College Quality and the Texas Top 10% Plan: Implications for Minority Students

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Abstract

This paper contributes to our understanding of the benefits of attending selective public colleges in the context of race-sensitive admissions by estimating the effects of college quality and the admissions policy change, from affirmative action to the Top 10% Plan, on college completion. Results show that both minority and non-minority students who attended selective colleges have higher college completion than comparable counterparts who attended less selective colleges. Moreover, I find no evidence to support the minority "mismatch hypothesis." The change in admissions policies only impacted lower decile minority students—minority college completion declined under the Texas Top 10% Plan.

JEL Classifications: I21, I23, J15, J24

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I. Introduction

Few things are as persistent as the educational gap between minorities and their non-minority counterparts in the United States; this gap has only slightly narrowed over time (*U.S. Department of Education*, *National Center for Education Statistics* 2005). Because of the significant market premiums attached to the possession of a college degree, minimizing the gap in educational attainment is of great concern to many policymakers. Previous studies have found that the real market premium stems from attending a more selective college (Black and Smith 2004; Brewer, Eide, and Ehrenberg 1999; Brewer and Ehrenberg 1996; Bowen and Bok 1998).[1] If college quality does indeed matter, then social policies such as affirmative action in college admissions can potentially help close this pervasive educational gap.

In recent years, however, the effectiveness of affirmative action policies in higher education has been widely debated. Critics of race-sensitive admissions policies maintain that such policies only hinder the intended beneficiaries (Thernstrom and Thernstrom 1997, 1999; Graglia 1993), and cite the lower post-secondary graduation rates of minority students at selective colleges as evidence of a "mismatch." The logic behind this argument is that the graduation rates for minority students would be higher if they enrolled in institutions whose academic prerequisites are a better "match" to the students' own academic credentials, rather than overreaching and enrolling at institutions where they are overshadowed academically by their classmates. On the other hand, proponents of affirmative action argue that minority students, despite their lower level of preparedness, nevertheless perform well and benefit

[1] For a detailed review of the earlier literature on the effects of college quality, see Brewer and Ehrenberg (1996).

from attending selective institutions (Alon and Tienda 2005; Bowen and Bok 1998; Kane 1998a, 1998b).[2]

As concern mounts over the changing legal status of affirmative action policies in college admissions, it is important to investigate the true benefits for minority students of attending more selective colleges. In fact, certain states that banned the use of racial preferences in college admissions have now implemented high school rank-based policies—so-called *top x-percent* plans—in their place. Texas was among the first states to legislate such a policy, and passed its Top 10% Plan following the landmark *Hopwood v. University of Texas Law School* ruling in 1996, which judicially banned the use of race in admissions decisions for all public post-secondary institutions. Under this ranked-based admissions policy, Texas high school students in the top 10 percent of their graduating senior class are automatically guaranteed admission to any four-year public university of their choice, including the more selective institutions of the University of Texas at Austin and Texas A&M University at College Station. Students most affected by this change in admissions policy were minority students ranked in the second and lower deciles, whereas first decile students were sufficiently qualified to be admitted under both admissions regimes.[3]

Based on institutional administrative data obtained from several public universities in Texas, this paper contributes to the existing research on college quality and the use of alternative admissions policies by addressing two interrelated questions: *Are there benefits to attending selective colleges and for whom does it matter? Moreover, did the change from affirmative action admissions policies to the Top 10% Plan adversely affect college completion rates for lower-deciles students, and if so, which students were affected the most?* I first analyze the benefits of attending colleges of

[2] Conversely, Sanders (2004) calls into question the benefits for minority students from attending selective colleges and finds that race-sensitive admissions in law schools reduced the number of black law students who pass the bar exam and eventually become lawyers. However, Sanders (2004) has now been debunked (Ho 2005; Ayres and Brooks 2005; Rothstein and Yoon 2006).

higher quality by comparing college completion rates of minority and non-minority students who attended selective colleges with those who attended less selective colleges. The comparison of the completion rates of minority students at selective versus those at less selective colleges allows for an assessment of the minority "mismatch hypothesis"—that is, the claim that minority students would have higher college completion rates had they attended an institution that better matched their academic credentials. As the institutional data spans all three admissions policies in which affirmative action, neutral admissions, and subsequently the Top 10% Plan, were in place, I also investigate the impact of the change from race-sensitive to ranked-based admissions policies on college completion rates and compare the effects across affected deciles (i.e., second and below) and across ethnicity groups.

The well-established estimation hurdle in the college quality literature stems from the non-random selection of students who attended these selective colleges. Because high ability students sort into colleges of higher quality (Hoxby 1997, 2001; Black and Smith 2004), it is not clear what effects are being captured—if graduation rates are higher, are we observing the effect of attending a selective college or simply observing the effect of more able minority and non-minority students? In estimating the effect of college quality on completion rates, I address the non-random selection problem by conducting two-stage least squares analysis, where the exogenous variation in the change in admissions policies is used to construct the instrument for attendance at selective colleges. In assessing the impact of the Texas Top 10% Plan, I use a difference-in-differences procedure to analyze the effect of the change in admissions policies on college completion for the most affected group of students, namely minority students ranked in second and lower deciles.

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[3] Prior to the Top 10% Plan, students who were ranked in the first decile, although not guaranteed, were nevertheless virtually assured of admission to UT-Austin (Tienda et al. 2003; Walker and Lavergne 2001).

In answering the first question, the results from two-stage least squares analysis show that both non-minority and minority students who attended selective colleges have higher graduation rates than their counterparts who attended less selective colleges. For non-minority students, those who attended selective colleges are 18 percentage points more likely to complete college within six years of enrollment compared to those who attended less selective colleges. Moreover, I find no evidence to support the minority "mismatch hypothesis." Minority students who attended selective colleges are 13 percentage points more likely to complete college within six years of enrollment compared to those who attended less selective colleges.

In regard to the second question, the results from difference-in-difference analysis show that college completion rates of lower decile minority students declined after the change in policies from affirmative action admissions to the Top 10% Plan. This effect is estimated to be seven times larger for minority students than for non-minority students. For affected deciles, college completion rates for minority students declined by 7 percentage points. In contrast, there was no effect for non-minority students.

The paper is organized as follows: Section II provides some background on the Texas Top 10% Plan and reviews the literature on college quality; Section III describes the data used in the analysis, institutional rankings, and sample characteristics; Section IV discusses the two empirical strategies used in the paper; Section V reports the main results; and Section VI concludes.

II. Background on Top 10% Plan and the Effects of College Quality

A. Background on the Texas Top 10% Plan

Passed in 1997 during the governorship of George W. Bush, the H.B.588 Law—more commonly known as the Top 10% Plan—was implemented in response to the landmark ruling of the 5th Circuit Court's decision in *Hopwood v. University of Texas Law School*, which judicially banned the use of race in admission decisions in all public post-secondary institutions in Texas.[4] This statewide change in college admission policies was felt immediately, especially at the two most selective public institutions (the University of Texas at Austin and Texas A&M University at College Station), where the number of minority enrollees plummeted (Tienda et al. 2003; Bucks 2004; Lavergne and Faulkner 2001). Unlike the percent plans implemented by other states (e.g., California, Washington, and Florida), the Top 10% Plan guarantees automatic admission to any public university of choice to all seniors who graduate in the first decile of their graduating high school class.[5,6] Proponents of the plan believed it would restore campus diversity because of the high degree of segregation among high schools in Texas; the intent was that the number of minority students who would be rank-eligible under the Top 10% Plan would be sufficient to restore campus diversity throughout the state.

