The Impact of the Texas Top 10% Law on College Enrollment: A Regression Discontinuity Approach

Abstract: We use regression discontinuity methods on a representative survey of Texas high school seniors to discern the impact on college-going behavior of the Texas top 10% law, which guarantees admission to any Texas public university to students who graduate in the top decile of their class. By comparing students at and immediately below the cut-point for automatic admission, we find that the top 10% law increases overall college enrollment and flagship enrollment of Hispanic students eligible for the admission guarantee, but not comparably-ranked white students. In accordance with its intended objective, the top 10% law boosts enrollment at UT and TAMU of rank-eligible graduates from high schools where minority students predominate. The concluding section evaluates these results in light of proposals to rescind the law.

Keywords: college admissions policy, college enrollment differentials, regression discontinuity

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I. Introduction

In response to the 5th Circuit Court's 1996[1] judicial ban on the use of race in college admissions decisions, the Texas legislature passed H.B. 588—popularly known as the top 10% law—guaranteeing automatic admission to any public university of choice to students who graduate in the top decile of their class. Intended to restore diversity to the public flagships following the ban on affirmative action, the top 10% law establishes a uniform merit criterion, namely class rank, for the admission guarantee. Because students from all high schools—rich or poor; large or small—can qualify for automatic admission, the law theoretically leveled the playing field in access to selective public institutions.

Evaluations of how the change from affirmative action to the uniform admission regime influenced trends in minority college enrollment fall into two general classes—those based on administrative data before and after the policy change (Montejano, 2001; Long and Tienda, 2007; Card and Krueger, 2005; Alfonso and Calcagno, 2006), and those based on longitudinal survey data (Tienda and Niu, 2006a; 2006b). Several studies reported declines in minority applications and admissions at the University of Texas at Austin (UT) and Texas A & M University at College Station (TAMU) after the Hopwood decision took effect (Walker and Lavergne, 2001; Chapa and Lazaro, 1998; Card and Krueger, 2005; Horn and Flores, 2003). Because enrollment trends depend on application rates as well as the odds of admission, researchers have also considered how changes in

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

admission regimes influence all three outcomes. For example, in Washington State, Brown and Hirschman (2006) find that Initiative 200 lowered minority enrollment largely through the drop in applications. But in California, Barreto and Pachon (2004) claim that the lower representation of minority students following the public referendum banning affirmative action resulted not from the fewer minority applicants, which actually rose steadily, but rather from their lower odds of admission.

Two recent papers exploit the "natural experiment" in Texas college admissions by using administrative data to examine whether and how admission and enrollment probabilities changed after affirmative action was judicially banned. Long and Tienda (2007) consider whether the top 10% law succeeded in maintaining minority admission rates at their pre-*Hopwood* levels at several Texas public universities that differ in the selectivity of their admissions; they conclude the percent plan is an ineffective proxy for race-sensitive criteria in college admissions. Examining application, admission and enrollment trends at three Texas public institutions, Alfonso and Calcagno (2006) show how demographic trends changed the composition of both applicants and enrolled students.

Though instructive, studies based on administrative records can not consider the range of alternatives that students considered in their college decision-making. Using survey data, Niu and associates (2006) examined how institutional characteristics influence students' college preferences and enrollment behavior under the uniform admission regime, noting that distance, cost, and financial aid are important determinants of matriculation decisions. In another analysis, Niu and Tienda (2007) consider how high school characteristics influence college choice. They find that type of high school attended is more salient than class rank in delimiting students' choice sets, which in turn influences enrollment outcomes.

These two analyses based on survey data suffer from two limitations. First, because class rank is self-reported - either unknown or estimated by a significant number of students - inferences about its influence on post-secondary outcomes are approximate at best. A more significant drawback is their inability to draw causal inferences about the influence of the uniform admission regime on enrollment outcomes owing to the lack of a comparison group whose admission was not governed by the top 10% law.

Accordingly, this paper addresses both limitations first by using transcript-verified class rank information, and second, applying a regression discontinuity technique to estimate the impact of the Texas top 10% law on college enrollment decisions of rank-eligible students. Specifically, we assess the law's impact on two important college enrollment decisions by asking whether the uniform admission law increases the likelihood that top 10% graduates enroll (1) at any post-secondary institution and (2) at one of the Texas public flagships. By combining the richness of the survey data and the simulated quasi-experimental design, we improve upon analyses that use either approach alone.

Section II discusses the provisions of the top 10% law, its underlying assumptions, and their testable implications. In section III we describe the data and the regression discontinuity technique, and section IV reports Probit estimates for the impact of the top 10% law on the enrollment outcomes of interest. By comparing students ranked at the cutpoint (i.e., 10^{th} decile) and immediately below, we find that, in accordance with its intended objective, the top 10% law boosts enrollment at UT and TAMU of rank-eligible graduates from high schools where minority students predominate. The concluding section summarizes key findings that bear on the unintended consequences of Texas H.B.588 and recent proposals to rescind or amend it.

II. Policy Context

Passed in 1997 and fully in effect by 1998, the top 10% law qualifies for automatic admission to any Texas public college or university *all* graduates who rank in the top decile of their senior class. To be admitted, however, they must submit a completed application, which includes standardized test scores, although these are ignored for rank-eligible students. The uniform admission law also specified 18 factors that universities should consider in admitting students who do not graduate in the top-10% of their high school class, including socioeconomic status, second language ability, and indications that the student overcame adversity.[2]

Rather than stipulate a uniform formula for calculating class rank, Texas high school campuses enjoy considerable discretion generating the rank distribution, including whether to weight classes differentially according to difficulty. Stated differently, because HB 588 leaves the calculation of class rank to the discretion of individual high schools, it has no capacity to influence *which* students actually qualify for the admission guarantee. The law also did not stipulate a required academic curriculum in order to qualify for top 10% rank. In response to criticisms that students were avoiding rigorous courses in order to boost their class rank and that the absence of a recommended

[2] See House Bill 588, http://www.utexas.edu/student/admissions/research/HB588Law.html.

curriculum qualified many ill-prepared students for the admission guarantee, this provision was modified in 2001, but will not influence applicants until 2008.

Opponents of the uniform admission law also allege that the percent plan not only disguises the use of race in admissions, but also distorts the role of merit in college admissions. Presumably use of a single measure of merit—class rank—gives undue advantages to students from underperforming schools relative to those from the most competitive schools who graduate just below the 10% cut-off. In fact, black and Hispanic students who qualify for the admission guarantee disproportionately attend schools where minority students dominate the student body (Tienda and Niu, 2006a,b).

The shift from a race-conscious admission regime to a percentage plan that guarantees admission to students who rank in the top 10% of their senior class has testable implications about whether the likelihood of minority student enrollment actually increased as a result of the law. Specifically, our application of regression discontinuity methods considers whether the impact of the top 10% law differs for Hispanic, black, Asian and white students. Furthermore, because the success of the law in restoring campus diversity was partly achieved by qualifying for automatic admission minority students who attend segregated schools (Tienda and Niu, 2006b), we appraise whether the law boosts college enrollment rates uniformly according to the level of school segregation. Finally, recognizing that vigorous outreach and scholarship programs were a necessary adjunct to recruit qualified students from low income and minority groups, UT and TAMU developed outreach and scholarship programs, which they targeted at schools with high shares of economically disadvantaged students (Walker and Lavergne, 2001; Domina, 2007). Designated Longhorn (UT) and Century (TAMU) high schools, high performing graduates from these campuses are offered scholarships to encourage their enrollment. Therefore, we also consider whether the top 10% law increases enrollment at the two flagship campuses among rank-eligible students from Longhorn and Century high schools.

III. Data and Methods

The empirical analyses are based on the senior cohort of the Texas Higher Education Opportunity Project (THEOP) survey data, a representative, longitudinal study of Texas public high school students who were first surveyed during spring of 2002 using a paper and pencil in-class survey instrument (N=13,803).[3] For cost reasons, the longitudinal sample is based on a random subsample of the baseline respondents (N=5,836), who were re-interviewed by phone one year following high school graduation. To guarantee the maximum possible precision for blacks and Asians, all baseline respondents from these groups were included in the longitudinal sample; proportionate samples of Hispanics and non-Hispanic whites were randomly drawn for the sample balance. The response rate for the wave-2 interviews was 70 percent, and sample weights for the follow-up interviews were recalibrated to the original population.[4]

In addition to basic demographic, socioeconomic and standard tracking information, the baseline survey obtained self-reported information about grades, decile class rank, and future plans. The first follow-up survey (wave 2) recorded whether respondents actually enrolled in college one year after high school graduation, and if so,

[3] The sampling scheme is described in detail in the "Methodology Report," http://theop.princeton.edu/surveys/baseline/baseline_methods_pu.pdf
[4] The sampling scheme is described in "Senior Wave 2 Survey Methodology Report,' http://theop.princeton.edu/surveys/senior_w2/senior_w2_methods_pu.pdf

where. For students who participated in the second interview, actual class rank, standardized test scores, and high school GPA were subjected to a transcript verification procedure, which was conducted by high school administrators or staff. Over 90 percent of records were so verified; moreover, the transcript-based class rank is precisely measured, which is necessary for application of regression discontinuity techniques.[5]

Key outcome variables

We examine the impact of the top 10% law on two important college decisions: (1) whether high school graduates enrolled in a post-secondary institution; and (2) whether respondents attended one of the public flagships. The first outcome gauges the overall impact of the law. The second outcome reflects the hidden agenda of the top 10% law, namely, to recruit high performing minority students to UT and TAMU, which are the two institutions where affirmative action was most used before the judicial ban (THECB, 1998).

