# High School Outcomes and College Decisions of Texas Public School Students

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## Introduction

This paper, which examines high school outcomes and college decisions of public high school students, is part of an Andrew Mellon Foundation funded study of minority access to higher education. In many respects it may be viewed as an extension of analyses presented in *The Shape of the River* (Bowen and Bok 1998). Like the Bowen and Bok book both this paper and the larger study are particularly concerned with minority access to higher education. In contrast to Bowen and Bok (1998), who limited their analysis to a small number of elite, predominately private, colleges and universities and considered only African Americans, we examine the high school outcomes of Native American, black, Asian, Hispanic and white students enrolled in Texas public schools and their choices among all Texas public universities and Community Colleges. Finally, we consider the ways in which the elementary and middle school educational experiences of these students affect their high school outcomes, and, for those that complete high school, their college decisions.

This paper is based on data for individuals attending Texas public schools and/or public colleges and universities during 1990-1999. A number of events occurred during this period that dramatically affected the policies of public colleges and universities in Texas toward the admission of minority students. Before 1996, most public universities in Texas gave underrepresented minorities some degree of preference in admission in an effort to increase their representation on college campuses. This was especially true of

the more selective campuses, which relied heavily on standardized test scores to allocate scarce spaces to applicants. In many cases, these campuses employed a different cut-off in deciding between minority and majority applicants in an effort to compensate for various historical and contemporary factors that produced large differences in standardized test scores.

In 1996, the Fifth Circuit Court of Appeals in *Hopwood vs. Texas*, a case filed by four white students who had been denied admission to the University of Texas at Austin (UT-Austin) Law School in 1992, ruled that Texas had fulfilled its obligation to remedy a history of overt discrimination and that it was neither necessary nor permissible to continue racially targeted efforts to raise minority enrollment in the state's public universities. The next year the Texas Attorney General ruled that the Hopwood decision applied to undergraduate as well as graduate and professional school admissions, extended the ruling to include financial aid and concluded it applied to all state institutions in Texas and any private institutions that received Federal assistance.

The effects of Hopwood on undergraduate admissions at Texas' most selective public universities were dramatic. In the three years prior to the Hopwood decision (1994-1996), 488 black Texas public high school graduates enrolled as freshmen at one of the three most selective Texas public universities as defined by mean SAT scores. In the three post-Hopwood years (1997-1999), only 338 enrolled, a 30.7 percent decline. The decline in mean annual Hispanic freshmen enrollments in the pre- and post-Hopwood periods was considerably smaller, 10.3 percent. In contrast, white freshmen

enrollments of Texas public high school graduates increased by 13 percent and Asian and Native American freshmen enrollments increased by 19.9 and 22.6 percent.[1]

When the effects of Hopwood on undergraduate admissions at the state's leading public universities became known, concerned citizens and members of the Texas state legislature began an effort to devise policies that would conform with the Hopwood decision, while increasing the representation of underrepresented minorities at Texas public colleges and universities and particularly at the more selective ones. The Texas Commission on a Representative Student Body (1998), created by the Texas Higher Education Coalition, was especially influential.[2] In 1997, the state legislature passed a law that guarantees Texas high school graduates whose class rank puts them in the top 10 percent of their high school graduating class admission to any Texas public college or university. We have thus far not been able to obtain THECB enrollment data for the year following enactment of the top 10 percent law that would enable us to evaluate the laws impacts on minority enrollments. There have been reports in numerous newspapers and magazines indicating that in the year following its enactment, freshmen enrollments of underrepresented minorities at UT-Austin exceeded pre-Hopwood levels (Ornstein, 2000). These increases appear to be due to aggressive recruiting efforts by UT-Austin at

[1] These numbers are based on tabulations of Texas Higher Education Coordinating Board (THEBC) enrollment files by the authors.

[2] The commission was chaired by the highly respected and influential William P. Hobby, who had, among other posts, been Lieutenant Governor of Texas, Chancellor of the University of Houston (UH) system and President and Executive Editor of *The Houston Post*. 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.

high schools that previously sent few, if any students to UT-Austin, the lifting of

Those in the youngest cohort would have been high school seniors in 2000 and if they went to college they would have been college freshmen in 2001.

The analyses in this paper are based primarily on data for the single cohort identified by the shaded years/grades. Students belonging to this cohort would typically have been in the fourth grade in 1990 and most of those who enrolled in college would have been freshmen in 1999. This is the third post-Hopwood year and the year before the legislature enacted the top 10 percent rule. When we complete our currently scheduled data collection for the Mellon project, this cohort will include data for two more years and regularly progressing students belonging to the cohort used in this paper will be in their third year of college. It is worth noting that surprisingly few students enrolling as freshmen in Texas public universities follow what one might think of as a "standard" four-year college program.[3]

The "E"s in Table 1 indicate that we have enrollment, attendance and other student data for elementary school students in that year and the "H"s indicate we have these data for high school students. A "T" indicates that we have the same enrollment and attendance as well as standardized test data, either or both of the TAAS (Texas Assessment of Academic Skills) and NAPT (Norm-reference Assessment Program for Texas) tests, for that grade/year. An "R" identifies grades/years for which we have requested tests, but have not obtained them as of yet. The "R"s in the college panel indicate we have not received the year 2000 data from the coordinating board either. We

[3] Calculations based on THECB enrollment data indicate that only 12 percent of 1992 Texas public high school graduates who enrolled as freshmen in a Texas public university in the fall of 1993 completed a bachelor's degree within in four years. The second highest group completed their bachelors degrees in five years. These calculations allow for transfers and the receipt of degrees from anOther Texas Public University but not a Texas private or out-of-state college or university.

have not obtained data for the last year, identified as the current year, because the school year has not ended.

Funding from the Smith Richardson Foundation for a study of Charter Schools will enable us to fill in the blank spaces in the lower left hand corner of Table 1. We do not expect to use these data for the Mellon study, however, as these students are too young to include them in a study that focuses on high school outcomes and access to college. We have also been promised, but have not yet received, SAT and ACT scores and socio-economic data for the same 12-year period. Use of common encrypted IDs will permit us to link these data to the TSMP data we have already obtained for the roughly 60 percent of Texas high school graduates who took one or both of these tests. As we discuss further below, we anticipate that the ACT and SAT data will enable us to identify graduates from Texas private high schools who are enrolled in Texas public colleges and universities. These data will presumably also permit us to identify the high school each private high school graduate attended, but we will have no information on their elementary and secondary school histories except for the self-reported data included on the questionnaires completed by those who took the ACT or SAT. If we are able to obtain the necessary funding, we will add data that would enable us to identify the Texas private colleges attended by Texas public high school graduates. We have also asked the Texas Workforce Commission (TWC) to provide us with earnings data for Texas residents during the same period in a form that we can link to students included in TSMP.

Virtually all of the analyses described in this paper are based on information for 265,009 students who were enrolled in the eighth grade in one of 1,614 Texas public schools in 1994. We chose this cohort because it was the earliest for which we had an

elementary or middle school standardized test. As inspection of the shaded years/grades in Table 1 reveals, these students also took TAAS in 1991, when they were in the fifth grade, and another test in the tenth grade. Because of our emphasis on the impacts of early educational experiences on high school outcomes and college decisions, we would very much have liked to have included fifth grade scores in the analyses presented in this paper. As noted previously, the R in the 1991/5 (year/grade) cell indicates that we have requested the fifth grade scores, but have not yet received them. The tenth grade TAAS, which was also taken by members of this cohort and is used in subsequent analyses in this paper, is a so-called exit exam. All students in Texas public schools must pass this "high stakes" test in order to receive a high-school diploma.[4] The Exit TAAS is initially given to tenth graders in February and is offered again in May and then four times in each subsequent year. Students who fail the test on their first try thus have ten opportunities to pass the test and qualify for graduation.

As Table 2 shows we currently have up to 10 years of enrollment/attendance data for the cohort used in the analyses presented below. These data also indicate that not all students follow a "regular" progression and that significant numbers of students who were ninth graders in 1994 are missing in one or more years. Thus, nearly 42,000 students are missing in 1990 and nearly 52,000 are unaccounted for in 1998. In addition to students who either graduated or were Still Enrolled in 1998, we count as "accounted for" students who graduated from high school in 1997, the cumulative numbers who dropped out or dropped out and completed a GED, and students enrolled in either two- or four-year colleges in 1997, 1998 or 1999. Students who graduated from private high

[4] Some students enrolled in special education programs are awarded IEP/Minimum Diplomas without passing the Exit TAAS.

schools, after attending public schools in the eighth grade, and then enrolled in a Texas public college or university are included in the two- and four- year college enrollment numbers. The resulting estimates of unaccounted for Out-of-Sample students between 1995 and 1999 are shown in the next to last row.

Students above the diagonal in years before 1994 were double promoted in one or more years while those below were retained in grade for one or more years. This relation is reversed for years beyond 1994 when students above the diagonal have been retained for one or more years and those below the diagonal have accelerated their program. Focusing on the numbers above the diagonal for the years after 1994, the 36,953 students

doing failing work in a single subject than are individual high school teachers who decide only whether to fail a student in a single course. Thus, the ninth grade bulge has less significance than some have suggested.

Elementary and secondary school data in TSMP come from the Public Education Information Management System (PEIMS) database, which is maintained by the Texas Education Agency (TEA). While this database is impressive, it has several weaknesses. One of them is incomplete information on the origins/destinations of students who enter or leave public schools between first and twelfth grade. To be included in the sample used in the analyses in this paper, students must have been enrolled in the eighth grade of a Texas public school in 1994. Between the first and eighth grade most of the Out-of-Sample students in Table 2 are individuals who entered the state or transferred from private schools or home schooling before they were in the eighth grade. After the eighth grade, missing students include dropouts and students who move out of state or transfer to public high schools or home schooling. About 26,000 of the eighth grade students who leave the sample during high school are identified as dropouts in the PEIMS data; about half of them are students who dropped out and obtained a GED by 1998. The fact that about 10,000 more students left the sample for other, unknown reasons during 1995-1998 than entered during 1990-1993, makes us suspect that the Out-of-Sample category may include significant numbers of unidentified dropouts. One of the uses we envision for the TWC earnings data, if we are able to obtain them, will be to identify unidentified dropouts – students who left the sample for unidentified reasons and remain in the state (are employed in Texas during this period). This is, of course, not a foolproof test as

some of these individuals may have transferred to private schools or home schooling and be holding part time jobs.

**High School Outcomes**

We begin this analysis by examining what we term high school outcomes for students who were enrolled in the eighth grade of Texas public schools in 1994. As Table 3 indicates, it makes a big difference as to whether Out-of-Sample students, which represent 24.3 percent of all eighth graders, are included or excluded from the sample. The fraction of dropouts, for example, is 4.4 percent for the entire sample, but rises to 5.8 percent when the Out-of-Sample students are excluded. As discussed above, we expect that this figure understates the percent of students who drop out of school, but we have no way of knowing by how much.

Similarly, depending on whether Out-of-Sample students are included or excluded, we obtain estimates of 4.8 and 6.4 percent for the number of eighth graders who obtained GED's by 1999. Of course, this number is a lower bound estimate as more dropouts would be expected to complete the GED in future years. It is also worth noting that these GED recipients are also high school dropouts. Thus, a more accurate estimate of dropouts might be the sum of these two figures, which are 9.2 percent of all students and 12.2 percent when Out-of-Sample students are omitted. Data on the number of GEDs earned by individuals enrolled in 9$^{th}$ grade in 1990 suggest that the number of GEDs earned by identified and unidentified dropouts during 1994-2003 are likely to be twice the 1994-1998 total.

The bottom panel in Table 3 provides a breakdown of the types of diplomas earned by high school graduates. We count as private high school graduates all Out-of-Sample students who enrolled in a Texas public college or university in 1999. Obviously this underestimates the number of students who graduated from a private high school after transferring from public school. A significant fraction of public-private transfer students who graduated from a private high school would have attended Texas private or out-of-state colleges and universities, and still others may not have enrolled as yet or may never attend college. When we obtain the ACT and SAT data, we have been promised, we expect to be able to identify a large fraction of the eighth grade public school students who transferred to private high schools. For private high school students who took the ACT and SAT and attended Texas public colleges and universities, moreover, we will know both the private high school and the community college or university they attended. The big remaining gap in our data, which we discuss in the section on college choices, will be the college and university choices of both public and private high school graduates who attend either private colleges or universities within Texas or out-of-state colleges and universities.

**High School Outcomes by Race/Ethnicity**

The share data in Table 4 are presented in three panels. The top panel gives the percentages of high school outcomes, including Out-of-Sample students, by race/ethnic group. Summing the third and fourth rows, which give the fraction of each race/ethnic group who dropped out or dropped out and then completed a GED, the combined percentages for Blacks, whites and Hispanics, either nine or ten percent, are not very

different. Combined dropout rates are lowest for Asian's, four percent, and highest for Native Americans, 13 percent. As the top row indicates, however, the fractions of Native Americans, blacks and Hispanics who are Out-of-Sample are much larger than the same figure for whites; Asian's again have the smallest fraction, 17 percent. As we discussed previously, we are concerned that the Out-of-Sample category, which should be limited to students who left the state or transferred to private schools, may include substantial numbers of unidentified dropouts. [5]

The bottom panel in Table 4 provides estimates of the rates at which members of the five race/ethnic groups who graduated from high school earned different types of diplomas. To simplify the presentation and because the curriculum differences seem to us to be insignificant, we have combined Advanced, Distinguished and Recommended diplomas into a single category, Advanced Diploma, and the Minimum and the Individual Education Plan diplomas, which are awarded to special education students, into a single IEP/Minimum Diploma. These data reveal that Native American, black and Hispanic high school graduates were far more likely to have received Regular Diplomas than whites or Asians. The difference for Asians is particularly notable as only a third received Regular Diplomas. In addition, Asians obtained Private High School Diplomas and attended Texas public colleges and universities at twice the rate of any other group. Only one percent of Asians obtained an IEP/Minimum Diploma while five percent of black, four percent of Hispanic, three percent of white and two percent of Native

[5] Gross out-migration from Texas between 1985 and 1990 was nearly 1.5 million or 9.6 of the State's 1985 population (U. S. Census, 1990). Using ten percent as the fraction of cohort members who left the state during 1965-1969 produces an estimate of roughly 26,000 out-migrants. If this figure is subtracted from 52,000 Out-of-Sample students in 1998, we obtain an estimated 26,000 unidentified dropouts during 1995-1998. This is considerably smaller than the number obtained by comparing the number of persons who entered the sample during 1990 to 1993 to the number unaccounted for after 1994.