B. A Synopsis of the Literature on the Effects of Attending a Selective College

The basic finding in the literature on the benefits of attending a high quality college shows that it matters for student performance (Alon and Tienda 2005; Bowen and Bok 1998; Kane 1998a, 1998b; Loury and Garman 1995) and future labor earnings (Black and Smith 2004; Hoxby 1997, 2001; Brewer, Eide, and Ehrenberg 1999; Bowen and Bok 1998), but the estimated wage premium ranges from small to large and is linked to whether the college is private or public (Brewer, Eide, and Ehrenberg 1999).

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[4] See *Hopwood v. University of Texas Law School* 78 F.3d 932, 944 (5th Cir. 1996).

[5] For instance, students in California eligible for admission to the UC system are determined on a statewide basis using a standardized criterion, and the allocation of students to specific campuses is a system-wide decision. The top 4 percent of local schools not included in the statewide admissions also are assigned a UC institution. Similarly, the *Talented 20 Plan* in Florida guarantees the top 20 percent of public high school graduates admission to a college, but students are assigned to an institution.

[6] Although private universities are duty-bound by the *Hopwood* ruling, they are not subject to the automatic admissions guarantee (Tienda et al. 2003).

Although the vast majority of research on college quality looks at the monetary returns of attending a selective college, an equally important outcome to analyze is college completion. In fact, less than half of all first-time college entrants in the United States obtain their bachelor's degree (Light and Strayer 2000; Horn and Carrol 1996; Porter 1990). Studies that have examined performance among students attending more selective colleges have found a positive association between overall academic performance and college selectivity (Alon and Tienda 2005; Bowen and Bok 1998; Kane 1998a, 1998b; Light and Strayer 2000; Loury and Garman 1995). Research by Kane (1998a) finds that both minority and non-minority students who attended more selective colleges have higher graduation rates. In another study, Alon and Tienda (2005), using matching methods, also find that both minority and non-minority students who attended selective colleges have higher graduation rates. All of these studies seem to indicate a positive association between student performance and college quality. Moreover, all of these studies find that minority students at selective colleges have higher graduation rates, a result that runs counter to the mismatch hypothesis.

Although past studies have indeed found benefits from attending selective colleges for both minority and non-minority students, the main difficulty in interpreting the results in this literature stems from the non-random selection of students who attend these high quality colleges. As shown in Black and Smith (2004), it is not clear what effects are being captured because there is more sorting of high ability students at high-end colleges—are we observing the effect of attending a selective college or simply observing the effect of more able minority and non-minority students? Various methodological approaches have been employed to correct for selection on unobserved student characteristics, such as a parametric utility maximization framework to model student choice of colleges attended (Brewer and Ehrenberg 1996; Brewer, Eide, and Ehrenberg 1999) and data on twins to difference out the common unobserved student characteristics (Behrman, Rosenzweig, and Taubman 1996). Recent research by Dale and Krueger (2002) uses the *College and Beyond* data set and the *National Longitudinal Survey of the High School Class of 1972* to match students who applied to and were accepted by similar colleges in order to eliminate the bias due to selection on unobservables. Interestingly, they find that students who attended more selective colleges earned about the same as those (with seemingly comparable ability levels) who attended less selective colleges. However, they do find a larger effect in earnings for students from low-income families who attended selective colleges. As minority students are more likely to come from low-income families, their findings suggest that there is a selective college premium for non-white students.

It is also worth pointing out that most of the research conducted on college quality has been limited to the analysis of private elite colleges only—with little coverage of public institutions. As noted by Brewer, Eide, and Ehrenberg (1999), the returns to attending a selective college are linked to whether the college is private or public. Hence, this paper examines the vastly understudied public colleges and contributes to our understanding of the benefits of attending selective public colleges in the context of race-sensitive college admissions.

III. Data, Institutional Rankings, and Sample Characteristics

A. Data Sources

Data for the analysis comes from the administrative data component of the Texas Higher Education Opportunity Project (THEOP), comprising nine institutions in Texas (two private and seven public) that differ in admissions selectivity and overall institutional rankings. The present study is based on data from six of the nine institutions; data coverage for some universities does not span all admission policies (i.e., Affirmative Action, Neutral, Top 10% Plan).

Figure 1 presents maps that identify the location of the nine THEOP universities and display the percentage of minorities (total, blacks, and Hispanics) in the population by county in 2000.[7] The six universities used in the analysis (whose locations are marked by stars on the maps) are the University of Texas at Austin (UT-Austin), Texas A&M University at College Station (Texas A&M), Texas Tech University (Texas Tech), Texas A&M University at Kingsville (TAMU-Kingsville), the University of Texas at San Antonio (UT-San Antonio), and the University of Texas at Pan American (UT-Pan American). As shown in Figure 1, Hispanics reside predominately in South Texas, whereas blacks reside predominantly in the Eastern part of the state. Figure 1 also illustrates the high degree of segregation that still exists in Texas and supports the rationale as to why proponents of the Top 10% Plan believed it would restore campus diversity.

The THEOP institutional data provides the total number of applicants, admittances, and of those, enrollments for all universities across various admission years. For students who matriculated, full academic records are available for each semester of enrollment until graduation. This data contains the most important set of student characteristics used in the admissions process: SAT and ACT scores, exact high school class rank, gender, race and ethnicity, advanced placement tests taken, and various high school information. Since high school information of applicants is available in the data for all universities, I use secondary data from the *National Center for Educational Statistics* (*NCES*) to merge in students' high

[7] All maps in this paper are generated using the program ArcView. The default classification method in ArcView called *natural breaks* is used to display the data. The natural breaks method identifies breakpoints between classes using a statistical formula (Jenk's optimization). Jenk's method (1967) minimizes the sum of the variance within each of the classes. Natural breaks finds groupings and patterns inherent in the data. Data used in these maps are from the 2000 U.S. Census.

school characteristics by high school ID and year of application; all high school variables used in the analysis are time variant.[8]

B. Institutional Rankings

The classification of the six universities used in the analyses into selective and less selective groups is based on an independent post-secondary school ranking widely referenced in the college quality literature, *Barron's Profiles of American Colleges 25th Edition* (2002).[9] For this research, the selective colleges will consist of the two flagship institutions, UT-Austin and Texas A&M, and the less selective colleges will consist of the remaining four institutions: Texas Tech, TAMU-Kingsville, UT-San Antonio, and UT-Pan American.

C. Sample Characteristics

Table 1 presents descriptive statistics of the variables used in the analysis by the selectivity of the college attended for eight student cohorts. The analysis is limited to only Texas high school students with a valid high school code. Throughout this paper, "minority" refers to black, Hispanic, and Native American students, whereas "non-minority" refers to Asian and non-Hispanic white students. The analytic sample consists of 120,452 students (82,055 students at selective colleges and 38,397 students at less selective colleges). Among the sample, there are 30,868 minority and 89,584 non-minority students. Overall, there are observable differences in student attributes and high school-level characteristics for students who attended more selective colleges compared to those who attended less selective colleges. Not surprisingly, students enrolled in selective colleges have higher SAT scores,

[8] The mean high school SAT variable, however, is obtained from the College Board and based on all Texas students who took the SAT in 1996.
[9] More specifically, *Barron's* selectivity score is a nine-category index ranging from "non-competitive" to "most-competitive" and is based on several factors such as: median SAT/ACT scores and the percentage of first-year students above certain scores; the percentage of first-year students within specific quintiles of their high school graduating class; minimum class rank and grades needed for admission; and percentage of applicants admitted.

have higher high school rank, and have taken more advanced placement (AP) tests. For instance, the average SAT score for students at selective colleges is about 190 points higher than the average SAT score for students at less selective colleges.