Subgroups and high school strata

Because HB588 sought to increase access to selective Texas public institutions for underrepresented minority groups, we estimate the same specifications separately for white, black, Hispanic and Asian students. Furthermore, we derive measures to characterize two aspects of heterogeneity among Texas high schools that influences enrollment outcomes of interest, namely ethno-racial composition and economic status.

The Texas Education Agency posts ethno-racial attributes of the student body and various indicators of economic status for all public secondary schools. After appending these characteristics to individual records, we sorted high schools into five strata based on

[5] The transcript-based class rank is that at the end of senior year, it may differ slightly from the class rank at the time of application, usually at the end of the junior or midway through the senior year.

the ethno-racial composition using the percent white as a baseline referent: (1) predominantly (more than 80 percent) white; (2) majority (60-80 percent) white; (3) integrated (40-60 percent white); (4) majority minority (20-40 percent white); and (5) predominately minority (less than 20 percent white). This stratification permits an assessment of whether the top 10% law boosts minority college enrollment by capitalizing on racial segregation. We expect larger boosting effects at the most segregated schools.

To examine social class differences in college enrollment, we developed a 5-category typology that stratifies high schools based on their economic status and their college-going traditions.[6] High schools were first sorted into three categories representing affluent, resource poor, and average. Affluent schools were further divided into "feeder" high schools, which had very strong traditions of sending students to the two public flagships, and the resource-poor schools were sorted into those that were targeted for Longhorn or Century scholarships (Tienda and Niu, 2006a). So defined, the five strata include:

- *feeder high schools*: strong tradition of sending students to the two public flagships, and low shares of economically disadvantaged students;
- *affluent high schools*: low shares of economically disadvantaged students, average college-going tradition;
- *poor high schools*: high shares of economically disadvantaged students, average college-going tradition;

[6] For the economic status of high schools we received a special tabulation from the Texas Education Agency that calculated the share of students who were ever economically disadvantaged, which sensitivity analyses showed to be more robust than cross-sectional measures of the percent of students eligible for free or reduced lunches.

- *Longhorn/Century schools*: high shares of economically disadvantaged students, low college-going traditions and targeted for outreach and scholarship programs;
- *typical high schools*: average shares of economically disadvantaged students.

Although the high school segregation and economic indicators overlap somewhat, they represent substantively different constructs. For example, typical high schools include predominately minority, integrated, and majority white high schools. None of the predominately minority schools are classified as affluent or feeder high schools, but they include typical, poor and Longhorn/Century high schools. Poor schools also devote fewer resources to college counseling and related support activities (Bellessa Frost, 2006).

On average, black and Hispanic students are less likely than white and Asian students to attend college, and selective colleges in particular. Likewise, graduates from economically disadvantaged and minority high schools are less likely to pursue postsecondary education than their counterparts who attend affluent schools where the student body is predominantly white. Hence, we expect to find a boosting effect of the top 10% law on college enrollment among rank-eligible black and Hispanic students. Because of targeted outreach strategies by UT and TAMU administrators, we also expect boosting effects on flagship enrollment among top performing black and Hispanic students, as well as graduates from minority high schools and resource-poor high schools.

<u>The Regression Discontinuity Approach</u>

To estimate the impact of the Texas top 10% law on college enrollment, we simulate the quasi-experimental conditions using a regression discontinuity (RD) approach. In their original paper, Thistlethwaite and Campbell (1960) studied two groups of near-winner students—one that was awarded Certificates of Merit and another that merely received letters of commendation based on qualifying scores—to estimate the effect of the Certificate of Merit on a student's other scholarship receipt and career plans. In this RD design, a single "treatment" divides subjects into the treated and untreated groups, namely receipt of the merit certificate. Therefore, a distinct discontinuity at the cut-off point provides evidence of the treatment effect. Presumably, other characteristics correlated with the probability of being treated trend smoothly through the cutoff point.

In education research, the RD design has recently been applied to estimate the effect of financial aid on college enrollment (Van der Klaauw 2000; Kane 2003); the effect of remedial education on student achievement (Jacob and Lefgren, 2004; Moss and Yeaton, 2006); and the impacts of failing the high school exit exam on eventual receipt of a diploma, college attendance, and wages (Matorell 2004). The RD approach is well suited for our analytical objectives because the top 10% law stipulates the exact cut-off point needed to implement the method. In our application, the RD design is as follows:

$$\boldsymbol{y = g(rank) + \alpha_1 T + \alpha_2 T^*g(rank) + \beta Z + \varepsilon}, \qquad \textbf{where } \boldsymbol{T}\textbf{=1 if } \boldsymbol{rank \leq 10} \qquad (1)$$

In this specification, y indicates whether a student enrolled (0/1) in college; g(rank) is a continuous function of high school actual percentile class rank; T is the top 10% status indicator function; T*g(rank) represents interactions between T and g(rank); Z is a vector of individual characteristics affecting college enrollment outcomes; and ε is an error term. The logic of the RD framework places students who rank below the 10% rank cut-point in the control group (T=0), and students ranked at or above the 10% cut-point (percentile rank equal to the first decile) in the treatment group (T=1).

In a sharp regression-discontinuity design, where all non-top decile students are placed in the control group, assignment coincides with treatment status; thus, coefficient α_1 gives the intent-to-treat (ITT) effect. The ITT represents the average effect of making the program available to its targeted group, or in this application α_1 estimates the gains that policymakers would observe from implementing the program given certain levels of non-participation (Heckman, LaLonde and Smith, 1999). ITT also represents a complex combination of the treatment effects for participants and non-participants.[7]

Assuming the error term ε in equation (1) is distributed normally, it can be estimated with a probit specification of the form

$$\boldsymbol{Prob(y{=}1) = \Phi(\, g(rank) + \alpha_1 T + \alpha_2\, T{*}g(rank) + \beta Z\,)\,.} \tag{2}$$

Then, prob(y=1|T=1)-prob(y=1|T=0) gives the estimated marginal intent-to-treat (ITT) effect of the 10% law on students' college enrollment. Because the estimated impact only applies to those near the cut-point, the consequences of the law on students far away from the threshold may be quite different.

Polynomial Functional Form

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[7] In our case, the top 10% law guarantees automatic admissions to any public Texas university of their choice to top decile students, but students need to know that they qualify for the admission guarantee and they need to apply and comply with application rules of universities to which they seek admission. The common application requires a SAT/ACT score even though it is not considered in admissions decisions for top decile students. Moreover, most institutions, including the two flagships, have application deadlines. Thus, knowledge of the law and the ability to comply with application rules leads to non-participation among top decile students, which means that many rank-eligible students are unable to take advantage of the admission guarantee (Niu, Sullivan and Tienda, 2006).

College enrollment is assumed to be a continuous function of high school percentile class rank, **g**(rank), but the estimates will be biased and/or inefficient if **g** is misspecified. Over-specified models are unbiased, albeit inefficient, but generally under-specified models are both biased and inefficient. Therefore, when the functional form is misspecified, over-specification is preferred and under-specification should be avoided (Trochim, 1984).

We follow the strategies outlined by Trochim (2006) to specify alternative polynomial functional forms for both enrollment outcomes of interest. After visual inspection of the relationship between percentile class rank and college enrollment outcomes for *n* flexion points, we begin with *n+2* order polynomial models, including interactions between polynomial terms and percentile class rank; subsequently, we refine models by removing extraneous terms, starting with the highest-order term. Models are re-estimated until the rank coefficient attains statistical significance, the goodness-of-fit measure drops appreciably, or the pattern of residuals indicates poor-fitting models. These refining processes yielded the following specifications of equation (1) for two outcome variables:

(1a) Enrolled $= \text{rank} + \alpha_1 \cdot \text{Top10\%} + \beta Z + \varepsilon;$

(1b) Enrolled TX Flagship $= \text{rank} + \text{rank}^2 + \alpha_1 \cdot \text{Top10\%} + \beta Z + \varepsilon;$

Unlike other researchers who use a single high-order specification for different outcome variables (Matorell 2004), for both theoretical and practical reasons we use different polynomial specifications for our outcome variables. Theoretically, the relationship between percentile class rank and college outcomes should differ because class rank is positively related to the selectivity of college choices. Visual depictions of the association reveal different relationships between percentile class rank and the two college enrollment outcomes examined. Although the full sample is adequate for model specification, for subsamples the top decile cut-point yields relatively small treatment groups. Under these conditions, including too many unnecessary high order polynomial terms sometimes produces inefficient estimates of the program effect.[8]

Statistical controls

The probit models are estimated with and without the set of controls **Z** that are known to influence college enrollment: family SES variables (parental education and home ownership) and respondent's college disposition (grade level when respondent first considered college). The models without the controls are the baseline models. With rare exceptions, inclusion of family SES and college disposition variables does not substantively change estimates of the impact of the top 10% law on enrollment outcomes. This result confirms a requirement of the regression discontinuity technique, namely that observed student characteristics other than class rank trend smoothly through the cut-point.

IV. Results

[8] The strategy of working downward from a high order polynomial functional form serves to check the robustness of the estimates obtained from final specifications detailed above. Appendix 1 details changes in coefficient estimates and pseudo R-Sq in varying polynomial specifications. Specifically, for college enrollment, similar estimates of the impact of the law are obtained with and without 2nd order polynomial and interaction terms, but the significance levels change. However, for Flagship enrollment, the model fails to attain statistical significance in specifications that include the 4th order and lower polynomial and interaction terms. In fact, signs of the estimates actually change in different specifications. Therefore, we are confident that the model specifications detailed above fit data appropriately and capture well the program effect when present.

