Hopwood and the Top 10 Percent Law: How They Have Affected the College Enrollment Decisions of Texas High School Graduates

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Introduction

This paper is part of large, multifaceted project concerned with minority access to higher education. Its specific focus is on the effects of *Hopwood vs. Texas* and the Texas Top 10 Percent Law on the probability that members of disadvantaged minorities will be able to attend selective colleges and universities As we discuss in greater detail below, *Hopwood v. Texas* is a Fifth Circuit court decision that prohibited using race as a factor in college admission decisions.

While we focus on the impacts of first Hopwood and then the Top 10 Percent Law on black and Hispanic enrollment in Texas public selective universities in this paper, it should be clearly understood that these choices are only a small part of the larger problem of differential minority access to higher education. While access by disadvantaged minorities to selective colleges and universities, and particularly to state supported ones, is important, it is but one of several crucial issues related to the educational opportunities of disadvantaged minorities. Other, equally important, questions, which are considered in the larger research project, are: impacts of racial residential segregation on minority achievement, high school curriculum choices, racial/ethnic differences in high-school graduation rates and college enrollment rates, retention, completion of bachelor or associate degrees and certificates, and acceptance to and completion of professional and other graduate programs.

For several years, prompted in part by federal efforts to undo the effects of earlier discriminatory practices, public and private universities in Texas, and particularly more selective ones, gave some preference to disadvantaged minorities in making decisions

about admissions and financial aid.[1] These practices were challenged in 1992 when four white applicants to the University of Texas Law School filed suit, claiming they had been denied admission in favor of less qualified minorities. In an August 19, 1994 decision (*Hopwood vs. Texas*), Judge Sparks of the federal district court in Austin, TX, ruled that the Law School's affirmative action admissions program was unconstitutional because it was not "narrowly tailored," pointing to the law school's dual admissions procedure for minority applicants as the major culprit. He added, however, that "certain types of race-conscious admissions were 'constitutionally justified,' and awarded each plaintiff one dollar and the right to reapply to the law school without paying any additional applications fees. The Plaintiffs appealed the district court's judgment.

Roughly two years later (March 18, 1996) the Fifth Circuit in *Hopwood v. Texas* ruled that race may not be taken into account for the purposes of creating a diverse student body, and in July the U.S. Supreme Court declined to review the Fifth Circuit's ruling. On August 21, 1996, Texas's Attorney General, Dan Morales, notified all Texas public colleges and universities that it was illegal for them to use race as a factor in making decisions about college admissions and financial aid. Even though *Hopwood v. Texas* only applied to colleges and universities in three states (Texas, Louisiana and Mississippi), the decision sent a shock wave through higher education, and particularly caused concern at selective colleges and universities that had considered race in their admissions decisions and believed their selection procedures were legal. *Hopwood v. Texas* encouraged similar challenges against universities in several other states in a campaign that continues to this day.

Hopwood led to sharp drops in the number of minority students enrolling as freshmen in Texas' three selective public universities the University of Texas at Austin (UT-Austin), Texas A&M and the University of Texas at Dallas (UT Dallas). The mean number of black Texas high schools graduates enrolling as freshmen at these three universities fell by 44 percent in the three years following the Hopwood decision, relative to the three preceding years. Percentage declines in Hispanic freshmen enrollments (-

[1] Until it was repealed in 1969 the Texas constitution required that "Separate schools shall be provided for the white and colored children, and impartial provisions will be made for both." The "few explicit restrictions contained in the (Texas pubic college and university) statutes relating to the public higher education systems were removed by the Legislature in 1971." (THECB, 1983, p. 3).

11.5 percent), while smaller than for blacks, were still a source of concern, particularly given the rapid growth in the Hispanic population. By comparison, white freshmen enrollments increased by 11.5 percent per year, even though the rate of growth in the number of whites graduating from Texas high schools was less than the rate for either blacks or Hispanics. Asians had the most rapid growth in freshmen enrollments in public selective universities.

Less complete data are available for Texas' private colleges and universities, but Irving (1999, pp 7-8) presents information indicating that Rice University, the state's most prestigious private university, was not immune to the Hopwood virus. He reported that in the year following the Hopwood decision, the number of Hispanic freshmen fell from 111 to 56 students. He also quoted Robert M. Stein, dean of social sciences, who citing the results of a subsequent survey, said, "The best black and brown students went to the Ivy League and Stanford. They rarely come back to the state after they graduate. That's what really hurts. They were denied financial aid here so they went to Stanford, where the tuition's twice as much."

Reports of the large declines in minority applications and freshmen enrollments at the state's selective public universities, led to widespread demands for action to insure that Texas minorities would have significant representation at Texas public universities, and particularly its most selective ones. The Texas Commission on a Representative Student Body (1998), created by the Texas Higher Education Coalition and chaired by former Texas Lieutenant Governor William P. Hobby, was especially influential.[2] The state legislature, responding to these concerns, set out to devise legislation that would insure significant minority representation at all public colleges and universities. The legislators' goal was to write legislation that would restore minority representation to at least pre-Hopwood levels without running afoul of the courts. The Texas Top 10 Percent

[2] Hobby, at this time was Chancellor of the University of Houston (UH) system and President and Executive Editor of *The Houston Post*. In addition to Hobby, the blue ribbon commission included representatives from the Independent Colleges and Universities in Texas, Texas Association of Community Colleges, Texas A&M University System, Texas Technical College System, Texas State University System, University of Houston System, University of North Texas System and the University of Texas System as well as the current and former Mayors of Dallas, the Presiding Judge of the 215th Civil District Court of Harris County, several influential members of the business and corporate communities and representatives from a number of public school districts.

Law, which Governor Bush signed into law on May 20, 1997 (26 months after the Hopwood decision), was the legislature's answer.[3] This law provides automatic admission of all students who graduate in the top 10 percent of their high school graduating class to any Texas public college or university. Given the extensive racial segregation of Texas' public schools, a feature it shares with the rest of the country, supporters hoped that the Top 10 Percent Law would permit enough minority students from predominately black and Hispanic high schools to enroll in selective public universities to offset the losses resulting from the Hopwood decision.

In contrast to the widespread dismay that followed the Hopwood decision, response to the Top 10 Percent Law has been generally favorable. For example, a November 24, 1999 *New York Times* story carried the headline, "Texas' Top 10% Law Appears to Preserve College Racial Mix." The story then reported that "Two years into the startlingly simple top 10 percent program, the racial mix of this campus (UT-Austin) has been restored to what it was under affirmative action" (Wilgoren 1999).

A February 9, 2000 *Education Week* story by Julie Blair reached similar conclusions. She stated that "New statistics suggest the Texas Plan … is boosting the enrollment of minority students as its proponents intended," adding that in fall 1999 black student enrollment at the University of Texas at Austin increased by 50 percent and Hispanic enrollment increased by 9.4 percent relative to 1997 (Blair, 2000). In an op-ed piece that appeared in many Texas newspapers, UT-Austin's President, Larry Faulkner (2000) wrote, "Our 1999 enrollment levels for African American and Hispanic freshmen have returned to those of 1996, the year before the Hopwood decision prohibited the consideration of race in admissions polices." Responding to the criticism "that the "Top 10 Percent Law" is causing a large number of qualified applicants to be denied admission to the University of Texas at Austin," Faulker emphasized that "*more than half* the spaces in the freshmen class remain available to non-top-10 percent graduates." He added

[3] Thompson and Tobias (circa 1999) credit David Montejano and "a task force populated by members of the academic community, students, and attorney's from the Mexican-American legal Defense and Education Fund (San Antonio) for devising the Top 10 Percent Plan, which they refer to as "Montejano's plan." They also cite Holley and Spencer (1999) who observed that from the late 1980s to the early 1990s, UT-Austin provided automatic admission to ten percenters. UT-Austin abandoned the plan in the in the early 1990s in an effort to cap enrollments, which had reached 50,245 by 1989. One consequence of Hopwood and the Top 10 Percent Law was that UT-Austin largely gave up its efforts to cap enrollments.

"because the freshman class has increased in size to more than 7,600, there are about as many spaces for non-top 10 percent graduates in past years." Finally, he reported "minority students earned higher grade point averages last year than in 1996 and have higher retention rates." Montejano (2001) is even less restrained, "These questions have been settled. The Top 10 Percent law has restored diversity to the UT-Austin campus to pre-Hopwood levels."

Our analyses of data on enrollments in Texas public colleges and universities during 1992-2001 indicate the following: (1) Hopwood caused large percentage declines in black freshmen enrollments at Texas selective public universities and somewhat smaller Hispanic losses; (2) Hopwood's negative impact on Black and Hispanic enrollment are even greater when differences in high school graduation rates are considered; (3) The Top 10 Percent Law had little effect on black and Hispanic enrollments at selective public universities in the first year after its enactment, but there were significant gains in the second year; (4) Top 10 Percent gains appear to be due as much, if not more, to aggressive recruiting at predominately black and Hispanic high schools as the law itself; (5) Even with these second year gains, black and Hispanic enrollments remained significantly below pre-Hopwood levels; (6) Optimistic reports about the program's effects largely ignore the rapid growth of minority high school graduates since Hopwood and the enactment of the Top 10 Percent Law; (7) The enrollment of minority students graduating from Texas' most competitive public high schools at selective public universities declined.

Table 1, which provides estimates of the numbers of Texas residents who enrolled as first time freshmen in selective public universities by race/ethnicity group during five pre-Hopwood years, two Hopwood years and three Top 10 Percent years, generally confirm the above observations. First time freshmen are students who enrolled during the academic year and the previous summer. Thus, 2000 refers to summer 1999 plus the 1999-2000 academic year. These data demonstrate that the Hopwood decision had an immediate negative impact on black enrollment in Texas' selective public universities, and caused further declines in the following year. In contrast, enactment of the Top 10 Percent Law appears to have had only a small effect on black enrollment in the first year following its passage. However, in 2000, the second Top 10 percent year, black

enrollment reached 565, a 66 percent increase over the last Hopwood year and a 40 percent increase over the first Top 10 Percent year. Hispanic freshmen enrollments fell by 20 percent in between the last Pre-Hopwood and second Hopwood year and increased by 34 percent between the last Pre-Hopwood and second Top 10 Percent year. Asian American enrollments were lower in the first Hopwood year but by the following year, they exceeded both the last and next to last pre-Hopwood years. In 2001, the third Top 10 Percent Year, Asian-American first-time freshmen enrollments in Texas selective public universities were 68 percent higher than in the final pre-Hopwood year.

The number of minorities graduating from Texas high schools, and particularly Asians and Hispanics, grew more rapidly during between 1992 and 2001 than the number of white high school graduates. We have been unable to locate consistent annual data that would allow us to define an annual applicant pool by race/ethnicity. Thus, we use total first time freshmen enrolled in Texas public two- and four- year colleges to calculate the rates by race/ethnicity in Table 2. These statistics paint a much more pessimistic picture than the enrollment numbers in Table 1. The fraction of black and Hispanic students (of total two and four year enrollments in Texas public institutions) fell sharply after the Hopwood decision. Comparing the second Hopwood year to the last pre-Hopwood year, the rates for blacks fell from 2.9 per hundred students to 2.0 per hundred students and the rates for Hispanics fell from 3.4 per hundred to 3.0 per hundred students. Thus, as the estimates in Table 2 reveal, counts of the number of entering freshmen understate the deterioration of black and Hispanic enrollments during Hopwood and overstate the recovery during the three Top 10 percent years shown. While the numbers of blacks and Hispanics enrolling as first time freshmen in Texas selective public universities increased after enactment of the Top 10 Percent Law, their enrollments as first-time freshmen in selective public universities as a percentage of their enrollments in all Texas public colleges and universities continued to decline and were below even the two Hopwood years. Meanwhile, white first-time freshmen enrollments in Texas selective public universities, except for the first Hopwood year, grew steadily for the entire period after the Hopwood decision.

Large second year increases in black enrollments following the enactment of Hopwood appear to be due to aggressive recruiting of Top 10 Percent students in

predominately minority high schools. UT-Austin's efforts were particularly noteworthy. Bruce Walker (2000), UT-Austin's Director of Admissions, credits the university's targeting of its newly designed Longhorn Opportunity Scholarship program to top 10 percent students at a number of inner city and rural high schools. UT-Austin recruiters visited 49 high schools that had previously sent few students to UT-Austin and promised at least one Longhorn Opportunity Scholarship to a top ten percent graduate of each school. In all, 64 Top 10 Percent graduates of these high schools received Longhorn Opportunity Scholarships for fall 1999. These offers encouraged another 75 blacks from the same high schools to enroll; they received different, presumably somewhat less generous, types of scholarships.[4] Irving (1999, p. 8) reported, "Over the past year, the campus (UT-Austin) organized 350 'college fair' programs and added more than 250 schools to its recruiting visits."

In addition to recruiting visits to high schools which formerly sent few students to UT-Austin and offers of Longhorn Opportunity Scholarships to Top 10 Percent students at these school, Sullivan (2000) reports that UT-Austin, along with Texas A&M, opened Freshmen Admissions Centers in Dallas and Houston, and sent mailings describing the Top 10 Percent law to every junior in the Top 10 Percent of his or her class. The letter, which was signed by the Governor, did not identify any university, although it was paid for and mailed by UT-Austin. In major cites these mailings were followed up with invitations to Top 10 Percenters and their parents to informational meetings. Sullivan (2000, p. 4) reports that, "At the first such meeting, held in inner-city Dallas, a long line of parents and students extended for nearly a block outside the meeting place for a full half-hour before the meeting was scheduled to begin. We had seriously underestimated the appeal of such a meeting, and had to change the logistics to include more resources (and more catering)."

In an effort to blunt criticisms that the Top 10 Percent Law was making it impossible for many highly qualified students to attend UT-Austin, the university recently implemented two new programs, Summer Enrollment and Provisional Admissions. In the Summer Enrollment program UT-Austin offered 1,000 non-top ten

[4] The statistics on the Longhorn Opportunity Scholars are from Leicht and Sullivan (2000), which also provide a more detailed discussion of both it and other recruiting efforts.

percent students admission to UT-Austin on the condition that they enroll as full-time students in the summer after they graduated from high school.

In the Provisional Admissions Program, UT-Austin offered all eligible non-10 percent applicants admission to UT-Austin as sophomores if they completed 30 hours and earned at least a 3.0 GPA at a partner UT System campus within the year following their high school graduation. The only eligibility requirements are that applicants must have graduated from an accredited high school and have completed 4 units of English, 2 units of foreign language, 3 units of mathematics, 2 units of science, and 3 units of social studies. In the program's first year, UT-Austin offered approximately 2,000 applicants places in its Provisional Admissions Program of which 600 indicated they planned to enroll. The numbers that actually enrolled at the participating the UT System campuses (UT-Arlington, UT-El Paso, UT-Pan American, UT-Permian Basin or UT-San Antonio) are currently unavailable.

Data Used in the Analysis

The analyses presented in this paper are based on data from the UTD Texas Schools Microdata Panel (TSMP), a database developed by the UTD Texas Schools Project. TSMP currently includes up to 12 years of individual data for approximately 10 million persons who attended Texas elementary and secondary schools during 1990-2001 and/or Texas colleges and universities during the same period. "Year" here and throughout the paper refers to the academic year; 1990 is the 1989-1990 academic year. While we refer to TSMP as a database, we use the term in the generic sense rather than as denoting a relational database. Instead, TSMP consists of a large number of flat files with a few common identifiers or keys. In using TSMP data for analyses, such as those described in this paper, we create working files that combine data from many TSMP files. Appendix Table A-1 lists the primary student level files that are currently included in TSMP.

Figure 1 provides a broad overview of TSMP's structure and the primary data sources. The Texas Education Agency (TEA) is principal supplier of the elementary and secondary school data. TEA's data are shown in the first panel, where the Es and Hs indicate the years for which we have obtained, numerous enrollment, attendance and

program files and where the Ts identify years/grades for which we have both these data and statewide-standardized tests. The most numerous of these standardized tests are the Texas Assessment of Academic Skills (TAAS), which has been given to most students in grades 3-8 since 1991 and the Norm-reference Assessment Program for Texas (NAPT), which was given to all students in grades 3-8 in 1992 and 1993. We have seven years/grades of the NAPT test as well as one year/grade of data for an earlier test, the Texas Educational Assessment of Minimum Skills (TEAMS). The Ds identify years/grades in which standardized tests were given, but are not yet included in TSMP because of delays in obtaining them from TEA. In addition to Texas' public school data, TEA also supplied data for than 600,000 individuals who took one or more GED exams during 1991-2000. Of these than 484,000, many of them dropouts from Texas public schools, were awarded GEDs. Encrypted identifiers enable us to link the several types of data/files included in TSMP both to each other and over time.