The regression framework also controls for time-varying characteristics of high schools from which students graduated. There are some noticeable differences in these covariates by college selectivity. For instance, the average SAT score of high schools from which less selective college enrollees graduated is slightly lower than that of high schools from which selective college enrollees graduated. The feeder high school indicator variable identifies schools that have extremely strong college-going traditions. Because these feeder high schools supply a large proportion of their high school graduates to the selective colleges (25 percent versus 8 percent), I include a control for this type of high school in the analysis.[10] Also, students enrolled at less selective colleges were more likely to have graduated from high schools whose students' were eligible for the federally subsidized lunch program, a standard indicator of the average socio-economic status of a high school (29 percent compared to 17 percent of enrollees at selective colleges). Lastly, students enrolled at less selective colleges were more likely to have graduated from high schools that have a larger percentage of minority students (54 percent compared to 39 percent of enrollees at selective colleges).

Table 2 presents the unadjusted baseline estimates of the main outcome variable of interest—college completion within six years of enrollment—by college selectivity for the entire sample of students and by minority group status. I focus on first-college graduation in the analysis, that is, those students who graduated within six years from the same university

[10] For instance, the top 20 feeder high schools accounted for 12 percent of students that were admitted to Texas A&M in 2000, and a little over 22 percent of these students contributed to the entering freshmen class. The corresponding figures for UT-Austin are even higher—23 and 35 percent, respectively (Tienda et al. 2003).

at which they first matriculated as freshmen. The other graduation variable analyzed in the education literature is overall graduation; this alternative definition includes students who transferred from their first college and obtained their bachelors degree from another university. Because the affirmative action debate focuses on admission to and graduation from first college, first-college graduation is chosen as the variable of interest.[11]

As seen in Table 2, there are large and statistically significant differences in college completion (i.e., graduating within six years of enrollment) by college selectivity for both the entire sample of students and by minority group status. For example (in panel B), there is an overall 37 percentage point difference between students at selective versus less selective colleges, with a higher difference for minority students (38 percentage points) than for non-minority students (30 percentage points). In general, there seems to be a positive association between college selectivity and college completion regardless of student race. Moreover, these unadjusted baseline estimates of the effect of college selectivity on college completion suggest evidence against the mismatch hypothesis, which predicts that minority students at selective colleges have lower graduation rates; however, results show the opposite effect.

VI. Empirical Strategies

A. Empirical Strategy 1: Instrumental Variable Technique

As previously discussed, the key estimation hurdle well-established in this literature is that the college quality indicator is endogenous and undoubtedly correlated with the error term in a straightforward OLS regression framework. The estimates on college quality are upwardly biased because of the non-random selection of students (i.e., high ability students) who attend these high quality colleges. In estimating the effect of college quality on

[11] Analyzing the behavior of transfer students is beyond the scope of this paper. Moreover, Light and Strayer (2002), using data from the National Longitudinal Survey of Youth (NLSY), note that the graduation rate of transfer students is extremely low and does not differ by race or ethnicity.

completion rates, I address this non-random selection of students by conducting two-stage least squares (TSLS) estimation. Given that the institutional data spans all three admissions regimes (i.e., affirmative action, neutral admissions, and the Top 10% Plan), I exploit the exogenous change in admission policies to construct an instrument for attendance at selective colleges, specifically estimating out-of-sample predicted probabilities of admission to a selective college for all students.

The change in admission policies introduced important variation in admissions rates across years and ethnicity. Table 3 reports the overall admission rates at the selective colleges (i.e., UT-Austin and Texas A&M) by three admission policies: affirmative action (1991-1996), the neutral period (1997), and the Top 10% Plan (1998-1999). As seen in Table 3, the admission rates at selective colleges vary by admissions policies and ethnicity. Minority students experienced their highest admission rates during the affirmative action period (79 percent, shown in bold). Non-minority students, on the other hand, experienced their highest admission rates during the neutral admissions regime (82 percent, shown in bold).

Moreover, the change in admissions policies also affected who was admitted to the selective colleges. As shown in Table 3, both minority and non-minority first decile students experienced close to a 100 percent admissions rate to the selective colleges under all three regimes.[12] For minority students ranked in the second and third (and below) deciles, their admission rates at the selective colleges declined when admissions policy changed to the Top 10% Plan. Specifically, the admission rates of minority students ranked in the second and third (and below) deciles at selective colleges declined, respectively, by 10 and 14 percentage points (see the middle panel of Table 3, column difference between the Top 10% Plan (3)

[12] Although the admission rate for first decile students is expected to be exactly at 100 percent during the Top 10% Plan regime, university officials attribute rejections to errors in student applications.

and affirmative action (1)). Conversely, the admission rates of their non-minority counterparts at selective colleges increased by 8 and 10 percentage points (see the bottom panel of Table 3).

I exploit this exogenous variation in who is admitted to the selective colleges that is introduced by the change in admissions policies to construct an instrument, specifically utilizing out-of-sample *predict probabilities* of students being admitted to a selective college. Intuitively, I ask to which type of institution an applicant, for example, during the affirmative action period would have been accepted if he or she had applied during the neutral period. I then use this out-of-sample prediction to instrument for the selectivity of the college that he or she actually attended.

Formally, the instrumental variable used in the analysis is constructed as follows. First, I estimate an admissions model on the applicant pool of students during the neutral admission regime. The applicant pool from the neutral period is chosen because these students are not subjected to any federal or state imposed admissions policy. Specifically, the following admissions model is estimated by a logit estimation[13]

$$Prob(Adm = 1 \mid X_i^{Neutral})_i = \Lambda\left[X_i^{Neutral} \cdot \theta\right] \qquad (15)$$

where *Adm* is a binary variable that is equal to 1 if student *i* is admitted to a selective college (UT-Austin or Texas A&M) and is equal to 0 if student *i* is not admitted to a selective college; and $X_i^{Neutral}$ is a vector of student characteristics. $X_i^{Neutral}$ includes SAT test score, SAT test score squared, ACT test score, ACT test score squared, high school class rank indicator variables (in deciles), and indicator variables for gender and whether the student took an AP test. Equation (15) is estimated separately for each ethnic group.

[13] The logit regression results are provided in the appendix of the paper. Regression results are not sensitive to model estimation, and equivalent results were obtained by probit and linear probability model estimations of equation (15).

