An Analysis of Hispanic and Caucasian STEM Retention at WTAMU

Exploring Two Year Retention Rates and Retention Factors

By

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ABSTRACT

This study examines factors that influence retention of STEM majors to the third year, at West Texas A&M University. Specifically retention of Caucasian and Hispanic students in STEM majors that were incoming freshman between 2010-2012 is studied. Logistic regression is utilized to explore the effects of both qualitative and quantitative measures of academic, social, emotional, and financial factors. The odds ratios are presented and used to interpret each variable's impact of each factor on retention. The results of the study provide evidence that parents' education, hours worked per week, senior year grades, and the likelihood a student desire to transfer, influence the retention, to the third year, of all STEM majors specifically Caucasian and Hispanic STEM majors.

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CHAPTER I

INTRODUCTION

Economic analyses indicate that if the United States is to preserve "its historic preeminence in the fields of science, technology, engineering, and mathematics (STEM)-and gain the social, economic, and national security benefits that come with such preeminence-then it must produce approximately 1 million more STEM professionals over the next decade than are projected to graduate at current rates" [1]. To reach this goal, the United States needs to increase the number of students that graduate with STEM degrees by approximately 34% annually over the current rates. Although this seems intimidating, modest increases in the retention rates of STEM majors during the first few years of college would attain this goal [1]. This begs the question: "what is affecting the retention of these STEM majors?"

Since 1986, there have been increases in student interest for pursuit of STEM degrees [2]. This interest seems to be the same across all racial groups with 34.3% of White and Asian American students and 34.1% of underrepresented racial minority students indicating that they plan to pursue a STEM major [2]. Yet nationally, less than half of the students who enter into STEM majors as freshman graduate with a STEM degree [3].

A initially review of published articles on t retention of STEM majors, described factors that impact student retention in STEM fields. The goal of this study is to identify

previously undetermined academic, social, emotional and financial factors that impact student retention in STEM at West Texas A&M University. Specifically, the research presented here in address the following questions.

Research Questions

- Research Question One: What are the academic, social, emotional, and financial factors that impact the retention of STEM students to the third year at West Texas A&M?
- Research Question Two: Are Hispanic STEM students being retained to the third year at the same rate as Caucasian STEM majors?
- Research Question Three: What are the similarities and differences among the factors that influence retention to the third year of Caucasian and Hispanic STEM students?

Incoming freshman at West Texas A&M University (WTAMU), between the years of 2010 and 2012, participated in the Noel-Levitz survey. The goal of the Noel-Levitz survey was to determine a model for an individual, commissioned institution of higher education that isolated key risk factors to retention among the first year student population. This research will utilize, as a study population, the 2010 through 2012 freshman STEM student cohorts at West Texas A&M. The study data set is comprised of student demographic information, student responses to the Noel-Levitz Survey, and previously identified factors found in the literature that impact student retention in STEM as obtained through the WTAMU Office of Institutional Research. The methodology of this research is to develop a logistic regression model for retention of STEM students to the third year, based on the developed list of considered factors.

Chapter 2 of this thesis identifies the factors determined to impact retention of students in STEM fields in the literature reviewed. Chapter 3 outlines the methodology behind this research, including subjects, subject selection, coding of the data set, and research design. Chapter 4 introduces and sets up the method of logistic regression. Chapter 5 outlines the development of the logistic regression models. One model for all STEM majors and one model for Caucasian and Hispanic STEM students. Interpretation of the models developed and a discussion of the findings of this study is the focus of Chapter 6. In addition, answers to the three research questions are addressed. Conclusions and Limitations of this study will additionally be presented in Chapter 7. The findings are compared to those of the literature reviewed.

CHAPTER II

LITERATURE REVIEW

The President's Council of Advisors on Science and Technology predicts a shortage of STEM college graduates to fill the increasing number of jobs, which is why there is a need to identify factors that impact the retention of these students [1]. Cindy Veenstra Ph.D., concluded that interest in STEM majors has been increasing since 1990 [4]. This could be caused by the national push to increase the number of students graduating with STEM degrees. STEM careers could also be appealing because they are well-paying and rewarding careers. Under-represented minorities are being attracted to STEM majors at the same level of interest as majority students [4].

One study found that there was no association between a person's ethnicity or country of origin and their likeliness to switch majors or drop out completely [5]. This study also found that there was an association between a student's high school rank and their likelihood to either switch majors, drop out, or graduate. Of the students who ranked in the top 10 percent of their high school class and who were originally enrolled in a STEM major, 37% dropped out, 36% switched majors and 27% graduated. Lower high school rank correlates to a higher drop-out rate, a lower switching major rate, and a decrease in graduation rate. A student in the lowest quartile with respect to high school rank had a 100% drop-out rate. The study concluded that regardless of the student's

gender or ethnicity, if they have a higher high school rank, they were more successful in obtaining a STEM degree [5].

Some studies have shown that there is a correlation of SAT or ACT scores to in retention. Students with higher SAT/ACT math scores are less likely to transition out of a STEM major than those who have lower SAT/ACT math scores [6]. Drs. Timothy P. Scott, Homer Tolson, and Tse- Yang Huang studied a cohort of students with GPA's less than 2.0 at the time of change from a STEM major. Of those students, Scott, Tolson, and Huang found that factors other than the student's high school rank and SAT scores account for less than 25% of the information needed to place students in either the retained or not retained group. Of the initial group of students, 59.5% of mathematics and science majors dropped their initial major by the end of the third year [7].

Precollege characteristics that have been demonstrated to impact retention are: high school achievement, quantitative skills, study habits, career and educational goals, confidence in quantitative skills, commitment to enrolled college, financial needs, family support, and social engagement. High school achievement could be represented by the student's high school GPA, high school rank, or composite ACT or SAT score. Quantitative skills could be measured by a student's ACT math or SAT math scores or their state placement exam scores. Confidence in quantitative skills may be measured by the students' self-rated confidence in math, science, and confidence in computers. Family support may be characterized by the education level of the parents and the parents' income level [4].

A different study, by Mike Johnson, determined that an incoming first year student that declared a STEM major and lived in a dorm was approximately 2.9 times

more likely to be successful than incoming freshman who did not live in a dorm. He also discovered that working during the academic year, entering college with credits already earned, family support, and participating in group projects later in their education each had a significant impact on graduating with a STEM major. The students that were not successful in attaining a degree cited financial pressures, math and science deficiencies, too much social interaction, and institutional issues as the primary reasons for their departure from STEM. Three of the indicators of retention for students that declared a STEM major were identified at a 95% confidence level. The first such indicator was high school GPA. Students with a 3.0 GPA were 10.3 times more likely to be successful than students that entered STEM with a 2.0 GPA. The study also showed that a student taking a college orientation course was nearly five times more likely to graduate than if they had not taken the course. Interestingly, 80% of the successful students reported working approximately 15.4 hours on average per week while going to school. The students that dropped out of school worked approximately 25 hours a week. This would indicate that students who work more than 15 hours per week are less likely to complete their degree [8].

Another study found that the likelihood of earning a STEM degree is shown to be associated with the student's gender, ethnicity, SAT/ACT math score, high school percentile, enrollment in Biology 1 or higher level of science class, and enrollment in Algebra 1 or higher level of math class during the first semester of college. Female STEM students were less likely to earn a degree than their male counterparts. A student with a higher SAT math score or high school percentile rank increased the odds of the student earning a STEM degree as compared to a non-STEM degree. Also, the same

study found that parental education impacted the student's choice of in major and likelihood to persist in a STEM major. Being Hispanic did not decrease the odds of student's majoring in STEM when compared to white students. In fact, Hispanic ethnicity might even increase the odds of a student declaring a STEM major [9].

Hunt, Lockwood, and Hunt found that (WTAMU) has seen an increasing number of students from underrepresented populations in STEM, including Hispanic STEM students. Despite the increase in students, the STEM degree attainment for Hispanic students still trails behind that of Caucasian students. The enrollment growth in STEM at West Texas A&M is mainly due to the increase in Hispanic students with most of those students being first generation college students. The student population at West Texas A&M University is over 50% first-generation students and 24% Hispanic [10]. However, first generation college students with a STEM major have a stronger likelihood to not finish their degree [11].

CHAPTER III

METHODOLOGY

Subjects

The subjects of this study are incoming freshman students at WTAMU selecting an initial major in a STEM field in fall 2010, fall 2011, and fall 2012. WTAMU is a university in the Texas panhandle with a diverse student population. With an enrollment of 9,489 students in the fall of 2015, 59% of those students were Caucasian, 24% were Hispanic, and 9% were African American [12]. This demographic is very similar to the one that was found within the STEM majors at WTAMU during the study years. The STEM majors include: Mathematics, Mathematics Education, Computer Science, Computer Science Education, Pre-Engineering, Mechanical Engineering, Engineering Technology, Civil Engineering, Environmental Engineering, Biology, Biotechnology, Biology Education, Environmental Science, Wildlife Biology, Geology, Pre-Pharmacy, Pre-Physical Therapy, Pre-Medicine, Pre-Dentistry, Medical Technology, Plant, Soil, and Environmental Science, Pre-Veterinarian, Chemistry, Physics, Physical Science Education, Science Composite Education, and Animal Science. There are 568 male STEM majors and 436 female STEM majors.

Selections of subjects

WTAMU contracted an outside consulting firm, Noel-Levitz, to conduct a survey and collect qualitative information about three cohorts of incoming freshman. The three cohorts were the fall 2010, fall 2011, and fall 2012 incoming classes. The Noel-Levitz survey is 100 questions which can be placed into categories with qualitative themes and then normalized. A copy of the survey is included in Appendix I. The normalized results were then compiled in a standardized percentile distribution, resulting in percentile scores for most categories. For more information on this process look at the Noel-Levitz website: https://www.noellevitz.com. The local mean percentiles for each category, for the 2011 cohort are given in the Table 3.1:

Table 3.1: Local Mean Percentiles for each Category from the Noel- Levitz Survey [13]

Local Means on Major Scales			
Academic Motivation Scales	**Females**	**Males**	**Total**
Study Habits	49.8	37.5	43.7
Intellectual Interests	50.3	38.3	44.3
Verbal and Writing Confidence	47.9	45.3	46.6
Math and Science Confidence	44.5	55.5	50.0
Desire to Finish College	60.3	47.8	54.1
Attitude Toward Educators	54.9	48.4	51.7
General Coping Scales			
Sociability	53.5	51.6	52.6
Family Emotional Support	53.2	50.2	51.7
Opinion Tolerance	42.7	42.8	42.7
Career Closure	54.8	49.5	52.1
Sense of Financial Security	41.6	42.6	42.1
Receptivity Scales			
Academic Assistance	59.5	58.7	59.1
Personal Counseling	48.8	50.4	49.6
Social Enrichment	66.3	57.1	61.7
Career Counseling	54.2	58.3	56.2
Financial Guidance	64.0	59.9	62.0

These percentile scores and the ordinal data collected form the Noel-Levitz survey along with other quantitative data collected by the Office of Institutional Research and the Office of Admissions at WTAMU, was used to create a the list of initial study factors that could impact retention of STEM majors at WTAMU. There were 3,681 students that took the survey. The data was translated into a large spreadsheet created by the researcher. From the three cohorts, all majors except the STEM majors listed above were removed, leaving 1,004 students in the file for this study. When classified by race, there are 634 Caucasian students, 233 Hispanic students, 7 Native American, 69 African American students, 14 Asian students, 27 students that identified as other, and 27 students with no response.

Discussion and Coding of Predictor and Outcome Variables

Tracking the retention of students who begin as STEM majors was the foundation of this study. Retention to the third year (i.e. fall of 2012 into fall of 2015) of STEM majors was the primary concern for this study. Retention to the third year was chosen for this study because at this point most of these majors have started major-specific classes. This meant that it was necessary to know the student's starting STEM major and also the student's major during their third fall semester. Documentation of major change was obtained through the WTAMU Office of Institutional Research and used to determine whether or not the students were retained as STEM majors to their 3rd year. This variable was further divided into three categories: students who dropped out or transferred from WTAMU; students who switched out of a STEM major but were still enrolled at WTAMU; and students who were still pursuing a STEM major at WTAMU. When coding the retention variable to the 3rd year, students that either dropped out, transferred,

or switched out of a STEM major were considered not retained. Those students who were still pursuing a STEM major during their 3rd year were considered retained. A student that started out one STEM major and then switched to another major still classified as STEM was considered retained. For coding of a degree program variable these STEM majors were grouped into seven categories based on similarities within student major programs: mathematics, computer science, engineering, biology, chemistry and physics, agricultural science, and pre-professional.

Some of the demographic information such as gender and race were coded. Gender was coded simply into male as zero and female as one. Race, or Ethnicity, was coded as follows: the Caucasian students were coded as zero; the Hispanic students were coded as one; the Native American students were coded as two; the African American students were coded as three; the Asian students were coded as four; the students that identified as multiethnic or other were coded as five; and the students that preferred not to respond were coded as six.

There was some missing data and not all of the variables were consistent across the study cohorts. The fall 2010 cohort listed ACT composite score, high school GPA, distance from campus, and whether the student played sports. Whereas, the fall 2011 cohort listed ACT composite score, high school GPA, high school sport, department or program area, expected family contribution greater than zero, and sectional center facility codes. Lastly, the fall 2012 cohort listed financial aid gap risk, student ethnicity, college GPA, number of self-initiated contacts, distance from campus, and department or program area. The discontinuity among the risk factors created a problem for comparing the cohorts. This meant that there was a need for the same variables to be used in all three

cohorts. High school GPA was problematic as a risk factor because different schools use different scales and there was not a way to determine which GPA scale was used. Instead, class percentile of the students was used which gives a more comparable scale. There were students who did not have an ACT score or did not take the ACT so the students' ACT and SAT scores were requested from the Office of Institutional Research. The SAT scores were converted into the equivalent ACT scores using a conversion table and the maximum between the original and the new score was selected to be included as the Maximum ACT and SAT variable [14]. Next, the students' distance from campus was present in two of the cohorts. Since there was no knowledge of what scale was used to determine how far away from the university the students resided, the student's town of residence was requested from Institutional Research. Each student's home town was entered into Google maps to find the approximate distance from the student's hometown to WTAMU. This distance was recorded as the distance from campus variable. Other information acquired from Institutional Research data included whether the student played sports in college and whether they received PELL grants. Both playing sports in college and receiving PELL grants, were then used as variables. PELL grants were chosen over family income to be included in the data because PELL grants also take into account how many people, or siblings, are in the household, which can impact family contribution. Finally, if the student did not live in a dorm they were coded as a zero and if the student did live in the dorm they were coded as a one.

Variables such as mother's education, father's education, degree sought, senior year grades, self-reported time of college decision, and how many hours the students work were coded on a numerical scale. There were seven levels of mother's education

and father's education on the Noel- Levitz survey, each coded with a number 0 through 6. If the mother's or father's highest attained level of education was some elementary school, it was originally coded with as a zero, some high school but no diploma was coded as a one, a high school diploma or equivalent was coded as a two, one to three years of college was coded as a three, a bachelor's degree was coded as a four, a master's degree was coded as a five, and a professional degree was coded as a six. The amount of time that the student who expected to work during college was broken down. If a student did not plan on working the student was coded as a zero, a student planning on working 1 to 10 hours a week was coded as a one, a student planning on working 11 to 20 hours a week was coded as a two, a student planning on working 21 to 30 hours a week was coded as a three, a student planning on working 31 to 40 hours a week was coded as a four, and a student planning on working more than forty hours a week was coded as a five. The degree that the student wanted to attain had only three responses. The first being a bachelor's degree which was coded as a zero, the second was a master's degree which was coded as a one, and the third was a professional's degree which was coded as a two. On the survey, the students were asked to self-report their senior year grades. The options were: A, between A and B, B, between B and C, C, between C and D, and D. When this variable was coded, an A was coded as a zero, between an A and a B was coded as a one, a B was coded as a two, and between a B and a C and lower was coded as a three. The last variable was the student's self-reported timing of their decision to apply for admission. The students could have applied a few days before classes began which was coded as a zero, a few weeks before classes began which was coded as a one, and a few months before classes began which was coded as a two. These categorical variables

could now be used in the model to determine the factors that affect retention in STEM majors.

Research Design

The goal of a statistical model is "to find the best fitting and most parsimonious, clinically interpretable model to describe the relationship between an outcome (dependent or response) variable and a set of independent (predictor or explanatory) variables." [15]. Logistic regression is used to predict an outcome variable, which is categorical or binary, from predictor variables, which can be continuous or categorical [16]. In consideration of the research question, two models need to be developed, one to investigate what factors affect all STEM majors' retention at WTAMU, another to find the factors that affect Caucasian and Hispanic STEM majors' retention. Since retention of STEM majors is a binary outcome variable, with either the student being retained or not being retained, logistic regression is chosen as the appropriate statistical model.

CHAPTER IV

LOGISTIC REGRESSION

In any regression problem, the key quantity is the mean value of the outcome variable given the value of the independent variables. When considering the univariate case, there is only one independent variable and an outcome variable. This mean value is called the conditional mean which is expressed as "*E(Y|x)*" and reads "the expected value of Y, given the value of x", where *Y* is the outcome variable and *x* is a specific value of the independent variable. When using the logistic distribution, the notation to represent the conditional mean of *Y* given *x* is:

$$E(Y|x) = \pi(x) = \frac{e^{\beta_0+\beta_1 x}}{1 + e^{\beta_0+\beta_1 x}} \tag{1.1}$$

"The method of maximum likelihood yields values for the unknown parameters that maximize the probability of obtaining the observed set of data" [15]. To use this method, the likelihood function, that expresses the probability of the observed data as a function of the unknown parameters, must be created. Now suppose we have a sample of *n* independent observations of the pair (x_i, y_i), $i = 1,2,3, \dots, n$, with y_i being a binary outcome variable and x_i is the value of the independent variable for the *i*th observation. A favorable way to show the contribution of the observation (x_i, y_i) in the likelihood function is given by the expression:

$$\pi(x_i)^{y_i}[1 - \pi(x_i)]^{1-y_i}. \tag{1.2}$$

This function expresses the probability of obtaining the observed data as a function of the unknown parameters. The maximum likelihood function is found by taking the product of each term of the likelihood function (1.2) which produces:

$$l(\boldsymbol{\beta}) = \prod_{i=1}^{n} \pi(x_i)^{y_i}[1 - \pi(x_i)]^{1-y_i}. \tag{1.3}$$

Once the maximum likelihood function is found, the natural log of both sides is taken which leads to the log-likelihood function:

$$L(\boldsymbol{\beta}) = ln[l(\boldsymbol{\beta})] = \sum_{i=1}^{n} \{y_i \, ln[\pi(x_i)] + (1 - y_i) \, ln[1 - \pi(x_i)]\}. \tag{1.4}$$

Lastly, to find the value of β that maximizes $L(\boldsymbol{\beta})$, the log-likelihood function is differentiated with respect to β_0 and β_1, with the results being set equal to zero. This leads to the likelihood equations which are:

$$\sum [y_i - \pi(x_i)] = 0 \tag{1.5}$$

and

$$\sum x_i[y_i - \pi(x_i)] = 0. \tag{1.6}$$

The solution to these equations is called the maximum likelihood estimate and is denoted by $\beta = (\beta_0, \beta_1)$. To find the significance of an independent variable that is either added or removed from the model, the likelihood ratio test is applied [15]. The likelihood ratio equation is:

$$G = -2ln\left[\frac{(likelihood\ without\ the\ variable)}{(likelihood\ with\ the\ variable)}\right]. \tag{1.7}$$

Now, consider when there is one outcome variable and multiple independent variables or covariates. Let the conditional probability that the outcome is present be

written as $E(Y = 1|\boldsymbol{x}) = \pi(\boldsymbol{x})$, where $\boldsymbol{x} = (x_1, x_2, \dots, x_p)$ with p independent variables. The multiple logistic regression model is represented by the equation

$$g(\boldsymbol{x}) = ln\left(\frac{\pi(\boldsymbol{x})}{1 - \pi(\boldsymbol{x})}\right) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_p x_p, \tag{2.1}$$

where

$$\pi(\boldsymbol{x}) = \frac{e^{g(\boldsymbol{x})}}{1 + e^{g(\boldsymbol{x})}}. \tag{2.2}$$

This model assumes that the log likelihood function is a linear model of independent or explanatory variables. Then, finding the likelihood function is very similar to equation (1.2) except $\pi(x)$ is now being defined by (2.2). Some of the independent variables are discrete, nominal scale variables such as race, major, and mother's education level. Nominal scale variables have numbers that are used to represent the different categories and those numbers are merely identifiers, these variables are also called categorical variables. If the nominal scaled variable has k possible values, then there will be $k - 1$ design variables. Design variables take the value of either 0 or 1 to show the absence or presence of some categorical effect that may change the outcome. Now, there are j independent variables x_j with k_j levels. This yields $k_j - 1$ design variables, that are denoted as D_{jl} and the coefficients for the design variable will be labeled as β_{jl}, where $l = 1,2,3, \dots, k_j - 1$. Hence, this is what the logistic regression model will look like with nominal variables added, there will still be p variables:

$$g(\boldsymbol{x}) = \beta_0 + \beta_1 x_1 + \cdots + \sum_{l=1}^{k_j - 1} \beta_{jl}\ D_{jl} + \beta_p x_p.$$

In order to fit the model, suppose that there is n independent observations $(\boldsymbol{x}_i, y_i), i = 1,2, \dots, n$ and obtain the estimates of the vector $\boldsymbol{\beta}' = (\beta_0, \beta_1, \dots, \beta_p)$. Once again, the maximum likelihood method is used to find the unknown parameters. Also, a $p + 1$ likelihood equation is obtained by differentiating the log-likelihood function with respect to the $p + 1$ coefficients. This yields the following likelihood equations:

$$\sum [y_i - \pi(\boldsymbol{x}_i)] = 0 \tag{2.5}$$

and

$$\sum x_{ij}[y_i - \pi(\boldsymbol{x}_i)] = 0 \tag{2.6}$$

for $j = 1,2, \dots, p$. The solutions to these likelihood equations and the solutions to the likelihood equations from the univariable case are typically found by using a statistical software package such as STATA, SAS, or SPSS. Using the likelihood ratio test to find the overall significance of the p coefficients for the independent variables is done in the exact same manner as the univariate case. This test still uses G, the equation (1.7), but the fitted values are based on the fitted model having $p + 1$ parameters. "Under the null hypothesis that the p 'slope' coefficients for the covariates in the model are equal to zero, the distribution of G is chi-square with p degrees of freedom." [15] Our goal is to find the best fitting model while including the least number of parameters [15].

In order to interpret any fitted model, there must be practical inferences that can be drawn from the estimated coefficients. "The estimated coefficients for the independent variables represent the slope (i.e., rate of change) of a function of the dependent variable per unit of change in the independent variable." [15] Thus to interpret the coefficients, there are two operations to consider. First, the functional relationship between the

dependent variable and the independent variable must be determined. The second operation is to appropriately define the unit of change for the independent variable. When the variable is categorical or binary, the steps to obtain the correct expression of the coefficients is quite straightforward. The first of three steps is to define the two values of the covariate to be compared, like $x = 1$ and $x = 0$. Then, substitute those two values into the equation for the logit with $g(1)$ and $g(0)$ and calculate the difference in the two equations $g(1) - g(0)$ to get β_1 for a binary covariate. Hence, the slope coefficient is the difference between the log odds when $x = 1$ and the log odds when $x = 0$. The final step is to exponentiate the estimated coefficient, β_1, or the logit difference found in the third step, to obtain the odds ratio.

Using the odds ratio will lend a more meaningful interpretation. The odds of the outcome being present among individuals with $x = 1$ is $\pi(1)/[1 - \pi(1)]$ and the odds of the outcome being present among $x = 0$ individuals is $\pi(0)/[1 - \pi(0)]$. Thus the odds ratio, OR, is the ratio for the odds for $x = 1$ to the odds for $x = 0$ and given by the equation:

$$OR = \frac{\frac{\pi(1)}{[1 - \pi(1)]}}{\frac{\pi(0)}{[1 - \pi(0)]}} \tag{3.1}$$

and with a little bit of algebra, the relationship between the odds ratio and the regression coefficient is:

$$OR = e^{\beta_1}. \tag{3.2}$$

The odds ratio is widely used as a measure of association since it approximates how likely or unlikely it is for the outcome to be present among $x = 1$ subjects compared to $x = 0$ subjects. The $100 * (1 - \alpha)\%$ confidence interval estimator for the odds ratio is

found by calculating the endpoints of a confidence interval estimator of the log-odds ratio and then exponentiating the endpoints of that interval. The expression to find the endpoints is:

$$exp[\widehat{\beta_1} \pm z_{1-\frac{\alpha}{2}} * \widehat{SE}(\widehat{\beta_1})], \tag{3.3}$$

where $\widehat{SE}$ is the estimator for the standard error and $\widehat{\beta_1}$ is the estimator for β_1. STATA gives the confidence interval estimator for the log-odds ratio at 95% level of confidence. Thus, all that must be done in order to obtain the odds ratio is to exponentiate the endpoints which yields the confidence interval estimator at a 95% level of confidence. The categorical variables are coded using a reference where the lowest numbered category is the reference cell. Similar to the binary case, each estimated coefficient from the categorical variable is exponentiated to find the odds ratio when compared to the reference value. For the confidence interval estimator, it is very similar except there is more than just one estimated coefficient. Thus, the equation for finding the odds ratio confidence interval estimator is:

$$\exp[\widehat{\beta_j} \pm z_{1-\frac{\alpha}{2}} * \widehat{SE}(\widehat{\beta_j})]. \tag{3.4}$$

Interpreting the estimated coefficients of a continuous variable depends on how it was entered into the model and the units of the variable. There is an assumption that all continuous variables have linear relationship with the logit. Suppose that there is interest in the odds ratio that increases by one unit increments in the covariate, i.e., $x + 1$ versus x. Then, it follows from the logit at x that the logit at $x + 1$ is $g(x + 1) = \beta_0 + \beta_1(x + 1)$. Hence, the estimator of the logit difference is $\hat{g}(x + 1) - \hat{g}(x) = \widehat{\beta_1}$. Finally, the odds ratio is $\widehat{OR} = e^{\widehat{\beta_1}}$, which is the same odds ratio estimator as (3.2). In order to

provide useful interpretation for continuous covariates, there needs to be a method for point and interval estimation of the odds ratio for an arbitrary change of "c" units in the variable. Using the same first three steps, it is found that the estimator for the log odds ratio is $\hat{g}(x+c) - \hat{g}(x) = c\hat{\beta}_1$, where c is the change of units in x. The estimator for the odds ratio is then $\widehat{OR}(c) = e^{c\widehat{\beta}_1}$, and the endpoints of the 95% confidence interval estimate are:

$$\exp\left[c\widehat{\beta_1} \pm z_{.95}|c|\,\widehat{SE}\left(\widehat{\beta_1}\right)\right]. \tag{3.5}$$

If the odds ratio for one variable differs over the levels of another variable then the two variables have a statistical interaction. The rule of thumb that is used to decide whether a covariate is needed in the model is if $\Delta\beta\% > 20\%$. Here $\Delta\beta\% = 100 * (\frac{\widehat{\theta_1} - \widehat{\beta_1}}{\widehat{\beta_1}})$ where $\widehat{\theta_1}$ is the unadjusted coefficient of the covariate, and when $\widehat{\beta_1}$ is the coefficient after the model is adjusted by the effect of another covariate. A coefficient increasing by more than 20% happens when there is a statistical interaction between the variables in the model and the variable that was added to the model. These statistical interactions are included by the product terms in the form '$d * x$'. This form is one covariate variable times another covariate variable. Interpreting interaction terms depends on the variables in the interaction. If one variable is binary and another is continuous then the odds ratio will be different at different values of the continuous variable. When this is the case, denote $\widehat{\beta_1}$ as the coefficient for the binary variable, $\widehat{\beta_3}$ as the coefficient of the interaction term and c as an arbitrary choice of the continuous variable. Thus the odds ratio is $e^{\widehat{\beta_1} + c\widehat{\beta_3}}$ at a specific value of the continuous variable c [15].