Descriptive statistics for top decile students and those ranked at or below the 20th percentile establish whether the basic assumption of regression-discontinuity design holds in our sample: namely, whether in the absence of the treatment, students around the cutoff point are similar. The first two paired columns in Table 1 present sample means for students ranked in the top decile and those ranked below, from 11 to 100 percent. With a few exceptions, means of the post-secondary outcomes and student characteristics known to influence college enrollment differ statistically for the two groups when students from the full class rank distribution are considered. Significant differences in college enrollment and flagship enrollment also obtain when we compare students within a small interval around the cutoff point—6-10 percent versus 11-15 percent, but many differences in student characteristics known to influence college enrollment vanish. Notable exceptions are Asian origin, having parents with less than high school education. When the interval is further narrowed to a 6 percent point range—8-10 percent vs. 11-13 percent—differences for flagship enrollment remain statistically significant.

Table 1 About Here

Although the eligibility rule is known and students near the cutoff point may work harder to improve their class rank, it is difficult for individual students or teachers to intentionally alter their position at the cutoff point. Furthermore, the eligibility for the admission guarantee is most meaningful for access to the two Texas public flagships, which require schools to report students' class rank and the senior class size in order to verify the percentile rank. Figure 1 presents the distribution of high school seniors by actual percentile class rank. Although the class rank distribution is upwardly skewed, no significant “clumping” appears around the 10^{th} percentile class rank.[9] The cumulative class rank distribution is smooth throughout.

Figure 1 About Here

Having satisfied the basic requirements of the RD framework, the subsequent analyses estimate the intent-to-treat effect of the top 10% law on students’ college-going. We begin with the pooled sample, and proceed to group-specific estimates by race and ethnic groups, segregation strata, and high school type. For the two enrollment outcomes of interest, we first present visual displays of the impact of the top 10% law and in the subsequent table report probit regression discontinuity estimates.

Figures provide visual evidence for a discernable discontinuity in the relationship between class rank and two college enrollment outcomes at the cut-point. In each of the graphs, the open circles represent the average enrollment rate for students with a particular class rank, and the superimposed smooth lines are the predicted enrollment probability from a baseline probit specification discussed earlier. Overall, the graphs show that the predicted enrollment probabilities track the local averages reasonably well, and a discontinuity is visually discernable in most of the cases where the probit models yield statistically significant point estimates. The subsequent tables report probit regression discontinuity estimates of the main intent-to-treat (ITT) effect of the top 10% law on various measures of college enrollment. All estimates reported in the tables and

[9] The upward skew is inconsequential for the analysis, which only requires the absence of large clumping around the cutoff point.

figures are marginal effects calculated at the sample means for students at the cutoff point.[10]

College-Enrollment

Five noteworthy findings emerge from the empirical estimation. First, the top 10% law increases rank-eligible students' overall college enrollment, but does not appear to boost the likelihood of enrollment at the flagships. The left graph in Figure 2 reveals a clear disjuncture at the cutoff point for overall college enrollment, with a 4 percentage point difference between students at the cutoff point and those just below. As revealed by group-specific analyses reported below, the impact on overall college enrollment largely derives from a boosting effect among rank-eligible *minority* students, which was the intent of the law's architects. For all students, the point estimate of the impact on flagship enrollment is also about 4 percentage points. Although the large standard error renders this estimate statistically imprecise, for some subgroups the ITT estimates do obtain statistical significance. That the top 10% law has a boosting effect on overall college enrollment among rank-eligible students, but no effect on their flagship enrollment parallels recent findings in the financial aid literature. Financial aid increases access to college for marginal students, but may or may not influence their enrollment at

[10] There does not seem to be consensus about which sample means to use in calculations based on a probit specification. Of the two recent studies using an RD approach with a probit specification, Kane (2003) calculates the marginal effects at the sample means for all observations used in the estimation, but Matorell (2004) calculates the marginal effects at the sample means for observations at the cutoff point. For substantive reasons, in this paper we report the marginal effects at the sample means for students at the cutoff point to obtain discontinuity estimates. Because the regression discontinuity approach focuses on the discontinuity at the cutoff point, which is established by law, the marginal effects should not be sensitive to which set of means is used if the cutoff point is around the mean or the relationship between class rank and each outcome variable is flat. In our case, however, the mean class rank of observations used in estimation is quite different from those around the cutoff point as Table 1 shows. Furthermore, because the association ion between the class rank and the two outcomes of interest (enrolled, and enrolled in a flagship) is significantly positive, the marginal effects calculated at the means for all observations used in the calculations will overstate the effects. Therefore, our calculations at the means for observations at the cutoff point are conservative.

selective institutions, which represent a subset of four-year alternatives (Alon, 2007; Dynarski, 2000; Kane, 2004; Abraham and Clark, 2006).

Figure 2 and Table 2 About Here

The second key finding is that the enrollment impact of the law differs by race and ethnicity. As figure 3 shows, the top 10% law does not boost overall college enrollment and flagship enrollment among rank-eligible white students, but it does so for top decile Hispanic students. The absence of an enrollment discontinuity at the cutoff point for white students is not surprising because their overall college enrollment rate is very high – about 95 percent for those around the cutoff point. The negative (albeit insignificant) discontinuity at the cutoff point for white students' flagship enrollment is intriguing because it also obtains for graduates from predominately white and majority white high schools, as we demonstrate below. Further scrutiny of top decile white students' college destinations reveals that many opt for a private in-state institution, where they have a competitive edge compared with other second decile white graduates.

Figure 3 About Here

For black and Asian students, the point estimates, although of substantial magnitude in many cases, fail to reach statistical significance due to large standard errors. The notable exception is for Hispanics – a rather large and statistically significant discontinuity appears at the cutpoint for both overall college enrollment and flagship enrollment, as in the two bottom graphs of Figure 3 illustrate. This result suggests that, beyond changes in the demography of the college-age population, the top 10% law has some capacity to restore ethno-racial diversity at the state's public flagships (Walker & Lavergne, 2001; UT Office of Public Affairs, 2003).

Third, the admission guarantee boosts overall college enrollment and flagship enrollment of top-ranked graduates from predominantly minority and majority minority high schools, but not those who attended majority white or integrated high schools. Given the design and intent of the law, this is a powerful result. The upper two graphs in Figure 4 show no discontinuity or a negative slope at the cutoff point for students from predominantly and majority white schools.[11] Large standard errors nullify the positive boosting effects of the law for students attending integrated schools. By contrast, the enrollment boost at the cutoff point is sizable and statistically significant for graduates from minority high schools, as shown in two bottom graphs in Figure 4 and detailed in Table 2. Specifically, for graduates from schools where between 20 and 40 percent of students are white, the difference in overall college enrollment between those at the 10% rank cutoff and those immediately below is 15 percentage points. Furthermore, with the admission guarantee in place, ranked seniors at the cut-point who attended predominately minority high schools are 8 percentage points more likely to enroll in a post-secondary institution and 13 percentage points more likely to enroll at one of public flagships than those immediately below the cutoff point.

Figure 4 About Here

That the point estimates derived from segregation strata parallel the results based on minority groups reinforces prior claims that most black and Hispanic students who achieve top 10% class rank hail from predominately minority schools (Tienda and Niu 2006b). By design, the top 10% law capitalizes on school segregation to recruit black and Hispanic students to selective public institutions in Texas; moreover, it appears that

[11] In Figure 4, we group students from predominantly white and majority white schools together and students from predominantly minority and majority minority schools together.

UT and TAMU succeeded in attracting more top performing students from segregated schools than was the case before the law was implemented (Tienda and Sullivan, 2007).

Fourth, the top 10% law raises overall college enrollment among top decile graduates from high schools targeted for Longhorn and Century scholarships. Although UT and TAMU target these high schools for Longhorn and Century scholarship offers to their high performing students, we fail to find direct evidence that the top 10% law boosts flagship enrollment among top decile graduates from these high schools. The bottom-left graph in Figure 5 shows an 11 percentage point boost at the cutoff point for postsecondary enrollment among Longhorn/Century school graduates, which is more than double that obtained for all seniors (Figure 2).

Figure 5 About Here

Because the Longhorn/Century scholarship programs were designed by UT and TAMU to recruit graduates from low-income schools that historically sent few students to their campuses, we expected a significant boosting effect on enrollment in flagships among these students. Small case numbers lead to large variances, hence we are unable to model these students' enrollment at the public flagships with precision – the estimated discontinuity is small, negative and statistically insignificant. This insignificant result also reflects the small number of scholarships available at each of the Longhorn and Century high schools. That is, not all rank-eligible graduates are offered a scholarship, and not all offers result in matriculation.