After estimating the neutral admissions equation to obtain the neutral admission estimated coefficients from (15), $\hat{\theta}^{Neutral}$, I then use these estimated admission weights to calculate *out-of-sample* predicted probabilities of attending a selective college for students of all six institutions in the affirmative action and the Top 10% Plan samples. Intuitively, the constructed "simulated" instrument is simply the *predicted probability* of being admitted to a selective college using weights generated from the estimation of the model based on the neutral period sample. Formally, the instrument $\hat{Z}_{ij}$ can be defined as

$$\hat{Z}_{ij} \equiv \widehat{Prob(Adm = 1 \mid \hat{\theta}_i^{Neutral}, X_{ij}^{AA}, X_{ij}^{Top10})} \quad i\text{=student; } j\text{=institution} \qquad (16)$$

Hence, the following model is estimated by TSLS estimation,

$$G_{it} = \alpha + \beta \cdot Selective_i + X_{it} \cdot \delta + HS_{it} \cdot \psi + Cohort_{it} \cdot \phi + \varepsilon_{it} \qquad (17a)$$

$$Selective_i = \varphi + \hat{Z}_{ij} \cdot \gamma + X_{it} \cdot \delta + HS_{it} \cdot \psi + Cohort_{it} \cdot \phi + \mu_i \qquad (17b)$$

where G_{it} is a binary variable that indicates college graduation within six years for student *i* in cohort *t*. I assume that college completion is determined by the selectivity of the college attended, $Selective_i$ (1 if UT-Austin or Texas A&M; 0 if less selective college), a vector of student characteristics X_{it}, and a vector of high school characteristics HS_{it}. X_{it} includes SAT test score, a vector of class rank indicator variables, and indicator variables for gender and whether the student took an AP test. HS_{it} includes a vector of high school controls (i.e., mean high school SAT score), feeder high school status, school location indicators (i.e., suburban, town, rural, and urban, which is the omitted category), percentage of free lunch eligible students, and percentage of minority students. I also allow for differences across cohorts with the inclusion of a vector of cohort dummies, $Cohort_{it}$, in the above model specification.

In equation (17b), $\hat{Z}_{ij}$ is the instrumental variable (discussed above), and X_{it}, HS_{it}, and $Cohort_{it}$ are vectors of controls as previously defined in equation (17a). In order for the TSLS estimation to provide consistent estimates of causal effects, two conditions must be met: (1) the instrument affects attending a selective college and (2) the instrument affects college completion through attending a selective college but not directly (the exclusion restriction condition). All first-stage models (equation (17b)) for both minority and non-minority students have a high F-statistic on an F-test of excluding the instrument, and all coefficients have the correct sign (see Table 4, column 1). As for the exclusion restriction condition, the out-of-sample predicted probabilities of being admitted to a selective college are generated using weights from the estimation of the model based on the neutral period sample, and therefore, the instrument is by construction not correlated with the error term in the main outcome equation (17a).

B. Empirical Strategy 2: Difference-in-Difference Analysis

To date, research conducted on the effects of the Top 10% Plan has looked at the initial impact on admissions and enrollment probabilities for minority and non-minority students (Tienda et al. 2003; Bucks 2003; Lavergne and Faulkner 2001; Niu et al. 2006), while others have looked at the potential strategic behavior of high school switchers induced by the Top 10% Plan (Cullen, Reback, and Long 2006). However, none has analyzed the effect of this change in admissions policies on college completion for the group that has been most affected by the change in admissions policies, namely lower ranked minority students.

A difference-in-differences approach is used to analyze the effect of the change in admission policies on college completion for the most affected group of students—those ranked in the lower deciles (i.e., second and below). The assumption behind this empirical strategy is that the Top 10% Plan did not affect students ranked in first decile, but did affect students ranked in the second and lower deciles. In other words, students ranked in the top 10 percent were not affected by the change in admissions because these students were qualified under both admission policies.[14] On the other hand, those most affected by the change in admission policies were lower-ranked minority students (and perhaps non-minority students). These students were largely left to enroll in less selective colleges under the new admissions regime.

As previously shown in Table 3, there was a sizable decline in admission rates at selective colleges from the change in admissions policies (from affirmative action to the Top 10% Plan) in particular for non-top 10% minority students. Admission rates of second and third (and below) decile minority students at selective colleges declined by 10 and 14 percentage points, respectively. Conversely, the admission rates of their non-minority counterparts at selective colleges increased by 8 and 10 percentage points.

Hence, the following equation is estimated by OLS with interest only on the parameters δ_1 and δ_2, which are the difference-in-difference estimators,

$$\begin{aligned} G_{it} &= \alpha + \beta_1 \cdot Post_i + \beta_2 \cdot Decile_{it}^{2nd} + \beta_3 \cdot Decile_{it}^{3rd\_plus} \\ &\delta_1 \cdot Post_i \cdot Decile_{it}^{2nd} + \delta_2 \cdot Post_i \cdot Decile_{it}^{3rd\_plus} + X_{it} \cdot \phi + HS_{it} \cdot \psi + \varepsilon_{it} \end{aligned} \qquad (18)$$

where G_{it} is a binary variable that indicates college graduation within six years for student *i* in cohort *t*. $Post_i$ is a binary variable that indicates if student *i* is observed under the Top 10% Plan; $Decile_{it}^{2nd}$ and $Decile_{it}^{3rd\_plus}$ are indicator variables for students ranked in the second decile and in the third (and below) deciles, respectively; $Post_i$ multiplied by $Decile_{it}^{2nd}$ and

[14] The analysis controls for time variant high school characteristics to account for possible changes in high school type of students after the adoption of the Top 10% admissions policy. Moreover, the admission years under the Top 10% Plan analyzed in this paper are 1998 and 1999; these early years do not capture other effects induced by this new admissions policy, such as students who intentionally switched high schools in order to be ranked in the first decile as shown by Cullen, Reback, and Long (2006).

$Decile_{it}^{3rd-plus}$, respectively, are interactions of these variables; and lastly, X_{ip} and HS_{it} are vectors of controls as previously defined.

V. Main Results and Discussion

A. Does College Quality Matter and For Whom Does It Matter?

Table 4 reports the OLS and TSLS regression results for the outcome variable of interest, college completion within six years of enrollment estimated separately by minority and non-minority students (top and bottom panels, respectively). This table reports the estimated coefficients on the instrumental variable (i.e., predicted probability), the college selectivity indicator variable, and the F-statistic for the test of excluded instrument in the first-stage.[15] The column layout of Table 4 is as follows: column 1 reports the first-stage results; column 2 presents the unadjusted baseline effects; column 3 is the full model specification that includes the full set of controls (i.e., student characteristics, cohort indicators, and high school characteristics); and lastly, column 4 presents the second stage results from the TSLS estimation using the out-of-sample predicted probabilities of admission to a selective college to instrument for attendance at selective colleges, conditioning on all covariates.

Turning first to the OLS results for minority students in Table 4 (top panel), the unadjusted baseline effects indicate minority students who attended selective colleges are 38 percentage points (column 2) more likely to complete college within six years of enrollment. As seen in column 3, student attributes, high school characteristics, and cohort indicators explain a considerable portion of the unadjusted gain in attending selective colleges, but substantial effects still remain—minority students who attended selective colleges are 21

[15] The estimated results for other covariates are not reported here, but are provided in Tables A1 and A2 of the appendix.

percentage points more likely to graduate within six years of enrollment. For non-minority students, we observe the same pattern; the unadjusted baseline effects indicate that non-minority students who attended selective colleges are 30 percentage points (column 2, bottom panel) more likely to complete college within six years of enrollment. Conditioning on all covariates (column 3), the gain in attending selective colleges is now 32 percentage points for non-minority students. Overall, after adjusting for observable characteristics, there is still a remaining gain from attending a selective college for both minority and non-minority students. All of the coefficients on the selective college indicator variable from the OLS regressions are significant at the one percent level.

