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RACE AND GENDER DIFFERENCES IN COLLEGE MAJOR CHOICE

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ABSTRACT: College major choice varies substantially by gender, race, and ethnicity among college graduates. This study investigates whether these differences are present at the start of the college career and whether these differences can be explained by differences in academic preparation. This study estimates a multinomial logit to evaluate whether students of similar academic backgrounds make similar college major choices at the start of their college career. The results demonstrate that there are differences in college major choice even after controlling for the SAT score of the student and the high school class rank of the student by gender, race, and ethnicity. In addition to differences in the initial choice of college major, there also appear to be differences in the likelihood of a student changing their major while in college. Women and minorities are more likely to stay in lower paying fields (social sciences and humanities) than are white males. In addition, women are significantly more likely to switch away from an initial major in the sciences and engineering than are men.

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I. INTRODUCTION

Significant earnings differences exist between men and women and between minorities and whites.¹ These earnings differences are partly due to differences in occupation and education and may be due in part to discrimination. While there have been studies that have documented differences in the career paths of men and women and minorities and whites, there is still some debate as to why women and minorities are under-represented in certain highly compensated career paths. The purpose of this study is to identify when women and minorities stop pursuing certain career paths. Specifically, this study investigates whether women and minorities stop pursuing these paths prior to the start of their college career or during college.

One of the significant determinants of career paths is the college major that a student chooses in college. Recent research has demonstrated that college major affects occupational choice, earnings, and the probability that a student will pursue advanced degrees.² This study investigates whether college major choice varies by race and gender and whether the probability of changing a student's major in college varies by race and gender.

College graduates of different races, ethnic groups, or gender, may choose different college majors for at least three different reasons. First, students may differ in their preparation for college work and this may affect the amount of effort required to obtain specific degrees. Therefore the choice of college major may vary due to

¹ Altonji and Blank (1999) provide an overview of earnings differences by race and gender in the labor market.

² Several studies have found that the sciences and engineering are among the most highly rewarded in the labor market including: Black, Sanders and Taylor (2003), Berger (1988), Dickson (2008) and Hamermesh and Donald (2008). Bedard and Herman (2008) and Black, Sanders and Taylor (2003) provide evidence that undergraduate major affects graduate school attendance.

differences in academic preparation. Second, students may change their initial major choice at the beginning of their academic career to another major during college. During college, students learn about their abilities in a particular subject and this increased self awareness may cause them to change their major. Analogously, a student may learn about his ability to complete college coursework and the student may choose to drop out of college. Another reason why college major choice may differ by gender, race, and ethnicity, is that there may be differences in the rewards for the same major. Brown and Corcoran (1997) and Joy (2000) found some evidence that there are different returns for the same major across the sexes. The differences in returns could lead to differences in the willingness to invest in specific fields of study. Finally, the students may also choose to major in different subjects due to differences in preferences.

This study uses data collected by the Texas Higher Education Opportunity Project (THEOP) to help distinguish between the reasons as to why college major choice varies by gender, race and ethnicity. Unlike most other studies on college major choice, it is possible with these data to investigate how student's initial choice of college major varies by race, gender, and ethnicity.³ With these data, it will be possible to investigate whether women and minorities with similar characteristics are as likely as white males to choose certain majors at the start of their college career. In order to answer this question, a multinomial logit regression is estimated. The results do suggest that race and ethnicity affects college major choice even after controlling for test scores and high school class rank.

³ Previous studies that used the final observed college major choice include Daymont and Andrisani (1984), Gerhart (1990), Loury (1997), Polachek (1978). Arcidiacono (2004) is the only study that investigates college major choice as a dynamic process. (Need to include more comparison of Arcidiacono to this study)

Another advantage of these data is that it includes information on college major choice for each term the student is enrolled in college. The advantage of these data is that it allows for an analysis of who changes their major during college. This study investigates whether minorities and women are more likely to switch away from potentially lucrative majors. In order to analyze switching behavior, a probit equation is estimated separately by major. The results do suggest that minorities and women are less likely to persist in the most lucrative majors.