The actual number of Longhorn Scholarships allocated to each participating high school is determined by the gap between the school's UT application rate and the average application rate for all in-state high school graduates (Domina, 2007). Only the very top students among those who qualify for the admission guarantee are likely to receive a scholarship and matriculate at one of the flagships. We verified this hunch by examining the class rank distribution among graduates from Longhorn and Century schools who enroll at TAMU and UT and find that nearly three-quarters of matriculants ranked in the top 7th percentile or better of their graduating class, and 80 percent of these students rank in the top 10%.[12]

Evaluating this finding against the result that top 10% students from predominately minority schools are more likely to enroll at one of public flagships is very telling. Longhorn and Century high schools also enroll large numbers of black and Hispanic students, but they have higher shares of economically disadvantaged students compared with minority schools in general. At most high schools where minorities comprise over half of the student body, the share of economically disadvantaged students hovers around the statewide average. Therefore, our discontinuity estimates are entirely consistent with claims that concentrated economic disadvantages, not the race/ethnic segregation per se, drives the low flagships enrollment rates of minority students (Tienda and Niu, 2006b)

It bears emphasizing that our failure to find a significant boosting effect of the top 10% law on flagship enrollment among top 10% graduates from Longhorn/Century high schools *does not* mean that the outreach efforts and targeted scholarship programs are inconsequential for UT and TAMU enrollment among rank-eligible students. Although we do not formally test the differences in estimates across groups, comparing the large negative discontinuity at the cutoff point obtained for students who attend resource-poor

[12] This findings based on the survey data are corroborated by administrative data from UT and TAMU. Results are available on request.

schools and the small negative discontinuity at the cutoff point obtained for graduates from Longhorn/Century schools suggests that the scholarship programs do increase minority enrollment at the public flagships, as indicated by other studies (Domina, 2007; Niu, et al, 2006). In other words, the admission guarantee does little to promote college-going among students who face formidable financial constraints. Along with focused recruiting efforts, financial support is required for enrollment of students from resource poor high schools. Yet, the available scholarships are woefully inadequate to ensure matriculation of most students eligible for the admission guarantee.

Among top decile graduates from typical Texas public high schools with average shares of economically disadvantaged students, the admission guarantee does boost overall college enrollment and flagship enrollment. The two upper graphs in Figure 5 show a clear disjuncture at the cutoff point for overall college enrollment and a large disjuncture for flagship enrollment. That nearly half of Texas public high school seniors attend such "typical" schools attests to the profound impact of the top 10% law in raising college-going in the state, and particularly in equalizing access to the flagships for students across the state.

Finally, with few exceptions, inclusion of family SES and college disposition variables does not lead to substantive changes in estimates of the impact of the top 10% law on college-going. Overall, both the magnitude and the significance of the estimates are sustained (see Table 2, col's 2 and 4). Only in one instance (flagship enrollment for Hispanic students) does inclusion of family SES and college disposition controls eliminate the statistical significance of the boosting point estimate; in this instance, however, this outcome reflects the stringency of the criteria used to evaluate marginal effects at the cut-point – the point estimates are very stable across three specifications and significance levels border of $p<0.05$. Similar estimates with and without family SES and college disposition variables affirm that the top decile status indicator does not capture discontinuity in background characteristics at the cutpoint.

Promoting Test Taking as A Mechanism

Dickson (2005) uses test-taking as a proxy for college going in an examination of how the change in admission regime from affirmative action to the percent plan influence college going behavior among Texas high school seniors. She finds that the share of minority students applying to college increased significantly when the percent plan was accompanied by changes in financial aid. The underlying assumption is that top 10% law boosts enrollment by increasing the likelihood that rank-eligible students, particularly blacks and Hispanics, take the required tests.

Although test scores are ignored for rank-eligible applicants, they are required for an application to be considered complete. In fact, UT and TAMU do not consider applicants who fail to report a test score even if they qualify for the guarantee. Therefore, compared with lower-ranked students, top decile graduates have a strong incentive to take college entrance exams (SAT or ACT) in order to use the admissions guarantee; conversely, lower-ranked students maybe discouraged from taking the entrance exams. If Dickson's assumption is correct, test-taking behavior will be manifested as a disjuncture in test taking at the cutoff point. Examining mean differences in test taking first for students ranked in the top 10 percent versus those ranked 11 to 100 percent, and then for smaller intervals around the cutoff point—6-10 percent versus 11-15 percent, and 8-10 percent versus 11-13 percent, reveals a clear disjuncture at the cut-point. Moreover, the discontinuity is statistically significant even within a very narrow band around the cutoff point, as shown in the top row of Table 3. Because minority students are less likely to take the standardized tests required for applications to be considered complete, we expect larger boosting effects on test taking for them. Comparisons between top decile students and those ranked lower are statistically different for all subgroups, but when comparisons are constrained within narrow ranges around the cutoff point, the statistical significance is sustained only for Hispanic students, those who attend minority high schools, and those from poor or Longhorn/Century high schools.

Table 3 About Here

To explicitly test the assumption that the test taking is the mechanism through which the top 10% law boosts college enrollment, we add a test taking dummy variable to the base model that includes family SES and college disposition variables to determine whether it attenuates the impact of the top 10% law on college enrollment. Table 4 reports these results. Inclusion of the test taking variable reduces considerably the impact of the top 10% law on overall college enrollment.[13] Specifically, for Hispanic students, those from minority high schools, and those from Longhorn/Century high schools, the point estimates shrink by about half and statistical significance diminishes. Note that these are precisely the subgroups for which the significant difference in mean test taking persists within the narrow ranges around the cutoff point (see Table 3). The point estimate for overall college enrollment of graduates from typical high schools is attenuated, yet remains statistically significant. For this subgroup, the mean difference in

[13] As expected, the point estimates are virtually the same when standardized test information is added to the base models without family SES and college disposition variables. This further reaffirms our claim that individual student characteristics are unrelated to the cutpoint.

test taking reported in Table 3 is not statistically significant within narrow ranges around the cutoff point.

Table 4 About Here

Adding test taking behavior to the expanded base model does not alter estimates of the impact of the top 10% law on flagship enrollment for students from predominately minority schools or those attending schools of average economic status. Although some top decile students who might not attend college respond to the law by taking the required entrance tests, it appears that graduates who actually enroll at one of the public flagships represent a selective subset of all students with college intentions. Apparently the top 10% law boosts test taking among Hispanic students and those from minority and Longhorn/Century schools who graduate in the top decile of their class, thereby raising their overall college enrollment, but not necessarily their matriculation at UT or TAMU. Stated differently, many highly ranked students whose college sights may be raised by the top 10% law appear to enroll in institutions other than the public flagships.

Although standardized test scores can not be considered in admissions decisions for top decile graduates who apply to Texas public universities, this achievement indicator becomes highly salient for students ranked below the cutoff point who seek admission to Texas institutions, as well as for students who seek admission to out-of-state and private institutions. In fact, many students who qualify for automatic admission also apply to selective out-of-state and private universities, where standardized test scores are likely considered in admission decisions (Niu and Tienda, 2007). We do not observe unusual dispersion in the sample SAT scores, which were derived from transcripts:[14] for the 10% interval, students ranked immediately above the cutoff point score significantly higher than those immediately below; and, for the 6% rank interval, students immediately above the cutoff point average higher scores than those below the cutoff, although this difference is not statistically significant. Nevertheless, we add test score along with the test taking dummy variable to the expanded base model to verify whether test scores influence our estimated impact of the top 10% law on college enrollment and flagship enrollment. Results reported in the third and sixth columns in Table 4 show that both the ITT estimates and the associated significance levels are very similar whether or not test scores are included in the model. The test score itself has additional explanatory power predicting college enrollment however.[15]

V. Conclusions

As the first and boldest race-neutral alternative to affirmative action, the Texas top 10% plan deserves a fair hearing using scientific rather than anecdotal evidence to appreciate not only the actual, but also the potential changes in access to selective college campuses in the context of a rapidly diversifying school-age population. Using precise class rank information verified from high school transcripts and applying regression

[14] We convert ACT scores if available or predict missing SAT scores using students' decile class rank, high school curriculum, most recent math and English grades, whether they have taken English and math AP courses, whether languages other than English are spoken at home, gender, race/ethnicity, college disposition, parental education, home ownership, high school types, and several high school attributes including % enrolled in grades 11-12 taking AP courses, % AP exams passed, % students passed algebra test, % with college plans, and high school dropout rate.

[15] Unsurprisingly, in the models that include both the test taking dummy and test scores, test taking is a highly significant (i.e., mostly at 0.001 level) factor in predicting overall college enrollment for each subgroup, but the actual scores only achieve significance at the 0.05 level for some subgroups. By contrast, test score achieves high significance (i.e., mostly at 0.001 level) in predicting flagship enrollment for each subgroup and test taking only obtains significance at the 0.05 level for a few subgroups. Results are available on request.

discontinuity techniques to establish causal impacts, this study directly assesses the impact of the Texas top 10% law on college enrollment decisions of students eligible for the admission guarantee.

Based on comparisons in college enrollment outcomes between students at the cutoff point and those immediately below, we identify four major consequences of the top 10% law. First, rank-eligible seniors are more likely to enroll in college. Second, the top 10% law does not affect college enrollment decisions among rank-eligible white students, but it increases overall college enrollment and flagship enrollment of Hispanic students eligible for automatic admission. Third, college decisions of top decile graduates from predominately white or integrated high schools were not affected by the top 10% law, but rank-eligible students who graduated from predominately minority schools are more likely to enroll in college, and to enroll at one of the public flagships. These results are striking in their consistency both with the design and intent of the law, namely (1) to restore diversity at the public flagships; and (2) to increase college access to a broader spectrum of the Texas population.

In fact, the law had a formidable impact in diversifying the geographic origins of the admission and enrollment pools. For example, 795 different Texas high schools were represented in the 1996 admission cohort, compared with 943 high schools in the 2004 admitted pool, roughly a 19 percent increase. Because not all admitted students actually matriculate, the number of schools represented among enrolled students was lower—616 in 1996 versus 815 in 2004—but the increased representation of high schools at UT indicates that the uniform admission law served to broadened access to students from underrepresented high schools (Tienda and Sullivan, 2007).

Finally, the top 10% law raises college enrollment among top 10% students who graduate from Longhorn/Century high schools. UT and TAMU target scholarships to rank-eligible graduates from these high schools, yet we fail to find evidence that the top 10% law boosts enrollment from Century/Longhorn high schools at the public flagships. This finding DOES NOT mean that the outreach efforts and targeted scholarship programs are inconsequential for raising enrollment among students eligible for the admission guarantee. Rather, the limited number of scholarships and the preference given to students ranked highest among those qualified for automatic admission makes the aggregate impact rather small.