We have worked closely with TEA and other agencies and organizations that have provided data for inclusion in TSMP to develop procedures to insure their confidentiality. These files include no names and the various IDs are encrypted before they are sent to UTD's Cecil and Ida Green Center for the Study of Science and Society, for inclusion in TSMP. As we discuss in greater detail below, however, these data were never meant to be used to create a panel database. As a result, while each year's data are remarkably complete and error free, there are, nonetheless, frequent omissions, inconsistencies and errors in the encrypted personal identifiers we must rely on to link the files. The most important of these identifiers are the encrypted Social Security Numbers (SSNs), which is the principal information we use to link the millions of individual records produced by the agencies, organizations, and divisions that have provided data for TSMP

The second panel in Figure 1 shows the years/grades of data on college students we have obtained from the Texas Higher Education Coordinating Board (THECB). Most of these data are for students attending Texas public colleges and universities, although in certain years we are able to identify about half of all Texas residents attending Texas private colleges and universities from financial aid data. In addition, we have been able to use THECB enrollment data to identify the origin-institution of significant numbers of Texas high school graduates who transferred to a Texas public college or university after

enrolling as freshmen in a Texas private or an out-of-state college or university. Finally, THECB, with the College Board and ACT's approval, has provided, or will provide, ACT and SAT data for Texas residents who took these tests during 1990-2001. These data include test scores, extensive information on family background, student interests, high-school records and activities and codes identifying the colleges and universities where test takers have sent scores. Finally, THECB thus far has provided us with three years of financial aid data for Texas residents and has agreed to make them available for subsequent years. These financial aid data are for all financial aid recipients who were enrolled in all Texas private colleges and universities during this period and for those enrolled in most Texas private colleges and universities. As the last column, labeled earnings data, indicates we plan to add employment and earnings data for all Texas residents for the same period to TSMP. Officials at the Texas Workforce Commission assured us more than a year ago that we would be able to obtain quarterly employment and earnings data for all covered Texas residents, but we have yet to receive any data or even final approval.

The econometric analyses described in this paper examine three cohorts, defined as individuals who graduated from high school or earned a GED in 1995, 1998 or 1999. They are the shaded cells in Figure 1. While we have up to five years of college data for members of the pre-Hopwood cohort, we include only the freshman and sophomore years in the analyses in this paper. Because we have the same number of years of data for all cohorts we have more years of elementary and secondary school data for members of the Hopwood and Top 10 Percent cohorts than for the pre-Hopwood cohort.

The choice of specific pre-Hopwood, Hopwood and Top 10 Percent years for use in the econometric analyses included in this paper was largely governed by data availability. We use 2000 to represent the Top 10 percent cohort to allow for lags in implementation and because 2001 was unavailable at the time we began the analyses included in this paper. Of the two Hopwood years, we use the final one, 1999, principally because we had the most complete data for it.[5] Of the five pre-Hopwood years, we use the final one, 1996. Black freshmen enrollments in selective public

[5] Hopwood, of course, was still in force after 1998 and it would perhaps be more accurate to refer to what we have labeled Top 10 Percent as Hopwood-Top 10 Percent.

universities in 1996 (summer fall 1995) were about six percent lower than in the previous year. This modest decline interrupted four previous years of annual increases, a hint of an anticipation effect.

To create the three files used in the econometric analyses included in this paper, we merged data from approximately 185 separate files. The original files were created and maintained by five different organizations, agencies or divisions. The TEA data, moreover, were provided by more than 1,000 school districts, while THECB obtained its data from 35 public universities and 75 public community colleges. Finally, the ACT and SAT data we obtained from THECB were produced by the testing organizations and the GED we data obtained from TEA was originally collected by still another organization. While the data are remarkably clean, variable definitions changed from year to year and in combining the large number of files we discovered thousands of errors and missing values. The most serious were inconsistent, invalid or missing encrypted SSNs and encrypted Public Education Information Management System (PEIMS) IDs, the keys we use to link the various files both within in years and over time. As an example, there were missing or invalid encrypted SSNs for 10,732 public high school graduates in 1998 and for 6,043 students who took the SAT in the same year. Using multiple sources and secondary characteristics (variables) we were able to correct and replace missing and invalid encrypted social security numbers and PEIMS IDs for all but a small number of observations.

The econometric analyses included in this paper as in most others are limited by data availability. The most serious missing data problem for this analysis is incomplete information on the private and out-of-state schools selected by Texas residents. More than 80 percent of Texas residents enrolling as freshmen in two and four year colleges and universities attend Texas public universities or community colleges and the THECB data included in TSMP provide a census of them. Nonetheless, less than two-thirds of Texas first-time freshmen enrolling in four-year institutions attend Texas public universities. Kain and O'Brien (2000, p. 57) using 1997 Integrated Postsecondary Education Data System (IPEDS) data found that 18.9 percent of Texas residents enrolling as first-year freshmen attended Texas private colleges and universities, 6.2 percent

attended out-of-state public institutions and 8.7 percent attended private out-of-state institutions.

As the counts of first-year freshmen by type of institution and year shown in Table 3 reveal, we have been able to identify the Texas private and out-of-state schools attended by some Texas residents. This information comes from THECB's financial aid data and from information on transfers from private and out-of-state institutions to Texas four-year public universities or community colleges. That we have not as yet obtained THECB financial aid data for 2000 is evident from the fact that we were able to identify the Texas private colleges and universities attended by many fewer Texas residents in 2000 than in 1999. The smaller numbers for 1996 are due to the fact that 1997 was the first year THECB attempted to obtain financial aid data from Texas private colleges and universities and the data for that year were simply less complete. Nonetheless, we were able to determine the school attended by significant numbers of 1996 first-year freshmen because these data included all students receiving financial aid, not just first-time freshmen.

While the gaps in college enrollment data do not invalidate the analyses included in the first part of this paper, they would be enriched by their inclusion. For this reason we have spent nearly two years attempting to devise a cost-effective approach to obtaining information that would enable us to identify the private and out-of-state schools of college students included in TSMP. Thus far we have had limited success.[6] The Type

[6] We have met with officials at a number of Texas private colleges and universities to discuss the possibility of obtaining individual enrollment data for Texas residents from them. In each case the individuals we met with were cordial and encouraging. At the same time they emphasized that any decision to release the data would have to be approved by the school's president and that their data processing staffs were overburdened. In the meantime, Tom Kane suggested we might be able to obtain the data we required from the National Student Clearing House (NSCH). NSCH has been collecting enrollment data from colleges and universities since 1996 and currently has these data for about 85 percent of all undergraduates attending four-year institutions. They indicated they would be happy to sell them to us if we could demonstrate our eligibility, adding we would have to provide a file containing the names, social security numbers and birth dates of Texas high school graduates. They would merge these data with their enrollment data and prepare a file giving the college or university attended by each matching individual in each year. Back of the envelope cost-estimates, though substantial, were less than the cost of obtaining the same data from individual colleges and universities. While we have the birth dates of each individual included in TSMP, we have only encrypted social security numbers and do not have their names. Thus, we have spent more than a year in discussions with TEA and THECB, about them acting as our agent in obtaining the data from NSCH. THECB would like to have them for their own purposes and has asked TEA for permission to use TEA provided data for public high school graduates for this purpose. We are still waiting for a decision. Because it is still unclear whether we will be able to obtain these data from

I Multinomial Logit (MNL) models of college choice presented in the first of the two sections of econometric results are limited to students who attend Texas pubic colleges and universities and, in particular, deal with the question of how the Hopwood decision and the Top 10 Percent Law affected the probabilities that the 80 percent of Texas residents who attend Texas public colleges and universities would enroll in selective public universities.

Table 3 includes two sets of attendance figures by college type for 1999. The first are actual counts, while the second, labeled Estimated Attendance, are the actual numbers attending each type of college plus allocations of unaccounted-for Texas residents to private and out-of-state colleges and universities. These allocations, which were prepared by Brian Bucks, are used in estimating what we refer to as Type II models for 1999. They are based on IPEDS 1997 counts and on student data including whether an individual took the ACT or SAT, on their stated preferences about what kind of school they would like to attend, information, on where they sent ACT and SAT scores and on their SAT scores. The procedures we used to make these allocations are discussed in the section on Type II models and in Appendix C.

The samples used to estimate the MNL models described in the next two sections include all Texas public high school graduates, a significant fraction of all graduates from Texas private high schools and individuals receiving a GED in 1995, 1998 and 1999. The explanatory variables are composites created by combining data from multiple sources of which those obtained from TEA and THECB are the most important. The data we obtained from THECB include individual enrollment records for all students attending Texas public colleges and universities, financial aid data, ACT and SAT scores and student questionnaire information. The ACT and SAT data are especially valuable. The second, third and fourth columns in Table 4 give the percent of students in the 1999 sample who took the SAT, ACT or both tests by the type of college they attended as first time freshmen. As these data reveal, about half of the persons included in the samples we use to estimate the MNL models took one or both of these tests.

In addition to counts of the number of students taking the SAT, ACT or both, Table 4 indicates, for the 1999 sample, the percentage of individuals that did not take the ACT or SAT, but who graduated from a public high school (the column labeled TEA).

NSCH, we recently contacted THECB's sister agencies in Oklahoma, Arkansas and Louisiana about the possibility of obtaining enrollment for Texas residents from them. They are considering our request. We have also begun to contact Texas private colleges and universities about obtaining enrollment data directly from them. These two groups of schools account for a significant fraction of Texas residents enrolled in private and out-of-state institutions. In addition NSCH does not have enrollment data for several of them including the University of Oklahoma, which, according to IPEDS, enrolls more Texas first time freshmen than any other out-of-state college or university.

About one-third of the 262,253 persons who are included in the 1999 sample fall into this category. The last category, labeled GED, consists of GED recipients who did not attend Texas public schools or take the ACT or SAT. Data are most limited for these individuals. For students who did not take ACT or SAT, we use less detailed data from other sources to predict missing values of key explanatory variables that are included in the MNL models.

We have data from two or more sources for more than half of the individuals included in the analyses that follow. While it is not evident from Table 4, about ninety percent of these students attended Texas public schools and we thus have extensive PEIMS and TAAS data for them. ACT and SAT are the only source of data for private high school graduates, except for a small number who attended Texas public schools at some time before enrolling in a private school. A bit of arithmetic, moreover, reveals that over 41 percent of the 1999 sample took the SAT or both it and the ACT and an additional nine percent took just ACT in either 1997 or 1998 or both. Again most of them were public high school graduates. The several explanatory variables that are based on SAT and ACT data employ the most recent data for each test. When an individual took both tests in a particular year we normally give preference to the SAT value because in most cases it provides more detailed information.

The data in Table 4 make clear that nearly all of those enrolling in a four-year college or university took the ACT, SAT or both. This is most true for selective four-year institutions and least true for historically black schools. Large fractions of students enrolled in community colleges took neither the ACT nor SAT, and the fractions were particularly high for those in technical programs. Very few of the small number enrolled in community college continuing education programs took the ACT or SAT; nearly half of them are GED recipients who were we were unable to link to TEA data. More than 25 percent of those in the unknown category took the SAT, ACT or both. As we discuss in detail at a later point, we have reason to believe that most of those who took the SAT or ACT enrolled in Texas private or out-of-state four-year colleges and universities.

Because the analyses that follow combine data from several sources, inconsistent or missing data are a greater problem for this analysis than for studies based on a single data source such as National Education Longitudinal Survey (NELS), High School and Beyond or Panel Survey of Income Dynamics (PSID). All of the independent variables included in the econometric models presented below are based on two or more sources. When, as is frequently the case, the values of a particular variable are missing for a particular individual, we go to great lengths to obtain unbiased estimates for the missing observations. Missing values may be due to the failure of an individual to answer a

particular question, for example household income, but more often they reflect the fact that an individual did not take a particular test or attend a particular type of school.

Table 5 provides some information on how we went about creating the composite family income variable. Appendix B provides comparable information for the other independent variables. As the statistics in Table 5 indicate, THECB's financial aid files and the ACT and SAT files include family income variables, in at least some years. In creating the composite family income we gave priority to THECB's financial aid data because we considered it more accurate than the self-reported income data from the ACT and SAT student information questionnaires. When both ACT and SAT data where available, we used SAT for the composite income variable because the SAT data provided more income categories. Finally, for students who took only the ACT and for which there were no financial aid data available, we used the ACT income data.

As Table 5 indicates, THECB's financial aid files provide highly reliable income estimates for between 0.6 percent (2000) and 9.7 percent (1996) of the observations included in the three samples. The small number of individuals with financial aid data on the 1999 file reflects the fact that we have not obtained THECB's 2000 or 2001 financial aid files. This is one of several instances where we will be able to improve the estimates in this paper at some time in the future when promised data become available. For the 1996 file it is SAT income data that are missing. We have SAT data for 1992-2000, but the 1992-1995 files do not include the student questionnaire data. THECB has asked the College Board to provide these data and it agreed to supply them for the 1995-1997 period. When these added data become available we will be able to use them to improve several of the independent variables that use information from the SAT student questionnaire. The ACT data are used as the income measure in between 7.3 percent (1999) and 13.4 percent (1996) of the sample observations. The higher proportion for 1996 is due to the lack of SAT income data for that year.

Income was not reported on between 4,600 and 6,100 SAT and 1,300 and 1,800 ACT student questionnaires. For these observations we used other data from the SAT and ACT student questionnaires to predict family income. The SAT prediction equations included parental education, student race/ethnicity, and graduation campus percent black,

Hispanic and economically disadvantaged. Since the ACT student questionnaire does not include parental education, we predicted family income for individuals who took only the SAT and did not provide income data using equations that included dummy variables for expecting to obtain financial aid and to work in college, expected hours of work in college, maximum affordable college tuition, number of siblings and English spoken at home as independent variables.

The largest number of income predictions in all three years were for individuals who were not financial aid recipients and took neither the ACT or SAT, but attended a Texas public school at some time during 1990 – 1999. This includes most GED recipients. While the TEA data do not include family income, they do have individual information on whether a student was eligible for a free or reduced price lunch, and a large number of other variables that do a reasonable job of predicting family income. These equations included dummy variables for ever LEP, ever special education, race/ethnicity, ever free or reduced price lunch, campus size, and campus percent economically disadvantaged, black, Hispanic, LEP and special education. In considering the fact that the income data for between 43 and 68 percent of the observations are based on what may seem a pretty weak estimating equation, it should be understood that the fraction is much smaller for the samples used in estimating most the of MNL models presented in subsequent sections. The reason is again evident from Table 4, which makes clear that all but a small fraction of those enrolling in four-year colleges took the ACT, SAT, or both and/or received financial aid. The final category in Table 5, Other (Four Equations) mostly consists of individuals who took the ACT or SAT,but had some missing data. We use four equations with progressively fewer covariates to predict income for these individuals. The default is simply median income by race/ethnicity.

The procedures used in creating composite SAT scores, high school grade point averages, class rank, and the top ten percent dummy are similar to those described above for family income except that actual data were only available for those taking the ACT or SAT. All of the rest were predicted values. The composite measure of total AP courses completed was created by combining counts obtained from the TEA course completion files and counts reported by private high school students who took the SAT or ACT. We assume that GED recipients do not complete AP courses. A caveat is in order

in reference to the AP course variable; it measures course completions rather than obtaining a grade on the AP exam that qualifies them for college course credit.

A final observation about missing data is that the 1996 sample includes only a few private high school students. This is because THECB obtained the ACT and SAT files for 1991-1997 from TEA. Missing records for Texas private high school graduates is one of several unfortunate omissions. THECB has asked for new, complete files for the earlier years. SAT has agreed to provide complete files for 1994-1997, although none of them are yet available.

Overview of the Estimation

We use two types of models to analyze the college choices of Texas high school graduates and GED recipients. First, we estimate multinomial logit (MNL) models that examine their enrollment among three categories of public universities and two types of community college programs in a pre-Hopwood year (1997), a Hopwood year (1999) and a Top 10 Percent year (2000). The five categories are: (1) selective public universities, (2) other public universities, (3) historically black public universities, (4) community college academic curricula and (5) community college technical programs. We refer to the first type of model as Type I models. The second type of model, which we refer to as Type II Models, is similar to the first. The principal differences are that the Type II models are estimated for only the Hopwood year (1999) and we add private selective, private other and out-of-state public college types to the choice set. In one variant of these models we include both students who enrolled as first time freshmen in 1999 and those that, to the best of our knowledge, did not attend any college or university.