II. DATA

The Texas Higher Education Opportunity Project administrative data provides information on applicants and enrollees at several universities in Texas. The universities that are included in this study are: Texas A&M at College Station, Texas A&M at Kingsville, the University of Texas at Austin, the University of Texas at Pan American, the University of Texas at San Antonio, Southern Methodist University, and Texas Tech.⁴ For each university, information is available on the student's major for each semester the student is enrolled.⁵ The major categories used in this study are: the natural and physical sciences, business, social sciences, engineering and computer sciences, humanities and other majors, and undecided.⁶ Several universities allow for their students to choose undecided as their major (University of Texas at Austin, The University of Texas at Pan American, The University of Texas at San Antonio, and

⁴ The University of Texas at Arlington is not included due to a small sample size after restricting the study to those individuals who report a valid major in both the first semester and last semester, a valid gender, a valid ethnicity and a valid test score. Rice University is excluded from analysis since the university only reports one major for each student and does not record information on students' changing major during their college career.

⁵ Rice university is part of the administrative private use data but the recorded major for each student does not change over time.

⁶ Appendix 1 shows how the 17 majors included in the study are aggregated to these groups.

Southern Methodist University). However, Texas A&M at College Station, Texas A&M at Kingsville, and Texas Tech do not have students who choose undecided as their major. Due to this complication, the analysis is conducted separately for those universities that allow for undecided as a major and for those universities that do not allow undecided as a major. The analysis in this study is limited to individuals who report a college major in their first semester of study and their last semester of study, who report a valid ethnicity, a valid gender, an admissions test score, and high school class rank. This study uses data from all of the available years.⁷

III. DESCRIPTIVE STATISTICS

Students vary in their level of academic preparation. These differences are noticeable when looking across racial and ethnic groups and by gender. Table 1 shows the average SAT score and the fraction of students who were in the top ten percent of their high school class by race, ethnicity, and gender. The table reveals that Asians have the highest SAT score on average (1196) and have the highest percentage of students who graduated in the top ten percent of their high school class (51%). Hispanics have the lowest average SAT score (966) and also have the lowest proportion of students graduating in the top ten percent of their high school class (29%). Black students on average report an SAT score of 1004. This is almost 40 points higher than the average for Hispanic students but is more than 150 points lower than the average for white

⁷ Data is not available from every university in each of the years. The years available for each of the universities is as follows: Texas A&M (1992-2007), Texas A&M Kingsville (1992-2004), UT-Austin (1991-2004), UT Pan American (1995-2005), UT San Antonio (1990-2004), Texas Tech (1995-2004), SMU (1998-2005).

students. Black students and students of other ethnicities have the same proportion of students who report being in the top ten percent of their high school class (32%).

The average SAT score and fraction of students in the top ten percent of their high school class varies by gender. Females on average have a lower SAT test score (1089) than males (1133). However, 43% of females report being in the top ten percent of their high school class and this can be compared to 33% of males. Within each gender, Asians still maintain the highest SAT score and the largest proportion of students in the top ten percent of their high school class. While only 23% of black males graduated in the top ten percent of their high school class, 40% of black females graduated in the top ten percent of their high school class. This represents the largest percentage point difference by gender.

Table 2 shows how the average SAT score varies across the six major categories. This table uses data for all students enrolled at their first semester at any of the seven universities used in this study. Undecided is only available for four of the universities (University of Texas at Austin, University of Texas at Pan American, University of Texas at San Antonio, and Southern Methodist University). For every university except the University of Texas Pan American, the average SAT score is highest for the engineering and computer science major. For UT-Austin, UT-San Antonio and SMU, the lowest average admissions test score is shown for students who are undecided. As expected, the average SAT score varies substantially across universities. The University of Texas at Austin has the highest SAT score (1189) closely followed by Southern Methodist University (1172) and Texas A&M College Station (1156). The University of Texas Pan American has the lowest average SAT score (840).

Table 3 shows the college major chosen for college graduates during their first semester and last semester at the two types of universities. Since students at Texas A&M College Station, Texas A&M Kingsville, and Texas Tech University do not have students who are undecided, the means for those universities are presented separately from those universities that allow for students to choose undecided. The results show that there are substantial differences by gender in the chosen field of study. In addition, the table shows that there are differences between the first semester and last semester for college major choice.

