AFFIRMATIVE ACCESS VERSUS AFFIRMATIVE ACTION: HOW HAVE TEXAS' RACE-BLIND POLICIES AFFECTED COLLEGE OUTCOMES?

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Comments welcomed

ABSTRACT. Last year's Supreme Court rulings upholding affirmative action in higher education have renewed debate on the consequences of affirmative action and the effectiveness of proposed race-blind alternatives. This study uses unique administrative data to examine students' enrollment choices and academic performance before and after Texas eliminated affirmative action in higher education. By focusing on the actual experiences of students under both affirmative action and race-blind policies, this paper improves on earlier studies, which relied on simulations. In addition, the study is among the first to consider the effects of the policy change on ethnic gaps in college achievement.

I find that race-blind policies have roughly restored the number of minorities at UT–Austin, but not at Texas A&M. However, due to enrollment growth, minorities represent a smaller share of entering students than before the ban on affirmative action. Further, minorities are now less likely than whites with similar test scores to enroll at a selective public university. In turn, minorities are now more likely to attend less-selective public colleges than before the 1996 ban. Gaps between minority and white GPAs and retention rates have narrowed at the two most selective public universities. Changes in observed student characteristics suggest it is unlikely minorities' relative achievement gains are due simply to declines in white students' qualifications. Instead revised institutional policies may lead to better student-school matches, or programs to improve the performance of targeted students may be effective.

1. INTRODUCTION

In a pair of landmark decisions last year, the U.S. Supreme Court upheld the constitutionality of appropriately crafted affirmative action programs in higher education. A majority of the justices re-affirmed Justice Powell's opinion in the 1978 *Bakke* case that campus diversity serves a "compelling interest," a necessary condition for differential treatment by race. The Court resolved conflicting lower-court opinions which had led to bans on affirmative action in Texas

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and Georgia. Together, the rulings provide public and private institutions with benchmarks for developing acceptable affirmative action policies.

Limits set by the Supreme Court rulings on the scope of race-conscious policies as well as continuing political challenges to affirmative action have prompted legislators and administrators to consider race-neutral alternatives. To date, attention has focused on class-rank based policies like Texas' Top Ten Percent Plan, which guarantees high school students in the top decile of their graduating class admission to any Texas public college or university. The Texas legislature adopted the measure in the wake of declines in African-American and Hispanic enrollment at the state's most selective universities after the 1996 *Hopwood*[1] decision led to a ban on affirmative action in higher education in Texas. California and Florida have recently adopted similar admissions policies in place of affirmative action at public universities.

This paper examines how the shift in Texas from affirmative action to race-blind college policies has affected students' college choices and postsecondary achievement. I construct panel data on over 1.2 million high school graduates by linking administrative records from high schools, public colleges, and other sources. Drawing on this unique data, I compare the postsecondary outcomes of Texas students before and after the *Hopwood* decision, extending prior work in three ways. First, I examine the actual college decisions of students under affirmative action and the Ten Percent Plan. In contrast, few previous studies have had access to comparable microdata spanning such a policy change, and most have relied on simulations to estimate the effects of affirmative action and to predict the consequences of eliminating race-conscious policies.[2] Second, with data on student enrollment at all Texas public two- and four-year institutions, this study also offers a more complete picture of changes in students' college choices than other analyses limited to individual colleges or universities. Finally, this paper is among the first to consider how race-blind policies have affected racial gaps in college achievement: only institutional studies

[1] *Hopwood v. Texas*, 78 F.3d 932 (5th Cir. 1996)

[2] See, e.g., Arcidiacono (2001), Bowen and Bok (1998) and Howell (2002). Two exceptions are Kain and O'Brien (2001) and Tienda et al (2003). The former draw on the same data as is used in this paper to estimate multinomial logit models of Texas students' college choices over the 1990s. Tienda et al (2003) analyze applicants' admissions and enrollment probabilities at UT–Austin and Texas A&M under both sets of policies. Finally, in addition to simulation results, Long (2002b) examines data on admissions to Florida State universities for students eligible for that state's "Talented 20" program; since the data are available only for 2000, however, a comparative analysis of admissions under affirmative action is not possible.

at UT–Austin have previously examined the effect of post-affirmative action policies on students' academic performance.

I find that estimates of the effect of race-neutral policies on campus diversity at Texas' top public universities depend on the school considered as well as the measure of diversity and the benchmark used. The number of minorities starting at UT–Austin in recent years is comparable to pre-*Hopwood* levels, but they comprise a smaller fraction of entering students. At Texas A&M, both the total number and percentage of minority first-time students has fallen relative to the mid-1990s.[3] African-American and Hispanic high school graduates—especially those with high test scores—are now less likely to enroll at either selective Texas public university than whites with similar test scores, while the opposite was true under affirmative action.

Contrary to critics' concerns that the Ten Percent Plan leads to the admission of underqualified students from weaker high schools, minorities' relative academic achievement has improved with the adoption of race-neutral policies in Texas. First-year GPAs and retention rates have risen over time for all students at public four-year institutions and particularly for minorities at UT–Austin and Texas A&M, narrowing the racial gaps in these measures of performance. Changes in the observed characteristics of students enrolling at public universities over time—changes that themselves may be due to the policy shift—generally explain less than 25% of the improvements in GPA and dropout rates. Decompositions of both measures of performance suggest that on observed characteristics, blacks and Hispanics who enrolled at UT–Austin and Texas A&M under race-blind policies are at least as well, if not better-qualified than their pre-*Hopwood* counterparts. While the possibility cannot be ruled out, it appears unlikely that minorities' relative gains in academic achievement are fully explained by deterioration in the unobserved academic qualifications of whites and Asians.

Both the gains in minorities' academic performance relative to whites and the partial recovery in minority representation appear more likely to stem from institutional changes in aid, mentoring, and recruiting than from new admissions standards mandated by the Top Ten Percent Plan. The Ten Percent Plan by itself had little effect on campus diversity in its initial year.

[3]Consistent with their reputation as flagships, Texas A&M and UT–Austin are the most competitive Texas public institutions according to Barron's (1998). They are also the only schools that reported considering race in admissions prior to *Hopwood* (Texas Higher Education Coordinating Board (1998)).

Only after the Plan was combined with revised scholarships and recruiting measures did some progress occur in restoring minority enrollment. California's and Florida's adoption of class-rank based admissions policies after bans on affirmative action suggests that other states may consider similar measures if state-level efforts to limit affirmative action gain ground. Those that implement the Ten Percent Plan's admissions rules without recognizing the potential role of these institutional efforts are unlikely to replicate Texas' limited success in restoring diversity and in narrowing ethnic gaps in postsecondary achievement.

2. Legislative and Institutional Responses to the Hopwood Ruling

The *Hopwood* case, which challenged the admissions process at the University of Texas Law School, was among the first of a series of recent legal tests of affirmative action in higher education. In March 1996, the Fifth Circuit Court of Appeals reversed a District Court decision two years earlier, ruling that the *Bakke* decision did not establish campus diversity as a compelling interest. In subsequent challenges to other universities' affirmative action policies, courts continued to differ in their interpretation of the Supreme Court's ruling in *Bakke*, prompting the Court's review of the University of Michigan cases.[4]

Following the 1996 decision, Texas barred public and private institutions from using race-conscious admissions, aid, retention, and recruiting policies.[5] Minority representation at UT–Austin and Texas A&M, the state's most selective universities, subsequently dropped sharply. Between 1995 and 1997, the fraction of Hispanic students among entering UT–Austin students declined from 14.7% to 12.6%, and African-American's share fell from 4.9% to 2.7% (Figure 2.1). At Texas A&M, the share of black first-time freshmen likewise dropped by about 40% over the two years, from 4.8% to 2.9%, while the share of Hispanics fell from 14.9% in 1995 to 9.6% in 1997.

The Texas legislature adopted the Top Ten Percent Plan in 1997 to stem these declines. The measure seeks to foster geographic and socioeconomic diversity at Texas' top public universities

[4]The appellate court in the *Hopwood* case held that Justice Powell's opinion in *Bakke* was not binding precedent, since the four other justices who had supported affirmative action did not explicitly agree, and that recent Supreme Court rulings did not support the diversity rationale. See Chapa and Lazaro (1998), Holley and Spencer (1999), and Horn and Flores (2003) for further details of the *Hopwood* case. Dorf (2001, 2003) summarizes legal issues surrounding affirmative action in admissions and conflicting interpretations of *Bakke* in recent cases.

[5]The decision was not binding for schools in Louisiana and Mississippi, which are also in the Fifth Circuit, since both states remained under court-mandated desegregation decrees.

by increasing the number of students from under-represented high schools. The Plan grants those who graduated in the top decile of their class within the prior two years automatic admission to any public institution in the state and encourages schools to consider non-academic factors such as parental education and school district resources in assessing applicants ranked below the 90^{th} percentile in their class.

The Ten Percent Plan had little immediate effect on minority representation at Texas A&M and UT–Austin, and both flagships subsequently increased their recruiting efforts at selected low-income urban high schools (Irving (2002), Leicht and Sullivan (2000)). In the fall of 1999, UT–Austin began its Longhorn Opportunity Scholarships program, which provides financial assistance as well as advising and curricular resources to top-ten-percent graduates of about seventy urban high schools. Texas A&M's similar Century Scholars program started the following fall. Figure 2.1 shows that the combined percentage of incoming black and Hispanic students increased at both schools in the year each program was introduced. In addition, both institutions developed new scholarship criteria that emphasized financial need and strong academic performance despite socioeconomic disadvantage. These revised aid programs apply disproportionately to minorities and better target low-income students than pre-*Hopwood* minority scholarships, which primarily benefited middle-class minority students (Finnell (1998), Hanson and Burt (1997)).[6]

To date, the Ten Percent Plan remains in place though Texas' colleges and universities are no longer bound by the *Hopwood* ruling that led to the measure's adoption. Nonetheless, race-conscious policies face continuing political challenges, particularly at the state level. A campaign to amend Michigan's constitution to eliminate preferences based on race or gender began less than a month after the Supreme Court decisions, for instance, and initiatives to end affirmative action are under consideration in at least five other states. California and Washington voters have already approved measures to outlaw the consideration of race in higher education, contracting and public employment. Anticipating a similar referendum, Governor Bush of Florida mandated

[6]Holley and Spencer (1999), Gehring (2001), Selingo (1999a) and Irving (1999) provide further detail on Texas A&M's and UT–Austin's recruiting and aid efforts as well as new scholarships introduced by private foundations and associations, which were not bound by the judicial ban on race-conscious initiatives.

an end to race-conscious policies in 1999. Subsequently, both California and Florida enacted "percent plans," granting admission to graduates in the top 4% and 20%, respectively.[7]

3. Framework

3.1. **The Effect of Race-Blind Policies on College Choice and Campus Diversity.** A student's postsecondary choice depends on three decisions: the student's decision to apply to a school, the college's decision to admit the student, and the student's decision to enroll. Replacing affirmative action with race-neutral policies could affect each of the three decisions and, in turn, campus diversity. Without knowing or explicitly modelling the objectives of students and admissions staffs, it is difficult to predict how the shift to race-blind policies will affect students' decisions and ultimate college choices. Nonetheless, the experiences of universities in Texas and other states that have eliminated affirmative action suggest several general conclusions.

Percent plans like that in Texas have little effect on top students' admissions chances since eligible applicants would almost surely have been admitted without the measure. Between 1989 and 1994, UT–Austin accepted all students in the top decile who had taken appropriate high school classes; in 1995 and 1996, this automatic admission was limited to students with combined SAT scores of at least 900 (Leicht and Sullivan (2000), Markley and Lum (1998)).[8] Roughly 93% and 96% of applicants in the top decile of their high school class were admitted to UT–Austin and Texas A&M, respectively, before 1997 (Tienda et al (2003)). Similarly, Long (2002b) examines data for applicants to Florida universities as well as simulated admissions probabilities for students in the NELS and finds that most minority beneficiaries of percent plans would likely be accepted to their first-choice college without affirmative action.

Class-rank based admissions policies do not target the students whose acceptance probabilities were most affected by the elimination of affirmative action, namely lower-ranked minorities.

[7]Eligible Texas students are automatically admitted to any of the state's public institutions. In contrast, the California and Florida measures guarantee admission to a UC or Florida State school, respectively, but not necessarily the student's first choice. California recently expanded its program, granting those in the 4^{th}–12.5^{th} percentiles admission as transfers into a UC school if they attend an in-state community college for two years. See Horn and Flores (2003) and U. S. Commission on Civil Rights (2002) for further comparisons of the Texas, Florida, and California plans.

[8]Administrators at Texas A&M have also indicated that essentially all top ten percent graduates were admitted prior to *Hopwood*, with the exception of those who did not meet minimum curricular requirements.

Tienda et al (2003) conclude that the primary effect of barring race-conscious admissions was to reduce admissions rates for blacks and Hispanics below the 80^{th} percentile of their class.

The shift to race-blind college policies likely had a greater effect on minorities' decisions to apply and to enroll in selective institutions. Arcidiacono (2001), Long (2002a), and Wierzbicki and Hirschman (2002) find evidence that under-represented minorities—even those with high probabilities of acceptance—reduce their applications to selective schools in response to bans on race-conscious policies and that lower application rates account for a greater portion of declines in minority enrollment at selective schools than lowered admissions probabilities.[9] Administrators argue that minority students interpret bans on affirmative action as evidence that they are less likely to be admitted, to receive financial aid, and to be welcomed at public universities (Finnell (1998), Irving (1999), Selingo (1999a)). Moreover, anecdotal evidence suggests that out-of-state schools have taken advantage of their ability to offer race-based financial aid and have increased their recruiting of Texas' minorities.[10]

Institutional responses can potentially offset these shifts in perception. Minority enrollment rose after UT–Austin and Texas A&M retooled their financial aid and increased their recruiting at under-represented high schools. Additionally, promotion of the Ten Percent Plan could lead students to apply who were unaware of their high admissions chances.[11]

3.2. **The Effect of Race-Blind Policies on Academic Achievement.** Student academic performance could be different under race-blind policies than under affirmative action because of changes in the characteristics of students enrolling at an institution or because of changes in the campus climate and resources. In general, it is difficult to predict how the qualifications of both minority and non-minority students—and their subsequent academic performance—would change as a result of the shift from affirmative action to the Top Ten Percent Plan. As detailed

[9]Card and Krueger (1999), on the other hand, examine where 1994–2001 SAT-takers sent test scores and conclude that eliminating affirmative action had no effect on whether highly qualified minorities in Texas and California send scores to (and thus likely apply to) top public universities.