We emphasize Texas public colleges and universities in this paper for two reasons. First, more than 80 percent of Texas high school graduates who enroll as first-time freshmen in the year following their graduation from high school attend these institutions. The second, and the more compelling reason, is that while we have a census of college enrollments in Texas public colleges and universities in each of the pre-Hopwood, Hopwood and Top 10 Percent years, the information currently available to us on students attending private and out-of-state colleges and universities is incomplete.

While we hope to obtain information that will allow us to identify the schools attended by most Texas residents who attended private-and-out of state colleges since 1990, there remains considerable uncertainty about these data collection plans.

Given the emphasis of this paper on minority access to Texas' selective public universities, we need to be clear about our definition of selective universities. We use the mean SAT scores of entering freshmen for this purpose. Using this criteria, there are three selective Texas public universities, the University of Texas at Austin (UT-Austin), Texas A&M and the University of Texas at Dallas (UTD). UT-Austin and Texas A&M are the state's best-known public universities and in recent years their entering freshmen have consistently ranked in the top three among Texas public universities in terms of mean freshmen SAT scores. UTD is much less well known and has only been admitting freshmen and sophomores since 1990.[7] Since UTD admitted its first freshmen class, it has maintained high admissions standards for its entering freshmen and has positioned itself as a demanding and high quality institution. The average SAT scores of its entering freshmen have consistently been equal to or higher than those of entering freshmen at UT-Austin or Texas A&M.

Eight Texas private colleges and universities, Austin College, Baylor, Rice, Southern Methodist University (SMU), Southwestern University, Texas Christian University (TCU), Trinity, and the University of Dallas, have freshman SAT scores equal to or higher than the three public universities we define as selective. They are included in the private selective category used in the Type II MNL models.

In defining first-time entering freshmen we follow the Texas Higher Education Coordinating Board (THECB), which defines them as "individuals who have never attended any college (or post-secondary institution), students who enrolled in the fall term and who attended a postsecondary institution for the first time in the prior summer

[7] UTD became part of the UT system in 1969 when the state legislature authorized the transfer of the privately funded Southwest Center for Advanced Study (SCAS) to the State of Texas. SCAS, created by the founders of Texas Instruments, had operated as a privately supported research and teaching institution focusing on the fields of atmospheric and space sciences, geosciences, molecular biology and general relativity for approximately eight years. The 1969 Act establishing UTD provided for the continuation of existing graduate programs, for the subsequent creation of new masters and doctoral programs in other fields, subject to the approval of the UT Board of Regents and THECB, and for the enrollment of junior and senior undergraduates beginning in September, 1975. UTD became a full service university in 1990 when the legislature authorized it to begin admitting freshmen and sophomores.

term, and students who entered with advanced standing (college credit earned before graduation from high school)." While completing advanced placement courses in high school and a passing grade in an AP exam administered by the College Board is the most common method by which students obtain college credit while enrolled in high school, growing numbers of Texas high school students are obtaining college credit by taking college courses while in high school. These students are also counted as first-time freshmen in this analysis, although many of them have earned enough college credits by the time they enroll as full-time college or university students to have sophomore standing.

Type I MNL Models: Comparing the Probability of Minority Attendance at Public Selective and Non-Selective Colleges in Pre-Hopwood, Hopwood and Top 10 Percent Years

Multinomial Logit (MNL) models have been widely used to study several types of multiple outcomes. They represent the probabilities of the multiple outcomes as nonlinear functions of one or more explanatory variables, where the resulting equations are linear in the log of the odds.[8] Table 6 lists the mean values of both the dependent and independent variables included in the three MNL equations that model the enrollment of Texas first-time freshmen among three types of Texas public universities and two types of Texas community college programs. The three equations are for one pre-Hopwood year (1996), one Hopwood year (1999) and one Top 10 Percent year (2000).

The five variables in the top panel are dummy variables that identify the type of public university or community college program for each student attending a Texas public college or university. They are expressed as percentages. In all three years, students enrolled in community college academic programs are the largest category. Many of these students plan to transfer to a four-year institution and complete a bachelor's degree. It is also true than many are part-time and the fraction completing bachelors' degrees is small. Students enrolled in selective public universities number about 10 percent of all students enrolled in Texas public colleges and universities in all

[8] Long (1997) observes that they "can be thought of as simultaneously estimating binary logits for all possible comparisons among the outcome categories," adding that Begg and Gray (1984) show that "estimates from binary logit models provide consistent estimators of the parameters of the MNL."

three years. Less than two percent of all students enrolled as freshmen in one of the state's two historically black universities in all three years.

The lower panel gives the means and standard deviations of the 22 explanatory variables included in the three Type I equations. Members of three race/ethnic groups, Asian, black and Hispanic are identified by dummy variables. Whites, or more precisely non-Hispanic whites, are the omitted category. This category also includes Native-Americans, whose numbers vary from 317 to 423 in the three samples. The next three dummy variables are gender (male = 1), Ever LEP (Limited English Proficient) and a variable indicating whether a student's class rank placed him/her in the top ten percent of their class at the time they took the ACT or SAT. The last three categorical variables identify the type of diploma earned. The regular diploma, which was earned by between 39 and 45 percent of the students included in the three samples, is the omitted category. Depending on the year, the samples include between 5.9 and 9.7 percent GED recipients and 1.5 and 3.5 percent private high school graduates. The much smaller fraction of private high school graduates in 1996 is due to the fact that we have not thus far obtained the SAT student questionnaire for that year.

Few of the seven continuous variables require much explanation beyond a discussion of how we dealt with missing data, which we previously provided. AP Total is the sum of AP courses completed by students attending Texas high schools. Completion of these courses does not guarantee that that they will receive college credit. To receive college credit they must receive a sufficiently high grade on a standardized test given by the College Board. University policies on awarding credit for AP courses also differ. For public high schools the number of AP courses were obtained from TEA course completion files, which list the courses taken and completed by all students attending Texas public high schools. Klopfenstein (2000, 2001) has used these data in her analyses of the rapid growth in AP offerings and differences in availability among high schools and in a second paper that focuses on participation rates and the impacts minority AP course teachers have on minority enrollments in AP courses. Her work is part of the UTD Texas Schools Project research on minority access to higher education.

The number of high school students taking college level courses at local community colleges and Texas public universities has grown rapidly in the 12-year

period covered by TSMP. While not shown in Table 6, the number of Texas high school students taking college-level courses for credit increased from 8,962 in 1996 to 17,612 in 2000. The mean number of such courses taken by students included in the regression analyses grew from 1.9 college courses per student in 1995 to 2.1 in 2000. Enrolling in college courses while in high school is in many respects a substitute for AP courses and an increasingly popular one. Dan O'Brien and Terri Chastain are studying this phenomenon as part of the UTD Texas Schools Project. The last five variables are included to assess the extent to which the college choices of individual students are influenced by characteristics of the high schools they graduate from, in this case the schools' racial/ethnic composition, and the high schools academic orientation, which is represented by the percent of each high school's graduating class taking the ACT or GED.

Because of our emphasis on minority access to higher education, we present sample means by race/ethnicity in Table 7 for the Hopwood (1999) sample. The same statistics for the other two samples (years) are provided in Appendix Tables A-2 and A-3. The percentages in the top panel demonstrate there are large differences by race/ethnic group in the types of colleges they attend. Starting with Texas' selective public universities, more than a fourth of Asian students enrolling as freshmen in a Texas public college in 1996 attended one of the three selective public universities. At the other extreme, only 3.1 percent of blacks and 4.5 percent of Hispanics were enrolled in one of these three schools. While the rate at which white high school graduates enrolled in one of these schools was much higher than the black and Hispanic rates, it was only slightly more than half the Asian rate.

In contrast to the large racial/ethnic differences in the enrollment rates at selective universities, the differences for most of the other types of Texas public universities are small. Not surprisingly, this is not true of Texas' two historically black public universities, Prairie View and Texas Southern. More than 13 percent of Texas black residents that graduated from a Texas high school or received a GED in 1998 enrolled as a first year freshmen in one of the state's two historically black public universities in 1999. These institutions are more than 90 percent black.

As Kain and O'Brien (2000) demonstrate, clustering by race/ethnic group is not limited to blacks. Even larger fractions of Texas' Hispanics attend six Texas public universities, which Kain and O'Brien refer to as Very High Percent Hispanic (VHPH) institutions. They found that 15.9 percent of Hispanic eighth graders who attended a Texas public school in 1994 and who enrolled in a Texas public college or university in 1999, were attending one of the six VHPH campuses (a school more than two-thirds Hispanic in 1990). Cultural affinity no doubt accounts for part of the high Hispanic attendance rates at VHPH institutions, but geography may be as, if not more, important. The largest of the six VHPH schools (UT Pan American and UT El Paso) are located in southwest Texas, a region that is overwhelmingly Hispanic.

The bottom panel of Table 7 provides mean values of the 20 independent variables included in the Type I MNL models. It is hardly surprising that more than a fourth of both Asian and Hispanic enrolling as freshmen in Texas public colleges and universities in 1999 were classified as Limited English Proficient (LEP) at some time during their school careers. The rates for whites and blacks are less than one percent. The data on the fractions of students who reported being in the top ten percent of their class indicate that many Asian LEP students have overcome this disadvantage as nearly a third of all Asians in 1999 reported they had attained this distinction. Asian students were also more likely to receive advanced diplomas (60 percent). Whites (50 percent) are second and blacks (35.8 percent) have the lowest rate. Asian students on average also took the most AP courses (2.9) and tied with Hispanics in accumulating the second highest number of college credit hours while in high school (1.5 vs. 1.7 for whites). The mean Asian student attended a high school with a graduating class that was 12.1 percent Asian, 14.8 percent black, 17.8 percent Hispanic and 54.5 percent white.

Type I MNL Model Estimates

Untransformed coefficients of MNL models are difficult to interpret. For this reason we provide coefficient estimates for only one of the Type I logits in the body of the paper. Coefficients and z scores for 1999 are shown in Table 8, while those for 1996 and 2000 are presented in Appendix Tables A-4 and A-5. Predicted marginal changes,

which provide more meaningful comparisons, for all three Type 1 models are included in Table 9.

Coefficients for four of the five choices appear in Table 8. The coefficient for each is relative to the omitted category, community college technical programs. With few exceptions, the individual coefficients are statistically different from zero by conventional standards. Using a z score of 2.0, for example, 72 of the 92 coefficients in Table 8 are statistically different from zero. Nor is it always bad news that a coefficient is small and not statistically different from zero. For example, the selective public university coefficient for blacks has a z value of 0.5 and a coefficient of 0.04, indicating that, holding the effects of the remaining variables constant, blacks did not exhibit a higher probability of enrolling in a Texas selective public university than an otherwise comparable white in 1999. In contrast, the black coefficient for historically black schools is 4.97 and its z value is 26.1. The finding that blacks were no more likely than otherwise identical whites to enroll as a first-time freshmen in 1999 is completely consistent with the Hopwood decision and provides evidence that Texas selective public universities observed the Hopwood ruling and did not take race into account in making admission decisions.

The predicted marginal changes in Table 9 are much more informative for two reasons. First, the interpretation of these estimates is much clearer, and, second, comparable estimates are provided for a pre-Hopwood, Hopwood and Top 10 Percent year. The top panel gives the predicted changes in each enrollment category in each year for the 10 dichotomous (zero, one) variables included in the three Type I MNL models expressed as percentage changes in enrollment for a particular type of college or program associated with a change in the dummy variable from zero to one. The second panel gives the predicted percentage change in the probability of enrolling in a particular type of school/program that would result from a one standard deviation increase in each of the seven continuous variables. Finally the last panel gives the change in predicted probabilities, again measured in percentage terms, associated with a one-standard deviation change in five variables that describe a student's campus, or more precisely, its graduating class.

The most important results in Table 9 are the estimates in the percentage change in the probability of attending a selective public university during the pre-Hopwood (1996), Hopwood (1999) and Top 10 Percent (2000) periods for black and Hispanic high school graduates, holding the several measures of ability, performance and family background, particularly family income, constant. These results indicate that during the pre-Hopwood period, or at least in 1996, a black high graduate or GED recipient had a 4.8 percent higher probability of attending one of Texas' three public selective universities than an otherwise comparable white. Hopwood eliminated this advantage, and in 1999 blacks were 1.4 percent less likely to enroll in selective public university than a comparable white. These results are consistent with the changes in black enrolments in selective public universities shown in Tables 1 and 2. The estimates for the Top 10 Percent year (2000) are somewhat more surprising. They indicate a small improvement; the predicted marginal change increased from –1.4 percent to –0.5 percent) between 1999 and 2000, but almost none of the benefit of affirmative action that accrued to black applicants in the pre-Hopwood period remained. This result is consistent with the mean black and Hispanic rates of attendance at selective public universities during the three Top 10 percent years in Table 2.

Examination of the estimates for the remaining college/program categories suggests the principal impact of Hopwood was to shift black applicants from the three selective public universities to other public universities as the black-white differences in predicted probabilities for other Texas public colleges increased from 0.7 (1996) to 8.6 (1999) and then fell slightly to 7.5 (2000). It should be kept in mind in assessing these results that the choice set represented in the Type I models includes only Texas public colleges and universities. In the immediate aftermath of Hopwood there were numerous reports that out-of-state institutions, who were unaffected by Hopwood, had stepped up their recruiting efforts in Texas and were luring Texas' best minority studies away from the state with offers of admission and generous financial aid. This view was expressed in a November 19, 1999 story in *The Chronicle of Higher Education*, which claimed that "In the wake of the 1996 Hopwood v. Texas decision, … dozens of mostly Midwestern colleges have stepped up their efforts to recruit black and Hispanic students here (Austin) and elsewhere in the state" (Selingo, 1999). Tulane's Dean of Admissions and

Enrollment was quoted as saying "Texas as been picked clean by other states." We will be unable to adequately assess these and similar claims until we obtain additional data on private and out-of-state enrollments of Texas residents.

The results for Hispanics in Table 9 are a muted version of the results for blacks. They suggest the pre-Hopwood advantage (1.4 percent) was much smaller than the black one and during Hopwood Hispanics were less likely than comparable whites to be enrolled in Texas selective public universities, although the effect was small (-1.1 percent) and about the same as during 2000 (Top 10 Percent).

Asians are more likely than whites to attend selective public universities and their advantaged steadily increased during the period, 1.6 (1996), 2.7 (1999) and 2.8 (2000). This result is consistent with results obtained by Kain and O'Brien (2000)., who suggest that the higher than expected rates at which Asians enrolled in selective Texas public universities might be due in part to the fact that the parents of Asian children are less likely to have attended selective private colleges and universities than the parents of white high school graduates. As a result high performing Asian are less likely to be influenced by their parents loyalty to selective private colleges and are less likely to have benefited from being a legacy.

The estimates of the effects of higher GPAs and SAT/ACT scores indicate that these measures of high school performance have a large impact on the probability of attending a selective public university in all three years. Higher family income, net of its possible effects on high school performance, does not have much of an impact on which type of college or university these students attend.

Type II MNL Models: Exploratory Analyses of the Effect of Widening the Choice Set

This section presents estimates of four MNL models for a single year Hopwood year (1999) that are meant to explore the impacts of adding additional types of colleges and universities to the choice set. Table 10, which gives the means and standard deviations of the dependent and independent variables included in all four Type II MNL

models, provides a good overview of the estimation strategy and the ways in which the four models differ from each other.

Type II MNL models differ from Type I MNL models in that the former include three additional college types: Private Selective, Private Non-Selective and Out-of-State Public. The differences in the four Type II MNL models arise from whether the models include individuals who, to the best of our knowledge, are not enrolled in any college and on whether likely college students whose college types are not known with certainty are allocated to one of the three additional college type categories. Thus, the first model excludes all persons who are assumed to not be attending college and those who we think are likely attending college, but whose colleges are not known with certainty. The second model is like the first, except that more than nearly 14,000 individuals (observations) we believe are attending a four-year college are allocated to one of the three added college types. The procedures used in making these allocations are described in Appendix C. The final outcome in the top panel thus has an NA, indicating that it is not included in the models and that these observations are either assumed to not be enrolled in any college or we think it likely they are enrolled in some college, but the college and college type is unknown.

Models three and four include the No College/Unknown category, which consists of individuals who, to the best of our knowledge, are not enrolled in any college or whose college and college types are uncertain. The number of observations are the same for both models, 244,366, but as is apparent from the row for No College/Unknown college type category, that the third model assigns both individuals who we assume are not enrolled in any college and those we believe are enrolled in college, but whose college and college type are uncertain, to a college type. The final model assigns only those we believe are not attending any college to the No College/Unknown category and allocates the remaining observations to one of the new college types.