During the first semester of study at Texas A&M College Station, Texas A&M Kingsville, and Texas Tech University, 42% of students choose a major in the natural and physical sciences. It is important to note that agriculture is considered to be a natural and physical science and this major is overly represented at Texas A&M. The second most popular major in the first semester for this group of universities is the humanities and other majors. Notably only 1% of students declare a business degree at the beginning of their college career. When comparing the fraction of students in a major category at the beginning of their college career to the end of their college career, we can see that the fraction of students majoring in business grew from 1% to 23%. The share of students majoring in the social sciences also grew from 11% to 22% of the total graduates.

The table also reveals large differences by gender at these universities. Very few women pursue a degree in engineering or computer science. At the start of their college career, 10% of women state they would pursue an engineering or computer science degree. At the end of their college career, only 7% of women obtained an engineering or computer science degree. These numbers can be compared to 35% of men and 28% of

men at these universities. A large proportion of women declared a major in the natural and physical sciences (47%). This may be due to the fact that health is included in the natural and physical sciences. However, only 32% of women graduated with a degree in the natural and physical sciences. This can be compared to 28% of men who graduated with a degree in the natural and physical sciences. While fewer men graduate with a degree in this field, the change in the share of men who proposed to major in this category and those that actually do major in this category is substantially smaller (7%) than it is for women (15%).

Table 3 Part B shows the distribution of college majors for students who can choose to remain undecided at the beginning of their college career. At UT-Austin, UT-Pan American, UT-San Antonio and Southern Methodist University, 28% of students are undecided at the beginning of their career. At the end of their college career, almost all of the students have declared a major. A small proportion of students (approximately 0%) are undeclared at the end of their college career. At the end of their college career, the most popular major for this group of students is the social sciences with 31%. The least popular degree is engineering and computer science. At these universities, there are also substantial differences by gender. While only 4% of women graduate with a major in engineering and computer science, 21% of men graduate with a major in engineering and computer science. Women are more likely to choose to major in the social sciences, natural and physical sciences, and the humanities and other majors.

Table 4 shows the college major chosen by race and ethnicity. Part A of the table shows the college major choices by race and ethnic group for college graduates during their first semester and their last semester. Perhaps the most noticeable difference across

the ethnic and racial groupings is the large proportion of Asians who choose to major in either the natural and physical sciences or engineering and computer science. Blacks and Hispanics look fairly similar in terms of their major choices at the beginning and end of their college careers. As noted in the table by gender, the share of individuals majoring in business at the end of their career is very large compared to the share of individuals majoring in business at the beginning of their career. There does appear to be attrition in individuals majoring in the natural and physical sciences as well as in engineering and computer science. There is also attrition in the humanities and other majors. Part B of the table shows the means for the University of Texas at Austin, the University of Texas Pan American, and the University of Texas San Antonio. Similar patterns emerge for this group of universities as are observed in part A of the table.

Tables 3 and 4 showed that the choice of college major varies according to whether the student is in his first semester or his last semester. Table 5 presents the final major choice for college graduates and shows the fraction of students who came from a particular major. Once again, the means are presented according to whether they offer undecided as a major or not. The diagonal that is highlighted in bold shows the share of students who graduated with that major who started with that particular major. For example, 72% of students who graduate with a major in the natural and physical sciences started with a major in the natural and physical sciences at Texas A&M College Station, Texas A&M Kingsville, and Texas Tech University. Only 4% of business majors were students who originally declared a major in business at these universities. This can be compared to 85% of engineering and computer science majors who started as engineering and computer science majors.

V. EMPIRICAL METHODOLOGY

The large differences in academic preparation between the races and genders may be affecting a student's observed choice of major. The student's original choice of college major is a function of the student's preparation in high school. Several studies have demonstrated that the choice of college major is related to the student's aptitude scores in math. However, all but one (Arcidiacono, 2004) of these studies relate the aptitude scores to the observed final choice of college major rather than the initial major the student chose at the start of their academic career. Since students may change their major in college and many do change their major in college, the relationship between aptitude scores and final college major choice are only part of the picture.