[10]Selingo (1999b) notes that, for instance, the number of out-of-state institutions requesting Texas college fair schedules rose almost 60% between 1997 and 1999, and several schools opened recruiting offices in Texas following *Hopwood*. A 1998 survey found that about half of blacks admitted to UT–Austin or Texas A&M accepted offers from out-of-state schools, often based on financial considerations (Irving (1999)). See also LeBas (2001) and Yardley (2002).

[11]UT–Austin and Texas A&M contact most graduating seniors each year as well as parents of top-ten-percent students, for example. High schools are also required to post information regarding the Ten Percent Plan (Irving (1999), Leicht and Sullivan (2000), Tienda et al (2003)).

below, observable student qualifications at four-year schools did not differ dramatically under the two policy regimes, suggesting that institutional changes may help to to explain any changes in student performance.

Of course, students enrolling at a given school under the two sets of policies may differ in more subtle ways. Students admitted under Texas' race-blind policies might have more "ambition" or other less-easily observed traits than their affirmative action counterparts because the Ten Percent Plan more directly rewards academic achievement.[12] In addition, some critics of affirmative action argue that racial preferences may contribute to lower minority achievement because the policies stigmatize minorities as unqualified "affirmative action admits" or because they reduce incentives to perform well academically.[13] Merit-based measures such as the Ten Percent Plan could mitigate these concerns.

Bans on affirmative action may also lead to the admission of better-qualified students below the top ten percent if, as a consequence, schools invest greater effort in recruiting and assessing applicants. Colleges could previously achieve diversity at a low monetary cost by simply giving preference to minority students. Without this option, UC–Berkeley and UT–Austin both turned to more costly and time-consuming admissions and recruiting procedures. Instead of admitting students based primarily on SAT scores, class rank and race, for example, admissions officers at UT–Austin now base their decision in part on responses to essay questions.[14] The Supreme Court decisions, though still permitting the use of race as a "plus factor," similarly mandate that institutions carefully assess individual students. Required to devote more resources in these efforts, schools may have more success in identifying students who are likely to succeed in college despite poor test scores. Finally, even if the same sets of students were admitted under the two policies, post-*Hopwood* changes in mentoring, retention and financial aid programs could produce changes in college performance.

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[12]Loury and Garman (1995) and Light and Strayer (2002), for instance, argue that racial preferences result in minorities having less-favorable unobserved traits on average than apparently comparable whites at similar schools and argue these differences contribute to racial gaps in college graduation rates and grades.

[13]Holzer and Neumark (2000), Bowen and Bok (1998) and Conrad and Sharpe (1996) outline arguments that racial preferences harm minorities and contribute to "underperformance" relative to whites.

[14]Lipson (2001) details UT–Austin's shift after *Hopwood* from formulaic admissions based largely on class rank and SAT/ACT scores (which "allowed ... easy and efficient processing" (Lavergne and Walker (2001))) to more time-consuming individual assessments and documents similar changes at UC–Berkeley. See also Chan and Eyster (1999) and Irving (1999).

4. Data

This paper draws on student-level data from the Texas Schools Microdata Panel (TSMP). The core of the TSMP is administrative data for all students enrolled at public schools and postsecondary institutions in Texas between 1990 and 2002. It includes information collected by the Texas Education Agency (TEA) on between three and four million students in kindergarten through twelfth grade in any given year. These student records can be linked to data on teachers, schools and districts in the state. Using an encrypted Social Security number (SSN), I match student records to information from the Texas Higher Education Coordinating Board (THECB) on the approximately one million students enrolled at Texas two- and four-year colleges each year. Further, the SSN provides a link to a range of auxiliary data sources including SAT and ACT exam data, financial aid information for selected years, and quarterly earnings records from the Texas Workforce Commission.

4.1. **High School Graduates.** I consider students who graduated from a Texas public high school between academic years 1993 and 1999.[15] Thus, members of the first three graduation cohorts in the sample generally started college before the 1996 *Hopwood* decision, and students in the last two sample years graduated from high school and entered college after the Ten Percent Plan took effect in September 1997.[16] I identify graduates along with their graduation date and high school from TEA graduation files. Annual enrollment files provide several student characteristics while in high school, namely participation in a gifted and talented program, economic disadvantage,[17] enrollment in special education, and limited English proficiency.

Because I use the encrypted Social Security Number to match individuals across most data sets, I eliminate students with an invalid encrypted SSN.[18] This criterion is the most substantial restriction imposed on the sample of high school graduates and eliminates roughly 6% of the

[15]Hereafter I denote academic years by the calendar year of the corresponding spring and summer (e.g., 1993 refers to September 1992 through August 1993).
[16]The analysis below focuses on these two cohorts, in part because discussions or anticipation of *Hopwood* and the Ten Percent Plan may have affected the behavior of those who graduated in the intervening years. In examining college choice, I include students who enroll in a Texas college within two years of graduation. By this definition, a small number of 1995 graduates are included, though they entered college in 1997, after *Hopwood* took effect.
[17]Economically disadvantaged students, as defined by the TEA, include those eligible for free- or reduced-price lunch, students from households below the federal poverty threshold, and those eligible for AFDC or TANF, food stamps or similar need-based benefits.
[18]Those with an invalid encrypted SSN either did not have an SSN or refused to provide it.

records. Table B2 of the Data Appendix shows that, on average, students without a valid SSN are less likely to be white or to report that they intend to enroll in college within a year, and they are more likely to have limited English proficiency or to have graduated before the *Hopwood* decision.

I combine the graduation records with annual SAT and ACT data for all test-takers expected to graduate in a given year.[19] The resulting sample includes over 1.2 million high school graduates. Actual ACT or SAT scores are available for approximately 96% of graduates who enroll at UT–Austin or Texas A&M and roughly 90% of those who attend a non-selective public university in Texas (Table B3). Overall, I find an actual exam score for 56% of all graduates.[20]

To construct a simple index of students' background and preparation that is available for a greater share of students, I regress SAT scores on students' percentile ranks on the statewide math, reading, and writing exit exams administered to most tenth graders as well as several student and high school characteristics. Based on this I generate an "imputed SAT" for an additional 33% of the observations.[21]

The SAT and ACT data also provide further measures of student background for test-takers. The SAT files since 1998 and the ACT data for all years include student questionnaire responses that capture a broad range of family and personal characteristics, including parental education and family income, high school courses and achievements, and college preferences. The financial aid data, which are available for aid recipients in 1997 through 2001, likewise report parents' educational attainment and family income in addition to comprehensive information on the types and amounts of college aid received.

To characterize students' high school, I draw on comprehensive school-level TEA data to determine the fractions of economically disadvantaged and minority students enrolled as well as composite measures of school quality and school inputs. The "quality" measure for each high

[19]For students who take either exam multiple times, the data are intended to include information for the most recent test. Students in the SAT or ACT data without a matching TEA record are excluded if they reported attending a private school; private high school students also are not included in all years of the exam data. However, I retain public school graduates from the ACT or SAT data with a valid SSN that does not match a TEA graduation record. Consequently, if a student with an invalid SSN on the TEA graduation files took the SAT or ACT and provided a valid SSN is included in the analysis.

[20]The College Board re-scaled SAT scores in 1996. I convert SAT scores in earlier years and all ACT scores to equivalent scores on the current SAT I scale.

[21]See the Data Appendix for details of score prediction. The 11% of students for whom I do not impute a test score are missing one or more of the three test scores (83% of these have no score).

school is the first principal component of the fraction of graduates taking the SAT or ACT; the annual dropout rate; the proportion of students who passed a 10th grade standardized test; and the percent of students receiving credit for at least one advanced course (e.g., AP courses, upper-level foreign language, art, and music). The "inputs" measure is the first principal component of instructional expenditures per child; average teacher salary for all teachers; average salary of teachers with 1–5 years of experience; teacher-student ratio; and teacher average experience. Finally, I identify high schools in the central city of major metropolitan areas using the Department of Education's Common Core of Data, which geocodes each public school.[22]

4.2. **Postsecondary Students.** I consider two dimensions of college achievement—first-year GPA and first-year retention. To construct these measures, I merge data from two THECB sources onto the sample of high school graduates. The first set of data identifies all students enrolled at each Texas public community and senior colleges in each semester. I use these data, which extend through the spring of 2002, to construct students' college enrollment history at the first college or university attended within two years of high school graduation. For nearly 90% of students this is the school where attended in the fall semester after finishing high school. Those who are not enrolled in this fall term are assigned the first school they attend in any subsequent semester within two years of graduation. I classify schools into four categories: 1) selective universities (Texas A&M and UT–Austin); 2) historically black colleges or universities, or simply HBCUs (Prairie View A&M and Texas Southern University); 3) other four-year colleges or universities; and 4) two-year community and technical colleges. In calculating retention rates, I define a student as having dropped out of an institution if he or she is not enrolled for three or more consecutive fall or spring semesters.[23]

Information on grade point average is drawn from a second THECB data source whose primary purpose is to track whether a student has satisfied the Texas Academic Skills Program (TASP) requirement, a set of exams designed to ensure students' preparation for college-level reading, writing and math. The data include credit hours and grade points earned in non-remedial courses

[22]The major metropolitan areas, based on Census definitions, are San Antonio, Dallas/Fort Worth, Houston, Austin, El Paso and Corpus Christi.

[23]This definition corresponds to the requirement at UT–Dallas, for instance, that a student must re-apply for admission if he misses more than two successive fall or spring terms. UT–Austin requires students to apply for re-admission after not being enrolled for one spring or fall semester.

(i.e., classes other than those taken to satisfy the requirement) for nearly all undergraduates, including those who satisfy the TASP requirement before matriculation.[24]

These data are available through the fall of academic year 2001. Particularly in earlier years, many four-year colleges and some two-year schools reported this data annually rather than each semester.[25] Since I cannot determine the GPA each semester for students in these cases, I calculate grade point averages for a student's first full academic year in college. Thus, the summer semester GPA of a student who starts college in that term, for instance, is not counted.[26] I obtain a first-year GPA based on complete information for each semester a student was enrolled at his first college for 95% of senior college attendees and partial first-year GPA information for an additional 3%.

Finally, the Ten Percent Plan legislation required that Texas' public four-year universities report data on all applicants and their admissions outcomes. I use these data, which are available since 1998, to assess how ethnic differences in application and yield rates contribute to minority under-representation at Texas' public universities, particularly UT–Austin and Texas A&M.

5. Results

The rebound in minority representation at UT–Austin to levels comparable to those in 1996 is often offered as evidence that race-blind, merit-based measures like the Ten Percent Plan are viable alternatives to conventional affirmative action.[27] In this section, I examine this conclusion in greater depth, comparing pre- and post-*Hopwood* differences in several measures of minority access to higher education. While prior research has focused on UT–Austin, I consider shifts in enrollment across all Texas public universities. I then examine the contributions of ethnic differences in college preparation, application rates, and yield rates to gaps in minority representation

[24]In the Fall of 1999, for example, roughly 50% of all first-time students at senior colleges and 85% of those at A&M or UT–Austin were exempt from TASP, generally based on scores on another standardized test. According to THECB staff and documentation, the TASP report should include all undergraduates. However, some students reported in the enrollment data described above do not appear on the TASP data. The fraction of such students is generally lower among first-year students: for UT–Dallas students in 2000, for instance, 98.5% of freshman, 92.5% of sophomores and 66.5% of seniors have at least one TASP record. The fraction also varies considerably across institutions and years, ranging from less than 5% in the case of UT–Dallas, UT–Austin and Texas A&M to as much as 25% in some instances.

[25]Both UT–Austin and Texas A&M, which account for roughly one fifth of senior college attendees in any given semester, provided cumulative reports through 1998.

[26]At four-year schools, nearly 90% of students start in the fall, 7% in a summer term, and only 4% in the spring; at junior colleges, the comparable fractions are approximately 73%, 15% and 13%.

[27]See, for instance, Blair (2000), May (2001), Montejano (2001), and Wilgoren (1999).

at Texas' top public universities. Finally, I assess the effects of post-*Hopwood* policies on racial gaps in first-year GPA and retention rates at Texas public four-year universities.

5.1. **College Choice under Race-Neutral Policies.**

5.1.1. *Have Race-Blind Measures Restored Diversity at Texas' Flagships?* Whether the Ten Percent Plan and associated changes in recruiting and financial aid have restored ethnic diversity at Texas' two selective public universities depends on the measure used, institution considered, and assumptions regarding long-term enrollment trends (Table 1).[28] Measured by the absolute number of entering minorities, race-blind policies largely restored the declines in minority representation following the ban on affirmative action at UT–Austin, but not at Texas A&M (columns 3 and 5). The number of minority freshmen dropped at UT–Austin in 1997 and 1998, but by 1999 the number of blacks had returned to the levels seen under affirmative action, and Hispanic freshman enrollment was higher than at almost any time over the 1990s. In contrast, the number of black and Hispanic freshman at Texas A&M post-*Hopwood* remain below the levels attained under affirmative action.[29]

The final column shows that total first-time freshman enrollment rose at both schools after *Hopwood* so that the percentages of black and Hispanic students entering Texas A&M and UT–Austin remain below their level in the mid-1990s (columns 4 and 6; Figure 2.1).[30] Driven by increases in white enrollment, Texas A&M's average freshmen class size between 1998 and 2001 was about 10% higher than the average over the 1993–1996 period. At UT–Austin, total enrollment jumped sharply in 1997 and 2000. Increases in enrollment could, in part, reflect growth in the number of high school graduates and unanticipated shifts in their college decisions.[31]

[28]Table 1 includes both Texas residents and out-of-state students, since discussions have focused on totals. Trends for Texas residents alone—who comprise over 90% of entering students at both schools—are similar.

[29]Both universities are NCAA Division I institutions, so that athletic scholarships may have mitigated the effects of eliminating affirmative action on black enrollment in particular. Annual NCAA data indicate that on average between 1986 and 1996, 19 entering African-American first-time students each year, or roughly 6–7% of black freshmen at both schools, received athletic aid. By comparison, roughly 1–2% of whites and less than 1% of Asians and Hispanics were student-athletes (National Collegiate Athletic Association (2003)).