American high school graduates were awarded these degrees. Finally, 60 percent of Asians obtained some kind of Advanced Diploma as contrasted with 29 percent of blacks, 36 percent of Hispanics and 44 percent of whites.

**MNL High School Outcome Model Results**

Multinomial Logit (MNL) models have been widely used to study multiple outcomes. MNL models specify the probabilities of the several outcomes as nonlinear functions of one or more explanatory variables, where the resulting equations are linear in the log of the odds.[6] Table 5 lists the mean values of both the outcome/dependent and independent variables included in our MNL equations of high school outcomes. The column labeled all students contains mean values for all eighth graders in 1994. The second column provides mean values for the 227,144 students that are used in estimating the first of two MNL high school outcome equations. They are the same students as in the first column except that observations with missing data have been omitted. With few exceptions the omitted records are for students who did not have an eighth grade TAAS score. The final column provides means for 199,210 students, which are those in column two minus Out-of-Sample students. Roughly 5,000 students who left public schools between 1994 and 1998, but enrolled in a Texas public college or university in 1999, are included in this third sample. We assume that most of them graduated from a Texas private high school or were home schooled.

The remaining high school outcome variables identify four types of diplomas awarded to students who were enrolled in the eighth grade in 1994. As in Table 4 we

[6] 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."

combined the Advanced, Distinguished and Recommended Diplomas into a single Advanced Diploma category and Minimum and Individual Education Plan Diplomas into a combined IEP/Minimum Diploma category. Private High School Diploma is a category we have assigned to those 1994 eighth graders who left public schools before graduation from high school, but enrolled as a freshman in a Texas public college or university in 1999. The mean percentages of these outcome/dependent variables for all students and for the two samples used in estimating the MNL models of high school outcomes are shown in the top panel of Table 5.

The lower panel of Table 5 provides the means of three kinds of independent variables used in the analyses. The first three independent variables, Eighth Grade TAAS scores, Days Absent and Age are continuous variables. The mean TAAS scores for the first two samples are both close to zero. This is because they are z scores, which are constructed to have a mean of zero and a standard deviation of one, and because observations with missing z scores are not included in calculating the mean. Approximately, 14.5 percent (over 37,000) of the observations in the all students sample have missing z scores.[7]

The second explanatory variable is Days Absent during the 1994 school year. If students are not enrolled during part of the year, these calculations are for those periods when they were enrolled in school. Days Absent is largest for the all students sample and

smallest for the sample without Out-of-Sample students. The final continuous variable is Age, which is defined as the student's age in years on September 1, 1994. There is very little variation in Age; in all three samples mean Age is 14.7 or 14.8. Age is important in our analysis of high school outcomes because students may not legally leave school before their sixteenth birthday.

The mean proportions of the categorical variables in Table 5 are expressed as percentages. Passed Exit TAAS identifies students who took and passed the exam on their first try while Failed Exit TAAS identifies those who took the test and failed it on their first try. Missing and Exempt, the omitted category in the MNL equations, are students who were missing when the exam was given or were excused because they were special education students who were not required to pass the Exit TAAS.

The next five variables are dummy variables that identify the five race/ethnic groups. As these data make clear, Native Americans are a small fraction of all three samples and Asians are only 2.3 percent of all students and 2.6 percent of the third sample. The shares of both Hispanics and blacks decrease from sample one to sample three while the those for whites increase steadily, reaching 54.8 percent of the third sample.

The next three variables, High, Low and Very Low Income, are zero/one proxies for household income. They are based on the eligibility of individual students for free or reduced price lunches under the Federal school lunch program. Eligibility relies on Federal definitions of the poverty level and thus depends on both family income and family size. To receive a free lunch, a child must be a member of a family whose income is less than 135 percent of the poverty level for its size. Similarly, to receive a reduced-

price lunch, family income must be between 135 and 185 percent of the poverty level. Students whose families receive AFDC benefits or who participate in a number of other poverty programs are also eligible for a free lunch. Students from higher income households are over represented in the two samples that are used in estimating the MNL models and particularly in the third sample, which excludes Out-of-Sample students.

The next three variables Male, Ever Special Education and Ever LEP are also dichotomous variables expressed as percentages. The fraction of all three variables declines from the first to third samples. In the case of males they go from being slightly over-represented in the first sample (51.1 percent) to being under-represented in the third (48.8 percent). Ever Special Education identifies students who were enrolled in a special education program in any year they were present in the sample. Similarly Ever LEP identifies students who were ever classified as LEP. There are significantly fewer Ever Special Education or Ever LEP students in the samples used in estimating the MNL equations. The largest drops are between the first and second samples and reflect the fact that significant numbers of both groups were excused from taking the Eighth Grade TAAS.

The coefficients of MNL equations are difficult to interpret without some type of transformation. For that reason while we provide the coefficient estimates for the MNL model as Appendix tables A1-A3, in the text we report the results as discrete changes in probabilities (Long, 1997). Table 6 thus presents estimates of marginal changes in the probabilities of high school outcomes where the change in the explanatory variable is represented by change from 0 to 1 for categorical variables. For Eighth Grade TAAS we use a one standard deviation increase and for Age and Days Absent we use a one-year or

a one-day increase. Finally, the Campus/Grade Percent High Income we use a ten percentage point change.

The estimates in Table 6 indicate that a one standard deviation increase in a student's eighth grade test score would increase his/her probability of being awarded an Advanced Diploma by 17.7 percent and would decrease his/her probability of being awarded a Regular Diploma by 10 percent. The other large effect is on the probability of being Out-of-Sample, which declines by 5.9 percent.

The effect of a one-day increase in Days Absent is small, but it increases the probabilities of Out-of-Sample, Dropout, GED and Regular Diploma outcomes and decreases the probability of obtaining an Advanced Diploma. An increase in a student's September 1, 1994 Age by one year increases the probability of he/she being Out-of-Sample by 4.2 percent, of dropping out by 2.7 percent or of dropping out and receiving a GED by 2.6 percent. A one-year increase similarly decreases the probability of a student obtaining a Regular or Advanced Diploma by 1.3 and 8.0 percent respectively. Because we expected that the effect of Age would be nonlinear (students cannot drop out of school until they are 16 years of age), the MNL equations include both Age and Age Squared. The above estimates represent the effects of both variables.

In the case of the Pass Exit TAAS dummy, passing the exam on the first try decreases the probability of being Out-of-Sample by 36 percent and increases the probability of receiving Regular or Advanced Diplomas by 27.4 and 21.3 percent. Failing the Exit TAAS on the first try increases the probability of being Out-of-Sample by 15.7 percent, of dropping out by 1.3 percent and of obtaining a GED by 3.8 percent. A less understandable result is that failing the Exit TAAS on the first try also increases

the probability of obtaining a Regular or Advanced Diploma by 13.6 and 7.9 percent. The missing/exempt category for the Exit TAAS is the omitted category.

The next four categorical variables are dummies for race/ethnicity. For these variables the changes in probabilities for a particular category are relative to both the omitted white group and the other outcome categories. In the case of Native Americans, the largest differences across outcomes are for Out-of-Sample (6.8 percent), Regular Diploma (-3.4 percent) and Advanced Diploma (-2.8 percent). The outcomes with the largest differentials for Asians are similarly Regular Diploma (-8.3 percent) and Advanced Diploma (7.1 percent). Holding constant the effects of all of the other explanatory variables included in the equations, only four of the changes in outcome probabilities for blacks and Hispanics exceeded 1.1 percent in absolute value. The exceptions are Hispanic, Out-of-Sample (-2.4 percent); Black, GED (-2.3 percent); Black and Hispanic, Regular Diploma (1.7 and -1.4 percent); and Hispanic, Advanced Diploma (4.3 percent).

The next two variables indicate the net effect of household income on the six high school outcomes. The omitted category is High Income (not eligible for a free or reduced priced lunch). The largest effects are for Low Income, Regular Diploma (2.0 percent); Very Low Income, Out-of-Sample (3.6 percent); and Low and Very Low Income, Advanced Diploma (-4.3 and -4.9 percent). Being male increases the probability of being Out-of-Sample (1.2 percent), obtaining a GED (1.4 percent), being Still Enrolled (0.6) obtaining a Regular Diploma (2.9 percent) and reduces the probability of obtaining an Advanced Diploma (-5.7 percent).

The effects for the last two categorical variables are somewhat larger than was true of the income variables. Ever Special Education reduces the probability of being Out-of-Sample by 6.0 percent, of obtaining a GED by 1.1 percent and of obtaining an Advanced Diploma by 5.0 percent and increases the probability of obtaining a Regular or IEP/Minimum Diploma by 8.4 and 4.6 percent. Similarly, being ever LEP decreases the probability of being Out-of-Sample, a Dropout, a GED recipient of receiving a Regular or IEP/Minimum Diploma or graduating from a private high school while increasing the probability of receiving an Advanced Diploma. The largest of these effects are for GED (-2.5 percent) and for receiving an Advanced Diploma (4.9 percent).

The final explanatory variable in Table 6, the Campus/Grade Percent High Income, describes the elementary schools attended by the eighth grade students included in the analyses. The campus means used are the earliest year each student was in the sample. For 84 percent of the students this is 1990 (fourth grade), for the remaining years the fractions were between 3.5 and 4.3 percent. We include these campus grade level variables in the MNL equations because we are convinced that early educational experiences have important effects on high school outcomes and college attendance decisions. We would have preferred using elementary school mean test scores, which are a more comprehensive measure of the educational "quality" (Kain and O'Brien, 2000). We consider the Campus/Grade Percent High Income a proxy for elementary school quality.

A ten-percentage point increase in Campus/Grade Percent High Income is used in calculating the changes in probabilities in Table 6. The effects of these changes on high

school outcomes are quite small; the largest absolute value is a 0.6 percent decline in the percentage obtaining an Advanced Diploma.

**Estimates of MNL High School Outcome Models Without Out -of-Sample**

We are uncomfortable with the Out-of-Sample category because we believe it may include large numbers of unidentified dropouts. The only completely satisfactory solution will be to identify them. As we noted previously, the TWC data we hope to obtain may help in this respect. In the meantime, we have estimated the MNL high school outcome equations for a sample that excludes all Out-of-Sample students. Estimated coefficients and z scores for these equations are included in Appendix Table A-2 and the changes in probabilities are shown in Table 7. In discussing these results, we focus on the cells for which there appear to be large effects.

A one standard deviation increase in a student's Eighth Grade TAAS score increases the probability of receiving an Advanced Diploma by 19.4 percent. These gains come largely at the expense of 15.2 percent fewer Regular Diplomas, but small declines also occur in the number of dropouts, the number of GEDs, the number Still Enrolled and the number receiving an IEP/Minimum Diploma.

The mean number of Days Absent for students used in estimating the MNL equation in Table 7 is 6.3 days. The largest impact of a one-day increase in Days Absent is for the probability of obtaining an Advanced Diploma, which decreases by 1.1 percent. A one-year increase in a student's Age increases the probability of dropping out (3.8 percent), earning a GED (3.6 percent) and earning a Regular Diploma (1.4 percent) or

IEP/Minimum Diploma (0.3 percent). A one year increase in Age decreases the probability of being Still Enrolled by a small amount and the probability of receiving an Advanced Diploma by 8.9 percent, while increasing the likelihood of dropping out, receiving a GED or earning a Regular diploma.

Passing the Exit TAAS also has large effects on four of the outcome variables. The probabilities of

the probability of obtaining a GED, a 3.2 decrease in the probability of obtaining Regular Diploma and a 4.7 percent increase in the probability of obtaining an Advanced Diploma. The two outcomes that change by more than 1.5 percent for blacks are a 3.0 percent decrease in the probability of obtaining GED and a 1.6 percent increase in the probability of obtaining a Regular Diploma.

The largest effects of the two dummy variables that are proxies for Low and Very Low household incomes are to reduce the probability of receiving an Advanced Diploma. The estimates –4.8 percent for Low Income and –4.9 percent for Very Low Income are nearly the same and also exhibit the expected relative magnitudes. These decreases are offset by smaller increases in the probability of obtaining a Regular Diploma or a GED. The Male dummy decreases the probability of dropping out, but increases the probability of obtaining a GED. The largest changes are a 4.5 percent increase in the probability of obtaining a Regular Diploma and a 6.6 percent decrease in the probability of obtaining an Advanced Diploma.

The estimates in Table 7 indicate that students who were ever enrolled in special education programs are less likely to drop out (-2.2 percent), obtain a GED (-2.5 percent), or graduate with an Advanced Diploma (-6.7 percent. These tendencies are offset by higher probabilities of obtaining a Regular (6.9 percent) or an IEP/minimum (5.1 percent) diploma. The principal findings for Ever LEP students are that they are less likely (-3.0 percent) to obtain a GED and more likely (5.6 percent) to graduate with an Advanced Diploma.

As was true of the estimates in Table 6, the effects of attending an elementary school with a high percentage of high-income students are generally small. The

counterintuitive result in Table 6, that a 10 percent increase in the Campus/Grade Percent High Income decreases the probability of graduating from high school with an Advanced Diploma, also appears in Table 7, but the decrease is small (-0.7 percent).

**Texas Public High Schools Graduates Attending Texas Public Colleges and Universities**

When we began this project, we considered the unavailability of data on the enrollment of Texas students in Texas private colleges and universities an annoyance, but not a serious problem. We have changed our minds and plan to make a major effort, consistent with funding availability, to obtain them.[8] The discussion that follows indicates just how serious this problem may be.