The first estimation technique will relate the student's choice of college major to the student's background using a multinomial logit. This type of technique has been used by Turner and Bowen (1999) to investigate differences in college major choice by gender. The model of major choice is as follows:

$$\Pr(M_i = j) = \frac{e^{\beta_j x_i}}{\sum_{k=0}^5 e^{\beta_k x_i}} \text{ for } j = 0, 1, 2, 3, 4, 5$$

The choice of college major is believed to be affected by variables included in the matrix X which includes: the student's test scores, class rank, race, ethnicity, gender, year identifiers and university identifiers. The student's test scores and class rank are believed to determine college major choice as they demonstrate the student's ability and eagerness to learn. Race, ethnicity, and gender may influence college major choice and these variables are included to test whether they affect college major choice. Since college

major choice may vary over time, year identifiers are included in the model. In addition, university identifiers are included in the model since university specific attributes may determine whether a student majors in a particular subject. This multinomial logit model is estimated for universities that do not allow students to be undecided and is also estimated separately for universities that allow students to be undecided.

When the student arrives in college, the student learns new information about their ability and college majors. This new information may cause a student to change their major. In order to determine whether minorities and women are more likely to change their major than are white males a probit is estimated on the probability of maintaining their first declared major. For students that were undecided at a university, the first declared major is the first major recorded for the student other than undecided. Students who remain undecided are dropped from the sample. For the remaining students the following model is estimated:

$$\Pr(\text{Change} = 1) = \Phi(\beta'x)$$

where the dependent variable is equal to 1 when the student maintains his major. This model is estimated for each major separately. The X variables included in the model are: gender, race, ethnicity, test scores, year indicators, university identifiers and an identifier for whether the student was originally undecided.

V. RESULTS

The advantage of estimating a multinomial logit model for college major choice at the beginning of the college career is that it allows for an analysis of whether students of different races and ethnicities make different choices even when they have the same level

of academic preparation. Table 6 shows the average marginal effects from estimating the multinomial logit model. The marginal effect shows the effect of that variable on the probability of choosing a specific major. Part A of the table shows the effects for the universities that do not allow students to remain undecided during their first semester.

The results suggest that college major choice is affected by race, ethnicity and gender. For these universities, white females, black females, and Asian females are significantly more likely than white males to choose to major in the natural and physical sciences. Black males and Hispanic males are significantly less likely than white males to major in the natural and physical sciences. For engineering and computer science, white females, black females, Hispanic females, and Asian females are significantly less likely to choose a major in engineering and computer science even when they have the same SAT score and class rank as white males. Black males and Hispanic males are more likely to choose a major in engineering and computer science than are white males. Perhaps surprisingly, after controlling for test score and class rank, Asian males are no more likely to choose a major in engineering and computer science than are white males. The student's test score and class rank are significant in all of the regressions. For all of the majors except for the humanities, a high class rank makes the individual more likely to choose that major relative to social science. Given that so few individuals choose business at the beginning of their college career at this group of universities, most of the estimated coefficients are insignificant.

The results for the universities that do allow for students to be undecided are different from those that do not allow students to be undecided in some ways. Notably for these universities, Asian males are statistically less likely to be engineers and

computer science majors than white males after controlling for test score and class rank. This is surprising given that in the means 26% of Asians chose a major in this area relative to only 15% of whites. This suggests that the reason why Asians are represented so highly in engineering and computer science is due to their relatively high test scores and class rank. Once again, women with the same academic preparation are significantly less likely to choose a major in engineering and computer science. Class rank positively affects the choice of other majors relative to social science except for the humanities and for remaining undecided. Undecided is the only major category where an increase in the test score negatively affects the probability of choosing the major relative to social science significantly.

Table 7 shows the determinants of maintaining a major in a particular subject. For all of the major categories, the higher the student's class rank the more likely he is to persist in his chosen major. Students who were originally undecided and declared the major later in their academic career were significantly more likely to maintain that major at graduation. Across the different ethnic and racial groups, there are differences in persistence. For the natural and physical sciences, it appears all other ethnic groups are significantly less likely to persist in this major relative to whites. Black males are 6 percentage points less likely to persist. Black females are approximately 11 percentage points less likely to persist. For business, black males and black females are significantly less likely to persist than white males. For social sciences, black females, Hispanic males, Hispanic females, other males, and other females, are significantly more likely to persist. In engineering and computer science, all of the different ethnic groups are less likely to persist relative to white males. Notably, Asian males are 14.8 percentage points

less likely to persist than are white males. This result suggests that the reason why the means demonstrate a lower attrition rate for Asians than for whites is due to the fact that Asians enter with higher class ranks and test scores than their white counterparts. In the humanities, black males, black females, Hispanic males, and Hispanic females, other male and other females are more likely to persist in the major relative to white males.