[30]Analysis of Integrated Postsecondary Education Data System (IPEDS) data, available upon request, suggest that minorities' enrollment shares at selective public universities nationwide remained steady throughout the 1990s and the 1996-1997 declines in black and Hispanic representation at A&M and UT–Austin deviate from national trends.

[31]For example, the number taking advantage of a summer provisional admissions program at UT–Austin, which offered rejected applicants a second chance at admission, roughly doubled between 1996 and 2000. Applications to UT–Austin has also increased from an average of roughly 16,000 in 1996 and 1997 to over 21,000 from 2000 to 2002 (Lavergne and Walker (2003a); see also Tienda et al. (2003)).

TABLE 1. First-Time Student Enrollment at UT–Austin and Texas A&M by Ethnicity: Texas Residents and Out-of-State Students

Summer	Asian		Black		Hispanic		White		Total
/Fall	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count
UT–AUSTIN[†]									
1990	605	10.0	301	5.0	976	16.1	4,037	66.8	6,047
1991	642	10.8	282	4.7	955	16.0	3,955	66.3	5,963
1992	705	12.3	277	4.8	886	15.5	3,759	65.6	5,730
1993	787	13.1	333	5.6	963	16.1	3,803	63.5	5,987
1994	898	14.8	323	5.3	880	14.5	3,893	64.0	6,086
1995	904	14.2	309	4.9	935	14.7	4,081	64.2	6,352
1996	942	14.7	266	4.1	932	14.5	4,159	64.7	6,430
1997	1,130	15.9	190	2.7	892	12.6	4,730	66.8	7,085
1998	1,133	16.8	199	3.0	891	13.2	4,399	65.2	6,744
1999	1,221	17.3	286	4.1	976	13.9	4,447	63.2	7,040
2000	1,325	17.2	296	3.9	1,011	13.2	4,801	62.5	7,686
2001	1,413	19.3	242	3.3	1,024	14.0	4,447	60.6	7,337
TEXAS A&M[‡]									
1990	246	4.2	233	4.0	564	9.7	4,735	81.6	5,800
1991	248	4.4	156	2.7	555	9.8	4,703	82.8	5,682
1992	240	4.3	245	4.4	608	10.8	4,495	80.1	5,612
1993	226	3.8	229	3.9	763	12.9	4,697	79.2	5,933
1994	194	3.5	276	5.0	776	14.2	4,213	77.0	5,472
1995	150	2.8	263	4.8	810	14.9	4,178	77.0	5,423
1996	162	2.8	208	3.7	646	11.3	4,660	81.8	5,696
1997	193	3.4	160	2.9	537	9.6	4,628	82.7	5,595
1998	228	3.4	176	2.6	593	8.9	5,478	82.3	6,659
1999	202	3.3	167	2.7	513	8.4	5,107	83.2	6,135
2000	225	3.7	158	2.6	595	9.8	4,913	80.8	6,083
2001	199	3.2	178	2.9	618	9.9	5,115	82.2	6,222

Source: THECB Student Enrollment Reports, UT–Austin Office of Institutional Research (1997, 2001)
Notes: Figures for Native American, foreign, multiracial, "other," and missing ethnicity are not shown but are included in "Total Count." Figures include fall attendees who enrolled as first-time students in prior summer.
[†] Students offered provisional summer admission to UT–Austin are not identified as first-time students in the THECB Enrollment Reports prior to 1998. Figures reported are from UT–Austin's Office of Institutional Research and match the THECB data beginning in 1998.
[‡] Figures exclude first-time students entering the College of Veterinary Medicine, whose reporting changed over time.

UT–Austin and Texas A&M may also have admitted more students of all ethnicities in order to maintain the number of entering minorities. Alternatively, UT–Austin's President has suggested that larger classes ensured space for students not automatically admitted under the Ten Percent Plan (Faulkner (2000)).

Table 1 also highlights differences in *Hopwood*'s repercussions across the two flagships and suggests the importance of institutional policy changes that target minority application and yield rates. The *Hopwood* decision appears to have had its greatest effect on diversity at Texas A&M in

the fall of 1996. Finnell (1998) argues the drop in minority enrollment was due largely to declines in black and Hispanic yield rates.[32] In contrast, the largest drops in the fractions of blacks and Hispanics entering UT–Austin came in 1997, the first class admitted under race-blind policies. The number and fraction of minority freshmen at UT–Austin rose following the introduction of Longhorn Scholarships in 1999, and the level and percentage of Hispanic entering students rose at Texas A&M in 2000, when it implemented the Century Scholars program. African-Americans' representation at Texas A&M, however, did not rebound until 2001.

Finally, the fractions of black and Hispanic students at UT–Austin had generally been decreasing since 1993, and the number and percent of Asians increased steadily through the 1990s. Conversely, blacks' and Hispanics' shares were rising for the first half of the decade at Texas A&M. Thus, whether the Ten Percent Plan has succeeded in promoting campus diversity further depends on the choice of a baseline year and assumptions on whether pre-*Hopwood* enrollment trends would have continued.

5.1.2. *Effects of Race-Blind Policies on Postsecondary Choices.* If the measure of the success of post-affirmative action policies is whether the composition of students at Texas' flagship institutions mirrors the state's high school graduate population, race-blind measures have fallen even further short of the goal of restoring minority access at Texas' top universities. Comparisons, as in Table 1, of minority enrollment at a given school over time mask ethnic differences in college attendance rates at Texas public campuses. These differences have widened as minorities account for a growing share of high school graduates.

Table 2 examines the postsecondary choices of sets of students defined by graduation year, ethnicity, graduation from an "inner city" high school, and economic disadvantage. In addition to Texas public colleges and universities, the table includes a "residual" category, comprised of all graduates who did not start college at an in-state public institution within two years of graduation. This set includes students who do not enroll in college, who attend an out-of-state or private institution, or who transfer into a Texas public college after starting at an out-of-state

[32]Finnell (1998) notes that comparable numbers of minorities received admissions and aid offers—which had generally been made before the ruling took effect—in 1995 and 1996.

or private college.[33] Hence, it contains students with a wide range of abilities and of alternatives to attending a Texas state school.

The graduation periods correspond to pre-*Hopwood* and post-Ten Percent Plan graduates.[34] To capture the popular notion of low-performing schools in impoverished urban areas, I define "inner city" schools as those located in the central city of a large urban area that are among the lowest third in the school quality index described earlier and among the top third of schools ranked by the fraction of economically disadvantaged students. Blacks and Hispanics comprise a disproportionate share of economically disadvantaged students and of inner city high school students (Appendix Table A2).

The first two rows reveal that ethnic differences in the probability of attending a selective college have widened after the ban on race-conscious policies. Pre-*Hopwood*, almost one in five Asian high school graduates in Texas attended either UT–Austin or Texas A&M, over twice the rates for whites and roughly six times those of black and Hispanic graduates. After *Hopwood*, the fraction attending either flagship increased 2.0 percentage points (or 12%) for Asians and 0.6 percentage points (roughly 8%) for whites. For blacks, the fraction attending either UT–Austin or Texas A&M fell by 1.1 percentage points, a 40% decline, and Hispanics'probability declined 27%, from 3.0% to 2.2%. In turn, the share of African-Americans at other, non-selective four-year colleges and at junior colleges increased, but the share of Hispanics fell. Some of these minority graduates may have shifted to community colleges, but the largest change in postsecondary choices among Hispanics was in the residual category.[35] The "cascading" of African-American students from more- to less-selective institutions is consistent with the predictions of Long (2002a) and Arcidiacono (2001) as well as the findings of Kain and O'Brien (2001). After eliminating affirmative action, California likewise experienced growth in minority enrollment at less-selective

[33]A future draft will incorporate Texas Workforce Commission data to identify high school graduates in the residual category who are working in Texas and are therefore presumably not attending college outside the state or with earnings from a Texas private institution.
[34]Results for the interim period appear in Appendix Table A1.
[35]All differences in estimates cited are significant at a 1% level based on chi-squared tests of sample proportions. For Asians, only the difference in estimates for selective college attendance is significant at a 5% or lower level. For other groups, differences in pre-1995 versus post-1998 estimates are significant at a 1% level except: Blacks in the "residual" category; 2) Hispanics at HBCUs and whites at HBCUs (5% level); 3) two-year attendance rates for whites and those who are not economically disadvantaged; 4) non-"inner city" graduates at selective schools

TABLE 2. Postsecondary Choices by Graduation Year and Student Characteristics

COLLEGE	Ethnicity				"Inner City" School		Econ. Disadvantaged	
TYPE	Asian	Black	Hispanic	White	No	Yes	No	Yes
SELECTIVE								
1993–95	17.8%	2.7%	3.0%	7.9%	6.6%	2.7%	8.4%	1.6%
1998–99	19.8%	1.6%	2.2%	8.5%	6.5%	2.0%	8.9%	1.3%
OTHER FOUR-YEAR								
1993–95	24.1%	11.6%	16.4%	18.5%	17.5%	15.1%	19.8%	12.6%
1998–99	23.4%	12.9%	13.6%	16.9%	15.9%	12.3%	18.5%	10.7%
HBCU								
1993–95	0.1%	8.9%	0.1%	0.0%	0.9%	2.7%	1.0%	1.2%
1998–99	0.1%	6.3%	0.1%	0.0%	0.7%	2.0%	0.7%	1.0%
TWO-YEAR								
1993–95	30.8%	27.8%	34.4%	36.0%	34.4%	33.6%	37.0%	31.3%
1998–99	30.6%	29.3%	35.6%	35.8%	35.0%	32.1%	37.1%	32.1%
RESIDUAL								
1993–95	27.1%	49.1%	46.1%	37.5%	40.5%	46.0%	33.7%	53.3%
1998–99	26.1%	49.9%	48.6%	38.8%	41.9%	51.7%	34.8%	54.9%
COUNT								
1993–95	15,640	58,121	137,524	277,896	444,708	46,320	310,613	140,456
1998–99	12,983	51,018	118,224	214,436	359,796	36,971	233,729	134,335
ROW PERCENT								
1993–95	3.2%	11.8%	27.9%	56.5%	90.4%	9.4%	63.1%	28.5%
1998–99	3.3%	12.8%	29.6%	53.7%	90.2%	9.3%	58.6%	33.7%

Notes: Residual category includes those who never enroll in a TX public institution during the sample period, enroll more than 2 years after graduation, or transfer to a TX public college from an out-of-state or private institution. Native American, foreign, multiracial, "other," or missing ethnicity not shown but included in row percents. Figures for "Inner City" School exclude students whose high school urbanicity could not be determined (0.3% of students); "Econ. Disadvantaged" counts exclude those (7.9%) without information on economic disadvantage in high school.

UC schools and concurrent declines in the fractions attending Berkeley and UCLA (Burdman (2002), Howell (2002)).

The fraction of graduates from low-income families and from low-performing urban high schools at UT–Austin and Texas A&M also declined. Matriculation rates for inner-city high school graduates at all public four-year universities have fallen, and the difference relative to those at other high schools has increased over time. The gap between the attendance rates of economically disadvantaged students and those with greater family resources grew even more dramatically so that, in the post-*Hopwood* period, economically disadvantaged students were nearly seven times less likely than other students to attend UT–Austin or Texas A&M.

Economically disadvantaged students and graduates of inner city high schools are over-represented at the two historically black institutions. The high attendance rates at HBCUs for inner city high school graduates are due not only to the disproportionate share of African-Americans at these schools but also presumably to location—both Texas Southern and Prairie View A&M are near Houston. The decline in enrollment at HBCUs in the later period was likely a consequence of a 1998 financial aid scandal at Texas Southern that dramatically reduced available aid and, in turn, enrollment rather than a consequence of *Hopwood*.[36]

The comparatively small fractions of black and Hispanic high school graduates who attend Texas flagships shown in Table 2 could merely reflect well documented ethnic gaps in academic preparation and test scores. I explore this possibility by examining how these trends in college choices differ conditional on college aptitude as measured by the SAT. As seen in Table 3, SAT scores differ considerably by race, but the distributions have remained relatively stable pre- and post-*Hopwood*.[37] The top three rows correspond to the first through third quartiles of the overall distribution of imputed and actual scores in the sample, and the bottom two rows report the 75^{th}–90^{th} percentiles and the top decile.[38]

TABLE 3. Distribution of SAT Scores by Ethnicity and Period

SAT	Asian		Black		Hispanic		White	
Range	1993–95	1998-99	1993–95	1998-99	1993–95	1998-99	1993–95	1998-99
< 770	12.3%	11.1%	46.8%	47.7%	41.5%	43.2%	11.1%	11.7%
770–890	19.4%	18.2%	29.4%	28.5%	29.7%	29.1%	24.4%	23.8%
890–1030	23.8%	23.1%	16.3%	16.3%	19.0%	18.4%	30.1%	29.3%
1030–1170	20.5%	20.9%	5.7%	5.7%	7.1%	7.0%	20.8%	20.8%
> 1170	24.0%	26.7%	1.8%	1.8%	2.6%	2.5%	13.6%	14.5%
Mean SAT	1017	1033	798	797	820	815	974	976

Notes: Sample includes Texas public high school graduates with valid SSN on TEA, SAT, or ACT files, and includes actual and imputed SAT scores. See Appendix Table B3 and Data Appendix for details on imputation. ACT scores and SAT scores prior to 1996 are re-scaled to current SAT I scale.

[36]First-time freshman enrollment at Texas Southern fell from 1250 in 1997 to 692 in 1998.

[37]Kolmogorov-Smirnov tests reject the null of equality of the distributions over time for each of the ethnic groups at a 1% level. Differences in the means are significant at a 1% level for Asians, Whites and Hispanics. The distributions for the interim period are similar.

[38]Table B3 of the Data Appendix shows, by ethnicity and college choice, the fraction of students with imputed and actual SAT scores as well as the means of these scores. As noted, four-year college attendees are more likely to have an actual score than other high school graduates. The means of the actual and predicted scores are generally consistent with negative selection on observables.

Blacks and Hispanics are significantly less likely to enroll at a selective public university after the ban on racial preferences (Table 4).[39] The proportion of African-Americans with SAT scores above the median that now enroll at selective schools has declined by roughly 40% to 50% post-*Hopwood*, corresponding to an 10.8 percentage point decline for the highest-scoring group and 2.6 percentage point drop for blacks with scores between 890 and 1030. In all three of the top score ranges, however, the fraction attending other public four-year schools increased. The share of blacks with scores above the median falling into the residual category also rose, consistent with anecdotal evidence that out-of-state schools, in particular, have succeeded in recruiting high-scoring Texas minorities after *Hopwood*.