The goal of creating a model is to select the variables that will yield the "best" model within the context of the problem. In the beginning, there needs to be a basic plan for determining the variables used for the model. Then, a set of methods for assessing the adequacy of the model, in terms of the individual variables and the overall performance, is found. The more variables that are included in the model, the more the model is dependent on the observed data. The problem with having too many variables included in the model is that the model becomes over fit which produces numerically unstable estimates, thus including the fewest number of needed variables will prevent that problem. Building a model starts with a careful univariate analysis of each independent variable. If a category in one of the categorical variables has less than five successes or five failures, then the category should be combined with another category. This can be checked with a contingency table and will help reduce the likeliness of the model diverging.

Logistic regression models will be used to investigate the impact of a set of determined predictor variables on the retention of STEM majors at WTAMU. The statistical software package STATA is utilized to develop these models. The previously described dataset is uploaded into STATA and then the logistic regression procedure was run with binary outcome variable being retention to the third year. The independent variables that exhibited a p-value of less than 0.30 and the variables that were determined to be clinically important were considered candidates for the first model. The p-value is the probability of obtaining a data set that is as "extreme" or more extreme than the observed. A variable is considered statistically significant at some level such as $p \leq 0.05$. However at this level of model development a less stringent criteria will be utilized

to insure all potentially predictive variables will be included in the model. A multivariable logistic regression model is initially fit containing all covariates identified in the univariate analysis. Once this model is created, the p-value for each covariate variable is evaluated. Starting with the largest p-value, if a covariate variable hadsa p-value that is greater than or equal to 0.05 then it should be eliminated from the model and a new model created. At this juncture the new, reduced, model should be compared to the old model using a likelihood ratio test. This step is important when a categorical variable is removed or more than one non-categorical variable is removed at a time because the significance of the model could change.

After comparing the model to determine the fit, it is important to look at the coefficients from the original model and the reduced model. If a coefficient changes by more than 20%, or $\Delta\beta\% > 20\%$, then the variable that was removed was significant and must be put back in the model. This process is repeated until all variables in the model are important and those excluded are statistically unimportant. Next, each variable from the univariate analysis that was not selected, should be cycled through the reduced model to check for significance. If, when a variable is added to the model, the p-value is 0.05 or less it will be included in the preliminary main effects model.

The assumption that each continuous variable's logit increases/decreases linearly as a function of the covariates must be confirmed. To check the linearity of the continuous variables, the lowess smooth command in STATA is used with the outcome variable as the dependent variable and the continuous variables in the model as the independent variable, plotted on a logit scale. This command produces graphs that are analyzed to determine whether or not the relationship between the continuous

explanatory variable and the logit is linear. If there is any uncertainty about the linearity of the variable, the next step is to use a fractional polynomial command, such as that found in STATA, to see which polynomial is the "best" fit. The STATA command outputs four options but only three of those are considered. The first option is that the variable satisfies a linear relationship; the second is that the variable is modeled by a one term polynomial with some exponent; and the last is a two term polynomial. The fractional polynomials can have the powers $P = \{-2, -1, -0.5, 0, 0.5, 1, 2, 3\}$, where $p = 0$ represents a natural log relationship. Each continuous variable that needs to be verified is removed from the preliminary main effects model. Using the fractional polynomial command, each variable is returned to the model, one at a time, to find the polynomial that is the "best" fit. This process is started with the continuous variable that is the most significant (has the lowest p-value) and continues to the variable that is the least significant (has the highest p-value). To determine which polynomial is the "best" fit the p-values associated with the model type are considered. If the linear polynomial had a p-value of greater than 0.10 then it is considered the "best" fit and left in the model unchanged. If the one term polynomial did not have a p-value of less than 0.10 then the two term polynomial is used in the model. This is repeated until all of the continuous variables are reintroduced into the model [15].

Now each variable must be checked for interactions with other variables in the main effects model. These interactions are called interaction terms and are included in the model based on statistical significance and practical consideration. Every interaction term is created as the arithmetic product of the variables in the main effects model. These interaction terms are entered into the main effects model one at a time and a list is created

of the interaction terms that have a p-value of 0.05 or less. Then all of the significant interaction terms are added into the main effects model and assessed for their significance. The interaction terms are removed, starting with the largest p-value and continuing until all the interaction terms included lead to p-values that are less than or equal to 0.05. None of the main effects model variables are removed at this point. Once all of the interaction terms are significant, the preliminary final model is attained.

Finally, the model must be assessed for its adequacy and the fit of the model is verified. This test must be performed before the model can be used for inferential purposes. Goodness of Fit tests are used to determine how well the model fits the data. This test checks whether the probabilities that were found by the model accurately reflect the true outcome experience in the data. When this process is completed, the final model is acquired [15]. A covariate pattern describes a particular configuration of values for the covariates in the model. The number of covariate patterns can be a problem when assessing the fit of the model. One problem with this occurs in Pearson chi-square statistics because if J, which is the number of distinct values that are observed, is approximately equal to n, the number of covariate patterns, then the distribution is obtained under n-asymptotics. So the number of parameters increases at the same rate as the sample size. Thus the p-values that are calculated using Pearson chi-square statistics maybe are incorrect. The other option is the Hosmer-Lemeshow test where this time the observations are grouped into ten groups, i.e. $g = 10$, and calculating the Pearson chi-square statistic from the $g\ x\ 2$ table of observed and estimated frequencies. This statistic will be used to determine the goodness of fit for the models. As long as the p-value is greater than 0.05 it is be decided that the model fits the data [15].

In the univariate case, it is known that when a cell has a zero count it will cause numerical problems in the model and that the cell should be collapsed with another cell. Numerical problems also occurs with interaction terms when they are added to the main effects model. Numerical problems normally happens with interaction terms because the data is spread over too many cells. The solution to this difficulty involves assuring that there are at least five successes and five failures in each category. One way to handle these numerical problems is to collapse categories in a logical way, like with the univariate analysis. There is a chance this will impact the main effects model so that the model must be recreated from the beginning. When this happens in the model it will be referred to as a separation problem [15].

For the variables that are not involved in an interaction term, interpreting the odds ratio is performed as previously described as well as interpreting an interaction between a continuous variable and a binary variable. There are a few other options such as if both of the variables in the interaction term are binary then there should be four different odds ratios. When the variables of an interaction term are both continuous variables, the odds ratio will be calculated by hand and the equation will differ depending on the variables. This is also true when the interaction occurs between one continuous variable represented as a fractional polynomial, and another continuous variable, which is either linear or non-linear [15]. These general principals for the development and assessment of a logistic regression model will be used in order to develop two models to assess the retention of STEM majors and the factors that affect retention at West Texas A&M.

CHAPTER V

DATA ANALYSIS

Univariate Analysis

Two logistic regression models will be developed in this chapter. The first will model the binary outcome variable, retention to the third year, for all first year STEM majors between 2010 and 2012. The second will investigate retention to the third year for only Hispanic and Caucasian first year STEM majors during the same time period. These analyses provide preliminary information for the development of the two separate logistic regression models; one including all STEM majors, and a second specifically comparing Hispanic and Caucasian STEM majors. As discussed in the previous section, a univariate analysis was completed for each variable to determine if the variable will be included in the model. Table 5.1 below indicates the variables retained based on a p-value of less than 0.30, the threshold for inclusion in the initial model for retention of all STEM majors.

Table 5.1: Univariate Analysis ALL STEM Model Variables

Variable	P-value
Major	0.233,0.000,0.493
Race	0.361, 0.063, 0.913
Transfer Percentile	0.022
Receptivity to Academic Assistance Percentile	0.029
Academic Stress Percentile	0.001
Attitude Toward Educators Percentile	0.063
Family Emotional Support Percentile	0.020
Sense of Financial Security Percentile	0.149
Self-reported College Preparation Percentile	0.000
Math and Science Confidence Percentile	0.000

Table 5.1 Continued

Variable	P-value
Mother's Education Level	0.110, 0.039, 0.883
Father's Education Level	0.022, 0.431, 0.398
Senior Year Grades	0.000, 0.000
Number of Hours Worked	0.666, 0.418,0.024
Intellectual Interest Percentile	0.055
Sociability Percentile	0.013
Study Habits Percentile	0.000
Max ACT or SAT score	0.000
Distance from Campus	0.003
College Athlete	0.161
Class Percent	0.000
PELL Grant	0.058

Variables that do not have a p-value of less than 0.3 are gender, dorm, desire to finish percentile, receptivity to career counseling percentile, receptivity to financial guidance percentile, receptivity to personal counseling percentile, receptivity to social enrichment percentile, verbal confidence percentile, highest degree sought, self-reported time of decision, career closure percentile, and opinion tolerance percentile. These variables will be verified again later, after the main effects model is created, to determine whether they should not be included in the model.

All STEM Retention Model

Each variable identified from the univariate analysis is entered into the model:

Table 5.2: Initial All STEM Majors model

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Major						
1	-0.2160562	0.2273095	-0.95	0.342	-0.6615747	0.2294623
2	-0.9886318	0.2310589	-4.28	0.000	-1.441499	-0.5357647
3	0.0675939	0.2170406	0.31	0.755	-0.3577979	0.4929857
Race						
1	0.1498117	0.2274439	0.66	0.510	-0.2959701	0.5955935
2	0.5646162	0.3577879	1.58	0.115	-0.1366352	1.265868
3	0.4083939	0.3316973	1.23	0.218	-0.2417209	1.058509
Transfer Percentile	-0.0044627	0.0034747	-1.28	0.199	-0.0112729	0.0023476

Table 5.2 Continued

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Receptivity to Academic Assistance Percentile	0.0035339	0.0031134	1.14	0.256	-0.0025682	0.009636
Academic Stress Percentile	0.0106653	0.0071478	1.49	0.136	-0.0033441	0.0246748
Attitude Toward Educators Percentile	0.001643	0.0036697	0.45	0.654	-0.0055494	0.0088354
Family Emotional Support Percentile	0.0054621	0.002836	1.93	0.054	-0.0000964	0.0110206
Sense of Financial Security Percentile	0.0000677	0.0030549	0.02	0.982	-0.0059199	0.0060552
Self-Reported College Preparation Percentile	-0.0021754	0.0040854	-0.53	0.594	-0.0101826	0.0058319
Math and Science Confidence Percentile	0.0074773	0.0040843	1.83	0.067	-0.0005277	0.0154823
Mothers Education						
1	-0.2934802	0.2171631	-1.35	0.177	-0.719112	0.1321516
2	0.3134114	0.2301514	1.36	0.173	-0.137677	0.7644998
3	0.1037769	0.2886309	0.36	0.719	-0.4619294	0.6694831
Fathers Education						
1	-0.5486648	0.2204387	-2.49	0.013	-0.9807167	-0.1166129
2	-0.1981486	0.2298387	-0.86	0.389	-0.6486241	0.252327
3	-0.4571084	0.3015495	-1.52	0.130	-1.048135	0.1339179
Senior Year Grades						
1	-0.1849992	0.1898079	-0.97	0.330	-0.5570159	0.1870175
2	-0.8122032	0.2957903	-2.75	0.006	-1.391942	-0.2324649
Hours Worked						
1	0.0515681	0.2957313	0.17	0.862	-0.5280545	0.6311906
2	-0.2156446	0.2554781	-0.84	0.399	-0.7163725	0.2850834
3	-0.6147659	0.2818537	-2.18	0.029	-1.167189	-0.0623428
Intellectual Interest Percentile	0.0002626	0.0039787	0.07	0.947	-0.0075355	0.0080607
Sociability Percentile	-0.0033554	0.0027031	-1.24	0.214	-0.0086534	0.0019426
Study Habits Percentile	0.011186	0.004237	2.64	0.008	0.0028817	0.0194903
Max ACT/SAT Score	0.1292896	0.0301711	4.29	0.000	0.0701552	0.1884239
Distance From Campus	-0.0008495	0.0003718	-2.28	0.022	-0.0015783	-0.0001208
College Athlete	-0.376252	0.3243584	-1.16	0.246	-1.011983	0.2594787
Class Percentile	-0.0119403	0.0051917	-2.30	0.021	-0.0221158	-0.0017647
PELL Grant	-0.0129048	0.181374	-0.07	0.943	-0.3683913	-0.3425816
Constant	-3.78609	1.283627	-2.95	0.003	-6.301953	-1.270227

Model Summary			
Number of Observations	Log Likelihood	LR chi-squared (33 d.f.)	P-value
943	-515.87246	197.07	0.000

The model is reduced by removing the variables with the highest p-value one at a time and making sure that none of the coefficients change by more than 20% when the variable was removed. The table below shows the change in the coefficients each time a variable is removed from the model.

Table 5.3: Change in Coefficients for All STEM Model

Variable	Initial Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
Major						
1	-0.2160562	-0.0216329	-0.2157257	-0.215798	-0.2212988	-0.2177004
2	-0.9886318	-0.9889484	-0.9894245	-0.9897085	-0.997229	-0.9979475
3	0.0675939	0.067198	0.0681982	0.0676935	0.0634512	0.0683336
Race						
1	0.1498117	0.1499076	0.150442	0.1470151	0.1470251	0.1448591
2	0.5646162	0.5649823	0.5650571	0.560711	0.5602452	0.5666063
3	0.4083939	0.408249	0.408811	0.4066598	0.4038032	0.4089152
Transfer Percentile	-0.0044627	-0.0044573	-0.0044542	-0.0044447	-0.0044775	-0.0046253
Rec. to Aca. Ass. Percentile	0.0035339	0.0035271	0.0035464	0.0035499	0.0035437	0.0036424
Academic Stress Percentile	0.0106653	0.0106596	0.0103448	0.0103774	0.0091745	0.0094553
Attitude Toward Educators Perc.	0.001643	0.0016422	0.0015595	0.0015544	Removed	Removed
Family Emotional Support Percentile	0.0054621	0.0054721	0.0054558	0.0054837	0.0057525	0.0057171
Sense of Financial Security Percentile	0.0000677	Removed	Removed	Removed	Removed	Removed
Self-Reported College Prep. Perc.	-0.0021754	-0.0021764	-0.0022052	-0.002181	-0.0024681	Removed
Math and Science Confidence Perc.	0.0074773	0.0040786	0.0074137	0.0074102	0.0073479	0.0069517
Mothers Education						
1	-0.2934802	-0.293543	-0.2935463	-0.2924885	-0.2946826	-0.2965837
2	0.3134114	0.3138732	0.3142303	0.3161702	0.313643	0.3151944
3	0.1037769	0.1043511	0.1046843	0.1066789	0.1050864	0.0966638
Fathers Education						
1	-0.5486648	-0.548407	-0.5474407	-0.5464233	-0.5476426	-0.5469896
2	-0.1981486	-0.1976594	-0.1965712	-0.1944538	-0.1939762	-0.1942567
3	-0.4571084	-0.4568693	-0.4555451	-0.4529041	-0.45134	-0.4423113
Senior Year Grades						
1	-0.1849992	-0.1848768	-0.1847564	-0.1848294	-0.1884886	-0.1802716
2	-0.8122032	-0.8122664	-0.8118312	-0.8115455	-0.8174832	-0.8081035

Table 5.3 Continued

Variable	Initial Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
Hours Worked 1 2 3	 0.0515681 -0.2156446 -0.6147659	 0.0508656 -0.2165869 -0.6159482	 0.0517353 -0.2158259 -0.6146047	 0.0520053 -0.2159517 -0.6141766	 0.0515155 -0.2128571 -0.6123686	 0.0552968 -0.2107631 -0.6120432
Intellectual Interest Percentile	0.0002626	0.0002612	Removed	Removed	Removed	Removed
Sociability Percentile	-0.0033554	-0.003351	-0.0033865	-0.0033774	-0.0033623	-0.0034688
Study Habits Percentile	0.011186	0.0111862	0.0111112	0.011116	0.010744	0.0106141
Max ACT/SAT Score	0.1292896	0.1293055	0.1296892	0.1298187	0.1287905	0.1231902
Distance From Campus	-0.0008495	-0.0008495	-0.0008508	-0.0008498	-0.0008487	-0.0008228
College Athlete	-0.376252	-0.3764697	-0.3767372	-0.3778729	-0.3844166	-0.3944713
Class Percent	-0.0119403	-0.0119371	-0.011932	-0.0119373	-0.0121914	-0.0114583
PELL Grant	-0.0129048	-0.0139502	-0.0136061	Removed	Removed	Removed

When sense of financial security percentile is removed from the models most of the coefficients changed by less than 1% except hours worked 1 which changed by 1.36% and PELL grant which changed by 8.1%. Next, intellectual interest percentile is removed and most coefficient changes across the model by less than 1%. The variables with coefficients that changed by more that 1% are major 3, 1.49%, academic stress percentile, 2.95%, attitude toward educators percentile, 5.04%, self-reported college preparation percentile, 1.32%, hours worked 1, 1.71%, sociability percentile, 1.06%, and PELL grant, 2.47%, thus none of the coefficients change by more than 20%. Also, a likelihood ratio test is completed and concluded that the original model was no better than the reduced model with $p = .998$. Next, PELL grant is removed from the model and the only coefficients that change by more than 1% are race 1, 2.28%, self-reported college preparation percentile, 1.1%, mothers education 3,1.91%, and fathers education

2, 1.08%. When attitude towards educators percentile is removed, the coefficient for major 1 change by 2.55%, major 2, 6.27%, academic stress percentile, 11.59%, family emotional support percentile, 4.9%, self-reported college preparation percentile, 13.16%, mothers education 3, 1.49%, senior year grades 1, 1.98%, hours worked, 1.43%, study habits percentile, 3.35%, college athlete, 1.73%, class percent, 2.13%, and the rest of the coefficient changes are less than 1%. Looking at these coefficient changes, it is observed that coefficient changes are increasing but are still less than the 20% cut off. The likelihood ratio test confirms that the previous model is no better than this reduced model with a p-value of 0.9. When self-reported college preparation percentile is removed; the coefficient changes for the variables are subsequently major 1, 1.63%, major 2, 7.69%, race 1, 1.47%, race 2, 1.14%, race 3, 1.27%, transfer percentile, 3.3%, receptivity to academic assistance percentile, 2.79%, academic stress percentile, 3.06%, math and science confidence percentile, 5.39%, mothers education 3, 8.01%, fathers education 3, 2%, senior year grades 1, 4.36%, senior year grades 2, 1.15%, hours 1, 7.34%, sociability percentile, 3.17%, study habits percentile, 1.21%, maximum ACT or SAT score, 4.35%, distance from campus, 3.05%, college athlete, 2.62%, and class percent, 6.01%. The remaining coefficient changes are less than 1%. Receptivity to academic assistance is removed from the model next but the hours worked coefficient changes by more than 20% and so it is returned to the model. The other variables that had p-values that are greater than 0.05 are also removed but each time there is a coefficient change which indicates that the variable is needed in the model. The likelihood ratio test concludes the previous model is no better than this model, $p = 0.54$. Hence, this concludes the third step of building the model.

Now each of the variables from the univariate analysis, that were not originally included in the model, are cycled through the reduced model checking for significance. When this process is completed, two variables are found to be statistically significant: receptivity to personal counseling percentile, and verbal confidence percentile. Thus the preliminary main effects model is complete and presented in Table 5.4 below.

Table 5.4: Preliminary Main Effect All STEM Model

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Major						
1	-0.2213533	0.2273815	-0.97	0.330	-0.6670128	0.2243061
2	-0.9895258	0.2313224	-4.28	0.000	-1.442909	-0.5361422
3	0.0193039	0.2168661	0.09	0.929	-0.4057459	0.4443538
Race						
1	0.1111697	0.2248388	0.49	0.621	-0.3295063	0.5518457
2	0.6000332	0.3588856	1.67	0.095	-0.1033697	1.303436
3	0.3801406	0.3314961	1.15	0.251	-0.2695799	1.029861
Transfer Percentile	-0.005225	0.0034928	-1.50	0.135	-0.0120706	0.0016207
Receptivity to Academic Assistance Percentile	0.0003873	0.0033107	0.12	0.907	-0.0061016	0.0068763
Academic Stress Percentile	0.001672	0.0057026	0.29	0.769	-0.0095049	0.0128489
Family Emotional Support Percentile	0.0070484	0.0028375	2.48	0.013	.001487	0.0126099
Math and Science Confidence Percentile	0.0033197	0.0041774	0.79	0.427	-0.0048679	0.0115072
Mothers Education						
1	-0.2909269	0.2177064	-1.34	0.181	-0.7176236	0.1357698
2	0.3195274	0.2286612	1.40	0.162	-0.1286404	0.7676951
3	0.0827618	0.2877694	0.29	0.774	-0.4812558	0.6467794
Fathers Education						
1	-0.56661	0.2203301	-2.57	0.010	-0.9984491	-0.134771
2	-0.2095232	0.2277319	-0.92	0.358	-0.6558696	0.2368232
3	-0.5081508	0.3017073	-1.68	0.092	-1.099486	0.0831846
Senior Year Grades	-0.1782536	0.1899435	-0.94	0.348	-0.550536	0.1940288
1	-0.7906442	0.295961	-2.67	0.008	-1.370717	-0.2105714
2						
Hours Worked						
1	0.0310238	0.2964128	0.10	0.917	-0.5499346	0.6119822
2	-0.2240305	0.2539685	-0.88	0.378	-0.7217996	0.2737387
3	-0.6149052	0.2782086	-2.21	0.027	-1.160184	-0.0623428
Sociability Percentile	-0.0023118	0.0026765	-0.86	0.388	-0.0075576	0.0029339
Study Habits Percentile	0.0093977	0.0040783	2.30	0.021	0.0014044	0.017391

Table 5.4 Continued

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Max ACT/SAT Score	0.1315758	0.0284488	4.63	0.000	0.0758172	0.1873344
Distance From Campus	-0.0008808	0.0003721	-2.37	0.018	-0.0016101	-0.0001514
College Athlete	-0.3826826	0.3271955	-1.17	0.242	-1.023974	0.2586088
Class Percentile	-0.0110681	0.0050447	-2.19	0.028	-0.0209554	-0.0011807
Receptivity to Personal Counseling Percentile	-0.0080251	0.0037686	2.13	0.033	-0.0006388	0.0154115
Verbal Confidence Percentile	-0.0077749	0.0038019	-2.05	0.041	-0.0152265	-0.0003233
Constant	-3.055423	1.143203	-2.67	0.008	-5.296059	-0.8147862

Model Summary			
Number of Observations	Log Likelihood	LR chi-squared (30 d.f.)	P-value
943	-511.98266	186.85	0.000

The likelihood ratio test is completed, comparing the model without the variables and the model with the variables that were not originally included. That test finds that the model including the variables that were not originally included is a better fitted model with a p-value of 0.01. So, receptivity to personal counseling percentile and verbal confidence percentile improve the fit of the model. Therefore, this is the preliminary main effects model for the retention of all STEM majors at WTAMU.

The assumption of the logistic regression model that, the logit function is linearly increasing or decreasing as a function of the continuous variable, is inspected by graphing using the lowess smooth command in STATA. The continuous variable is the independent variable and the logit of the expected mean value of retention to the third year is the outcome variable on these graphs. The lowess graphs of the continuous variables can be found in Appendix III. After examining the linearity of the lowess plots there are a few for which the linearity is in question. These variables in question are:

receptivity to academic assistance, academic stress percentile, family emotional support percentile, study habits percentile, and verbal confidence percentile. These variables are removed from the preliminary main effects models to check the linearity. If relationship appeared to be non-linear as documented by the lowess graph, then an appropriate fractional polynomial is chosen. For this process, the continuous variable that is the most significant in the model, exhibiting the smallest p-value, is evaluated first to determine the "best" fit for the variable. In this case the most significant variable is family emotional support percentile. The "fractional polynomial" command in STATA is used to determine the best polynomial fit for the relationship between the variable and the logit function. The output of the STATA fractional polynomial procedure is displayed below in Table 5.5. This procedure searches first through all the possible fractional polynomials with one term for the model of best fit. Next it searches through all the fractional polynomials with two terms, again for the model of best fit. The procedure is capable of searching for higher term polynomials but for the purpose of this analysis the polynomials were restricted to two terms or less.

Table 5.5: Family Emotional Support Percentile Fractional Polynomials

Family Emotional Support Percentile	Degree of Freedom	Deviance	Dev. Dif.	P(*)	Powers
Linear	1	1035.804	4.248	0.236	1
m=1	2	1034.718	3.162	0.206	0
m=2	4	1031.555	0.000	--	-2 1

The procedure compares the model of best fit found with the degree two polynomial to the best fit polynomial of degree one (m=1) and to the original linear model (Linear). The p-values given for these comparisons in Table 5.5 indicate that the higher degree polynomial is not significantly better than the linear assumption; thus the linear

polynomial is retained in the model. The next variable tested is study habits percentile. The fractional polynomial procedure output for this variable is displayed in Table 5.6 below.

Table 5.6: Study Habits Percentile Fractional Polynomials

Study Habits Percentile	Degree of Freedom	Deviance	Dev. Dif.	P(*)	Powers
Linear	1	1032.095	7.225	0.065	1
m=1	2	1026.167	1.297	0.523	-2
m=2	4	1024.870	0.000	--	-2 0.5

The fractional polynomial procedure output indicates that the two term polynomial of best fit is significant at the 0.10 level when compared to the linear model, but the one term polynomial is no better than the two term polynomial. The two term polynomial is therefore selected to model the relationship between the study habits percentile and the logit function. The next variable considered is the verbal confidence percentile, where the output of the fractional polynomial procedure is displayed in Table 5.7.

Table 5.7: Verbal Confidence Percentile Fractional Polynomials

Verbal Confidence Percentile	Degree of Freedom	Deviance	Dev. Dif.	P(*)	Powers
Linear	1	1016.497	3.112	0.375	1
m=1	2	1014.309	1.924	0.382	2
m=2	4	1013.385	0.000	--	.5 .5

The two term fractional polynomial gives no better fit than the linear polynomial so the linear polynomial is retained in the model. The next continuous variable considered for the fractional polynomial model is academic stress percentile, found in Table 5.8.

Table 5.8: Academic Stress Percentile Fractional Polynomials

Academic Stress Percentile	Degree of Freedom	Deviance	Dev. Dif.	P(*)	Powers
Linear	1	1016.402	3.853	0.278	1
m=1	2	1013.276	0.726	0.696	-2
m=2	4	1012.550	0.000	--	-2 3

Again, the two term fractional polynomial is no better than the linear polynomial, hence, the linear polynomial is used in the model for academic assistance. Receptivity to academic assistance percentile is the last variable to test, and is shown in Table 5.9.

Table 5.9: Receptivity to Academic Assistance Percentile Fractional Polynomials

Receptivity to Academic Assistance Percentile	Degree of Freedom	Deviance	Dev. Dif.	P(*)	Powers
Linear	1	1016.365	6.997	0.081	1
m=1	2	1012.048	2.694	0.297	-1
m=2	4	1009.622	0.000	--	0 0.5

When comparing the two term polynomial against the linear polynomial, the two term is a better fit: therefore, the two term polynomial is the "best" fit for receptivity to academic assistance percentile variable and will be used in the model. With the relationship between the continuous variables and the logit function correctly represented in the model, the main effects model is finalized and displayed in Table 5.10 below.