Turning to the TSLS estimates (column 4) of the effect of college selectivity on college completion, we observe minority students who attended more selective colleges are 13 percentage points more likely to complete college within six years of enrollment. Non-minority students who attended more selective colleges are 18 percentage points more likely to complete college within six years of enrollment. As for the first-stage results, the "simulated" instruments of the out-of-sample predicted probability of being admitted to a selective college on attending a selective college have the correct sign (column 1) for both minority and non-minority student regressions and are statistically significant. Moreover, both models have high F-statistics on an F-test of excluding the instrument.

Overall, the effect of college selectivity on college completion (within six years of enrollment) is large and statistically significant for all TSLS models, but substantially smaller than the OLS coefficients, which are believed to be overstating the gains in attending selective colleges. As for the other covariates in these regressions, the point estimates in all models are what one would expect them to be. I observe similar patterns for minority and non-minority students. The appendix provides the full results for the regressions in Table 4.

After adjusting for unobserved student characteristics, the TSLS regression results imply that students who attended selective colleges are more likely to graduate than their counterparts who attended less selective colleges. Moreover, there seems to be no evidence supporting the mismatch hypothesis, which claims that minority students would do better at less selective colleges. In fact, minority students are more likely to complete college if they attended a selective college. In summary, all results indicate a positive and significant effect of college selectivity on college completion for both minority and non-minority students, and moreover, show no evidence of mismatch for minority students in particular.

B. The Effect of the Top 10% Plan on College Completion

Having established the benefits of attending selective colleges, I now turn to the effect of the change in admission policies on the graduation rates of lower ranked students. Table 5 reports the regression results of the effect of the Top 10% Plan on college completion estimated separately for minority and non-minority students, with the difference-in-difference point estimates of interest from equation (18) highlighted in bold. Although all point estimates are negative for both minority and non-minority students, the effect of the change in admission policies on college completion is noticeably larger for minority students than for non-minority students. Conditioning on student attributes and high school characteristics, I find that the change in admission policies lowered the graduation rate for second decile minority students by 3 percentage points, whereas the graduation rate for second decile non-minority declined by less than 1 percentage point (though not statistically significant). Likewise, I find that the change in admission policies lowered the graduation rate for third (and below) decile minority students, but there was no effect for non-minority students. Again, this effect is noticeably larger for minority students: 3 percentage point decline in college completion. Overall, the change in admissions policies decreased the likelihood of college completion for lower decile minority students; in contrast, there was virtually no effect for lower decile non-minority students.

Since the decrease in college completion for lower decile students was more pronounced for minority students, I provide a back-of-the-envelope calculation of the program effect on the affected deciles. From the THEOP survey, which is a statistically representative sample of seniors enrolled in Texas high schools during the spring of 2002, I obtain the proportion of minority and non-minority students who rank in the second and lower deciles. These statewide proportions in class rank and the point estimates from the difference-in-differences analysis (from Table 5) enable the calculation of a statewide weighted average in the overall change in college graduation rates.

Table 6 provides the program effects on the affected deciles separately by minority and non-minority students. These estimates show that the effect of the Top 10% Plan only impacted minority students. The program effects for minority students in the second and third (and below) deciles are lower graduation rates, whereas the program had no affect on non-minority students in these same deciles.[16] The last row in Table 6 reports the sum of these two effects: the overall graduation rate for minority students decreased by 3 percentage points, whereas there was no effect on non-minority students. The magnitude of this effect is a substantial 7 percent decline (-0.027/0.41= -0.0658) in college completion for minority students. In summary, the change in admission policies from affirmative action admissions to the Top 10% Plan only impacted lower decile minority students—minority college completion declined under this alternative admissions regime.

[16] This calculation was performed by taking the difference-in-difference estimators (from Table 5) and weighting these estimators by the percentage of minority students in each respective decile group. For instance, the 0.0037 decrease was obtained as: $\hat{\delta}_1 \times$(%minority students in the second decile)=(−0.0271)×(0.1375)=−0.0037. Likewise, the 0.0233 decrease was obtained as: $\hat{\delta}_2 \times$(%minority students in the third and below deciles)=(−0.0308)×(0.7560)=−0.0233. This same calculation was performed for non-minority students in Table 6.

VI. Conclusion

This research contributes to the ongoing national debate on affirmative action policies in higher education and provides new evidence on the benefits of attending selective public colleges and the effect of alternative admissions policies for minority students. Given the significant market premiums attached to obtaining a college degree, minimizing the educational gap between minorities and their non-minority counterparts in the United States is of great concern. Moreover, in states such as Texas where the minority population is now the majority, closing this educational gap among its residents is crucial. Social policies, such as the use of race-sensitive admissions, can potentially help close this educational gap. However, in light of the growing concern over the changing legal status of race-sensitive admission policies, it is important to understand the true benefits for minority students of attending more selective colleges. This point is particularly important because states like Texas that banned the use of race-based preferences in college admissions have now implemented alternative policies such as rank-based admissions. These changes in admission policies as shown in this paper have had unintended consequences for those students who are no longer admitted to selective colleges.

The results from this paper show that both non-minority and minority students benefited from attending selective colleges. Contrary to critics of race-sensitive admissions, I find that minority students who attended selective colleges have higher college completion rates than their comparable counterparts at less selective colleges. Moreover, these results run counter to the mismatch hypothesis, the claim that minority students would have higher college completion rates had they attended an institution that better matched their academic credentials. In addition, I find that the change from affirmative action admissions policies to the Top 10% Plan had an adverse affect on college completion rates for minority students.

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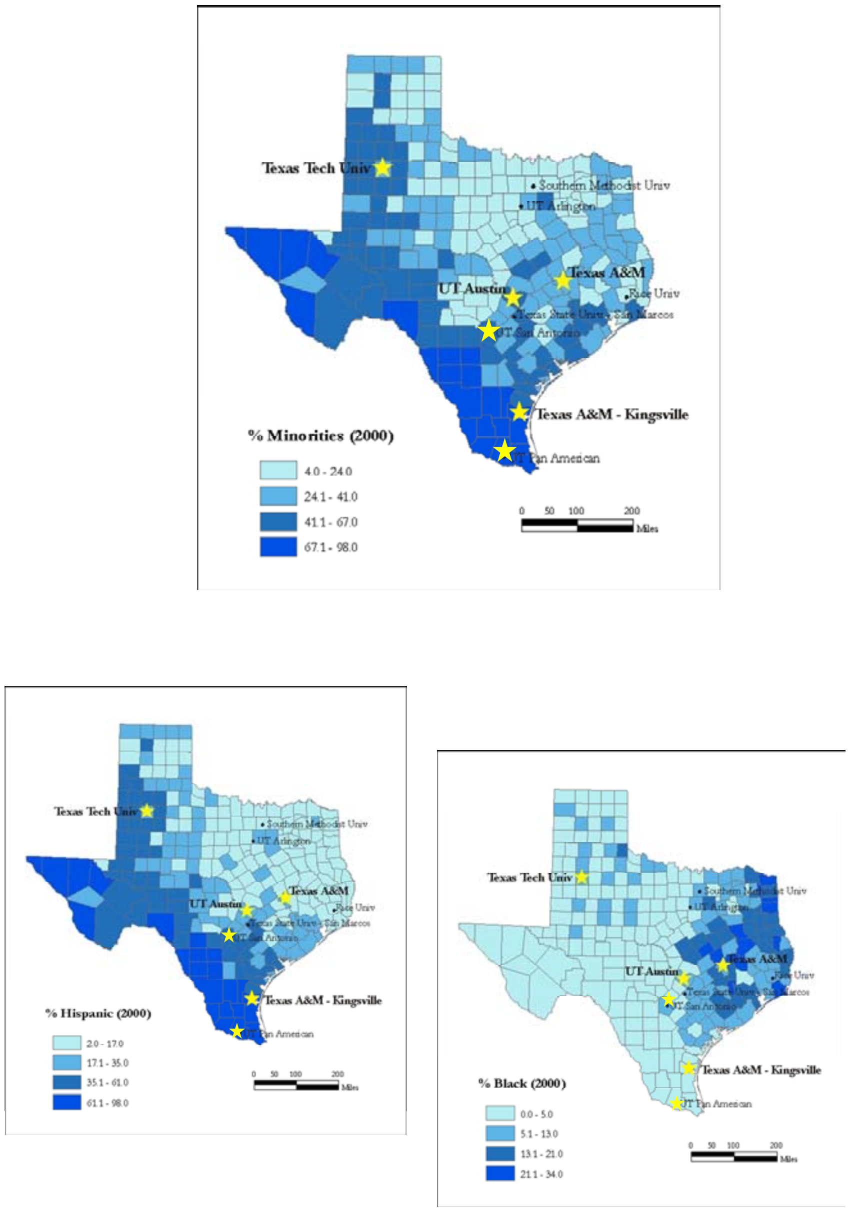
Figure 1. Location of THEOP Universities and Minority Populations (2000)