VI. CONCLUSION

The large differences in observed college major choice for college graduates is due to differences in the proposed major at the start of the college career and is due to students changing their major during college. Women and minorities are less likely to choose the natural and physical sciences than are whites at the start of their college career even after controlling for test scores and class rank. However, minorities are more likely to choose to major in engineering and computer science than are white students after controlling for test scores and class rank. Women are significantly less likely to choose engineering and computer science at the start of their academic career than are males. The results also revealed that women are more likely to switch away from the natural and physical sciences and engineering and computer science than are males. Hispanics are also more likely to switch away from the engineering and computer science majors than are whites.

The results suggest that there are problems in the pipeline for minorities and women to follow certain career paths. High school class rank and test scores do affect college major choice and the probability of a student changing her major. However, the results reveal that the differences are not due entirely to differences in academic preparation since differences in college major choice persisted even after controlling for

academic preparation. This suggests that it may be that women may be discouraged from following certain career paths (e.g. engineering) prior to the start of college. This study also demonstrates that the discouragement may not be limited to prior to the start of college. There also appears to be significant decreases in the share of women pursuing engineering in college. This may be due to further discouragement or due to women finding their comparative advantage is in a different subject. These results suggest that if we wish to boost the amount of diversity observed in certain majors and career paths that we may need to invest in more mentoring at the college level and work to encourage more women and minorities to choose some fields at the start of their college careers.

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Table 1: Average test score and high school class rank by race and ethnicity

	Total		Male		Female	
	Test score	Top decile	Test score	Top decile	Test score	Top decile
Black	1004	32%	1002	23%	1007	40%
Hispanic	966	29%	985	25%	948	32%
Asian	1196	51%	1216	46%	1174	56%
White	1159	40%	1182	35%	1136	46%
Other	1057	32%	1081	28%	1034	37%
Total	1110	38%	1133	33%	1089	43%

Notes: The sample is limited to individuals who report a college major in their first and last semester of study. The students' must also report a valid gender, ethnicity, admissions test score, and high school class rank. The admissions test score presented in this table is the average SAT score. For students who reported an ACT score, their score was converted to the SAT scale. The sample means is calculated for all students enrolled for their first semester at the seven universities for all available years.

Table 2: College admissions test score and college major in first semester

Major in First Semester	Texas A&M College Station	Texas A&M Kingsville	University of Texas at Austin	University of Texas Pan American	University of Texas San Antonio	Southern Methodist University	Texas Tech
Natural and physical sciences	1151	857	1197	833	972	1193	1096
Business	1098	862	1210	830	965	1162	1065
Social sciences	1145	834	1186	842	985	1177	1055
Engineering and computer science	1218	992	1252	867	1028	1232	1161
Humanities and other majors	1104	817	1245	803	979	1171	1079
Undecided			1128	878	907	1131	
Total	1156	863	1189	840	969	1172	1085
Sample size	67,027	8,072	89,045	15,192	23,093	2,720	30,098

Notes: The sample is limited to individuals who report a college major in their first and last semester of study at each of these universities. The students' must also report a valid gender, ethnicity, and admissions test score. The admissions test score presented in this table is the average SAT score. For students who reported an ACT score, their score was converted to the SAT scale. Students at Texas A&M College Station, Texas A&M Kingsville, and Texas Tech are not observed choosing undecided as a college major. This study uses data from all of the years available for each of the universities.