Table 5.10: All STEM Main Effects Model

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Major						
1	-0.1880915	0.229199	-0.82	0.412	-0.6373132	0.2611302
2	-0.9488599	0.2327958	-4.08	0.000	-1.405131	-0.4925885
3	0.0127715	0.218335	0.06	0.953	-0.4151573	0.4407002
Race						
1	0.1688035	0.2270743	0.74	0.457	-0.2762539	0.6138608
2	0.6215306	0.3609657	1.72	0.085	-0.0859492	1.32901
3	0.3932047	0.3352575	1.17	0.241	-0.263888	1.050297
Transfer Percentile	-0.0053368	0.0035363	-1.51	0.131	-0.0122677	0.0015942
Receptivity to Academic Assistance Percentile_1	0.9785246	0.4082751	2.04	0.017	-0.17832	1.778729
Receptivity to Academic Assistance Percentile_2	-0.3244405	0.1518064	-2.14	0.033	-0.6219755	-0.0269055
Academic Stress Percentile	0.0020527	0.0056714	0.36	0.717	-0.0090632	0.0131685
Family Emotional Support Percentile	0.0075664	0.0028675	2.64	0.008	.0019461	0.0131866

Table 5.10 Continued

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Math and Science Confidence Percentile	0.0036385	0.0042348	0.86	0.390	-0.0046616	0.0119386
Mothers Education						
1	-0.2903762	0.2190772	-1.33	0.185	-0.7197596	0.1390073
2	0.3488101	0.2301594	1.52	0.130	-0.1022941	0.7999143
3	0.095321	0.2914322	0.33	0.774	-0.4778357	0.6687776
Fathers Education						
1	-0.5724335	0.222684	-2.57	0.010	-1.008886	-0.1390073
2	-0.2079789	0.2288071	-0.91	0.363	-0.6564326	0.2404748
3	-0.545432	0.3049579	-1.79	0.074	-1.143139	0.0522744
Senior Year Grades						
1	-0.1955372	0.1911961	-01.02	0.306	-0.5702746	0.1792002
2	-0.7286637	0.2983805	-2.44	0.015	-1.313479	-0.1438486
Hours Worked						
1	0.0075116	0.2985589	-0.03	0.980	-0.5926763	0.5776532
2	-0.2705324	0.2559728	-1.06	0.291	-0.7722298	0.231165
3	-0.6672932	0.2813066	-2.37	0.018	-1.218644	-0.1159425
Sociability Percentile	-0.0024729	0.0026942	-0.92	0.359	-0.0077535	0.0028077
Study Habits Percentile_1	-2.843331	1.730318	-1.64	0.100	-6.234692	0.5480301
Study Habits Percentile_2	0.0944192	0.0532487	1.77	0.076	-.0099464	0.1987848
Max ACT/SAT Score	0.1362546	0.0286938	4.75	0.000	0.0800159	0.1925934
Distance From Campus	-0.0009104	0.0003756	-2.42	0.015	-0.0016465	-0.0001743
College Athlete	-0.348576	0.3308712	-1.05	0.292	-0.9970716	0.2999195
Class Percentile	-0.0112872	0.0050797	-2.22	0.026	-0.0212432	-0.0013311
Receptivity to Personal Counseling Percentile	-0.0074449	0.0037961	1.96	0.050	4.62e-06	0.0148852
Verbal Confidence Percentile	-0.0074882	0.0038337	-1.95	0.051	-0.0150022	-0.0000258
Constant	-4.687653	1.386024	-3.38	0.001	-7.40421	-1.971097

Model Summary			
Number of Observations	Log Likelihood	LR chi-squared (32 d.f.)	P-value
943	-504.81101	201.19	0.0000

Using the likelihood ratio test to compare the model without the fractional polynomials to the model with the fractional polynomials, the p-value is 0.0008, thus this model is a better fitted model.

Now, in the model building process, the possibility for interactions between independent variables is investigated. The addition of interaction relationships in a model with a high number of variables is likely to cause separation problems with the model. The researcher anticipated these challenges and opted to investigate interaction effects with the preliminary main effects model. This would help to solve all separation problems early in the model development. The variable race was initially coded in the dataset as seven levels, described in Chapter III. These categories are consolidated due to the separation problems with the small number of students in the categories of Native American, Asian, other, and no response. The race variable was then recoded as follows: Caucasian remains as coded zero, Hispanic is coded as one, African American is coded as two, and all others coded as four. The original dataset also included seven levels of mother's and father's education level that created additional separation problems. These were condensed. Now, both mother's and father's education are recoded as zero for some elementary, some high school, and a high school diploma. Some college is coded as one, a bachelor's degree is coded as two, and a master's or professional degree is coded as three. The different majors that students had chosen are also condensed into four categories: the zero category contains engineering majors, math majors, and computer science majors, the one category contains biology majors, chemistry majors, and physics majors, the two category contains the pre-professional majors, and the three category contains the agricultural science majors. For the student senior year grades, the student reported A's are coded as a zero, the student reported B+'s are coded as a one, the student reported B averages and less than a B average are combined into the third category that is coded as a two. Students who did not work are coded as zero, students who worked 1-10

hours are coded as a one, students who worked 11-20 hours are coded as a two, and students worked more than 21 hours per week, than they are combined into the fourth category which is coded as a three. Model separation problems occurred because the data was spread too thin over the cells when interaction terms were considered. By making the above changes to condense categorical variables, the separation problems are eliminated. This is how the variables are coded in the univariate analysis and will also be coded in the Caucasian and Hispanic STEM model.

All of the variable combinations that made clinical sense are checked for a possible interaction effect on the logit. The variable combinations that exhibited a statistically significant interaction are displayed in Table 5.11.

Table 5.11: All STEM Interaction Terms

Interaction term	p-value
Major * Family Emotional Support	0.021, 0.024, 0.443
Major * Math and Science Confidence	0.028, 0.623, 0.095
Major * Max ACT or SAT Score	0.006, 0.518, 0.338
Major * Class Percentile	0.021, 0.196, 0.277
Race * Class Percentile	0.915, 0.726, 0.043
Race * Receptivity to Personal Counseling	0.047, 0.443, 0.925
Race * Verbal Confidence	0.043, 0.749, 0.249
Race * Mothers Education	0.679, 0.129, 0.86, 0.627, 0.693, 0.293, 0.751, 0.016, 0.307
Race * Fathers Education	0.047, 0.724, 0.075, 0.623, 0.734, 0.651, 0.583, 0.668, 0.025
Race * Work	0.122, 0.005, 0.276, 0.663, 0.595, 0.863, 0.132, 0.822, 0.592
Transfer Percentile * College Athlete	0.024
Transfer Percentile * Mothers Education	0.015, 0.033, 0.883
Transfer Percentile * Fathers Education	0.010, 0.219, 0.137
Receptivity to Academic Assistance_1 * Distance From Campus	0.032
Receptivity to Academic Assistance_2 * Distance From Campus	0.039
Academic Stress * Mothers Education	0.101, 0.038, 0.039
Academic Stress * Hours Worked	0.049, 0.533, 0.744
Family Emotional Support * Class Percentile	0.03
Study Habits_2 *Mothers Education	0.079, 0.056, 0.035
Distance From Campus * Senior Year Grades	0.474, 0.038
Verbal Confidence * Fathers Education	0.259, 0.009, 0.375

Table 5.11 Continued

Interaction term	p-value
Senior Year Grades * Mothers Education	0.056, 0.017, 0.158, 0.589, 0.272, 0.321
Hours Worked * Mothers Education	0.5, 0.005, 0.233, 0.006, 0.001, 0.177, 0.496, 0.241, 0.609
Senior Year Grades * Fathers Education	0.485, 0.413, 0.131, 0.918, 0.261, 0.015
Hours Worked * Senior Year Grades	0.116, 0.241, 0.025, 0.301, 0.208,0.697

Each of these interaction terms are entered into the main effects model and removed, one at a time, starting with the largest p-value, until all of the interaction terms are statistically significant in the model. The interaction terms removed because they are not statistically significant are:

- Academic Stress Percentile * Mothers Education
- Race * Verbal Confidence Percentile
- Major * Class Percentile
- Transfer Percentile * Mothers Education
- Family Emotional Support Percentile * Class Percentile
- Math and Science Confidence Percentile * Major
- Major * Class Percentile
- Senior Year Grades * Fathers Education
- Race * Receptivity to Personal Counseling Percentile
- Hours Worked * Senior Year Grades
- Senior Year Grades * Distance From Campus

Once these interaction terms are removed the preliminary final model is obtained and displayed in Table 5.12 below.

Table 5.12: Preliminary Final Model for All STEM Majors

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Major						
1	5.384684	1.530896	3.52	0.000	2.384182	8.385186
2	-1.571552	1.697369	-0.93	0.355	-4.898334	1.75523
3	1.092502	1.555161	0.70	0.482	-1.955557	4.140561
Race						
1	0.7883863	0.7700706	1.02	0.306	-0.7209244	2.297697
2	1.45233	1.174926	1.24	0.216	-0.8504831	3.755143
3	-2.786369	1.884906	-1.48	0.139	-6.480718	0.9079792
Transfer Percentile	-0.0151503	0.0065741	-2.30	0.021	-0.0280352	-0.0022654
Receptivity to Academic Assistance Percentile_1	0.8680777	0.5664099	1.53	0.125	-0.2420654	1.978221
Receptivity to Academic Assistance Percentile_2	-0.3410718	0.2075588	-1.64	0.100	-0.7478795	0.0657359
Academic Stress Percentile	-0.010056	0.0108585	-0.93	0.354	-0.0313382	0.0112261
Family Emotional Support Percentile	0.0124727	0.005008	2.49	0.013	0.0026572	0.0222882
Math and Science Confidence Percentile	0.0042717	0.0047513	0.90	0.369	-0.0050406	0.0135841
Mothers Education						
1	-3.025318	0.9554737	-3.17	0.002	-4.898012	-1.152624
2	-2.174939	0.9660573	-2.25	0.024	-4.068377	-0.2815016
3	0.1071446	1.162429	0.09	0.927	-2.171174	2.385464

Table 5.12 Continued

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Fathers Education						
1	-0.5916303	0.467561	-1.27	0.206	-1.508033	0.3247725
2	0.2354913	0.4547418	0.52	0.605	-0.6557863	1.126769
3	-1.406102	0.6499043	-2.16	0.030	-2.679891	-0.1323131
Senior Year Grades						
1	-0.7283264	0.3310392	-2.20	0.028	-1.377151	-0. 0795015
2	-1.44403	0. 4816434	-3.00	0.003	-2.388033	-0.500026
Hours Worked						
1	-1.974676	0.868697	-2.27	0.023	-3.677291	-0.2720609
2	-1. 604395	0. 7455789	-2.15	0.031	-3.065703	-0.1430873
3	-1.692404	0.802758	-2.11	0.035	-3.265781	-0.1190273
Sociability Percentile	-0.0010654	0.0030529	-0.35	0.727	-0.0070489	0.0049181
Study Habits Percentile_1	-3.404029	1.945903	-1.75	0.080	-7.217928	0.4098701
Study Habits Percentile_2	0.1448555	0.0609969	2.37	0.018	0.0253038	0.2644072
Max ACT/SAT Score	0.2130635	0. 0455874	4.67	0.000	0.1237138	0.3024132
Distance From Campus	-0.0091671	0.005343	-1.72	0.086	-0.0196391	.001305
College Athlete	-2.635163	1.122881	-2.35	0.019	-4.835969	-0.4343568
Class Percent	-0.0140217	0.0057198	-2.45	0.014	-0.0252323	-0.0028111
Receptivity to Personal Counseling Percentile	0.0066153	0.0042656	1.55	0.121	-0.0017451	0.0149757

Table 5.12 Continued

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Verbal Confidence Percentile	-0.0042038	0.0054749	-0.77	0.443	-0.0149345	0.0065268
Major * Family Emotional Support						
1	-0.2050823	0.063936	-3.21	0.001	-0.3303946	-0.0797701
2	0.0671074	0.0713484	0.94	0.347	-0.072733	0.2069477
3	-0.0677495	0.0661997	-1.02	0.306	-0.1974985	0.0619996
Major * Max ACT or SAT Score						
1	-0.0176885	0.0076449	-2.31	0.021	-0.0326722	-0.0027048
2	-0.0185522	0.0083056	-2.23	0.026	-0.0348308	-0.0022735
3	0.0054801	0.0079495	0.69	0.409	-0.0101005	0.0210608
Race * Mothers Education						
1 1	-1.278793	0.6494264	-1.97	0.049	-2.551646	-0.0059408
1 2	-2.51912	0.9686817	-2.60	0.009	-4.417702	-0.6205393
1 3	-1.966974	1.134773	-1.73	0.083	-4.191089	0.2571404
2 1	0.3488141	0.9281722	0.38	0.707	-1.47037	2.167998
2 2	-0.536969	1.396191	-0.38	0.701	-3.273454	2.199516
2 3	-2.501887	1.787482	-1.40	0.162	-6.005287	1.001514
3 1	-0.0705532	1.121402	-0.06	0.950	-2.26846	2.127354
3 2	2.535532	1.448739	1.75	0.080	-0.3039435	5.375008
3 3	0.498183	1.306694	0.38	0.703	-2.062891	3.059257

Table 5.12 Continued

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Race * Fathers Education						
1 1	2.067541	0.6860579	3.01	0.003	0.7228924	3.41219
1 2	1.123358	0.8752434	1.28	0.199	-0.5920873	2.838804
1 3	2.417337	1.045676	2.31	0.021	0.3678503	4.466823
2 1	-0.7698939	1.016408	-0.76	0.449	-2.762016	1.222228
2 2	-0.4216782	1.050576	-0.40	0.688	-2.480769	1.637413
2 3	0.9072629	2.294556	0.40	0.693	-3.589983	5.404509
3 1	-0.8278321	1.427466	-0.58	0.562	-3.625614	1.969949
3 2	0.7349146	1.312472	0.56	0.576	-1.837484	3.307313
3 3	2.673074	1.505078	1.78	0.076	-0.2768251	5.622973
Race * Work						
1 1	-0.4532706	0.9243594	-0.49	0.624	-2.264982	1.358441
1 2	-1.031545	0.7850552	-1.31	0.189	-2.570225	0.5071347
1 3	0.1808462	0.8383637	0.22	0.829	-1.462316	1.824009
2 1	-0.5419838	1.670499	-0.32	0.746	-3.816101	2.732134
2 2	-0.7137377	1.265309	-0.56	0.573	-3.193699	1.766223
2 3	0.3481716	1.373928	0.25	0.800	-2.344677	3.041021
3 1	5.071351	2.118233	2.39	0.017	0.9196911	9.22301
3 2	2.069415	1.794562	1.15	0.249	-1.447862	5.586692
3 3	1.674509	1.946023	0.86	0.390	-2.139626	5.488643
Transfer Percentile * College Athlete	0.0417908	0.0179184	2.33	0.020	0.0066715	0.0769102
Mothers Education * Transfer Percentile						
1	0.0210966	0.0100901	2.09	0.037	0.0013202	0.0408729
2	0.0185462	0.0100524	1.84	0.065	-0.0011562	0.0382487
3	-0.0062517	0.0133441	-0.47	0.639	-0.0324056	0.0199023
Receptivity to Academic Assistance_1 * Distance From Campus	0.0030017	0.0030677	.98	0.328	-0.0030108	0.0090142

Table 5.12 Continued

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Receptivity to Academic Assistance_2 * Distance From Campus	-0.0005118	0.0009705	-0.53	0.598	-0.0024139	0.0013903
Hours Worked * Academic Stress						
1	0.0249705	0.0123755	2.02	0.044	0.0007149	0.0492261
2	0.0138037	0.010395	1.33	0.184	-0.0065701	0.0341776
3	0.0112175	0.011446	0.98	0.327	-0.0112162	0.0336513
Fathers Education * Verbal Confidence						
1	-0.0076807	0.0079995	-0.96	0.337	-0.0233594	0.007998
2	-0.0179821	0.0078518	-2.29	0.022	-0.0333713	-0.0025928
3	0.0010334	0.010086	0.10	0.918	-0.0187349	0.0208017
Mothers Education * Senior Year Grades						
1 1	1.088931	0.5004817	2.18	0.030	0.1080049	2.069857
1 2	1.716029	0.6732994	2.55	0.011	0.3963864	3.035671
2 1	0.6898641	0.4849955	1.42	0.155	-0.2607096	1.640438
2 2	-0.470462	0.8797297	-0.53	0.593	-2.194701	1.253777
3 1	0.9889594	0.6276768	1.58	0.115	-0.2412644	2.219183
3 2	1.968662	0.9915763	1.99	0.047	0.0252086	3.912116

Table 5.12 Continued

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Mothers Education * Hours Worked						
1 1	0.6254906	1.003584	0.62	0.533	-1.341498	2.592479
1 2	1.422462	0.8165306	1.74	0.081	-0.1779083	3.022833
1 3	0.6508489	0.8776266	0.74	0.458	-1.069268	2.370966
2 1	2.124374	0.9661099	2.20	0.028	0.230833	4.017914
2 2	1.71089	0.8145539	2.10	0.036	0.1143938	3.307387
2 3	0.9392802	0.8675812	1.08	0.279	-0.7611477	2.639708
3 1	0.8119599	1.145514	0.71	0.478	-1.433206	3.057126
3 2	0.2031187	0.9107344	0.22	0.824	-1.581888	1.988125
3 3	-0.6783999	1.056469	-0.64	0.521	-2.749041	1.392242
Constant	-4.450378	2.002399	-2.22	0.026	-8.375009	-0.5257478

Model Summary			
Number of Observations	Log Likelihood	LR chi-squared (92 d.f.)	P-value
943	-439.00162	332.81	0.000

The last step to obtaining the final model is calculating the goodness of fit test. For this model, the Hosmer-Lemeshow goodness of fit test is used to determine the fit of the model. Thus, by using STATA to evaluate the goodness of fit, the p-value for this model is very large, $p = 0.9361$, indicating model fits the data. This implies that the final model is obtained and the coefficients can be interpreted.

Caucasian and Hispanic STEM Retention Model

This same process is repeated on the data set containing only the Caucasian and Hispanic STEM students. Table 5.13 below displays variables that are included in the initial model for retention to the third year of Caucasian and Hispanic STEM majors.

Table 5.13: Univariate Analysis Caucasian and Hispanic STEM Model Variables

Variable	P-value
Major	0.172, 0.000, 0.233
Gender	0.181
Transfer Percentile	0.078
Receptivity to Academic Assistance Percentile	0.106
Receptivity to Financial Guidance Percentile	0.215
Academic Stress Percentile	0.012
Attitude Toward Educators Percentile	0.164
Family Emotional Support Percentile	0.010
Sense of Financial Support Percentile	0.128
Self-Reported College Preparation Percentile	0.000
Math and Science Confidence Percentile	0.000
Degree Sought	0.173, 0.613
Mother's Education Level	0.088, 0.178, 0.748
Father's Education Level	0.051, 0.382, 0.973
Number of Hours Worked	0.814, 0.259, 0.026
Senior Year Grades	0.000, 0.000
Sociability Percentile	0.051
Study Habits Percentile	0.000
Max ACT or SAT Score	0.000
Distance from Campus	0.009
Class Percentile	0.000
PELL Grant	0.244
Self-Reported Time of Decision	0.478, 0.262

The variables that are not included in the initial model are dorm, desire to finish percentile, receptivity to career counseling percentile, receptivity to personal counseling percentile, receptivity to social enrichment percentile, verbal confidence percentile, career closure percentile, intellectual interest percentile, opinion tolerance percentile, and college athlete. Once the main effects model is generated, these variables are cycled through to make sure none needed to be included in the main effects model. The p-value for race is higher than 0.30 but since race is a component of the research questions, it was determined to be clinically significant and will be added to the model along with the other indicated variables.

The variables identified in the Caucasian and Hispanic STEM univariate analysis are all entered into an initial model for retention to the third year of Hispanic and

Caucasian STEM first year students. The results of this initial model are displayed in Table 5.14.

Table 5.14: Initial Caucasian and Hispanic STEM Retention Model

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Major						
1	-0.1725731	0.2488123	-0.69	0.488	-0.6602362	0.31509
2	-0.9866173	0.2875478	-3.43	0.001	-1.550201	-0.4230339
3	0.0778656	0.2575981	0.30	0.762	-0.4270174	0.5827486
Race-1	0.0708757	0.2402898	0.29	0.768	-0.400837	0.541835
Gender	-0.0678714	0.1967254	-0.35	0.730	-0.4534462	0.3177034
Transfer Percentile	-0.0021979	0.0037769	-0.58	0.561	-0.0096004	0.0052046
Receptivity to Academic Assistance Percentile	0.0058525	0.0036004	1.63	0.104	-0.0012042	0.0129092
Receptivity to Financial Guidance Percentile	-0.0036137	0.0040058	-0.90	0.367	-0.011465	0.0042376
Academic Stress Percentile	0.0111882	0.005932	1.89	0.059	-0.0004383	0.0228146
Attitude Toward Educators Percentile	0.0009176	0.0037021	0.25	0.804	-0.0063384	0.0081737
Family Emotional Support Percentile	0.0069663	0.0030602	2.28	0.023	-0.0009685	0.0129641
Sense of Financial Security Percentile	-0.0007777	0.0036879	-0.21	0.883	-0.0080058	0.0064504
Self-Reported College Preparation Percentile	0.0006378	0.0044391	0.14	0.886	-0.0080627	0.0093383
Math and Science Confidence Percentile	0.0065135	0.0043205	1.51	0.132	-0.0019546	0.0149815
Degree Sought						
1	-0.1755105	0.240082	-0.73	0.465	-0.6460625	0.2950415
2	-0.296717	0.2246417	-1.32	0.187	-0.7370067	0.1435727
Mothers Education						
1	-0.3224626	0.2372879	-1.36	0.174	-0.7875382	0.1426131
2	0.1735374	0.2469518	0.70	0.482	-0.3104793	0.6575541
3	0.1911887	0.3187118	0.60	0.549	-0.4334749	0.8158523
Fathers Education						
1	-0.5092527	0.2379393	-2.14	0.032	-0.9756052	-0.0429001
2	-0.1780688	0.2456459	-0.72	0.469	-0.659526	0.3033883
3	-0.5948651	0.3312635	-1.80	0.073	-1.24413	0.0543995
Hours Worked						
1	0.0172623	0.322586	0.05	0.957	-0.6149946	0.6495193
2	-0.131971	0.2734099	-0.48	0.629	-0.6678445	0.4039025
3	-0.4950067	0.2952228	-1.68	0.094	-1.073633	0.0836194
Senior Year Grades						
1	-0.1414168	0.2008732	-0.70	0.481	-0.5351211	0.2522874
2	-0.8281912	0.3281253	-2.52	0.012	-1.471305	-0.1850774
Sociability Percentile	-0.002871	0.0028612	-1.00	0.316	-0.0084788	0.0027369

Table 5.14 Continued

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Study Habits Percentile	0.0113947	0.0045572	2.50	0.012	0.0024627	0.0203267
Max ACT/SAT Score	0.1245709	0.0326809	3.81	0.000	0.0605174	0.1886243
Distance From Campus	-0.0010036	0.0004145	-2.42	0.015	-0.0018159	-0.0001913
Class Percentile	-0.0154495	0.0059591	-2.59	0.010	-0.0271291	-0.0037698
PELL Grant	0.0719729	0.1957464	0.37	0.713	-0.311683	0.456288
Constant	-3.681435	1.316766	-2.80	0.005	-6.262249	-1.10062

Model Summary			
Number of Observations	Log Likelihood	LR chi-squared (33 d.f.)	P-value
814	-446.57756	158.52	0.000

Then, as the variables that are not statistically significant are removed from the model, the coefficients are examined to make sure that the change in coefficient values is smaller than 20%. Table 5.15 below shows these coefficient changes as they occur in model development.

Table 5.15: Change in Coefficients for Caucasian and Hispanic Model

Variable	Initial Coefficient	Coefficient	Coefficient	Coefficient
Major				
1	-0.1725731	-0.1733513	-0.1719326	-0.1738955
2	-0.9866173	-0.9547888	-0.9814869	-0.9832837
3	0.0778656	0.0776684	0.0811967	0.0804909
Race-1	0.0708757	0.071384	0.0671549	0.0669625
Gender	-0.0678714	-0.0704146	-0.069859	-0.0694034
Transfer Percentile	-0.0021979	-0.0021605	-0.0022384	-0.0022752
Receptivity to Academic Assistance Percentile	0.0058525	0.0058175	0.0057559	0.0057612
Receptivity to Financial Guidance Percentile	-0.0036137	-0.0036023	-0.003212	-0.0032175
Academic Stress Percentile	0.0111882	0.011061	0.0112003	0.0105646

Table 5.15 Continued

Variable	Initial Coefficient	Coefficient	Coefficient	Coefficient
Attitude Toward Educators Percentile	0.0009176	0.0008388	0.0008461	Removed
Family Emotional Support Percentile	0.0069663	0.0069811	0.0068844	0.0070305
Sense of Financial Security Percentile	-0.0007777	-0.0007927	Removed	Removed
Self-Reported College Preparation Percentile	0.0006378	Removed	Removed	Removed
Math and Science Confidence Percentile	0.0065135	0.0066029	0.0066182	0.00657
Degree Sought				
1	-0.1755105	-0.1763239	-0.1758705	-0.1802468
2	-0.296717	-0.297325	-0.2941953	-0.296682
Mothers Education				
1	-0.3224626	-0.3223159	-0.3231579	-0.3238532
2	0.1735374	0.1729786	0.1683763	0.16731
3	0.1911887	0.1936638	0.1848826	0.1839332
Fathers Education				
1	-0.5092527	0.2379393	-0.511134	-0.5126567
2	-0.1780688	0.2456459	-0.1810722	-0.1805867
3	-0.5948651	0.3312635	-0.5996747	-0.5986396
Hours Worked				
1	0.0172623	0.0158284	0.0172962	0.0186605
2	-0.131971	-0.1332936	-0.1294635	-0.1260203
3	-0.4950067	-0.4967833	-0.4894902	-0.4862044
Senior Year Grades				
1	-0.1414168	-0.1433887	-0.1448664	-0.1460829
2	-0.8281912	-0.8310383	-0.8299263	-0.833594
Sociability Percentile	-0.002871	-0.0028412	-0.0029145	-0.0029162
Study Habits Percentile	0.0113947	0.0114142	0.0114443	0.0112216
Max ACT/SAT Score	0.1245709	0.1257688	0.1252713	0.1244512
Distance From Campus	-0.0010036	-0.0010082	-0.0010088	-0.0010057
Class Percent	-0.0154495	-0.0156823	-0.0157457	-0.0158357
PELL Grant	0.0719729	0.0703712	0.0806384	0.0818929

When self-reported college preparation percentile is removed, the following percent changes occur: major 3, 3.22%, gender, 3.74%, transfer percentile, 1.7%, academic stress percentile, 1.13%, attitude toward educators percentile, 8.58%, sense of financial security percentile, 1.92%, math and science confidence percentile, 1.37%, mothers education 3, 1.29%, hours worked 1, 8.3%, senior year grades 1, 1.39%, sociability percentile, 1.03%, class percent, 1.5%, PELL grant, 2.22%. The remaining variables change by approximately 1% or less. Sense of financial security percentile is removed next and the coefficients that change by more than 1% are: major 2, 2.79%, major 3, 4.54%, race 1, 5.92%, transfer percentile, 3.6%, receptivity to academic assistance percentile, 1.05%, receptivity to financial guidance percentile, 10.83%, academic stress percentile, 1.25%, family emotional support percentile, 1.38%, degree sought 2, 1.05%, mothers education 2, 2.66%, mothers education 3, 4.53%, fathers education 2, 1.89%, hours worked 1, 9.27%, hours worked 2, 2.87%, hours worked 3, 1.46%, senior year grades 1, 1.03%, sociability percentile, 2.57%, and PELL grant, 14.59%. Then, attitude toward educator's percentile is taken out of the model and the variables that have coefficients that change by more than 1% consist of: major 1, 1.14%, transfer percentile, 1.64%, academic stress percentile, 5.67%, family emotional support percentile, 2.12%, degree sought 1, 2.48%, hours worked 1, 7.88%, hours worked 2, 2.65%, study habits percentile, 1.94%, and PELL grant, 1.55%. This is the last variable that can be removed from the model before the coefficients began to change by more than 20%. Using the likelihood ratio test, the initial model is no better than the reduced model with a p-value of 0.99. Then, each variable that is not included in the initial model is cycled through the

reduced model to make sure none are significant. For this model, none of these variables are significant so the preliminary main effects model is as displayed in Table 5.16.

