcoming). That high school effects on post-secondary performance gaps have not been directly examined also reflects the lack of adequate data to establish an association between high school quality and academic performance at the post-secondary level.

Nevertheless, a few studies have attempted to link college plans—both aspirations and enrollment—with attributes of the high schools they attend (McDonough, 1997; Frost, 2007; Hill, 2008). McDonough (1997) notes that high school attended dictates whether selective post-secondary institutions are even envisioned as possible options. This claim is consistent with findings by Niu and associates (2008) showing that minority students attending poor or highly segregated Texas public high schools are less likely than similarly situated whites to enroll at a selective postsecondary institution, even if they are guaranteed admission under the top 10% law. Frost (2007) shows that both the academic and socioeconomic composition of Texas public high schools are associated
with students’ expectations to graduate from a four-year postsecondary institution, along with what she claims is a counterintuitive finding that students who attend minority-dominated high schools are more likely to expect to attain a college degree than their counterparts who graduate from integrated high schools. This finding may not be counter-intuitive at all; rather, her results may simply reflect differences in the plausible social comparisons among students who attend segregated versus integrated high schools.

Hill (2008) theorizes and measures mechanisms that link high schools with college decision-making. Using data from the High School Effectiveness Study, she uses latent-class methods to characterize strategies that high schools use to help match students with post-secondary institutions. The latent class analysis generated three categories, which she labeled traditional, clearinghouse and brokering. The traditional method is minimalist, consisting of assistance with college applications and encouraging college visits. In addition to these activities both the clearinghouse and brokering strategies involve more proactive strategies that range from contacts with college representatives to direct help with financial aid applications. Only the brokering strategy involves parents in the college selection process, which may be pivotal for minority populations who are more likely to be first generation college students.

According to Hill, race and ethnic variation in college enrollment partly reflect differences in high schools’ commitment to linking students to postsecondary institutions. Specifically, if high schools operate as clearinghouses rather than brokers, college enrollment rates are low and presumably so also are academic achievements. Descriptive statistics for the three college-linking approaches show that the clearinghouse approach is associated with lower performing high schools (based on grade point averages) and lower
socioeconomic status of the student body. Yet, these are precisely the students who would most benefit from both school administrator and parental involvement in the college preparation process. Hill’s analysis suggests that high school economic status is a reasonable proxy for the college orientation of the school.

Comparatively fewer studies consider whether and to what extent high school effects persist beyond the enrollment decision, and in particular whether race and ethnic variation in the quality of high school attended contributes to college performance, although several studies suggest these influences exist (Summers and Wolfe, 1977; Massey, 2006; Schneider, et al., 2006; Niu, et al., 2006). For example, Massey (2006) shows that minority students who attend selective universities attend lower quality high schools that differ on a variety of difficult-to-measure dimensions, such as levels of violence and college-orientation, which in turn carry over to their college experiences.

In Texas, the site of our investigation, two recent studies affirm former UT President Faulkner’s claims about the superior performance of top 10% students compared with their lower ranked counterparts. Niu and Tienda (2009) use administrative data for UT-Austin between 1990 and 2003 to consider how students granted automatic admission based on class rank perform academically relative to lower ranked students who graduate from affluent high schools. Despite a substantial test score advantage favoring whites, top-decile minority students consistently achieved higher college grades, and they were more likely to graduate in four years, than their lower-ranked white classmates with large test score advantages. The authors conclude that high school attended is largely responsible for group differences in college academic performance, but do not consider what aspects of high schools are responsible for the observed
achievement gaps. Moreover, they did not consider whether the links between high
school class rank and college achievement obtain at less selective institutions, which
other researchers show are related to postsecondary success of minority students (Bowen
and Bok, 1998; Rothstein, 2004; Alon and Tienda, 2007).\(^6\)

Using administrative data from four public Texas institutions, Fletcher and Tienda
(forthcoming) consider whether race and ethnic gaps in college academic performance
can be traced to group differences in the types of high schools attended. Like other
studies, they show that race and ethnic differences in college grades and four-year
graduation rates reflect group differences in standardized test scores and class rank.
Using a fixed-effects estimation strategy that compares students who attended the same
high school, Fletcher and Tienda show that black-white and Hispanic-white college
performance gaps are mostly eliminated, and often reversed. Their results strongly
implicate variation in high school quality in producing postsecondary achievement gaps,
but they stop short of identifying attributes responsible for the hangover effects.