Source: 2000 U.S. Census.
Notes: Maps generated using ArcView. Data displayed using natural breaks option.

Table 1.
Variable Description and Summary Statistics of Enrollees by College Selectivity (Means/S.D.)

Variables	All Students	Students at Selective:	Students at Less Selective:
Student Characteristics			
Scholastic Aptitude Test (SAT) Score	1108.56	1168.88	979.66
	(174.01)	(140.99)	(167.69)
High School Percentile Class Rank	20.22	14.82	31.78
	(18.61)	(13.71)	(22.10)
Advance Placement (AP) Test	0.312	0.355	0.120
Black	0.038	0.040	0.033
Hispanic	0.215	0.136	0.383
Native American	0.004	0.004	0.003
Asian	0.073	0.098	0.019
Non-hispanic White	0.671	0.722	0.562
Female	0.506	0.501	0.518
High School Characteristics			
Mean SAT	1012.83	1024.83	987.21
	(78.00)	(72.66)	(82.68)
% Free Lunch Eligible Students	20.77	16.78	29.30
	(18.93)	(15.45)	(22.51)
% Minority Students	44.07	39.36	54.13
	(27.13)	(24.57)	(29.50)
Feeder High School	0.194	0.248	0.077
Location			
Urban	0.441	0.441	0.443
Suburban	0.315	0.344	0.253
Town	0.147	0.124	0.196
Rural	0.096	0.091	0.108
Sample Size (N)	120,452	82,055	38,397

Source: Texas Higher Educational Opportunity Project (THEOP), Administrative Data Component. The high school variables were obtained from the National Center for Educational Statistics (NCES) for the years 1991-1999, with the exception of the mean high school SAT variable, which was obtained from the College Board and is based on all Texas students who took the SAT in 1996.

Notes: Standard deviations for nonbinary variables are shown in parentheses. Years of analysis are 1991-1996 and 1998-1999 (pooled). Selective colleges are the two flagship institutions, UT-Austin and Texas A&M, and the less-selective colleges are Texas Tech University, UT-Pan American, UT-San Antonio, and TAMU-Kingsville. Students SAT scores are the sum of math and verbal, converted from ACT score if necessary. SAT scores prior to 1996 are re-scaled to current SAT I scale.

Table 2.
Summary Statistics of Graduation Outcome by College Selectivity

	Graduate within 6-years
	Mean (S.E.)
<u>Panel A:</u>	
All Students	0.609 (0.001)
Minority Students	0.414 (0.003)
Non-minority Students	0.676 (0.002)
<u>Panel B:</u>	
<u>All Students</u> (N=120,452)	
Selective Colleges	0.727 (0.002)
Less Selective Colleges	0.357 (0.002)
Gain in Attending Selective Colleges	0.370 (0.011)
<u>Minority Students</u> (N=30,868)	
Selective Colleges	0.614 (0.004)
Less Selective Colleges	0.230 (0.003)
Gain in Attending Selective Colleges	0.384 (0.008)
<u>Non-minority Students</u> (N=89,584)	
Selective Colleges	0.752 (0.002)
Less Selective Colleges	0.449 (0.003)
Gain in Attending Selective Colleges	0.303 (0.012)

Source: Texas Higher Educational Opportunity Project (THEOP), Administrative Data Component.

Notes: Standard errors are shown in parentheses. Minority students include Black, Hispanic, and Native American. Non-minority students include Asian and non-Hispanic white. Selective colleges are the two flagship institutions, UT-Austin and Texas A&M, and the less-selective colleges are Texas Tech University, UT-Pan American, UT-San Antonio, and TAMU-Kingsville.

Table 3. Admission Rates at Selective Colleges by Admission Regimes and High School Class Rank (Applicant Pool)

	Admission Rates:			Column Differences:		
All Students	**(1) Affirmative Action: 1991 to 1996**	**(2) Neutral Period: 1997**	**(3) Top 10% Plan: 1998 to 1999**	**(3) - (1)**	**(3) - (2)**	**(2) - (1)**
Top 10% Decile	0.961	0.986	0.974	0.014	-0.011	0.025
	(0.001)	0.001	(0.001)	(0.002)	(0.002)	(0.002)
Second Decile (*11-20%ile class rank*)	0.807	0.928	0.857	0.050	-0.071	0.121
	(0.002)	0.004	(0.003)	(0.004)	(0.005)	(0.006)
Third and Below Deciles (*21-100%ile class rank*)	0.465	0.534	0.519	0.054	-0.015	0.069
	(0.002)	0.005	(0.004)	(0.005)	(0.007)	(0.006)
Overall	**0.755**	**0.807**	**0.783**	0.028	-0.024	0.052
	(0.001)	0.003	(0.002)	(0.002)	(0.003)	(0.003)
	[N=127,559]	[N=22,801]	[N=45,783]			
Minority Students						
Top 10% Decile	0.961	0.969	0.946	-0.015	-0.023	0.008
	(0.002)	(0.004)	(0.004)	(0.004)	(0.006)	(0.005)
Second Decile (*11-20%ile class rank*)	0.843	0.860	0.741	-0.102	-0.119	0.018
	(0.005)	(0.011)	(0.010)	(0.010)	(0.016)	(0.013)
Third and Below Deciles (*21-100%ile class rank*)	0.541	0.430	0.397	-0.144	-0.033	-0.112
	(0.005)	(0.012)	(0.009)	(0.010)	(0.015)	(0.013)
Overall	**0.787**	**0.739**	**0.705**	-0.082	-0.034	-0.048
	(0.003)	(0.007)	(0.005)	(0.005)	(0.008)	(0.007)
	[N=25,823]	[N=4,246]	[N=8,800]			
Non-minority Students						
Top 10% Decile	0.961	0.989	0.982	0.021	-0.008	0.029
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
Second Decile (*11-20%ile class rank*)	0.798	0.942	0.882	0.084	-0.060	0.144
	(0.003)	(0.004)	(0.003)	(0.005)	(0.006)	(0.006)
Third and Below Deciles (*21-100%ile class rank*)	0.445	0.559	0.547	0.102	-0.012	0.114
	(0.003)	(0.006)	(0.004)	(0.005)	(0.007)	(0.007)
Overall	**0.747**	**0.822**	**0.801**	0.054	-0.021	0.076
	(0.001)	(0.003)	(0.002)	(0.003)	(0.004)	(0.003)
	[N=101,736]	[N=18,555]	[N=36,983]			

Source: Texas Higher Educational Opportunity Project (THEOP), Administrative Data Component.