Table 5.16: Caucasian and Hispanic STEM Preliminary Main Effects Model

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Major						
1	-0.1725731	0.248394	-0.70	0.484	-0.6607387	0.3129478
2	-0.9866173	0.2866103	-3.43	0.001	-1.545029	-0.4215379
3	0.0778656	0.2569593	0.31	0.754	-0.4231401	0.5841219
Race-1	0.0669625	0.2394563	0.28	0.780	-0.4023631	0.5362882
Gender	-0.0694034	0.1958874	-0.35	0.723	-0.4533356	0.3145287
Transfer Percentile	-0.0022752	0.0037453	-0.61	0.544	-0.0096158	0.0050654
Receptivity to Academic Assistance Percentile	0.0057612	0.0035801	1.61	0.108	-0.0012557	0.0127781
Receptivity to Financial Guidance Percentile	-0.0032175	0.0035693	-0.90	0.367	-0.0102132	0.0037783
Academic Stress Percentile	0.0105646	0.005135	2.06	0.040	-0.0005002	0.0206289
Family Emotional Support Percentile	0.0070305	0.0029577	2.38	0.017	-0.0012336	0.0128274
Math and Science Confidence Percentile	0.00657	0.0044698	1.54	0.124	-0.0017986	0.0149386
Degree Sought						
1	-0.1802468	0.2392463	-0.75	0.451	-0.6491609	0.2886673
2	-0.296682	0.2237511	-1.33	0.185	-0.735226	0.141862
Mothers Education						
1	-0.3238532	0.2392463	-1.37	0.172	-0.7887244	0.141018
2	0.16731	0.2459465	0.68	0.496	-0.3147361	0.6493562
3	0.1839332	0.315477	0.58	0.560	-0.4343902	0.8022567
Fathers Education						
1	-0.5126567	0.237627	-2.16	0.031	-0.9783971	-0.0469163
2	-0.1805867	0.2451919	-0.74	0.461	-0.651154	0.2999806
3	-0.5986396	0.3306682	-1.81	0.070	-1.246737	0.0494581
Hours Worked						
1	0.0186605	0.3223849	0.06	0.954	-0.6132022	0.6505232
2	-0.1260203	0.2723016	-0.46	0.644	-0.6597216	0.407681
3	-0.4862044	0.2926231	-1.66	0.097	-1.059735	0.0873263
Senior Year Grades						
1	-0.1460829	0.2002057	-0.73	0.466	-0.5384788	0.2463131
2	-0.833594	0.3269611	-2.55	0.011	-1.474426	-0.1927619
Sociability Percentile	-0.0029162	0.002833	-1.03	0.303	-0.0084688	0.0026364
Study Habits Percentile	0.0112216	0.0044465	2.52	0.012	0.0025066	0.0199366
Max ACT/SAT Score	0.1244512	0.0313167	3.97	0.000	0.0630715	0.1858308
Distance From Campus	-0.0010057	0.0004124	-2.44	0.015	-0.0018141	-0.0001974
Class Percentile	-0.0158357	0.0057162	-2.77	0.006	-0.0270392	-0.0046322
PELL Grant	0.0818929	0.1894457	0.43	0.666	-0.2894138	0.4531996

Table 5.16 Continued

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Constant	-3.59615	1.201036	-2.98	0.003	-5.961897	-1.230404

Model Summary			
Number of Observations	Log Likelihood	LR chi-squared (30 d.f.)	P-value
814	-446.63772	158.40	0.000

In order to obtain the main effects model, the assumption that the logit function is linearly related to the continuous variables is examined, as in the previous model. Each of the lowess smooth plots for the Caucasian and Hispanic students are located in Appendix III as well. From these plots, the variables that are selected to be compared using fractional polynomials are: receptivity to academic assistance percentile, academic stress percentile, family emotional support percentile, and study habits percentile. These variables are removed from the preliminary main effects model and returned one at a time starting with the variable that is the most statistically significant. Beginning with study habits percentile, the "fractional polynomial" command in STATA is again used to determine which polynomial is the "best" fit for the relationship between the logit function and the continuous variable. The STATA fractional polynomial output for study habits percentile is displayed in Table 5.17.

Table 5.17: Study Habits Percentile Fractional Polynomials

Study Habits Percentile	Degree of Freedom	Deviance	Dev. Dif.	P(*)	Powers
Linear	1	904.633	5.979	0.113	1
m=1	2	899.934	1.280	0.527	-2
m=2	4	898.654	0.000	--	-2 0.5

For this model, the two term polynomial provides no better fit than the linear polynomial and thus the linear polynomial is retained in the model. The next variable examined is family emotional support percentile and the results are displayed in Table 5.18.

Table 5.18: Family Emotional Support Percentile Fractional Polynomials

Family Emotional Support Percentile	Degree of Freedom	Deviance	Dev. Dif.	P(*)	Powers
Linear	1	900.843	4.502	0.212	1
m=1	2	897.421	1.081	0.583	-0.5
m=2	4	896.341	0.000	--	0.5 3

The linear polynomial is also chosen as the best relationship between the logit function and family emotional support percentile. Then, the same process is completed with the academic stress percentile variable and the results are displayed in Table 5.19.

Table 5.19: Academic Stress Percentile Fractional Polynomials

Academic Stress Percentile	Degree of Freedom	Deviance	Dev. Dif.	P(*)	Powers
Linear	1	895.884	4.781	0.189	1
m=1	2	895.362	4.259	0.119	0.5
m=2	4	891.103	0.000	--	-2 2

The two term polynomial is no better than the linear polynomial and so the linear polynomial is used in the model. The last variable to be checked is receptivity to academic assistance and the fractional polynomial comparison indicates the two term polynomial is definitely better than the linear polynomial and the one term polynomial is no better than the two term polynomial (Table 5.20). Hence the two term polynomial isused in this model.

Table 5.20: Receptivity to Academic Assistance Percentile Fractional Polynomials

Receptivity to Academic Assistance Percentile	Degree of Freedom	Deviance	Dev. Dif.	P(*)	Powers
Linear	1	893.275	12.058	0.007	1
m=1	2	883.639	2.421	0.289	-0.5
m=2	4	881.217	0.000	--	-2 -2

This yields the main effects model displayed in Table 5.21.

Table 5.21: Caucasian and Hispanic STEM Main Effects Model

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Major						
1	-0.1757485	0.2501518	-0.70	0.482	-0.6660369	0.31454
2	-0.972154	0.2888859	-3.37	0.001	-1.53836	-0.4059481
3	0.0605302	0.2581727	0.23	0.815	-0.4454789	0.5665394
Race-1	0.0890175	0.239402	0.37	0.710	-0.3804018	0.5582369
Gender	-0.133463	0.1981313	-0.67	0.501	-0.5217932	0.2548673
Transfer Percentile	-0.0026277	0.0037856	-0.69	0.488	-0.0100474	0.004792
Receptivity to Academic Assistance Percentile_1	-2.028178	1.200009	-1.69	0.091	-4.380152	0.3237974
Receptivity to Academic Assistance Percentile_2	-17.89022	6.645914	-2.69	0.007	-30.91597	-4.864469
Receptivity to Financial Guidance Percentile	-0.0030629	0.0034224	-0.89	0.371	-0.0097706	0.0036449
Academic Stress Percentile	0.010198	0.0051509	1.98	0.048	-0.0001024	0.0202935
Family Emotional Support Percentile	0.0076719	0.0029956	2.56	0.010	-0.0018006	0.135431
Math and Science Confidence Percentile	0.0061789	0.0042463	1.46	0.146	-0.0021436	0.145015
Degree Sought						
1	-0.2811482	0.2262582	-1.24	0.214	-0.7246061	0.1623097
2	-0.1778233	0.239888	-0.74	0.459	-0.6479951	0.2923485
Mothers Education						
1	-0.334248	0.2387438	-1.40	0.162	-0.8021772	0.1336812
2	0.205284	0.2489539	0.82	0.410	-0.2826567	0.6932246
3	0.1415946	0.3182328	0.44	0.656	-0.4821301	0.7653193
Fathers Education						
1	-0.5104201	0.2387438	-2.13	0.033	-0.9806409	-0.0401994
2	-0.1648724	0.2489539	-0.67	0.504	-0.6484486	0.3187038
3	-0.6159516	0.3342996	-1.84	0.065	-1.271167	0.0392636
Hours Worked						
1	0.0056897	0.3272108	0.02	0.986	-0.6356317	0.6470112
2	-0.1780736	0.275758	-0.65	0.518	-0.7185494	0.3624021
3	-0.5018873	0.2966502	-1.69	0.091	-1.083311	0.0795364
Senior Year Grades						
1	-0.1582394	0.2015968	-0.78	0.432	-0.5533618	0.236883
2	-0.7967665	0.328893	-2.42	0.015	-1.441385	-0.152148
Sociability Percentile	-0.0026604	0.0028572	-0.93	0.352	-0.0082604	0.0029396
Study Habits Percentile	0.0110732	0.0044714	2.48	0.013	0.0023094	0.019837
Max ACT/SAT Score	0.128135	0.0314371	4.08	0.000	0.0665193	0.1897506

Table 5.21 Continued

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Distance From Campus	-0.000987	0.0004136	-2.39	0.017	-0.0017976	-0.0001764
Class Percent	-0.0170707	0.00578	-2.95	0.003	-0.0283994	-0.005742
PELL Grant	0.1080206	0.1817591	0.56	0.573	-0.2678202	0.4838615
Constant	-3.170023	1.200186	-2.64	0.008	-5.52235	-0.8176951

Model Summary			
Number of Observations	Log Likelihood	LR chi-squared (31 d.f.)	P-value
814	-440.60862	170.45	0.000

From the variables retained in the main effects model, the interaction terms are created and the terms that are statistically significant are added to the main effects model. There is an additional separation problem with this model not found in the ALL STEM model. Self-reported time of decision to apply to college did not have sufficient enough observations in the first or second category. There was not a reasonable way to combine those categories and it was removed from the Caucasian and Hispanic STEM retention model. The significant interaction terms for the Caucasian and Hispanic model are displayed in Table 5.22.

Table 5.22: Significant Interaction Terms Caucasian and Hispanic Model

Interaction term	p-value
Race * Fathers Education	0.043, 0.552, 0.061
Race * Hours Worked	0.133, 0.009, 0.366
Major * Receptivity to Financial Guidance Percentile	0.788, 0.047, 0.721
Major * Academic Stress Percentile	0.027, 0.985, 0.016
Major * Family Emotional Support Percentile	0.060, 0.024, 0.882
Major * Math and Science Confidence Percentile	0.019, 0.364, 0.085
Major * Max ACT or SAT Score	0.001, 0.463, 0.419
Major * Degree Sought	0.054, 0.048, 0.503, 0.691, 0.253, 0.227
Major * Class Percentile	0.024, 0.299, 0.232
Transfer Percentile * Mothers Education	0.029, 0.245, 0.760
Transfer Percentile * Fathers Education	0.029, 0.527, 0.423

Table 5.22 Continued

Interaction term	p-value
Receptivity to Academic Assistance_2 * Degree Sought	0.043, 0.552
Receptivity to Financial Guidance Percentile * Degree Sought	0.539, 0.003
Receptivity to Financial Guidance Percentile * Mothers Education	0.645, 0.016, 0.339
Academic Stress * Hours Worked	0.040, 0.887, 0.920
Family Emotional Support Percentile * Study Habits Percentile	0.048
Family Emotional Support * Class Percentile	0.012
Math and Science Confidence Percentile * Hours Worked	0.545, 0.127, 0.018
Distance From Campus * Mothers Education	0.694, 0.927, 0.036
Distance From Campus * Senior Year Grades	0.222, 0.022
Class Percentile * Fathers Education	0.795, 0.578, 0.034
Degree Sought * Mothers Education	0.0742, 0.038, 1.000, 0.700, 0.325, 0.189
Hours Worked * Mothers Education	0.742, 0.021, 0.467, 0.028, 0.010, 0.400, 0.858, 0.782, 0.105
Senior Year Grades * Fathers Education	0.305, 0.769, 0.079, 0.858, 0.234, 0.016
Hours Worked * Senior Year Grades	0.100, 0.395, 0.032, 0.260, 0.085, 0.760

These interaction terms are entered into the main effects model and the interaction terms that are not statistically significant are removed one at a time until all of the interaction terms are significant. The interaction terms that are not significant are:

- Family Emotional Support Percentile * Study Habits Percentile
- Class Percentile * Fathers Education
- Race * Hours Worked
- Receptivity to Financial Guidance Percentile * Mothers Education
- Math and Science Confidence Percentile * Major
- Major * Class Percentile
- Major * Receptivity to Financial Guidance Percentile
- Transfer Percentile * Fathers Education
- Mothers Education * Distance From Campus

- Major * Degree Sought
- Receptivity to Academic Assistance Percentile_2 * Degree Sought

After these interaction terms are removed the preliminary final Caucasian and Hispanic model is obtained in Table 5.23.

Table 5.23: Preliminary Final Caucasian and Hispanic Model

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Major						
1	5.717194	2.009783	2.84	0.004	1.778092	9.656297
2	-2.270056	2.240593	-1.01	0.311	-6.661538	2.121426
3	-1.604602	2.128765	-0.75	0.451	-5.776904	2.5677
Race-1	-0.2491522	0.339152	-0.73	0.463	-0.9138779	0.4155735
Gender	-0.1158749	0.2241924	-0.52	0.605	-0.5552568	0.3235611
Transfer Percentile	-0.0100686	0.0071888	-1.40	0.161	-0.0241584	0.0040212
Receptivity to Academic Assistance Percentile_1	-2.68647	1.302926	-2.06	0.039	-5.240159	-0.1327812
Receptivity to Academic Assistance Percentile_2	-20.69133	7.618523	-2.72	0.007	-35.62337	-5.759303
Receptivity to Financial Guidance Percentile	-0.0187823	0.0061849	-3.04	0.002	-0.0309045	-0.00666
Academic Stress Percentile	-0.0180869	0.0129612	-1.40	0.163	-0.0434903	0.0073165
Family Emotional Support Percentile	0.0041299	0.0076137	0.54	0.588	-0.0107926	0.0190524

Table 5.23 Continued

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Math and Science Confidence Percentile	-0.0232643	0.0122063	-1.91	0.057	-0.0471882	0.0006595
Degree Sought						
1	-1.375735	0.7450027	-1.85	0.065	-2.835913	0.0844435
2	-2.561408	0.7129648	-3.59	0.000	-3.958793	-1.164022
Mothers Education						
1	-3.629257	1.116131	-3.25	0.001	-5.816833	-1.44168
2	-2.988402	1.062756	-2.81	0.005	-5.071366	-0.9054372
3	1.4818433	1.43054	1.04	0.300	-1.321964	4.285649
Fathers Education						
1	-1.080815	0.4072168	-2.65	0.008	-1.878945	-0.2826844
2	-0.8575189	0.3917548	-2.19	0.029	-1.625344	-0.0896935
3	-1.301718	0.5088232	-2.56	0.011	-2.298993	-0.304443
Hours Worked						
1	-4.654533	1.804458	-2.58	0.010	-8.191205	-1.117862
2	-4.559454	1.514437	-3.01	0.003	-7.527695	-1.591212
3	-5.659096	1.66064	-3.41	0.001	-8.91389	-2.404301
Senior Year Grades						
1	0.1000118	0.7103356	0.14	0.888	-1.29222	1.492244
2	-5.57649	1.536845	-3.63	0.000	-8.588651	-2.56433
Sociability Percentile	-0.0023584	0.0033591	-0.70	0.483	-0.0089421	0.0042253
Study Habits Percentile	0.0176153	0.0052415	3.36	0.001	0.0073421	0.0278885
Max ACT/SAT Score	0.2003917	0.0519827	3.85	0.000	0.0985075	0.302276
Distance From Campus	-0.00228	0.0008447	-2.70	0.007	-0.0039356	-0.0006245

Table 5.23 Continued

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Class Percentile	-0.0460697	0.012552	-3.67	0.000	-0.0706711	-0.0214684
PELL Grant	0.228729	0.2205587	1.04	0.300	-0.2035581	0.6610161
Race * Fathers Education						
1 1	1.424641	0.6496212	2.19	0.028	0.151407	2.697875
1 2	0.5988043	0.815102	0.73	0.463	-0.9987663	2.196375
1 3	1.00891	0.9463171	1.07	0.286	-0.845837	2.863658
Major * Academic Stress Percentile						
1	0.0069932	0.0099184	0.71	0.481	-0.124465	0.024328
2	0.0044432	0.0110462	0.40	0.688	-0.017207	0.0260934
3	0.022279	0.0095949	2.32	0.020	0.0034733	0.0410847
Major * Family Emotional Support Percentile						
1	-0.0209827	0.0087568	-2.40	0.017	-0.0381457	-0.0038198
2	-0.0207906	0.0094728	-2.19	0.028	-0.0393569	-0.0022242
3	0.0050317	0.0089378	0.56	0.573	-0.0124861	0.0225495
Major * Max ACT or SAT Score						
1	-0.2241475	0.0740189	-3.03	0.002	-0.3692218	-0.0790731
2	0.0901587	0.0855692	1.05	0.292	-0.077554	0.2578713
3	0.0130157	0.0792922	0.16	0.870	-0.1423942	0.1684256
Mothers Education * Transfer Percentile						
1	0.0263351	0.011319	2.33	0.020	0.0041502	0.0485199
2	0.0128065	0.0106852	1.20	0.231	-0.0081361	0.0337491
3	-0.0148902	0.0145593	-1.02	0.306	0.0434258	0.0136454

Table 5.23 Continued

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Degree Sought * Receptivity to Financial Guidance Percentile						
1	0.0153146	0.0094452	1.62	0.105	-0.0031976	0.0338268
2	0.034875	0.008856	3.94	0.000	0.0175117	0.0522383
Hours Worked * Academic Stress						
1	0.0427462	0.016069	2.65	0.008	0.0111773	0.0743151
2	0.0223845	0.0124596	1.80	0.072	-0.002036	0.0468049
3	0.0322592	0.0140106	2.30	0.021	0.0047989	0.0597195
Family Emotional Support * Class Percentile	0.0004569	0.0001877	2.43	0.015	0.0000889	0.0008248
Hours Worked * Math and Science Confidence Percentile						
1	0.0313417	0.0174281	1.80	0.072	-0.0028167	0.0655
2	0.0297054	0.0136345	2.18	0.029	0.0029824	0.0564285
3	0.0498293	0.015182	3.28	0.001	0.0200732	0.0795854
Senior Year Grades * Distance From Campus						
1	0.0010241	0.0011293	0.91	0.364	-0.0011893	0.0032375
2	0.0036396	0.0012495	2.91	0.004	0.0011905	0.0060886

Table 5.23 Continued

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Degree Sought * Mothers Education						
1 1	-0.5507331	0.666788	-0.83	0.409	-1.857614	0.7561474
1 2	1.223038	0.6241413	1.96	0.050	-0.0002563	2.446332
1 3	-0.5641882	0.9123933	-0.62	0.536	-2.352446	1.22407
2 1	0.2872534	0.5834456	0.49	0.622	-0.8562789	1.430786
2 2	1.161669	0.5960749	1.95	0.051	-0.0066163	2.329955
2 3	-1.401384	0.8245099	-1.70	0.089	-3.017394	0.2146257
Mothers Education * Hours Worked						
1 1	1.517071	1.150978	1.32	0.187	-0.7388041	3.772946
1 2	2.346709	0.9557926	2.46	0.014	0.4733898	4.220028
1 3	0.6295009	1.029057	0.61	0.541	-1.387413	2.646415
2 1	2.710403	1.022909	2.65	0.008	0.7055388	4.715268
2 2	2.493014	0.8649714	2.88	0.004	0.7977013	4.188327
2 3	0.6446187	0.9138313	0.71	0.481	-1.146458	2.435695
3 1	1.113672	1.296002	0.86	0.390	-1.426445	3.65379
3 2	0.5046204	1.065491	0.47	0.636	-1.583704	2.592945
3 3	-1.100315	1.227739	-0.90	0.370	-3.506639	1.306008
Fathers Education * Senior Year Grades						
1 1	0.4018799	0.5380555	0.75	0.446	-0.6526895	1.456449
1 2	-0.6777863	0.914222	-0.74	0.458	-2.469629	1.114056
2 1	0.794517	0.5235645	1.52	0.129	0.2316504	1.820685
2 2	-0.2326327	0.9234885	-0.25	0.801	-2.042637	1.577372
3 1	0.4132555	0.7162937	0.58	0.564	-0.9906543	1.817165
3 2	2.522961	1.076456	2.34	0.019	0.4131456	4.632777

Table 5.23 Continued

Variable	Coefficient	Std. Error	z (Wald)	p-value	95% Confidence Interval	
Hours Worked * Senior Year Grades						
1 1	-1.324048	0.8282221	-1.60	0.110	-2.947333	0.2992377
1 2	3.087874	1.723263	1.79	0.073	-0.28966	6.465408
2 1	-0.8713155	0.6758855	-1.29	0.197	-2.196027	0.4533957
2 2	4.458478	1.512905	2.95	0.003	1.493239	7.423718
3 1	-0.6004559	0.737063	-0.81	0.415	-2.045073	0.8441609
3 2	3.745962	1.639878	2.28	0.022	0.5318611	6.960063
Constant	1.346413	2.112358	0.64	0.524	-2.793733	5.486558

Model Summary			
Number of Observations	Log Likelihood	LR chi-squared (84 d.f.)	P-value
814	-370.59404	310.48	0.000

Before beginning the interpretation of the coefficients in the preliminary final model, the goodness of fit is determined, since this helps decide the final model. Using the Hosmer-Lemeshow goodness of fit test the p-value is $p = 0.4705$ and this implies that the model fits the data and thus is the final model.

CHAPTER VI

DISCUSSION

The factors that impact retention, and the interpretation of the developed logistic model coefficients using odds ratios are addressed in this chapter. The discussion is divided into three different sections and each section will address one of the research questions. In the first section, the factors that impact ALL STEM retention are listed and an interpretation of the coefficients, utilizing the odds ratios, is presented. The second section examines the retention rates of Caucasian and Hispanic students to determine whether Hispanic students are being retained at the same rate. The third section begins with an exploration of the factors that influence the retention of Caucasian and Hispanic students. Then an interpretation of the coefficients is used to develop an idea of the impact each factor has on retention.

ALL STEM Retention

Recall Research Question One: What are the academic, social, emotional, and financial factors that impact retention of STEM students to the third year at WTAMU? The following factors have been shown to have a statistically significant impact on retention:

- Major
- Transfer Percentile
- Receptivity to Academic Assistance Percentile
- Academic Stress Percentile

- Family Emotional Support Percentile
- Math and Science Confidence Percentile
- Mothers Education
- Fathers Education
- Senior Year Grades
- Hours Worked
- Sociability Percentile
- Study Habits Percentile
- Max ACT/SAT Score
- Distance From Campus
- College Athlete
- Class Percentile
- Receptivity to Personal Counseling Percentile
- Verbal Confidence Percentile

Interaction between predictor variables also has an impact on retention of ALL STEM majors to the third year. Below is a list of variable interactions that have shown a significant impact on retention.

- Major and Family Emotional Support
- Major and Max ACT or SAT Score
- Race and Mothers Education
- Race and Fathers Education
- Race and Work

- Transfer Percentile and College Athlete
- Mothers Education and Transfer Percentile
- Receptivity to Academic Assistance and Distance From Campus
- Hours Worked and Academic Stress
- Fathers Education and Verbal Confidence
- Mothers Education and Senior Year Grades
- Mothers Education and Hours Worked

Interpretation of ALL STEM Factors

In order to address the first research question, the model must be interpreted. The coefficients of the model can be used to determine the impact each variable has on retention. The variables that are not involved in an interaction term are interpreted first followed by those involved in an interaction. Only variables that are statistically significant (p-value < 0.05) are interpreted. The impact of independent variables in a logistic regression model are interpreted in terms of odds ratios due to the linearity of the logit function. If the odds ratio is greater than one then the likelihood the student is retained increases by a magnitude of the difference between the odds ratio and 1. For example, if the odds ratio is 2.50, $\widehat{OR} = 2.50$, then the odds the student is retained is approximately 2.50 times the odds of a similar student in the baseline category. If the odds ratio is less than one, $\widehat{OR} = .45$, then the odds the student is retained is approximately 0.45 times the odds of a student similar in all aspects except portraying a nominal value for the variable in question.

Study Habits Percentile

Since study habits percentile is a two term fractional polynomial, the values are displayed in Table 6.1 which gives the odds ratios for a 10% increase in study habits percentile.

Table 6.1: Odds Ratios for Study Habits Percentile

Study Habits Percentile	Odds Ratio
$s = 25$	$\widehat{OR} = 0.8742$
$s = 50$	$\widehat{OR} = 0.9057$
$s = 75$	$\widehat{OR} = 0.9212$

This variable starts at 25% and then when it increases to 35% there is a 0.8742-fold decrease in retention of all STEM majors. The additional values for Study Habits Percentile displayed in Table 6.1 are interpreted similarly.

Class Percentile

Class Percentile is a continuous variable and was shown to have a linear relationship with the logit function that is not involved in an interaction term. For every 10% change in a STEM student's class percentile, there is a 0.87-fold decrease in retention.

Interpreted Interaction Terms

Next, variables involved in interaction terms are interpreted. If both variables of the interaction term are categorical but not all of the levels are statistically significant then only the levels that are significant are interpreted.

Continuous Variables That Interact with Categorical Variables

The first interaction term to be examined is the interaction between transfer percentile and college athlete status. Since continuous variables are involved in the

interactions, the odds ratios are also continuous functions. Each interaction term will have four points given in a table to demonstrate the relationship between the odds ratio and the continuous variable. A graph of the odds ratio for the interaction between transfer percentile and college athlete status is given in Appendix IV and selected values are presented Table 6.2.

Table 6.2: Odds Ratios for Transfer Percentile by College Athlete

Transfer Percentile by College Athlete	Odds Ratio
$tp = 25$	$\widehat{OR} = 0.204$
$tp = 50$	$\widehat{OR} = 0.579$
$tp = 75$	$\widehat{OR} = 1.647$
$tp = 90$	$\widehat{OR} = 3.083$

Among students with a transfer percentile of 50, the odds of a student being retained, who is a college athlete, is 0.579 times that of the odds of a similar student being retained who is not an athlete. Table 6.3 gives the odds ratio for the interaction between major category one (biology, chemistry, and physics) and family emotional support.