As a final note, we emphasize that our application of the RD approach evaluates whether the Texas top 10% law has significant boosting effects on college enrollment of *rank-eligible students*. Our finding that rank-eligible blacks and Hispanic students enjoy larger boosting effects of the top 10% law but no boosting effects are evident for top decile whites and Asians warrants some explanation in light of findings from other studies that whites and Asians were the greatest beneficiaries of the law. For example, Long and Tienda's (2007) finding that blacks and Hispanics were less likely to be admitted after affirmative action and Niu and Tienda's (2006) claim that black and Hispanic students were equally likely to enroll, conditional on admission, are not inconsistent with our findings about total enrollment. Rather than compare minorities with whites on admission and enrollment outcomes, the discontinuity approach compares top 10 percent black and Hispanic students with their race/ethnic counterparts who were ranked lower, or top 10 percent students from minority high schools with those ranked lower in the same type of high schools. As such, our results indicate that overall college enrollment and flagship enrollment of top-ranked students is higher under the top 10% law than would be the case in its absence.

That we find significant boosting effects on overall college enrollment and flagships enrollment among Hispanic students does not necessarily mean that the top 10% law is an effective alternative to affirmative action. We do not compare its effectiveness in recruiting black and Hispanic students with race-sensitive admission policies. Other studies have concluded that *it is neither an efficient nor effective* alternative to recruit black and Hispanic students (Kain et al., 2005, Long and Tienda, 2007). This point bears further consideration in light of recently proposed revisions to the uniform admission law.

Although the 2003 Supreme Court *Grutter*[16] decision reaffirmed that a narrowly tailored consideration of race is permissible to achieve the educational benefits that derive from a diverse student body, the Texas uniform admission law must remain in force until repealed by the Texas legislature. In response to the growing saturation of the UT-Austin campus with automatically admitted students, political pressure to modify or rescind HB 588 has continued to mount. In 1996, the percentage of top 10 percent students who enrolled at the Austin campus as first-time freshman was 42 percent, which was roughly comparable to the share at the College Station campus. By 2005, however, nearly three in four students admitted to UT-Austin qualified for automatic admission, greatly constraining the latitude of admission officers to shape and balance the freshman

[16] *Grutter v. Bollinger, 539 U.S. 306 (2003).* Following the *Grutter* decision, the University of Texas Board of Regents passed a resolution permitting schools in the Texas System to consider race and ethnicity in admissions that are not automatic. Texas A&M University announced it would not consider race and ethnicity in admissions, even as administrators scaled up the intensity of recruitment at minority-populated high schools.

class (Tienda and Sullivan, 2007). Although TAMU also witnessed an increase in the share of who qualify for the guarantee, less than half of enrollees were admitted automatically. The saturation of the UT campus results from the law's permissiveness in guaranteeing rank-eligible students access to a public campus of their choice.

In 2007, several attempts to revise or rescind the top 10% law failed. Although the Senate reached a compromise to cap the number of automatically admitted students at 50 percent, the agreement did not pass in the House. But with growing demand for access to slots at four-year institutions, future proposals to modify the percentage plan might raise the cut point, possibly guaranteeing admission to students ranked in the top 5^{th} or 7^{th} percentile of their class. Students ranked below the cut off, which likely would vary from year to year depending on the size and composition of the applicant pool, would be admitted using the full range of criteria approved for "full file review." For economically disadvantaged students, however, scholarships must be made available in order for those eligible for automatic admission to actually enroll. Our findings underscore the importance of targeting financial support for students from resource poor high schools in order to boost their college access; students from affluent schools do not require public subsidy to ensure their enrollment, which is already very high conditional on acceptance.

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Appendix A.

<u>Sensitivity Test to the Cutoff Point</u>

All the analyses reported in this study test whether there is a statistically significant discontinuity in college enrollment at the actual 10 percentile class rank cutpoint, as specified under the Texas top 10% law. Following the example given by Kane (2003) in estimating the impact of the financial aid on college-going, we also test whether the actual percentile class rank cutpoint fits the data better than other nearby thresholds in order to rule out spurious relationships due to misspecification. For this analysis we re-estimate the probit specifications for the full sample using a range of alternative cutpoints in the percentile class rank distribution, between 1 and 20 at single percentile intervals.

Appendix A Figure About Here

The Figure reports the differences in the log likelihood for each specification relative to maximum log likelihood across all specifications. In general, the log likelihoods indicate that the data strongly conform to a cutoff point in the neighborhood of the 10^{th} percentile of the class rank distribution when a significant program effect is obtained. For overall college enrollment, there is a clear "spike" in the log likelihood at the 10^{th} percentile class rank, which corresponds with the eligible cutoff point implied by the top 10% law. For flagship enrollment, the 'spike" occurs at the 6^{th} percentile class rank, however, the log likelihoods in the neighborhood of the 10^{th} percentile class rank are close to the minimum, which confirms the insignificant point estimate at the 10^{th} percentile class rank cutoff point.

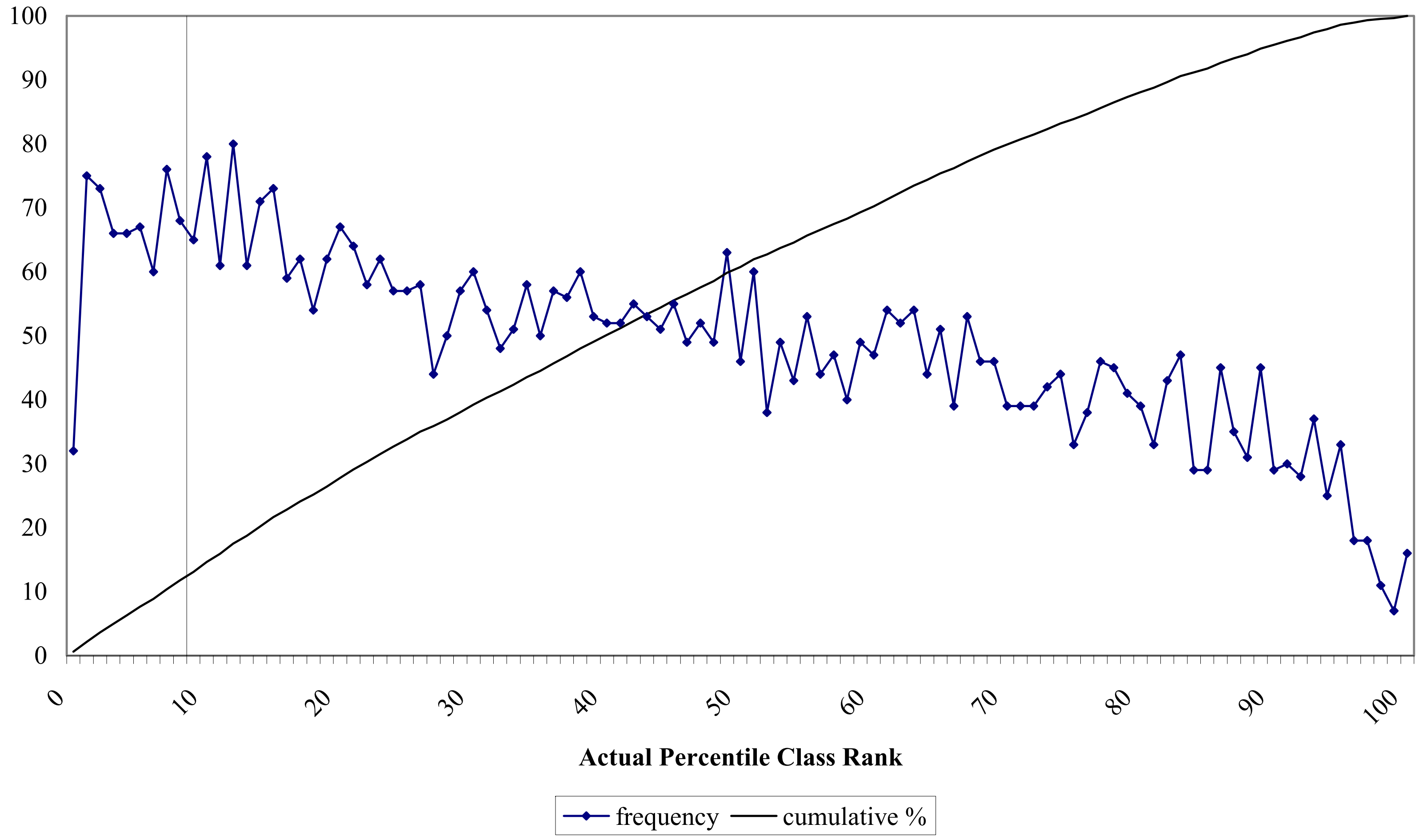
Table 1. Variable Means by Top 10% Status

	Full Range		10% Interval		6% Interval	
	Top 10%	11-100%	6-10%	11-15%	8-10%	11-13%
Outcome Variables						
Enrolled in College	0.94	0.71 ***	0.94	0.89 *	0.94	0.86
Enrolled TX Flagships	0.33	0.04 ***	0.32	0.18 ***	0.31	0.20 **
Control Variables						
Race/Ethnicity						
White	0.45	0.37 ***	0.43	0.50	0.48	0.52
Black	0.11	0.19 ***	0.14	0.10	0.10	0.11
Hispanic	0.28	0.38 ***	0.29	0.30	0.28	0.29
Asian	0.15	0.05 ***	0.13	0.07 **	0.12	0.06
Other/Missing	0.01	0.02	0.01	0.02	0.01	0.01
Parental Education						
Less Than High School	0.11	0.16 ***	0.11	0.17 *	0.09	0.16 *
High School	0.17	0.21 **	0.19	0.19	0.19	0.17
Some College	0.25	0.23	0.25	0.20	0.21	0.19
College and Higher	0.38	0.21 ***	0.33	0.34	0.36	0.35
Don't Know/Missing	0.09	0.19 ***	0.12	0.11	0.15	0.12
Home Ownership						
Own	0.82	0.70 ***	0.80	0.74	0.79	0.74
Rent	0.11	0.15 **	0.12	0.14	0.13	0.14
Don't Know/Missing	0.07	0.15 ***	0.08	0.12	0.09	0.11
First Thought About College Going						
Always	0.78	0.54 ***	0.73	0.74	0.74	0.74
Middle High School	0.10	0.12	0.13	0.10	0.13	0.1
High School	0.07	0.19 ***	0.08	0.11	0.07	0.09
Don't Know/Missing	0.05	0.15 ***	0.07	0.06	0.06	0.06
N	725	4214	347	345	211	201

Source: THEOP Wave 1 & 2 Senior Surveys.