Changes in Hispanics' selective college attendance rates also declined within score ranges, though less than for African-Americans. While Hispanics as a whole are less likely to attend non-selective four-year public universities in recent years (Table 2), the proportion increased among Hispanics with scores in the top decile. Two-year college attendance rates increased throughout the test score distribution, with the growth among those scoring above 890 part of an increase in community college attendance across all ethnic groups. In contrast to blacks, the largest increases in the shares of Hispanics falling into the residual category were in the lowest score categories.

The odds of attending UT or A&M do not rise as steeply with exam scores post-*Hopwood* for blacks and Hispanics, and the policy shift had much smaller effects on Asian and white selective college attendance rates.[40] Consequently, whites with SAT scores above the median are more likely than blacks and Hispanics with comparable scores to attend UT–Austin or Texas A&M under the Ten Percent Plan, while before the ban on affirmative action the opposite was generally true. For example, 35% of Hispanics who graduated prior to 1995 and scored above 1170 on the SAT attended one of these two schools compared to 32% of whites. After the adoption of

[39]Results including HBCUs and students who graduated in 1996 and 1997, between the two policy regimes, are available upon request.

[40]Differences in selective college attendance rates relative to whites for Asians, blacks and Hispanics with scores above the median are significant at a 1% level except 1993-95 black graduates scoring above 1170. All ethnic differences by period and score quartile for the lowest two quartiles are significant at a 1% level except Asians and blacks with scores below 770 in both periods (black 1993–95 graduates, 5% level); 1993-95 Hispanic graduates with scores<770 and 1998–99 Hispanic graduates scoring in the second quartile (5% level).

TABLE 4. College Choices by Ethnicity, SAT Score and Period

SAT	Asian		Black		Hispanic		White	
Range	1993–95	1998-99	1993–95	1998-99	1993–95	1998-99	1993–95	1998-99
<770								
Selective	0.2%	0.1%	0.1%	0.2%	0.0%	0.1%	0.1%	0.1%†
Other 4-year	13.8%	10.3%‡	5.5%	6.4%‡	9.8%	6.5%‡	4.9%	4.5%
Two-year	59.9%	62.1%	33.7%	35.0%‡	37.6%	38.2%†	44.2%	41.7%‡
Residual	25.9%	27.0%	51.2%	51.3%	52.5%	55.1%‡	50.8%	53.7%‡
770–890								
Selective	1.5%	1.7%	1.2%	0.8%‡	0.8%	0.7%	0.4%	0.5%‡
Other 4-year	24.0%	25.6%	17.0%	18.3%‡	20.5%	16.3%‡	13.0%	11.6%‡
Two-year	50.5%	49.0%	29.4%	31.8%‡	39.7%	41.6%‡	47.7%	46.5%‡
Residual	23.8%	23.5%	41.0%	41.6%	39.0%	41.3%‡	38.9%	41.4%‡
890–1030								
Selective	8.9%	11.1%‡	6.1%	3.5%‡	5.7%	3.8%‡	3.4%	4.4%‡
Other 4-year	37.4%	34.0%‡	26.3%	28.2%‡	31.1%	27.1%‡	25.9%	22.6%‡
Two-year	32.2%	34.2%	22.2%	24.2%‡	32.5%	35.6%‡	40.8%	41.8%‡
Residual	21.4%	20.6%	35.6%	37.3%†	30.6%	33.4%‡	29.9%	31.2%‡
1030–1170								
Selective	30.2%	29.0%	21.9%	10.7%‡	18.1%	13.2%‡	15.4%	15.8%
Other 4-year	30.1%	31.5%	23.1%	27.1%‡	29.9%	29.9%	28.0%	25.6%‡
Two-year	17.7%	19.9%†	12.5%	18.0%‡	21.6%	25.7%‡	28.5%	30.5%‡
Residual	21.9%	19.6%†	35.0%	39.4%‡	30.4%	31.1%	28.2%	28.0%
>1170								
Selective	41.9%	44.1%	29.4%	18.6%‡	35.4%	25.8%‡	32.2%	30.5%‡
Other 4-year	15.3%	14.8%	14.9%	19.6%‡	18.7%	22.9%‡	20.6%	20.0%
Two-year	7.0%	8.3%†	6.5%	11.0%‡	8.4%	12.6%‡	13.3%	15.6%‡
Residual	35.7%	32.8%‡	46.2%	48.8%	37.5%	38.8%	33.9%	33.8%

Notes: Sample includes Texas public high school graduates with valid SSN on TEA, SAT or ACT files. Results for historically black colleges and universities and standard errors available upon request.
‡ indicates differences in estimates over time within a race-SAT category significant at 1% level
† indicates significance at 5% level

post-affirmative action policies, 26% of Hispanics and 31% of whites with scores in the top decile enrolled at a selective public university in the state.

5.1.3. *The Role of Ethnic Disparities in College Preparation, Application and Matriculation.* Affirmative action and alternatives such as the Top Ten Percent Plan seek to promote diversity by increasing minorities' chances of admission, the stage of college choice that administrators can affect most directly. The ability of admissions policies alone to achieve an ethnically diverse student body is limited, however, if minority students are less likely than others to apply to a given school or to accept an offer. Further, because black and Hispanic high school graduates are

academically less prepared for college on average, administrators face a trade-off between campus diversity and average student quality.[41] This section draws on post-*Hopwood* applications data to examine the the degree to which the minority under-representation at public universities in Texas documented above can be traced to ethnic differences in application rates, yield rates, and academic preparation and to understand the limits of diversity policies which target admissions.

Overall, blacks and Hispanics are less likely than non-minority Texas high school graduates to apply to a Texas public university and, in particular, to either flagship (Table 5). Although blacks comprised 12.8% of high school graduates in 1998 and 1999, for example, they represented 12.2% of graduates who applied to a public four-year university between 1999 and 2001 and less than 5% of applicants at both UT–Austin and Texas A&M.

For Texas A&M, the table additionally shows the racial distribution of admitted students.[42] Lower admissions rates account for 0.3 points (10.1%-9.8%) of the 1.8 percentage point difference between Hispanics' shares of applicants and of attendees at Texas A&M and 0.5 percentage points, or over 40%, of the difference in the fractions of African-American applicants and entering students. At least at Texas A&M in recent years, the gap between minorities' shares of applicants versus enrollees is due as much to lower yield rates, particularly compared to whites, as to ethnic differences in students' probability of admission.

Disparities in application, admissions, and enrollment rates by race are smaller among high-achieving students. Considering those with SAT scores of at least 1175, minorities comprise roughly equal shares of graduates and of applicants to UT–Austin and to public four-year institutions as a whole. High-scoring Hispanics in fact apply to UT–Austin at a greater rate than similar white and black graduates, though application rates for all three groups are well below those for Asians. As Table A3 shows, high-SAT whites apply to, are accepted to, and enroll at Texas A&M at higher rates than comparable students of other ethnicities.

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[41]Chan and Eyster (1999) model this trade-off to predict the responses of college's that value both diversity and student quality to bans on affirmative action and the consequences for student quality.

[42]Acceptance rates for other schools are omitted because information on acceptance decisions at UT–Austin and several other four-year schools implied admissions rates that differed substantially from those reported in other sources. For UT–Austin, I recently acquired student-level data for all applicants between 1992 and 2002. A future draft will incorporate this data, including an analysis of ethnic shares of accepted students.

TABLE 5. Ethnicity of Texas Public Four-Year College Applicants and Enrollees: 1998–1999 High School Graduates (Percent)

	High School Grads	Public 4-Year		UT–Austin			Texas A&M			
		Apply	Enroll	Apply	Enroll	Max % Minority	Apply	Admit	Enroll	Max % Minority
ALL GRADUATES										
Asian	3.3	6.1	6.3	16.1	18.0	15.4	5.9	5.5	3.4	3.1
Black	12.8	12.2	11.8	4.9	3.7	7.1	4.1	3.7	2.9	5.7
Hispanic	29.6	21.3	20.9	14.8	13.2	21.8	10.1	9.8	8.3	14.2
White	53.7	60.0	60.7	63.7	64.6	55.3	79.4	80.7	85.2	76.9
GRADUATES WITH SAT≥1170										
Asian	9.1	11.1	10.6	19.6	20.4	17.3	7.4	7.0	3.6	3.4
Black	2.3	2.1	1.8	2.1	1.5	4.4	1.7	1.6	1.2	3.3
Hispanic	7.4	7.3	7.1	7.9	7.4	15.4	5.6	5.6	4.3	9.5
White	80.5	79.0	80.0	69.8	70.2	62.4	84.9	85.5	90.6	83.6
TOP 10% APPLICANTS TO ANY TEXAS 4-YEAR PUBLIC										
Asian	9.0	9.0	9.7	18.7	20.3	17.4	6.1	6.1	3.7	3.3
Black	6.7	6.7	6.3	4.7	4.2	4.4	3.3	3.3	2.1	3.7
Hispanic	18.0	18.0	16.9	17.1	15.8	15.0	11.7	11.7	9.7	10.6
White	66.0	66.0	66.8	59.2	59.4	62.7	78.6	78.7	84.3	82.1

Notes: Due to apparent reporting errors at UT–Austin and other institutions, admissions rates for UT–Austin and all public universities not shown. Native American, foreign, multiracial, "other," or missing ethnicity omitted.

The bottom panel considers only students who applied to at least one Texas four-year university and were automatically admitted as top-ten-percent graduates.[43] These students are not only guaranteed admission but also consider enrolling at an in-state public institution. Among these, minorities are less likely to apply to either of the top two universities. This suggests that racial differences in applications choices reflect factors other than students' chances of admission or willingness to attend a public four-year school. Black and Hispanic applicants in the top 10% of their class are also less likely to enroll at UT–Austin than both top-10% whites and Asians and less likely than comparable whites, but not Asians, to enroll at Texas A&M (Table A3).

The final column for UT–Austin and Texas A&M, labelled "Max % Minority," provides the counterfactual enrollment shares by race if the application, admissions, and enrollment decisions of non-minorities were unchanged, but all black and Hispanic applicants in a category were accepted and enrolled.[44] The top panel shows that even if all black and Hispanic applicants

[43]The majority of students who applied to a Texas four-year school submitted an application to only one institution. For students who applied to multiple schools and were coded as top-10% admits at some but not all schools, I assign top-10% status based on the modal admissions outcome.

[44]In calculating the hypothetical shares, those who applied to both Texas A&M and UT–Austin but did not attend either are divided between the two schools in the same proportions as those who applied to both and did

ultimately enrolled, minorities would remain under-represented at UT–Austin and Texas A&M compared to the population of high school graduates. For example, under this scenario, Hispanics would comprise 21.8% of UT–Austin students or roughly 75% of their share among recent high school graduates. Put differently, policies that target admissions and yield rates alone cannot produce proportionate representation: whether due to self-selection among those unlikely to be admitted or to other factors, too few blacks and Hispanics apply to either flagship. Gains in the diversity of entering classes would be much smaller if only highly qualified minority applicants (as measured by test score or class rank) were guaranteed to enroll, while other students' decisions—including those of lower-performing minorities—were held constant. The limited effect reflects several factors, including the small fraction of minority applicants with high SAT scores (roughly 24% of black and Hispanic applicants at UT–Austin and 19% at Texas A&M, or half the rates for Asians and whites) and, in the case of UT–Austin, the relatively high yield rate among top-decile applicants.

5.2. **Postsecondary Achievement under Race-Neutral Policies.** I now examine how the shifts in enrollment choices considered above along with changes in admissions, aid, and recruiting policies at Texas universities have affected student performance.[45] I look specifically at the effect of race-neutral policies, compared to conventional affirmative action, on ethnic differences in first-year GPA and retention rates. Though the effects of affirmative action on minority achievement, in particular, often figure prominently in discussions of racial preferences, to date only institutional studies have examined the consequences of the shift to race-blind college policies on student performance.[46] I first establish that ethnic gaps in postsecondary achievement have narrowed and then consider whether these improvements are explained by changes in the observed characteristics of students attending Texas public universities.

enroll. For example, if 55% of the black applicants to both UT and A&M who subsequently enroll at one of the schools attend UT–Austin, then 55% of blacks who applied to both and did not enroll are assigned to UT–Austin. Minority applicants to either UT–Austin or to Texas A&M who did not enroll are assumed to attend that school.

[45]Because of data limitations, I restrict the sample to students who enrolled in a Texas public postsecondary institution within one year of graduation. The primary reason for considering only those who enter within one academic year is that the college enrollment data currently extend through the spring of 2002, so that retention rates for students enrolled after the fall of academic year 2001 are censored. Additionally, this narrower sample definition mitigates concerns that discussion and anticipation of the *Hopwood* case and of the Ten Percent Plan affected student behavior.

[46]Lavergne and Walker (2003a) and Lavergne and Walker (2003b) examine first-year GPAs, retention rates and other measures of student performance for UT–Austin students over time, including comparisons of top-ten-percent students to those ranked below the top decile.

5.2.1. *Unconditional Changes in GPA and Retention Rates over Time.* Figure 2.2 plots the densities of Hispanic, African-American, and Asian students' first-year grade point averages versus those of whites at UT–Austin, Texas A&M, and non-selective senior colleges for the pre- and post-*Hopwood* cohorts. The figure shows that Asian grade point averages generally exceed those of whites, which in turn are higher than those for both minority groups. While GPAs have improved over time for all four ethnic groups, the most striking gains visually are for blacks and Hispanics at UT–Austin.

Table 6 quantifies these changes in GPAs by race. The top panel shows the corresponding increases in median first-year grades by ethnicity at each selective university and at other four-year institutions. For blacks, the largest change in the median—a gain of 0.35 grade points—occurred at UT–Austin, narrowing the difference relative to whites from 0.34 to 0.22 grade points. Consequently, the rank of the median black GPA in the distribution of white grade point averages improved 6.4 percentile points at UT–Austin (middle panel). The absolute increase in the median GPAs for blacks at Texas A&M was smaller, 0.13 points, as was the improvement in the black-white gap in median grades.