The differences in the mean number of individuals belonging to the No College/Unknown category accounts for most of the differences in mean values across the four samples. Since the third and fourth samples include the same individuals, the means and standard deviations of all included independent variables are identical. This is

not true of the dependent variables, however, as the No College/Unknown category for the third sample includes individuals whose college type is not know with certainty, while in the case of the fourth sample we have allocated those individuals who we believe went to college to the private selective, private not selective or the out-of-state college type categories. The impacts of including or excluding persons who we assume did not attend any college from the analysis are evident in the means for percent black. Thus, percent black is least for the first sample, is slightly higher for the second and is higher and the same for both the third and fourth samples. Similarly the percent black declines monotonically over the first three samples, 58 percent (Sample 1), 57.9 percent (Sample 2) and 53.4 percent (Samples 3 and 4).

As with the Type I models we provide coefficient estimates and z scores for only one of the Type II models in the text. Thus, Table 11 gives the coefficients and z scores for the model that includes the No College category and the allocation of students we believe attended college to one of the new college types These statistics for the remaining three Type II models appear in Appendix Tables A9-A11. As was true for the Type I models, a large fraction of the z scores exceed 2.0. In the case of the Type II equation shown in Table 11, 153 of 184 (83 percent) z scores exceed the 2.0 threshold. The Type II model shown in Table 11 includes the no college category and, as in the Type I models, the omitted category is CC – Technical, which consists of students enrolled in technical programs at community colleges.

There are too many categories to include estimates of predicted changes in the probability of attending each college type in a single table. Thus, we present two tables. Table 12 includes the model shown in Table 11 plus the same model without the allocation of additional students to private and out-of-state colleges and universities. Both models yield the same estimate of the effect of being black on the probability of attending a select Texas public university: -.1.9, as contrasted with –1.4 for the same year in the Type I model. In the case of selective private colleges and universities both estimates are positive, but the estimate with allocated enrollees is larger: 0.9 versus 1.6. Since the Type I models do not include private colleges and universities, no comparison is possible. The predicted values for non-selective Texas public universities are also

identical whether or not the sample includes allocated enrollees, but in this case the predicted difference in probabilities is much smaller.

Predicted black-white differences in the probability of attending selective public universities are larger when the category for students who did not attend any college is not included (Table 13). Thus, the comparison for equations that do not include allocated attendees is –2.1 (Table 13) vs. –1.9 (Table 12). Similarly the comparison for models with allocated enrollees is –2.8 (Table 13) vs. –1.9 (Table 12).

The predicted difference in probabilities of attending selective public universities for Hispanics in the first two Type II models (Table 12) are smaller in absolute value than the black estimates: –0.9 (No allocated college choices) and –0.8 (allocated college choices) . Both estimates, moreover, are smaller in absolute value than the estimate for Type I model for the same year, which was –1.4. The estimates for the Type II models without the No College category were smaller in absolute value than those for models with the no college category. The Hispanic predicted values in Table 13 are also smaller in absolute value than the predicted values for blacks based on the same equations.

The results in Tables 12 and 13 also indicated that students earning an advanced diploma, with higher high school GPA's, and higher SAT/ACT scores or more likely to attend a selective Texas public university.

Summary and Conclusions

Estimates of the numbers of first-time freshmen enrolled in Texas' selective public universities by race/ethnicity between 1991 and 2001 demonstrate that Hopwood had a devastating impact on the number of disadvantaged minorities attending these institutions. Black first-time freshmen enrollments at the three most selective Texas public universities in the second Hopwood year were only 64 percent of the number in the last pre-Hopwood year. The drop for Hispanics was somewhat smaller, but still a source of concern.

With enactment of the Top 10 Percent Law and aggressive recruiting of top ten percenters at predominately black and Hispanic high schools that historically had sent few students to these universities, the number of black and Hispanic first-year freshmen

enrolling in the state's selective, public universities equaled or exceeded pre-Hopwood levels. These gains were not costless, however, as UT-Austin and Texas A&M abandoned their earlier efforts to limit undergraduate enrollment.

Any meaningful assessment of Hopwood and the Top 10 Percent Law must take into account the rapid growth in the numbers of black and Hispanic high school graduates seeking admission to the states' colleges and universities. As a fraction of all Texas residents enrolling as first-time freshmen in Texas public colleges and universities (including community colleges), the rates at which both blacks and Hispanics attended the three selective public universities three years after the Top 10 Percent Law was passed were lower than any year since 1992.

Still another disturbing feature of the Top 10 Percent Law is its dependence on school and residential segregation to achieve the goal of increasing the representation of disadvantaged minorities at the state's selective public universities. The Top 10 Percent gains came entirely from the state's selective universities targeting its recruitment efforts and financial aid to predominately black and Hispanic inner-city schools and in the Rio GrandeValley. At the same time black and Hispanic students attending the most competitive and highest quality suburban high schools appear to be enrolling in the states' selective public universities in smaller numbers. It is possible that, as some have suggested, that these students are attending Harvard and Stanford instead, but we will be unable to fully examine this question until we have been able to obtain information on the enrollment of Texas residents in private and out-of-state schools. A system that discourages black and Hispanic parents from moving to opportunity in an effort to enroll their children in better schools is disturbing to say the least.

The paper's econometric analyses largely confirm the results suggested by the descriptive statistics discussed above. We present the results of two types of multinomial logit (MNL) models. What we refer to as Type I models provide estimates of the rates at which Asian, black and Hispanic high school graduates and GED recipients enrolled in the three selective public universities in the final pre-Hopwood year, the second Hopwood year and the second Top 10 Percent Year. In addition to dummy variables for

race/ethnicity, these models include 18 explanatory variables that describe individual family backgrounds, personal characteristics and educational histories.

The Type I models indicate that, holding the effects of all other explanatory variables constant, blacks in the pre-Hopwood year were 4.8 percent more likely to enroll as a first-year freshmen in a selective, Texas public university than comparable whites. The pre-Hopwood premium for Hispanics was less, 1.4 percent. The impact of Hopwood is evident from the fact that in the Hopwood year included in the analysis, blacks were 1.4 percent less likely and Hispanics 1.1 percent less likely than a comparable white to enroll in a selective public university. For the second Hopwood year, these same estimates were –0.5 percent (black) and –1.0 percent (Hispanic), results that indicate that the Top 10 Percent Law was far less effective in offsetting the negative effects of Hopwood than is generally believed. These results, however, are consistent with the previously mentioned trends in black and Hispanic enrollments per 100 first year students in Texas public colleges and universities.

What we refer to as Type II MNL models included the same explanatory variables as the Type I models. They differ from them in that they are for only a single year, the second Hopwood year, and include three more college types, selective private colleges and universities, non-selective private colleges and universities and out-of-state public colleges and universities. The estimated predicted probabilities obtained from the Type II MNL models suggest that both black and Hispanic students have been somewhat more successful, relative to comparable whites, in gaining access to private selective colleges and universities than Texas public selective universities. These results, however, must be considered only suggestive because they are based on incomplete information. We plan to obtain additional private and out-of-state college attendance data that will enable us to estimate these models with greater confidence.

The results for Asians, though not considered a disadvantaged minority group, deserve mention. The probability that an Asian high school graduate will enroll as a first-year freshmen in a Texas, public selective university, relative to a comparable white, was 1.6 percent greater in the pre-Hopwood year, 2.7 percent in the Hopwood year and 2.8 percent in the Top 10 Percent year. The most likely explanation for these results is that a

higher proportion of the parents of high achieving white than high achieving Asian high school graduates attended selected private colleges and universities. Their loyalties to these schools and alumni preferences no doubt cause more high achieving white students to chose these schools. The increase between the Hopwood and Top 10 Percent year may be explained by the fact that more that 35 percent of Asians attending two or four year colleges in the Hopwood year ranked in the top 10 percent of their graduating class as compared to 19 percent of whites (Table A7).

The analyses in this paper thus strongly suggest that while the Top 10 Percent Law increased the number of black and Hispanic students enrolled in selective Texas public colleges and universities, this law is not the magic bullet that many of its advocates contend. To fully understand the impacts of both Hopwood and the Top 10 Percent Laws will require further analyses and additional data. In addition more time will have to pass before the full impacts of Hopwood and the Top 10 Percent Law cannot be adequately assessed the students affected by these actions are further into their undergraduate careers.

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Table 1. Number of Texas Residents Enrolled as First-Time Freshmen at Selective Texas Public Universities by Year and Race/ethnicity

Year and Period	Native American	Asian	Black	Hispanic	White	Total
Pre-Hopwood						
1991	47	785	525	1,507	8,061	10,925
1992	42	854	407	1,414	7,939	10,656
1993	34	834	483	1,394	7,521	10,266
1994	42	921	525	1,656	7,848	10,992
1995	30	993	563	1,581	7,529	10,696
1996	41	959	528	1,683	7,528	10,739
Hopwood Decision - March 1996						
1997	47	942	439	1,468	7,887	10,783
1998	58	1,192	340	1,340	8,498	11,428
Top 10 Percent Law - May 1997						
1999	70	1,372	404	1,570	9,757	13,173
2000	57	1,586	565	1,795	10,675	14,678
2001	68	1,610	535	1,838	10,208	14,259
Total	536	12,048	5,314	17,246	93,451	128,595

Table 2. Percent of First Time Freshmen at Texas Public Community Colleges and Universities Attending Selective Texas Public Universities by Year and Race/ethnicity

Year	Native American	Asian	Black	Hispanic	White	Total
Pre-Hopwood						
1992	5.8	13.8	2.5	3.5	7.6	6.3
1993	5.2	13.1	1.9	3.2	7.6	6.0
1994	4.4	12.6	2.4	3.2	7.4	5.9
1995	4.7	12.5	2.6	3.5	7.9	6.4
1996	3.4	14.0	2.9	3.4	7.6	6.2
Hopwood Decision - Marrch 1996						
1997	4.6	13.0	2.5	3.2	7.5	6.0
1998	4.9	12.3	2.0	3.0	7.7	5.9
Top 10 Percent Law - May 1997						
1999	6.2	14.5	1.6	2.7	8.2	6.3
2000	7.1	14.7	1.6	2.9	8.4	6.4
2001	5.8	15.1	1.9	2.9	8.5	6.4
All Years	5.2	13.7	2.2	3.1	7.8	6.2

Table 3. First Year College Attendance of Texas High School Graduates and GED Recipients by Type of College in Selected Pre-Hopwood, Hopwood and Top 10 Percent Years

College Type	Pre Hopwood (1996)	Hopwood (1999)		Top 10 Percent (2000)
		Actual	Estimated Attendance	
Texas Public Selective	11,097	13,812	13,812	14,479
Texas Public Other	30,558	34,309	34,309	35,123
Historically Black	1,910	1,951	2,143	1,809
Private Selective	857	2,288	4,848	266
Private Other	1,701	4,208	7,446	735
Out-of-State Public	556	476	7,824	286
Two Year Academic	45,693	50,721	50,721	48,344
Two Year Technical	21,757	23,938	23,938	28,846
Continuing Education	1,302	2,564	2,564	1,541
Unkown/Not Attending	121,160	127,986	114,647	140,053
Total	236,591	262,253	262,252	271,482

College Type	Pre Hopwood (1996)	Hopwood (1999)		Top 10 Percent (2000)
		Actual	Estimated Attendance	
Texas Public Selective	4.7	5.3	5.3	5.3
Texas Public Other	12.9	13.1	13.1	12.9
Historically Black	0.8	0.7	0.8	0.7
Private Selective	0.4	0.9	1.8	0.1
Private Other	0.7	1.6	2.8	0.3
Out-of-State Public	0.2	0.2	3.0	0.1
Two Year Academic	19.3	19.3	19.3	17.8
Two Year Technical	9.2	9.1	9.1	10.6
Continuing Education	0.6	1.0	1.0	0.6
Unkown	51.2	48.8	43.7	51.6
Total	100.0	100.0	100.0	100.0

Table 4. Number of First Year Freshmen by Type of College and Percent by Data Source, for the 1999 Sample

Type of College	Total	Percent of Total First Time Freshmen					
		SAT	ACT	Both	TEA	GED	All
TX Selective Univ.	13,812	51.9	3.7	42.6	1.8	0.1	100
TX Public Other	34,309	43.3	15.6	34.9	5.4	0.8	100
Historically Black	1,951	44.3	13.8	25.6	14.6	1.7	100
Private Select	2,288	45.5	3.9	49.1	1.5	0.0	100
Private Other	4,208	37.1	15.4	40.1	6.1	1.4	100
Out Public Other	476	41.8	12.2	40.5	4.8	0.6	100
TX CC Academic	50,721	32.8	13.4	18.3	27.8	7.7	100
TX CC Technical	23,938	26.7	12.2	12.5	36.3	12.4	100
Continuing Ed	2,564	6.2	4.5	1.6	39.7	48.0	100
Unknown	127,986	14.3	5.4	5.9	43.5	31.0	100
Total	262,253	25.6	9.0	15.7	31.3	18.4	100

Table 5. Total Observations and Sources of Income Data, Actual Values and Predicted Values by Yearariables and Number of Observations to Which Income was Assigned by Year

Source	1996	1999	2000
Financial aid file	21,102	19,981	1,653
SAT file		69,952	81,019
ACT file	29,254	18,778	21,512
Predicted SAT		4,607	6,099
Predicted ACT	1,836	1,293	1,490
Predicted Attended TX Public Schools	147,701	111,357	127,730
Predicted Other	17,875	31,153	31,463
Total	217,768	257,121	270,966

Table 6. Means and Standard Deviations for Samples Used to Estimate the Type I Models by Year

	Pre-Hopwood - 1996		Hopwood - 1999		Top 10% - 2000	
Variable	Mean	SD	Mean	SD	Mean	SD
Public Selective	10.0	30.1	11.1	31.4	11.3	31.6
Public Other	27.6	44.7	27.6	44.7	27.3	44.6
Hist Black	1.6	12.7	1.5	12.2	1.4	11.6
CC _ Academic	41.1	49.2	40.6	49.1	37.6	48.4
CC - Tech	19.6	39.7	19.2	39.4	22.4	41.7
Independent						
Categorical (0,1) (Percent)						
Asian	4.2	20.1	4.3	20.3	4.3	20.2
Black	10.3	30.4	10.7	30.9	11.0	31.3
Hispanic	25.8	43.7	26.7	44.2	26.9	44.3
White	59.3	49.1	57.7	49.4	57.4	49.5
Male	46.1	49.8	45.7	49.8	45.9	49.8
Ever LEP	5.4	22.6	8.6	28.1	10.2	30.3
Top 10 %	12.3	32.9	14.5	35.2	14.8	35.5
Advanced Dip	45.0	49.8	44.5	49.7	46.3	49.9
IEP Diploma	0.8	8.7	0.9	9.6	5.4	22.7
Private HS	1.5	12.3	3.6	18.6	3.4	18.2
GED	9.7	29.6	6.1	23.9	5.9	23.6
Reg Diploma	43.0	49.5	44.9	49.7	38.9	48.8
Continuous						
Age (Years)	18.7	0.8	18.7	0.7	18.7	0.7
AP Total	1.2	1.7	1.4	2.4	1.7	2.7
College Hrs	1.9	1.4	1.8	6.0	2.1	6.4
HS GPA	3.2	0.5	3.3	0.5	3.3	0.5
SAT Score	846	176	916	200	916	200
Income	44,201	16,903	43,910	21,289	45,848	21,034
HS Class Size	296	233	319	226	327	233
Campus Percent						
% Took ACT/SAT	61.3	10.3	62.4	12.1	62.5	12.2
Asian	3.6	6.1	3.5	5.7	3.6	5.7
Black	11.3	16.7	12.5	17.9	13.1	18.4
Hisp	26.8	29.2	28.0	29.5	28.6	29.6
White	58.9	28.3	56.7	28.9	56.5	28.9
Observations	110,002		123,031		126,644	

Table 7. Sample Means of Dependent and Independent Variables by Race/Ethnicity: Type I Model for the 1999 Sample