The vast socioeconomic heterogeneity of Texas public high schools suggests the
plausible hypothesis that the race and ethnic differences in college performance gaps
reflect social class differences in the composition of Texas public high schools.\(^7\)
Furthermore, the top 10% admission regime likely increased socioeconomic
heterogeneity of the high schools represented at Texas’s public institutions for two
reasons. First, eligibility is determined on a school-specific basis rather than standardized
statewide criteria, as in California, and all high schools are eligible to participate

\(^6\) A more recent paper in preparation extends the analysis from UT to several additional Texas institutions
and reaffirms the main result.
\(^7\) We are grateful to Florencia Torche for urging us to pursue this hypothesis based on a presentation at
Columbia University.
provided they have at least 10 seniors and rank their students. Long and associates (forthcoming) show that the University of Texas at Austin witnessed large changes in the geographic representation of high schools since the top 10% law was implemented.

Second, the two public flagships—the University of Texas at Austin (UT) and Texas A&M University (TAMU)—each implemented a scholarship program designed to ensure that rank-eligible students from low-income high schools could enroll. Auxiliary tabulations from survey data reveal that students awarded the Longhorn (UT) or Century (TAMU) scholarships ranked at the very top of their high school class (Niu and Tienda, 2009). This has implications for college performance gaps among students from poor high schools, which also depend on the relative academic and economic standing of minority and nonminority students within high schools.

Of course, graduates from high schools that largely serve economically disadvantaged students are less likely to attend college, even if they qualify for admission (Niu, et al., 2008), but those who do so are largely drawn from the very top ranks of the high school achievement distribution, especially at the most selective institutions. We anticipate that the size of the minority performance gap depends on the class socioeconomic composition of the high school, but whether minority students from the poorest high schools outperform their white classmates is unclear. On the one hand minority students may be more highly motivated to succeed, especially if they are first generation students. On the other hand, white students attending poor high schools may be less economically disadvantaged than their minority counterparts, which we can not assess with administrative data. Nevertheless, the minority achievement gap will likely

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8 Most Catholic schools, for example, do not compute class ranks but instead operate on a 0 – 100 grading system.
depend on institutional selectivity owing both to the rigor of the curriculum and other institutional traits that influence their comfort on campus.

**Data and Methods**

We use 10 years of administrative data for three Texas public universities that differ in the selectivity of their admissions. These include the two public flagships—the University of Texas at Austin (UT) and Texas A&M University (TAMU)—and the University of Texas-San Antonio (UTSA), which has relatively open admissions. College enrollment data is obtained from administrative records for the four institutions, which also include measures of class rank, senior class size, SAT score, and an identifier indicating the high school attended. Applicant class rank is calculated using class rank and senior class size. Publicly available data from the Texas Education Agency (TEA) are used to stratify regular Texas public high schools for the years 1994-2003 according to the socioeconomic status of the students they serve. For each regular public high school, TEA data indicate the total number of graduates in each year, as well as mean school SAT scores and the school-specific share of students ever classified as economically disadvantaged. These data are appended to student records using the high school identifier available in both the administrative and the TEA files.

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9 These data were collected by the Texas Higher Education Opportunity Project (THEOP). See [http://www.texastop10.princeton.edu](http://www.texastop10.princeton.edu) for further information.

10 For UT-Austin, 2.8% of applicants’ records lack precise class rank measures, but instead include an indicator of class rank within ranges. We smoothed these applicants into appropriate class rank ranges and would like to thank Mark Long for generously sharing his Stata code to accomplish this (details are available from the authors).

11 We use publicly available data from the National Center for Education Statistics (NCES) to identify special and alternative high schools, which are excluded from the analysis on grounds that their students may differ systematically in their college going behavior.