***: p<0.001, **: p<0.01, *: p<0.05

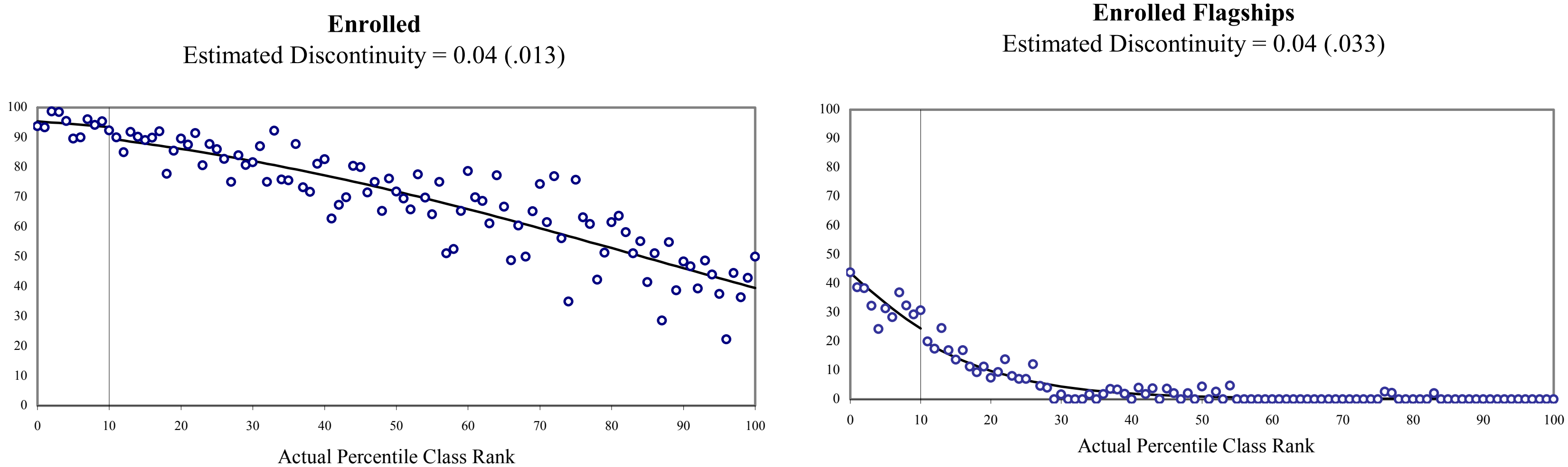
Figure 1. Distribution of High School Seniors by Actual Class Rank Percentile



Source: THEOP Wave 1 & 2 Senior Surveys.

Figure 2: Probability of College Enrollment by Actual Percentile Class Rank: All Seniors

○: actual; −: predicted



Source: THEOP Wave 1 & 2 Senior Surveys.

Notes: The predicted probabilities are from baseline probit regressions. See notes to Table 2 for further details.

Table 2. Probit Regression Discontinuity Estimates of the Impact of the Top 10% Law on College Enrollment
Texas Public High School Seniors in 2002 (N=4939)
(Marginal Effect, S.E. in parenthesis)

	Marginal Effects of Top10% Status			
	Enrolled in College		**Enrolled TX Flagships**	
All (n=4939)	0.04 (.013) **	0.02 (.012)	0.04 (.033)	0.03 (.033)
By Group				
White (n=1899)	0.01 (.016)	-0.01 (.013)	-0.03 (.052)	-0.03 (.051)
Black (n=860)	0.03 (.034)	0.03 (.023)	0.07 (.084)	0.08 (.097)
Hispanic (n=1804)	0.08 (.029) **	0.06 (.030) *	0.11 (.053) *	0.09 (.048)
Asian (n=292)	0.08 (.041)	0.03 (.030)	0.20 (.139)	0.20 (.156)
Predominately White (n=543)	-0.02 (.031)	-0.02 (.034)	-0.17 (.135)	-0.14 (.139)
Majority White (n=1161)	-0.01 (.020)	-0.01 (.013)	-0.03 (.069)	-0.05 (.074)
Integrated (n=1044)	0.04 (.022)	0.03 (.019)	0.09 (.081)	0.11 (.085)
Majority Minority (n=353)	0.15 (.058) *	0.17 (.071) *	0.07 (.096)	0.00 (.007)
Predominately Minority (n=1838)	0.08 (.026) **	0.06 (.027) *	0.13 (.048) **	0.11 (.043) **
Feeder (n=290)	--[a]	--[a]	-0.06 (.142)	-0.10 (.147)
Affluent (n=1020)	-0.02 (.021)	-0.02 (.017)	-0.08 (.083)	-0.10 (.087)
Typical (n=2149)	0.06 (.016) **	0.04 (.013) **	0.15 (.050) **	0.14 (.047) **
Poor (n=511)	0.03 (.055)	-0.02 (.060)	-0.09 (.106)	-0.07 (.112)
Longhorn/Century (n=969)	0.11 (.040) **	0.10 (.046) *	-0.00 (.059)	0.01 (.057)
Control Included	N	SES	N	SES

Source: THEOP Wave 1 & 2 Senior Surveys.
***: $p<0.001$, **: $p<0.01$, *: $p<0.05$

Notes: Each cell represents the estimated discontinuity in the outcome, defined as the marginal effect of being in the top decile obtai from the following equations, estimated with a probit specification, calculated at the sample means of those at the cutoff point.

Enrolled = rank + $\alpha 1 \cdot$Top10% + $\beta Z + \varepsilon$; Enrolled TX Flagships = rank + rank2 + $\alpha 1 \cdot$Top10% + $\beta Z + \varepsilon$;

where Z is a control vector, including family SES variables (parent education and home ownership), student's college disposition (grade level when student first considered college) and standadized test (SAT scores and SAT not taken dummy). The baseline models exclude the control variables.

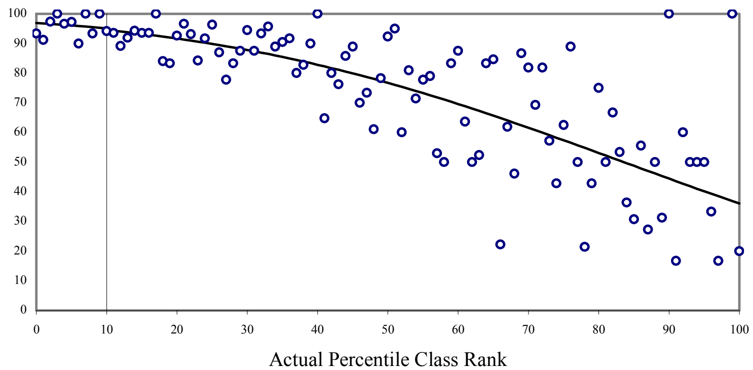
a: Not estimated because all top 10% students enrolled in college.

Figure 3: Probability of College Enrollment by Actual Percentile Class Rank: White and Hispanic

○: actual; −: predicted

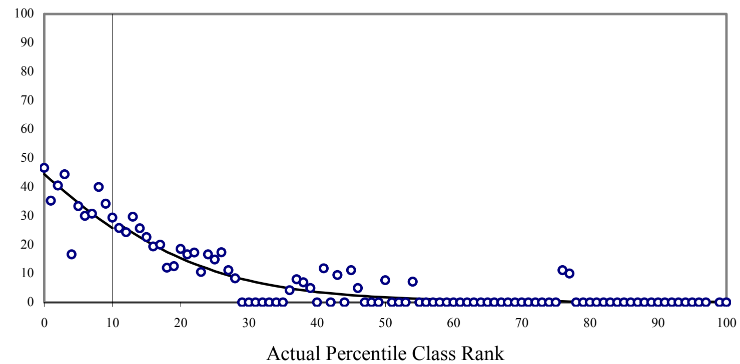
Enrolled: White

Estimated Discontinuity = 0.01 (.016)