Table 6.3: Odds Ratio for Major.1 and Family Emotional Support

Major.1 * Family Emotional Support Percentile	Odds Ratio
$f = 25$	$\widehat{OR} = 140.1$
$f = 50$	$\widehat{OR} = 90.0$
$f = 75$	$\widehat{OR} = 57.9$
$f = 90$	$\widehat{OR} = 44.4$

To interpret this interaction term, a value for family emotional support percentile is chosen, $f = 90$, and the odds ratio is determined to be 44.4. So among students with a family emotional support percentile of 90%, the odds of a student who majors in chemistry, physics, or biology being retained is 44.4 times more than the odds of a student that is a mathematics, computer science, or engineering major being retained.

Table 6.4 presents the odds ratio for the interaction between major category two (pre-professional majors) and family emotional support.

Table 6.4: Odds Ratio for Major.2 Interacting With Family Emotional Support

Major.2 * Family Emotional Support Percentile	Odds Ratio
$f = 25$	$\widehat{OR} = 0.131$
$f = 50$	$\widehat{OR} = 0.082$
$f = 75$	$\widehat{OR} = 0.052$
$f = 90$	$\widehat{OR} = 0.039$

Among students with a family emotional support percentile of 25, the odds of a student, who majored in a pre-professional major, being retained are 0.131 times less than the odds of a student who majored in mathematics, engineering, and computer science being retained. The odds ratio for the interaction of biology, chemistry, and physics by maximum ACT and SAT score is in Table 6.5.

Table 6.5: Odds Ratio for Major.1 by Maximum ACT or SAT Score

Major.1 * Max ACT or SAT Score	Odds Ratio
$f = 12$	$\widehat{OR} = 18.61$
$f = 18$	$\widehat{OR} = 5.44$
$f = 24$	$\widehat{OR} = 1.59$
$f = 30$	$\widehat{OR} = 0.46$

Among students with a maximum ACT or SAT score of 18, the odds of a student, who majored in a biology, chemistry, or physics major, being retained are 5.44 times higher than the odds of a similar student who majored in mathematics, engineering, or computer science being retained. Also, among students with a maximum ACT or SAT score of 30, the odds of a student, who is a biology, chemistry, or physics major being retained is 0.46 times the odds of a similar student who majored in mathematics, engineering, or

computer science. The odds ratio for the interaction between mother having some college and transfer percentile is in Table 6.6.

Table 6.6: Odds Ratio for Mothers Education.1 by Transfer Percentile

Mothers Education.1 * Transfer Percentile	Odds Ratio
$f = 25$	$\widehat{OR} = 0.08$
$f = 50$	$\widehat{OR} = 0.14$
$f = 75$	$\widehat{OR} = 0.24$
$f = 90$	$\widehat{OR} = 0.32$

Among students with a transfer percentile of 75, the odds of a student, whose mother has some college, being retained are 0.24 times less than the odds of a student whose mother has no college being retained. The odds ratio for the interaction of worked 1-10 hours by academic stress percentile is in Table 6.7 below.

Table 6.7: Odds Ratio for Hours Worked.1 by Academic Stress Percentile

Hours Worked.1 *Academic Stress Percentile	Odds Ratio
$f = 25$	$\widehat{OR} = 0.26$
$f = 50$	$\widehat{OR} = 0.48$
$f = 75$	$\widehat{OR} = 0.90$
$f = 90$	$\widehat{OR} = 1.31$

Among students with an academic stress percentile of 90, the odds of a student, who worked 1-10 hours per week, being retained are 1.31 times as much as the odds of a student who did not work being retained. The odds ratio for the interaction between fathers who have a bachelor's degree and verbal confidence percentile are shown in Table 6.8.

Table 6.8: Odds Ratio for Fathers Education.2 by Verbal Confidence

Fathers Education.2 * Verbal Confidence Percentile	Odds Ratio
$f = 25$	$\widehat{OR} = 0.81$
$f = 50$	$\widehat{OR} = 0.51$
$f = 75$	$\widehat{OR} = 0.33$
$f = 90$	$\widehat{OR} = 0.25$

Among students with a verbal confidence percentile of 90, the odds of a student, whose father has a bachelor's degree, being retained are 0.25 times less than the odds of a similar student, whose father has no college, being retained.

Categorical by Categorical Interaction Terms

The only interaction terms left to interpret are the interactions between one categorical variable and another. Since both of the variables in the interaction term are either 1 or 0 there are four odds ratios for each interaction term. Table 6.9 provides the odds ratios for the interaction between Hispanic and Caucasian students and mother's education level.

Table 6.9: Interaction Between Race and Mother's Education

Variable	Subgroup	Odds Ratio
Hispanic vs Caucasian	Mother has some college	0.61
	Mother has no college	2.20
Mother has some college vs. Mother has no college	Caucasian	0.05
	Hispanic	0.01

Among students whose mothers have some college, the odds of a student who is Hispanic being retained present a 0.61-fold decrease compared to the odds of a student who is Caucasian being retained. Also, among students who are Hispanic, the odds of a student whose mother has some college demonstrate 0.01-fold decrease when compared to the odds of a student being retained whose mother has had no college experience. The odds

ratio for the interaction between the Hispanic variable and the variable denoting mother has a bachelor's degree is given in Table 6.10:

Table 6.10: Odds Ratio for Mothers Education.2 by Race.1

Variable	Subgroup	Odds Ratio
Hispanic vs. Caucasian	Mother has a Bachelor's Degree	0.18
	Mother has no college	2.20
Mother has a Bachelor's Degree vs. Mother has no college	Caucasian	0.11
	Hispanic	0.01

Among students whose mothers have no college, the odds of a student who is Hispanic being retained are 2.20 times as much as the odds of a student who is Caucasian being retained. The odds ratio for the interaction between race and fathers education is given in Table 6.11:

Table 6.11: Odds Ratio for Fathers Education.1 by Race.1

Variable	Subgroup	Odds Ratio
Hispanic vs Caucasian	Father has some college	17.39
	Father has no college	2.20
Fathers has some college vs. Father has a high school diploma or less education	Caucasian	0.55
	Hispanic	4.38

Among students who are Hispanic, the odds of a student, whose father has some college, being retained are 4.38 times higher than the odds of a student whose father has no college education being retained. Also, among students whose father has some college, the odds of a student, who is Hispanic being retained are 17.39 times higher than the odds of a Caucasian student. The odds ratio for the interaction between the Hispanic variable and the variable for father has a master's degree is given in Table 6.12:

Table 6.12: Odds Ratio for Fathers Education.3 by Race.1

Variable	Subgroup	Odds Ratio
Hispanic vs Caucasian	Father has a Master's degree or above	24.67
	Father has a high school diploma or less education	2.20
Father has a Master's degree or above vs. Father has a high school diploma or less education	Caucasian	0.25
	Hispanic	2.75

Among students whose fathers has a master's degree or above, the odds of a student who is Hispanic being retained are 24.67 times as much as the odds of a student who is Caucasian being retained. The odds ratio for the interaction between the other variable of race and the 1-10 hours worked per week variable is given in Table 6.13:

Table 6.13: Odds Ratio for Hours Worked.1 by Race.3

Variable	Subgroup	Odds Ratio
Other vs Caucasian	Worked 1-10 hours per week	9.83
	Did not work	0.06
Worked 1-10 hours per week vs. Did not work	Caucasian	0.14
	Other	22.12

Among students who did not work, the odds of a student who is not identified as Caucasian, Hispanic, or African American, being retained show a 0.06-fold decrease when compared to the odds of a student who is Caucasian being retained. The odds ratio for the interaction between senior year grades and mothers education is given in Table 6.14.

Table 6.14: Odds Ratio for Mothers Education.1 by Senior Year Grades.1

Variable	Subgroup	Odds Ratio
Mother has some college vs. Mother has no college	Made B+ during senior year	0.14
	Made A during senior year	0.05
Made B+ during senior year vs. Made A during senior year	Mother has some college	1.43
	Mother has no college	0.48

Among students whose mothers has some college, the odds of a student who made B+'s their senior year are 1.43 times the odds of a student who made A's being retained. The odds ratio for the interaction between senior year grades and mothers education is given in Table 6.15:

Table 6.15: Odds Ratio for Mothers Education.1 by Senior Year Grades.2

Variable	Subgroup	Odds Ratio
Mother has some college vs. Mother has no college	Made B or below during senior year	0.27
	Made A during senior year	0.05
Made B or below during senior year vs. Made A during senior year	Mother has some college	1.31
	Mother has no college	0.24

Among students whose mothers have no college, the odds of a student who made B's or below their senior year being retained present a 0.24-fold decrease when compared to the odds of a student who made A's their senior year being retained. The odds ratio for the interaction between the variable, mother has a master's degree, and the made B+'s or below senior year grades is given in Table 6.16:

Table 6.16: Odds Ratio for Mothers Education.3 by Senior Year Grades.2

Variable	Subgroup	Odds Ratio
Mother has a Master's degree or above vs. Mother has no college	Made B or below during senior year	7.97
	Made A during senior year	1.11
Made B or below during senior year vs. Made A during senior year	Mother has a Master's degree or above	1.69
	Mother has no college	0.24

Among students who made B's or below their senior year, the odds of a student whose mother have a master's degree or above being retained are 7.97 times as much as the odds of a student whose mother has no college experience. The odds ratio for the

interaction between the variable, mother has a bachelor's, and the student worked 1-10 hours per week variable is given in Table 6.17:

Table 6.17: Odds Ratio for Mothers Education.2 by Hours Worked.1

Variable	Subgroup	Odds Ratio
Mother has a Bachelor's degree vs. Mother has no college	Worked 1-10 hours per week	0.95
	Did not work	0.11
Worked 1-10 hours per week vs. Did not work	Mother has a Bachelor's degree	1.16
	Mother has no college	0.14

Among students who worked did not work, the odds of a student whose mother has a bachelor's degree being retained are 0.11-fold decrease compared to the odds of a student whose mother has no college education being retained. The odds ratio for the interaction between hours worked and mother's education is given in Table 6.18:

Table 6.18: Odds Ratio for Mothers Education.2 by Hours Worked.2

Variable	Subgroup	Odds Ratio
Mother has a Bachelor's degree vs. Mother has no college	Worked 11-20 hours per week	0.63
	Did not work	0.11
Worked 11-20 hours per week vs. Did not work	Mother has a Bachelor's degree	1.11
	Mother has no college	0.20

Among students whose mothers has no college experience, the odds of a student who worked 11-20 hours per week being retained are 0.20 times less than the odds of a student who did not work being retained. Not every one of the odds ratios in the categorical by categorical variable was interpreted but the concept is clear.

Recall Research Question Two: Are Caucasian and Hispanic STEM majors being retained at the same rate? In order to determine if Hispanic STEM students are being retained at the same rate as Caucasian STEM students, a contingency table is created. The

table shows that even though there are less Hispanic students, these students are still being retained at a rate that is very close to the Caucasian students. The Hispanic students are retained to the third year at a rate of 29.18%, while the Caucasian students are retained to the third year at the rate of 29.65%. Correspondingly, approximately 70% of the Caucasian and Hispanic STEM majors are not being retained.

Recall Research Question Three: What are the similarities and differences in the factors that impact the retention of Caucasian and Hispanic STEM majors? The factors that affect the retention of Caucasian and Hispanic STEM majors can be found in the Hispanic versus Caucasian model presented in Chapter V. The predictive variables that were determined to impact retention are presented below.

- Major
- Race
- Gender
- Transfer Percentile
- Receptivity to Academic Assistance Percentile
- Receptivity to Financial Guidance Percentile
- Academic Stress Percentile
- Family Emotional Support Percentile
- Math and Science Confidence Percentile
- Degree Sought
- Mothers Education
- Fathers Education
- Hours Worked

- Senior Year Grades
- Sociability Percentile
- Study Habits Percentile
- Max ACT/SAT Score
- Distance From Campus
- Class Percent
- PELL Grant

Several variables were also found to significantly interact to impact the retention of Caucasian and Hispanic STEM majors to the third year at WTAMU.

- Race and Fathers Education
- Major and Academic Stress Percentile
- Major and Family Emotional Support Percentile
- Major and Max ACT or SAT Score
- Mothers Education and Transfer Percentile
- Degree Sought and Receptivity to Financial Guidance Percentile
- Hours Worked and Academic Stress
- Family Emotional Support and Class Percent
- Hours Worked and Math and Science Confidence Percentile
- Senior Year Grades and Distance From Campus
- Degree Sought and Mothers Education
- Mothers Education and Hours Worked
- Fathers Education and Senior Year Grades

- Hours Worked and Senior Year Grades

In order to specify the impact of each variable or combination of variables on retention, the model coefficients must be interpreted in terms of odds ratios. The variables that are not involved in an interaction term will be interpreted first, then the continuous variables that are involved in interaction terms, and last the interaction terms that are categorical variables by categorical variables. These results are presented similarly to those of the ALL STEM model.

Interpreting Continuous Variables

There are continuous variables that are linear and one continuous variable that is model by a two term polynomial. As discussed in Chapter IV, these variables are interpreted using some increment. Both are interpreted differently which is why the distinction is made. Since these variables are percentiles' the decision was made for those increments to be 10%. A 10% increase in receptivity to financial guidance percentile produces a 0.83-fold decrease in retention. Also, a 10% change in study habits percentile yields a 1.19-fold increase in retention which is linear in the Caucasian and Hispanic model. This concludes the interpretation of all the variables that are not involved in an interaction term and are statistically significant. Now, the interaction terms that have continuous variables are interpreted.

Interpretation of Interactions Terms with Continuous Variables

There was one continuous by continuous interaction term, family emotional support percentile interacting with class percentile. There are two options for the interpretation of this interaction: the first being that family emotional support percentile changes given that class percentile is constant at some value, the second being that class

percentile changes while family emotional support percentile is constant at some value which is shown in Table 6.19 and Table 6.20.

Table 6.19: Odds Ratio for Family Emotional Support Given Class Percentile

Family Emotional Support Percentile * Class Percentile		Class Percentile			
		$c = 25$	$c = 50$	$c = 75$	$c = 85$
Family Emotional Support Percentile	Odds Ratio for 10% Change	1.169	1.310	1.468	1.537

Interpreting using the first option, for a student in the 85th percentile of their class, a 10% increase in family emotional support percentile increases the odds of a student being retained by a factor of 1.54.

Table 6.20: Odds Ratio for Class Percentile Given Family Emotional Support

Family Emotional Support Percentile * Class Percentile		Class Percentile
		Odds Ratio for 10% Change
Family Emotional Support Percentile	$f = 25$	0.707
	$f = 50$	0.793
	$f = 75$	0.889
	$f = 85$	0.930

The second option for interpretation would be for a student with family emotional support percentile equal to 25%, an increase of 10% in class percentile decreases the odds of a student being retained by 0.707-fold. These values depend on the numbers that are chosen for the increase in class percentile and the percentile that is chosen for family emotional support.

Interpreting Interaction Terms with Continuous Variables and Categorical Variables

The log odds and odds ratio for each of these interaction terms are graphed and will be located in Appendix IV. For each interaction term, four values, taken from the odds ratio plots and are presented in table form. The odds ratio for the interaction

between agricultural science majors and academic stress percentile is displayed in Table 6.21.

Table 6.21: Odds Ratio for Major.3 by Academic Stress Percentile

Major.3 * Academic Stress Percentile	Odds Ratio
$f = 25$	$\widehat{OR} = 0.351$
$f = 50$	$\widehat{OR} = 0.612$
$f = 75$	$\widehat{OR} = 1.069$
$f = 90$	$\widehat{OR} = 1.496$

Among students with an academic stress percentile of 90, the odds of a student being retained, whose major is agricultural science, are 1.496 times as much as the odds of a similar student being retained whose major is mathematics, engineering, and computer science. The odds ratio for the interaction between biology, chemistry, and physics majors with family emotional support percentile is given in Table 6.22.

Table 6.22: Odds Ratio for Major.1 by Family Emotional Support Percentile

Major.1 * Family Emotional Support Percentile	Odds Ratio
$f = 25$	$\widehat{OR} = 199.84$
$f = 50$	$\widehat{OR} = 106.02$
$f = 75$	$\widehat{OR} = 63.02$
$f = 90$	$\widehat{OR} = 46.01$

Among students with a family emotional support percentile of 90, the odds ratio of a student being retained, whose major is biology, chemistry, and physics, are 46.01 times the odds of a similar student being retained whose major is mathematics, engineering, and computer science. The odds ratio interpretation of the interaction with pre-professional and family emotional support percentile is show in Table 6.23:

Table 6.23: Odds Ratio for Major.2 by Family Emotional Support Percentile

Major.2 * Family Emotional Support Percentile	Odds Ratio
$f = 25$	$\widehat{OR} = 0.061$
$f = 50$	$\widehat{OR} = 0.037$
$f = 75$	$\widehat{OR} = 0.022$
$f = 90$	$\widehat{OR} = 0.016$

Among students with a family emotional support percentile of 50, the odds of a student being retained, whose major is pre-professional, yield a 0.037-fold decrease as compared to the odds of a similar student being retained whose major is mathematics, engineering, and computer science. The odds ratio for the interaction of biology, chemistry, and physics majors and maximum ACT or SAT score are listed in Table 6.24 below:

Table 6.24: Odds Ratio for Major.1 by Maximum ACT or SAT Score

Major.1 * Max ACT or SAT Score	Odds Ratio
$f = 12$	$\widehat{OR} = 20.64$
$f = 18$	$\widehat{OR} = 5.379$
$f = 24$	$\widehat{OR} = 1.402$
$f = 30$	$\widehat{OR} = 0.365$

Among students with a maximum ACT or SAT score of 18, the odds of a student who majored in biology, chemistry, or physics being retained are 5.379 times the odds of a similar student who majored in mathematics, engineering, and computer sciences. The odds ratio for the interaction between mother's education and family emotional support percentile are listed in Table 6.25:

Table 6.25: Odds Ratio for Mothers Educaiton.1 by Family Emotional Support

Mothers Education.1 * Family Emotional Support Percentile	Odds Ratio
$f = 25$	$\widehat{OR} = 0.051$
$f = 50$	$\widehat{OR} = 0.099$
$f = 75$	$\widehat{OR} = 0.191$
$f = 90$	$\widehat{OR} = 0.284$

Among students with a family emotional support percentile of 90, the odds of a student whose mother has some college education, being retained decrease by a factor of 0.284 compared to the odds of a similar student whose mother has no college education. The odds ratio for the interaction with professional degree and receptivity to financial guidance percentile is given in Table 6.26.

Table 6.26: Odds Ratio for Degree Sought.2 by Receptivity to Financial Guidance

Degree Sought.2 * Receptivity to Financial Guidance Percentile	Odds Ratio
$f = 25$	$\widehat{OR} = 0.185$
$f = 50$	$\widehat{OR} = 0.441$
$f = 75$	$\widehat{OR} = 1.056$
$f = 90$	$\widehat{OR} = 1.781$

Among students with a receptivity to financial guidance percentile of 90, the odds of a student, who is seeking a professional degree, being retained are 1.781 times higher than the odds of a student who is seeking a bachelor's degree. The odds ratio for the interaction between working 1-10 hours and academic stress percentile is listed in Table 6.27.

Table 6.27: Odds Ratio for Hours Worked.1 by Academic Stress Percentile

Hours Worked.1 * Academic Stress Percentile	Odds Ratio
$f = 25$	$\widehat{OR} = 0.028$
$f = 50$	$\widehat{OR} = 0.081$
$f = 75$	$\widehat{OR} = 0.235$
$f = 90$	$\widehat{OR} = 0.446$

Among students with an academic stress percentile of 90, the odds of a student, who worked 1-10 hours per week, being retained decrease by a factor of 0.446 when compared to the odds of a student who does not work being retained. The odds ratio for the interaction of hours worked 21+ and academic stress percentile are given in Table 6.28.

Table 6.28: Odds Ratio for Hours Worked.3 by Academic Stress Percentile

Hours Worked.3 * Academic Stress Percentile	Odds Ratio
$f = 25$	$\widehat{OR} = 0.008$
$f = 50$	$\widehat{OR} = 0.017$
$f = 75$	$\widehat{OR} = 0.039$
$f = 90$	$\widehat{OR} = 0.064$

Among students with an academic stress percentile of 50, the odds of a student, who worked 21+ hours per week, being retained show a 0.017-fold decrease when compared to the odds of a student who does not work being retained. The odds ratio for the interaction between 11-20 hours worked per week and math and science confidence percentile are given in Table 6.29.

Table 6.29: Odds Ratio for Hours Worked.2 by Math and Science Confidence Percentile

Hours Worked.2 * Math and Science Confidence Percentile	Odds Ratio
$f = 25$	$\widehat{OR} = 0.022$
$f = 50$	$\widehat{OR} = 0.046$
$f = 75$	$\widehat{OR} = 0.097$
$f = 90$	$\widehat{OR} = 0.152$

Among students with a math and science confidence percentile of 75, the odds of a student, who worked 11-20 hours per week, being retained decreased by a factor of 0.097 when compared to the odds of a student who does not work being retained. The odds ratio for the interaction between 21+ hours worked per week and math and science confidence percentile are given in Table 6.30.

Table 6.30: Odds Ratio for Hours Worked.3 by Math and Science Confidence Percentile

Hours Worked.3 * Math and Science Confidence Percentile	Odds Ratio
$f = 25$	$\widehat{OR} = 0.012$
$f = 50$	$\widehat{OR} = 0.042$
$f = 75$	$\widehat{OR} = 0.146$
$f = 90$	$\widehat{OR} = 0.309$

Among students with a math and science confidence percentile of 90, the odds of a student, who worked 21+ hours per week, being retained decrease 0.309-fold compared to the odds of a student who does not work being retained. The odds ratio for the interaction of senior year grades being B+'s or below and distance from campus are given in Table 6.31.

Table 6.31: Odds Ratio for Senior Year Grades.2 by Distance from Campus

Senior Year Grades.2 # Distance From Campus	Odds Ratio
$f = 100$	$\widehat{OR} = 0.005$
$f = 1000$	$\widehat{OR} = 0.144$
$f = 1500$	$\widehat{OR} = 0.889$
$f = 1700$	$\widehat{OR} = 1.842$

Among students with a distance of 1500 miles from their permanent address to campus, the odds of a student, who made B+'s or below their senior year, being retained decrease 0.889-fold compared to the odds of a student who made A's their senior year. This concludes the interaction terms that consist of a continuous variable and a categorical variable.

Interpreting Categorical by Categorical Interaction Terms

The last type of interaction term that needs to be interpreted is a categorical variable by a categorical variable. Only the interaction terms that are statistically significant are interpreted. When moving on to the categorical by categorical interaction terms there, will be four different odds ratios for each interaction term for each combination of the interaction term. The odds ratio for the interaction between race and fathers education is given in Table 6.32:

Table 6.32: Odds Ratio for Race.1 by Fathers Education.1

Variable	Subgroup	Odds Ratio
Hispanic vs Caucasian	Father has some college	3.24
	Father has no college	0.78
Father has some college vs. Father has no college	Caucasian	0.34
	Hispanic	1.41

Among students whose fathers has some college, the odds of a student who is Hispanic being retained are 3.24 times as much as the odds of a student who is Caucasian. The

odds ratio for the interaction between degree sought and mother's education is given in Table 6.33:

Table 6.33: Odds Ratio for Degree Sought.1 by Mother's Education.2

Variable	Subgroup	Odds Ratio
Master's Degree vs. Bachelor's Degree	Mother has a Bachelor's Degree	0.86
	Mother has up to a high school diploma	0.25
Mother has a Bachelor's Degree vs. Mother has up to a high school diploma	Master's Degree	0.17
	Bachelor's Degree	0.05

Among students whose mother has a bachelor's degree, the odds of a student who is seeking a master's degree being retained decrease by a factor of 0.86 when compared to the odds of a student who is seeking a bachelor's degree being retained. The odds ratio for the interaction between hours worked per week and mother's education is given in Table 6.34:

Table 6.34: Odds Ratio for Hours Worked.2 by Mother's Education.1

Variable	Subgroup	Odds Ratio
Mother has some college vs. Mother has no college	Student works between 11-20 hours per week	0.28
	Student doesn't work	0.03
Student works between 11-20 hours per week vs. Student doesn't work	Mother has some college	0.11
	Mother has no college	0.01

Among students whose mother has some college, the odds of a student who works 11-20 hours per week being retained decrease 0.11-fold compared to the odds of a student who does not work being retained. The odds ratio for the interaction between hours worked per week and mother's education is given in Table 6.35:

Table 6.35: Odds Ratio for Hours Worked.1 by Mother's Education.2

Variable	Subgroup	Odds Ratio
Mother has a Bachelor's Degree vs. Mother has no college	Student works between 1-10 hours per week	0.76
	Student doesn't work	0.05
Student works between 1-10 hours per week vs. Student doesn't	Mother has a Bachelor's Degree	0.14
	Mother has no college	0.01

Among students who work 1-10 hours per week, the odds of a student whose mother has a bachelor's degree being retained decrease 0.76-fold compared to the odds of a student whose mother has no college being retained. The odds ratio for the interaction between hours worked per week and mother's education is given in Table 6.36:

Table 6.36: Odds Ratio for Hours Worked.2 by Mother's Education.2

Variable	Subgroup	Odds Ratio
Mother has a Bachelor's Degree vs. Mother has no college	Student works between 11-20 hours per week	0.61
	Student doesn't work	0.05
Student works between 11-20 hours per week vs. Student doesn't work	Mother has a Bachelor's Degree	0.13
	Mother has no college	0.01

Among students whose mother has a bachelor's degree, the odds of a student who works 11-20 hours per week being retained decrease by a factor of 0.13 when compared to the odds of a student who does not work being retained. The odds ratio for the interaction between father's education and senior year grades is given in Table 6.37:

Table 6.37: Odds Ratio for Senior Year Grades.2 by Father's Education.3

Variable	Subgroup	Odds Ratio
Father has a Master's Degree or above vs. Father has no college	Student made B's or below	3.39
	Student made A's	0.27
Student made B's or below vs. Student made A's	Father has a Master's Degree or above	0.05
	Father has up no college	0.004

Among students who made B's or below their senior year, the odds of a student whose father has a master's degree being retained increased by a factor of 3.39 when compared to the odds of a student whose father has no college being retained. The odds ratio for the interaction between senior year grades and hours worked per week is given in Table 6.38:

Table 6.38: Odds Ratio for Senior Year Grades.2 by Hours Worked.2

Variable	Subgroup	Odds Ratio
Student works 11-20 hours per week vs. Student doesn't work	Student made B's or below	0.90
	Student made A's	0.01
Student made B's or below vs. Student made A's	Student works 11-20 hours per week	0.33
	Student doesn't work	0.004

Among students who did not work, the odds of a student who made B's or below their senior year being retained decrease 0.004-fold compared to the odds of a student who made A's their senior year being retained. The odds ratio for the interaction between hours worked and senior year grades is given in Table 6.39:

Table 6.39: Odds Ratio for Hours Worked.3 by Senior Year Grades.2

Variable	Subgroup	Odds Ratio
Student works 21+ hours per week vs. Student doesn't work	Student made B's or below	0.15
	Student made A's	0.003
Student made B's or below vs. Student made A's	Student works 21+ hours per week	0.16
	Student doesn't work	0.004

Among students who worked 21+ hours per week, the odds of a student who made B's or below their senior year being retained decrease by a factor of 0.16 compared to the odds of a student who made A's their senior year being retained. This concludes the interpretation of the odds ratios and gives an idea of how these variables impact the retention of Caucasian and Hispanic STEM majors at WTAMU to the third year.