12 The measure of students ever economically disadvantaged was provided in response to a specific request to the Texas Education Agency.
Institutional administrative data lack information about individual students’ socioeconomic status; therefore, we stratify high schools according to the composition of their student body using the percent of students ever economically disadvantaged.

Because high school students eligible for free or reduced lunch may be disinclined to request the benefit in order to avoid public stigma, the TEA measure based on receipt of lunch subsidy over the full academic career is a better proxy for low income students than a current year measure for seniors. For each year in the observation period we classify regular Texas public high schools into three broad socioeconomic strata based on the share of students who ever received free or reduced lunch.

High schools in the lowest quartile based on the percent of students that were ever economically disadvantaged are designated affluent; those in the highest quartile based on the percent of students were ever economically disadvantaged are designated poor; and high schools in the middle quartiles are classified as average (or typical). Because the statewide share of economically disadvantaged students rose over time, we calculated the quartile cut-points for each year. We make no presumption that school socioeconomic strata represent the socioeconomic status of individual students, but expect that academic preparation and college linking activities will vary accordingly.

Table 1 shows how the three high school economic strata differ in their ethno-racial composition and three key indicators of college attendance, namely passing algebra; taking a college entrance exam; and the average test score, conditional on taking the exam. Consistent with prior studies, minority students are disproportionately represented in the poor schools, where Hispanics accounted for three-fourths of Texas high school students in 2002, compared to only 15 percent among attending affluent high
schools. In 2002 over one-in-three Texas high school students were Hispanic. \(^{13}\) Blacks also are under-represented at the affluent high schools; they represent about 13 percent of Texas public high school students, but approximately 9 of the student body at affluent high schools. The ethno-racial composition of high schools in the middle quartiles roughly approximates the Texas public high school student population except that African American students are slightly over-represented relative to their state-wide share. An early study based on survey data indicated that minority students’ chances of qualifying for the admission guarantee based on class rank are higher at schools where they constitute a larger share of the population (Tienda and Niu, 2006), but their enrollment likelihood is lower owing to financial and information about college options (Niu, et al., 2008).

\((\text{Table 1 about Here})\)

Arguments about differential college readiness based on high school socioeconomic status find support in the gradients of algebra completion and test taking behavior. Close to 60 percent of students attending affluent high schools pass algebra compared with just over one-third of their counterparts from poor high schools. A similar pattern obtains for taking standardized tests, which range from 75 percent of students from affluent high schools versus just over half of their counterparts attending poor schools. And, not surprisingly, the average test scores vary monotonically with the socioeconomic composition of the student body, confirming Rothstein’s (2004) claim that the test scores are a rough proxy for the high school’s economic status. The last entry

\(^{13}\) According to the Texas Public School Statistics, Pocked Edition, 2004-2006, Hispanics comprised 35 percent of public high school graduates, African Americans 13 percent, and Asian and other groups about 4 percent. Just under half of Texas public high school graduates were white (48 percent) in 2004, down from 56 percent a decade earlier.
in Table 1 presents the ratio of graduates in 2002 to the number of 10th graders in that year, which is a rough proxy for graduation rates. Texas high schools have grown rapidly since the late 1990s both in size and number, but this ratio does not convey how the two components changed in the three years that influence the numerator and denominator; therefore, the differential graduation prospects of students attending rich and poor schools is likely to be conservative.

Table 2 provides a distribution of the high school composition of freshmen enrolled at the four public universities of interest. For this tabulation we have disaggregated affluent and poor high schools further by separating “feeder” and “Longhorn/Century” high schools. The former are a subset of 28 high schools out of over 1400 public high schools that accounted for between 20-25 percent of admittees to the two public flagships as of 2000 (Niu and Tienda, 2009). Virtually all of the Longhorn/Century high schools fall into the lowest socioeconomic quartile; hence they sent relatively few if any students to the public flagships. Because an admission guarantee can not ensure enrollment, UT and TAMU developed the Longhorn and Century scholarship programs, respectively, which they used to recruit the highest ranked graduates from these schools.