The Integrated Postsecondary Education Data System (IPEDS), maintained by the U. S. Department of Education, is the only source that we have been able to locate thus far that permits us to assess the size of the problem. The 1993, 1995, 1997, and 1999 versions of these data provide enrollment estimates of both first-time freshman and first-time freshmen who completed high school in the previous 12 months for over 6,000

[8] Obtaining college enrollment data for Texas students attending Texas private and out-of-state colleges and universities will clearly be a major undertaking. In contrast to the enrollment data for Texas public colleges and universities, which are collected and maintained by THECB, there appears to be no central repository of individual data for out-of-state institutions and for private institutions within Texas. We have met with representatives of a small number of private colleges and universities in Texas and they appeared to be amenable to providing the data. It is clear, however, that this will be a major undertaking. The databases where these data are maintained differ significantly from one university to another as does data availability, particularly for earlier years. In each case, moreover, the representatives of these schools were rightfully concerned about confidentiality of the data. In order to link them to TSMP, social security numbers will have to be encrypted using the same algorithm that has been used to encrypt the student identifiers on the TEA and THECB data. We have just completed negotiating an agreement between the District 10 Educational Service Center in Richardson, TX, TEA and the Green Center under which TEA will provide District 10 programmers the encryption algorithm. Private colleges and universities in Texas, out-of-state colleges and universities and other third parties who are willing to provide confidential student data for use in this and other analyses would have to send them directly to the service center. The Service Center would then encrypt the original data, provide us with a copy of the data with encrypted identifiers and destroy the original data so that no copies with encrypted and unencrypted data would exist.

colleges and universities. The latter measure is closer to the concept used in this paper, but the estimates appear to be less reliable. Thus, the discussion that follows is based on data for the first-time freshman definition. While the 1999 IPEDS data are for the same cohort as we used for this analysis, we, nonetheless, use the 1997 data. The reason is that the 1999 data are preliminary and appear to contain significant errors.

The most serious weakness of the IPEDS data for our purposes is the lack of race/ethnicity identifiers. Nonetheless, they are useful in assessing the extent of the problem and in designing a cost-effective strategy for collecting these critical data. The fractions attending Texas private and out-of-state four-year institutions are substantially larger than we thought when we were designing the Mellon study. At that time, we had not located the IPEDS data, and took comfort from an estimate from other sources that 90 percent of Texas residents participating in higher education attended Texas public colleges and universities. This estimate was for both two and four year college and did not include Texas residents who went to out-of-state colleges and universities.

The estimates in Table 8 indicate that when students attending out-of-state colleges and universities are included 80.8 percent of Texas first year freshmen that enrolled in two- and four-year colleges and universities combined attended Texas public colleges or universities.[9] These data further reveal that nearly 15 percent of Texas high school graduates who enrolled as freshmen in four-year colleges in 1997 went out of state and nearly 19 percent went to private colleges and universities within Texas. We suspect the percentages of better-prepared and high-income students are higher. The fraction of students attending a four-year college or university who attend a Texas public university is only 66.2 percent.

[9] These estimates were prepared by Green Center analyst T. Robert Harris

Significant numbers of Texas high school graduates who enroll as freshman in either Texas private colleges and universities or out-of-state institutions transfer to Texas public colleges and universities during their college careers. We are able to identify these transfer students from THECB data along with the college or university they transferred from. During 1997, for example, we identified 4,790 students who initially enrolled in either Texas private colleges and universities or out-of-state institutions before they transferred to a Texas public college or university in that year.

We would also like to be able to assess claims that Texas private colleges and universities and out-of-state campuses exploited the Hopwood decision by recruiting well-prepared minority graduates from Texas high schools.[10] This would, of course, require us to obtain data on private and out-of-state enrollments for some number of years before and after the Hopwood decision. Finally, inspection of the IPEDS data indicates that private Historically Black institutions in Texas and both private and public Historically Black institutions in other states enroll disproportionately large numbers of African-American students. We hope to be able to obtain enrollment data from them as well.

It is clear from the above that the number of Texas high school graduates attending Texas private colleges and universities or out-of-state institutions is much larger than we thought when we designed the data collection plan for the Mellon study

[10] Jeffrey Selingo (1999) in the *Chronicle of Higher Education* story on college recruiting in Texas reported that "In the wake of the 1996 Hopwood v. Texas decision that banned the use of affirmative action by Texas institutions, dozens of mostly Midwestern colleges have stepped up their efforts to recruit black and Hispanic students… across the state. In the last two years, for instance, the number of out-of-state institutions requesting a schedule of college fairs in Texas has risen nearly 60 percent." Elsewhere in the story he quotes the head of admissions at Tulane University as saying "Texas is being picked clean by the other states." He also cites a recent survey by Texas A&M which "shows that one-third of the students accepted for fall 1997 by either the University of Texas at Austin or by Texas A&M turned down those offers and left the state for colleges elsewhere. More black students than white students left the state – 40 percent to 29 percent. Hispanic students accounted for 25 percent of those who left."

and that we need to make a major effort to collect data from these colleges and universities on their enrollments of Texas residents. Analysis of the 1997 IPEDS data indicates that if we could obtain individual data from the 20 largest private four-year colleges in Texas, we would be able to identify 80 percent of all Texas residents who are enrolled in this type of institution; if we increased this number to include the 30 largest this number would be nearly 94 percent. While obtaining data for a large fraction of these private colleges and universities will be difficult and expensive, it is by no means impossible and we intend to seek additional funding to collect them.

The task of collecting enrollment data on individual Texas residents who attend out-of-state colleges and universities is more daunting. IPEDS identifies 520 out-of-state public colleges and universities and 1,258 private four-year colleges and universities that enrolled Texas freshmen in 1997. The estimated yields from obtaining data for the 20 or 30 largest four-year private and 20 or 30 four-year public universities, not surprisingly, are considerably lower than for the in-state private colleges and universities. Nonetheless, these data indicate that if we could obtain data from the 30 institutions in each category with the largest enrollments of Texas residents, we would have found nearly 61 percent of Texas students attending out-of-state four-year public colleges and universities and more than 39 percent of those attending private ones

While we are concerned about the effect that lack of information on Texas residents who attend Texas private and out-of-state colleges and universities will have on our analyses, it would be a mistake to conclude that no meaningful analyses of high school outcomes and college choices are possible. The analyses of college choice included in this paper are based on data for more than 83,000 students who enrolled in a

Texas public two-year or four-year colleges or university in 1999. This number includes an estimated 4,654 private high school graduates and 2,067 dropouts-GED recipients who attended one of Texas' public colleges or universities in the same year.[11]

**College Choices by Race/Ethnicity**

In Table 9 we provide precise estimates of the numbers and proportions of Texas public high school graduates who attended Texas public colleges and universities and more speculative estimates of the numbers and proportions who attended in-state private and out-of-state public and private colleges and universities. These estimates, which are based on the shares included in Table 8, indicate that of the more than 91,000 high school graduates who were not enrolled in a Texas public college or university in 1999, nearly 20,000 attended one of these types of institutions. The largest group, estimated at 9,740 students, attended one of the state's private four-year colleges or universities. The second largest group, 4,484, attended a private out-of-state college or university. In using the share data from Table 8 to prepare these estimates, we assumed that graduates of public high schools attended these other categories of colleges and universities at the same rate as the graduates of private high schools.

In Table 10 we extend the preceding analysis by disaggregating the data for Texas public colleges and universities by race/ethnicity and by allocating the numbers for public universities to six categories determined by the average SAT scores of their entering

[11] What we describe as graduates of private high schools are, to be more precise, students who were in enrolled in the eighth grade of a Texas public school in 1994 and did not graduate from a Texas public high school, but enrolled as a freshman at a Texas public college or university in 1999. Some of these may be individuals who moved to another state and graduated from high school there before returning to Texas to attend college, somehow maintaining their status as a Texas resident. The major source of doubt about the inference that nearly all of these students graduated from Texas private high schools is that they appear to number roughly 60 percent of all 1998 graduates of Texas private high schools.

freshmen, circa 1997, and the racial and ethnic composition of their student bodies in 1991. We chose 1991 rather than a more recent year so that the categories defined by their racial/ethnic composition are not excessively influenced by recent events or attendance patterns. We do not attempt to provide estimates of enrollment in Texas private and out-of-state colleges and universities by race and ethnicity because we have no data that would support even an educated guess.

The criteria used in creating the six categories of Texas universities in in Table 10 are best understood by referring to Table 11 which identifies the schools that are included in each. The first group, Selective Texas Public Universities (Selective University), consists of three Texas public universities that have significantly higher SAT scores for their entering freshmen than any of the OTPU. UT-Austin and Texas A&M are the state's best-known public universities and in recent years their entering freshmen have consistently recorded the highest SAT scores. The third Selective University, The University of Texas at Dallas (UTD), is much less well known and has only been admitting freshmen and sophomores since 1990.[12]

Since the time UTD admitted its first freshmen class, it has maintained high admissions standards for its entering freshmen and has sought to position itself as a demanding and high quality institution. The SAT scores of its entering freshmen as reported in *U. S. World and New Report'*s most recent ranking of colleges and

[12] 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 THEBC, 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.

universities, were higher than either UT-Austin or Texas A&M (U. S. World and News Report, 2000).[13]

The second category includes two Historically Black institutions, Texas Southern University and Prairie View A & M University. These schools overwhelmingly serve African Americans, who comprised 97 percent of Texas Southern's and 92 percent of Prairie View's domestic students in 1991. Obviously, the identification of these schools as Historically Black institutions strongly affected the college choices of black students in 1991 and we anticipate still does.

The next three categories, Very High Percent Hispanic (VHPH), High Percent Hispanic (HPH) and High Percent Minority (HPM) are defined principally by the racial composition of their student bodies in 1991. The reasons for their racial composition are probably numerous, but geography plays an important, perhaps dominant, role. The student bodies of the VHPH universities were more than 60 percent Hispanic in 1991 and all six are located in Southwest Texas, an area with an overwhelmingly Hispanic population. Very few blacks, Asians, or Native American's attend these schools. Students attending these universities are either Hispanic or white (non Hispanic white) and most are Hispanic. Geography has also had a large impact on the racial/ethnic composition of the three HPH universities.

To be included in the HPM category an institution had to be more than 20 percent minority. In contrast to the Historically Black and VHPH schools, the HPM schools tend not to have a dominant minority group, although Lamar may be something of an exception. The minority share of the University of Houston (UH) downtown campus,

[13] US World and News Report gives 25$^{th}$ and 75$^{th}$ percentile scores. These comparisons are based on the midpoint of these scores.

which was 62 percent in 1991, was twice as large as the minority share of any of the other schools in the HPM category. The minority share of the UH primary campus, which is located within the central city and had an enrollment of 31,000 domestic students in 1991, is half as high, 30 percent. While an argument could be made for treating the two of them as a single unit, we keep them separate in the analysis. In contrast to the Historically Black, VHPH and HPH institutions, the universities included in the HPM category tend to have significant representation of both of the two larger race/ethnic groups and non-trivial shares of Asians and Native Americans.

The final category, Other Texas Public Universities (OTPU), consists of schools whose freshmen SAT scores were not high enough to be included in the Selective category and whose fraction of minorities in 1991 was below the 22 percent cutoff we used in defining the HPM schools. It might reasonably be argued that there is not much difference between the two HPM universities with the smallest percentage of minority students and the two universities included in the OTPU category that had the highest percent minority enrollments. We agree and would not make too much of this distinction. At the same time most of the minority students attending the one of the OTPU with the highest minority percentages, are Hispanic while the two included in the HPM category have significantly more black than Hispanic students.

Of the universities in the OTPU category, Texas Tech, the University of North Texas (UNT) and A&M Galveston tended to have higher freshmen SAT scores than the others, but as reported in the most recent *U. S. News and World Report* rankings, their midrange freshmen SAT scores were one hundred or more points below Texas A&M, whose freshmen scores were third highest among the three public universities in the

Selective category. It is perhaps worth noting in this regard, that at least 10 Texas private colleges and universities (Rice, Trinity, Southwestern, the University of Dallas, Austin College, Letourneau University, Baylor, TCU, SMU and University of Saint Thomas) had midrange scores in the most recent *U. S. News and World Report* survey equal to or above those of the three public universities we identify as Selective. This is further evidence of the importance of collecting individual enrollment data for Texas private colleges and universities.

Texas Tech, UNT and A&M-Galveston come closest to having freshmen SAT scores that would put them into the Selective category. Of these, Texas Tech, which is located in West Texas far from major population centers, has another characteristic that suggests it is doing something right and has drawing power, even if its SAT scores are significantly lower than the three schools we have included in the Selective category. Texas residents travel much longer distances to attend Texas Tech than most of the other Texas public universities. Using data on the geographic location of the high school attended by each entering freshman in 1999, we calculated the airline distance between that high school the university selected by that student. These individual miles traveled estimates were used to calculate a mean distance for each school. Texas Tech's mean distance was 216 miles. Only Sul Ross, which enrolled less than 10 percent as many entering freshmen as Texas Tech in 1999, had a greater mean airline distance, one mile greater than Texas Tech's average. By comparison, the average distance for Texas A&M was only 124 miles and for UT-Austin 130 miles. Both Texas A&M and UT-Austin are located near the state's four largest metropolitan areas.

Returning to the data on college enrollments by race/ethnicity, the top panel in Table 10 gives the shares of 1998 high school graduates belonging to each race/ethnic group who did not enroll as a freshman in a Texas public college or university in 1999 and the shares who enrolled in either a Texas Community College or public university.[14] As these data reveal, the fraction of black, Native American and Hispanic high school graduates who did not enroll in a Texas public college or university in 1999 was substantially less than the proportion of whites and the differences are even larger when compared to Asians. As we previously made clear, significant numbers of the students who did not enroll in Texas public colleges and universities in 1999 enrolled in Texas private colleges and universities or out-of-state schools. While we have no data on the race/ethnicity on Texas high school graduates attending these private and out-of-state rates college attendance, including these identifiers might widen the race/ethnic differences in college attendance shown in Table 10 for Texas public universities and Community Colleges.