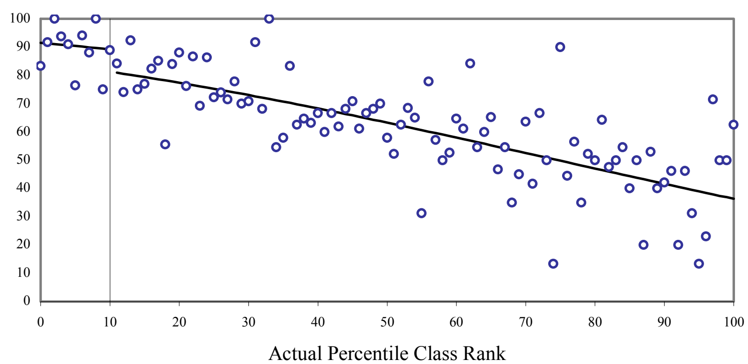
Enrolled Flagships: White

Estimated Discontinuity = -0.03 (.052)



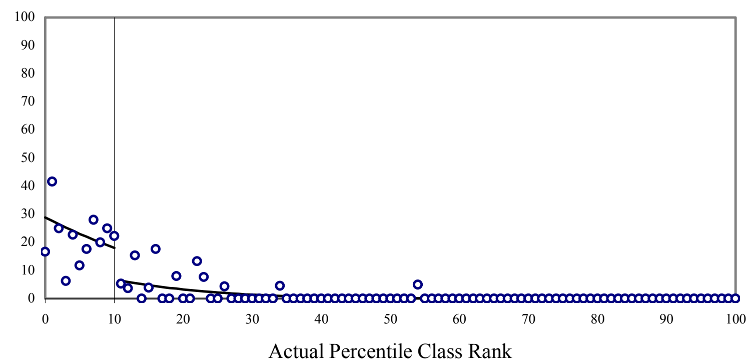
Enrolled: Hispanic

Estimated Discontinuity = 0.08 (.029)



Enrolled Flagships: Hispanic

Estimated Discontinuity = 0.11 (.053)



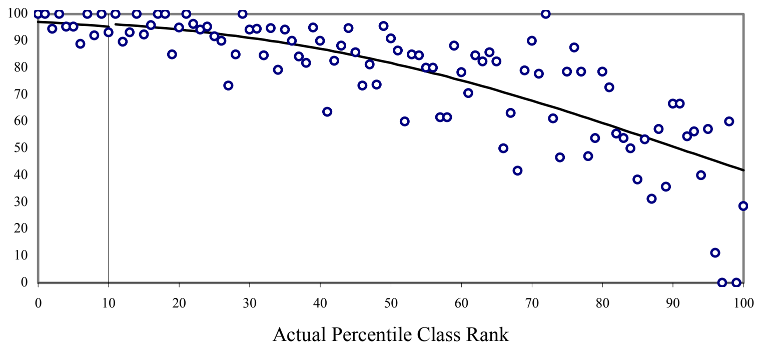
Source: THEOP Wave 1 & 2 Senior Surveys.

Notes: The predicted probabilities are from baseline probit regressions. See notes to Table 2 for further details.

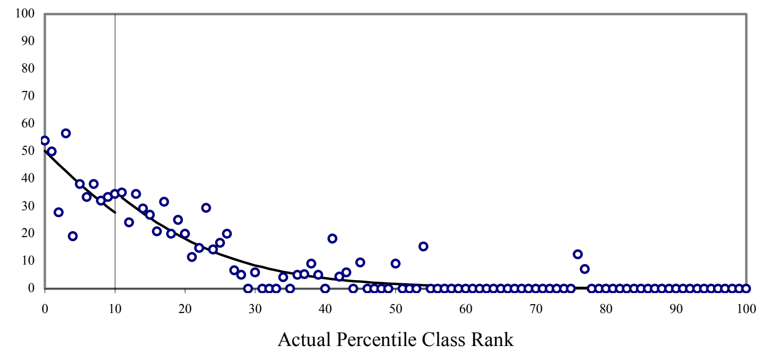
Figure 4: Probability of College Enrollment by Actual Percentile Class Rank: Predominately & Majority White, Predominately & Majority Minority High Schools

○: actual; −: predicted

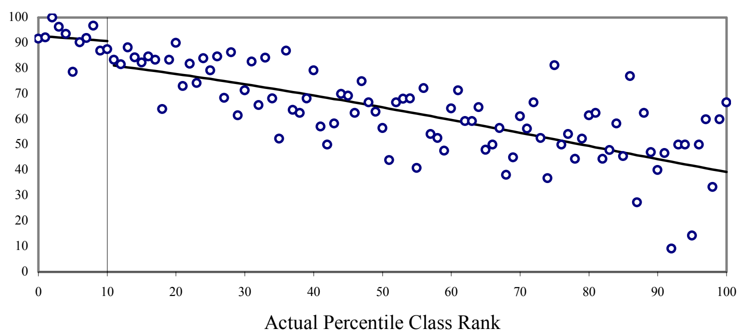
Enrolled: White High Schools
Estimated Discontinuity = -0.01 (.017)



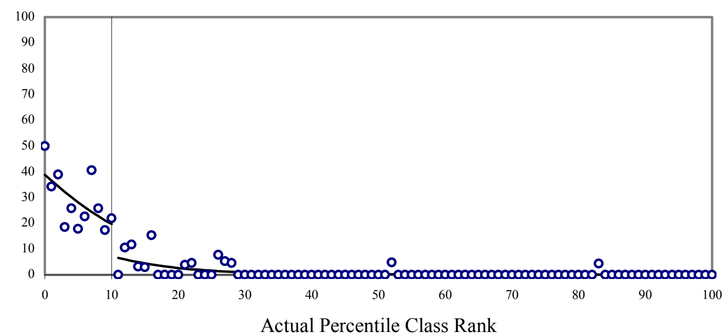
Enrolled Flagships: White Schools
Estimated Discontinuity = -0.07 (.060)



Enrolled: Minority High Schools
Estimated Discontinuity = 0.09 (.024)



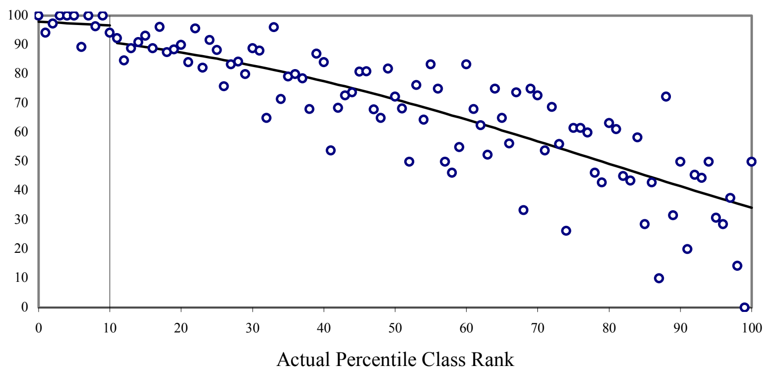
Enrolled Flagships: Minority Schools
Estimated Discontinuity =0.12 (.042)



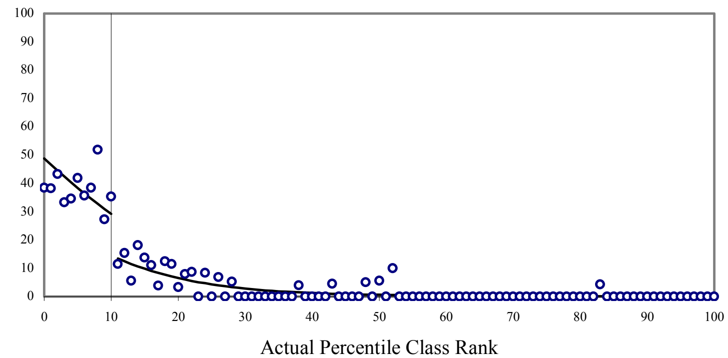
Source: THEOP Wave 1 & 2 Senior Surveys.
Notes: The predicted probabilities are from baseline probit regressions. See notes to Table 2 for further details.

Figure 5: Probability of College Enrollment by Actual Percentile Class Rank: Typical and Longhorn/Century High Schools
○: actual; −: predicted

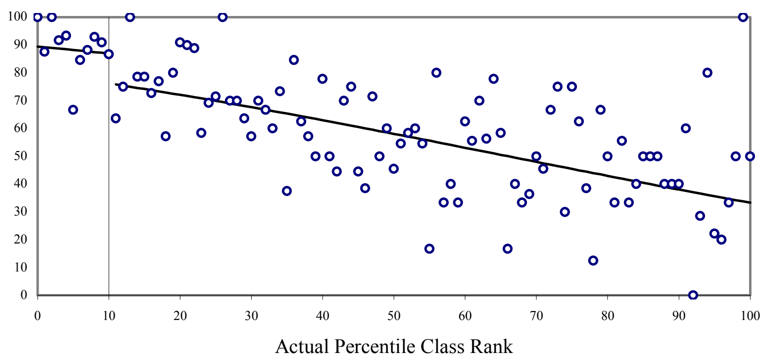
Enrolled: Typical High Schools
Estimated Discontinuity = 0.06 (.016)



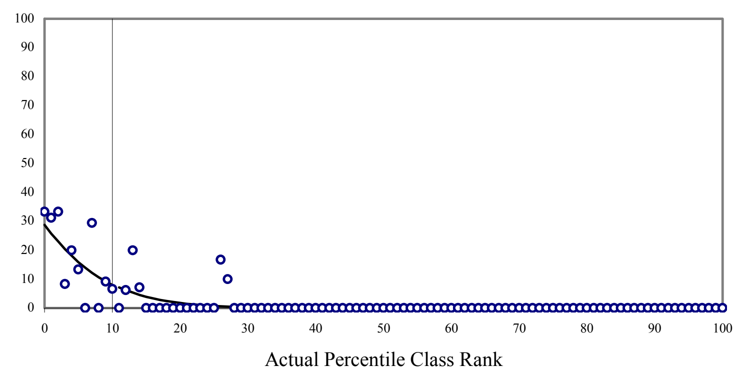
Enrolled Flagships: Typical High Schools
Estimated Discontinuity = 0.15 (.050)



Enrolled: L/C Highschools
Estimated Discontinuity = 0.11 (.040)



Enrolled Flagships: L/C Highschools
Estimated Discontinuity = -0.00 (.059)



Source: THEOP Wave 1 & 2 Senior Surveys.
Notes: The predicted probabilities are from baseline probit regressions. See notes to Table 2 for further details.