In contrast, Hispanics experienced larger gains at Texas A&M. The median Hispanic GPA at Texas A&M rose from 2.33 to 2.50, and the difference relative to the white median fell by 0.12 grade points. In turn, the rank of the Hispanic median in the white grade distribution rose from the 29^{th} to the 36^{th} percentile. With a smaller improvement in Hispanics' relative GPAs at UT–Austin (2 percentile points), the rank of the Hispanic median in the white distribution was higher in recent years at Texas A&M than at UT–Austin, a reversal from the pre-*Hopwood* period.

The final rows of Table 6 present Mann-Whitney statistics for Asians, Hispanics, and Blacks relative to whites. This measure for Hispanics, for example, is calculated as the average percentile rank of Hispanic GPAs in the distribution of white grade point averages.[47] It is also the probability that a randomly chosen Hispanic student has a higher GPA than a randomly chosen white student. This statistic, which captures changes throughout the distribution, largely confirms the analysis based on the medians. For example, Hispanics' relative GPAs improved more

[47]See Pierce and Welch (1994) for additional discussion of the Mann-Whitney statistic.

at Texas A&M than at UT–Austin while the opposite held for blacks. In contrast to changes in the first two measures considered, however, the Mann-Whitney statistic suggests that gains in GPA were greater for blacks than Hispanics at Texas A&M.

TABLE 6. Location of Black, Hispanic and Asian GPAs Relative to Whites by Period

	UT–Austin		Texas A&M		Other Four-Year	
	Pre-*Hopwood*	Post-10% Plan	Pre-*Hopwood*	Post-10% Plan	Pre-*Hopwood*	Post-10% Plan
MEDIAN GPA†						
White	2.77	3.00	2.74	2.78	2.43	2.59
Black	2.43	2.78	2.28	2.41	1.96	2.13
Hispanic	2.38	2.63	2.33	2.50	2.08	2.20
Asian	3.00	3.10	2.80	2.82	2.61	2.65
RANK OF MEDIAN IN WHITE DISTRIBUTION						
Black	34.6%	41.3%	26.5%	31.9%	30.5%	32.4%
Hispanic	32.1%	34.1%	29.0%	36.2%	35.5%	35.0%
Asian	60.4%	56.0%	53.6%	52.2%	57.7%	52.6%
MANN-WHITNEY STATISTIC (RELATIVE TO WHITES)						
Black	37.9%	44.2%	32.3%	36.6%	35.7%	37.0%
Hispanic	37.6%	38.4%	35.4%	39.3%	39.7%	39.2%
Asian	56.6%	53.4%	53.7%	51.9%	54.8%	52.2%

Notes: †Differences in median Asian, black, and Hispanic GPAs relative to whites significant at 1% level for all periods and college types except post-*Hopwood* Asians at other 4-year colleges (5% level) and Asians at Texas A&M. All differences across periods by race are significant at 1% level except Asians at UT–Austin and Blacks at Texas A&M (5% level); and Asians at Texas A&M and other four-year schools.

These relative improvements in minorities' grades did not extend to non-selective four-year schools. The rank of the median black GPA and the difference relative to whites' narrowed only modestly, and the white-Hispanic gap in grades widened slightly by all three measures. Finally, note that by all three measures, the improvements in Asian grades were smaller than those of whites, with the Mann-Whitney statistic, for instance, falling 2–3 percentile points in each case.

Retention rates also improved for all four ethnic groups at selective and non-selective public universities (Table 7). The first four columns show that minorities' retention rates were generally lower than those of whites in the pre-*Hopwood* period. As was true for grade point averages, blacks experienced the largest gains of all groups at UT–Austin: In fact, African-American retention rates exceed those of whites in recent years at both UT–Austin and at less-selective

Texas public universities. Both blacks and Hispanics at Texas A&M are still less likely than whites to remain at least five semesters, but the disparities in dropout rates have narrowed.

TABLE 7. Kaplan-Meier Survivor Function Estimates By Ethnicity and Period

	Pre-*Hopwood*				Post-10% Plan			
Semester	Asian	Black	Hispanic	White	Asian	Black	Hispanic	White
UT–AUSTIN								
1	97.1	96.4	93.3	94.7	98.2	97.0	95.1	95.7
2	93.1	88.9	84.8	87.5	95.2	93.4	87.9	90.5
3	91.0	84.8	79.7	83.8	93.7	92.2	84.6	87.7
4	87.9	78.8	75.0	80.0	91.9	90.1	82.7	86.0
5	85.4	75.0	71.7	77.4	90.6	89.7	81.7	85.3
TEXAS A&M								
1	95.9	94.6	94.0	96.2	99.8	99.4	97.8	98.4
2	85.5	83.0	79.8	88.0	94.0	93.7	90.4	93.3
3	80.7	77.0	74.6	84.8	89.5	88.0	84.5	89.2
4	77.7	72.4	70.1	81.3	87.8	83.4	81.7	87.5
5	74.4	70.5	68.2	79.4	87.1	82.6	80.5	86.5
OTHER FOUR-YEAR								
1	91.7	86.6	86.1	85.6	93.6	89.8	86.6	87.3
2	81.0	68.2	68.1	68.3	83.6	73.8	70.4	70.8
3	73.7	58.7	58.8	61.1	77.8	66.0	62.8	64.3
4	67.1	50.9	51.5	53.9	74.1	61.3	58.5	60.5
5	62.6	46.1	46.3	49.9	72.5	59.3	56.5	58.8

Note: Retention rates are calculated based on consecutive semesters enrolled, with up to three semesters per year. Students are classified as dropping out if not enrolled for three or more consecutive fall and spring terms.

For Asians, the level and changes in retention rates mirror shifts in GPAs at UT–Austin, but not at Texas A&M. Dropout rates for Asians at UT–Austin were lower than those of whites in the earlier period, and this gap declined over time. In contrast, Asians had higher dropout rates than whites at Texas A&M. While five-semester retention rates for whites increased roughly 7 percentage points, Asians' rate increased roughly 13 percentage points, an improvement comparable to those for blacks and Hispanics. Thus, for both first-year GPA and retention rates, ethnic differences in academic achievement declined at both flagships under race-blind policies.

5.2.2. *Are Changes in Performance Due to Changes in Student Characteristics?* Particularly given the declines in the fraction of Texas' black and Hispanic high school graduates who attend either flagship, it is natural to consider whether the improvements in minorities' performance

compared to whites are due to changes in the academic preparation or aptitude of students attending a given institution following the adoption of race-neutral college policies.

To examine this possibility and to provide context for subsequent analysis, Table 8 presents the means for selected student characteristics for the pre- and post-*Hopwood* periods at Texas' public universities.[48] The top panel suggests a shift in minority student qualifications at UT–Austin: blacks and Hispanics enrolling under race-blind policies have lower SAT scores than their pre-*Hopwood* counterparts, but higher GPAs and class rank. Conversely, the class rank and GPAs of Asians and whites fell, and SAT scores increased for Asian students. Minorities enrolling at UT–Austin in the Ten Percent Plan period are also more likely to be economically disadvantaged or to have attended an "inner city" high school than earlier attendees. This is consistent with the conjecture that race-blind policies attract a different, though not a clearly more- or less-qualified, set of minority students than those who enrolled under affirmative action.

By and large, blacks and Hispanics entering Texas A&M in recent years appear to have stronger academic qualifications than minority students at A&M in the earlier period. In contrast, the measured qualifications of whites and Asians generally declined compared to the pre-*Hopwood* cohort. Though only the change in reported high school GPA is significant for minorities and the decreases in the average SAT score and class rank of whites are small, this suggests that some of the improvement in minorities' relative performance at Texas A&M may in part be due to changes in the sets of students enrolling under the two policy regimes.

The bottom panel shows that the average characteristics of whites and Hispanics attending non-selective Texas public universities improved on most dimensions. For Asians and African-Americans, however, the changes in qualifications are mixed. The proportion of blacks with an A average in high school rose, and mean SAT scores increased for Asians, but the average class rank declined for both. Absent other changes affecting their college choices, the increases in the test scores, grades, and class rank of whites at other four-year schools is inconsistent with the simple hypothesis that post-affirmative action policies have led the most-qualified whites among those who previously would have attended a non-selective public university to now enroll at Texas A&M or at UT–Austin.

[48]See Table A4 for additional student characteristics.

TABLE 8. Selected Characteristics of First-Time Students at Texas Public Universities by Race and Period

	Total		Asian		Black		Hispanic		White	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
UT–AUSTIN										
SAT Score	1181	1183	1200	1211†	1082	1048‡	1109	1094‡	1201	1201
HS Class Rank	85.6	85.1‡	87.4	85.8‡	83.0	83.6	85.0	85.8	85.5	84.8‡
Econ. Disadv.	.086	.097‡	.130	.124	.183	.277‡	.275	.357‡	.025	.027
"Inner City"	.053	.044‡	.050	.031‡	.157	.186	.122	.133	.029	.021‡
HS GPA: A	.734	.740‡	.785	.729‡	.618	.693‡	.695	.780‡	.741	.738
TEXAS A&M										
SAT Score	1144	1141†	1169	1159	1014	1031	1058	1064	1164	1151‡
HS Class Rank	86.3	85.1‡	88.3	84.6‡	80.9	81.1	84.2	84.8	86.8	85.3‡
Econ. Disadv.	.071	.062‡	.179	.146	.253	.215	.292	.325	.023	.029‡
"Inner City"	.036	.022‡	.035	.022	.161	.135	.123	.125	.016	.008‡
HS GPA: A	.753	.766‡	.818	.751†	.533	.603†	.677	.745‡	.775	.774
OTHER FOUR-YEAR										
SAT Score	972	979‡	994	1012‡	880	880	884	899‡	1018	1027‡
HS Class Rank	72.3	72.6‡	75.4	73.9‡	69.0	68.3	69.1	70.4‡	73.7	74.1‡
Econ. Disadv.	.214	.238‡	.338	.299‡	.353	.387‡	.537	.568‡	.055	.070‡
"Inner City"	.090	.077‡	.123	.076‡	.199	.175‡	.206	.184‡	.025	.015‡
HS GPA: A	.363	.423‡	.493	.481	.234	.279‡	.277	.362‡	.407	.470‡

Notes: "Pre" period includes 1993–1995 Texas public high school graduates; "Post" includes 1998-1999 graduates. See Table A4 for more extensive set of variables used in analysis

‡ denotes difference across time within group is significant at 1% level; †=significant at 5% level

Tables 9 and 10 examine the extent to which these changes in measured traits underlie the observed improvements in GPAs and retention rates for all students and the performance gains of minorities compared to whites. Table 9 decomposes the changes in grades based on separate regressions by race, school, and time period.[49] Specifically, each cell shows predicted GPAs, by ethnic group and school, calculated by applying the coefficients from the pre- and post-*Hopwood* specifications to a student with the mean characteristics in each time period. For example, the predicted GPA of an average Hispanic student in the pre-*Hopwood* period at UT–Austin was 2.25, but an Hispanic student with the same traits who enrolled under race-blind policies

[49]GPA regressions include SAT score, class rank and their squares; high school quality and inputs indices; indicators for gender, economic disadvantage, gifted/talented, limited English proficiency, high school GPA range, inner city high school, declared major in first college semester, whether a student entered in the spring or summer; and dummies for imputed SAT scores and for missing SAT, class rank, GPA or high school demographics (e.g., economic disadvantage, limited English). Regressions for UT–Austin control for graduation from an high school targeted through UT's Longhorn Opportunity Scholarship program and interaction for graduates of these schools who started at UT in 1999-2000, when the program began. Regressions for non-selective schools include institution fixed effects. Decompositions for median GPAs are similar.

would have a predicted GPA of 2.40. Measured in this way, the remaining 0.04 point gain (2.44-2.40) in mean GPA is attributable to better average qualifications, weighted by the post-*Hopwood* regression coefficients. Instead using the pre-*Hopwood* relationship between student characteristics and grades, the improvement in measured traits would explain an estimated 0.03 points of the increase in GPA. For African-Americans, the sign of the implied net effect of changes in measured traits on grade point averages at UT–Austin depends on the order the decomposition is performed: using the pre-*Hopwood* relationship suggests a 0.03 point decline due to differences in the characteristics of blacks attending UT–Austin, whereas weighting these changes in black qualifications by the post-10% Plan coefficients implies a 0.06 point increase.

TABLE 9. Decomposition of Mean First-Year GPA Estimates at Texas Public Universities

		UT–Austin		Texas A&M		Other Four-Year	
		β_{pre}	β_{post}	β_{pre}	β_{post}	β_{pre}	β_{post}
WHITE	$\overline{X}_{pre}$	2.60	2.79	2.63	2.69	2.29	2.36
	$\overline{X}_{post}$	2.59	2.78	2.59	2.65	2.32	2.40
BLACK	$\overline{X}_{pre}$	2.29	2.67	2.16	2.32	1.88	2.04
	$\overline{X}_{post}$	2.26	2.73	2.22	2.36	1.87	2.04
HISPANIC	$\overline{X}_{pre}$	2.25	2.40	2.25	2.35	1.98	2.00
	$\overline{X}_{post}$	2.28	2.44	2.27	2.39	2.03	2.07
ASIAN	$\overline{X}_{pre}$	2.80	2.89	2.69	2.80	2.44	2.53
	$\overline{X}_{post}$	2.77	2.87	2.63	2.75	2.42	2.50

Notes: Values are predicted mean GPAs based on separate regressions by race and university, pre-*Hopwood* and post-10% Plan, for an individual with average characteristics by race, school and period. Standard errors of row and column differences available upon request.

Table 10 provides a similar decomposition of changes in three-semester retention rates.[50] Consistent with the decomposition of changes in GPAs, whether one weights by the pre- or post-*Hopwood* coefficients, Hispanics appear better prepared than earlier cohorts at UT–Austin and Texas A&M. The same is true as well at other Texas public universities. For blacks, shifts

[50]Estimated retention rates are based on a discrete-time proportional hazards model as in Meyer (1990). Covariates match those used in the GPA regression except the dummies for whether a student entered in a spring or summer semester are replaced by indicators of whether a duration period is a spring or summer semester and dummies for the baseline hazard. Decompositions for retention rates after five semesters are similar for UT–Austin and Texas A&M. At other four-year institutions, the five-semester decomposition attributes 25% or less of the change in dropout rates to differences in observed characteristics for all four racial groups.

in observed qualifications of those enrolling at Texas A&M imply an improvement in predicted dropout rates of 0.9 or 1.5 percentage points using the pre- and post-*Hopwood* coefficients, respectively. The sign of the effects of changes in traits at UT–Austin again depends on the weights used. Finally, the top row suggests that the academic qualifications of whites have weakened at both flagships, but improved at non-selective schools.