(Table 2 about Here)

There is modest evidence that the change in admission regime altered the composition of enrollees’ high schools, but differentially so according to institutional selectivity. At UT’s Austin campus, the share of enrollees from affluent schools,

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14 For a detailed account of the Longhorn and Century Scholarship program, see Domina, 2007. Classification of high schools is relatively stable over time, but owing to the rapid growth of the high school population during the observation period, some schools shifted between categories. The Longhorn/Century high schools do not change their designation, however, even if the dates of entry into the program differ.
including the historically dominant feeder high schools, dropped slightly as a result of the institutional saturation with rank-eligible applicants from a growing number of high schools. Enrollees from high schools classified in the second and third quartiles of the socioeconomic distribution accounted for the largest increases in UT’s freshman classes after the top 10% law went into effect. There was a modest change also in the representation of students from the Longhorn/Century high schools, which serve large numbers of low income students, but some of this “increase” involved a reallocation from the subset of poor schools not targeted for the fellowship program.

At TAMU the changes in the socioeconomic composition of sending high schools also favored the average schools, but most of the increase in students from average income high schools came at the expense of students from poor high schools, including the Longhorn/Century schools. Despite the intensive outreach to rank-eligible students from Century high schools, TAMU was less successful attracting students from poor and minority high schools compared with UT—at least through 2003, when our data series ended.

The saturation of UT-Austin with top 10% admits benefited UTSA in that its share of students from feeder high school students rose. Nevertheless, by comparison to the public flagships, UTSA enrolls a much larger share of students from poor high schools—roughly 30 percent both before and after the top 10% law went into effect. The main change is the slight dip in the share of students from Longhorn/Century high schools, possibly as the highest ranked graduates were lured away to the flagship campus. Given observed changes in the socioeconomic composition of enrollees at the public flagships, it is conceivable that the black-white and Hispanic-white performance
gaps will depend on the class composition of the sending high school. To address whether the types of high schools that minority students attend contribute college achievement disparities, we evaluate three measures of academic performance, namely first and sixth semester grades and four-year graduation rates for students who attended affluent, average, and poor high schools. Appendix 1 provides summary statistics for each university and the three high school strata.

**Modeling Strategy**

We estimate standard production functions that specify educational outcomes as the result of various inputs at the individual, family, and school levels. In particular, we specify the following linear relationship between college achievement outcomes and educational inputs:

\[ \text{outcome}_{iut} = \beta X_{iut} + \alpha U + \tau + \epsilon_{iut} \]  \hspace{1cm} (1)

where an educational outcome for student \( i \) at university \( u \) at time \( t \) is determined by the student’s demographic and background characteristics \( X \), university characteristics \( U \) and an idiosyncratic error term. In order to control for secular trends in the freshman class, university grading standards, etc., we also control for year fixed effects, \( \tau \).

Institution-specific estimates obviate the need to control for institutional characteristics, \( U \). For all specifications, the estimated \( \beta \) coefficients for student racial background represent institution-specific racial disparities in college achievement:

\[ \text{outcome}_{iut} = \beta_u X_{iut} + \tau + \epsilon_{iut} \]  \hspace{1cm} (2)

To evaluate whether high schools attended influence race and ethnic differences in college achievement, we estimate variants of (3),

\[ \text{outcome}_{iut} = \beta X_{iut} + S + \tau + \epsilon_{iut} \]  \hspace{1cm} (3)
This specification models all time-invariant characteristics about each student’s high school \((s)\) to control for school-specific differences (“fixed effects”). Results for equation (3) indicate whether racial disparities in college achievement exist for students who attended the same high school. That is, we use a within-high-school-of-origin estimator for racial gaps in college achievement, where the coefficient of interest is only identified by within-high school disparities in college performance between individuals of different race/ethnicity who attended the same high school.\(^{15}\)

In order to examine the potential heterogeneity in effects across different types of high schools, we further stratify the results from equation (3) into three groups of high schools based on the level of school-resources. This allows our coefficient of interest, \(\beta\), to vary based on school characteristics and, thus, examine whether the estimated ethno-racial gaps, based on students who attend the same high schools, vary based on the resource level of the high schools.