Focusing on the fractions of each race/ethnic group who attend Texas Community Colleges versus public universities, reveals some interesting differences. Specifically, of those students attending Texas public colleges and universities, larger proportions of Native Americans, Hispanics and whites were enrolled in two-year rather than four-year institutions. The opposite is true for Asians and blacks, and particularly so for Asians; they attend Texas public universities at more than twice the rate (40.6 percent) that they attend Community Colleges (18.8 percent). The fraction of Asian public high school graduates attending Texas public universities (40.6) is also more than twice the fractions

[14] All of the two-year public colleges are community colleges and there are no four-year public colleges, they are all universities.

of Native Americans (14.6 percent), Blacks (17.2 percent) and Hispanics who enrolled in public four-year institutions in 1999. The much higher rates of attendance in Texas public universities by Asians is due in part to their lower rates of attendance at community colleges, but it may also be explained by a greater tendency for Asians attending four year institutions to choose in-state public universities at high rates relative to other groups.

The bottom panel of Table 10 omits high school graduates who did not attend a Texas Community College or public university. The table provides information on the allocation of these students among Community Colleges and the previously discussed six categories of Texas public universities. These data also show the low rates of Community College attendance by Asian public high school graduates. The rate for blacks (49.0 percent) is also considerably lower than for the other race/ethnic groups. The rate of Community College attendance for whites is 53.7 percent.

Turning to the comparisons for Texas public universities more than a third of Asians enrolled in one of the three Selective Universities, a rate that was more than twice as high as whites (15.3 percent), the next highest group. Again, this may reflect a tendency for high performing Asian students, who are less likely than whites to have parents that attended private or out-of-state colleges, to stay in the state and attend a Selective University. Blacks (3.7 percent) attended a Selective University at the lowest rate.

**Multivariate Analyses of College Choices**

The multivariate models we use to analyze the college choices of students enrolled in the eighth grade of Texas public schools in 1994 are similar to those for high school outcomes discussed above, but there are important differences. Instead of using a single sample of all students who graduated from a Texas public high school, obtained a GED or graduated from a private high school, we use two samples and estimate two MNL models. The problem in this case is our inability to distinguish between pubic high school graduates who did not enroll in college in 1999 and those who enrolled in private colleges and universities in Texas or in out-of-state institutions. Faced, with this uncertainty, we estimate two models, one based on a sample of all high school graduates and one that is limited to those high school graduates who attended a Texas Community College or public university in 1999. The dependent variable in the first model includes eight categories, including the option of not attending a Texas Community College or public university. The second model omits not attending a Texas Community College or public university as a choice.

The college choice models include all of the explanatory variables used in the high school outcome equations as well as categorical variables that identify five of the high school outcomes that were dependent/outcome variables in the high school outcome MNL models in Tables 6 and 7. The college choice MNL equations are thus conditional choice models for either all students who graduated from high school or for high school graduates who attended Texas public colleges and universities.

As Table 12, which gives the shares of individuals by college choice outcome reveals, there are large differences between the second and third samples. The

differences are most evident in the shares that did not attend a Texas public college or university, which is 67.8 percent for the first (entire) sample and only 51.7 percent when observations with missing data are omitted. The fourth column includes only Community Colleges and the six categories of Texas public universities as outcomes; the fractions for this sample attending each of the six categories of Texas public universities in 1999 are 2.1 times as large as the fraction in the third. The explanation is obvious, the number of high school graduates in the second sample who did not attend a Texas public college or university is just over half of the sample.

Mean values of the explanatory variables used in the MNL equations are displayed in Table 13. The mean Eighth Grade TAAS score for the full sample is very close to zero, indicating that in this respect at least this sample is very similar to the entire sample of all eighth grade students who took TAAS. The mean TAAS scores for the remaining two samples, however, are significantly higher than the same means in the samples used for the two high school outcome MNL equations. This is not surprising given the strong effect eighth grade scores have on high school completion and college attendance rates. In the third column/sample, the Eighth Grade TAAS score is nearly half a standard deviation larger than the mean for all individuals who received a grade on the Eighth Grade TAAS test.

The Passed Exit TAAS proportion was highest for the third sample and lowest for the first and opposite was true of the Failed Exit TAAS variable. Mean percentages for the five dummy variables in Table 13 that identify high school outcomes for the three samples are reasonable. The percentage of GED recipients is highest (6.2 percent) for the sample of high school graduates with no missing data and lowest for the sample of

students attending Texas public colleges and universities. The same pattern exists for those that completed a Regular Diploma, which peaked at nearly fifty percent of the sample of all high school graduates with complete data. The Advanced Diploma, which is held by more than half of all students attending Texas public colleges and universities, is held by just over one-fourth for the entire sample. Private high school graduates are just over five percent of all students enrolled as freshmen in Texas Community Colleges and public universities.

The Asian and white shares increase from sample one to sample three, where the Asian share is 3.5 percent and the white share is 62.9 percent. Black and Hispanic shares are the mirror image of the Asian and white shares, decreasing from sample one through three, where blacks are 9.7 percent and Hispanics are 23.7 percent of all persons attending Texas public colleges and universities.

Not surprisingly the Very Low Income share declines from sample one to three just as the High Income share increases to 78.6 percent of all students attending Texas public colleges and universities. The mean Campus/Grade Percent Low Income, the fraction eligible for a reduced priced lunch, is 4.8 percent for both of the first two samples and 4.0 percent for the third. Of the remaining dichotomous variables, the Male share decreases from the first to the third sample, where males are 45.2 percent of the total. The shares of both Ever Special Education and Ever LEP students similarly decrease from sample one to three, where Ever Special Education are 7.6 and Ever LEP students are 5.5 percent of all students with complete data who attended Texas public colleges and universities. The mean campus share of high income households increases from 58.6 percent in sample one to 65.6 percent in sample three.

As was true of the high school outcome MNL models, we present the coefficients and various test statistics for the MNL equations in appendix Tables A-3 and A-4 and tables of predicated changes in probabilities for each explanatory variable and outcome in the text. Table 14 contains these predicted changes in probability estimates for the first of the college choice equations, the MNL for all high school graduates. This equation is estimated with 169,036 observations.

Higher Eighth Grade TAAS scores have their largest effects on the probability of attending a Selective University or not enrolling in a Texas Community College or public university. The largest of the TAAS score effects is an increase in the probability of attending a Selective University by 17.4 percent. As before, these predicted marginal changes in probabilities assume a one standard deviation increase in the mean TAAS score. The second largest impact is an 11.6 percent decrease in the probability of not attending any Texas public college or university, a result that is closely followed by a 7.3 percent decrease in the probability of attending a Community College.

Neither Days Absent or Age have much impact on the college choices above and beyond their indirect effects through the high school outcomes which are included as explanatory variables in this and the next equation. The exception is the effect of one year's increase in Age on the last category, where it increases the probability of not being enrolled in a Texas public college or university in 1999 by 5.9 percent.

The first two variables in the next panel quantify the effects of passing the Exit TAAS on the first try and conversely of not passing. The largest effects of passing the Exit TAAS on the first try is to decrease the probability of not enrolling in a Texas public college or university by 10.3 percent and to increase the probability of attending a

Community College by 5.7 percent. Those who fail the exam on their first try are less likely to attend a Selective University (-2.9 percent), an OTPU (-2.4 percent) or to not have enrolled in a Texas public college or university in 1999. Their probability of attending a Community College, however, increases by 6.5 percent.

The GED dummy is the first of four high school outcome variables that are used as explanatory variables in the MNL models of college choice. Since recipients of Regular Diplomas are the omitted category, assessments of the changes in college choice probabilities for the remaining high school outcomes should be made with this fact in mind. As the estimates in Table 14 reveal, GED recipient recipients were 20.6 percent more likely than high school graduates to have not enrolled in a Texas public college or university in 1999 and have lower probabilities of attending any of the categories of public universities or Community Colleges.

High school graduates with an Advanced Diploma have a much lower (-12.3 percent) probability of not enrolling in a Texas public college or university but are more likely to be enrolled in a Selective University (2.8 percent), a VHPH (2.1 percent), a HPM (-1.6 percent), an OTPU (3.4 percent) or a Community College (1.7 percent). In contrast high school graduates with an IEP/Minimum Diploma are less likely to attend a Selective University (-5.1 percent) or an OTPU (-5.4 percent) and are also much more likely to not be enrolled in any Texas public college or university (18.1 percent).

Private high school graduates are more likely to attend a Selective University (3.3 percent), and even more likely to attend VHPH universities (3.7 percent), HPM universities (3.7 percent), OTPU (7.1 percent), or Community Colleges (33.2 percent). The preceding probability increases are offset by a huge (53.2 percent) decline in the

likelihood of not being enrolled in a Texas Community College or public university. As we noted earlier, we currently have no way of knowing the extent to which these large marginal percentage declines reflect the decision of a large fraction of private high school graduates to enroll in Texas private or out-of-state public or private colleges and universities.

White high school graduates are the reference group in the college choice models. The discussion of the effects of race/ethnic on the probability of various choices must be interpreted with this in mind. Holding the effects of all of the remaining explanatory variables constant, being Native American has the biggest effect on the probability of not attending a Texas public college or university in 1999 (6.6 percent). The changes in probabilities for the remaining choices are less than half as large. The changes in probabilities for Asian high school graduates are a 5.1 percent increase in the probability of attending a Selective University, a 9.3 percent increase in the probability of enrolling in a HPM university and a 8.2 percent decrease in the probability of attending a Community College. Black high school graduates are more likely to enroll in Historically Black schools (7.5 percent) and in HPM universities (4.9 percent) and are less likely to enroll in Community Colleges (-10.4). Being Hispanic, holding constant the effects of the remaining variables, has relatively small effects on college choices, the largest effects are a –5.3 percent lower probability of attending an OTPU and, not surprisingly, a 4.5 percent higher probability of being enrolled in a VHPH university.

High school graduates belonging to the Low or Very Low Income groups are less likely to attend a Selective University (-2.6 and –2.8 percent) and are considerably more likely (7.5 and 10.6 percent) not to be enrolled in a Texas public college or university.

The independent effects of being male on college choices are also small; the largest effect is a 4.4 percent increase in the probability of not being enrolled in a Texas public college or university. None of the changes in probabilities for being Ever Special Education exceeds 1.3 percent in absolute value and only three of those for Ever LEP do. The largest of is a –3.9 percent decrease in the probability of attending an OTPU. Ever LEP students are somewhat more likely to be enrolled in a Selective University, although the marginal effect is only 2.5 percent.

The final explanatory variable in Table 14 is the Campus/Grade Percent High Income. As in the high school outcome MNL models, the change in probabilities for this campus level variable is calculated for a 10 percent increase in Campus/Grade Percent High Income. None of changes exceeds 0.6 percent in absolute value.

**MNL College Choice Models for Students Attending Texas Public Colleges and Universities**

As the estimates in Table 15 reveal, when the MNL models are limited to students who attended a Texas Community College or public university, the impact of a one standard deviation increase in the Eighth Grade TAAS score on the probability of attending a Selective University is, not surprisingly, even larger than the increase reported for all high school graduates. This 28.9 percent increase in the probability of attending a Selective University is balanced by a 24.1 percent decrease in the probability of attending a Community College. The changes in probabilities for the remaining five categories are quite small.

One additional Days Absent has almost no effect on the probability of attending a particular type of college or university. Similarly, the effects of being a year older are

small with the largest being a 2.1 percent and a 2.6 percent decreases in the probability of attending a Selective University or an OTPU and a 6.3 percent increase in the probability of attending a Community College.

Passing the Exit TAAS on the first try has very little effect on the probability of choosing among the seven types of Texas public colleges and universities. The effects of failing the Exit TAAS are much larger. A student failing the Exit TAAS is 5.9 percent less likely to be enrolled in a Selective University and is 11.9 percent more likely to be attending a Community College. It is also the case that students obtaining a GED are less likely to attend a Selective University (-11.7 percent) or an OTPU (-13.5 percent), and are much more likely to be enrolled in Community College (33.6 percent).

Obtaining an Advanced Diploma increases the probability of attending a Selective University (4.2 percent) or an OTPU (3.9 percent) university and decreases the proabability of attending a Community College by 12.1 percent. Students who obtain an IEP/Minimum Diploma are much more likely (17.8 percent) to attend a Community College and are less likely to be enrolled in a Selective University (-7.1 percent), a HPM (-2.7 percent) or OTPU (5.5 percent). The effects of graduating from a private high school on the choice of college type are small.

Native Americans are less likely to attend a Selective University (-1.5 percent) or an OTPU (-4.9 percent) and are more likely to attend HPM universities (6.2 percent) or Community Colleges (4.3 percent). Asians are much more likely to attend Selective University (12.1 percent) or HPM (17.8 percent) University and are less likely to attend an OTPU (-11.0 percent) or Community Colleges (-21.9 percent). Blacks are less likely to attend a Selective University (-3.1 percent) or a Community College (-21.6 percent)

and are more likely to attend a Historically Black (15.9 percent) or HPM University (11.6 percent). Hispanics, not surprisingly, are 9.5 percent more likely to attend a VHPH University and 3.8 percent more likely to attend a HPH University. These higher probabilities are offset by lower probabilities of attending an OTPU (-10.6) or a Community College (-4.7).

As in Table 14, being Low or Very Low Income reduces the probability of attending a Selective University by 4.8 and 4.5 percent and increases the probability of attending a Community College by 9.3 and 6.3 percent. The Male dummy has only small effects. Being Ever Special Education decreases a student's probability of attending a Selective University by 1.2 percent and increases the probability of being enrolled in a Community College by 1.9 percent. The effects for the Ever LEP dummy variable are somewhat larger. An Ever LEP student is 5.5 percent more likely to attend a Selective University, 3.9 percent more likely to attend a HPM university and 7.6 percent less likely to be enrolled in an OTPU. A ten-percentage point increase in a student's elementary school campus increases his/her probability of attending a Selective University by 1.3 percent.

**Summary and Conclusions**

The preceding sections present analyses of the high school outcomes and college choices for a cohort of Texas public school students who were enrolled in the eighth grade in 1994. For students who took and received a score on the Eighth Grade TAAS, we estimated MNL models of both high school outcomes and college choices.