Table 3: College major choice by gender

Part A: Texas A&M College Station, Texas A&M Kingsville, Texas Tech University						
	Major 1st semester for graduates			Final major choice for graduates		
	Female	Male	Total	Female	Male	Total
Natural and physical sciences	47%	35%	42%	32%	28%	30%
Business	1%	1%	1%	22%	24%	23%
Social sciences	14%	7%	11%	29%	13%	22%
Engineering and computer science	10%	35%	22%	7%	28%	17%
Humanities and other majors	27%	22%	25%	9%	7%	8%
Sample size	31,724	27,602	59,326	31,724	27,602	59,326
Part B: UT-Austin, UT-Pan American, UT-San Antonio						
	Major 1st semester for graduates			Final major choice for graduates		
	Female	Male	Total	Female	Male	Total
Natural and physical sciences	16%	13%	15%	17%	17%	17%
Business	15%	16%	15%	19%	21%	20%
Social sciences	15%	9%	13%	34%	28%	31%
Engineering and computer science	7%	28%	17%	4%	21%	12%
Humanities and other majors	15%	9%	12%	26%	13%	20%
Undecided	31%	25%	28%	0%	0%	0%
Sample size	28,821	25,021	53,842	28,821	25,021	53,842

Notes: The sample is limited to individuals who report a college major in their first and last semester of study at each of these universities. The students' must also report a valid gender, ethnicity, and admissions test score. The students must also have graduated from the university. Southern Methodist University is not included since zero students who graduated from this university met the stated requirements.

Table 4: College major choice by ethnicity

Part A: Texas A&M College Station, Texas A&M Kingsville, Texas Tech University										
	Major 1 st semester for graduates					Final major choice for graduates				
	Black	Hispanic	Asian	White	Other	Black	Hispanic	Asian	White	Other
Natural and physical sciences	36%	40%	45%	42%	43%	30%	30%	34%	30%	31%
Business	1%	2%	0%	1%	1%	19%	18%	19%	24%	19%
Social sciences	15%	12%	6%	11%	9%	27%	24%	15%	22%	20%
Engineering and computer science	24%	24%	32%	21%	28%	17%	17%	30%	16%	24%
Humanities and other majors	23%	23%	15%	25%	18%	7%	11%	3%	8%	6%
Part B: UT-Austin, UT-Pan American, UT-San Antonio										
	Major 1 st semester for graduates					Final major choice for graduates				
	Black	Hispanic	Asian	White	Other	Black	Hispanic	Asian	White	Other
Natural and physical sciences	16%	19%	22%	12%	14%	18%	17%	25%	15%	15%
Business	16%	15%	15%	15%	14%	17%	17%	23%	20%	20%
Social sciences	15%	16%	7%	13%	13%	37%	32%	20%	33%	24%
Engineering and computer science	16%	15%	26%	15%	33%	10%	9%	20%	11%	27%
Humanities and other majors	9%	12%	8%	13%	8%	18%	24%	12%	21%	14%
Undecided	28%	23%	22%	31%	17%	0%	1%	0%	0%	0%

Table 5: Changing Majors

Part A: Texas A&M College Station, Texas A&M Kingsville, Texas Tech					
	Major Last Semester				
Major 1 st Semester	Natural and physical sciences	Business	Social sciences	Engineering and computer science	Humanities and other majors
Natural and physical sciences	72%	54%	23%	5%	19%
Business	0%	4%	0%	0%	1%
Social sciences	2%	6%	33%	0%	15%
Engineering and computer science	9%	9%	8%	85%	12%
Humanities and other majors	16%	27%	35%	9%	53%
Total	37720	28904	27856	21628	10344

Part B: University of Texas at Austin, University of Texas Pan American, University of Texas San Antonio						
	Major Last Semester					
Major 1 st Semester	Natural and physical sciences	Business	Social sciences	Engineering and computer science	Humanities and other majors	Undeclared
Natural and physical sciences	51%	4%	9%	5%	9%	8%
Business	2%	62%	4%	3%	5%	4%
Social sciences	3%	5%	30%	1%	9%	4%
Engineering and computer science	17%	4%	7%	82%	6%	21%
Humanities and other majors	3%	8%	5%	2%	41%	5%
Undecided	24%	17%	44%	8%	30%	59%
Total	8982	10570	16750	6494	10848	198

Table 6A: Determinants of college major choice in the first semester at Texas A&M at College Station, Texas A&M Kingsville, and Texas Tech