**Multivariate Results**

Tables 3-5 report estimates of race and ethnic differences in first semester grades, sixth semester grades and 4-year graduation, respectively, based on equation (3) for students enrolled at each university. For each institution, the fixed-effects models are estimated separately for graduates from affluent, average and poor high schools. All specifications include standardized test scores and class rank, as well as year fixed effects to monitor annual variation in grading and freshmen class attributes such as those

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\(^{15}\) A complementary approach to the method of using high school fixed effects would be to measure and examine the predictors of school-specific race gaps (Stiefel et al. 2007). This is a promising direction for future research using these data.
produced by changes in admission criteria. The point estimates compare blacks and Hispanics who were freshmen in a particular year with white students from the same high school. Thus, the fixed effects specification captures variation in curricula, college orientation of the school, sports activities, and physical resources across schools, but not individual experiences with college guidance or sports activities.

Table 2 established that UT and TAMU draw between 57 and 60 percent of their freshmen from affluent high schools. The fixed effects specifications presented in Table 3 concur with Fletcher and Tienda’s finding that minority students at UT outperform their white counterparts who graduated from the same high school, but reveal that race and ethnic gaps in freshman grades differ by school economic strata. The high school fixed effects compare students from the same high school, but do not reveal how these comparisons differ among rich and poor high schools.

As hypothesized, both Asian and Hispanic freshmen who graduated from poor high schools average higher 1st semester GPA’s compared with their white high school classmates, but no comparable advantage obtains for black students from poor schools. On average, students from poor high schools represent less than 10 percent of UT’s freshman classes, nearly two-thirds of these Hispanic. Among graduates from affluent high schools, Hispanic and black UT freshmen also outperform their white same-school

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16 It is noteworthy that even before the top 10% law was passed, students who graduated in the top decile of their class had their admission to UT and TAMU virtually guaranteed. The law converted a de facto standard to a de jure criterion, but also changed the high school sending patterns. Although standardized test scores were not considered in the admission decision of top 10% graduates after 1997, all students were required to submit the scores for an application to be considered complete. Schools could establish criteria for ranking students, but not the cut-points or rounding. To avoid gaming, schools were required to submit the number of students and the exact ranking.

17 One caveat is that the coefficients are only identified using high schools that send multiple students to a particular institution and where the race and ethnic background of the students differs. Fletcher and Tienda conducted a sensitivity analysis restricting the sample to high schools that send students from multiple race groups and concluded that the results were robust. However, we will conduct the robustness test for the strata-specific estimates in the future.
classmates, but Asian freshmen achieve grade point averages comparable to their white classmates. These findings both confirm Fletcher and Tienda’s (forthcoming) claims about the influence of high school quality on postsecondary achievement gaps, and in suggesting that the minority students from poor schools are highly selective on unobservable attributes like motivation. Among students from typical Texas high schools, both Asians and African Americans outperform their white same-school classmates. On balance, results for UT indicate that students from poor high schools do not underperform academically.

(Table 3 about Here)

Results for TAMU share some similarities with UT and several notable differences. Fletcher and Tienda noted that the fixed effects specification cut the Hispanic-white freshman GPA gap by 50 percent, from -.18 to -.09 grade points, which represents an average for our disaggregated estimates. However, there is mixed evidence for the claim that minority students from poor high schools outperform their white classmates by a greater margin than their race counterparts from affluent high schools. As for UT, for both Asian and Hispanic TAMU freshmen, grade point gaps for graduates from poor high schools are smaller than those of their counterparts who attended affluent high schools. The important difference is that Asians outperform their white high school classmates, while Hispanics achieve lower grades than their white classmates.¹⁸ Still, Hispanics who graduate from poor schools achieve a smaller grade point gap than their ethnic counterparts who attended affluent and typical high schools. Surprisingly, African American TAMU freshmen from both affluent and typical high schools outperform their

¹⁸ The large point estimate for Asians warrants caution because it is based on a relatively small number of students—less than 1 percent of all graduates from poor high schools attending TAMU are Asian.
same-school classmates during their first semester by .08 to .11 grade points, respectively. Only two percent of black TAMU freshmen hail from affluent high schools, but they appear to be well prepared academically.¹⁹