TABLE 10. Decomposition of Three-Semester Retention Rates at Texas Public Universities

		UT–Austin		Texas A&M		Other Four-Year	
		β_{pre}	β_{post}	β_{pre}	β_{post}	β_{pre}	β_{post}
WHITE	$\overline{X}_{pre}$	88.2	91.6	88.3	88.3	67.0	66.6
	$\overline{X}_{post}$	87.8	91.3	88.1	87.6	67.5	67.2
BLACK	$\overline{X}_{pre}$	91.6	96.3	81.2	87.9	66.2	71.0
	$\overline{X}_{post}$	90.0	97.0	82.1	89.4	66.5	70.8
HISPANIC	$\overline{X}_{pre}$	85.3	91.3	83.3	86.5	64.7	65.2
	$\overline{X}_{post}$	85.6	91.7	83.5	86.7	65.9	66.7
ASIAN	$\overline{X}_{pre}$	94.8	96.2	88.5	89.6	81.1	81.8
	$\overline{X}_{post}$	95.0	96.1	91.2	89.2	81.7	82.6

Notes: Table shows predicted retention rate after three semesters based on separate pre-*Hopwood* and post-10% Plan regressions by race and university for an individual with mean characteristics by race, school and period. Standard errors of row and column differences available upon request.

Tables 9 and 10 further indicate that changes in students' traits explain only a fraction of the post-*Hopwood* gains in GPAs and retention rates. In general, differences in the average measured characteristics of students pre- and post-*Hopwood* account for less than 25% of the overall change in academic performance. These facts suggest that some of the absolute gains in black and Hispanic performance might reflect overall grade inflation or actual improvement in all students' achievement (due, e.g., to better unobserved qualifications or to a higher return to these unmeasured traits post-*Hopwood*).

Taken together, these findings are consistent with the hypothesis that the narrowing of ethnic differences in college grades and retention rates could in part be due to improvements in the qualifications of blacks and Hispanics who now enroll at top public universities. The decompositions imply that, based on observed characteristics, minorities at both flagships are at least as

well, if not better-qualified than those who enrolled under race-conscious policies. Nonetheless, it is not possible to determine how the unobserved traits (e.g., strength of letters of recommendation or application essays) of minorities and non-minorities have changed. Consequently, one cannot rule out, for example, that the improvements in blacks' and Hispanics' relative academic performance are due entirely to weaker unmeasured characteristics of whites. Given the overall rise in GPAs for whites as well as others and the relatively small changes in observed traits, however, this seems unlikely. In particular, it would require not only a deterioration in whites' unobserved academic qualifications but also considerable offsetting grade inflation.

These results are also consistent with rates of increases in grades that differ across ethnic groups. This could occur, for example, if minority students were less likely to take difficult first-year courses than in the pre-*Hopwood* period. While I do not have data on specific classes in which students enroll, the decompositions control for students' declared major upon entry, likely a key source of any variation in grades and in rates of grade inflation.[51]

Finally, institutional policies may help to explain these gains and the greater improvements in achievement among minorities. The GPA and hazard rate regressions offer limited support for the importance of targeted financial aid and mentoring programs. In particular, UT–Austin introduced its Longhorn Opportunity Scholarships at selected urban high schools in the Fall of the 1999–2000 academic year. The regressions for UT–Austin include indicators for students graduating from one of these schools as well as an indicator for 1999 graduates of a Longhorn high school. Though I do not observe directly whether these students received one of the scholarships, graduates of these schools are more likely to have been directly recruited and to have received significant financial aid than other students.[52] The coefficient for 1999 graduates of an eligible high school at UT–Austin is significant and of the expected sign (positive for GPAs, negative in the hazard regression) for Hispanics. For blacks, Asians, and whites the coefficient, however, was not significant.

[51]Furthermore, first-year coursework that is not determined by one's major may be of more uniform difficulty than upper-level classes taken in later years.

[52]According the UT–Austin's Director of Financial Aid, because the Longhorn high schools are generally in low-income areas, two-thirds of students from these high schools receive Presidential Achievement scholarships which likewise seek to identify high-achieving under-represented students and offer up to $5000 per year in aid.

Similarly, blacks and Hispanics may be more likely than whites and Asians to benefit from the comprehensive admissions procedures for students who were not automatically accepted. If so, these increased investments in assessing applicants may result in better student-school matches and would offer another explanation of minorities' comparatively larger gains in GPAs and retention. I am currently investigating these hypotheses further, including using recently acquired admissions data for UT–Austin to estimate students' probabilities of acceptance and enrollment at UT–Austin based on data for pre-*Hopwood* cohorts. I will compare the actual and predicted achievement of post-*Hopwood* students as a function of these estimated probabilities. More careful review of applicants would imply that these performance gains would be greatest among those attendees with low predicted probabilities of acceptance under affirmative action.

6. Conclusion

In this paper, I have shown that the Top Ten Percent Plan and institutional responses to the *Hopwood* decision have had varying success in restoring black and Hispanic enrollment at Texas' flagship campuses. Diversity at UT–Austin is at or below pre-*Hopwood* levels, depending on the standard used, and minority representation at Texas A&M remains below its peak shortly before the court decision. Examination of students' college choices suggests that minorities, especially those with high test scores, are now less likely than whites with comparable SAT scores to enroll at a selective Texas public university. Some of these students may now attend less-selective Texas institutions or, possibly, out-of-state schools. Data on recent applicants to Texas public universities indicate that minority under-representation at UT–Austin and Texas A&M reflects not only disparities in academic preparation, but also ethnic differences in the decision of where to apply and whether to accept an offer of admission.

Gaps in minorities' first-year grades and retention rates compared to those of whites have narrowed with the adoption of race-neutral policies. Approximately one-quarter of the gains in student performance are attributable to differences in the observable traits of students who enrolled before and after the *Hopwood* decision. It is possible that other changes in the qualifications of minorities and non-minorities that are unobserved to the researcher underlie these

relative shifts in performance. Alternatively, it appears more likely that these gains reflect better student-school matches or more effective retention and mentoring efforts.

This paper argues that the centerpiece of Texas' post-affirmative action policies, the guarantee of admission to high school graduates in the top decile of their class, likely had little direct effect on enrollment at Texas' flagship institutions after *Hopwood*. Instead, less-publicized institutional changes in aid and recruiting may have helped to reverse declines in diversity at UT–Austin and Texas A&M. Institutional changes such as a more thorough review of applicants below the top 10% of their class and expanded retention programs may also explain a portion of the relative increase in minority performance at the state's flagships. The recent Supreme Court decisions struck down higher education policies based solely on race, instead mandating that colleges consider race only as part of a comprehensive assessment of individual students. If indeed institutional initiatives adopted after the ban on affirmative action in Texas underlie the improvements in diversity and minority performance, the Supreme Court rulings may contribute to remedying existing ethnic gaps in postsecondary educational attainment and achievement.

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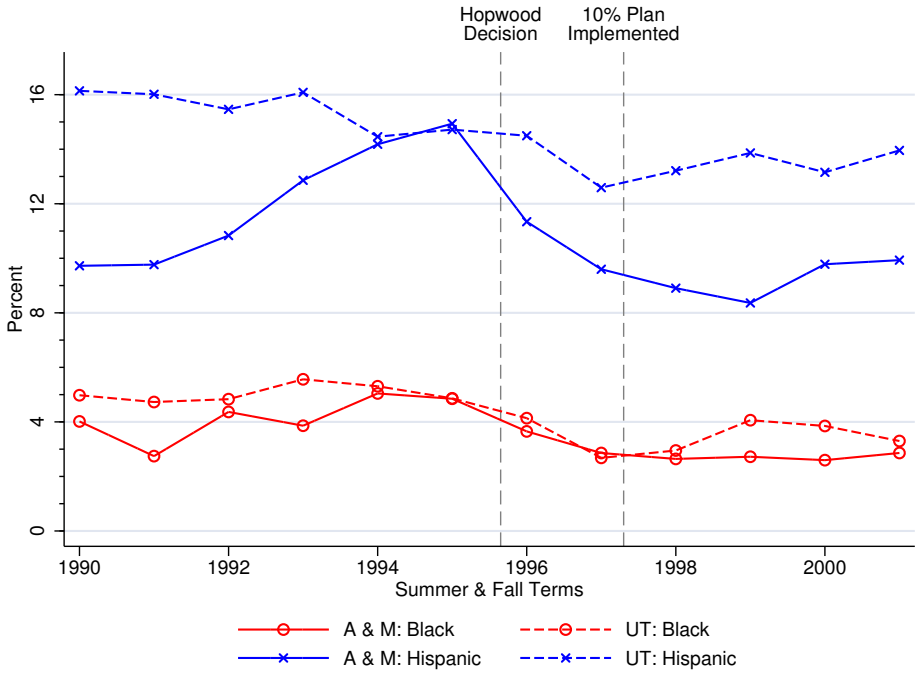

FIGURE 1. Percent of African-American and Hispanic First-time Students at UT–Austin and Texas A&M

Note: Figures include first-time students in summer and fall semesters
Source: THECB Student Enrollment Reports, UT–Austin Office of Institutional Research (1997, 2001)

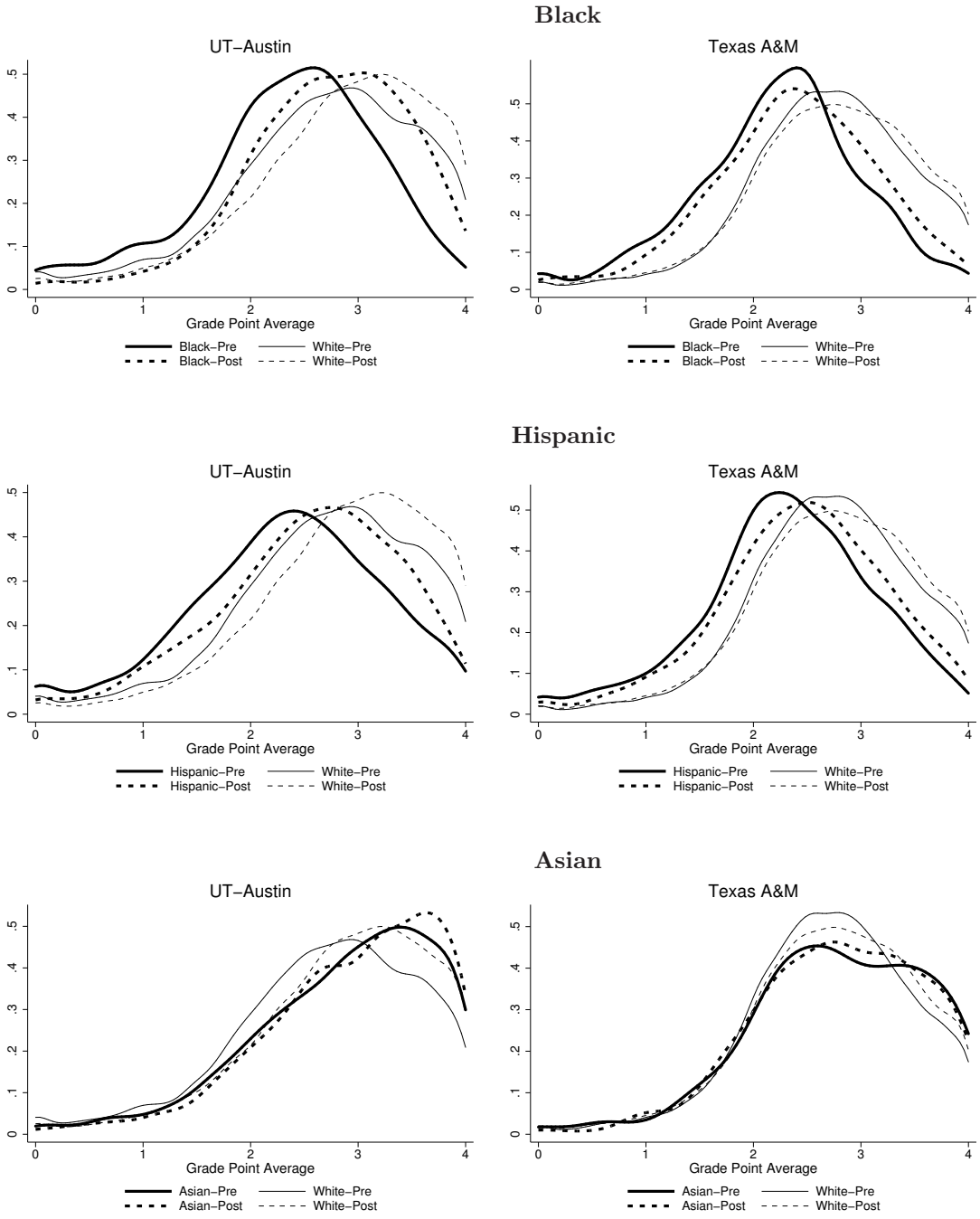

FIGURE 2.2A. Density of First-Year GPA by Ethnicity and Period: Texas A&M and UT–Austin

Note: "Pre-Hopwood" period includes 1993–1995 high school graduates.
"Post-Ten Percent Plan" includes 1998-1999 graduates.