Variables	Mean Values by Race/Ethnicity			
	Asian	Black	Hispanic	White
Outcomes				
Percent				
Public Selective	27.3	3.1	4.5	14.4
Public Other	30.2	26.7	27.5	27.6
Historically Black	0.2	13.4	0.1	0.0
CC - Academic	27.6	33.7	42.3	42.0
CC - Technical	14.8	23.2	25.6	15.9
Independent				
Categorical (0,1) (Percent)				
Male	48.1	41.8	44.3	47.0
Ever LEP	26.1	0.6	24.1	0.3
Top 10 Percent	32.1	6.6	8.5	17.3
Advanced Diploma	60.0	35.8	44.7	50.2
IEP Diploma	0.4	1.9	1.2	0.8
Private High Schoo	0.1	0.1	0.1	0.1
GED	3.9	6.4	8.3	5.9
Regular Diploma	35.7	55.9	45.8	43.1
Continuous				
Age (Year)	18.6	18.7	18.8	18.6
Total AP Courses	2.9	0.6	0.7	1.2
College Hours	1.5	0.9	1.5	1.7
High School GPA	3.4	3.0	3.1	3.4
SAT Score	1,026	783	809	977
Income (thousands)	$39,331	$32,607	$30,776	$52,076
HS Class Size	467	308	320	322
Campus Percent				
Took ACT/SAT	66.4	59.3	58.6	63.1
Asian	12.2	3.8	1.9	3.3
Black	14.8	36.4	7.0	8.9
Hispanic	17.8	17.7	59.5	16.0
White	54.5	41.3	30.6	70.9
Observations	4,798	12,414	30,994	66,388

Table 8. Coefficients and z Scores for the Hopwood (1999) Type 1 MNL Model

Independent Variables	Selective		Public Other		Hist Black		CC - Academic	
	Coef.	z	Coef.	z	Coef.	z	Coef.	z
Categorical (0,1)								
Asian	0.41	6.1	0.11	2.0	0.81	1.9	-0.18	-3.5
Black	0.04	0.5	0.50	13.4	4.97	26.1	-0.28	-8.6
Hispanic	-0.30	-6.1	-0.20	-6.5	0.73	2.7	-0.17	-6.6
Male	0.09	3.3	-0.05	-2.5	0.26	4.7	-0.09	-5.2
Ever LEP	-0.20	-2.7	-0.18	-4.8	-0.94	-2.8	-0.20	-6.4
Top 10 Percent	0.39	8.1	0.28	6.7	0.50	3.9	0.25	5.9
Advanced Diploma	0.71	23.0	0.67	32.5	0.41	6.6	0.15	8.1
IEP Dimploma	-0.60	-1.8	-1.55	-10.4	-1.36	-4.6	-0.22	-3.5
Private HS	0.16	0.4	0.01	0.0	-36.38	0.0	0.72	2.3
GED	-3.04	-14.2	-2.14	-32.9	-1.06	-5.1	-0.31	-8.9
Continuouis								
Age (Year)	-0.02	-0.7	-0.18	-11.5	-0.14	-3.1	-0.05	-4.5
AP Courses	0.15	21.0	0.10	15.0	0.03	1.4	0.05	7.2
College Hours	0.04	16.0	0.03	13.9	0.01	1.6	0.01	3.7
High School GPA	1.48	35.7	0.33	13.3	-0.21	-3.3	-0.03	-1.5
SAT Score	0.73	60.2	0.27	35.4	0.08	3.6	0.07	10.5
Income (thousands)	0.15	20.3	0.06	11.2	0.00	-0.1	0.03	5.0
HS Class Size	0.10	14.6	0.03	5.3	0.06	2.9	0.06	13.1
Campus Percent								
Took ACT/SAT	0.03	19.3	0.01	12.5	0.00	-1.6	0.00	-5.4
Asian	0.00	0.4	0.00	0.3	0.01	1.3	-0.01	-5.4
Black	0.01	1.9	0.00	0.0	0.00	0.0	0.00	0.0
Hispanic	0.01	3.6	0.01	6.2	-0.02	-2.0	0.00	0.8
White	0.00	0.7	0.00	1.5	-0.01	-1.6	0.00	3.1
Constant	-16.38	-25.2	-1.68	-4.6	-2.15	-1.7	0.96	3.6
Observations	114,957							
Psuedo R sq	0.172							
Prob > chi2 =	0.0000							
LR chi2(88) =	5,377							

Table 9. Predicted Marginal Changes for Type 1 MNL Models by Year and College Type

Explanatory Variables	Texas Public Universities									Texas Public Community Colleges					
	Selective			Other			Historically Black			Academic			Technical		
	1996	1999	2000	1996	1999	2000	1996	1999	2000	1996	1999	2000	1996	1999	2000
Dichotomous (0,1)															
Asian	1.6	2.7	2.8	1.2	1.4	1.8	1.0	1.5	1.8	-4.0	-6.1	-7.7	0.2	0.5	1.3
Black	4.8	-1.4	-0.5	0.7	8.6	7.5	8.1	8.5	8.1	-11.9	-14.0	-13.0	-1.7	-1.7	-2.1
Hispanic	1.4	-1.1	-1.0	-3.2	-0.2	0.0	0.3	1.1	0.9	-0.4	-1.7	-1.9	1.9	2.0	2.0
Male	1.5	1.0	0.9	0.4	-0.2	-0.7	0.4	0.4	0.3	-1.3	-1.8	-1.6	-1.1	0.7	1.2
Ever LEP	0.4	0.1	-0.7	2.5	0.7	0.9	-0.5	-0.4	-0.2	-2.3	-2.7	-3.7	-0.1	2.2	3.7
Top 10 Percent	1.7	0.7	1.7	2.2	-0.2	-0.3	0.4	0.3	0.1	-0.3	2.0	0.9	-4.0	-2.8	-2.4
Advanced Diplom	3.1	2.0	1.9	10.5	7.8	7.2	-0.3	0.1	-0.2	-5.8	-5.4	-2.3	-7.4	-4.4	-6.6
IEP Diploma	1.4	1.2	0.4	-13.7	-17.6	-0.7	-1.0	-0.9	0.1	4.0	8.8	0.2	9.3	8.6	0.0
Private Diploma	0.9	3.4	4.1	1.0	0.7	0.7	0.0	0.5	0.2	-0.2	3.6	3.1	-1.7	-8.3	-8.2
GED	-7.0	-8.3	-9.1	-15.9	-20.0	-20.0	0.1	-0.5	-0.5	12.1	15.6	14.0	10.7	13.2	15.7
Continuous															
Age	-0.3	0.5	0.4	-1.8	-1.7	-1.3	-0.1	-0.1	-0.1	0.7	0.5	0.1	1.4	0.8	0.9
Number AP	1.6	1.7	2.1	5.3	3.5	3.3	0.2	0.1	0.0	-2.1	-2.0	-1.9	-5.0	-3.3	-3.4
HS College Hours	0.7	0.7	0.9	2.3	2.0	2.2	0.1	0.1	0.1	-1.8	-1.6	-1.3	-1.3	-1.3	-1.8
High School GPA	4.0	4.7	4.6	0.1	0.1	0.5	-0.2	-0.2	-0.1	-3.5	-3.6	-3.3	-0.5	-1.0	-1.7
SAT/ACT Score	8.0	9.4	8.6	-0.6	1.9	2.6	-0.2	-0.2	-0.2	-4.0	-6.6	-6.2	-3.1	-4.5	-4.9
Family Income	0.1	1.6	1.7	0.2	0.8	0.1	0.0	-0.1	0.0	0.6	-0.9	-0.8	-0.9	-1.3	-1.0
HS Class Size	0.7	1.0	0.9	0.2	-1.1	-1.1	0.0	0.1	0.0	1.7	1.8	2.4	-2.6	-1.7	-2.2
Campus Percent															
Took ACT/SAT	1.7	1.8	1.7	2.8	2.2	2.9	0.0	-0.1	0.0	-3.8	-3.4	-3.4	-0.6	-0.5	-1.1
Asian	0.1	0.3	0.6	0.0	0.5	0.4	0.2	0.2	0.2	-1.1	-1.8	-2.7	0.8	0.7	1.5
Black	0.6	0.4	0.3	-0.6	-0.2	0.0	0.3	0.3	0.3	0.1	-0.2	-0.3	-0.3	-0.3	-0.2
Hispanic	0.6	0.6	0.4	4.7	4.1	4.2	-0.2	-0.3	-0.1	-3.5	-2.8	-1.4	-1.6	-1.6	-3.1
White	0.1	-0.2	-0.5	-0.5	-0.5	-0.3	-0.3	-0.2	-0.2	2.4	2.3	3.3	-1.7	-1.4	-2.3

Table 10. Means and Standard Deviations for Samples Used to Estimate the Type II Models by Sample

Variable	Excludes Persons Not Attending College				Includes Persons Not Attending College			
	No Allocated College		Includes Allocated College		No Allocated College		Includes Allocated College	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Outcomes								
Texas Public Selective	10.5	30.6	9.5	29.4	5.6	23.0	5.6	23.0
Texas Public Non-Sel	26.1	43.9	23.7	42.5	13.9	34.6	13.9	34.6
Historically Black	1.5	12.1	1.5	12.1	0.8	8.8	0.9	9.3
Private Selective	1.7	13.1	3.4	18.0	0.9	9.6	2.0	13.9
Private Non-Selective	3.2	17.6	5.2	22.1	1.7	12.9	3.0	17.1
Out of State Public	0.4	6.0	5.5	22.7	0.2	4.4	3.2	17.6
CC - Academic	38.6	48.7	34.8	47.6	20.6	40.4	20.4	40.3
CC - Technical	18.1	38.5	16.5	37.1	9.7	29.6	9.7	29.6
No College/Unknown	NA	NA	NA	NA	46.7	49.9	41.3	49.2
Categorical (0,1) Percent								
Asian	4.3	20.2	4.2	20.2	3.1	17.2	3.1	17.2
Black	10.9	31.1	11.3	31.6	12.6	33.2	12.6	33.2
Hispanic	26.3	44.0	26.0	43.9	30.4	46.0	30.4	46.0
White	58.0	49.4	57.9	49.4	53.4	49.9	53.4	49.9
Male	45.7	49.8	45.7	49.8	49.6	50.0	49.6	50.0
Ever LEP	8.4	27.7	8.2	27.4	9.6	29.5	9.6	29.5
Top 10 %	15.3	36.0	16.2	36.8	10.4	30.6	10.4	30.6
Advanced Diploma	45.1	49.8	46.3	49.9	31.5	46.5	31.5	46.5
IEP Diploma	0.9	9.5	0.8	9.2	2.5	15.6	2.5	15.6
Private HS	3.9	19.4	3.6	18.6	3.2	17.7	3.2	17.7
GED	5.8	23.4	5.3	22.4	14.3	35.0	14.3	35.0
Reg Diploma	44.2	49.7	44.0	49.6	48.4	50.0	48.4	50.0
Continuous								
Age (Years)	18.6	0.7	18.6	0.7	18.8	1.0	18.8	1.0
AP Total	1.5	2.4	1.6	2.5	1.0	2.2	1.0	2.2
College Hrs	1.8	5.9	1.7	5.7	1.2	4.9	1.2	4.9
HS GPA	3.3	0.5	3.3	0.5	3.2	0.5	3.2	0.5
SAT Score	922	202	926	205	881	203	881	203
Income	43,968	21,391	43,830	21,576	41,783	19,475	41,783	19,475
HS Class Size	319	226	324	227	276	226	276	226
Campus Percent								
% Took ACT/SAT	62.6	12.3	62.6	12.5	62.2	10.5	62.2	10.5
Asian	3.5	5.7	3.6	5.7	3.1	5.3	3.1	5.3
Black	12.6	18.0	12.7	18.2	12.7	18.4	12.7	18.4
Hisp	27.8	29.4	27.8	29.4	28.4	29.1	28.4	29.1
White	56.9	28.8	56.6	29.0	55.9	28.3	55.9	28.3
Observations	130,032		143,837		244,366		244,366	

Table 11.: Coefficients and z Scores for Type II Model with Allocated College Tyes and the No College Category

Independent Variables	Selective				Non-Selective				Historically Black		Out of State Public		CC-Academic		No College	
	Texas Public		Private		Texas Public		Private									
	Coef.	z	Coef.	z	Coef.	z	Coef.	z								
Dichotomous (0,1)																
Asian	0.18	3.0	-0.30	-3.7	-0.02	-0.4	-0.57	-6.6	0.83	2.2	-0.68	-7.5	-0.22	-4.4	-0.60	-11.9
Black	-0.19	-3.0	0.88	11.0	0.32	9.3	0.38	7.5	5.08	29.3	0.26	5.4	-0.33	-10.4	0.04	1.4
Hispanic	-0.28	-6.4	0.04	0.6	-0.13	-4.5	-0.23	-5.2	0.69	2.8	-0.35	-8.0	-0.16	-6.5	0.04	2.0
Male	0.13	5.3	-0.04	-1.2	-0.02	-1.0	-0.04	-1.4	0.17	3.5	0.05	1.9	-0.07	-4.5	0.17	11.4
Ever LEP	-0.11	-1.9	-0.17	-1.7	-0.09	-2.6	-0.58	-9.1	-0.48	-2.1	-0.25	-4.7	-0.17	-5.8	-0.03	-1.2
Top 10 Percent	0.36	8.0	0.32	5.5	0.20	5.0	0.27	5.2	0.46	4.3	0.30	5.3	0.22	5.4	0.17	3.9
Advanced Diploma	0.70	24.2	0.75	17.7	0.63	31.0	0.54	17.6	0.29	5.3	0.50	16.9	0.15	7.7	-0.91	-46.8
IEP Dimploma	-0.70	-2.2	-0.18	-0.3	-1.63	-10.9	-0.91	-4.5	-1.20	-4.3	-1.19	-6.9	-0.27	-4.3	0.75	14.9
Private HS	0.47	6.3	-0.22	-2.0	0.41	6.5	0.90	11.0	0.78	4.1	-1.46	-7.9	0.55	9.2	0.00	-0.1
GED	-2.80	-13.4	-3.31	-5.7	-2.07	-33.4	-2.06	-16.1	-1.13	-6.2	-4.75	-12.5	-0.31	-9.8	0.48	17.7
Continuous																
Age (Year)	-0.03	-1.1	0.00	-0.1	-0.23	-16.2	-0.11	-4.7	-0.23	-5.9	-0.12	-5.3	-0.07	-7.0	0.18	20.9
AP Courses	0.18	27.5	0.20	27.8	0.13	22.7	0.17	22.4	0.12	8.7	0.15	19.7	0.05	9.0	-0.13	-19.6
College Hours	0.03	13.2	0.01	1.9	0.02	14.2	-0.01	-4.4	0.02	4.4	-0.05	-10.2	0.00	3.2	-0.08	-41.6
High School GPA	1.28	33.5	1.07	18.5	0.26	10.3	0.27	7.2	-0.27	-4.5	-0.34	-9.6	-0.06	-2.7	-0.09	-4.2
SAT Score	0.60	57.6	0.93	59.5	0.22	30.3	0.19	17.9	0.10	5.7	0.12	11.9	0.06	9.3	0.05	7.9
Income (thousands	0.13	18.2	0.06	5.9	0.06	10.7	-0.02	-2.8	0.00	-0.1	-0.10	-11.1	0.03	5.4	-0.01	-1.5
HS Class Size	0.10	16.2	0.09	10.9	0.03	5.5	0.06	7.5	0.06	3.7	0.08	10.3	0.06	13.0	-0.09	-19.9
Campus Percent																
Took ACT/SAT	0.03	21.2	0.03	17.8	0.01	14.5	0.01	8.9	-0.01	-2.9	0.00	1.5	0.00	-3.8	0.01	13.8
Asian	-0.01	-2.2	-0.02	-4.9	0.00	-2.6	-0.01	-4.8	0.02	4.1	-0.04	-9.8	-0.01	-8.2	0.00	-1.8
Black	0.00	1.6	-0.01	-3.1	0.00	-0.3	0.00	-0.7	0.01	6.8	-0.02	-8.2	0.00	0.2	0.01	16.6
Hispanic	0.00	0.9	-0.01	-4.3	0.01	8.3	0.00	-1.3	0.00	-2.7	-0.02	-8.0	0.00	-0.6	0.01	17.1
White	0.00	-2.5	-0.01	-5.6	0.00	-0.2	0.00	-1.9	0.00	-1.7	-0.02	-8.6	0.00	4.6	0.01	14.9
Constant	-13.63	-27.4	-17.22	-20.9	0.08	0.3	-2.45	-4.8	-1.48	-1.8	3.37	6.4	1.64	7.2	-3.51	-17.9

Observations	244,366
Psuedo R sq	0.1822
Prob > chi2 = 0	0.0000
LR chi2(176) =	150,061

Table 12. Predicted Change in the Probability of Attending Each Type of College for Each Independent Variable: Type II Models With (Yes) and Without (No) Allocated College Choices and Including the No College Type