Table 3. Means of "SAT Not Taken" by Top 10% Status

	Full Range			10% Interval			6% Interval		
	Top 10%	11-100%		6-10%	11-15%		8-10%	11-13%	
All	0.04	0.40	***	0.05	0.13	***	0.06	0.13	**
By Group									
White	0.02	0.29	***	0.04	0.07		0.05	0.06	
Black	0.05	0.38	***	0.06	0.13		0.04	0.14	
Hispanic	0.07	0.53	***	0.08	0.23	**	0.08	0.27	**
Asian	0.05	0.27	***	0.04	0.12		0.04	0.08	
Predominately White	0.01	0.29	***	0.03	0.00		0.05	0.00	
Majority White	0.02	0.27	***	0.02	0.07		0.02	0.05	
Integrated	0.04	0.40	***	0.08	0.08		0.09	0.09	
Majority Minority	0.02	0.42	***	0.00	0.28	**	0.00	0.29	*
Predominately Minority	0.07	0.50	***	0.08	0.21	**	0.09	0.24	*
Feeder	0.03	0.16	*	0.00	0.00		0.00	0.00	
Affluent	0.01	0.24	***	0.02	0.04		0.02	0.02	
Typical	0.04	0.41	***	0.07	0.12		0.07	0.11	
Poor	0.07	0.54	***	0.09	0.35	**	0.12	0.35	
Longhorn/Century	0.08	0.52	***	0.06	0.20	**	0.05	0.26	**
SAT Score	1134	900	***	1077	1040	*	1081	1051	

Source: THEOP Wave 1 & 2 Senior Surveys.
***: p<0.001, **: p<0.01, *: p<0.05

Table 4. Probit Regression Discontinuity Estimates of the Impact of the Top 10% Law on College Enrollment
Texas Public High School Seniors in 2002 (N=4939)
(Marginal Effect, S.E. in parenthesis)

	Marginal Effects of Top10% Status					
	Enrolled in College			**Enrolled TX Flagships**		
All (n=4939)	0.04 (.013) **	0.02 (.011)	0.01 (.011)	0.04 (.033)	0.03 (.033)	0.02 (.034)
By Group						
White (n=1899)	0.01 (.016)	-0.01 (.014)	-0.01 (.014)	-0.03 (.052)	-0.04 (.054)	-0.05 (.054)
Black (n=860)	0.03 (.034)	0.02 (.023)	0.01 (.021)	0.07 (.084)	0.09 (.099)	0.08 (.105)
Hispanic (n=1804)	0.08 (.029) **	0.04 (.029)	0.03 (.028)	0.11 (.053) *	0.08 (.049)	0.10 (.051)
Asian (n=292)	0.08 (.041)	0.03 (.030)	0.02 (.027)	0.20 (.139)	0.20 (.156)	0.27 (.156)
Predominately White (n=543)	-0 (.031)	-0.02 (.040)	-0.03 (.042)	-0.17 (.135)	-0.14 (.141)	-0.13 (.140)
Majority White (n=1161)	-0 (.020)	-0.01 (.014)	-0.01 (.014)	-0.03 (.069)	-0.06 (.074)	-0.06 (.075)
Integrated (n=1044)	0.04 (.022)	0.03 (.018)	0.02 (.019)	0.09 (.081)	0.13 (.085)	0.13 (.090)
Majority Minority (n=353)	0.15 (.058) *	0.07 (.059)	0.03 (.060)	0.07 (.096)	0.00 (.011)	0.00 (.009)
Predominately Minority (n=1838)	0.08 (.026) **	0.05 (.026)	0.04 (.027)	0.13 (.048) **	0.11 (.044) *	0.12 (.044) **
Feeder (n=290)	--[a]	--[a]	--[a]	-0.06 (.142)	-0.11 (.149)	-0.12 (.151)
Affluent (n=1020)	-0.02 (.021)	-0.02 (.018)	-0.03 (.019)	-0.08 (.083)	-0.10 (.089)	-0.11 (.090)
Typical (n=2149)	0.06 (.016) **	0.04 (.013) **	0.03 (.013) *	0.15 (.050) **	0.13 (.047) **	0.13 (.047) **
Poor (n=511)	0.03 (.055)	-0.04 (.058)	-0.05 (.058)	-0.09 (.106)	-0.06 (.112)	-0.06 (.126)
Longhorn/Century (n=969)	0.11 (.040) **	0.08 (.045)	0.06 (.045)	-0.00 (.059)	0.01 (.066)	0.03 (.069)
Control Included	N	SES	SES	N	SES	SES
Test Information Included	N	Test Taken	Test Taken&Score	N	Test Taken	Test Taken&Score

Source: THEOP Wave 1 & 2 Senior Surveys.
***: p<0.001, **: p<0.01, *: p<0.05
Notes: Each cell represents the estimated discontinuity in the outcome, defined as the marginal effect of being in the top decile obtained from probit regressions. See notes to Table 2 for additional detials.
a: Not estimated because all top 10% students enrolled in college.

Appendix 1. Changes in Coefficient for top 10% status and Pseudo R-Sq in Varying Polynomial Specification (s.e. in parenthesis)

Outcome	Polynomial in Class Rank	4		3		2		1		Final Specification[a]
Enrolled in College	Top 10%					0.28	0.24	0.28	0.25	0.25
n=4939						(.251)	(.110)	(.164)	(.089)	(.089)
	Pseudo R-Sq					0.1105	0.1105	0.1105	0.1105	0.1105
	Top 10%	-0.08	0.20	-0.22	0.17	-0.05	0.12	0.25	0.32	0.12
Enrolled TX Flagships		(.614)	(.131)	(.345)	(.130)	(.202)	(.112)	(.129)	(.088)	(.112)
n=4939	Pseudo R-Sq	0.2789	0.2773	0.2787	0.2759	0.2779	0.2757	0.2732	0.2730	0.2757
Full Interactions Included		Y	N	Y	N	Y	N	Y	N	

Source: THEOP Wave 1 & 2 Senior Surveys.

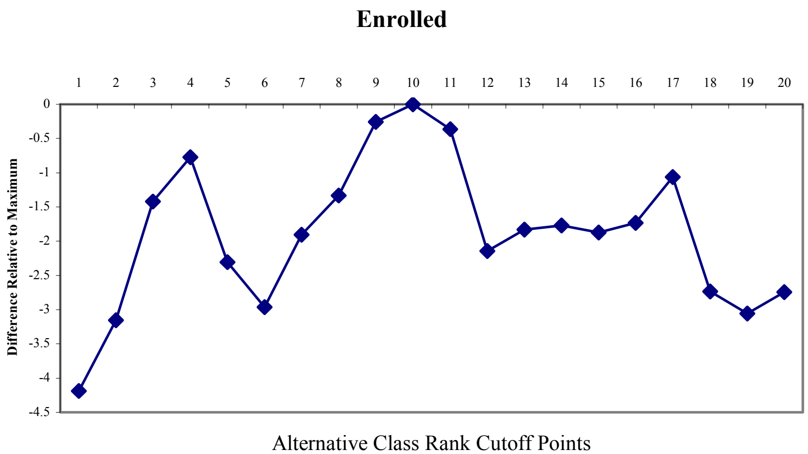
a: The final specifications are the following:

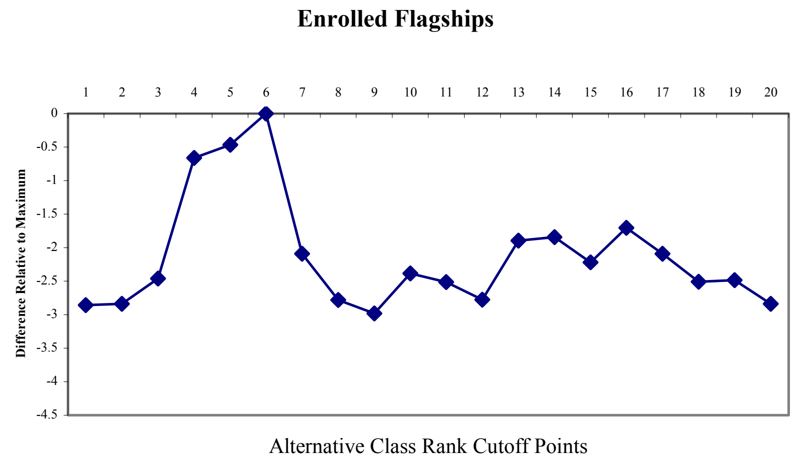
Enrolled = rank + $\alpha 1 \cdot$Top10% + $\beta Z + \varepsilon$;

Enrolled TX Flagships = rank + rank^2 + $\alpha 1 \cdot$Top10% + $\beta Z + \varepsilon$;

where Z is a control vector, including family SES variables (parent education and home ownership), student's college disposition (grade level when student first considered college) and standadized test (SAT scores and SAT not taken dummy). The results reported are from baseline models which exclude the control variables.

Appendix A. Figure: Evaluating the Log Likelihood Using Alternative Class Rank Cutoff Points





Source: THEOP Wave 1 & 2 Senior Surveys.