Notes: Standard errors are shown in parentheses. Minority students include Black, Hispanic, and Native American. Non-minority students include Asian and non-Hispanic white.

Table 4. The Effect of College Quality on College Completion: Minority and Non-minority Students Regression Results

	Dependent Variable: Selective College	Dependent Variable: Graduate within 6-years		
	(1) First-stage	**(2) OLS**	**(3) OLS**	**(4) TSLS**
Minority Students				
Predicted prob.of being admitted	0.5463	--	--	--
	(0.0351)			
Selective College	--	0.3840	0.2079	0.1312
		(0.0077)	(0.0089)	(0.0507)
R^2	0.75	0.15	0.23	--
N=30,868				
F-Statistic: excluded instrument[a]	242.07	--	--	--
(P-value)	(0.000)			
Non-minority Students				
Predicted prob.of being admitted	0.7384	--	--	--
	(0.0637)			
Selective College	--	0.3030	0.3236	0.1801
		(0.0116)	(0.0095)	(0.0450)
R^2	0.92	0.08	0.16	--
N=89,584				
F-Statistic: excluded instrument[a]	134.34	--	--	--
(P-value)	(0.000)			
Controls:				
Student Characteristics	yes	no	yes	yes
High School Characteristics	yes	no	yes	yes
Cohort Dummies	yes	no	yes	yes

Source: Texas Higher Educational Opportunity Project (THEOP), Administrative Data Component.
Notes: All standard errors (shown in parentheses) are clustered at the high school level. Minority students include African-American, Hispanic, and Native American Indian. Non-minority students include Asian and non-Hispanic white. The estimates from the TSLS models are from a linear probability model in the first-stage and OLS/linear probability model in the second stage. [a]F-statistic from a test of excluding the instrument in the first-stage regression.

Table 5. The Effect of the Top 10% Plan on College Completion: Reduced Form Estimates (Linear Probability Models)

	Dependent Variable: Graduate within 6-years	
	Minority Students	**Non-minority Students**
Post *x* Second Decile	**-0.0271**	**-0.0061**
	(0.0154)	(0.0087)
Post *x* Third and Below Deciles	**-0.0308**	**0.0085**
	(0.0137)	(0.0082)
Post (*Admission Under Top 10% Plan*)	0.0188	0.0195
	(0.0117)	(0.0050)
Second Decile (*11-20%ile class rank*)	-0.1178	-0.1089
	(0.0097)	(0.0059)
Third and Below Deciles (*21-100%ile class rank*)	-0.2744	-0.2608
	(0.0106)	(0.0077)
R^2	0.20	0.12
N	30,868	89,584
Controls:		
Student Characteristics	yes	yes
High School Characteristics	yes	yes

Source: Texas Higher Educational Opportunity Project (THEOP), Administrative Data Component.

Notes: All standard errors are clustered at the high school level (standard errors are shown in parentheses). Minority students include Black, Hispanic, and Native American. Non-minority students include Asian and non-Hispanic white. Years of analysis are 1991-1996 and 1998-1999 (pooled). Top 10% Decile and Top 10% Decile *x* Post are the omitted categories.

Table 6. Overall Program Effect of the Top 10% Plan on College Completion for Affected Students

	Minority	Non-minority
Program Effect on Affected Deciles		
Second Deciles (*11-20%ile class rank*)	-0.0037	-0.0012
	(0.0021)	(0.0017)
Third and Below Deciles (*21-100%ile class rank*)	-0.0233	0.0053
	(0.0104)	(0.0051)
Overall Program Effect (*sum of deciles*)	-0.0270	0.0041
	(0.0115)	(0.0059)
Controls:		
Student Characteristics	yes	yes
High School Characteristics	yes	yes

Source: Texas Higher Educational Opportunity Project (THEOP), Administrative Data Component and Survey Data, Senior Baseline Wave .

Notes: All standard errors (shown in parentheses) are clustered at the high school level. Minority students include Black, Hispanic, and Native American. Non-minority students include Asian and non-Hispanic white. Years of analysis are 1991-1996 and 1998-1999 (pooled).

Appendix Table A1 (Full Results for Table 4):
The Effect of College Quality on College Completion: Minority Students Regression Results

	Dependent Variable: Selective College	Dependent Variable: Graduate within 6-years		
Independent Variables	(1) First-stage	(2) OLS	(3) OLS	(4) TSLS
Predicted prob. of being admitted	**0.5463**	--	--	--
	(0.0351)			
Selective College	--	**0.3840**	**0.2079**	**0.1312**
		(0.0077)	(0.0089)	(0.0507)
African-American	0.1944	--	0.0086	0.0225
	(0.0139)		(0.0095)	(0.0140)
Native American	0.0337	--	-0.0351	-0.0318
	(0.0146)		(0.0209)	(0.0213)
Female	-0.0189	--	0.0568	0.0559
	(0.0046)		(0.0055)	(0.0055)
SAT (x100)	0.0847	--	0.0499	0.0514
	(0.0217)		(0.0121)	(0.0124)
SAT Squared (x1000)	-0.0006	--	-0.0002	-0.0002
	(0.0001)		(0.0001)	(0.0001)
Advanced Placement (AP) Test	0.0240	--	0.0871	0.0872
	(0.0135)		(0.0081)	(0.0082)
Top 10% (*1-10%ile HS Class Rank*)	0.0271	--	0.2260	0.2456
	(0.0186)		(0.0115)	(0.0177)
Second Decile (*11-20%ile*)	0.0453	--	0.1142	0.1257
	(0.0138)		(0.0094)	(0.0128)
Third Decile (*21-30%ile*)	0.0093	--	0.0398	0.0459
	(0.0103)		(0.0113)	(0.0123)
Fifth and Below Deciles (*41-100%ile*)	-0.0298	--	-0.0761	-0.0800
	(0.0087)		(0.0099)	(0.0100)
Mean High School SAT (x100)	0.0738	--	0.0340	0.0373
	(0.1656)		(0.0982)	(0.1061)
Mean High School SAT Sq. (x1000)	0.0000	--	0.0000	0.0000
	(0.0009)		(0.0005)	(0.0005)
Feeder High School	0.1012	--	0.0515	0.0598
	(0.0408)		(0.0162)	(0.0173)
Suburban	-0.0105	--	-0.0093	-0.0101
	(0.0195)		(0.0090)	(0.0091)
Town	-0.0581	--	0.0195	0.0150
	(0.0246)		(0.0139)	(0.0150)
Rural	-0.0307	--	-0.0090	-0.0113
	(0.0232)		(0.0127)	(0.0132)
% Free Lunch	0.0005	--	-0.0044	-0.0044
	(0.0020)		(0.0008)	(0.0009)
% Free Lunch Squared	-0.0154	--	0.0416	0.0404
	(0.0213)		(0.0085)	(0.0091)
% Minority	-0.0082	--	0.0014	0.0007
	(0.0017)		(0.0008)	(0.0009)
% Minority Squared	0.0710	--	-0.0165	-0.0110
	(0.0149)		(0.0069)	(0.0080)