Explanatory Variables	Selective				Non-Selective				Historically Black		Out-of-State Public		Community College				No College	
	Public		Private		Public		Private						Academic		Technical			
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Dichotomous (0,1)																		
Asian	1.7	1.9	-0.1	-0.4	2.5	2.8	-0.6	-0.9	1.2	1.4	-0.1	-1.2	0.9	1.3	3.3	3.5	-8.8	-8.3
Black	-1.9	-1.9	0.9	1.6	2.7	2.7	0.6	0.8	4.8	5.5	0.3	0.4	-7.5	-7.5	-0.8	-0.8	0.9	-0.8
Hispanic	-0.9	-0.8	0.2	0.4	-0.6	-0.4	-0.1	-0.4	0.7	0.8	-0.1	-0.8	-2.1	-1.8	0.4	0.5	2.5	2.7
Male	0.5	0.6	0.0	-0.2	-0.8	-0.7	-0.1	-0.2	0.1	0.1	0.1	0.0	-2.6	-2.5	-0.6	-0.6	3.4	3.5
Ever LEP	0.0	0.1	0.0	-0.1	0.2	0.4	-0.8	-1.2	-0.2	-0.3	-0.1	-0.4	-1.7	-1.4	0.9	0.9	1.7	1.8
Top 10 Percent	0.4	0.6	0.0	0.1	-2.0	-0.1	0.2	0.2	0.1	0.2	-0.1	0.3	-2.8	0.5	-3.0	-1.6	7.2	-0.3
Advanced Diploma	2.1	1.9	0.4	0.6	8.7	8.3	0.9	1.6	0.3	0.3	0.1	1.8	4.9	5.3	1.4	1.8	-18.8	-21.6
IEP Diploma	-2.4	-1.3	-0.1	0.7	-11.2	-10.6	-0.8	-1.6	-0.6	-0.6	-0.1	-2.2	-7.0	-5.1	-1.8	-1.1	24.0	21.7
Priv HS Diploma	0.8	0.8	0.8	-0.9	1.9	1.4	3.7	2.4	0.7	0.6	0.1	-2.7	8.1	6.9	-1.6	-2.0	-14.4	-6.5
GED	-5.0	-4.2	-0.9	-1.6	-12.4	-11.3	-1.3	-2.5	-0.5	-0.5	-0.2	-3.5	-4.0	-0.1	0.3	1.9	24.0	21.8
Other Continuous (SD)																		
Age	0.0	0.2	0.1	0.1	-2.6	-2.4	-0.2	-0.2	-0.2	-0.2	0.0	-0.3	-1.8	-1.5	-0.4	-0.2	5.0	4.6
Total AP Courses	0.5	0.9	0.1	0.3	1.3	2.6	0.2	0.8	0.1	0.2	0.1	0.9	-0.5	1.7	-1.0	0.0	-0.9	-7.5
HS College Hours	0.7	0.6	0.1	0.0	2.6	2.5	0.0	-0.1	0.2	0.2	-0.1	-0.5	2.9	2.9	1.4	1.4	-7.9	-7.1
High School GPA	2.8	2.5	0.4	0.5	0.8	0.5	0.2	0.1	-0.1	-0.1	0.0	-0.6	-1.0	-1.3	0.0	-0.1	-3.3	-1.4
SAT/ACT Score	3.8	3.3	0.9	3.3	1.1	0.7	0.2	0.0	0.0	0.0	0.1	-0.1	-2.6	-2.7	-1.9	-1.9	-1.5	-2.7
Family Income	0.9	0.8	-0.1	0.0	0.9	0.9	-0.2	-0.3	0.0	0.0	0.0	-0.6	0.5	0.5	-0.2	-0.2	-1.7	-1.1
HS Class Size	0.7	0.7	0.1	0.2	0.2	0.2	-0.1	0.3	0.1	0.1	0.0	0.5	2.8	3.0	0.2	0.2	-4.1	-5.2
Campus Percent																		
Took ACT/SAT	0.7	0.7	0.1	0.3	0.5	0.7	0.0	0.1	-0.1	-0.1	0.1	-0.2	-2.6	-2.3	-0.9	-0.8	2.3	1.7
Asian	0.1	0.1	0.0	-0.1	0.2	0.3	-0.1	-0.1	0.1	0.1	0.0	-0.5	-0.8	-0.7	0.3	0.4	0.3	0.6
Black	0.0	0.1	0.0	-0.2	-0.7	-0.6	0.1	-0.2	0.1	0.1	0.0	-1.2	-1.3	-1.3	-0.8	-0.8	2.6	3.9
Hispanic	-0.2	-0.1	-0.1	-0.5	1.1	1.3	0.1	-0.4	-0.2	-0.2	0.1	-1.7	-2.6	-2.7	-1.3	-1.3	3.2	5.6
White	-0.4	-0.3	0.0	-0.5	-0.9	-0.7	0.1	-0.4	-0.1	-0.1	0.0	-1.7	-0.1	-0.1	-1.1	-1.1	2.5	4.8
Observations																		
No Allocation	244,366																	
Allocated Choices	244,366																	

Table 13. Predicted Change in the Probability of Attending Easy Type of College for Each Independent Variable: Type II Models With (Yes) and Without (No) Allocated College Choices and Without the No College Category

Explanatory Variables	Selective				Non-Selective				Historically Black		Out-of-State Public		Community College			
	Public		Private		Public		Private						Academic		Technical	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Dichotomous (0,1)																
Asian	2.9	3.1	-0.3	-0.6	1.9	2.7	-1.3	-1.8	1.5	1.8	-0.1	-2.4	-5.4	-3.8	0.8	1.1
Black	-2.1	-2.8	2.3	3.0	6.2	4.5	1.5	1.4	8.5	8.7	0.3	0.7	-14.5	-13.4	-2.2	-2.1
Hispanic	-1.3	-1.3	0.4	0.6	-0.3	-0.2	-0.1	-0.5	1.1	1.2	-0.1	-1.0	-1.7	-0.9	2.0	2.0
Male	1.1	1.1	0.0	-0.3	-0.3	1.3	0.0	-0.2	0.4	0.2	0.1	0.3	-1.7	-1.5	0.6	0.6
Ever LEP	0.2	0.4	0.0	-0.1	1.3	-0.4	-1.4	-1.9	-0.4	-0.4	-0.1	-0.5	-2.0	-1.3	2.4	2.5
Top 10 Percent	0.6	0.6	0.0	0.0	-0.4	6.0	0.7	0.3	0.4	0.4	-0.1	0.6	1.5	1.2	-2.8	-2.6
Advanced Diploma	1.8	1.5	0.4	0.5	7.1	-15.1	0.4	0.9	0.1	0.0	0.1	1.0	-5.5	-5.6	-4.3	-4.3
IEP Diploma	0.7	0.4	1.5	2.1	-16.9	1.3	0.1	-1.2	-0.9	-0.8	-0.1	-2.7	7.6	9.0	7.9	8.2
Priv HS Diploma	2.1	4.1	1.6	-0.6	-1.4	-15.9	5.1	3.5	0.6	0.6	0.1	-4.8	0.5	3.1	-8.6	-7.2
GED	-7.7	-6.6	-1.4	-2.5	-18.5	1.6	-1.5	-3.4	-0.4	-0.4	-0.2	-5.6	16.4	19.9	13.3	14.6
Other Continuous (SD)																
Age	0.4	0.4	0.2	0.2	-1.7	2.5	0.1	0.1	-0.1	-0.1	0.0	0.3	0.4	0.2	0.7	0.6
Number of AP Cou	1.6	1.3	0.3	0.6	3.1	2.4	0.5	1.0	0.1	0.1	0.1	0.9	-2.3	-2.9	-3.4	-3.5
HS College Hours	0.8	0.9	0.0	-0.1	2.1	0.1	-0.4	-0.7	0.1	0.2	-0.1	-1.5	-1.3	-0.4	-1.1	-0.6
High School GPA	4.3	3.9	0.6	0.7	-0.1	0.3	0.2	0.1	-0.2	-0.2	0.0	-1.0	-3.7	-2.9	-1.1	-0.7
SAT/ACT Score	8.2	6.1	1.9	5.9	1.2	1.1	0.2	-0.1	-0.2	-0.2	0.1	-0.7	-6.9	-6.9	-4.5	-4.3
Family Income	1.6	1.4	-0.1	-0.1	0.9	-1.1	-0.5	-0.5	-0.1	0.0	0.0	-1.1	-0.7	0.0	-1.2	-0.8
HS Class Size	1.0	0.8	0.1	0.1	-0.9	-0.9	-0.3	0.1	0.1	0.0	0.0	0.4	1.7	1.3	-1.6	-1.6
Campus Percent																
Took ACT/SAT	1.7	1.2	0.2	0.6	2.0	0.8	0.0	0.2	-0.1	-0.1	0.1	-0.1	-3.4	-3.1	-0.5	-0.3
Asian	0.3	0.4	0.0	-0.1	0.5	0.4	-0.1	-0.1	0.2	0.2	0.0	-0.9	-1.6	-1.1	0.7	0.8
Black	0.3	0.6	0.1	-0.1	-0.3	4.7	0.3	0.0	0.3	0.3	0.0	-1.7	-0.3	0.5	-0.3	0.0
Hispanic	0.5	0.9	0.0	-0.4	3.8	0.6	0.4	-0.2	-0.3	-0.2	0.1	-2.6	-2.9	-1.3	-1.6	-0.8
White	-0.2	0.3	0.1	-0.4	-0.6	-1.6	0.3	-0.2	-0.2	-0.1	0.0	-2.7	2.0	3.3	-1.4	-0.7
Observations																
No Allocation	130,328															
Allocated Choices	143,333															

Figure 1. The UTD Texas Schools Microdata Panel (TSMP) and Cohorts Used for This Paper

School Year Ending In	Primary and Secondary School Grades														College					Earnings Data
	PK	K	1	2	3	4	5	6	7	8	9	10	11	12	Fr	So	Jr	Sr	Yr5	
~~Pre Hopwood~~																				
1990	E	E	E	E	E	E	E	E	E	E	H	H	H	H	C	C	C	C	C	$
1991	E	E	E	E	T	E	D	E	D	E	D	D	H	H	C	C	C	C	C	$
1992	E	E	E	E	T	N	D	E	D	E	D	D	H	H	C	C	C	C	C	$
1993	E	E	E	E	T	T	N	N	D	D	H	D	H	H	C	C	C	C	C	$
1994	E	E	E	E	T	T	T	T	T	T	H	T	H	H	C	C	C	C	C	$
1995	E	E	E	E	T	T	T	T	T	T	H	T	H	H	C	C	C	C	C	$
1996	E	E	E	E	T	T	T	T	T	T	H	T	H	H	C	C	C	C	C	$
~~HopwoodDecision - March 1996~~																				
1997	E	E	E	E	T	T	T	T	T	T	H	T	H	H	C	C	C	C	C	$
1998	E	E	E	E	T	T	T	T	T	T	H	T	H	H	C	C	C	C	C	$
~~Top 10 Percent Law - May 1997~~																				
1999	E	E	E	E	T	T	T	T	T	T	H	T	H	H	C	C	C	C	C	$
2000	E	E	E	E	T	T	T	T	T	T	H	T	H	H	C	C	C	C	C	$
2001	E	E	E	E	T	T	T	T	T	T	H	T	H	H	C	C	C	C	C	$

Table A-1. TSMP Available for Use in Mellon Study of Minority Access to Higher Education

File Sources and Types	Number of Variables (1999)	Years in Data Base From	To	years	Number of Years X Files	Records
Coordinating Board (THECB)						
Four-Year						
Student Report	26	1990	2001	11	35	11,483,320
Class Report	20	1990	2000	11	32	2,254,509
End of Semester Report	19	1993	2000	8	22	1,561,546
Faculty Report	31	1990	2000	11	22	532,331
Graduation Report	15	1992	2000	9	9	659,671
Application Report	21	1999	2000	2	2	394,545
Financial Aid	74	1997	1999	3	3	679,033
Two-Year						
Student Report	37	1990	2001	11	46	13,064,424
Class Report	24	1990	2001	11	41	2,212,497
End of Semester Report	22	1994	2000	7	24	1,336,714
Faculty Report	32	1990	2000	11	22	499,657
Graduation Report	15	1992	2000	9	9	316,176
Application Report	47	1994	2000	7	23	1,212,830
Financial Aid	74	1997	1999	3	3	416,794
TASP Report	51	1990	2000	11	11	10,447,534
ACT & SAT						
ACT - Incomplete	342	1991	1997	7	7	313,018
ACT - Complete	340	1998	1999	2	2	128,317
SAT - Incomplete	472	1991	1997	7	7	569,774
SAT - Complete	503	1998	1999	2	2	217,850
Texas Education Agency (TEA)						
Enrollment	23	1990	2000	11	11	40,346,410
Attendance	8	1993	2000	8	48	188,615,143
TAAS						
Grades 3-8	185	1991	2001	11	52	14,751,140
Exit	131	1994	2001	8	16	3,135,315
End of Course	52	1995	2000	6	18	1,623,165
NAPT	7	1992	1993	2	7	1,963,369
Demographic	8	1993	2000	8	9	36,302,827
Course Completion	11	1993	2000	8	8	89,795,340
Graduation Type	11	1991	1999	9	9	1,575,725
School Leaver	9	1993	1998	6	6	180,408
Special Education Attendance	27	1990	2000	10	10	2,626,706
GED	33	1991	2000	10	10	954,256
Total	2,670				526	430,170,344

Table A2. Sample Means of Dependent and Independent Variables by Race/Ethnicity: Type I Model for the 1996 Sample

Variables	Mean Values by Race/Ethnicity			
	Asian	Black	Hispanic	White
Dependent				
Percent				
Public Selective	24.1	5.1	5.0	12.1
Public Other	31.3	22.0	28.5	27.9
Historically Black	0.2	15.0	0.1	0.1
CC - Academic	30.0	34.5	40.7	43.3
CC - Technical	14.5	23.5	25.6	16.7
Independent				
Percent				
Male	49.7	42.1	45.4	46.8
Ever LEP	25.2	0.7	15.7	0.3
Top 10 Percent	26.0	6.0	7.3	14.7
Advanced Diploma	53.5	30.2	41.8	48.6
IEP Diploma	0.1	1.4	0.7	0.7
Private High Schoo	3.0	2.0	1.3	1.4
GED	5.4	11.0	12.8	8.3
Regular Diploma	38.0	55.4	43.3	41.0
Number				
Age (Year)	18.6	18.7	18.8	18.6
Total AP Courses	2.9	0.6	0.7	1.2
College Hours	1.5	0.9	1.5	1.7
High School GPA	3.4	3.0	3.1	3.4
SAT Score	929	717	752	904
Income (thousands)	$37,053	$34,318	$32,485	$51,499
HS Class Size	504	272	282	291
Campus Percent				
Took ACT?SAT	66.4	59.3	58.6	63.106
Asian	12.2	3.8	1.9	3.322
Black	14.8	36.4	7.0	8.936
Hispanic	17.8	17.7	59.5	16.046
White	54.5	41.3	30.6	70.948
Observations	4,638	11,344	28,333	65,208

Table A3. Sample Means of Dependent and Independent Variables by Race/Ethnicity: Type I Model for the 2000 Sample

Variables	Mean Values by Race/Ethnicity			
	Asian	Black	Hispanic	White
Dependent				
Percent				
Public Selective	29.4	3.7	4.5	14.5
Public Other	29.8	26.0	27.3	27.4
Historically Black	0.1	11.8	0.1	0.0
CC - Academic	22.4	30.3	39.3	39.4
CC - Technical	18.3	28.2	28.9	18.6
Independent				
Percent				
Male	48.9	42.1	45.0	46.8
Ever LEP	33.4	1.1	30.7	0.6
Top 10 Percent	34.6	7.5	9.0	17.5
Advanced Diploma	53.6	33.0	43.8	49.7
IEP Diploma	4.0	11.6	6.0	4.1
Private High Schoo	3.3	1.7	2.8	3.8
GED	3.6	5.7	7.7	5.3
Regular Diploma	35.5	48.0	39.7	37.1
Number				
Age (Year)	18.6	18.7	18.8	18.6
Total AP Courses	2.9	0.6	0.7	1.2
College Hours	1.5	0.9	1.5	1.7
High School GPA	3.4	3.0	3.1	3.4
SAT Score	1,032	786	816	979
Income (thousands)	$42,340	$34,969	$32,661	$54,349
HS Class Size	469	312	316	325
Campus Percent				
Took ACT/SAT	66.4	59.3	58.6	63.106
Asian	12.2	3.8	1.9	3.322
Black	14.8	36.4	7.0	8.936
Hispanic	17.8	17.7	59.5	16.046
White	54.5	41.3	30.6	70.948
Observations	5,403	13,973	34,011	72,657