UTSA provides a stark comparison to the public flagships both in its nonselective admissions and the socioeconomic composition of its student body: fully a quarter of its freshmen hail from poor high schools. The fixed-effects estimates reveal very little evidence of minority achievement gaps, but there is evidence that both Hispanic and to a lesser extent black freshmen from poor high schools achieve higher first semester grades than their same-school white classmates. Fletcher and Tienda’s pooled estimates showed no race gap in first semester grades once school-fixed-effects were modeled, and a .05 Hispanic advantage across all schools. Our strata-specific analyses reveal that the average Hispanic and black freshman achievement advantages derive mainly from the superior performance of students from poor high schools. Sustaining the achievement advantages through the college career is critical to change the ethnic composition of college graduates.

To the extent that attrition is driven by withdrawal of academically weaker students, students who persist through the third year of study are presumably adequately equipped to complete their course of study. In fact, an earlier sensitivity analysis affirmed that students with higher grades were less likely to withdraw before their 6th semester, but attrition is not uniform across demographic groups and neither is academic performance in more advanced courses, as Table 4 shows. By their 6th semester, not only do all

¹⁹ We have no way of knowing whether any of the students or their parents are foreign-born, which in the case of African Americans often involves students with highly educated parents rather than under-represented minorities. Most Caribbean populations settle in the northeast or southeast, so this potential bias is likely to be small.
minority freshman achievement advantages erode, but the magnitude of the grade disparities vary appreciably by group, and to a lesser extent, high school economic strata. Apparently drive and motivation can not compensate for academic preparation, By their third year of college, UT Hispanic students from poor high schools achieve lower grades than their white classmates, suggesting an average grade point erosion of .15 points (-.07 - .08) over the next five semesters. Hispanic students from affluent schools also witnessed a reversal of academic fortunes vis-à-vis their high school classmates, but the average change was much smaller—from a .03 advantage to a .03 disparity. Black UT students also experience grade erosion over the next five semesters, but the magnitude of their achievement gap relative to their white high school classmates is similar for both graduates of poor and affluent high schools. Even Asian students lost their grade point advantages relative to their white high school classmates by the end of their 6th college semester and those from affluent schools averaged grades .06 points below their same-school classmates.

(Table 4 about Here)

By the end of their third year of college, grades of TAMU’s black students averaged between .05 and .09 points below their white high school classmates—a clear reversal of academic achievements for graduates from all high schools, but especially affluent and typical schools where black students initially outperformed their white classmates. Unlike blacks, TAMU’s Hispanic-white achievement gap does not widen during the next five semesters, and students from average schools manage to narrow the gap modestly. Hispanics comprise less than 10 percent of TAMU’s students who graduated from typical high schools, suggesting considerably more heterogeneity among
the white students from similar schools. Surprisingly, Asian students from affluent high schools witnessed an erosion of their GPA compared with their same school white classmates, whereas graduates from poor schools lost their GPA advantage over their white classmates.

At UTSA there are discernible achievement gaps by the end of the 6th semester, which indicates that institutional selectivity influences race and ethnic differences academic achievement. As a nonselective commuter institution, UTSA has some of the highest attrition rates in the UT system. Some perspective on the magnitude of attrition is afforded by comparing the number of schools in Tables 3 and 4, which indicates a reduction of 24, 30 and 20 percent of students from affluent, average and poor schools, respectively. By comparison, all of the poor schools that sent students to UT remained in the analysis sample for the 6th semester GPA (even though many students had withdrawn) and only 3 of those that sent students to TAMU were no longer represented by the 6th semester. This indicates greater power to hold students from poor high schools at the more selective institutions, which is consistent with findings from several studies showing that persistence and graduation rates are higher at the more selective institutions.20

Differential attrition by institutional selectivity and demographic group is evident in the four-year graduation rates, which vary from a low of 5 percent for UTSA to the mid-30s for the two flagships.21 With such low graduation rates, it is unsurprising that no

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20 Fletcher and Tienda (forthcoming) examined choice of major as a potential avenue through which grade point gaps widen after the freshman year. They detected little evidence that black and Hispanic students sort into majors in ways that accentuate achievement gaps at the public flagships, but there is suggestive evidence that major choices accentuate race and ethnic grade gaps at UTSA.