Constant	0.1372	--	-0.4319	-0.4500
	(0.8175)		(0.4864)	(0.5274)
Other Controls:				
Cohort Dummies (not shown)	yes	no	yes	yes
R^2	0.75	0.15	0.23	--
N=30,868				
F-Statistic: excluded instrument[a]	242.07	--	--	--
(P-value)	(0.000)			

Source: Texas Higher Educational Opportunity Project (THEOP), Administrative Data Component.
Notes: All standard errors (shown in parentheses) are clustered at the high school level. Minority students include African-American, Hispanic, and Native American Indian. Non-minority students include Asian and non-Hispanic white. The estimates from the TSLS models are from a linear probability model in the first-stage and OLS/linear probability model in the second stage. [a]F-statistic from a test of excluding the instrument in the first-stage regression.

Appendix Table A2 (Full Results for Table 4):
The Effect of College Quality on College Completion: Non-Minority Students Regression Results

	Dependent Variable: Selective College	Dependent Variable: Graduate within 6-years		
Independent Variables	(1) First-stage	(2) OLS	(3) OLS	(4) TSLS
Predicted prob. of being admitted	**0.7384**	--	--	--
	(0.0637)			
Selective College	--	**0.3030**	**0.3236**	**0.1801**
		(0.0116)	(0.0095)	(0.0450)
Asian	0.0615	--	-0.0524	-0.0463
	(0.0082)		(0.0054)	(0.0060)
Female	-0.0145	--	0.0335	0.0331
	(0.0024)		(0.0033)	(0.0033)
SAT (x100)	0.1082	--	0.0456	0.0972
	(0.0235)		(0.0122)	(0.0184)
SAT Squared (x1000)	-0.0005	--	-0.0002	-0.0004
	(0.0001)		(0.0001)	(0.0001)
Advanced Placement (AP) Test	0.0129	--	0.0496	0.0539
	(0.0063)		(0.0040)	(0.0043)
Top 10% (*1-10%ile HS Class Rank*)	0.1457	--	0.2212	0.2423
	(0.0156)		(0.0073)	(0.0104)
Second Decile (*11-20%ile*)	0.1366	--	0.1118	0.1284
	(0.0130)		(0.0065)	(0.0086)
Third Decile (*21-30%ile*)	0.0694	--	0.0594	0.0701
	(0.0082)		(0.0071)	(0.0079)
Fifth and Below Deciles (*41-100%ile*)	-0.0758	--	-0.1030	-0.1172
	(0.0123)		(0.0076)	(0.0090)
Mean High School SAT (x100)	0.1833	--	0.0602	0.0814
	(0.1222)		(0.0770)	(0.0863)
Mean High School SAT Sq. (x1000)	-0.0006	--	-0.0001	-0.0001
	(0.0006)		(0.0004)	(0.0004)
Feeder High School	0.0462	--	0.0464	0.0539
	(0.0215)		(0.0105)	(0.0112)
Suburban	-0.0001	--	-0.0042	-0.0039
	(0.0187)		(0.0064)	(0.0072)
Town	-0.0075	--	-0.0069	-0.0076
	(0.0186)		(0.0070)	(0.0073)
Rural	-0.0113	--	-0.0028	-0.0042
	(0.0170)		(0.0088)	(0.0094)
% Free Lunch	0.0034	--	-0.0036	-0.0031
	(0.0018)		(0.0007)	(0.0007)
% Free Lunch Squared	-0.0436	--	0.0270	0.0207
	(0.0260)		(0.0109)	(0.0116)
% Minority	-0.0038	--	0.0017	0.0011
	(0.0015)		(0.0006)	(0.0006)
% Minority Squared	0.0260	--	-0.0127	-0.0086
	(0.0165)		(0.0065)	(0.0070)

Constant	-1.4115	0.4487	-0.5928	-0.9473
	0.6639	(0.0119)	(0.3968)	(0.4528)
Other Controls:				
Cohort Dummies (not shown)	yes	no	yes	yes
R^2	0.92	0.08	0.16	--
N=89,584				
F-Statistic: excluded instrument[a]	134.34	--	--	--
(P-value)	(0.000)			

Source: Texas Higher Educational Opportunity Project (THEOP), Administrative Data Component.
Notes: All standard errors (shown in parentheses) are clustered at the high school level. Minority students include African-American, Hispanic, and Native American Indian. Non-minority students include Asian and non-Hispanic white. The estimates from the TSLS models are from a linear probability model in the first-stage and OLS/linear probability model in the second stage. [a]F-statistic from a test of excluding the instrument in the first-stage regression.

Table A3. Probability of Being Admitted to a Selective College: Logit Regression Results by Race and Ethnicity

	Depedent variable: Probability(Admitted=1)				
Independent Variables	**(1) Black**	**(2) Hispanic**	**(3) Native American**	**(4) Asian**	**(5) White**
Female	-0.1314	0.2622	-0.5533	0.4906	0.1873
	(0.1586)	(0.1114)	(0.5329)	(0.1344)	(0.0515)
SAT/ACT (x100)	1.3935	1.6676	-3.1297	1.2960	1.6394
	(0.6450)	(0.4696)	(2.6333)	(0.5988)	(0.2485)
SAT/ACT Squared (x1000)	-0.0043	-0.0046	0.0144	-0.0031	-0.0049
	(0.0031)	(0.0022)	(0.0118)	(0.0026)	(0.0011)
Advanced Placement (AP) Test	0.4672	0.6404	1.1966	1.0352	0.3431
	(0.2485)	(0.1532)	(0.6494)	(0.1754)	(0.0662)
Top 10% (*1-10%ile HS Class Rank*)	2.9011	3.5784	2.6293	2.9820	3.7184
	(0.2798)	(0.2113)	(0.8948)	(0.2360)	(0.1221)
Second Decile (*11-20%ile*)	1.4573	1.7215	2.1798	1.6333	2.0310
	(0.2342)	(0.1644)	(0.8123)	(0.1954)	(0.0743)
Third Decile (*21-30%ile*)	0.5663	0.8018	-0.0353	0.6483	0.9200
	(0.2341)	(0.1674)	(0.6299)	(0.1955)	(0.0689)
Fifth and Below Deciles (*41-100%ile*)	-0.9488	-1.1880	-1.2705	-1.5101	-1.0510
	(0.2656)	(0.1851)	(0.7164)	(0.2142)	(0.0744)
Constant	-10.0840	-12.7716	16.9911	-10.8600	-12.0279
	(3.2805)	(2.4421)	(14.6127)	(3.3912)	(1.3945)
Pseudo R^2	0.33	0.42	0.28	0.44	0.38
N	1,167	3,406	135	2,920	17,845

Source : Texas Higher Educational Opportunity Project (THEOP), Administrative Data Component.

Notes : Robust standard errors are shown in parentheses. Admitted is a binary variable that is equal to 1 if student *i* is admitted to a selective college (UT-Austin or Texas A&M), and equal to 0 if student *i* is not admitted to a selective college. Year of analysis is the neutral admission period, 1997.