The most consistent result was that the student's score on the Eighth Grade TAAS had a large effect on both high school outcomes and college choices. We now report the results of three simulations for each of the two MNL college choice equations/samples. These simulations provide predictions of the shares of black and Hispanic students who would enroll in one of the three Selective Universities if: (a) black and Hispanic students had the same mean achievement scores as whites, (b) if the mean elementary school percent high-income for blacks and Hispanics was the same as for whites, and (c) if both black/Hispanic mean z scores and black/Hispanic campus percent high-income were made equal to the white means. The procedure used in these simulations modifies the individual black/Hispanic mean z score or black/Hispanic mean Campus/Grade Percent High Income by adding the difference between the black/Hispanic and white mean of these variables to each individual black/Hispanic z score or Campus/Grade Percent High Income. This procedure results in the same mean z scores for blacks/Hispanics as whites, but insofar as the original distributions for blacks/Hispanics differed from those for whites, these differences will remain.

The first row in Table 16 gives the numbers of white, black and Hispanic high school graduates (columns 2-4) and the numbers who attended a Texas Community College or public university in 1999 (columns 5-7). The second row gives the numbers attending one of the three Selective universities for the same categories and the third and fourth rows give the actual and predicted percentages enrolled in a Selective University in 1999.

As the actual and predicted percentages indicate, far smaller percentages of both blacks and Hispanics attend a Selective University than whites. Thus, only 1.4 percent of

black and 2.1 percent of Hispanic high school graduates or GED recipients were enrolled in a Selective University in 1999 as compared to 8.3 percent of whites. When these same shares are calculated for members of the sample who were enrolled in Texas public colleges and universities in 1999, the proportion of blacks attending a Selective University is 3.8 percent, the proportion for Hispanics is 5.2 percent and the proportion of whites is 15.4 percent.

The middle panel gives the mean Eighth Grade TAAS score and the mean Campus/Grade Percent High Income students for all six race/ethnic and sample categories. As the these data reveal, there are substantial differences in within race/ethnicity group mean Eighth Grade TAAS scores between all high graduates and for students enrolled in Texas public colleges and universities in 1999. As these data also indicate, however, there are large black-white and Hispanic-white differences within each of the two samples. In the case of high school graduates, for example, black z scores are nearly three-fourths of a standard deviation lower than the same scores for whites and the Hispanic-white gap is nearly six-tenths of a standard deviation.

The bottom panel presents three separate predictions for each race/ethnicity and sample category. For the row labeled z score, the predicted proportion of either blacks or Hispanics attending a Selective University is obtained by adding the difference between the black/Hispanic and white mean score to the actual black/Hispanic z score and using the resulting individual z score and the other variables for each student in the appropriate MNL equation to predict the probability of attending a Selective University. The mean black/Hispanic predictions are the mean of the individual predictions for each simulation.

Since we changed none of the explanatory variables for whites, there are no changes in the predicted values for them.

For all high school graduates the predictions obtained from using the coefficients of the MNL college choice equation in Appendix Table A-3 is to increase the estimated fraction of blacks enrolled in a Selective University from 1.4 percent to 5.4 percent and the fraction of Hispanics for 2.1 percent to 6.0 percent. For high school graduates who attended a Texas public college or university, the estimated percentage of blacks attending a Selective University increases from 3.8 percent to 12.3 percent and the percentage of Hispanics attending a Selective University increases from 5.2 percent to 12.2 percent. The white percentage of 15.4 percent, of course, is unchanged.

Similar, but smaller, changes in the probabilities of attending a Selective University were obtained from simulations that made the mean elementary school percent high-income for blacks/Hispanics equal to the white mean. For all high school graduates these simulations narrow the black-white and Hispanic-white differences in the rates of attending a Selective University, but by only 0.4 percentage points for blacks and 1.0 percentage points for Hispanics. Similarly, for high school graduates who attended a Texas public college or university, equalizing elementary school Campus/Grade Percent High Income raises the expected percentage of Hispanics attending a Selective University from 2.1 percent to 3.1 percent and the estimated percentage of blacks attending these schools from 3.8 to 4.7 percent..

The final row in Table 16 gives the combined effects of eliminating both the z score gaps and the differences in mean Campus/Grade Percent High Income. For high school graduates, these changes raise the percentages attending selected universities to

6.5 percent for blacks and to 8.4 percent for Hispanics. For high school graduates who attended a Texas public college or university, the estimated percent of Hispanics attending a Selective University becomes 17.3 percent. This rate exceeds the white rate of 15.4 percent by 3.8 percentage points. The black rate for this stimulation is 14.5 percent, which is only 0.9 percent lower than the white rate.

These simulations clearly demonstrate that narrowing black-white and Hispanic-white differences in performance on middle school standardized tests would have a large impact on the probability of these black and Hispanic students enrolling in a Selective University. On the assumption that Campus/Grade Percent High Income is a valid proxy for the quality of the elementary schools they attend, the results also provide strong evidence that measures that improve the quality of the elementary schools attended by disadvantaged minorities would significantly increase the probability of their being accepted at and enrolling in a Selective University in much larger numbers.

The preceding analyses of the impact of improving black Hispanic scores on middle school standardized tests or improving their elementary schools on college choices may understate the effect these changes would have on increasing the numbers of underrepresented minority students who attend a Selective University. The estimates in Table 16 are conditional on the various high school outcomes that are examined at an earlier point in the paper. In particular higher scores on the eighth TAAS increases the probability of completing high school and of receiving an Advanced Diploma; both of these high school outcomes increase the probability of admission to a Selective University. Table 16 shows only the estimated direct effects but not the indirect effects though more advanced high school curricula and diplomas.

Finally, it should be noted that the estimates included in this paper are for a sample of students who enrolled in Texas public universities three years after the Hopwood decision and in the year before the Texas top 10 percent rule when into effect. As soon as we obtain the 2000 enrollment data from THECB, we will be able to combine those data with data for the cohort examined in this paper to begin assessing the impacts of the top ten percent rule on the college choices of underrepresented minorities.

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Table 1. TSMP Data for the Mellon Study of Minority Access to Higher Education by School Year and Grade

| Year | Primary and Secondary Grades | | | | | | | | | | | | | | College | | | | | Post College |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **PK** | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Fr | So | Jr | Sr | Yr5 | Earnings |
| 89-90 | **E** | **E** | **E** | **E** | **E** | **E** | **E** | **E** | **E** | **E** | **H** | **H** | **H** | **H** | | | | | | $ |
| 90-91 | | **E** | **E** | **E** | **R** | **E** | **R** | **E** | **R** | **E** | **R** | **H** | **R** | **H** | **C** | | | | | $ |
| 91-92 | | | **E** | **E** | **T** | **T** | **T** | **E** | **R** | **E** | **R** | **H** | **R** | **H** | **C** | **C** | | | | $ |
| 92-93 | | | | **E** | **T** | **T** | **T** | **T** | **R** | **R** | **E** | **R** | **H** | **H** | **C** | **C** | **C** | | | $ |
| 93-94 | | | | | **T** | **T** | **T** | **T** | **T** | **T** | **H** | **R** | **H** | **H** | **C** | **C** | **C** | **C** | | $ |
| 94-95 | | | | | | **T** | **T** | **T** | **T** | **T** | **H** | **T** | **H** | **H** | **C** | **C** | **C** | **C** | **C** | $ |
| 95-96 | | | | | | | **T** | **T** | **T** | **T** | **H** | **T** | **H** | **H** | **C** | **C** | **C** | **C** | **C** | $ |
| 96-97 | | | | | | | | **T** | **T** | **T** | **H** | **T** | **H** | **H** | **C** | **C** | **C** | **C** | **C** | $ |
| 97-98 | | | | | | | | | **T** | **T** | **H** | **T** | **H** | **H** | **C** | **C** | **C** | **C** | **C** | $ |
| 98-99 | | | | | | | | | | **T** | **H** | **T** | **H** | **H** | **C** | **C** | **C** | **C** | **C** | $ |
| 99-00 | | | | | | | | | | | **H** | **T** | **H** | **H** | **R** | **R** | **R** | **R** | **R** | $ |
| 00-01 | Current Year | | | | | | | | | | | **R** | **R** | **R** | **R** | **R** | **R** | **R** | **R** | $ |

Note: The 1991 and 1992 TAAS was given in October to grades 3, 5, 7, 9 & 11.

Table 2. Students in the Sample by School Year, High School Outcomes and College Choices by Grade

| Grade and Category | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 156 | | | | | | | | | |
| 3 | 1,761 | 234 | | | | | | | | |
| 4 | **206,087** | 2,108 | 157 | | | | | | | |
| 5 | 14,923 | **206,243** | 1,655 | 79 | | | | | | |
| 6 | 430 | 12,315 | **222,231** | 1,394 | | | | | | |
| 7 | | 365 | 9,369 | **237,543** | | 20 | | | | |
| 8 | | | 197 | 4,482 | **263,309** | 4,560 | 196 | | | |
| 9 | | | | 75 | | **238,987** | 36,953 | 6,620 | | |
| 10 | | | | | | 162 | **191,782** | 25,260 | 4,001 | |
| 11 | | | | | | 19 | 249 | **169,221** | 10,862 | 1,368 |
| 12 | | | | | | | 101 | 662 | **12,616** | 2,439 |
| Dropout | | | | | 1,700 | 2,434 | 1,676 | 1,811 | 5,025 | |
| Dropout/GED | | | | | | 295 | 1,841 | 5,308 | 6,033 | |
| Still Enrolled | | | | | | | | | | |
| H. S. Graduate | | | | | | | | 4,499 | 145,491 | 7,638 |
| 2 Year College | | | | | | | | 2,845 | 12,574 | 42,386 |
| 4 Year College | | | | | | | | 345 | 1,440 | 35,420 |
| Total | 223,357 | 221,265 | 233,609 | 243,573 | 265,009 | 246,477 | 232,798 | 216,571 | 198,042 | 89,251 |
| Adjustment for Cumulative Dropout & GED | | | | | | 1,700 | 4,429 | 7,946 | 15,065 | |
| Out of Sample | 41,652 | 43,744 | 31,400 | 21,436 | 0 | 16,831 | 27,782 | 40,492 | 51,902 | 175,758 |
| Sample Total | 265,009 | 265,009 | 265,009 | 265,009 | 265,009 | 265,009 | 265,009 | 265,009 | 265,009 | 265,009 |

Table 3. Number and Percent of 1994 Eighth Grade Public School Students by High School Outcome

| High School Outcomes | All Students | | Minus Out of Sample | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| Out of Sample | 64,500 | 24.3 | | |
| Dropout | 11,727 | 4.4 | 11,727 | 5.8 |
| GED | 12,733 | 4.8 | 12,733 | 6.4 |
| Still Enrolled in High School | 3,807 | 1.4 | 3,807 | 1.9 |
| High School Graduates | | | | |
| Regular Diploma | 92,945 | 35.1 | 92,945 | 46.4 |
| Advanced Diploma | 53,868 | 20.3 | 53,868 | 26.9 |
| Distinguished Diploma | 1,162 | 0.4 | 1,162 | 0.6 |
| Recommended Diploma | 14,018 | 5.3 | 14,018 | 7.0 |
| Minimum Diploma | 608 | 0.2 | 608 | 0.3 |
| Individual Education Plan | 4,987 | 1.9 | 4,987 | 2.5 |
| Private High School | 4,654 | 1.8 | 4,654 | 2.3 |
| Total | 265,009 | 100.0 | 200,509 | 100.0 |

Table 4. High School Outcomes and Type of Diploma by Race/Ethnicity for Texas Public School Students Enrolled in the Eighth Grade in 1994

| Outcomes | Percent of High School Outcomes or Type of Diploma | | | | | |
|---|---|---|---|---|---|---|
| | NA | Asian | Black | Hispanic | White | All |
| **High School Outcomes** | | | | | | |
| Out of Sample | 36 | 17 | 30 | 30 | 20 | 24 |
| High School Graduates | 50 | 78 | 59 | 58 | 71 | 65 |
| Dropout | 5 | 2 | 6 | 6 | 3 | 4 |
| GED | 8 | 2 | 3 | 4 | 6 | 5 |
| Still Enrolled in High School | 1 | 1 | 2 | 2 | 1 | 1 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 |
| **HS Outcomes w/o Out-of-Sample** | | | | | | |
| High School Graduates | 78 | 94 | 84 | 82 | 88 | 86 |
| Dropout | 8 | 2 | 8 | 9 | 4 | 6 |
| GED | 12 | 3 | 5 | 6 | 7 | 6 |
| Still Enrolled in High School | 1 | 1 | 3 | 3 | 1 | 2 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 |
| **High School Graduates** | | | | | | |
| Type of Diploma | | | | | | |
| Regular Diploma | 56 | 33 | 64 | 58 | 50 | 49 |
| Advanced Diploma | 39 | 60 | 29 | 36 | 44 | 45 |
| Individual Education Plan | 2 | 1 | 5 | 4 | 3 | 3 |
| Private High School | 2 | 5 | 2 | 2 | 3 | 2 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 |

Notes: Reccomended diploma also includes the minimum diploma and the Advanced deiploma refers to the advanced, distinguished and reccomended diplomas.