21 Data censoring precludes analysis of 6-year graduation rates for all but a few cohorts; therefore we analyze 4-year graduation rates as a final analysis of race and ethnic differences in college achievement.
race and ethnic disparities emerge at UTSA, irrespective of high school quality. Despite persisting minority-white 6th semester grade gaps among UT and TAMU students who graduate from poor high schools, somewhat surprisingly, these disparities do not carry over to 4-year graduation rates at either flagship. One plausible explanation is that graduation rates are equally low for all groups, but an alternative is that minority students graduate with lower grade point averages.

(Table 5 about Here)

At both flagships race and ethnic graduation disparities are evident both for students who attended affluent and average school students. Black students who attended affluent high schools trail their white high school classmates by 5 (TAMU) to 8 (UT) percentage points. Hispanic students from affluent high schools also are less likely to graduate in four years compared with their white classmates, but the differential is lower—approximately 3 percentage points at both flagships. The Asian-white graduation disparity is intermediate between that of Hispanic and black students who attended affluent high schools, but only reaches statistical significance at UT. In part this reflects the large heterogeneity of UT’s Asian students, who comprise 21 percent of first-time freshmen from affluent high schools. By contrast, only four percent of TAMU’s Asian freshmen from affluent high schools are Asian.

Four-year graduation disparities between minority and white students from typical high schools also emerge at both flagships. Black and Hispanic students from average high schools are between 4 and 5 percentage points less likely than their white high school classmates to graduate from UT in four years, and at TAMU Hispanics are 6
percentage points less likely to do so. Many of these students will eventually graduate but some will not, but it remains to be seen whether high school quality also influences the likelihood of ever graduating.

Conclusions

Using a fixed-effects modeling strategy, we expand on the results by Fletcher and Tienda (forthcoming), which show that comparing students who graduated from the same high school reduces, and for first semester grades, reverses college achievement gaps between minority and nonminority students. Specifically we extend the insights from Fletcher and Tienda to consider more directly how class stratification of the secondary school reproduces academic disparities at the postsecondary level. Our analyses generated a plethora of specific results, which warrant three generalizations. First, high school affluence does not insulate minority students from achievement disparities vis-à-vis their same school classmates beyond the first semester. However, this generalization only obtains for selective institutions. Furthermore, during the first semester, students who attended poor high schools often outperform their white classmates by a larger grade point margin than their race counterparts who attended affluent or poor high schools.

Second, high school influences on academic achievement carry over through the college career at least through 4-year graduation, but only at selective institutions. Our results show that the Hispanic-white and black-white performance advantages evident in first semester grades dissipate by their 6th semester. The magnitudes of the minority-white grade point disparities do not indicate that graduates from poor high schools are necessarily worse off than their counterparts who attended affluent or typical high schools. The sizable black-white 6th semester achievement disparities at UT warrant
concern, both because they obtain across the three high school strata and because they may undermine eventual graduation prospects. What is unclear, however, is whether the absence of graduation achievement gaps among students from poor high schools simply means that both minority and nonminority students have very low prospects of graduating.

Third, the character of “typical” high schools warrants further examination. By definition, these schools are more heterogeneous along economic lines, and other dimensions as well, such as size, geographic location and ethno-racial composition. These three traits are likely related to curriculum and hence college performance in ways that the fixed-effect estimation strategy can not disclose. That the two public flagships draw unequally from this pool of students may explain why race and ethnic disparities are somewhat difficult to characterize—sometimes intermediate between affluent and poor schools, often not.

Although our tri-partite typology of school quality is crude, it resonates with the college-linking strategies outlined by Hill that differentiated among traditional, clearinghouse and brokering approaches. The institutional policy question centers around the value of broadening economic diversity, which is becoming more difficult as the sticker price of college continues to soar. Our analyses address this question through the lens of ethnic and racial achievement disparities, which remain tightly coupled with economic resources. If the goal is weakening the reproduction of class inequality through postsecondary educational opportunities, the answer is yes, provided that support mechanisms to narrow achievement gaps are also put into place.
References


Fletcher, Jason and Marta Tienda. (forthcoming)