Table A-4. Coefficients and z Scores for the Hopwood (1995-1996) Type 1 MNL Model

Independent Variables	Selective		Public Other		Hist Black		CC - Academic	
	Coef.	z	Coef.	z	Coef.	z	Coef.	z
Categorical (0,1)								
Asian	0.27	3.7	0.07	1.3	0.60	1.6	-0.10	-1.9
Black	0.83	12.2	0.23	5.5	4.47	29.5	-0.21	-6.0
Hispanic	0.07	1.4	-0.23	-7.3	0.08	0.4	-0.12	-4.3
Male	0.33	11.0	0.11	5.5	0.35	6.3	0.03	1.9
Ever LEP	0.11	1.3	0.12	2.8	-0.37	-1.3	-0.04	-1.1
Top 10 Percent	0.57	10.3	0.37	7.6	0.52	3.8	0.24	4.9
Advanced Diplom	1.11	31.5	0.92	40.0	0.19	2.7	0.31	14.3
IEP Diploma	-0.45	-1.1	-1.22	-8.4	-1.46	-4.2	-0.35	-4.7
Private HS	0.27	2.1	0.16	1.7	0.13	0.6	0.10	1.1
GED	-2.61	-11.8	-1.58	-29.9	-0.45	-3.5	-0.29	-9.4
Continuous								
Age (Year)	-0.20	-6.9	-0.21	-14.1	-0.20	-5.1	-0.08	-8.4
AP Courses	0.40	36.6	0.35	36.0	0.27	11.0	0.17	17.3
College Hours	0.04	16.2	0.03	17.3	0.02	5.2	0.01	3.4
High School GPA	1.31	29.9	0.22	8.6	-0.20	-3.0	-0.08	-3.5
SAT Score	0.72	56.7	0.17	19.4	0.00	0.2	0.07	8.3
Income (thousand	0.05	4.7	0.04	5.2	0.05	2.3	0.04	5.7
HS Class Size	0.12	15.4	0.08	12.9	0.07	3.8	0.08	15.1
Campus Percent								
Took ACT/SAT	0.03	22.1	0.02	16.9	0.00	1.4	0.00	-4.4
Asian	-0.01	-1.7	-0.01	-3.4	0.02	3.2	-0.01	-5.9
Black	0.01	4.3	0.00	0.1	0.01	6.4	0.00	1.3
Hispanic	0.01	6.9	0.01	11.3	0.00	-0.2	0.00	0.7
White	0.00	3.0	0.00	3.0	-0.01	-3.2	0.01	6.4
Constant	-12.73	-21.2	-0.56	-1.8	-1.75	-2.0	1.39	6.2

Observations	110,002
Psuedo R sq	0.1847
Prob > chi2 = (	0.0000
LR chi2(88) =	54,369

Table A-5. Coefficients and z Scores for the Hopwood (2000) Type 1 MNL Model

Independent Variables	Selective		Public Other		Hist Black		CC - Academic	
	Coef.	z	Coef.	z	Coef.	z	Coef.	z
Categorical (0,1)								
Asian	0.35	5.7	0.06	1.3	1.02	2.3	-0.28	-5.8
Black	0.15	2.5	0.41	12.0	5.06	25.1	-0.30	-9.9
Hispanic	-0.27	-5.9	-0.12	-4.2	0.54	1.9	-0.15	-6.4
Male	0.06	2.1	-0.08	-4.3	0.17	3.1	-0.10	-6.2
Ever LEP	-0.27	-4.5	-0.15	-4.6	-0.29	-1.4	-0.27	-9.6
Top 10 Percent	0.38	8.6	0.14	3.6	0.20	1.5	0.15	3.8
Advanced Diplom	0.74	23.4	0.67	33.1	0.10	1.5	0.27	14.7
IEP Diploma	0.05	0.7	-0.03	-0.7	0.05	0.6	0.00	0.1
Private HS	1.08	14.4	0.59	10.1	0.59	2.6	0.57	10.2
GED	-3.46	-12.6	-2.19	-33.7	-1.02	-5.4	-0.33	-10.4
Continuous								
Age (Year)	-0.01	-0.5	-0.15	-9.9	-0.14	-3.2	-0.06	-5.8
AP Courses	0.20	33.5	0.13	25.8	0.05	2.9	0.05	9.9
College Hours	0.04	21.0	0.03	20.8	0.02	5.2	0.01	6.7
High School GPA	1.44	37.7	0.38	16.6	-0.06	-1.0	0.02	1.1
SAT Score	0.69	63.0	0.27	38.7	0.04	2.2	0.06	10.2
Income (thousand	0.14	19.8	0.04	7.7	0.02	1.4	0.02	3.1
HS Class Size	0.10	16.1	0.03	7.1	0.04	2.3	0.07	16.8
Campus Percent								
Took ACT/SAT	0.03	22.5	0.02	19.5	0.00	0.4	0.00	-3.3
Asian	0.00	1.4	-0.01	-4.1	0.01	2.7	-0.02	-14.1
Black	0.00	2.8	0.00	1.4	0.01	9.4	0.00	0.2
Hispanic	0.01	11.1	0.01	19.1	0.00	1.8	0.00	7.5
White	0.00	1.8	0.00	5.4	0.00	-1.0	0.01	11.5
Constant	-16.48	-30.4	-2.98	-9.8	-4.40	-4.7	0.50	2.3
Observations	126,644							
Psuedo R sq	0.1789							
Prob > chi2 = (	0.0000							
LR chi2(88) =	61,698							

Table A6. Sample Means of Dependent and Independent Variables by Race/Ethnicity: Type II Model with no Outcome Imputation and no Unknown Outcome Students

Variables	Mean Values by Race/Ethnicity			
	Asian	Black	Hispanic	White
Dependent				
Percent				
Texas Public Selective	26.0	2.9	4.3	13.6
Texas Public Non-Selective	28.7	24.9	26.3	26.0
Historically Black	0.2	13.0	0.1	0.0
Private Selective	2.8	1.4	0.9	2.1
Private Non-Selective	1.7	4.2	2.8	3.2
Out of State Public	0.3	0.4	0.2	0.4
CC - Academic	26.3	31.7	40.7	39.8
CC - Technical	14.1	21.6	24.6	14.9
Unknown				
Independent				
Percent				
Male	48.3	42.1	44.1	46.9
Ever LEP	29.5	1.0	25.3	0.5
Top 10 Percent	33.0	7.2	9.4	18.3
Advanced Diploma	54.9	34.8	42.8	47.6
IEP Diploma	0.3	1.7	1.1	0.7
Private High School	3.5	2.2	3.5	4.2
GED	3.4	5.7	7.5	5.2
Regular Diploma	37.9	55.6	45.1	42.2
Number				
Age (Year)	18.6	18.7	18.7	18.6
Total AP Courses	3.2	1.0	1.2	1.6
College Hours	2.5	1.1	1.7	1.9
High School GPA	3.5	3.0	3.2	3.4
SAT Score	1,032	789	819	985
Income (thousands)	$39,815	$32,625	$31,379	$52,090
HS Class Size	454	304	315	314
Campus Percent				
Took ACT/SAT	66.9	59.8	59.6	64.1
Asian	12.2	4.0	2.1	3.4
Black	16.5	36.7	8.7	9.6
Hispanic	19.5	18.7	57.9	16.5
White	56.1	42.3	31.8	71.0
Observations	5,557	14,147	34,284	75,565

Table A7. Sample Means of Dependent and Independent Variables by Race/Ethnicity: Type II Model with Outcome Imputation and no Unknown Outcome Students

Variables	Mean Values by Race/Ethnicity			
	Asian	Black	Hispanic	White
Dependent				
Percent				
Texas Public Selective	23.7	2.5	3.9	12.4
Texas Public Non-Selective	26.2	21.7	24.2	23.6
Historically Black	0.1	12.5	0.1	0.0
Private Selective	6.8	1.9	1.4	4.3
Private Non-Selective	3.4	6.5	4.4	5.4
Out of State Public	2.9	8.6	6.0	4.8
CC - Academic	24.0	27.4	37.3	36.0
CC - Technical	12.8	18.9	22.6	13.6
Unknown				
Independent				
Percent				
Male	48.0	42.1	44.0	47.0
Ever LEP	28.4	0.9	25.1	0.5
Top 10 Percent	34.9	8.0	9.7	19.3
Advanced Diploma	55.9	36.9	44.0	48.8
IEP Diploma	0.3	1.6	1.0	0.7
Private High School	3.2	1.9	3.2	3.9
GED	3.1	5.0	6.9	4.7
Regular Diploma	37.6	54.6	44.9	41.9
Number				
Age (Year)	18.6	18.7	18.7	18.6
Total AP Courses	3.4	1.1	1.2	1.7
College Hours	2.4	1.0	1.6	1.9
High School GPA	3.5	3.0	3.2	3.4
SAT Score	1,042	795	820	990
Income (thousands)	$40,306	$32,395	$31,065	$52,033
HS Class Size	459	308	317	320
Campus Percent				
Took ACT/SAT	67.2	59.8	59.3	64.2
Asian	12.1	4.0	2.1	3.5
Black	16.1	37.2	8.6	9.6
Hispanic	19.4	18.7	58.3	16.5
White	56.2	41.5	31.3	70.9
Observations	6,085	16,183	37,278	82,975

Table A8. Sample Means of Dependent and Independent Variables by Race/Ethnicity: Type II Model for the Known Outcome Model with Uknown Outcome Students

Variables	Mean Values by Race/Ethnicity			
	Asian	Black	Hispanic	White
Dependent				
Percent				
Texas Public Selective	19.3	1.3	2.0	7.9
Texas Public Non-Selective	21.3	11.5	12.2	15.0
Historically Black	0.1	6.0	0.0	0.0
Private Selective	2.1	0.6	0.4	1.2
Private Non-Selective	1.3	1.9	1.3	1.9
Out of State Public	0.2	0.2	0.1	0.2
CC - Academic	19.5	14.6	18.8	23.1
CC - Technical	10.4	9.9	11.4	8.6
Unknown	25.9	53.9	53.8	42.1
Independent				
Percent				
Male	49.5	48.0	48.6	50.6
Ever LEP	29.7	0.9	27.1	0.6
Top 10 Percent	31.1	4.7	5.3	13.5
Advanced Diploma	48.7	23.3	27.8	34.8
IEP Diploma	0.6	3.9	2.7	2.2
Private High School	4.5	1.7	2.3	3.9
GED	6.3	14.2	16.6	13.5
Regular Diploma	40.0	56.9	50.6	45.6
Number				
Age (Year)	18.7	18.9	19.0	18.7
Total AP Courses	3.0	0.7	0.7	1.2
College Hours	2.2	0.7	1.0	1.4
High School GPA	3.4	2.9	3.0	3.3
SAT Score	1,034	759	781	957
Income (thousands)	$40,223	$31,355	$30,192	$50,901
HS Class Size	430	264	271	273
Campus Percent				
Took ACT/SAT	66.7	60.4	60.2	63.5
Asian	11.7	3.5	1.9	3.1
Black	16.3	35.1	8.5	9.5
Hispanic	20.3	19.0	53.4	16.9
White	56.8	43.5	35.5	70.3
Observations	7,496	30,716	74,208	130,452

Table A-9. Sample Means of Dependent and Independent Variables by Race/Ethnicity: Type II Model for the Outcome Imputed Model with Uknown Outcome Students

Variables	Mean Values by Race/Ethnicity			
	Asian	Black	Hispanic	White
Dependent				
Percent				
Texas Public Selective	19.3	1.3	2.0	7.9
Texas Public Non-Selective	21.3	11.5	12.2	15.0
Historically Black	0.1	6.6	0.0	0.0
Private Selective	5.5	1.0	0.7	2.7
Private Non-Selective	2.8	3.4	2.2	3.4
Out of State Public	2.4	4.5	3.0	3.0
CC - Academic	19.5	14.4	18.7	22.9
CC - Technical	10.4	9.9	11.4	8.6
Unknown	18.8	47.3	49.8	36.4
Independent				
Percent				
Male	49.5	48.0	48.6	50.6
Ever LEP	29.7	0.9	27.1	0.6
Top 10 Percent	31.1	4.7	5.3	13.5
Advanced Diploma	48.7	23.3	27.8	34.8
IEP Diploma	0.6	3.9	2.7	2.2
Private High School	4.5	1.7	2.3	3.9
GED	6.3	14.2	16.6	13.5
Regular Diploma	40.0	56.9	50.6	45.6
Number				
Age (Year)	18.7	18.9	19.0	18.7
Total AP Courses	3.0	0.7	0.7	1.2
College Hours	2.2	0.7	1.0	1.4
High School GPA	3.4	2.9	3.0	3.3
SAT Score	1,034	759	781	957
Income (thousands)	$40,223	$31,355	$30,192	$50,901
HS Class Size	430	264	271	273
Campus Percent				
Took ACT?SAT	66.7	60.4	60.2	63.5
Asian	11.7	3.5	1.9	3.1
Black	16.3	35.1	8.5	9.5
Hispanic	20.3	19.0	53.4	16.9
White	56.8	43.5	35.5	70.3
Observations	7,496	30,716	74,208	130,452

Table A10: Coefficients and z Scores for Type II Model with no Allocated College Types and without No College Category

Independent Variables	Texas Public Selective		Private Selective		Texas Public Non-Selective		Private Non-Selective		Historically Black		Out of State Public		CC-Academic	
	Coef.	z	Coef.	z	Coef.	z	Coef.	z	Coef.	z	Coef.	z	Coef.	z
Categorical (0,1)														
Asian	0.34	5.4	-0.07	-0.6	0.07	1.4	-0.50	-4.3	0.87	2.3	-0.38	-1.3	-0.19	-3.8
Black	0.08	1.3	1.20	12.6	0.45	12.5	0.62	9.8	4.98	28.6	0.83	4.7	-0.29	-9.3
Hispanic	-0.32	-7.0	0.02	0.2	-0.15	-5.1	-0.15	-2.7	0.60	2.4	-0.30	-1.8	-0.16	-6.6
Male	0.12	4.4	-0.01	-0.3	-0.03	-1.6	-0.03	-0.9	0.25	4.7	0.31	3.2	-0.08	-4.7
Ever LEP	-0.11	-1.7	-0.11	-0.9	-0.08	-2.5	-0.71	-8.5	-0.50	-2.2	-0.52	-1.9	-0.18	-6.1
Top 10 Percent	0.28	6.1	0.19	2.8	0.17	4.3	0.40	6.7	0.44	3.8	0.04	0.2	0.21	5.3
Advanced Diploma	0.67	22.3	0.71	12.5	0.61	30.0	0.48	12.0	0.34	5.7	0.52	4.9	0.13	6.8
IEP Diploma	-0.48	-1.4	0.08	0.1	-1.54	-10.3	-0.44	-1.8	-1.38	-4.7	-0.90	-0.9	-0.22	-3.4
Private HS	1.11	14.3	1.60	13.7	0.69	10.9	1.75	19.7	1.09	5.5	1.00	4.1	0.67	11.2
GED	-2.94	-13.9	-3.16	-5.4	-2.09	-33.0	-1.55	-11.6	-1.02	-5.5	-1.65	-3.5	-0.30	-9.1
Continuous														
Age (Year)	0.01	0.4	0.09	1.7	-0.16	-11.0	-0.04	-1.3	-0.15	-3.4	0.20	9.4	-0.05	-4.4
AP Courses	0.22	31.9	0.23	25.3	0.16	26.3	0.18	19.8	0.12	7.2	-0.07	-3.7	0.07	11.1
College Hours	0.03	16.0	0.02	4.9	0.03	16.5	-0.01	-2.3	0.03	5.6	0.50	4.1	0.01	3.6
High School GPA	1.33	35.3	1.25	17.3	0.28	11.9	0.39	8.7	-0.21	-3.5	0.37	9.6	-0.03	-1.6
SAT Score	0.71	64.6	0.79	39.7	0.26	36.4	0.28	20.4	0.09	4.4	0.10	4.2	0.07	11.0
Income (thousands	0.14	20.5	0.04	3.0	0.06	11.9	-0.03	-3.3	0.00	0.3	0.09	3.8	0.03	5.6
HS Class Size	0.10	15.2	0.08	6.5	0.03	6.0	0.00	0.3	0.06	3.6	0.08	10.3	0.06	13.3
Campus Percent														
Took ACT/SAT	0.03	20.7	0.02	9.7	0.01	13.5	0.01	4.8	0.00	-1.0	0.03	6.1	0.00	-5.2
Asian	0.00	1.2	0.00	0.4	0.00	-0.8	-0.01	-2.4	0.02	4.6	-0.01	-1.4	-0.01	-7.5
Black	0.00	3.4	0.00	2.2	0.00	1.1	0.01	4.1	0.01	7.3	0.00	0.4	0.00	0.9
Hispanic	0.01	7.7	0.01	3.1	0.01	12.4	0.01	6.2	0.00	-2.4	0.01	3.1	0.00	1.3
White	0.00	1.7	0.00	2.4	0.00	2.5	0.01	4.0	0.00	-1.6	0.01	1.4	0.00	6.3
Constant	-16.25	-30.5	-19.22	-18.4	-1.74	-5.7	-6.12	-9.5	-3.49	-3.9	-11.63	-5.9	0.89	4.0