What are the similarities and differences among the factors that influence retention to the third year of Caucasian and Hispanic STEM students? As the Caucasian and Hispanic model was being constructed, race did not meet the requirements during the univariate analysis in order to be included in the model, but race was determined to be clinically important. Thus race was included in the model. The only other variable that race interacted with, that turned out to be significant in the final model, was fathers education. So the difference between Hispanic and Caucasian students may be impacted by the level of education of the father. When only Caucasian and Hispanic STEM students were included in the model, their race did not have much significance on their retention. This means that the Caucasian and Hispanic STEM students at West Texas A&M University struggle with similar challenges and are not retained for most of the same reasons. This explains the reason why the retention rates are so similar for both groups of students.

CHAPTER VII

CONCLUSION

In the conclusion, the differences between the ALL STEM model and the Caucasian and Hispanic model will be discussed and compared to conclusions of articles presented in the literature review. The factors that were determined to affect retention should be used in order to increase retention.

The top six most influential factors that impact retention of ALL STEM majors (rated by p-value) are:

- Biology, Chemistry, or Physics Major
- Maximum ACT or SAT Scores
- Biology, Chemistry, or Physics Majors interacting with Maximum ACT or SAT Scores
- Mother has some college
- Senior Year Grades being B+'s or below
- Hispanic interacting with father has some college

The top five most influential factors that impact retention of Caucasian and Hispanic STEM majors (rated by p-value) are:

- Seeking a Professional's Degree
- Making B+'s or below their senior year

- Maximum ACT or SAT Score
- Class Percentile
- Seeking a Professional's Degree interacts with Receptivity to Financial Guidance

For both models Maximum ACT or SAT score and making B+'s or below their senior year have a strong influence on retention. Factors that affected the retention in one model but not the other model were:

- College Athlete (All)
- Receptivity to Personal Counseling Percentile (All)
- Verbal Confidence Percentile (All)
- Receptivity to Financial Guidance Percentile (Caucasian and Hispanic)
- Degree Sought (Caucasian and Hispanic)
- PELL Grant (Caucasian and Hispanic)

It appears that students who work between 1 and 20 hours per week are not as likely to be retained which conflicts with the information that was examined in the literature review. There appears to be two different groups of students throughout this study. The first group are high achieving students that are most likely transferring to other universities. The second group are average students with lower family emotional support that are being retained at WTAMU in STEM majors. Both models show that parental education impacts retention of STEM majors at WTAMU by interacting with other variables. This conclusion agrees with research discussed in the literature review. Also, most of the pre-college characteristics that were discussed in the literature review

were things that affected retention in both models. In the ALL STEM model the higher the students class percentile the less likely the student was to be retained, this may be attributed to students with higher class percentiles transferring to other universities. In the Caucasian and Hispanic STEM model, the class percentile also negatively impacted retention which correlates to the ALL STEM model. The only impact the race variable has in the Caucasian and Hispanic model is the interaction with father's education. A lack of statistical significance in the race variable provides evidence that Hispanic students and Caucasian students face similar struggles at WTAMU and are retained (or not retained) for the same reasons.

Limitations of Research

Further research might be needed in order to obtain the graduation rates of these STEM majors. This could be used to analyze how long it takes the STEM majors at WTAMU to graduate and if there is a difference between Caucasian and Hispanic students. After further consideration the one term fractional polynomial would have be sufficient in order to transform the continuous variables. One of the biggest limitations of this research is that there are not enough subjects within the study. This can account for the separation problems that occurred when the interaction terms were introduced into the model. Also, since the survey data was handled by Noel-Levitz there is little known about how the percentiles were calculated and how the things they considered risk factors were found. If there were more subjects in the study then an area for possible research would be: "Are different majors retained at the same rate?"

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Appendix I

Getting the most out of your college experience

College Student Inventory™
FORM B

Michael L. Stratil, Ph.D.

SAMPLE

Part of the
Retention Management System™

Noel-Levitz

Dear Student,

The COLLEGE STUDENT INVENTORY™ is part of a carefully designed program that can help your institution determine how you learn best. After completing the inventory, the results will be used in two ways.

First, you will receive a report of your results. Your advisor or someone from the student service offices will discuss these results with you and make you aware of follow-up activities that fit your interests and needs.

Second, staff will use the summary of all results for your class to plan a program of support services.

While completing the inventory and participating in the follow-up activities are voluntary, you are strongly encouraged to take advantage of these opportunities. They are likely to have a very beneficial effect on your entire educational experience.

The inventory has multiple sections, each with its own set of instructions. Complete each part as accurately as you can.

- **Answer every item.**
- If you change an answer, be sure to fully erase your initial response.
- Use a number 2 (medium) black lead pencil in answering all parts of this inventory.

By completing and returning this answer sheet, you give consent to its release to Noel-Levitz for the purpose of scoring, processing, and preparing reports.

Go now to Part A and read the next set of instructions.

Each of us learns in a different way. We focus attention on somewhat different dimensions of the world around us, we have somewhat different understandings of the world, and we strive for quite different kinds of personal growth. We can only achieve our full potential when these forces of individuality are meshed smoothly with the learning process.

Michael L. Stratil

(Version B 2.1, 2009)

PART A

Instructions. By completing and submitting this inventory, you give consent to its release to Noel-Levitz for the purpose of scoring, processing, and preparation of reports for yourself, your advisor, and your college or university.

Use a number 2 black lead pencil in answering all parts of this inventory. Do **not** use ink or ball point pen.

1. On the front of the answer sheet, find the area for your name. It looks like this example:

LAST NAME												FIRST NAME							MI

Print your last name in the 12 spaces provided. If your last name is too long, abbreviate it. Do not go past the line that divides the last and first name. Do the same for your first name and **your middle initial**.

2. **Blacken the** circles that represent the letters in each part of your name. Be sure to completely fill each of the appropriate circles. Erase any stray marks or errors.

3. Move down to the area marked "GROUP NUMBER." The examiner has written this number on the board (or will read it to you). **Print the number** in the spaces provided. Be sure to include any 0's that are in that number.

4. **Print your age** in the next section.

5. In the section designated for GENDER, **blacken one** of the circles (either "M" or "F").

6. In the last section, **print your student identification number**. This number will enable your institution to avoid misidentifications in cases where more than one person has the same name. If you do not wish to provide it, enter 123456789.

7. **Blacken the appropriate circles** under GROUP NUMBER, AGE, and IDENTIFICATION NUMBER.

GO TO PART B.

PART B

Instructions. The main body of the inventory contains 100 items. The items in Part B have up to seven multiple choice response options. For example, item 1 appears as follows on the answer sheet:

Item number	Options
1	① ② ③ ④ ⑤ ⑥ ⑦

Notice that the answer sheet always provides seven circles even though some items offer fewer than seven options. Ignore the extra circles.

Answer each item by selecting the option that best describes you. Blacken the circle that corresponds to the option you have selected.

If you have difficulty answering any of the items in this section see your examiner. Begin with the first item and continue to the end of Part B.

1. While enrolled in classes, the amount of time I expect to spend working at a job is approximately:
   1) 0 (I have no plans to work)
   2) 1 to 10 hours per week
   3) 11 to 20 hours per week
   4) 21 to 30 hours per week
   5) 31 to 40 hours per week
   6) over 40 hours per week

Note: This item only applies to time frames during which you are actually attending classes. It does not apply to summer employment, school breaks, or other such periods. If your work schedule varies, take a rough average across weeks.

2. The average of all my grades during my senior year in high school was approximately:
   1) A
   2) halfway between A and B
   3) B
   4) halfway between B and C
   5) C
   6) halfway between C and D
   7) D

Note: If your school *did not use letter grades*, do your best to translate your grades into the above system. If you completed a *GED*, try to estimate the grades you think you would have earned for your last ten GED courses if you had been taking them as regular high school courses. It is recognized that making this estimate will be difficult; just try to give your best estimate.

3. The following item is about your general academic knowledge. This consists of the ideas and facts you have learned through the core courses designed to prepare you for college (e.g., English, mathematics, science, and social studies). **Compared to the average high school graduating senior in this country,** I consider my general academic knowledge to be in the:
   1) highest 20%
   2) next to the highest 20%
   3) middle 20%
   4) next to the lowest 20%
   5) lowest 20%

4. I would describe my racial/ethnic origin as:
   1) Black/African-American
   2) American Indian or Alaskan Native
   3) Asian or Pacific Islander
   4) White/Caucasian
   5) Hispanic or Latino
   6) Multiethnic or other ethnic origin
   7) Prefer not to respond

5. What is the highest level of education completed by your mother?
   1) 8 years or less of elementary school
   2) some high school but no diploma
   3) a high school diploma or equivalent
   4) 1 to 3 years of college (including study at a technical, community, or junior college)
   5) a 4-year undergraduate college degree (bachelor's degree)
   6) a master's degree
   7) a professional degree (medicine, dentistry, law, philosophy, or other similar degrees)

6. What is the highest level of education completed by your father?
   1) 8 years or less of elementary school
   2) some high school but no diploma
   3) a high school diploma or equivalent
   4) 1 to 3 years of college (including study at a technical, community, or junior college)
   5) a 4-year undergraduate college degree (bachelor's degree)
   6) a master's degree
   7) a professional degree (medicine, dentistry, law, philosophy, or other similar degrees)

7. The highest degree that I plan to pursue is:
   1) none
   2) a 1-year certificate
   3) a 2-year college degree (associate)
   4) a 4-year college degree (bachelor's)
   5) a master's degree
   6) a professional degree (medicine, dentistry, law, philosophy, or other similar degrees)

8. **Academic ability** is the general capacity to understand and remember complex ideas through formal education. It involves learning through such media as books, lectures, written assignments, and computer programs.

   In relation to the **general population** of our society, I consider my academic ability to be:
   1) considerably below average
   2) slightly below average
   3) average
   4) slightly above average
   5) considerably above average (in the top 20%)
   6) extremely high (in the top 5%)

9. Which of the following most accurately describes the **timing** of your decision to apply for admission to your college or university?
   1. My decision was made a *few days* before classes began.
   2. My decision was made a *few weeks* before classes began.
   3. My decision was made *many months* before classes began.

CHECK TO MAKE SURE THAT YOU HAVE ANSWERED EVERY ITEM IN THIS SECTION (ITEMS 1-9).

THEN GO TO PART C.

PART C

Instructions: Items in Part C measure a variety of attitudes toward college.

Use the following rating scale to answer each item:

RATING SCALE

NOT AT ALL TRUE	1	2	3	4	5	6	7	COMPLETELY TRUE

If you agree completely with a statement, you should answer with a "7." Agreement that is fairly strong but not total is indicated by selecting a "5," while agreement that is fairly weak is indicated by "3." Total disagreement is indicated by selecting "1." Use any number between 1 and 7.

Keep in mind that there are no "right" or "wrong" answers. Simply select the answer that best fits you. In answering the items on study habits and teachers, you should draw primarily on your pre-college experiences.

Blacken the appropriate circle on the answer sheet. Give only one response to each item.

10. I have found a potential career that strongly attracts me.
11. Most of my teachers have been very caring and dedicated.
12. Books have never gotten me very excited.
13. I have financial problems that are very distracting and troublesome.

Note: The purpose of the next item is to confirm that you are putting your answers in the correct position on the answer sheet. When you encounter items like this, enter the number indicated.

14. Enter a "2" for this item.
15. I get along well with people who disagree with my opinion openly.
16. I dread the thought of going to school for several more years, and there is a part of me that would like to give up the whole thing.
17. I would like to receive some instruction in the most effective ways to take college exams.
18. I take very careful notes during class, and I review them thoroughly before a test.
19. I would like to talk with a counselor about my general attitude toward school.
20. Most of the teachers I had in school were too opinionated and inflexible.

RATING SCALE

NOT AT ALL TRUE	1	2	3	4	5	6	7	COMPLETELY TRUE

21. When I was a child, my parents usually understood me, respected my judgment, and treated me in ways that helped me grow.

22. I would like to talk to someone about getting a part-time job during the regular school year.

23. I pick up new vocabulary words quickly, and I find it easy to use them in my speech and writing.

24. I would like to attend an informal gathering where I can meet some new friends.

25. Of all the things I could do at this point in my life, going to college is definitely the most satisfying.

26. When someone's opinions strongly disagree with my own, I tend to develop unfriendly feelings and to avoid close contact with the person.

27. I plan to transfer to another school before completing a degree at this college or university.

28. I would like to receive some help in improving my study habits.

29. I would like to talk with someone about the qualifications needed for certain occupations.

30. I have great difficulty concentrating on schoolwork, and I often get behind.

31. I get a great deal of personal satisfaction from reading.

32. The teachers I had in school respected me as a person and treated me fairly.

33. Participating in large social gatherings is of little interest to me.

34. I become very confused when I try to choose an occupation.

35. Enter a "5" for this item.

36. I have the financial resources that I need to finish college.

37. Math has always been a challenge for me.

38. I am deeply committed to my educational goals, and I'm fully prepared to make the effort and sacrifices that will be needed to attain them.

39. I would like to talk with a counselor about eliminating an unwanted habit (involving food, drugs, cigarettes, or alcohol, etc.).

40. My studying is very irregular and unpredictable.

41. I can feel comfortable with someone who thinks quite differently than I do on major social issues.

42. I would like to receive some individual help in improving my writing skills.

43. I would like to find out more about student government and the various student activities on campus.

44. I would like some help selecting an educational plan that will prepare me to get a good job.

45. My family had one way of looking at me when I was a child, and they didn't understand my feelings very well.

46. I would like to talk with a counselor about some difficulties in my personal relationships or social life.

47. I would like to talk with someone about getting a loan to help me through school.

48. I greatly enjoy getting together with a crowd of people and having fun.

49. I have difficulty organizing my ideas in a paper, and I tend to make a lot of punctuation and grammar mistakes.

50. I have a very good understanding of general biology (e.g., cell structure, metabolism, genetics, and the circulatory system).

51. I am very strongly dedicated to finishing college—no matter what obstacles get in my way.

52. I don't enjoy reading serious books and articles, and I only do it when I have to.

RATING SCALE

NOT AT ALL TRUE	1	2	3	4	5	6	7	COMPLETELY TRUE

53. I have made a firm decision to enter a certain occupation and have begun planning my life around that decision.

54. In my opinion, many teachers are more concerned about themselves than they are about their students.

55. I would like to talk with someone about the salaries and future outlook for various occupations.

56. Enter a "4" for this item.

57. I am very good at figuring out the deeper meaning of a short story or novel.

58. I would like to receive some individual help in improving my math skills.

59. I don't have any financial problems that will interfere with my schoolwork.

60. I have a very strong desire to continue my education, and I am quite determined to finish a degree.

61. I would like to talk with a counselor about some family problems.

62. I study very hard for all my courses, even those I don't like.

63. I find it easy to be friends with people whose political ideas differ sharply from my own.

64. I have a hard time understanding and solving complex math problems.

65. My family and I communicated very well when I was young, and we had a good understanding of each other's point of view.

66. Most teachers have a superior attitude that I find very annoying.

67. I would like to meet an experienced student who can show me around and give me some advice.

68. I would like to talk to someone about getting a scholarship.

69. Learning new vocabulary words is a slow and difficult process for me.

70. I would like some help selecting an occupation that is well suited to my interests and abilities.

71. It is hard for me to relax and just have fun with a group of people.

72. My understanding of the physical sciences is very weak.

73. I wish that society did not put so much pressure on people to go to college, as I'd really rather be doing other things at this point in my life.

74. I have no desire to transfer to another school before finishing a degree at this college or university.

75. Over the years, books have broadened my horizons and stimulated my imagination.

76. Enter a "7" for this item.

77. I am very confused about what occupation to pursue.

78. I have developed a solid system of self-discipline, which helps me keep up with my schoolwork.

79. I am in a bad financial position, and the pressure to earn extra money will probably interfere with my studies.

80. I am capable of writing a very clear and well-organized paper.

81. I feel uneasy and distrustful toward people whose way of thinking is quite dissimilar to my own.

82. I would like to receive tutoring in one or more of my courses.

83. When I try to study, I usually get bored and quit after a few minutes.

84. I would like to talk with a counselor about some emotional tensions that are bothering me.

RATING SCALE

NOT AT ALL TRUE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | COMPLETELY TRUE

85. I can think of many things I would rather do than go to college.

86. I have always enjoyed the challenge of trying to solve complex math problems.

87. When I was a child, the other members of my family often said hurtful things that caused unpleasant feelings.

88. I liked my teachers, and I feel they did a good job.

89. Because they irritate me, I tend to stay away from people whose ideas are quite different from my own.

90. In English classes, I've had difficulty analyzing an author's style and theme.

91. I would like to find out more about the clubs and social organizations at my college.

92. I would like to talk to someone about the opportunities available for summer employment.

93. I have a very good grasp of the scientific ideas I've studied in school.

94. I often wonder if a college education is really worth all the time, money, and effort that I'm being asked to spend on it.

95. Enter a "6" for this item.

96. I am very adventurous and outgoing at large social gatherings.

97. I would like to talk with a counselor about some feelings of discouragement or unhappy thoughts that keep bothering me.

98. I would like to talk with someone about the advantages and disadvantages of various occupations.

99. I would like to receive some training to improve my reading skills.

Note: The following is not a rating item.
Select option 1 if you agree with the statement; select option 2 if you do not.

100. I authorize my institution to share results from this inventory with my advisor and appropriate student service offices, which will help me select courses and make other educational decisions:
    1. YES
    2. NO (If you select this option, all of your reports will be kept on file with the Coordinator of this program; as soon as the Student Report is available, you will be able to obtain it from the Coordinator).

CHECK TO MAKE SURE YOU HAVE COMPLETED EVERY ITEM IN THIS SECTION (ITEMS 10–100). ANSWER ANY THAT HAVE BEEN LEFT BLANK.

THEN RETURN THE INVENTORY AND THE ANSWER SHEET TO THE EXAMINER.

THANK YOU!

Noel-Levitz

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Appendix II

All STEM Model

```
. logit Retainedtofall2012 i.Major

Iteration 0:   log likelihood = -645.98466
Iteration 1:   log likelihood = -637.08058
Iteration 2:   log likelihood = -637.02229
Iteration 3:   log likelihood = -637.02228

Logistic regression                             Number of obs     =      1,004
                                                LR chi2(3)        =      17.92
                                                Prob > chi2       =     0.0005
Log likelihood = -637.02228                     Pseudo R2         =     0.0139
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.2204237	.1848059	-1.19	0.233	-.5826366	.1417891
2	-.7624291	.1885581	-4.04	0.000	-1.131996	-.392862
3	-.1220602	.177868	-0.69	0.493	-.4706751	.2265546
_cons	-.4190708	.1065543	-3.93	0.000	-.6279134	-.2102282

```
. logit Retainedtofall2012 i.CodedRace

Iteration 0:   log likelihood = -645.98466
Iteration 1:   log likelihood = -643.93762
Iteration 2:   log likelihood = -643.92742
Iteration 3:   log likelihood = -643.92742

Logistic regression                             Number of obs     =      1,004
                                                LR chi2(3)        =       4.11
                                                Prob > chi2       =     0.2494
Log likelihood = -643.92742                     Pseudo R2         =     0.0032
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
CodedRace						
1	-.1485049	.1624079	-0.91	0.361	-.4668187	.1698088
2	-.5410228	.2913817	-1.86	0.063	-1.112121	.0300749
3	-.0291283	.2669138	-0.11	0.913	-.5522696	.4940131
_cons	-.5770075	.0827588	-6.97	0.000	-.7392118	-.4148033

```
. logit Retainedtofall2012 TransferPercentile

Iteration 0:   log likelihood = -645.98466
Iteration 1:   log likelihood = -643.33531
Iteration 2:   log likelihood = -643.33358
Iteration 3:   log likelihood = -643.33358

Logistic regression                             Number of obs     =      1,004
                                                LR chi2(1)        =       5.30
                                                Prob > chi2       =     0.0213
Log likelihood = -643.33358                     Pseudo R2         =     0.0041
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
TransferPercentile	-.006654	.0029021	-2.29	0.022	-.012342	-.0009661
_cons	-.2474539	.185088	-1.34	0.181	-.6102197	.1153118

```
. logit Retainedtofall2012 ReceptivitytoAcademicAssistan

Iteration 0:   log likelihood = -645.98466
Iteration 1:   log likelihood = -643.58648
Iteration 2:   log likelihood = -643.58527
Iteration 3:   log likelihood = -643.58527

Logistic regression                             Number of obs     =      1,004
                                                LR chi2(1)        =       4.80
                                                Prob > chi2       =     0.0285
Log likelihood = -643.58527                     Pseudo R2         =     0.0037
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
ReceptivitytoAcademicAssistan	-.0052427	.0023962	-2.19	0.029	-.0099392	-.0005463
_cons	-.3648155	.1439184	-2.53	0.011	-.6468904	-.0827406

```
. logit Retainedtofall2012 AcademicStresspercentile

Iteration 0:   log likelihood = -645.98466
Iteration 1:   log likelihood = -640.38322
Iteration 2:   log likelihood = -640.37521
Iteration 3:   log likelihood = -640.37521

Logistic regression                             Number of obs     =      1,004
                                                LR chi2(1)        =      11.22
                                                Prob > chi2       =     0.0008
Log likelihood = -640.37521                     Pseudo R2         =     0.0087
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
AcademicStresspercentile	-.0077261	.0023257	-3.32	0.001	-.0122845	-.0031678
_cons	-.3143313	.1184105	-2.65	0.008	-.5464115	-.082251

```
. logit Retainedtofall2012 AttitudeTowardEducatorsperce

Iteration 0:   log likelihood = -645.98466
Iteration 1:   log likelihood =  -644.2441
Iteration 2:   log likelihood = -644.24338
Iteration 3:   log likelihood = -644.24338

Logistic regression                             Number of obs     =      1,004
                                                LR chi2(1)        =       3.48
                                                Prob > chi2       =     0.0620
Log likelihood = -644.24338                     Pseudo R2         =     0.0027
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
AttitudeTowardEducatorsperce	.0042719	.0022963	1.86	0.063	-.0002287	.0087725
_cons	-.8815806	.1436726	-6.14	0.000	-1.163174	-.5999875

```
. logit Retainedtofall2012 FamilyEmotionalSupportpercen

Iteration 0:   log likelihood = -645.98466
Iteration 1:   log likelihood =  -643.2537
Iteration 2:   log likelihood = -643.25212
Iteration 3:   log likelihood = -643.25212

Logistic regression                             Number of obs     =      1,004
                                                LR chi2(1)        =       5.47
                                                Prob > chi2       =     0.0194
Log likelihood = -643.25212                     Pseudo R2         =     0.0042
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
FamilyEmotionalSupportpercen	.0049739	.0021315	2.33	0.020	.0007962	.0091516
_cons	-.9092127	.131946	-6.89	0.000	-1.167822	-.6506033

```
. logit Retainedtofall2012 SenseofFinancialSecurityper

Iteration 0:   log likelihood = -645.98466
Iteration 1:   log likelihood = -644.94508
Iteration 2:   log likelihood = -644.94484
Iteration 3:   log likelihood = -644.94484

Logistic regression                             Number of obs     =      1,004
                                                LR chi2(1)        =       2.08
                                                Prob > chi2       =     0.1493
Log likelihood = -644.94484                     Pseudo R2         =     0.0016

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
SenseofFinancialSecurityper |   .0032765    .002272     1.44   0.149    -.0011765    .0077294
                      _cons |  -.7958944   .1235371    -6.44   0.000    -1.038023   -.5537661
------------------------------------------------------------------------------

. logit Retainedtofall2012 Selfreportedcollegeprepperc

Iteration 0:   log likelihood = -645.98466
Iteration 1:   log likelihood = -628.78456
Iteration 2:   log likelihood = -628.68614
Iteration 3:   log likelihood = -628.68613

Logistic regression                             Number of obs     =      1,004
                                                LR chi2(1)        =      34.60
                                                Prob > chi2       =     0.0000
Log likelihood = -628.68613                     Pseudo R2         =     0.0268

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
Selfreportedcollegeprepperc |   .0149721   .0026139     5.73   0.000     .009849    .0200953
                      _cons |  -1.555753   .1767908    -8.80   0.000    -1.902257   -1.209249
------------------------------------------------------------------------------

. logit Retainedtofall2012 MathandScienceConfidenceper

Iteration 0:   log likelihood = -645.98466
Iteration 1:   log likelihood = -633.13315
Iteration 2:   log likelihood = -633.05339
Iteration 3:   log likelihood = -633.05338

Logistic regression                             Number of obs     =      1,004
                                                LR chi2(1)        =      25.86
                                                Prob > chi2       =     0.0000
Log likelihood = -633.05338                     Pseudo R2         =     0.0200

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
MathandScienceConfidenceper |   .0136853   .0027733     4.93   0.000     .0082497    .0191209
                      _cons |  -1.580818   .2049638    -7.71   0.000     -1.98254   -1.179097
------------------------------------------------------------------------------

. logit Retainedtofall2012 i.MothersEducation

Iteration 0:   log likelihood =   -642.585
Iteration 1:   log likelihood = -636.90001
Iteration 2:   log likelihood = -636.88722
Iteration 3:   log likelihood = -636.88722

Logistic regression                             Number of obs     =        999
                                                LR chi2(3)        =      11.40
                                                Prob > chi2       =     0.0098
Log likelihood = -636.88722                     Pseudo R2         =     0.0089

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
  MothersEducation |
                1  |  -.2791209   .1748615    -1.60   0.110    -.6218431    .0636013
                2  |   .3534016   .1714287     2.06   0.039     .0174075    .6893958
                3  |  -.0322609   .2185158    -0.15   0.883     -.460544    .3960222
                   |
             _cons |  -.6608863   .1097035    -6.02   0.000    -.8759013   -.4458713
------------------------------------------------------------------------------
```

```
. logit Retainedtofall2012 i.FathersEducation

Iteration 0:   log likelihood = -640.25389
Iteration 1:   log likelihood = -635.52691
Iteration 2:   log likelihood = -635.51253
Iteration 3:   log likelihood = -635.51253

Logistic regression                             Number of obs     =        995
                                                LR chi2(3)        =       9.48
                                                Prob > chi2       =     0.0235
Log likelihood = -635.51253                     Pseudo R2         =     0.0074
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
FathersEducation						
1	-.4099608	.1796413	-2.28	0.022	-.7620512	-.0578704
2	.1346061	.1710922	0.79	0.431	-.2007285	.4699407
3	.1878506	.2222497	0.85	0.398	-.2477507	.6234519
_cons	-.6090641	.0998017	-6.10	0.000	-.8046719	-.4134563

```
. logit Retainedtofall2012 i.CodedSeniorYearGrades

Iteration 0:   log likelihood =   -642.585
Iteration 1:   log likelihood = -611.87223
Iteration 2:   log likelihood = -611.30178
Iteration 3:   log likelihood = -611.30017
Iteration 4:   log likelihood = -611.30017

Logistic regression                             Number of obs     =        999
                                                LR chi2(2)        =      62.57
                                                Prob > chi2       =     0.0000
Log likelihood = -611.30017                     Pseudo R2         =     0.0487
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
CodedSeniorYearGrades						
1	-.6742118	.1479498	-4.56	0.000	-.9641881	-.3842355
2	-1.519171	.2133106	-7.12	0.000	-1.937252	-1.10109
_cons	-.1135238	.1016982	-1.12	0.264	-.3128487	.085801

```
. logit Retainedtofall2012 i.CodedWork

Iteration 0:   log likelihood =   -642.585
Iteration 1:   log likelihood = -637.98423
Iteration 2:   log likelihood = -637.97432
Iteration 3:   log likelihood = -637.97432