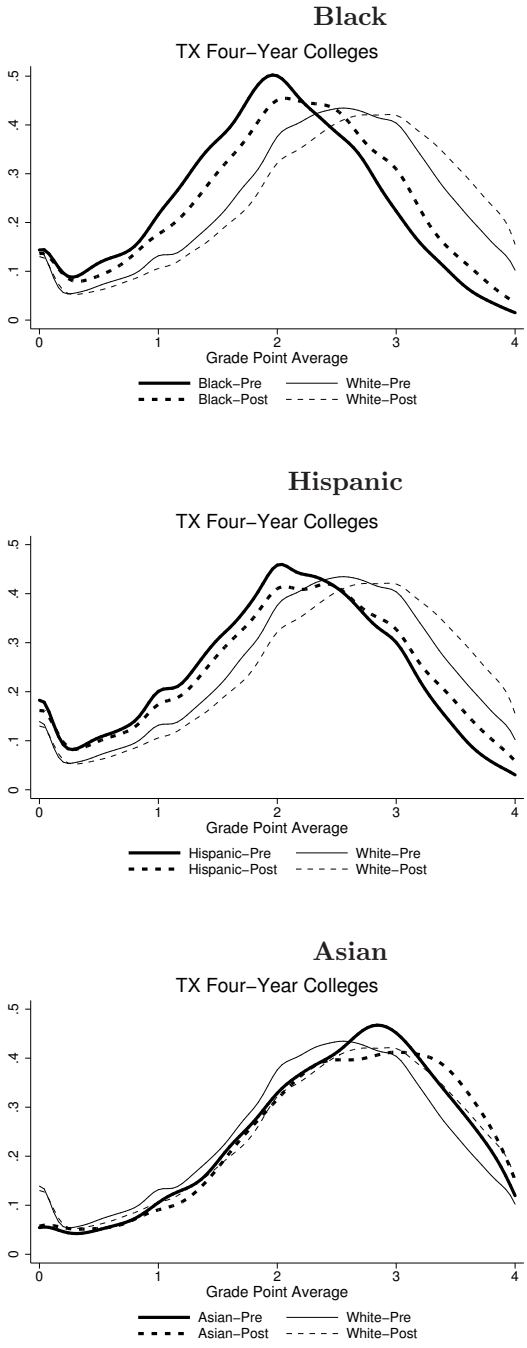

FIGURE 2.2B. Density of First-Year GPA by Ethnicity and Period: Non-selective TX Public Four-Year Institutions

Note: "Pre-Hopwood" period includes 1993–1995 high school graduates.
"Post-Ten Percent Plan" includes 1998-1999 graduates.

Appendix A. Supplementary Tables

Table A1. College Choices by Graduation Year and Student Characteristics

College	Ethnicity				"Inner City" School		Econ. Disadvantaged	
Type	Asian	Black	Hispanic	White	No	Yes	No	Yes
Selective								
1993–95	17.8%	2.7%	3.0%	7.9%	6.6%	2.7%	8.4%	1.6%
1996–97	19.1%	1.7%	2.4%	8.3%	6.5%	2.1%	8.6%	1.3%
1998–99	19.8%	1.6%	2.2%	8.5%	6.5%	2.0%	8.9%	1.3%
Other Four-year								
1993–95	24.1%	11.6%	16.4%	18.5%	17.5%	15.1%	19.8%	12.6%
1996–97	24.0%	12.9%	14.4%	17.7%	16.7%	13.0%	19.4%	11.3%
1998–99	23.4%	12.9%	13.6%	16.9%	15.9%	12.3%	18.5%	10.7%
HBCU								
1993–95	0.1%	8.9%	0.1%	0.0%	0.9%	2.7%	1.0%	1.2%
1996–97	0.1%	7.3%	0.0%	0.0%	0.8%	2.3%	0.8%	1.1%
1998–99	0.1%	6.3%	0.1%	0.0%	0.7%	2.0%	0.7%	1.0%
Two-year								
1993–95	30.8%	27.8%	34.4%	36.0%	34.4%	33.6%	37.0%	31.3%
1996–97	30.0%	28.6%	36.3%	36.1%	35.1%	33.6%	37.2%	32.5%
1998–99	30.6%	29.3%	35.6%	35.8%	35.0%	32.1%	37.1%	32.1%
Residual								
1993–95	27.1%	49.1%	46.1%	37.5%	40.5%	46.0%	33.7%	53.3%
1996–97	26.9%	49.4%	46.8%	37.9%	40.9%	49.0%	34.0%	53.9%
1998–99	26.1%	49.9%	48.6%	38.8%	41.9%	51.7%	34.8%	54.9%
Count								
1993–95	15,640	58,121	137,524	277,896	444,708	46,320	310,613	140,456
1996–97	11,490	43,597	100,354	194,889	320,332	31,393	214,633	111,865
1998–99	12,983	51,018	118,224	214,436	359,796	36,971	233,729	134,335
Row Percent								
1993–95	3.2%	11.8%	27.9%	56.5%	90.4%	9.4%	63.1%	28.5%
1996–97	3.3%	12.4%	28.5%	55.3%	90.9%	8.9%	60.9%	31.7%
1998–99	3.3%	12.8%	29.6%	53.7%	90.2%	9.3%	58.6%	33.7%

Notes: Residual category includes those who never enroll in a TX public institution during the sample period, enroll more than 2 years after graduation, or transfer to a TX public college from an out-of-state or private institution. Native American, foreign, multiracial, "other," or missing ethnicity not shown but included in row percents. Figures for "Inner City" School exclude students whose high school urbanicity could not be determined (0.3% of students); "Econ. Disadvantaged" counts exclude those (7.9%) without information on economic disadvantage in high school.

TABLE A2. Ethnicity of "Inner City" and Economically Disadvantaged Graduates

	Asian	Black	Hispanic	White	Total
"Inner City" High School	7.3%	17.9%	19.8%	2.0%	2.5%
Non-"Inner City" High School	92.7%	82.1%	80.2%	98.0%	97.5%
Economically Disadvantaged	30.4%	52.8%	66.3%	13.0%	33.8%
Not Economically Disadvantaged	69.6%	47.2%	33.7%	87.0%	66.3%

Note: Figures do not include those with missing information on urbanicity of high school or economic disadvantage status, respectively.

TABLE A3. Texas Public Four-Year College Applicants and Enrollees by Race: Counts, Application and Enrollment Rates (1998–1999 Graduates)

	High School Grads	Public 4-Year Apply ($\frac{Apply}{Grads}$)	Public 4-Year Enroll ($\frac{Enroll}{Apply}$)	UT–Austin Apply ($\frac{Apply}{Grads}$)	UT–Austin Enroll ($\frac{Enroll}{Apply}$)	Texas A&M Apply ($\frac{Apply}{Grads}$)	Texas A&M Admit ($\frac{Accept}{Apply}$)	Texas A&M Enroll ($\frac{Enroll}{Accept}$)
ALL GRADUATES								
Asian	12,983	7,247	5,620	3,613	2,156	1,320	1,013	420
		(55.8%)	(77.5%)	(27.8%)	(59.7%)	(10.2%)	(76.7%)	(41.5%)
Black	51,018	14,433	10,609	1,090	445	919	670	354
		(28.3%)	(73.5%)	(2.1%)	(40.8%)	(1.8%)	(72.9%)	(52.8%)
Hispanic	118,224	25,316	18,715	3,318	1,585	2,245	1,799	1,009
		(21.4%)	(73.9%)	(2.8%)	(47.8%)	(1.9%)	(80.1%)	(56.1%)
White	214,436	71,167	54,404	14,300	7,753	17,630	14,786	10,409
		(33.2%)	(76.4%)	(6.7%)	(54.2%)	(8.2%)	(83.9%)	(70.4%)
Total	399,017	118,673	89,665	22,433	1,200	2,2194	18,325	12,222
		(29.7%)	(75.6%)	(5.6%)	(5.3%)	(5.6%)	(82.6%)	(66.7%)
GRADUATES WITH SAT≥1175								
Asian	3,443	2,747	2,025	2,147	1,326	645	562	182
		(79.8%)	(73.7%)	(62.4%)	(61.8%)	(18.7%)	(87.1%)	(32.4%)
Black	857	528	345	227	95	144	130	60
		(61.6%)	(65.3%)	(26.5%)	(41.9%)	(16.8%)	(90.3%)	(46.2%)
Hispanic	2,776	1,798	1,352	867	482	487	451	218
		(64.8%)	(75.2%)	(31.2%)	(55.6%)	(17.5%)	(92.6%)	(48.3%)
White	30,324	19,491	15,222	7,631	4,565	7,385	6,909	4,549
		(64.3%)	(78.1%)	(25.2%)	(59.8%)	(24.4%)	(93.6%)	(65.8%)
Total	37,674	24,687	19,022	10,931	6,502	8,694	8,082	5,022
		(65.5%)	(77.1%)	(29%)	(59.5%)	(23.1%)	(93%)	(62.1%)
TOP 10% APPLICANTS TO ANY TEXAS 4-YEAR PUBLIC								
Asian	2,171	2,171	1,907	1,335	1,083	543	541	205
		(100%)	(87.8%)	(61.5%)	(81.1%)	(25%)	(99.6%)	(37.9%)
Black	1,610	1,610	1,239	334	222	290	290	118
		(100%)	(77.0%)	(20.7%)	(66.5%)	(18.0%)	(100%)	(40.7%)
Hispanic	4,334	4,334	3,313	1,218	844	1,043	1,038	544
		(100%)	(76.4%)	(28.1%)	(69.3%)	(24.1%)	(99.5%)	(52.4%)
White	15,901	15,901	13,106	4,218	3,169	7,009	6,997	4,736
		(100%)	(82.4%)	(26.5%)	(75.1%)	(44.1%)	(99.8%)	(67.7%)
Total	24,084	24,084	19,618	7,128	5,338	8,912	8,893	5,616
		(100%)	(81.5%)	(29.6%)	(74.9%)	(37.0%)	(99.8%)	(63.2%)

Notes: Due to apparent errors or ambiguity in coding, admissions rates for UT–Austin and other universities not shown. Top-10% status for students admitted to some but not all schools as top-10% eligible are classified based on modal admissions outcome. Native American, foreign, multiracial, "other," or missing ethnicity omitted.

TABLE A4. Characteristics of First-Time Students at Texas Public Universities by Race and Period

	Total		Asian		Black		Hispanic		White	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
UT–AUSTIN										
SAT Score	1181	1183	1200	1211†	1082	1048‡	1109	1094‡	1201	1201
HS Class Rank	85.6	85.1‡	87.4	85.8‡	83.0	83.6	85.0	85.8	85.5	84.8‡
Econ. Disadv.	.086	.097‡	.130	.124	.183	.277‡	.275	.357‡	.025	.027
Gifted/Talented	.545	.495‡	.514	.485	.447	.454	.551	.508†	.559	.497‡
Limited English	.011	.014‡	.067	.062	.000	.003	.008	.020‡	.001	.001
"Inner City"	.053	.044‡	.050	.031‡	.157	.186	.122	.133	.029	.021‡
HS GPA: A	.734	.740‡	.785	.729‡	.618	.693‡	.695	.780‡	.741	.738
HS GPA: B	.197	.171‡	.143	.186‡	.326	.264†	.251	.162‡	.187	.163‡
Female	.504	.515‡	.483	.498	.585	.599	.497	.514‡	.503	.515
HS Quality	.990	1.08‡	1.20	1.49‡	.291	.090‡	.111	-.002†	1.20	1.25†
HS Inputs	.707	.580‡	.985	.903†	.723	.628	.507	.376‡	.688	.527‡
Math/Science	.220	.243‡	.253	.326‡	.243	.193†	.250	.238	.204	.223‡
Busin./Mgmt.	.133	.133‡	.128	.166‡	.109	.160‡	.120	.120	.139	.124‡
Arts/Humanit.	.347	.346‡	.211	.194	.285	.361‡	.325	.343	.388	.389
Pre-Med/Biol.	.210	.178‡	.356	.256†	.227	.156‡	.202	.193	.177	.155‡
Longhorn (LOS)	.040	.029‡	.023	.013†	.176	.224†	.087	.104‡	.021	.008
LOS*(99-00)	–	.017	–	.006	–	.153	–	.058	–	.004
TEXAS A&M										
SAT Score	1144	1141†	1169	1159	1014	1031	1058	1064	1164	1151‡
HS Class Rank	86.3	85.1‡	88.3	84.6‡	80.9	81.1	84.2	84.8	86.8	85.3‡
Econ. Disadv.	.071	.062‡	.179	.146	.253	.215	.292	.325	.023	.029‡
Gifted/Talented	.507	.452‡	.447	.381†	.407	.436	.452	.467	.523	.454‡
Limited English	.004	.004‡	.059	.062	.000	.003	.018	.018	.000	.000
"Inner City"	.036	.022‡	.035	.022	.161	.135	.123	.125	.016	.008‡
HS GPA: A	.753	.766‡	.818	.751†	.533	.603†	.677	.745‡	.775	.774
HS GPA: B	.189	.166‡	.149	.173	.386	.333	.271	.194‡	.166	.158
Female	.486	.517	.424	.480	.590	.624	.446	.518‡	.489	.515‡
HS Quality	.725	.872‡	.789	1.17‡	.002	.324‡	-.051	-.058	.885	.968‡
HS Inputs	.268	.135‡	.582	.596	.743	.692	.367	.260†	.212	.086‡
Math/Science	.296	.294‡	.382	.376	.233	.339‡	.309	.306	.294	.287
Business/Mgmt.	.143	.157‡	.083	.120	.157	.121	.110	.124	.150	.162†
Arts/Humanities	.291	.229‡	.190	.168	.356	.244‡	.316	.215‡	.288	.232‡
Pre-Med/Biol.	.121	.119‡	.267	.218	.138	.138	.133	.170‡	.112	.109
OTHER FOUR-YEAR										
SAT Score	972	979‡	994	1012‡	880	880	884	899‡	1018	1027‡
HS Class Rank	72.3	72.6‡	75.4	73.9‡	69.0	68.3	69.1	70.4‡	73.7	74.1‡
Econ. Disadv.	.214	.238‡	.338	.299‡	.353	.387‡	.537	.568‡	.055	.070‡
Gifted/Talented	.227	.245‡	.332	.307†	.167	.237‡	.195	.207‡	.241	.257‡
Limited English	.035	.028‡	.172	.139‡	.001	.004‡	.104	.082‡	.001	.001
"Inner City"	.090	.077‡	.123	.076‡	.199	.175‡	.206	.184‡	.025	.015‡
HS GPA: A	.363	.423‡	.493	.481	.234	.279‡	.277	.362‡	.407	.470‡
HS GPA: B	.491	.435‡	.377	.393	.587	.565†	.541	.470‡	.467	.401‡
Female	.552	.563‡	.524	.525	.628	.635	.558	.564	.542	.554‡
HS Quality	.322	.369‡	.616	.850‡	-.276	-.124‡	-.520	-.372‡	.729	.728
HS Inputs	.083	-.001‡	.867	.772‡	.648	.652	.097	.059‡	-.051	-.207‡
Math/Science	.106	.121‡	.138	.197‡	.084	.111‡	.124	.122	.098	.116‡
Business/Mgmt.	.119	.131‡	.091	.120‡	.141	.135	.117	.106‡	.119	.142‡
Arts/Humanities	.174	.200‡	.062	.076†	.140	.157‡	.170	.164	.188	.234‡
Pre-Med/Biol.	.176	.155‡	.295	.229‡	.182	.163‡	.191	.197	.161	.130‡

Notes: "Pre" period includes 1993–1995 Texas public high school graduates; "Post" includes 1998-1999 graduates. Omitted category for entering major is social sciences, history and other (including undeclared). Other major groupings are: math, physical sciences and engineering; business, management and marketing; arts, humanities and communication; and pre-med, biology and health sciences. Omitted high school GPA categories are C or less, and missing GPA.
‡ denotes difference across time within group is significant at 1% level; †=significant at 5% level

Appendix B. Data Appendix

The core of my sample is drawn from administrative data on 1993–1999 Texas public high school graduates collected by the Texas Education Agency (TEA). These data are linked to data from several other sources. Table B1 provides an overview of each data set and the primary measures used in this study. To supplement the above discussion, I outline the construction of the sample and highlight additional details, including match rates across data sources and the treatment of duplicate records.