	Natural and physical sciences	Business	Engineering and computer science	Humanities and other majors
White Female	0.126***	0.000	-0.187***	0.021
	(0.013)	(0.000)	(0.012)	(0.013)
Black male	-0.124***	0.000*	0.073***	0.033***
	(0.008)	(0.000)	(0.011)	(0.012)
Black female	0.020*	0.000	-0.110***	0.005
	(0.011)	(0.000)	(0.010)	(0.012)
Hispanic male	-0.080***	0.000	0.042***	0.024***
	(0.007)	(0.000)	(0.008)	(0.009)
Hispanic female	0.014	0.000	-0.169***	0.070***
	(0.009)	(0.000)	(0.006)	(0.010)
Asian male	-0.003	0.000	-0.017	0.016
	(0.023)	(0.000)	(0.024)	(0.025)
Asian female	0.080***	0.001**	-0.282***	0.124***
	(0.026)	(0.000)	(0.035)	(0.026)
Other male	-0.041***	0.000	-0.039***	0.076***
	(0.006)	(0.000)	(0.006)	(0.009)
Other female	0.011	0.000	-0.127***	0.089***
	(0.008)	(0.000)	(0.002)	(0.010)
Testscore	0.000***	0.000***	0.001***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Top decile	0.058***	0.000***	0.108***	-0.133***
	(0.003)	(0.000)	(0.004)	(0.002)
Second decile	0.040***	0.000**	0.048***	-0.072***
	(0.003)	(0.000)	(0.004)	(0.003)

AM Kingsville	-0.049***	0.004***	0.102***	-0.084***
	(0.005)	(0.000)	(0.006)	(0.005)
Texas Tech	-0.119***	0.004***	-0.072***	0.088***
	(0.002)	(0.000)	(0.004)	(0.003)

Notes: The numbers presented in the table are the average marginal effects for choosing the major relative to choosing a major in the social sciences at these universities after estimating a multinomial logit model. The average marginal effects are calculated using the margeff command in STATA. The numbers in parentheses are the standard errors calculated using the delta method. The reference group consists of white males who attended Texas A&M at College Station in the year 1990. Indicators for the year that the student attended the university are included in the regression though they are omitted from the table. The full regressions and the sample means are available upon request from the author.

Table 6B: Determinants of college major choice in the first semester at UT-Austin, UT-Pan American, UT-San Antonio and Southern Methodist University

	Natural and physical sciences	Business	Engineering and computer science	Humanities and other majors	Undecided
White Female	0.017***	0.023***	-0.214***	0.028***	0.106***
	(0.005)	(0.005)	(0.006)	(0.003)	(0.009)
Black male	-0.046***	0.015**	0.026***	0.008**	-0.024*
	(0.005)	(0.007)	(0.010)	(0.004)	(0.013)
Black female	0.009	0.016**	-0.173***	0.043***	-0.004
	(0.006)	(0.007)	(0.010)	(0.004)	(0.013)
Hispanic male	-0.038***	-0.002	-0.001	0.025***	-0.031***
	(0.002)	(0.004)	(0.006)	(0.003)	(0.008)
Hispanic female	-0.001	-0.001	-0.165***	0.056***	-0.002
	(0.003)	(0.004)	(0.004)	(0.003)	(0.008)
Asian male	-0.039***	0.031	-0.058**	0.033***	0.010

	(0.014)	(0.019)	(0.030)	(0.009)	(0.036)
Asian female	-0.015	0.035*	-0.291***	0.042***	0.108***
	(0.015)	(0.020)	(0.043)	(0.009)	(0.038)
Other male	-0.052***	0.021***	-0.078***	0.018***	0.037***
	(0.002)	(0.005)	(0.004)	(0.003)	(0.007)
Other female	-0.033***	-0.023***	-0.129***	0.068***	0.027***
	(0.002)	(0.004)	(0.002)	(0.004)	(0.007)
Test score	0.000***	0.000	0.000***	0.000***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Top decile	0.035***	0.102***	0.105***	-0.008***	-0.215***
	(0.003)	(0.003)	(0.005)	(0.001)	(0.003)
Second decile	0.038***	0.033***	0.091***	-0.002**	-0.161***
	(0.003)	(0.003)	(0.005)	(0.001)	(0.004)
UT- Pan American	0.167***	0.094***	0.173***	0.067***	-0.531***
	(0.007)	(0.004)	(0.007)	(0.002)	(0.008)
UT-San Antonio	0.166***	0.147***	0.108***	0.039***	-0.499***
	(0.005)	(0.003)	(0.006)	(0.001)	(0.007)
Southern Methodist University	-0.021***	0.223***	0.033**	0.050***	-0.387***
	(0.006)	(0.006)	(0.014)	(0.003)	(0.016)