Table 5. Means of Variables Included in the Multinomial Logit (MNL) High School Outcome Models and Number of Observations by Sub-Sample

| Variables | All Students | Included in MNL Model | |
|---|---|---|---|
| | | With Out-of-Sample | Without Out-of-Sample |
| High School Outcomes | | | |
| Percent | | | |
| Out of Sample | 24.3 | 21.1 | |
| Dropout | 4.4 | 3.5 | 4.5 |
| GED Recipient | 4.8 | 4.6 | 5.9 |
| Still Enrolled | 1.4 | 1.1 | 1.4 |
| Regular Diploma | 35.1 | 36.9 | 46.8 |
| Advanced Diploma | 26.1 | 29.5 | 37.4 |
| IEP/Minimum Diploma | 2.1 | 1.3 | 1.6 |
| Private High School | 1.8 | 1.9 | 2.4 |
| All | 100.0 | 100.0 | 100.0 |
| Independent Variables | | | |
| Continuous Variables | | | |
| 8th Grade TAAS z Score | 0.02 | 0.02 | 0.17 |
| Days Absent | 8.5 | 7.2 | 6.3 |
| Age (years) | 0.0 | 0.0 | 0.0 |
| Dichotomous Variables | | | |
| Passed Exit TAAS | 60.8 | 67.7 | 77.8 |
| Failed Exit TAAS | 11.2 | 11.0 | 10.4 |
| Missing and Exempt | 27.9 | 21.3 | 11.8 |
| Native American | 0.2 | 0.2 | 0.2 |
| Asian | 2.3 | 2.4 | 2.6 |
| Black | 14.0 | 13.5 | 12.6 |
| Hispanic | 33.4 | 31.4 | 29.8 |
| Anglo | 50.1 | 52.4 | 54.8 |
| High Income | 61.5 | 64.8 | 68.3 |
| Low Income | 61.5 | 64.8 | 68.3 |
| Very Low Income | 4.8 | 4.8 | 4.8 |
| Male | 51.1 | 49.6 | 48.8 |
| Ever Special Education | 16.9 | 11.7 | 11.0 |
| Ever LEP | 11.8 | 9.5 | 8.4 |
| Campus/Grade Mean | | | |
| High Income | 58.6 | 59.9 | 61.3 |
| | 265,009 | 227,144 | 179,210 |

Table 6. Marginal Change in High School Outcome Probabilities Using the All Students Equation by Type of Outcome

| N = 227,144 | Out of Sample | Dropout | GED | Still Enrolled | Regular Diploma | Advanced Diploma | IEP/Min. Diploma | Private H.S. |
|---|---|---|---|---|---|---|---|---|
| Continous Variables | | | | | | | | |
| 8th Grade TAAS | -5.9 | -1.1 | 0.1 | -0.6 | -10.0 | 17.7 | -0.6 | 0.3 |
| Days Absent | 0.5 | 0.1 | 0.2 | 0.0 | 0.2 | -1.0 | 0.0 | 0.0 |
| Age | 4.2 | 2.7 | 2.6 | -0.3 | -1.3 | -8.0 | 0.1 | 0.0 |
| Dichotomous Variables | | | | | | | | |
| Pass Exit TAAS | -36.0 | -3.0 | -7.7 | 0.5 | 27.4 | 21.3 | -0.1 | -2.3 |
| Fail Exit TAAS | -15.7 | -1.3 | -3.8 | 0.2 | 13.6 | 7.9 | 0.4 | -1.3 |
| Native American | 6.8 | 0.8 | -0.1 | 0.1 | -3.4 | -2.8 | -0.7 | -0.7 |
| Asian | 1.2 | -0.4 | -1.7 | 0.6 | -8.3 | 7.1 | -0.4 | 1.9 |
| Black | -0.9 | -0.2 | -2.3 | 1.1 | 1.7 | 0.6 | -0.1 | 0.1 |
| Hispanic | -2.4 | -0.1 | -1.1 | 1.0 | -1.4 | 4.3 | -0.1 | -0.2 |
| Low Income | 1.2 | 0.6 | 0.8 | 0.1 | 2.0 | -4.3 | 0.0 | -0.4 |
| Very Low Income | 3.6 | 1.0 | 0.4 | 0.2 | 0.3 | -4.9 | -0.1 | -0.5 |
| Male | 1.2 | -0.4 | 1.4 | 0.6 | 2.9 | -5.7 | 0.0 | -0.2 |
| Ever Special Ed. | -6.0 | -0.9 | -1.1 | 0.0 | 8.4 | -5.0 | 4.6 | -0.1 |
| Ever Limited English | -1.2 | -0.2 | -2.5 | -0.1 | -0.7 | 4.9 | -0.2 | -0.1 |
| Campus/Grade Mean - 10 percent change | | | | | | | | |
| High Income | 0.1 | 0.0 | 0.0 | 0.0 | 0.5 | -0.6 | 0.0 | 0.1 |

Table 7: Marginal Change in High School Outcome Probabilities Using the Equation Excluding Out-of-Sample Students

| N = 179,210 | Dropout | GED | Still Enrolled | Regular Diploma | Advanced Diploma | IEP/Min. Diploma | Private H.S. |
|---|---|---|---|---|---|---|---|
| Continuous Variables | | | | | | | |
| 8th Grade TAAS | -1.9 | -0.8 | -0.8 | -15.2 | 19.4 | -0.8 | 0.1 |
| Days Absent | 0.2 | 0.3 | 0.1 | 0.5 | -1.1 | 0.0 | 0.0 |
| Age | 3.8 | 3.6 | -0.3 | 1.4 | -8.9 | 0.3 | 0.1 |
| Dichotomous Variables | | | | | | | |
| Pass Exit TAAS | -8.0 | -17.4 | -0.2 | 16.6 | 15.7 | -0.8 | -6.0 |
| Fail Exit TAAS | -3.6 | -6.3 | -0.2 | 8.4 | 3.7 | 0.0 | -2.0 |
| Native American | 1.8 | 0.6 | 0.4 | 0.1 | -1.4 | -0.8 | -0.6 |
| Asian | -0.5 | -2.0 | 0.8 | -9.9 | 9.5 | -0.5 | 2.6 |
| Black | -0.4 | -3.0 | 1.3 | 1.6 | 0.6 | -0.2 | 0.1 |
| Hispanic | -0.4 | -1.7 | 1.2 | -3.2 | 4.7 | -0.2 | -0.3 |
| Low Income | 0.7 | 1.1 | 0.1 | 3.3 | -4.8 | 0.1 | -0.5 |
| Very Low Income | 1.5 | 0.9 | 0.3 | 2.7 | -4.9 | -0.1 | -0.6 |
| Male | -0.4 | 1.8 | 0.8 | 4.5 | -6.6 | 0.1 | -0.2 |
| Ever Special Ed. | -2.2 | -2.5 | -0.3 | 6.9 | -6.7 | 5.1 | -0.4 |
| Ever Limited English | -0.1 | -3.0 | -0.1 | -1.9 | 5.6 | -0.3 | -0.1 |
| Campus Percent - 10 percent change | | | | | | | |
| High Income | 0.0 | 0.0 | 0.0 | 0.6 | -0.7 | 0.0 | 0.1 |

Table 8. Percent of Texas Students Enrolling in College as Freshmen in Texas and Out-of-State Colleges and Universities by Two and Four Year and Public and Private Institutions

| | Texas | | Out of State | | |
|---|---|---|---|---|---|
| Type | Public | Private | Public | Private | All |
| Two Year | 95.0 | 3.5 | 1.1 | 0.3 | 100 |
| Four Year | 66.2 | 18.9 | 6.2 | 8.7 | 100 |
| All | 80.8 | 11.1 | 3.7 | 4.4 | 100 |

Table 9. Number and Percent of High School Graduates and GED Recipients by College Choices

| College Outcome | High School Graduates or GED Recipients | | Attending TX Public Colleges and Universities | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| Texas Public HS Graduates | | | | |
| No TX Public College | 90,918 | | | |
| No College | 71,804 | 38.7 | | |
| Attending Two Year Colleges | | | | |
| Texas Public | 42,598 | 23.0 | 42,598 | 51.1 |
| Est TX Private | 1,569 | 0.8 | | |
| Est Out-of-State Public | 493 | 0.3 | | |
| Est Out-of-State Private | 135 | 0.1 | | |
| Attending Four Year Colleges | | | | |
| Texas Public | 34,072 | 18.4 | 34,072 | 40.9 |
| Est TX Private | 9,728 | 5.2 | | |
| Est Out-of-State Public | 3,191 | 1.7 | | |
| Est Out-of-State Private | 4,478 | 2.4 | | |
| Private HS Graduates | | | | |
| Texas Public Two Year | 1,774 | 1.0 | 1,774 | 2.1 |
| Texas Public Four Year | 2,880 | 1.6 | 2,880 | 3.5 |
| GED Recipients | | | | |
| No TX Public College | 10,700 | 5.8 | | |
| GED>Jr. College | 1,927 | 1.0 | 1,961 | 2.4 |
| GED>Sr. College | 106 | 0.1 | 106 | 0.1 |
| Total | 185,454 | 100.0 | 83,357 | 100.0 |

Note: A total of 8,729 individuals graduated from private high schools in Texas in 1997. Fifty three percent of them were enrolled in public school in the eighth grade and later enrolled in a Texas public college or university and are included in our sample.

Table10. College Choices of Texas High School Graduates and GED Recipients by Race/Ethnicity

| Category | Percent of High School Graduates | | | | | |
|---|---|---|---|---|---|---|
| | NA | Asian | Black | Hispanic | White | Total |
| No TX Public College | 62.1 | 40.6 | 66.3 | 64.6 | 49.7 | 56.1 |
| TX Public Community College | 23.3 | 18.8 | 16.5 | 21.8 | 27.0 | 23.9 |
| TX Public University | 14.6 | 40.6 | 17.2 | 13.6 | 23.3 | 20.0 |
| All HS Graduates | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| | Percent Attending Texas Public Colleges and Universitites | | | | | |
| | NA | Asian | Black | Hispanic | White | Total |
| TX Public Community College | 61.5 | 31.7 | 49.0 | 61.5 | 53.7 | 54.4 |
| ~~TX Public University~~ | | | | | | |
| Selective | 10.5 | 33.6 | 3.7 | 5.1 | 15.3 | 12.3 |
| Historically Black | 0.0 | 0.3 | 15.3 | 0.1 | 0.0 | 1.5 |
| High Percent Black | 0.7 | 1.1 | 1.1 | 15.9 | 1.0 | 4.6 |
| Very High Percent Hisp | 2.1 | 1.8 | 1.6 | 5.7 | 2.4 | 3.1 |
| High Percent Hispanic | 11.2 | 25.6 | 14.6 | 6.0 | 6.5 | 7.8 |
| Other | 14.0 | 5.9 | 14.7 | 5.8 | 21.0 | 16.2 |
| All Texas Public | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Table 11. Total Enrollment of U. S. Students in Texas Public Universities and Percent by Race/Ethnic and Type of Institution

| School by Type | Enrollment of US Students in 1991 | Percent High SAT | Percent of All U. S. Students in 1991 | | | |
|---|---|---|---|---|---|---|
| | | | Black | Hispanic | Asian | Minority |
| Selective Universities | | | | | | |
| A&M | 36,336 | 92 | 3 | 8 | 3 | 15 |
| UT Austin | 45,809 | 91 | 4 | 12 | 7 | 24 |
| UT Dallas | 8,490 | 85 | 5 | 4 | 7 | 17 |
| Historically Black | | | | | | |
| Texas Southern | 8,767 | NA | 92 | 4 | 1 | 97 |
| Prairie View | 5,321 | 15 | 90 | 1 | 1 | 92 |
| Very High Percent Hispanic | | | | | | |
| UT Pan American | 12,375 | NA | 1 | 86 | 0 | 87 |
| A&M International | 1,259 | NA | 1 | 85 | 0 | 87 |
| UT Brownsville | 1,399 | NA | 1 | 78 | 0 | 79 |
| UT El Paso | 15,413 | 33 | 3 | 64 | 1 | 69 |
| A & M Kingsville | 5,651 | 32 | 3 | 63 | 1 | 67 |
| Sul Ross Rio Grande | 543 | | 1 | 62 | 0 | 62 |
| High Percent Hispanic | | | | | | |
| Sul Ross | 1,960 | 19 | 4 | 36 | 0 | 40 |
| A&M Corpus Christi | 3,801 | 51 | 2 | 32 | 1 | 36 |
| UT San Antonio | 15,547 | 45 | 3 | 32 | 3 | 38 |
| High Percent Minority | | | | | | |
| UH Downtown | 7,307 | NA | 24 | 26 | 12 | 62 |
| UH | 30,960 | 57 | 9 | 11 | 10 | 30 |
| Southwest Texas | 21,327 | 60 | 6 | 16 | 1 | 23 |
| UT Arlington | 23,741 | 62 | 7 | 6 | 9 | 23 |
| Lamar | 9,191 | 24 | 17 | 3 | 2 | 22 |
| TWU | 9,202 | NA | 13 | 7 | 2 | 22 |
| Other Public Universities | | | | | | |
| Angelo State | 6,026 | 50 | 4 | 12 | 1 | 18 |
| UT Permian Basin | 2,091 | NA | 2 | 14 | 1 | 18 |
| San Houston | 12,505 | 42 | 11 | 6 | 1 | 17 |
| UH Clear Lake | 6,960 | NA | 4 | 7 | 5 | 16 |
| A&M Commerce | 7,693 | 51 | 11 | 3 | 1 | 15 |
| UH Victoria | 1,096 | NA | 3 | 11 | 0 | 14 |
| UNT | 25,674 | 66 | 6 | 5 | 2 | 13 |
| Texas Tech | 23,796 | 68 | 3 | 8 | 1 | 13 |
| Midwest State | 5,366 | NA | 5 | 5 | 2 | 13 |
| West Texas | 5,889 | 56 | 3 | 8 | 1 | 12 |
| A&M Galveston | 1,197 | 72 | 2 | 7 | 1 | 10 |
| A&M Texarkana | 1,373 | NA | 9 | 0 | 0 | 10 |
| UT Tyler | 3,708 | NA | 7 | 1 | 1 | 9 |
| Stephen F. Austin | 12,634 | 27 | 5 | 3 | 1 | 9 |
| Tarleton | 6,343 | 45 | 3 | 4 | 0 | 7 |

Table 12: Mean Shares of the Outcome/Dependent Categories Included in the MNLM Estimates of College Choices and Number of Observations by Subsample

| Outcome/Dependent Variables | In College Choice MNLM Equations: Entire Sample | All High School Graduates and GED Recipients | Attending TX Public Colleges and Universities |
|---|---|---|---|
| ~~Percent by Category~~ | | | |
| No Texas Public College | 67.8 | 51.7 | |
| ~~Texas Public Universities~~ | | | |
| Selective | 3.9 | 6.0 | 12.5 |
| Historically Black | 0.5 | 0.8 | 1.6 |
| Very High % Hispanic | 1.5 | 2.2 | 4.6 |
| High % Hispanic | 1.0 | 1.5 | 3.1 |
| High % Minority | 2.5 | 3.8 | 7.9 |
| Other Four-Year College | 5.2 | 7.9 | 16.4 |
| Texas Community College | 17.6 | 26.0 | 53.9 |
| Total Sample | 100.0 | 100.0 | 100.0 |
| Number of Observations | 265,009 | 169,036 | 81,622 |