Observations	130,328
Psuedo R sq	0.1593
Prob > chi2 =	0.0000
LR chi2(154) =	63,401

Table A11: Coefficients and z Scores for Type II Model with no Imputed Outcomes and with Unknown Outcome Students

Independent Variables	Texas Public Selective		Private Selective		TX Public Non-Select.		Private Non-Selective		Historically Black		Out of State Public		CC-Academic		Unknown	
	Coef.	z	Coef.	z	Coef.	z	Coef.	z	Coef.	z	Coef.	z	Coef.	z	Coef.	z
Categorical																
Asian	0.13	2.2	-0.30	-2.9	-0.05	-1.0	-0.66	-5.6	0.78	2.1	-0.53	-1.8	-0.23	-4.7	-0.55	-11.5
Black	-0.31	-4.8	0.81	8.7	0.28	8.2	0.43	6.8	4.94	28.4	0.63	3.5	-0.34	-10.7	0.10	3.7
Hispanic	-0.28	-6.6	0.05	0.7	-0.11	-4.1	-0.11	-2.0	0.67	2.7	-0.25	-1.5	-0.16	-6.5	0.03	1.2
Male	0.16	6.3	0.03	0.6	-0.01	-0.7	-0.01	-0.3	0.25	5.0	0.33	3.4	-0.07	-4.2	0.15	10.3
Ever LEP	-0.10	-1.8	-0.09	-0.8	-0.09	-2.7	-0.71	-8.6	-0.41	-1.8	-0.52	-1.9	-0.18	-5.9	-0.04	-1.6
Top 10 Percent	0.40	8.9	0.32	4.6	0.18	4.4	0.44	7.3	0.45	3.9	0.04	0.2	0.20	5.0	0.55	13.8
Advanced Diploma	0.61	21.2	0.64	11.5	0.61	30.0	0.48	12.1	0.20	3.4	0.50	4.7	0.14	7.2	-0.63	-34.2
IEP Diploma	-0.89	-2.8	-0.35	-0.6	-1.67	-11.2	-0.61	-2.5	-1.22	-4.2	-1.16	-1.2	-0.29	-4.5	0.74	14.5
Private HS	0.59	8.0	1.10	9.6	0.46	7.4	1.54	17.5	0.92	4.8	0.64	2.6	0.56	9.5	-0.27	-4.7
GED	-2.95	-14.1	-3.18	-5.5	-2.11	-34.1	-1.56	-11.9	-1.05	-5.8	-1.75	-3.8	-0.32	-10.3	0.49	18.2
Continuous																
Age (Year)	-0.02	-0.9	0.00	-0.1	-0.22	-15.8	-0.10	-3.3	-0.22	-5.6	-0.12	-1.3	-0.07	-6.8	0.17	20.0
AP Courses	0.13	20.6	0.02	9.0	0.11	18.5	0.12	14.2	0.10	6.5	0.13	6.3	0.04	7.4	0.04	6.6
College Hours	0.02	11.8	0.00	-0.9	0.02	13.0	-0.01	-3.7	0.02	4.5	-0.07	-3.9	0.00	2.6	-0.07	-41.2
High School GPA	1.31	34.3	0.00	2.2	0.29	11.5	0.42	8.8	-0.27	-4.3	0.47	3.6	-0.05	-2.3	-0.19	-8.6
SAT Score	0.52	51.1	0.00	0.6	0.19	27.4	0.20	14.8	0.09	4.5	0.28	7.3	0.05	8.5	0.08	14.0
Income (thousands	0.12	17.9	0.00	1.5	0.06	10.5	-0.05	-4.7	-0.01	-0.5	0.10	3.9	0.03	5.2	-0.01	-2.3
HS Class Size	0.08	12.6	0.04	0.8	0.02	3.1	-0.01	-1.1	0.06	3.8	0.07	3.0	0.06	12.1	-0.06	-13.0
Campus Percent																
Took ACT/SAT	0.02	19.8	0.14	16.5	0.01	13.6	0.01	5.1	-0.01	-3.8	0.03	6.4	0.00	-4.0	0.01	17.0
Asian	0.00	-1.4	0.01	2.4	0.00	-2.2	-0.01	-3.1	0.02	4.7	-0.02	-1.8	-0.01	-8.0	0.00	-2.9
Black	0.00	3.6	1.23	16.3	0.00	1.0	0.01	4.5	0.01	7.4	0.00	0.3	0.00	0.8	0.01	12.4
Hispanic	0.00	3.0	0.59	31.3	0.01	9.7	0.01	4.7	-0.01	-3.2	0.01	2.3	0.00	-0.1	0.01	11.9
White	0.00	-0.3	0.01	0.8	0.00	1.1	0.01	3.6	0.00	-0.8	0.00	1.0	0.00	5.3	0.01	10.2
Constant	-12.86	-26.7	-15.55	-15.6	0.06	0.2	-4.13	-6.6	-1.30	-1.5	-9.22	-4.8	1.61	7.1	-3.21	-16.6

Observations		244,366
Psuedo R sq		0.1482
Prob > chi2	=	0.0000
LR chi2(176)	=	109,031

Table A12: Coefficients and z Scores for Type II Model with Imputed Outcome and without Unknown Outcome Students

Independent Variables	Texas Public Selective		Private Selective		Texas Public Non-Selective		Private Non-Selective		Historically Black		Out of State Public		CC-Academic	
	Coef.	z	Coef.	z	Coef.	z	Coef.	z	Coef.	z	Coef.	z	Coef.	z
Categorical (0,1)														
Asian	0.33	5.4	-0.13	-1.6	0.08	1.5	-0.46	-5.3	0.91	2.4	-0.61	-6.7	-0.18	-3.6
Black	-0.01	-0.2	1.04	12.8	0.41	11.6	0.47	9.3	5.08	29.3	0.32	6.6	-0.30	-9.5
Hispanic	-0.32	-7.3	-0.01	-0.2	-0.15	-5.2	-0.25	-5.6	0.62	2.5	-0.32	-7.3	-0.16	-6.5
Male	0.11	4.1	-0.08	-2.0	-0.04	-2.1	-0.06	-2.2	0.16	3.1	0.02	0.8	-0.08	-5.0
Ever LEP	-0.11	-1.8	-0.18	-1.7	-0.10	-2.9	-0.59	-9.1	-0.56	-2.4	-0.24	-4.6	-0.18	-6.0
Top 10 Percent	0.28	6.3	0.24	4.2	0.18	4.4	0.25	4.7	0.44	4.1	0.29	5.1	0.21	5.3
Advanced Diploma	0.66	22.4	0.70	16.3	0.61	29.9	0.52	16.9	0.35	6.2	0.50	17.2	0.13	6.9
IEP Diploma	-0.49	-1.5	-0.01	0.0	-1.53	-10.2	-0.79	-3.9	-1.32	-4.7	-1.18	-6.8	-0.21	-3.3
Private HS	1.20	15.6	0.67	6.2	0.72	11.4	1.20	14.5	0.94	4.7	-1.31	-7.1	0.68	11.3
Continuous														
GED	-2.94	-13.9	-3.45	-5.9	-2.08	-33.0	-2.07	-16.0	-1.12	-6.0	-4.71	-12.3	-0.29	-8.9
Age (Year)	0.02	0.8	0.06	1.4	-0.16	-10.8	-0.03	-1.2	-0.14	-3.4	0.01	0.5	-0.05	-4.5
AP Courses	0.22	32.6	0.25	32.6	0.17	26.8	0.20	25.8	0.13	9.1	0.18	21.8	0.07	11.3
College Hours	0.03	15.7	0.01	3.6	0.03	16.2	-0.01	-3.7	0.03	5.2	-0.05	-10.1	0.01	3.7
High School GPA	1.26	34.1	1.09	19.4	0.26	11.1	0.26	7.5	-0.22	-3.9	-0.27	-8.3	-0.04	-1.8
SAT Score	0.72	66.3	1.06	65.3	0.26	36.8	0.24	22.2	0.10	5.2	0.13	12.9	0.07	11.2
Income (thousands	0.13	18.6	0.06	6.4	0.06	10.6	-0.02	-2.3	0.01	0.5	-0.08	-9.6	0.03	5.4
HS Class Size	0.10	15.5	0.09	10.4	0.03	6.0	0.06	7.7	0.06	3.6	0.08	10.3	0.06	13.4
Campus Percent														
Took ACT/SAT	0.02	18.3	0.03	16.1	0.01	12.0	0.01	6.9	0.00	-0.2	0.00	1.3	0.00	-5.9
Asian	0.00	1.3	-0.01	-2.1	0.00	-0.8	-0.01	-3.6	0.02	3.9	-0.04	-9.0	-0.01	-7.6
Black	0.00	3.7	0.00	-0.6	0.00	1.2	0.00	0.2	0.01	6.9	-0.02	-7.0	0.00	1.0
Hispanic	0.01	7.3	0.00	0.3	0.01	12.2	0.00	1.0	0.00	-2.0	-0.02	-6.7	0.00	1.3
White	0.00	2.2	0.00	-2.1	0.00	2.7	0.00	-0.4	0.00	-2.2	-0.02	-7.5	0.00	6.4
Constant	-15.98	-30.4	-20.39	-23.9	-1.59	-5.2	-4.54	-8.7	-3.67	-4.2	0.41	0.7	0.94	4.2
Observations	143,333													
Psuedo R sq	0.1544													
Prob > chi2 =	0.0000													
LR chi2(154) =	76,023													

Appendix B
Estimation of Explanatory Variables

As we began examining the data available for the analyses presented in this paper, we realized that sample selection based on missing values of our explanatory variables could bias our results. For example, Hispanic students are more likely to drop out of high school, and less likely to take the SAT or ACT test, leaving us with no graduating class size or self-reported high school grade point average for many Hispanic students. We have described income estimation in the body of the paper. This Appendix describes the equations used to impute values of four other explanatory variables, SAT/ACT score, high school graduating class size, high school grade point average and whether the student was in the top ten percent of his/her graduating class. Tables B1 to B4 show the source of the value used and number of students assigned values from that source. For each estimating equation the table includes a brief description of the explanatory variables employed in the estimate.

The general approach was to use known values of each variable, starting with the most reliable. These values were then used as the dependent variable for a series of estimates. For each estimate we predicted the value of the dependent variable and assigned it to students for whom the dependent variable was missing. We continue this process, using other explanatory variables or a sub-set of the explanatory variables from the prior estimation.

The exception is high school class size. We used the know value when available, then assigned median value of class size for students indicating the same high school on the SAT/ACT. We then assigned median private or public high school class size for students who indicated they had graduated from a private or public high school. We assign a class size of 10 to GED recipients. Finally we assign the median public school class size to all other students.

Table B1. Number of Sample Observations to Which SAT/ACT Score was Assigned by Year and Source and List of Explanatory Varibles for each Imputation Estimation

	1995	1998	1999
SAT/ACT file	99,048	122,427	125,911
Prediction 1	4	55,177	60,466
Prediction 2		1,502	1,565
Prediction 3	4,070	832	632
Prediction 4	113,108	66,612	65,168
Total	216,230	246,550	253,742

Prediction 1 equations include: interaction of eligiblity for free/reduced rate lunch and rae/ethnicity, eighth grade and exit level TAAS scores, ever special education, and ever limited English proficient

Prediction 2 equations include: interaction of eligibility for free/reduced rate lunch, ever special education, ever limited English proficient, ever retained in grade, rank in top ten or top 25 percent of high school class and number of AP courses passed

Prediction 3 equations include: eighth grade TAAS score and exit level TAAS score.

Prediction 4 equations include: interaction of eligibility for free/reduced lunch and race/ethnicity, ever special education, ever retained in grade and ever limited English proficient.

There are no SAT variables for 1995 since the student data questionnaire information was not available.

Table B2. Number of Sample Observations to Which High School Class Size was Assigned by Year and Source

	1995	1998	1999
TEA graduation file	175,217	211,527	217,806
Median TEA for SAT/ACT HS code	330	456	487
Private school association file		15	5
Median TEA for SAT/ACT HS code		12	9
Median private for SAT/ACT HS code		26	32
GED assigned class size of 10	62,493	48,307	51,627
Median TEA class size for others	547	1,910	1,516
	238,587	262,253	271,482

Notes: TEA high school statistics were assigned whenever the TEA campus number was known. The SAT/ACT campus was used for all other assignments except the final line, in which case the median class size for all students was assigned.

There are no SAT files for 1995. The private school file is for 1997 only. We assumed that twelfth grade class size would remain stable and used the 1997 twelfth grade class size for 1995, 1998 and 1999.

Table B3. Number of Sample Observations to Which High School Grade Point Average was Assigned by Year and Source and List of Explanatory Varibles for each Imputation Estimation

	1995	1998	1999
SAT/ACT file	99,727	121,982	124,848
Prediction 1		4,645	5,591
Prediction 2	728	330	245
Prediction 3	4	50,770	55,603
Prediction 4	116,232	67,841	66,514
Total	216,691	245,568	252,801

Prediction 1 equations include: SAT/ACT score, interaction of eligiblity for free/reduced rate lunch and rae/ethnicity, eighth grade and exit level TAAS scores, ever special education, and ever limited English proficient

Prediction 2 equations include: interaction of eligibility for free/reduced rate lunch, ever special education, ever limited English proficient, ever retained in grade, rank in top ten or top 25 percent of high school class and number of AP courses passed

Prediction 3 equations include: eighth grade TAAS score and exit level TAAS score, interaction of eligibility for free/reduced rate lunch and race/ethnicity, ever limited English proficient, ever special education and ever retained in grade.
Prediction 4 equations include: interaction of eligibility for free/reduced lunch and race/ethnicity, ever special education, ever retained in grade and ever limited English proficient.

There are no SAT variables for 1995 since the student data questionnaire information was not available.

Table B4. Number of Sample Observations to Which Top Ten Percent of High School Class was Assigned by Year and Source and List of Explanatory Varibles for each Imputation Estimation

	1995	1998	1999
SAT/ACT file	95,762	115,983	111,131
Prediction 1	121,319	131,237	136,089
Prediction 2	1	948	1,281
Prediction 3	9	1,988	2,202
Prediction 4	2,550	3,383	3,641
Total	219,641	253,539	254,344

Prediction 1 equations include: SAT/ACT score and family income, including predicted family income from prior equations.

Prediction 2 equations include: eighth grade TAAS score, gender and race/ethnicity.

Prediction 3 equations include: graduation campus percent race/ethnicity, percent economic disadvantage, percent lep, percent special education and number of students, type of high school diploma and exit level TAAS score.

Prediction 4 equations include: SAT/ACT score, number of AP courses passed, family income, eight grade and earliest public school campus characteristics, and high school percent taking SAT and ACT.

Appendix C

Allocating Likely College Students with Unknown Schools to College Types

While we are able to identify college outcomes for most Texas residents who attend college, there remains a significant non-random category of high performing high school graduates, who indicated they planned to attend college and took the ACT, SAT or both, that we have no information on the school they attended. Most of these individuals enrolled in private or out-of-state colleges or universities.

To assess the probable impacts of these missing first-time freshmen, we estimated what we refer to as Type II models for the Hopwood year (1999). As we indicated in the body of this paper, for three of these models we allocated those individuals who we believe attended college, but are unaccounted for, to one of four college type categories, historically black, private selective, private non-selective and out-of-state colleges and universities.

We use simple assignment rules to allocate the "likely attendees" to one of the four, four-year college types. Students who sent more than 50% of their SAT score reports to historically black institutions are assumed to attend an HBCU. Next, those with actual or predicted SAT scores in the top quartile (among those known to attend a 4-year colleges or who are among the group of likely attendees) are assigned to a selective school, while others are assumed to attend non-selective institutions. We assign these "likely attendees" to private or to out-of-state public schools based on their response to ACT and SAT questionnaire responses regarding their preference for a private or public institution. Finally, we allocate those who are not allocated to an institution type using these assignment rules did not attend college and include them in a No College category.