Logistic regression                             Number of obs     =        999
                                                LR chi2(3)        =       9.22
                                                Prob > chi2       =     0.0265
Log likelihood = -637.97432                     Pseudo R2         =     0.0072
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
CodedWork						
1	.1041403	.2413956	0.43	0.666	-.3689865	.577267
2	-.1586476	.1960427	-0.81	0.418	-.5428843	.2255892
3	-.4908169	.2173194	-2.26	0.024	-.9167551	-.0648786
_cons	-.4678082	.1689168	-2.77	0.006	-.798879	-.1367375

```
. logit Retainedtofall2012 IntellectualInterestspercenti

Iteration 0:   log likelihood =   -642.585
Iteration 1:   log likelihood = -640.74149
Iteration 2:   log likelihood = -640.74076
Iteration 3:   log likelihood = -640.74076

Logistic regression                             Number of obs     =        999
                                                LR chi2(1)        =       3.69
                                                Prob > chi2       =     0.0548
Log likelihood = -640.74076                     Pseudo R2         =     0.0029
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
IntellectualInterestspercenti	.0042427	.0022119	1.92	0.055	-.0000925	.0085779
_cons	-.8555133	.1280606	-6.68	0.000	-1.106507	-.6045191

```
. logit Retainedtofall2012 Sociabilitypercentile

Iteration 0:   log likelihood =   -642.585
Iteration 1:   log likelihood = -639.48552
Iteration 2:   log likelihood = -639.48335
Iteration 3:   log likelihood = -639.48335

Logistic regression                             Number of obs     =        999
                                                LR chi2(1)        =       6.20
                                                Prob > chi2       =     0.0128
Log likelihood = -639.48335                     Pseudo R2         =     0.0048
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Sociabilitypercentile	-.0054367	.0021906	-2.48	0.013	-.0097303	-.0011432
_cons	-.3828384	.1246873	-3.07	0.002	-.627221	-.1384557

```
. logit Retainedtofall2012 StudyHabitspercentile

Iteration 0:   log likelihood =   -642.585
Iteration 1:   log likelihood = -635.06789
Iteration 2:   log likelihood = -635.05516
Iteration 3:   log likelihood = -635.05516

Logistic regression                             Number of obs     =        999
                                                LR chi2(1)        =      15.06
                                                Prob > chi2       =     0.0001
Log likelihood = -635.05516                     Pseudo R2         =     0.0117
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
StudyHabitspercentile	.0085823	.0022283	3.85	0.000	.004215	.0129496
_cons	-1.08593	.1343107	-8.09	0.000	-1.349174	-.8226858

```
. logit Retainedtofall2012 MaxACTSATscore

Iteration 0:   log likelihood = -641.09517
Iteration 1:   log likelihood = -608.43468
Iteration 2:   log likelihood = -608.22167
Iteration 3:   log likelihood = -608.22162

Logistic regression                             Number of obs     =        997
                                                LR chi2(1)        =      65.75
                                                Prob > chi2       =     0.0000
Log likelihood = -608.22162                     Pseudo R2         =     0.0513
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
MaxACTSATscore	.1442912	.0185213	7.79	0.000	.1079901	.1805923
_cons	-3.862026	.4226328	-9.14	0.000	-4.690371	-3.033681

```
. logit Retainedtofall2012 Distancefromcampus

Iteration 0:   log likelihood = -641.32086
Iteration 1:   log likelihood = -636.46116
Iteration 2:   log likelihood = -636.45105
Iteration 3:   log likelihood = -636.45105

Logistic regression                             Number of obs     =        996
                                                LR chi2(1)        =       9.74
                                                Prob > chi2       =     0.0018
Log likelihood = -636.45105                     Pseudo R2         =     0.0076

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
Distancefromcampus |  -.0008888   .0003017    -2.95   0.003    -.0014801   -.0002975
             _cons |  -.4876623   .0834193    -5.85   0.000    -.6511613   -.3241634
------------------------------------------------------------------------------

. logit Retainedtofall2012 CodedCollegeAthlete

Iteration 0:   log likelihood = -645.98466
Iteration 1:   log likelihood = -644.96276
Iteration 2:   log likelihood = -644.95985
Iteration 3:   log likelihood = -644.95985

Logistic regression                             Number of obs     =      1,004
                                                LR chi2(1)        =       2.05
                                                Prob > chi2       =     0.1522
Log likelihood = -644.95985                     Pseudo R2         =     0.0016

------------------------------------------------------------------------------
 Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------------+----------------------------------------------------------------
CodedCollegeAthlete |  -.3563404   .2542627    -1.40   0.161    -.8546862    .1420053
              _cons |  -.6190392   .0691219    -8.96   0.000    -.7545156   -.4835629
------------------------------------------------------------------------------

. logit Retainedtofall2012 Classpercent

Iteration 0:   log likelihood = -614.87394
Iteration 1:   log likelihood = -583.74867
Iteration 2:   log likelihood = -583.37672
Iteration 3:   log likelihood = -583.37666
Iteration 4:   log likelihood = -583.37666

Logistic regression                             Number of obs     =        961
                                                LR chi2(1)        =      62.99
                                                Prob > chi2       =     0.0000
Log likelihood = -583.37666                     Pseudo R2         =     0.0512

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
       Classpercent |  -.0270853   .0036575    -7.41   0.000    -.0342538   -.0199168
             _cons |   .0903839   .1177813     0.77   0.443    -.1404631    .3212309
------------------------------------------------------------------------------


. logit Retainedtofall2012 CodedPELL

Iteration 0:   log likelihood = -645.98466
Iteration 1:   log likelihood = -644.18011
Iteration 2:   log likelihood =  -644.1793
Iteration 3:   log likelihood =  -644.1793

Logistic regression                             Number of obs     =      1,004
                                                LR chi2(1)        =       3.61
                                                Prob > chi2       =     0.0574
Log likelihood =  -644.1793                     Pseudo R2         =     0.0028

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
         CodedPELL |  -.2561725   .1352463    -1.89   0.058    -.5212505    .0089054
             _cons |  -.5389966   .0868313    -6.21   0.000    -.7091829   -.3688102
------------------------------------------------------------------------------
```

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan AcademicStr
> catorsperce FamilyEmotionalSupportpercen SenseofFinancialSecurityper Selfreportedcollegeprepperc MathandS
> ucation i.FathersEducation i.CodedSeniorYearGrades i.CodedWork IntellectualInterestspercenti Sociabilityp
>  MaxACTSATscore Distancefromcampus Classpercent CodedCollegeAthlete CodedPELL

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -518.62682
Iteration 2:   log likelihood = -515.88146
Iteration 3:   log likelihood = -515.87246
Iteration 4:   log likelihood = -515.87246

Logistic regression                             Number of obs     =        943
                                                LR chi2(33)       =     179.07
                                                Prob > chi2       =     0.0000
Log likelihood = -515.87246                     Pseudo R2         =     0.1479
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.2160562	.2273095	-0.95	0.342	-.6615747	.2294623
2	-.9886318	.2310589	-4.28	0.000	-1.441499	-.5357647
3	.0675939	.2170406	0.31	0.755	-.3577979	.4929857
CodedRace						
1	.1498117	.2274439	0.66	0.510	-.2959701	.5955935
2	.5646162	.3577879	1.58	0.115	-.1366352	1.265868
3	.4083939	.3316973	1.23	0.218	-.2417209	1.058509
TransferPercentile	-.0044627	.0034747	-1.28	0.199	-.0112729	.0023476
ReceptivitytoAcademicAssistan	.0035339	.0031134	1.14	0.256	-.0025682	.009636
AcademicStresspercentile	.0106653	.0071478	1.49	0.136	-.0033441	.0246748
AttitudeTowardEducatorsperce	.001643	.0036697	0.45	0.654	-.0055494	.0088354
FamilyEmotionalSupportpercen	.0054621	.002836	1.93	0.054	-.0000964	.0110206
SenseofFinancialSecurityper	.0000677	.0030549	0.02	0.982	-.0059199	.0060552
Selfreportedcollegeprepperc	-.0021754	.0040854	-0.53	0.594	-.0101826	.0058319
MathandScienceConfidenceper	.0074773	.0040843	1.83	0.067	-.0005277	.0154823
MothersEducation						
1	-.2934802	.2171631	-1.35	0.177	-.719112	.1321516
2	.3134114	.2301514	1.36	0.173	-.137677	.7644998
3	.1037769	.2886309	0.36	0.719	-.4619294	.6694831
FathersEducation						
1	-.5486648	.2204387	-2.49	0.013	-.9807167	-.1166129
2	-.1981486	.2298387	-0.86	0.389	-.6486241	.252327
3	-.4571084	.3015495	-1.52	0.130	-1.048135	.1339179
CodedSeniorYearGrades						
1	-.1849992	.1898079	-0.97	0.330	-.5570159	.1870175
2	-.8122032	.2957903	-2.75	0.006	-1.391942	-.2324649
CodedWork						
1	.0515681	.2957312	0.17	0.862	-.5280545	.6311906
2	-.2156446	.2554781	-0.84	0.399	-.7163725	.2850834
3	-.6147659	.2818537	-2.18	0.029	-1.167189	-.0623428
IntellectualInterestspercenti	.0002626	.0039787	0.07	0.947	-.0075355	.0080607
Sociabilitypercentile	-.0033554	.0027031	-1.24	0.214	-.0086534	.0019426
StudyHabitspercentile	.011186	.004237	2.64	0.008	.0028817	.0194903
MaxACTSATscore	.1292896	.0301711	4.29	0.000	.0701552	.1884239
Distancefromcampus	-.0008495	.0003718	-2.28	0.022	-.0015783	-.0001208
Classpercent	-.0119403	.0051917	-2.30	0.021	-.0221158	-.0017647
CodedCollegeAthlete	-.376252	.3243584	-1.16	0.246	-1.011983	.2594787
CodedPELL	-.0129048	.181374	-0.07	0.943	-.3683913	.3425816
_cons	-3.78609	1.283627	-2.95	0.003	-6.301953	-1.270227

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan AcademicStresspercentile AttitudeTowardEdu
> catorsperce FamilyEmotionalSupportpercen Selfreportedcollegeprepperc MathandScienceConfidenceper i.MothersEducation i.FathersEducation i
> .CodedSeniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile MaxACTSATscore Distancefromcampus CodedCollegeAthlete Cla
> sspercent CodedPELL

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -518.58518
Iteration 2:   log likelihood = -515.88355
Iteration 3:   log likelihood = -515.87486
Iteration 4:   log likelihood = -515.87486

Logistic regression                             Number of obs     =        943
                                                LR chi2(31)       =     179.06
                                                Prob > chi2       =     0.0000
Log likelihood = -515.87486                     Pseudo R2         =     0.1479
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
2	-.2157257	.2267804	-0.95	0.341	-.6602071	.2287556
3	-.9894245	.2305022	-4.29	0.000	-1.441201	-.5376485
4	.0681982	.2157682	0.32	0.752	-.3546998	.4910961
CodedRace						
2	.150442	.2272482	0.66	0.508	-.2949564	.5958403
3	.5650571	.357399	1.58	0.114	-.1354321	1.265546
4	.408811	.3315347	1.23	0.218	-.2409852	1.058607
TransferPercentile	-.0044542	.0034658	-1.29	0.199	-.0112471	.0023386
ReceptivitytoAcademicAssistan	.0035464	.0030841	1.15	0.250	-.0024984	.0095912
AcademicStresspercentile	.0103448	.0052948	1.95	0.051	-.0000329	.0207225
AttitudeTowardEducatorsperce	.0015595	.0034465	0.45	0.651	-.0051956	.0083147
FamilyEmotionalSupportpercen	.0054558	.002789	1.96	0.050	-.0000105	.0109222
Selfreportedcollegeprepperc	-.0022052	.0040615	-0.54	0.587	-.0101655	.0057552
MathandScienceConfidenceper	.0074137	.0039788	1.86	0.062	-.0003845	.015212
MothersEducation						
4	-.2935463	.2171481	-1.35	0.176	-.7191487	.1320561
5	.3142303	.2291408	1.37	0.170	-.1348774	.7633381
6	.1046843	.2874029	0.36	0.716	-.458615	.6679835
FathersEducation						
4	-.5474407	.2196349	-2.49	0.013	-.9779172	-.1169642
5	-.1965712	.228165	-0.86	0.389	-.6437663	.2506239
6	-.4555451	.3006293	-1.52	0.130	-1.044768	.1336775
CodedSeniorYearGrades						
2	-.1847564	.1897262	-0.97	0.330	-.556613	.1871002
3	-.8118312	.2957073	-2.75	0.006	-1.391407	-.2322555
CodedWork						
2	.0517353	.2937318	0.18	0.860	-.5239685	.6274391
3	-.2158259	.2516484	-0.86	0.391	-.7090477	.277396
4	-.6146047	.275992	-2.23	0.026	-1.155539	-.0736704
Sociabilitypercentile	-.0033865	.002641	-1.28	0.200	-.0085628	.0017897
StudyHabitspercentile	.0111112	.00408	2.72	0.006	.0031145	.0191079
MaxACTSATscore	.1296892	.0295923	4.38	0.000	.0716893	.1876891
Distancefromcampus	-.0008508	.0003714	-2.29	0.022	-.0015787	-.0001229
CodedCollegeAthlete	-.3767372	.3242107	-1.16	0.245	-1.012179	.2587042
Classpercent	-.011932	.0051896	-2.30	0.021	-.0221034	-.0017605
CodedPELL	-.0136061	.1750506	-0.08	0.938	-.356699	.3294868
_cons	-3.751418	1.182042	-3.17	0.002	-6.068178	-1.434658

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan AcademicStresspercentile AttitudeTowardEdu
> catorsperce FamilyEmotionalSupportpercen Selfreportedcollegeprepperc MathandScienceConfidenceper i.MothersEducation i.FathersEducation i
> .CodedSeniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile MaxACTSATscore Distancefromcampus CodedCollegeAthlete Cla
> sspercent

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -518.58656
Iteration 2:   log likelihood = -515.88657
Iteration 3:   log likelihood = -515.87788
Iteration 4:   log likelihood = -515.87788

Logistic regression                             Number of obs     =        943
                                                LR chi2(30)       =     179.06
                                                Prob > chi2       =     0.0000
Log likelihood = -515.87788                     Pseudo R2         =     0.1479
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
2	-.215798	.226785	-0.95	0.341	-.6602884	.2286924
3	-.9897085	.2304552	-4.29	0.000	-1.441392	-.5380246
4	.0676935	.2156855	0.31	0.754	-.3550423	.4904293
CodedRace						
2	.1470121	.2229484	0.66	0.510	-.2899588	.5839829
3	.560711	.3529825	1.59	0.112	-.1311219	1.252544
4	.4066598	.3303513	1.23	0.218	-.2408167	1.054136
TransferPercentile	-.0044447	.0034639	-1.28	0.199	-.0112338	.0023443
ReceptivitytoAcademicAssistan	.0035499	.0030838	1.15	0.250	-.0024942	.0095939
AcademicStresspercentile	.0103774	.0052779	1.97	0.049	.0000329	.020722
AttitudeTowardEducatorsperce	.0015544	.0034459	0.45	0.652	-.0051993	.0083082
FamilyEmotionalSupportpercen	.0054837	.0027657	1.98	0.047	.0000631	.0109044
Selfreportedcollegeprepperc	-.002181	.0040493	-0.54	0.590	-.0101175	.0057556
MathandScienceConfidenceper	.0074102	.0039785	1.86	0.063	-.0003876	.0152079
MothersEducation						
4	-.2924885	.2167291	-1.35	0.177	-.7172696	.1322927
5	.3161702	.2277997	1.39	0.165	-.1303091	.7626494
6	.1066789	.2862602	0.37	0.709	-.4543808	.6677385
FathersEducation						
4	-.5464233	.2192425	-2.49	0.013	-.9761308	-.1167158
5	-.1944538	.2265353	-0.86	0.391	-.6384548	.2495471
6	-.4529041	.2987015	-1.52	0.129	-1.038348	.13254
CodedSeniorYearGrades						
2	-.1848294	.1897338	-0.97	0.330	-.5567009	.187042
3	-.8115455	.2956598	-2.74	0.006	-1.391028	-.2320628
CodedWork						
2	.0520053	.2937431	0.18	0.859	-.5237205	.6277311
3	-.2159517	.2516618	-0.86	0.391	-.7091998	.2772963
4	-.6141766	.2759511	-2.23	0.026	-1.155031	-.0733224
Sociabilitypercentile	-.0033774	.0026382	-1.28	0.200	-.0085482	.0017935
StudyHabitspercentile	.011116	.0040795	2.72	0.006	.0031203	.0191116
MaxACTSATscore	.1298187	.0295462	4.39	0.000	.0719092	.1877283
Distancefromcampus	-.0008498	.0003712	-2.29	0.022	-.0015774	-.0001222
CodedCollegeAthlete	-.3778729	.3238687	-1.17	0.243	-1.012644	.2568981
Classpercent	-.0119373	.0051889	-2.30	0.021	-.0221073	-.0017673
_cons	-3.766015	1.167051	-3.23	0.001	-6.053393	-1.478636

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan AcademicStresspercentile FamilyEmotionalSu
> pportpercen Selfreportedcollegeprepperc MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedSeniorYearGrades i.Code
> dWork Sociabilitypercentile StudyHabitspercentile MaxACTSATscore Distancefromcampus CodedCollegeAthlete Classpercent

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -518.68893
Iteration 2:   log likelihood = -515.98797
Iteration 3:   log likelihood = -515.97971
Iteration 4:   log likelihood = -515.97971

Logistic regression                             Number of obs     =        943
                                                LR chi2(29)       =     178.86
                                                Prob > chi2       =     0.0000
Log likelihood = -515.97971                     Pseudo R2         =     0.1477
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
2	-.2212988	.2263713	-0.98	0.328	-.6649784	.2223809
3	-.9972229	.2299642	-4.34	0.000	-1.447944	-.5465014
4	.0634512	.2154851	0.29	0.768	-.3588919	.4857942
CodedRace						
2	.1470251	.2228946	0.66	0.509	-.2898402	.5838905
3	.5602452	.3528043	1.59	0.112	-.1312386	1.251729
4	.4038032	.3299758	1.22	0.221	-.2429375	1.050544
TransferPercentile	-.0044775	.0034615	-1.29	0.196	-.0112619	.0023069
ReceptivitytoAcademicAssistan	.0035437	.0030841	1.15	0.251	-.0025009	.0095883
AcademicStresspercentile	.0091745	.0045484	2.02	0.044	.0002597	.0180892
FamilyEmotionalSupportpercen	.0057525	.0027005	2.13	0.033	.0004596	.0110454
Selfreportedcollegeprepperc	-.0024681	.0039985	-0.62	0.537	-.010305	.0053688
MathandScienceConfidenceper	.0073479	.0039763	1.85	0.065	-.0004456	.0151414
MothersEducation						
4	-.2946826	.2166473	-1.36	0.174	-.7193035	.1299382
5	.313643	.2276833	1.38	0.168	-.1326081	.7598941
6	.1050864	.2861862	0.37	0.713	-.4558282	.666001
FathersEducation						
4	-.5476426	.2191937	-2.50	0.012	-.9772543	-.1180309
5	-.1939762	.2264659	-0.86	0.392	-.6378411	.2498888
6	-.45134	.2987338	-1.51	0.131	-1.036847	.1341675
CodedSeniorYearGrades						
2	-.1884886	.1895116	-0.99	0.320	-.5599245	.1829474
3	-.8174832	.2952405	-2.77	0.006	-1.396144	-.2388225
CodedWork						
2	.0515155	.2937997	0.18	0.861	-.5243214	.6273525
3	-.2128571	.2515908	-0.85	0.398	-.7059661	.2802518
4	-.6123686	.2759011	-2.22	0.026	-1.153125	-.0716123
Sociabilitypercentile	-.0033623	.0026374	-1.27	0.202	-.0085315	.0018069
StudyHabitspercentile	.010744	.0039919	2.69	0.007	.00292	.0185679
MaxACTSATscore	.1287905	.0294439	4.37	0.000	.0710815	.1864995
Distancefromcampus	-.0008487	.0003708	-2.29	0.022	-.0015754	-.000122
CodedCollegeAthlete	-.3844166	.3233732	-1.19	0.235	-1.018216	.2493832
Classpercent	-.0121914	.0051602	-2.36	0.018	-.0223052	-.0020776
_cons	-3.565425	1.077683	-3.31	0.001	-5.677644	-1.453206

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan AcademicStresspercentile FamilyEmotionalSu
> pportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile
> StudyHabitspercentile MaxACTSATscore Distancefromcampus CodedCollegeAthlete Classpercent

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -518.86418
Iteration 2:   log likelihood = -516.17866
Iteration 3:   log likelihood = -516.17034
Iteration 4:   log likelihood = -516.17034

Logistic regression                             Number of obs     =        943
                                                LR chi2(28)       =     178.47
                                                Prob > chi2       =     0.0000
Log likelihood = -516.17034                     Pseudo R2         =     0.1474
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
2	-.2177004	.2262453	-0.96	0.336	-.661133	.2257323
3	-.9979475	.2299176	-4.34	0.000	-1.448578	-.5473171
4	.0683336	.2152935	0.32	0.751	-.3536338	.4903011
CodedRace						
2	.1448591	.222728	0.65	0.515	-.2916797	.5813979
3	.5666063	.3526669	1.61	0.108	-.1246081	1.257821
4	.4089152	.3291803	1.24	0.214	-.2362664	1.054097
TransferPercentile	-.0046253	.0034527	-1.34	0.180	-.0113926	.002142
ReceptivitytoAcademicAssistan	.0036424	.0030796	1.18	0.237	-.0023934	.0096782
AcademicStresspercentile	.0094553	.0045236	2.09	0.037	.0005893	.0183213
FamilyEmotionalSupportpercen	.0057171	.0026982	2.12	0.034	.0004286	.0110056
MathandScienceConfidenceper	.0069517	.0039204	1.77	0.076	-.0007322	.0146355
MothersEducation						
4	-.2965837	.2166503	-1.37	0.171	-.7212105	.1280432
5	.3151944	.2275762	1.39	0.166	-.1308469	.7612356
6	.0966638	.2860787	0.34	0.735	-.4640401	.6573677
FathersEducation						
4	-.5469896	.2192615	-2.49	0.013	-.9767343	-.1172448
5	-.1942567	.2262545	-0.86	0.391	-.6377073	.249194
6	-.4423113	.298519	-1.48	0.138	-1.027398	.1427751
CodedSeniorYearGrades						
2	-.1802716	.1889537	-0.95	0.340	-.5506141	.1900709
3	-.8081035	.2950129	-2.74	0.006	-1.386318	-.2298888
CodedWork						
2	.0552968	.2939769	0.19	0.851	-.5208874	.6314811
3	-.2107631	.2515278	-0.84	0.402	-.7037486	.2822224
4	-.6120432	.2758719	-2.22	0.027	-1.152742	-.0713442
Sociabilitypercentile	-.0034688	.0026314	-1.32	0.187	-.0086263	.0016887
StudyHabitspercentile	.0106141	.0039836	2.66	0.008	.0028064	.0184217
MaxACTSATscore	.1231902	.0279395	4.41	0.000	.0684299	.1779505
Distancefromcampus	-.0008228	.0003691	-2.23	0.026	-.0015462	-.0000994
CodedCollegeAthlete	-.3944713	.3230453	-1.22	0.222	-1.027628	.2386858
Classpercent	-.0114583	.0050156	-2.28	0.022	-.0212887	-.0016279
_cons	-3.591127	1.076254	-3.34	0.001	-5.700547	-1.481707

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan AcademicStresspercentile FamilyEmotionalSu
> pportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile
> StudyHabitspercentile MaxACTSATscore Distancefromcampus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -516.95784
Iteration 2:   log likelihood = -514.09885
Iteration 3:   log likelihood = -514.09099
Iteration 4:   log likelihood = -514.09099

Logistic regression                             Number of obs     =        943
                                                LR chi2(29)       =     182.63
                                                Prob > chi2       =     0.0000
Log likelihood = -514.09099                     Pseudo R2         =     0.1508
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
2	-.2324556	.2269016	-1.02	0.306	-.6771745	.2122634
3	-1.010162	.2306228	-4.38	0.000	-1.462174	-.5581497
4	.0422725	.216326	0.20	0.845	-.3817188	.4662638
CodedRace						
2	.1043503	.2240592	0.47	0.641	-.3347976	.5434982
3	.5217979	.3559098	1.47	0.143	-.1757726	1.219368
4	.3384099	.3302814	1.02	0.306	-.3089298	.9857495
TransferPercentile	-.0053241	.0034874	-1.53	0.127	-.0121593	.001511
ReceptivitytoAcademicAssistan	.0016319	.0032527	0.50	0.616	-.0047432	.0080071
AcademicStresspercentile	.0086813	.0045493	1.91	0.056	-.0002351	.0175978
FamilyEmotionalSupportpercen	.0073675	.0028304	2.60	0.009	.00182	.012915
MathandScienceConfidenceper	.0060157	.0039574	1.52	0.128	-.0017406	.0137719
MothersEducation						
4	-.2886883	.2171219	-1.33	0.184	-.7142394	.1368629
5	.3219664	.2281231	1.41	0.158	-.1251467	.7690796
6	.0783053	.2874357	0.27	0.785	-.4850584	.641669
FathersEducation						
4	-.5468933	.2194557	-2.49	0.013	-.9770186	-.1167679
5	-.1947353	.2266664	-0.86	0.390	-.6389933	.2495226
6	-.4912741	.3011699	-1.63	0.103	-1.081556	.0990081
CodedSeniorYearGrades						
2	-.1830344	.1891901	-0.97	0.333	-.5538401	.1877714
3	-.8116688	.2949798	-2.75	0.006	-1.389819	-.2335191
CodedWork						
2	.0261331	.2954499	0.09	0.930	-.5529381	.6052043
3	-.2257518	.2529272	-0.89	0.372	-.72148	.2699764
4	-.6265908	.277213	-2.26	0.024	-1.169918	-.0832634
Sociabilitypercentile	-.0028378	.0026595	-1.07	0.286	-.0080504	.0023748
StudyHabitspercentile	.0108043	.0039987	2.70	0.007	.0029669	.0186417
MaxACTSATscore	.1229878	.0279689	4.40	0.000	.0681698	.1778058
Distancefromcampus	-.0008365	.0003715	-2.25	0.024	-.0015646	-.0001083
CodedCollegeAthlete	-.4020661	.3251946	-1.24	0.216	-1.039436	.2353036
Classpercent	-.0114017	.0050195	-2.27	0.023	-.0212397	-.0015637
ReceptivitytoPersonalCounseli	.0076161	.0037525	2.03	0.042	.0002614	.0149708
_cons	-3.796759	1.083183	-3.51	0.000	-5.919758	-1.67376

```
.
```

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan AcademicStresspercentile FamilyEmotionalSu
> pportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile
> StudyHabitspercentile MaxACTSATscore Distancefromcampus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencep
> ercentile

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -514.98905
Iteration 2:   log likelihood = -511.99017
Iteration 3:   log likelihood = -511.98266
Iteration 4:   log likelihood = -511.98266