Table 13.: Means of Variables Included in the Multinomial Logit Estimates of College Choices and Number of Observations by Subsample

| Independent Variables | Entire Sample | In College Choice MNLM Equations: All High School Graduates | In College Choice MNLM Equations: Attending TX Public Colleges and Universities |
|---|---|---|---|
| ~~Continuous Variables~~ | | | |
| 8th Grade TAAS z Score | 0.02 | 0.23 | 0.46 |
| Days Absent | 8.55 | 5.99 | 5.15 |
| Age | 14.80 | 14.65 | 14.59 |
| ~~Dichotomous Variables~~ | | | |
| GED Recipient | 4.8 | 6.2 | 2.2 |
| Regular Diploma | 35.1 | 49.6 | 40.1 |
| Advanced Diploma | 26.1 | 39.6 | 51.4 |
| Minimum Diploma | 2.1 | 1.7 | 0.6 |
| Private High School | 1.8 | 2.6 | 5.3 |
| Passed Exit TAAS | 63.4 | 82.9 | 89.3 |
| No Exit TAAS Score | 21.9 | 7.5 | 5.1 |
| Failed Exit TAAS | 14.7 | 9.5 | 5.5 |
| Native American | 0.2 | 0.2 | 0.2 |
| Asian | 2.3 | 2.7 | 3.5 |
| Black | 14.0 | 12.2 | 9.7 |
| Hispanic | 33.4 | 28.7 | 23.7 |
| Anglo | 50.1 | 56.2 | 62.9 |
| High Income | 61.5 | 69.8 | 78.6 |
| Very Low Income | 33.8 | 25.4 | 17.5 |
| Low Income | 4.8 | 4.8 | 4.0 |
| Male | 51.1 | 48.5 | 45.2 |
| Ever Special Education | 16.9 | 10.7 | 7.6 |
| Ever Limited English | 11.8 | 7.8 | 5.5 |
| ~~Campus/Grade Mean~~ | | | |
| High Income | 58.6 | 62.0 | 65.6 |
| Number of Observations | 265,009 | 169,036 | 81,622 |

Table 14. Marginal Changes in College Choice Probabilities for the All High School Graduates Equation

| N = 169,036 | Selective | Historically Black | Very High % Hispanic | High % Hispanic | High % Minority | Other 4-Year Colleges | 2-Year Colleges | Not Enrolled in TX Public |
|---|---|---|---|---|---|---|---|---|
| Continuous Variables | | | | | | | | |
| 8th Grade TAAS | 17.4 | -0.1 | 0.3 | 0.2 | 0.4 | 0.9 | -7.3 | -11.6 |
| Days Absent | -0.2 | 0.0 | 0.0 | 0.0 | 0.0 | -0.2 | -0.1 | 0.6 |
| Age | -1.5 | -0.1 | -0.8 | -0.3 | -0.5 | -2.1 | -0.7 | 5.9 |
| Dichotomous Variables | | | | | | | | |
| Pass Exit TAAS | 0.9 | 0.3 | 0.6 | 0.4 | 0.7 | 1.7 | 5.7 | -10.3 |
| Fail Exit TAAS | -2.9 | 0.3 | 0.3 | -0.5 | 0.0 | -2.4 | 6.5 | -1.3 |
| GED | -5.9 | -0.5 | -1.5 | -1.3 | -2.7 | -7.3 | -1.6 | 20.6 |
| Advanced Diploma | 2.8 | 0.2 | 2.1 | 0.5 | 1.6 | 3.4 | 1.7 | -12.3 |
| IEP/Minimum Diplon | -5.1 | -0.4 | -1.5 | -0.6 | -2.5 | -5.4 | -2.6 | 18.1 |
| Private High School | 3.3 | 1.0 | 3.7 | 1.1 | 3.7 | 7.1 | 33.2 | -53.2 |
| Native American | -1.2 | -0.8 | -0.9 | -0.7 | 2.1 | -3.1 | -2.0 | 6.6 |
| Asian | 5.1 | 3.1 | 0.0 | -0.3 | 9.3 | -5.3 | -8.2 | -3.8 |
| Black | -2.4 | 7.5 | -0.7 | -0.6 | 4.9 | -1.0 | -10.4 | 2.7 |
| Hispanic | -0.6 | 0.7 | 4.5 | 1.8 | 0.2 | -5.3 | -2.5 | 1.2 |
| Low Income | -2.6 | -0.3 | -0.4 | -0.1 | -0.8 | -2.3 | -1.0 | 7.5 |
| Very Low Income | -2.8 | -0.2 | -0.2 | -0.4 | -0.7 | -2.3 | -3.9 | 10.6 |
| Male | 0.2 | 0.1 | 0.1 | -0.2 | -0.7 | -1.2 | -2.7 | 4.4 |
| Ever Special Ed. | -0.7 | -0.2 | 0.2 | 0.1 | -0.3 | -0.7 | 0.5 | 1.1 |
| Ever Limited English | 2.5 | -0.5 | 0.3 | -0.9 | 1.8 | -3.9 | -0.8 | 1.3 |
| Campus/Grade Mean - 10 percent change | | | | | | | | |
| High Income | 0.6 | 0.0 | -0.3 | -0.1 | 0.1 | 0.1 | -0.1 | -0.4 |

Table 15. Marginal Changes in College Choice Probabilities Based on the Equation for Students Enrolled in Texas Public Colleges and Universities

| N = 81,622 | Selective | Historically Black | Very High % Hispanic | High % Hispanic | High % Minority | Other 4-Year Colleges | 2-Year Colleges |
|---|---|---|---|---|---|---|---|
| Continuous Variables | | | | | | | |
| 8th Grade TAAS | 28.9 | -0.5 | -0.6 | -0.5 | -1.0 | -2.3 | -24.1 |
| Days Absent | -0.3 | 0.0 | 0.0 | 0.0 | 0.0 | -0.2 | 0.4 |
| Age | -2.1 | 0.1 | -1.1 | -0.3 | -0.2 | -2.6 | 6.3 |
| Dichotomous Variables | | | | | | | |
| Pass Exit TAAS | -0.4 | 0.0 | 0.0 | 0.0 | -0.3 | 0.5 | 0.2 |
| Fail Exit TAAS | -5.9 | 0.2 | 0.1 | -1.1 | -0.4 | -4.8 | 11.9 |
| GED | -11.7 | -0.5 | -2.1 | -2.2 | -3.6 | -13.5 | 33.6 |
| Advanced Diploma | 4.2 | -0.1 | 2.5 | 0.1 | 1.5 | 3.9 | -12.1 |
| Minimum Diploma | -7.1 | -0.6 | -2.2 | 0.2 | -2.7 | -5.5 | 17.8 |
| Private High School | 0.2 | -0.2 | 0.8 | -0.4 | 0.4 | 1.8 | -2.6 |
| Native American | -1.5 | -1.6 | -1.4 | -1.2 | 6.2 | -4.9 | 4.3 |
| Asian | 12.1 | 3.7 | -0.1 | -0.6 | 17.8 | -11.0 | -21.9 |
| Black | -3.1 | 15.9 | -1.3 | -1.0 | 11.6 | -0.5 | -21.6 |
| Hispanic | -0.3 | 1.3 | 9.5 | 3.8 | 1.0 | -10.6 | -4.7 |
| Low Income | -4.8 | -0.6 | -0.4 | 0.2 | -1.1 | -2.7 | 9.3 |
| Very Low Income | -4.5 | -0.2 | 0.3 | -0.3 | -0.1 | -1.6 | 6.3 |
| Male | 0.9 | 0.4 | 0.6 | -0.1 | -0.8 | -1.2 | 0.2 |
| Ever Special Ed. | -1.2 | -0.5 | 0.5 | 0.2 | -0.3 | -0.8 | 1.9 |
| Ever Limited English | 5.5 | -1.0 | 0.9 | -1.7 | 3.9 | -7.6 | -0.2 |
| Campus/Grade Mean - 10 percent change | | | | | | | |
| High Income | 1.3 | -0.1 | -0.6 | -0.2 | 0.2 | 0.1 | -0.7 |

Table 16. Predicted Probabilities of Attending Texas Selective Public Universities with Changes in TAAS Scores and Campus Mean Income for Blacks and Hispanics

| | High School Graduates | | | Enrolled in Texas Public College or University | | |
|---|---|---|---|---|---|---|
| Category | White | Black | Hispanic | White | Black | Hispanic |
| Total Students | 94,970 | 20,652 | 48,589 | 51,347 | 7,893 | 19,384 |
| Number Attending Selective | 7,902 | 299 | 1,013 | 7,902 | 299 | 1,013 |
| Actual Percent | 8.3 | 1.4 | 2.1 | 15.4 | 3.8 | 5.2 |
| Predicted by Model | 8.3 | 1.4 | 2.1 | 15.4 | 3.8 | 5.2 |
| Means | | | | | | |
| Eighth Grade TAAS', z score | 0.48 | -0.26 | -0.11 | 0.65 | -0.05 | 0.16 |
| Campus Percent High Income | 74.2 | 52.8 | 40.9 | 75.4 | 56.1 | 75.4 |
| Predictions Adding Mean Difference | | | | | | |
| z Score | 8.3 | 5.4 | 6.0 | 15.4 | 12.3 | 12.2 |
| Campus % High Income | 8.3 | 1.8 | 3.1 | 15.4 | 4.7 | 8.1 |
| Both z Score and Income | 8.3 | 6.5 | 8.4 | 15.4 | 14.5 | 17.3 |

Table A1. High School Outcome Multiple Logit Coefficients and z Scores with Out of Sample Students

| N = 227,144<br>Pseudo R-squared = .200 | Out of Sample | | Dropout | | GED | | Still In Sample | | Advanced Diploma | | IEP/Min. Diploma | | Private H.S. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Independent Variables | coef. | z Score | coef. | z Score | coef. | z Score | coef. | z Score | coef. | z Score | coef. | z Score | coef. | z Score |
| Continuous Variables | | | | | | | | | | | | | | |
| 8th Grade TAAS | -0.33 | -38.0 | -0.41 | -27.1 | 0.10 | 7.2 | -0.70 | -27.4 | 1.03 | 103.9 | -0.66 | -29.0 | 0.48 | 18.4 |
| Days Absent | 0.04 | 46.0 | 0.06 | 41.9 | 0.06 | 52.9 | 0.05 | 19.7 | -0.05 | -44.5 | 0.01 | 3.1 | 0.00 | -0.9 |
| Age | -3.63 | -7.5 | -3.01 | -4.3 | 1.62 | 2.2 | -1.00 | -0.7 | 5.63 | 8.9 | -2.03 | -1.5 | -1.03 | -0.8 |
| Age Squared | 0.13 | 8.3 | 0.13 | 5.5 | -0.03 | -1.2 | 0.03 | 0.5 | -0.20 | -9.3 | 0.08 | 1.8 | 0.04 | 0.8 |
| Dichotomous Variables | | | | | | | | | | | | | | |
| Pass Exit TAAS | -2.73 | -154.7 | -2.16 | -71.0 | -2.53 | -98.7 | -0.70 | -11.1 | 0.32 | 13.4 | -1.19 | -21.5 | -1.79 | -47.9 |
| No Exit TAAS Score | -2.17 | -96.4 | -1.64 | -44.1 | -2.39 | -52.2 | -0.59 | -8.9 | 0.11 | 3.4 | -0.60 | -11.5 | -1.63 | -23.4 |
| Native American | 0.55 | 4.3 | 0.46 | 2.1 | 0.21 | 1.1 | 0.28 | 0.5 | -0.06 | -0.5 | -0.65 | -1.1 | -0.30 | -0.8 |
| Asian | 0.27 | 5.2 | 0.09 | 0.8 | -0.24 | -2.4 | 0.63 | 3.2 | 0.54 | 14.7 | -0.26 | -1.1 | 0.97 | 12.8 |
| Black | -0.17 | -7.8 | -0.18 | -4.5 | -0.76 | -18.3 | 0.71 | 10.2 | -0.01 | -0.7 | -0.17 | -2.8 | -0.02 | -0.4 |
| Hispanic | -0.19 | -9.4 | -0.11 | -3.0 | -0.32 | -9.8 | 0.86 | 13.0 | 0.23 | 14.1 | -0.16 | -2.7 | -0.08 | -1.6 |
| Low Income | 0.09 | 2.7 | 0.19 | 3.3 | 0.18 | 3.6 | 0.05 | 0.5 | -0.26 | -9.7 | 0.06 | 0.7 | -0.30 | -3.6 |
| Very Low Income | 0.30 | 17.2 | 0.42 | 13.7 | 0.20 | 6.9 | 0.25 | 5.0 | -0.25 | -15.6 | 0.00 | -0.1 | -0.30 | -6.4 |
| Male | 0.07 | 5.2 | -0.09 | -3.5 | 0.31 | 13.6 | 0.58 | 13.4 | -0.34 | -29.9 | 0.03 | 0.8 | -0.19 | -5.9 |
| Ever Special Ed. | -0.67 | -29.0 | -0.60 | -16.0 | -0.62 | -16.8 | -0.18 | -3.0 | -0.43 | -18.9 | 2.46 | 50.6 | -0.34 | -5.9 |
| Ever Limited English | -0.17 | -7.0 | -0.16 | -4.0 | -0.81 | -15.8 | -0.15 | -2.4 | 0.24 | 9.4 | -0.30 | -4.0 | -0.03 | -0.4 |
| Campus/Grade Mean | | | | | | | | | | | | | | |
| % High Income | -0.04 | -1.4 | -0.04 | -0.8 | 0.02 | 0.3 | -0.46 | -5.1 | -0.40 | -15.3 | -0.13 | -1.5 | 0.32 | 4.1 |
| Constant | 25.40 | 7.0 | 15.70 | 3.0 | -18.10 | -3.3 | 4.68 | 0.4 | -39.63 | -8.5 | 9.36 | 0.9 | 5.76 | 0.6 |