The 1993–1999 TEA graduation files contain a total of 1,248,690 student records. I eliminate a small fraction that are not unique by Social Security Number (SSN) and gender.[53] Specifically, for records that match on sex, SSN, the TEA-assigned student identifier, birthdate, and race but have different graduation year or school I retain, if possible, observations that match the school and/or year of a unique 12th grade enrollment record and otherwise the most recent record for those matching on these five characteristics. Remaining duplicates on SSN and sex alone are dropped. Summary statistics for the resulting sample of 1,243,208 1993-1999 graduates are presented in the first two columns of Table B2.

Roughly 6% of graduation records do not include a valid, numeric Social Security Number and generally cannot be matched with other data. An exception is the enrollment information, which is linked based on the alternative TEA-specific student identifier and gender. In constructing the longitudinal enrollment history for students, I drop all duplicate student identifier-sex pairs in a given year (a fraction less than 0.2% in all years and often zero). Over 99% of graduates are matched to an enrollment record.[54] Match rates for the school-level AEIS (Academic Excellence Indicator System) and Common Core data based on school codes are comparable, with less than 0.1% of records unmatched.

These data are then linked to information for 1,071,312 students who took either the ACT or SAT between 1991 and 2000. Before combining the test score data sets, 4.7% of SAT and 1.2% of ACT records are dropped due to invalid SSNs. About 6% of SAT records contain scores of zero on both the math and verbal sections (with the minimum otherwise reported of 400); these records are retained but treated as invalid scores. Though both the ACT and SAT data sets are intended to report the most recent score for graduates in each year, roughly 3% of SAT and 1% of ACT observations appear to be repeated records. In these cases, I retain the latest observation among those matching on SSN, sex, birthdate, ethnicity and high school code and drop all remaining duplicates on SSN and sex (.2% of ACT, .5% of SAT observations). After combining the exam data, scores for the 30% of students who took both are averaged. Roughly 56% of students in the TEA graduation sample are then matched to an ACT/SAT record. Conversely, 11% of test-takers who reported attending a public high school do not have a corresponding TEA graduation record. As noted above, I include these students, whose characteristics are summarized in column 3 of Table B2.

Nearly 83% of the resulting sample of 1,247,826 graduates are then matched to TAAS (Texas Assessment of Academic Skills) exit-level reading, writing and math scores. Special education students are exempt from the exam, and the fraction matched exceeds 90% for students never listed as enrolled in special education in high school. This match rate also reflects the fact that 13% of TAAS records have invalid SSNs (which are dropped from the final TAAS data but included in the calculation of score percentiles). I use the earliest available score record for each individual unless the student was exempt or absent for all three exams. However, I eliminate this record if the student is reported to have previously passed or to be retaking any subject,

[53] In identifying duplicate records, I include TEA graduation data from 1991, 1992, and 2000. The sample is restricted to 1993–1999 graduates after the merge with the ACT/SAT data described below.

[54] Conversely, no corresponding graduation record is found for nearly 10% of 12th grade enrollment records.

and the student is not assigned a score. Using these criteria, 95% of student scores correspond to the first grade that a student could have taken the exam, and 95% contain scores on all three exams.[55] Next, I incorporate financial aid data, which is available for roughly 30% of graduates in the sample.

The composite test score measure is based on a regression of combined SAT/ACT scores on students' percentile ranks (within an administration date) on the three TAAS exams. A regression of these ranks, their squares, and dummies for the administration date and age at the time of the exam yields an R^2 of 0.67. This measure increases to 0.73 with additional controls for race; gender; participation in gifted and talented programs, special education programs, limited-English proficiency designation; urbanicity; parental education; family income; high school "quality" and "inputs"; and the fraction of minority and of economically disadvantaged students at each high school.

Finally, the sample of high school graduates is linked with combined data from the Student Reports (Report 1) and TASP Reports (Report 2) from the Texas Higher Education Coordinating Board (THECB). I merge all available Report 1 and Report 2 records for individuals (SSN-sex pair) in the sample of high school graduates to create the combined THECB data set. In total, the data include 6,255,158 person-school-semester observations on 845,683 students. In contrast to the TEA, the THECB assigns a numeric identifier for students without a valid SSN. Therefore, I merge these postsecondary data with the sample of graduates by SSN and sex, but additionally require a match on either birth month or birth year. I then assign students' "first college " as the institution where they were enrolled in the first fall semester following high school graduation and otherwise the first college or university attended within two years of graduation.[56]

I flag students who: 1) appear in the THECB data more than 4 years before they graduated from high school; or 2) who first appear after the first fall term following graduation and are listed as transfers from a Texas public institution, but for whom I find no prior THECB information. These two groups, comprising less than less than 0.2% of observations, are not assigned a "first college." Additionally, I identify students who first appear in a semester after the fall semester after high school but are listed as transfers from out-of-state or private institutions (2.6%) and students who enter the THECB data more than 2-years after graduating from high school (3.1%). Though separately identified in the data, each of these groups are included in the "residual" category, the majority of which are students who never appear in the THECB data.

[55]Since 1993 the exam is administered to 10^{th}-graders. Earlier, students first took the exam in 11^{th} grade.

[56]When an individual is enrolled at more than one school in this first semester, I assign the college based on the total number of semesters at which the student is ultimately enrolled at each institution and, if necessary, the number of credit hours in the current semester.

TABLE B1. Summary of Data Sources and Primary Variables

Data Source *Data Type: Period* Primary measures used
Texas Education Agency
Graduation: 1991–2000 High school code and month and year of graduation; indicator for whether graduate intends to enter a degree program (associate's or bachelor's) within one year.
Enrollment: 1990–2001 School and grade as of October of each year; calculated years in 12th grade; calculated number of years identified as limited English proficient, economically disadvantaged, participated in special education program, and participated in gifted and talented program.
Academic Excellence Indicator System (AEIS): 1994–2000 School characteristics for each campus are average values over all available years: Quality: current year dropout rate; percent of current students taking ACT or SAT exam; percent of students completing advanced courses (e.g., AP, IB, advanced math) in prior year; percent of students passing TAAS exit exam. Resources: instructional expenditures per student; student-teacher ratio; average teacher base salary ($1997); average base salary for teacher with 1-5 years' experience ($1997); teacher average experience. Demographic: Percent minority; percent economically disadvantaged.
TAAS Exit-level Exam: 1991–2000 Raw reading, writing and math scores and calculated percentile rank within administration date; year and administration date exam taken.
National Center for Education Statistics
Common Core of Data: 1994–2000 Urbanicity (urban, rural, central city etc.) indicator based on Census geocoding of schools. As the coding methodology has improved over time, I use the most recent designation available for each campus.
Texas Higher Education Coordinating Board
ACT and SAT: 1991–2000 Test scores: composite ACT, SAT verbal and math scores, converted to current SAT I scale based on College Board correspondance tables. Family background: Student self-reported family income (available on the SAT beginning in 1998 and on all years of the ACT) is taken as the midpoint of reported income range 1997 dollars. Beginning in 1998, the SAT data include parents' highest grade completed. High school academic outcomes: Self-reported high school class rank and high school GPA. Ranks are reported by quartile on the ACT and by quintiles and separately for top 10% on SAT.

continued on next page

continued from previous page

Data Source

Data Type: Period

Primary measures used

Financial Aid: 1998–2002

Total household income and parental education reported for students receiving need-based aid or assistance requiring a financial needs analysis. Income converted to 1997 dollars and averaged within years (where student reported at multiple institutions) and across years. Where reported educational attainment of parents varies over time, the maximum reported highest grade completed is used.

Student Report (Report 1): 1990–2002

Total credit hours taken and declared major at each TX public institution attended in each semester. Indicator of whether a student has transferred from another institution or is enrolled for the first time.

TASP (Texas Academic Skills Program) Report (Report 2): 1992–2001

Total credit hours and grade points earned in non-remedial courses at each institution. Initially reported annually for some universities, reported each semester for all schools by 1998.

Admissions Report (Report B): 1999–2002

Admissions outcome for first-time undergraduate applicants to a public four-year institution (e.g., acceptance in top 10% of class, provisional acceptance, rejected, withdrawn application) by school and semester applied for.

Notes: In addition to birthdate and ethnicity, each student-level data set also contains gender and an encrypted SSN (alternately, the Enrollment data include a TEA-assigned identifier) that are used to match individuals across data sources.

TABLE B2. Comparison of High School Student Characteristics by Sample Source

Variable	Graduation Files		Add'l SAT/ ACT Obs	Analysis Sample
	Invalid SSN	Valid SSN		
Male	52.4%	48.8%	47.8%	48.8%
Intend to start college w/in 1 year	58.2%	67.8%	–	.%
Native American	0.2%	0.2%	0.9%	0.3%
Asian	3.8%	3.0%	5.8%	3.2%
African-American	16.7%	12.0%	16.1%	12.2%
Hispanic	41.7%	28.9%	22.6%	28.5%
White	37.5%	55.9%	48.1%	55.1%
Special Education in HS	11.3%	10.4%	–	5.2%
Gifted Program in HS	13.5%	15.8%	–	10.4%
Limited English Prof. in HS	20.1%	5.2%	–	15.8%
Econ. Disadvantage in HS	42.8%	33.7%	–	33.7%
Missing HS traits (e.g. gifted, spec. ed.)	3.4%	1.5%	100%	7.9%
Graduated 1993	14.7%	12.7%	15.8%	12.9%
Graduated 1994	13.4%	13.1%	13.5%	13.0%
Graduated 1995	13.5%	13.6%	13.6%	13.5%
Graduated 1996	14.3%	13.7%	14.2%	13.7%
Graduated 1997	13.6%	14.6%	13.6%	14.5%
Graduated 1998	14.0%	16.2%	14.3%	16.0%
Graduated 1999	16.4%	16.1%	14.9%	16.0%
Count	76,810	1,166,398	81,428	1,247,826

TABLE B3. Means and Availability of Actual and Predicted SAT Scores by College Type and Period

College Type		Asian		Black		Hispanic		White	
Graduation Year		Avail.	Mean	Avail.	Mean	Avail.	Mean	Avail.	Mean
SELECTIVE									
1993–95	Actual	96.3%	1195	96.0%	1053	96.8%	1085	96.1%	1182
	Imputed	99.2%	1193	99.1%	1050	99.2%	1084	99.3%	1181
1996–97	Actual	96.4%	1206	95.2%	1041	97.1%	1095	96.2%	1179
	Imputed	99.5%	1204	98.8%	1039	99.6%	1094	99.6%	1178
1998–99	Actual	97.5%	1203	97.7%	1041	97.2%	1082	96.6%	1174
	Imputed	99.9%	1202	99.7%	1040	99.8%	1081	99.7%	1172
OTHER FOUR-YEAR									
1993–95	Actual	91.7%	1004	87.8%	883	85.9%	887	92.0%	1021
	Imputed	98.3%	1002	96.6%	878	96.5%	879	98.5%	1019
1996–97	Actual	92.8%	1015	88.2%	883	86.5%	900	91.4%	1025
	Imputed	98.4%	1013	97.4%	877	98.1%	892	98.9%	1022
1998–99	Actual	93.1%	1017	90.4%	883	87.9%	906	93.1%	1029
	Imputed	99.1%	1015	98.2%	878	98.3%	898	99.1%	1026
HBCU									
1993–95	Actual	54.5%	854	73.5%	800	72.3%	877	63.6%	885
	Imputed	77.3%	871	92.0%	792	92.8%	850	90.9%	890
1996–97	Actual	70.0%	881	74.5%	798	71.0%	806	72.4%	896
	Imputed	80.0%	909	94.4%	790	96.8%	792	89.7%	880
1998–99	Actual	83.3%	813	77.4%	786	68.9%	840	70.7%	938
	Imputed	100.0%	808	95.5%	781	91.8%	834	95.1%	922
TWO-YEAR									
1993–95	Actual	65.4%	892	53.3%	779	47.9%	821	61.2%	938
	Imputed	92.3%	884	86.6%	765	87.0%	797	91.9%	921
1996–97	Actual	64.1%	904	52.2%	786	47.0%	820	60.5%	944
	Imputed	92.7%	897	90.5%	768	91.5%	796	94.0%	925
1998–99	Actual	65.5%	911	54.7%	786	46.9%	822	61.7%	949
	Imputed	94.0%	902	90.7%	769	92.1%	798	94.7%	930
RESIDUAL									
1993–95	Actual	67.8%	1111	35.2%	831	26.3%	870	43.3%	1034
	Imputed	90.3%	1059	75.7%	779	77.7%	790	83.5%	951
1996–97	Actual	67.1%	1132	33.9%	836	24.8%	870	42.4%	1043
	Imputed	91.5%	1071	78.9%	780	80.4%	791	85.2%	953
1998–99	Actual	66.5%	1131	33.1%	841	23.7%	869	42.1%	1042
	Imputed	91.3%	1069	78.6%	782	81.6%	787	85.5%	949
TOTAL									
1993–95	Actual	77.9%	1042	51.3%	834	45.7%	871	63.0%	1015
	Imputed	94.4%	1017	83.2%	798	84.7%	820	90.6%	974
1996–97	Actual	77.9%	1060	50.2%	834	43.5%	871	62.1%	1021
	Imputed	95.0%	1032	86.1%	796	87.5%	817	92.0%	976
1998–99	Actual	78.6%	1061	50.7%	834	42.3%	872	62.3%	1023
	Imputed	95.7%	1033	86.1%	797	88.0%	815	92.3%	976