Notes: The numbers presented in the table are the average marginal effects for choosing the major relative to choosing a major in the social sciences at these universities after estimating a multinomial logit model. The average marginal effects are calculated using the `margeff` command in STATA. The numbers in parentheses are the standard errors calculated using the delta method. The reference group consists of white males who attended the University of Texas at Austin in the year 1990. Indicators for the year that the student attended the university are included in the regression though they are omitted from the table. The full regressions and the sample means are available upon request from the author.

Table 7: Determinants of maintaining a major

	Natural and Physical Sciences	Business	Social Science	Engineering and Computer Science	Humanities and other majors
White female	-0.015	0.028	-0.009	-0.151***	0.003
	(0.013)	(0.024)	(0.023)	(0.015)	(0.023)
Black male	-0.064***	-0.087**	0.049	-0.098***	0.070*
	(0.025)	(0.043)	(0.032)	(0.020)	(0.038)
Black female	-0.113***	-0.138***	0.107***	-0.144***	0.129***
	(0.016)	(0.032)	(0.022)	(0.021)	(0.030)
Hispanic male	-0.022*	-0.038	0.089***	-0.085***	0.120***
	(0.013)	(0.025)	(0.020)	(0.011)	(0.023)
Hispanic female	-0.109***	-0.085***	0.075***	-0.206***	0.147***
	(0.012)	(0.023)	(0.019)	(0.014)	(0.022)
Asian male	-0.106**	-0.039	-0.068	-0.148***	0.107
	(0.049)	(0.129)	(0.071)	(0.051)	(0.093)
Asian female	-0.135***	0.024	0.019	-0.353***	-0.032
	(0.040)	(0.115)	(0.050)	(0.053)	(0.077)
Other male	-0.057***	-0.021	0.050***	-0.075***	0.099***
	(0.010)	(0.020)	(0.018)	(0.009)	(0.020)
Other female	-0.086***	-0.115**	0.064***	-0.206***	0.136***

	(0.010)	(0.019)	(0.017)	(0.009)	(0.019)
Test score	0.000***	0.000**	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Top decile	0.101***	0.108***	0.004	0.103***	0.056***
	(0.005)	(0.011)	(0.007)	(0.006)	(0.008)
Second decile	0.055***	0.068***	0.010	0.050***	0.028***
	(0.006)	(0.012)	(0.007)	(0.008)	(0.008)
Initially undecided	0.217***	0.114***	0.200***	0.089***	0.230***
	(0.008)	(0.012)	(0.005)	(0.014)	(0.008)
UT-Pan American	-0.240***	-0.364***	-0.385***	-0.057*	-0.207***
	(0.016)	(0.021)	(0.019)	(0.034)	(0.018)
UT-San Antonio	0.022	-0.167***	-0.015	0.122***	0.048**
	(0.014)	(0.019)	(0.019)	(0.021)	(0.020)
Texas A&M	-0.101***	-0.045	-0.004	0.098***	-0.409***
	(0.005)	(0.056)	(0.008)	(0.005)	(0.001)
Texas A&M Kingsville	0.154***	-0.196***	-0.102***	0.152***	-0.162***
	(0.017)	(0.035)	(0.033)	(0.022)	(0.021)
Texas Tech	-0.159***	-0.026	-0.286***	0.074***	-0.282***
	(0.010)	(0.021)	(0.009)	(0.013)	(0.006)

Appendix 1: College Majors

The administrative data set codes majors into 17 different divisions. The divisions are then aggregated to six different major categories in this study.

Natural and Physical Sciences

Agriculture, Natural / Physical sciences, Health

Business

Business

Social Science

Social sciences

Engineering and Computer Science

Engineering and computer science

Humanities and other majors

Architecture, education, fine arts, general studies, humanities, individualized/interdisciplinary, military sciences, other, social work, technical/ vocational

Undecided