Table A2. High School Outcome Multiple Logit Coefficients and z Scores Excluding Out of Sample Students

| N = 179,215<br>Pseudo R-squared = .184 | Dropout | | GED | | Still In Sample | | Advanced Diploma | | IEP/Min. Diploma | | Private H.S. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Independent Variables | coef. | z Score | coef. | z Score | coef. | z Score | coef. | z Score | coef. | z Score | **coef.** | **z Score** |
| Continuous Variables | | | | | | | | | | | | |
| 8th Grade TAAS | -0.47 | -29.6 | 0.06 | 4.0 | -0.73 | -28.1 | 1.04 | 102.7 | -0.64 | -26.8 | 0.50 | 18.7 |
| Days Absent | 0.06 | 40.3 | 0.07 | 48.0 | 0.05 | 20.2 | -0.05 | -44.9 | 0.01 | 4.7 | -0.01 | -1.8 |
| Age | -1.47 | -1.9 | 2.43 | 3.2 | -0.09 | -0.1 | 4.86 | 7.8 | -0.96 | -0.7 | -1.46 | -1.1 |
| Age Squared | 0.07 | 3.0 | -0.06 | -2.3 | 0.00 | -0.1 | -0.17 | -8.2 | 0.04 | 0.9 | 0.05 | 1.1 |
| Dichotomous Variables | | | | | | | | | | | | |
| Pass Exit TAAS | -2.18 | -71.1 | -2.55 | -97.3 | -0.70 | -11.0 | 0.23 | 9.4 | -1.01 | -17.8 | -1.86 | -48.4 |
| Fail Exit TAAS | -1.67 | -43.7 | -2.42 | -52.1 | -0.58 | -8.8 | 0.02 | 0.5 | -0.42 | -7.7 | -1.67 | -24.0 |
| Native American | 0.41 | 1.7 | 0.16 | 0.7 | 0.27 | 0.5 | -0.06 | -0.5 | -0.76 | -1.2 | -0.27 | -0.7 |
| Asian | -0.01 | -0.1 | -0.27 | -2.6 | 0.58 | 2.9 | 0.56 | 14.8 | -0.32 | -1.3 | 1.00 | 13.1 |
| Black | -0.26 | -6.1 | -0.84 | -19.2 | 0.70 | 10.0 | -0.01 | -0.4 | -0.19 | -3.0 | -0.04 | -0.7 |
| Hispanic | -0.12 | -3.1 | -0.34 | -10.0 | 0.87 | 13.0 | 0.23 | 13.9 | -0.13 | -2.1 | -0.09 | -1.8 |
| Low Income | 0.18 | 2.9 | 0.17 | 3.3 | 0.04 | 0.4 | -0.26 | -9.4 | 0.08 | 0.9 | -0.30 | -3.6 |
| Very Low Income | 0.39 | 12.3 | 0.18 | 5.9 | 0.23 | 4.5 | -0.25 | -15.1 | -0.01 | -0.2 | -0.31 | -6.6 |
| Male | -0.08 | -3.2 | 0.30 | 13.0 | 0.58 | 13.5 | -0.34 | -29.7 | 0.04 | 1.0 | -0.20 | -6.3 |
| Ever Special Ed. | -0.81 | -19.6 | -0.77 | -18.9 | -0.29 | -4.5 | -0.39 | -17.1 | 2.41 | 48.6 | -0.38 | -6.4 |
| Ever Limited English | -0.16 | -3.7 | -0.79 | -15.0 | -0.15 | -2.5 | 0.25 | 9.6 | -0.32 | -4.2 | -0.01 | -0.2 |
| Campus/Grade Mean | | | | | | | | | | | | |
| % High Income | -0.06 | -1.1 | 0.00 | 0.0 | -0.46 | -5.0 | -0.39 | -14.7 | -0.16 | -1.8 | 0.33 | 4.3 |
| Constant | 3.98 | 0.7 | -24.11 | -4.2 | -2.43 | -0.2 | -33.75 | -7.3 | 1.13 | 0.1 | 9.20 | 0.9 |

Table A3. College Outcome Multiple Logit Estimated Coefficients and z-Scores for GED Recipients, Public Hich School Graduates and Private High School Graduates

| N = 169,036<br>Pseudo R-squared = .146 | Selective | | Historically Black | | Very High % Hispanic | | High % Hispanic | | High % Minority | | 2-Year Colleges | | No College Experience | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Independent Variables | coef. | z Score | coef. | z Score | coef. | z Score | coef. | z Score | coef. | z Score | coef. | z Score | coef. | z Score |
| Continuous Variables | | | | | | | | | | | | | | |
| 8th Grade TAAS | 1.55 | 41.1 | -0.73 | -16.5 | -0.30 | -8.9 | -0.17 | -4.1 | -0.10 | -3.3 | -0.72 | -36.6 | -0.78 | -40.2 |
| Days Absent | -0.01 | -3.9 | 0.02 | 3.8 | 0.02 | 4.7 | 0.01 | 1.7 | 0.01 | 4.2 | 0.02 | 11.0 | 0.04 | 19.5 |
| Age | -4.10 | -1.9 | -10.53 | -3.9 | -5.15 | -2.3 | -11.24 | -4.4 | -8.74 | -4.8 | -8.41 | -6.1 | -12.50 | -9.2 |
| Age Squared | 0.14 | 1.8 | 0.36 | 4.0 | 0.17 | 2.2 | 0.38 | 4.3 | 0.30 | 4.8 | 0.29 | 6.2 | 0.43 | 9.4 |
| Dichotomous Variables | | | | | | | | | | | | | | |
| GED | -0.99 | -2.0 | 1.52 | 4.3 | 1.39 | 4.8 | 0.70 | 2.0 | 1.14 | 4.6 | 2.37 | 12.3 | 2.91 | 15.2 |
| Advanced Diploma | 0.12 | 3.8 | -0.37 | -5.3 | 0.48 | 10.4 | -0.15 | -3.0 | -0.04 | -1.3 | -0.45 | -19.2 | -0.81 | -36.3 |
| Minimum Diploma | -0.86 | -0.8 | 0.50 | 1.0 | 0.21 | 0.4 | 0.73 | 1.4 | 0.13 | 0.3 | 1.20 | 3.7 | 1.73 | 5.4 |
| Private High School | -0.06 | -0.8 | -0.28 | -2.0 | 0.16 | 1.5 | -0.23 | -2.0 | -0.05 | -0.7 | -0.14 | -2.9 | -53.16 | . |
| Pass Exit TAAS | -0.06 | -0.9 | 0.04 | 0.3 | 0.00 | 0.0 | -0.01 | -0.1 | -0.05 | -0.7 | -0.06 | -1.3 | -0.53 | -11.9 |
| No Exit TAAS Score | -0.36 | -1.7 | 0.75 | 4.5 | 0.56 | 4.2 | -0.01 | 0.0 | 0.35 | 2.9 | 0.63 | 7.2 | 0.39 | 4.6 |
| Native American | 0.24 | 0.7 | -41.49 | . | -0.03 | 0.0 | -0.13 | -0.2 | 0.95 | 2.8 | 0.45 | 1.8 | 0.70 | 2.8 |
| Asian | 1.73 | 21.1 | 2.96 | 6.9 | 0.96 | 4.6 | 0.80 | 4.9 | 2.36 | 28.0 | 0.58 | 7.2 | 0.87 | 10.7 |
| Black | -0.35 | -5.1 | 5.66 | 25.9 | -0.23 | -1.8 | -0.28 | -2.8 | 1.07 | 21.6 | -0.33 | -8.6 | 0.21 | 5.9 |
| Hispanic | 0.76 | 14.8 | 1.64 | 5.1 | 3.08 | 44.6 | 1.85 | 28.5 | 0.96 | 17.5 | 0.81 | 21.1 | 0.95 | 25.2 |
| Low Income | -0.29 | -3.0 | -0.08 | -0.5 | 0.24 | 2.6 | 0.33 | 3.1 | 0.11 | 1.3 | 0.38 | 6.1 | 0.60 | 10.0 |
| Very Low Income | -0.29 | -3.0 | -0.08 | -0.5 | 0.24 | 2.6 | 0.33 | 3.1 | 0.11 | 1.3 | 0.38 | 6.1 | 0.60 | 10.0 |
| Male | 0.18 | 6.5 | 0.28 | 4.6 | 0.23 | 5.8 | 0.04 | 0.9 | -0.03 | -0.8 | 0.07 | 3.4 | 0.28 | 13.9 |
| Ever Special Ed. | -0.05 | -0.7 | -0.22 | -1.7 | 0.20 | 2.2 | 0.14 | 1.5 | 0.02 | 0.2 | 0.13 | 2.8 | 0.14 | 3.2 |
| Ever Limited English | 1.05 | 8.3 | -0.31 | -0.6 | 0.81 | 7.4 | -0.11 | -0.8 | 1.07 | 9.4 | 0.63 | 6.3 | 0.69 | 6.9 |
| % High Income | 0.92 | 12.8 | -0.31 | -2.5 | -1.93 | -20.7 | -0.78 | -7.8 | 0.12 | 1.6 | -0.27 | -5.4 | -0.37 | -7.5 |
| Constant | 28.33 | 1.8 | 71.40 | 3.6 | 37.05 | 2.2 | 82.24 | 4.4 | 63.15 | 4.7 | 62.28 | 6.2 | 92.72 | 9.4 |

Table A4. College Outcome Multiple Logit Estimated Coefficients and z-Scores for GED Recipients, Public High School Graduates and Private High School Graduates with College Experience

| N = 81,622<br>Pseudo R-squared = .169 | Selective | | Historically Black | | Very High % Hispanic | | High % Hispanic | | High % Minority | | 2-Year Colleges | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Independent Variables | coef. | z Score | coef. | z Score | coef. | z Score | coef. | z Score | coef. | z Score | coef. | z Score |
| Continuous Variables | | | | | | | | | | | | |
| 8th Grade TAAS | 1.77 | 42.6 | -0.79 | -16.3 | -0.43 | -11.6 | -0.25 | -5.9 | -0.10 | -3.1 | -0.86 | -39.9 |
| Days Absent | -0.02 | -4.7 | 0.03 | 4.6 | 0.02 | 5.7 | 0.01 | 2.4 | 0.02 | 4.5 | 0.03 | 11.1 |
| Age | -3.85 | -1.8 | -8.57 | -3.1 | -2.72 | -1.1 | -10.07 | -3.8 | -8.02 | -4.3 | -6.84 | -4.8 |
| Age Squared | 0.13 | 1.7 | 0.29 | 3.2 | 0.09 | 1.1 | 0.34 | 3.8 | 0.27 | 4.3 | 0.24 | 4.9 |
| Dichotomous Variables | | | | | | | | | | | | |
| GED | -1.17 | -2.4 | 1.46 | 3.9 | 1.27 | 4.3 | 0.66 | 1.9 | 1.07 | 4.3 | 2.39 | 12.3 |
| Advanced Diploma | 0.19 | 6.1 | -0.36 | -5.2 | 0.30 | 6.6 | -0.22 | -4.6 | -0.06 | -1.6 | -0.53 | -23.0 |
| Minimum Diploma | -0.56 | -0.5 | 0.02 | 0.0 | -0.12 | -0.2 | 0.54 | 1.0 | -0.01 | 0.0 | 0.83 | 2.5 |
| Private High School | -0.08 | -1.1 | -0.29 | -2.1 | 0.07 | 0.6 | -0.26 | -2.3 | -0.06 | -0.8 | -0.17 | -3.5 |
| Pass Exit TAAS | -0.07 | -1.2 | -0.05 | -0.3 | -0.04 | -0.4 | -0.02 | -0.2 | -0.07 | -1.0 | -0.03 | -0.6 |
| Fail Exit TAAS | -0.41 | -1.9 | 0.59 | 3.3 | 0.49 | 3.5 | -0.01 | 0.0 | 0.31 | 2.5 | 0.65 | 7.3 |
| Native American | 0.21 | 0.6 | -38.63 | -123.0 | 0.00 | 0.0 | -0.12 | -0.2 | 0.95 | 2.8 | 0.45 | 1.8 |
| Asian | 1.89 | 22.5 | 2.85 | 6.6 | 0.86 | 4.1 | 0.76 | 4.6 | 2.32 | 27.3 | 0.35 | 4.3 |
| Black | -0.21 | -3.0 | 5.59 | 25.5 | -0.27 | -2.1 | -0.33 | -3.2 | 1.07 | 21.2 | -0.50 | -12.4 |
| Hispanic | 0.79 | 15.3 | 1.65 | 5.1 | 3.08 | 44.6 | 1.84 | 28.3 | 1.01 | 18.5 | 0.78 | 20.2 |
| Low Income | -0.38 | -3.8 | -0.25 | -1.6 | 0.17 | 1.8 | 0.30 | 2.8 | 0.03 | 0.3 | 0.42 | 6.5 |
| Very Low Income | -0.40 | -6.4 | 0.03 | 0.4 | 0.26 | 4.5 | 0.05 | 0.7 | 0.10 | 1.8 | 0.28 | 7.1 |
| Male | 0.15 | 5.5 | 0.34 | 5.3 | 0.22 | 5.4 | 0.04 | 0.9 | -0.02 | -0.7 | 0.08 | 3.8 |
| Ever Special Ed. | -0.07 | -1.0 | -0.33 | -2.4 | 0.21 | 2.3 | 0.14 | 1.4 | 0.01 | 0.2 | 0.11 | 2.3 |
| Ever Limited English | 1.04 | 8.1 | -0.42 | -0.8 | 0.82 | 7.4 | -0.10 | -0.7 | 1.03 | 9.0 | 0.59 | 5.8 |
| Campus/Grade Mean | | | | | | | | | | | | |
| % High Income | 1.10 | 14.9 | -0.63 | -4.7 | -1.94 | -20.3 | -0.83 | -8.3 | 0.09 | 1.2 | -0.39 | -7.6 |
| Constant | 26.36 | 1.7 | 57.10 | 2.8 | 19.31 | 1.1 | 73.66 | 3.8 | 57.98 | 4.3 | 50.87 | 4.9 |