Logistic regression                             Number of obs     =        943
                                                LR chi2(30)       =     186.85
                                                Prob > chi2       =     0.0000
Log likelihood = -511.98266                     Pseudo R2         =     0.1543
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
2	-.2213533	.2273815	-0.97	0.330	-.6670128	.2243061
3	-.9895258	.2313224	-4.28	0.000	-1.442909	-.5361422
4	.0193039	.2168661	0.09	0.929	-.4057459	.4443538
CodedRace						
2	.1111697	.2248388	0.49	0.621	-.3295063	.5518457
3	.6000332	.3588856	1.67	0.095	-.1033697	1.303436
4	.3801406	.3314961	1.15	0.251	-.2695799	1.029861
TransferPercentile	-.005225	.0034928	-1.50	0.135	-.0120706	.0016207
ReceptivitytoAcademicAssistan	.0003873	.0033107	0.12	0.907	-.0061016	.0068763
AcademicStresspercentile	.001672	.0057026	0.29	0.769	-.0095049	.0128489
FamilyEmotionalSupportpercen	.0070484	.0028375	2.48	0.013	.001487	.0126099
MathandScienceConfidenceper	.0033197	.0041774	0.79	0.427	-.0048679	.0115072
MothersEducation						
4	-.2909269	.2177064	-1.34	0.181	-.7176236	.1357698
5	.3195274	.2286612	1.40	0.162	-.1286404	.7676951
6	.0827618	.2877694	0.29	0.774	-.4812558	.6467794
FathersEducation						
4	-.56661	.2203301	-2.57	0.010	-.9984491	-.134771
5	-.2095232	.2277319	-0.92	0.358	-.6558696	.2368232
6	-.5081508	.3017073	-1.68	0.092	-1.099486	.0831846
CodedSeniorYearGrades						
2	-.1782536	.1899435	-0.94	0.348	-.550536	.1940288
3	-.7906442	.295961	-2.67	0.008	-1.370717	-.2105714
CodedWork						
2	.0310238	.2964128	0.10	0.917	-.5499346	.6119822
3	-.2240305	.2539685	-0.88	0.378	-.7217996	.2737387
4	-.6149052	.2782086	-2.21	0.027	-1.160184	-.0696263
Sociabilitypercentile	-.0023118	.0026765	-0.86	0.388	-.0075576	.0029339
StudyHabitspercentile	.0093977	.0040783	2.30	0.021	.0014044	.017391
MaxACTSATscore	.1315758	.0284488	4.63	0.000	.0758172	.1873344
Distancefromcampus	-.0008808	.0003721	-2.37	0.018	-.0016101	-.0001514
CodedCollegeAthlete	-.3826826	.3271955	-1.17	0.242	-1.023974	.2586088
Classpercent	-.0110681	.0050447	-2.19	0.028	-.0209554	-.0011807
ReceptivitytoPersonalCounseli	.0080251	.0037686	2.13	0.033	.0006388	.0154115
VerbalConfidencepercentile	-.0077749	.0038019	-2.05	0.041	-.0152265	-.0003233
_cons	-3.055423	1.143203	-2.67	0.008	-5.296059	-.8147862

```
. fp <FamilyEmotionalSupportpercen>: logit Retainedtofall2012 i.Major i.CodedRace TransferPercenti
> le <FamilyEmotionalSupportpercen> MathandScienceConfidenceper i.MothersEducation i.FathersEducat
> ion i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile MaxACTSATscore Distancefromcampus
> CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli
(fitting 44 models)
(....10%....20%....30%....40%....50%....60%....70%....80%....90%....100%)

Fractional polynomial comparisons:
```

FamilyEmot~n	df	Deviance	Dev. dif.	P(*)	Powers
omitted	0	1043.320	11.764	0.019	
linear	1	1035.804	4.248	0.236	1
m = 1	2	1034.718	3.162	0.206	0
m = 2	4	1031.555	0.000	--	-2 1

(*) P = sig. level of model with m = 2 based on chi^2 of dev. dif.

```
Logistic regression                             Number of obs     =        943
                                                LR chi2(27)       =     179.26
                                                Prob > chi2       =     0.0000
Log likelihood = -515.77772                     Pseudo R2         =     0.1480
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.1724726	.2208895	-0.78	0.435	-.6054081	.2604628
2	-.9861961	.2248492	-4.39	0.000	-1.426892	-.5454998
3	.0254178	.2146729	0.12	0.906	-.3953334	.4461689
CodedRace						
1	.1257351	.2205038	0.57	0.569	-.3064444	.5579146
2	.5217891	.3539287	1.47	0.140	-.1718984	1.215477
3	.326381	.3309426	0.99	0.324	-.3222545	.9750165
TransferPercentile	-.0058628	.0034729	-1.69	0.091	-.0126696	.000944
FamilyEmotionalSupportpercen_1	-2.303662	1.477138	-1.56	0.119	-5.1988	.5914748
FamilyEmotionalSupportpercen_2	.0061679	.002834	2.18	0.030	.0006134	.0117224
MathandScienceConfidenceper	.0037372	.0034692	1.08	0.281	-.0030623	.0105366
MothersEducation						
1	-.3137487	.2160493	-1.45	0.146	-.7371975	.1097001
2	.3142931	.2277827	1.38	0.168	-.1321528	.760739
3	.0152265	.2845329	0.05	0.957	-.5424477	.5729008
FathersEducation						
1	-.5074906	.2180236	-2.33	0.020	-.934809	-.0801722
2	-.1478833	.2241108	-0.66	0.509	-.5871324	.2913658
3	-.4410853	.2968484	-1.49	0.137	-1.022898	.1407269
CodedSeniorYearGrades						
1	-.283342	.1852642	-1.53	0.126	-.6464532	.0797692
2	-.9319582	.2915973	-3.20	0.001	-1.503478	-.360438
CodedWork						
1	.0181475	.2923297	0.06	0.950	-.5548081	.5911032
2	-.2621076	.2500024	-1.05	0.294	-.7521032	.2278881
3	-.6469042	.2747046	-2.35	0.019	-1.185315	-.108493
Sociabilitypercentile	-.0025298	.0026583	-0.95	0.341	-.0077399	.0026803
MaxACTSATscore	.1032733	.0264337	3.91	0.000	.0514642	.1550824
Distancefromcampus	-.0007681	.0003699	-2.08	0.038	-.001493	-.0000431
CodedCollegeAthlete	-.4331843	.3236298	-1.34	0.181	-1.067487	.2011184
Classpercent	-.0123109	.0049902	-2.47	0.014	-.0220915	-.0025304
ReceptivitytoPersonalCounseli	.0080148	.0035224	2.28	0.023	.0011111	.0149185
_cons	-2.023789	.8110038	-2.50	0.013	-3.613327	-.434251

.

```
. fp <StudyHabitspercentile>: logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile Fami
> lyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.Cod
> edSeniorYearGrades i.CodedWork Sociabilitypercentile <StudyHabitspercentile> MaxACTSATscore Dist
> ancefromcampus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli
(fitting 44 models)
(....10%....20%....30%....40%....50%....60%....70%....80%....90%....100%)

Fractional polynomial comparisons:
```

StudyHabit~e	df	Deviance	Dev. dif.	P(*)	Powers
omitted	0	1035.804	10.934	0.027	
linear	1	1032.095	7.225	0.065	1
m = 1	2	1026.167	1.297	0.523	-2
m = 2	4	1024.870	0.000	--	-2 .5

(*) P = sig. level of model with m = 2 based on chi^2 of dev. dif.

```
Logistic regression                             Number of obs     =        943
                                                LR chi2(28)       =     185.94
                                                Prob > chi2       =     0.0000
Log likelihood = -512.43506                     Pseudo R2         =     0.1536
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.2281417	.2263397	-1.01	0.313	-.6717593	.2154759
2	-1.032902	.228745	-4.52	0.000	-1.481234	-.5845697
3	.0149611	.2156987	0.07	0.945	-.4078007	.4377228
CodedRace						
1	.1119814	.2210881	0.51	0.613	-.3213433	.5453062
2	.4773106	.3555499	1.34	0.179	-.2195544	1.174176
3	.2760762	.3289633	0.84	0.401	-.3686799	.9208324
TransferPercentile	-.0050816	.0034934	-1.45	0.146	-.0119286	.0017653
FamilyEmotionalSupportpercen	.0067658	.0027902	2.42	0.015	.0012972	.0122344
MathandScienceConfidenceper	.0025397	.0035497	0.72	0.474	-.0044176	.0094971
MothersEducation						
1	-.2796974	.2171687	-1.29	0.198	-.7053402	.1459455
2	.3182592	.2277651	1.40	0.162	-.1281522	.7646706
3	.0908575	.2884023	0.32	0.753	-.4744007	.6561157
FathersEducation						
1	-.5261677	.2192432	-2.40	0.016	-.9558765	-.096459
2	-.1604194	.2252969	-0.71	0.476	-.6019932	.2811544
3	-.4871615	.2999614	-1.62	0.104	-1.075075	.1007521
CodedSeniorYearGrades						
1	-.2272354	.1870699	-1.21	0.224	-.5938858	.1394149
2	-.8232111	.2957662	-2.78	0.005	-1.402902	-.24352
CodedWork						
1	-.041612	.2936549	-0.14	0.887	-.617165	.5339411
2	-.2805549	.2522918	-1.11	0.266	-.7750377	.213928
3	-.6941953	.2776112	-2.50	0.012	-1.238303	-.1500873
Sociabilitypercentile	-.0030807	.0026513	-1.16	0.245	-.008277	.0021157
StudyHabitspercentile_1	-3.011908	1.767934	-1.70	0.088	-6.476995	.4531794
StudyHabitspercentile_2	.0453664	.0398026	1.14	0.254	-.0326454	.1233781
MaxACTSATscore	.1088366	.0266241	4.09	0.000	.0566544	.1610188
Distancefromcampus	-.000828	.0003693	-2.24	0.025	-.0015518	-.0001043
CodedCollegeAthlete	-.4332962	.3263998	-1.33	0.184	-1.073028	.2064356
Classpercent	-.0111189	.0050106	-2.22	0.026	-.0209394	-.0012983
ReceptivitytoPersonalCounseli	.0086907	.0035631	2.44	0.015	.0017072	.0156742
_cons	-2.455433	.882636	-2.78	0.005	-4.185368	-.7254987

```
. fp<StudyHabitspercentile>, fp(-2 .5) replace: logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile FamilyEmotionalSuppo
> rtpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedSeniorYearGrades i.CodedWork Sociabilitypercenti
> le <StudyHabitspercentile> MaxACTSATscore Distancefromcampus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli
-> logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper
   i.MothersEducation i.FathersEducation i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1
   StudyHabitspercentile_2 MaxACTSATscore Distancefromcampus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli

Logistic regression                             Number of obs     =        943
                                                LR chi2(28)       =     185.94
                                                Prob > chi2       =     0.0000
Log likelihood = -512.43506                     Pseudo R2         =     0.1536

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
             Major |
                1  |  -.2281417   .2263397    -1.01   0.313    -.6717593    .2154759
                2  |  -1.032902    .228745    -4.52   0.000    -1.481234   -.5845697
                3  |   .0149611   .2156987     0.07   0.945    -.4078007    .4377228
                   |
         CodedRace |
                1  |   .1119814   .2210881     0.51   0.613    -.3213433    .5453062
                2  |   .4773106   .3555499     1.34   0.179    -.2195544    1.174176
                3  |   .2760762   .3289633     0.84   0.401    -.3686799    .9208324
                   |
  TransferPercentile |  -.0050816   .0034934    -1.45   0.146    -.0119286    .0017653
FamilyEmotionalSupportpercen |   .0067658   .0027902     2.42   0.015     .0012972    .0122344
MathandScienceConfidenceper |   .0025397   .0035497     0.72   0.474    -.0044176    .0094971
                   |
    MothersEducation |
                1  |  -.2796974   .2171687    -1.29   0.198    -.7053402    .1459455
                2  |   .3182592   .2277651     1.40   0.162    -.1281522    .7646706
                3  |   .0908575   .2884023     0.32   0.753    -.4744007    .6561157
                   |
    FathersEducation |
                1  |  -.5261677   .2192432    -2.40   0.016    -.9558765    -.096459
                2  |  -.1604194   .2252969    -0.71   0.476    -.6019932    .2811544
                3  |  -.4871615   .2999614    -1.62   0.104    -1.075075    .1007521
                   |
CodedSeniorYearGrades |
                1  |  -.2272354   .1870699    -1.21   0.224    -.5938858    .1394149
                2  |  -.8232111   .2957662    -2.78   0.005    -1.402902     -.24352
                   |
         CodedWork |
                1  |   -.041612   .2936549    -0.14   0.887     -.617165    .5339411
                2  |  -.2805549   .2522918    -1.11   0.266    -.7750377     .213928
                3  |  -.6941953   .2776112    -2.50   0.012    -1.238303   -.1500873
                   |
  Sociabilitypercentile |  -.0030807   .0026513    -1.16   0.245     -.008277    .0021157
StudyHabitspercentile_1 |  -3.011908   1.767934    -1.70   0.088    -6.476995    .4531794
StudyHabitspercentile_2 |   .0453664   .0398026     1.14   0.254    -.0326454    .1233781
      MaxACTSATscore |   .1088366   .0266241     4.09   0.000     .0566544    .1610188
  Distancefromcampus |   -.000828   .0003693    -2.24   0.025    -.0015518   -.0001043
  CodedCollegeAthlete |  -.4332962   .3263998    -1.33   0.184    -1.073028    .2064356
       Classpercent |  -.0111189   .0050106    -2.22   0.026    -.0209394   -.0012983
ReceptivitytoPersonalCounseli |   .0086907   .0035631     2.44   0.015     .0017072    .0156742
             _cons |  -2.455433    .882636    -2.78   0.005    -4.185368   -.7254987
------------------------------------------------------------------------------
```

```
. fp<VerbalConfidencepercentile>, replace: logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile FamilyEmotionalSupportper
> cen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile St
> udyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Distancefromcampus CodedCollegeAthlete Classpercent ReceptivitytoPers
> onalCounseli <VerbalConfidencepercentile>
(fitting 44 models)
(....10%....20%....30%....40%....50%....60%....70%....80%....90%....100%)

Fractional polynomial comparisons:
```

VerbalConf~e	df	Deviance	Dev. dif.	P(*)	Powers
omitted	0	1024.870	11.485	0.022	
linear	1	1016.497	3.112	0.375	1
m = 1	2	1015.309	1.924	0.382	2
m = 2	4	1013.385	0.000	--	.5 .5

(*) P = sig. level of model with m = 2 based on chi^2 of dev. dif.

```
Logistic regression                             Number of obs     =        943
                                                LR chi2(30)       =     197.43
                                                Prob > chi2       =     0.0000
Log likelihood = -506.69242                     Pseudo R2         =     0.1631
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.1833451	.2280983	-0.80	0.422	-.6304096	.2637194
2	-.9641612	.231515	-4.16	0.000	-1.417922	-.5104001
3	.024261	.2168404	0.11	0.911	-.4007384	.4492604
CodedRace						
1	.1117799	.2229063	0.50	0.616	-.3251084	.5486681
2	.5974377	.3596195	1.66	0.097	-.1074035	1.302279
3	.37736	.3331868	1.13	0.257	-.2756741	1.030394
TransferPercentile	-.005097	.0035192	-1.45	0.148	-.0119945	.0018005
FamilyEmotionalSupportpercen	.0070705	.0028218	2.51	0.012	.0015398	.0126012
MathandScienceConfidenceper	.002878	.0035855	0.80	0.422	-.0041495	.0099055
MothersEducation						
1	-.289907	.2191471	-1.32	0.186	-.7194274	.1396135
2	.3272051	.2288953	1.43	0.153	-.1214214	.7758317
3	.1244194	.2912606	0.43	0.669	-.446441	.6952797
FathersEducation						
1	-.5681708	.221883	-2.56	0.010	-1.003053	-.1332881
2	-.2063601	.228769	-0.90	0.367	-.6547392	.2420189
3	-.5349362	.3027602	-1.77	0.077	-1.128335	.0584629
CodedSeniorYearGrades						
1	-.1826067	.189044	-0.97	0.334	-.553126	.1879126
2	-.7572211	.2976077	-2.54	0.011	-1.340522	-.1739207
CodedWork						
1	.0037791	.2966151	0.01	0.990	-.5775758	.585134
2	-.2693096	.2540971	-1.06	0.289	-.7673308	.2287116
3	-.6788846	.2794543	-2.43	0.015	-1.226605	-.1311642
Sociabilitypercentile	-.0022276	.0026755	-0.83	0.405	-.0074716	.0030163
StudyHabitspercentile_1	-2.694635	1.650709	-1.63	0.103	-5.929966	.5406953
StudyHabitspercentile_2	.0759471	.042362	1.79	0.073	-.0070808	.1589751
MaxACTSATscore	.1318019	.0282305	4.67	0.000	.0764712	.1871326
Distancefromcampus	-.0009151	.0003732	-2.45	0.014	-.0016466	-.0001836
CodedCollegeAthlete	-.4337036	.3295484	-1.32	0.188	-1.079607	.2121993
Classpercent	-.0109489	.0050585	-2.16	0.030	-.0208633	-.0010344
ReceptivitytoPersonalCounseli	.0078746	.0035906	2.19	0.028	.0008372	.014912
VerbalConfidencepercentile_1	.716081	.3458347	2.07	0.038	.0382574	1.393905
VerbalConfidencepercentile_2	-.1502294	.0644182	-2.33	0.020	-.2764867	-.0239721
_cons	-4.123577	1.104181	-3.73	0.000	-6.287732	-1.959421

```
. fp<AcademicStresspercentile>, replace: logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile <AcademicStresspercentile>
> FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedSeniorYearGrades i.CodedWork
>  Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Distancefromcampus CodedCollegeAthlete Class
> percent ReceptivitytoPersonalCounseli VerbalConfidencepercentile
(fitting 44 models)
(....10%....20%....30%....40%....50%....60%....70%....80%....90%....100%)

Fractional polynomial comparisons:
```

AcademicSt~e	df	Deviance	Dev. dif.	P(*)	Powers
omitted	0	1016.497	3.947	0.413	
linear	1	1016.402	3.853	0.278	1
m = 1	2	1013.276	0.726	0.696	-2
m = 2	4	1012.550	0.000	--	-2 3

(*) P = sig. level of model with m = 2 based on chi^2 of dev. dif.

```
Logistic regression                             Number of obs     =        943
                                                LR chi2(31)       =     198.26
                                                Prob > chi2       =     0.0000
Log likelihood = -506.27493                     Pseudo R2         =     0.1637
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.19411	.227988	-0.85	0.395	-.6409583	.2527383
2	-.9609702	.2324756	-4.13	0.000	-1.416614	-.5053264
3	.0200165	.2170242	0.09	0.927	-.4053432	.4453761
CodedRace						
1	.1457314	.2237585	0.65	0.515	-.2928271	.58429
2	.6343948	.360986	1.76	0.079	-.0731247	1.341914
3	.3284619	.3333989	0.99	0.325	-.3249878	.9819117
TransferPercentile	-.0050819	.0035231	-1.44	0.149	-.0119871	.0018232
AcademicStresspercentile_1	-.9789487	.5111797	-1.92	0.055	-1.980843	.0229451
AcademicStresspercentile_2	4.64e-07	5.44e-07	0.85	0.394	-6.03e-07	1.53e-06
FamilyEmotionalSupportpercen	.0079682	.0028693	2.78	0.005	.0023445	.013592
MathandScienceConfidenceper	.0049412	.0040195	1.23	0.219	-.0029368	.0128193
MothersEducation						
1	-.296208	.2190364	-1.35	0.176	-.7255115	.1330955
2	.2953186	.2289707	1.29	0.197	-.1534558	.744093
3	.1219403	.2909385	0.42	0.675	-.4482887	.6921693
FathersEducation						
1	-.5720865	.2219448	-2.58	0.010	-1.00709	-.1370827
2	-.2359591	.2288934	-1.03	0.303	-.6845819	.2126636
3	-.5252671	.3024398	-1.74	0.082	-1.118038	.067504
CodedSeniorYearGrades						
1	-.1965597	.1897885	-1.04	0.300	-.5685384	.175419
2	-.7741809	.2978466	-2.60	0.009	-1.357949	-.1904123
CodedWork						
1	-.0063841	.2977252	-0.02	0.983	-.5899149	.5771466
2	-.2959455	.2556334	-1.16	0.247	-.7969777	.2050868
3	-.6886354	.2806748	-2.45	0.014	-1.238748	-.1385229
Sociabilitypercentile	-.0022371	.0026785	-0.84	0.404	-.0074869	.0030127
StudyHabitspercentile_1	-2.801505	1.679403	-1.67	0.095	-6.093074	.4900646
StudyHabitspercentile_2	.1132042	.0491862	2.30	0.021	.016801	.2096073
MaxACTSATscore	.1388675	.0285309	4.87	0.000	.0829478	.1947871
Distancefromcampus	-.0008734	.0003709	-2.35	0.019	-.0016004	-.0001464
CodedCollegeAthlete	-.4392001	.3319078	-1.32	0.186	-1.089728	.2113273
Classpercent	-.0106173	.0050684	-2.09	0.036	-.0205512	-.0006834
ReceptivitytoPersonalCounseli	.0077354	.0036091	2.14	0.032	.0006617	.014809
VerbalConfidencepercentile	-.0060925	.0035322	-1.72	0.085	-.0130154	.0008305
_cons	-3.608553	1.06292	-3.39	0.001	-5.691838	-1.525269

```
. fp<ReceptivitytoAcademicAssistan>, replace: logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile <ReceptivitytoAcademic
> Assistan> AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation
> i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Distancef
> romcampus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile
(fitting 44 models)
(....10%....20%....30%....40%....50%....60%....70%....80%....90%....100%)

Fractional polynomial comparisons:
```

Receptivit~n	df	Deviance	Dev. dif.	P(*)	Powers
omitted	0	1016.402	6.780	0.148	
linear	1	1016.365	6.743	0.081	1
m = 1	2	1012.048	2.426	0.297	-1
m = 2	4	1009.622	0.000	--	0 .5

(*) P = sig. level of model with m = 2 based on chi^2 of dev. dif.

```
Logistic regression                             Number of obs     =        943
                                                LR chi2(32)       =     201.19
                                                Prob > chi2       =     0.0000
Log likelihood = -504.81101                     Pseudo R2         =     0.1662
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.1880915	.229199	-0.82	0.412	-.6373132	.2611302
2	-.9488599	.2327958	-4.08	0.000	-1.405131	-.4925885
3	.0127715	.218335	0.06	0.953	-.4151573	.4407002
CodedRace						
1	.1688035	.2270743	0.74	0.457	-.2762539	.6138608
2	.6215306	.3609657	1.72	0.085	-.0859492	1.32901
3	.3932047	.3352575	1.17	0.241	-.263888	1.050297
TransferPercentile	-.0053368	.0035363	-1.51	0.131	-.0122677	.0015942
ReceptivitytoAcademicAssistan_1	.9785246	.4082751	2.40	0.017	.17832	1.778729
ReceptivitytoAcademicAssistan_2	-.3244405	.1518064	-2.14	0.033	-.6219755	-.0269055
AcademicStresspercentile	.0020527	.0056714	0.36	0.717	-.0090632	.0131685
FamilyEmotionalSupportpercen	.0075664	.0028675	2.64	0.008	.0019461	.0131866
MathandScienceConfidenceper	.0036385	.0042348	0.86	0.390	-.0046616	.0119386
MothersEducation						
1	-.2903762	.2190772	-1.33	0.185	-.7197596	.1390073
2	.3488101	.2301594	1.52	0.130	-.1022941	.7999143
3	.095321	.2924322	0.33	0.744	-.4778357	.6684776
FathersEducation						
1	-.5724335	.222684	-2.57	0.010	-1.008886	-.1359809
2	-.2079789	.2288071	-0.91	0.363	-.6564326	.2404748
3	-.545432	.3049579	-1.79	0.074	-1.143139	.0522744
CodedSeniorYearGrades						
1	-.1955372	.1911961	-1.02	0.306	-.5702746	.1792002
2	-.7286637	.2983805	-2.44	0.015	-1.313479	-.1438486
CodedWork						
1	-.0075116	.2985589	-0.03	0.980	-.5926763	.5776532
2	-.2705324	.2559728	-1.06	0.291	-.7722298	.231165
3	-.6672932	.2813066	-2.37	0.018	-1.218644	-.1159425
Sociabilitypercentile	-.0024729	.0026942	-0.92	0.359	-.0077535	.0028077
StudyHabitspercentile_1	-2.843331	1.730318	-1.64	0.100	-6.234692	.5480301
StudyHabitspercentile_2	.0944192	.0532487	1.77	0.076	-.0099464	.1987848
MaxACTSATscore	.1362546	.0286938	4.75	0.000	.0800159	.1924934
Distancefromcampus	-.0009104	.0003756	-2.42	0.015	-.0016465	-.0001743
CodedCollegeAthlete	-.348576	.3308712	-1.05	0.292	-.9970716	.2999195
Classpercent	-.0112872	.0050797	-2.22	0.026	-.0212432	-.0013311
ReceptivitytoPersonalCounseli	.0074449	.0037961	1.96	0.050	4.62e-06	.0148852
VerbalConfidencepercentile	-.0074882	.0038337	-1.95	0.051	-.0150022	.0000258
_cons	-4.687653	1.386024	-3.38	0.001	-7.40421	-1.971097

```
. fp<ReceptivitytoAcademicAssistan>, fp( 0 .5) replace: logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile <Receptivity
> toAcademicAssistan> AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.Fathers
> Education i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore
>  Distancefromcampus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile
-> logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssistan_2
   AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation
   i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore
   Distancefromcampus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile

Logistic regression                             Number of obs     =        943
                                                LR chi2(32)       =     201.19
                                                Prob > chi2       =     0.0000
Log likelihood = -504.81101                     Pseudo R2         =     0.1662
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.1880915	.229199	-0.82	0.412	-.6373132	.2611302
2	-.9488599	.2327958	-4.08	0.000	-1.405131	-.4925885
3	.0127715	.218335	0.06	0.953	-.4151573	.4407002
CodedRace						
1	.1688035	.2270743	0.74	0.457	-.2762539	.6138608
2	.6215306	.3609657	1.72	0.085	-.0859492	1.32901
3	.3932047	.3352575	1.17	0.241	-.263888	1.050297
TransferPercentile	-.0053368	.0035363	-1.51	0.131	-.0122677	.0015942
ReceptivitytoAcademicAssistan_1	.9785246	.4082751	2.40	0.017	.17832	1.778729
ReceptivitytoAcademicAssistan_2	-.3244405	.1518064	-2.14	0.033	-.6219755	-.0269055
AcademicStresspercentile	.0020527	.0056714	0.36	0.717	-.0090632	.0131685
FamilyEmotionalSupportpercen	.0075664	.0028675	2.64	0.008	.0019461	.0131866
MathandScienceConfidenceper	.0036385	.0042348	0.86	0.390	-.0046616	.0119386
MothersEducation						
1	-.2903762	.2190772	-1.33	0.185	-.7197596	.1390073
2	.3488101	.2301594	1.52	0.130	-.1022941	.7999143
3	.095321	.2924322	0.33	0.744	-.4778357	.6684776
FathersEducation						
1	-.5724335	.222684	-2.57	0.010	-1.008886	-.1359809
2	-.2079789	.2288071	-0.91	0.363	-.6564326	.2404748
3	-.545432	.3049579	-1.79	0.074	-1.143139	.0522744
CodedSeniorYearGrades						
1	-.1955372	.1911961	-1.02	0.306	-.5702746	.1792002
2	-.7286637	.2983805	-2.44	0.015	-1.313479	-.1438486
CodedWork						
1	-.0075116	.2985589	-0.03	0.980	-.5926763	.5776532
2	-.2705324	.2559728	-1.06	0.291	-.7722298	.231165
3	-.6672932	.2813066	-2.37	0.018	-1.218644	-.1159425
Sociabilitypercentile	-.0024729	.0026942	-0.92	0.359	-.0077535	.0028077
StudyHabitspercentile_1	-2.843331	1.730318	-1.64	0.100	-6.234692	.5480301
StudyHabitspercentile_2	.0944192	.0532487	1.77	0.076	-.0099464	.1987848
MaxACTSATscore	.1362546	.0286938	4.75	0.000	.0800159	.1924934
Distancefromcampus	-.0009104	.0003756	-2.42	0.015	-.0016465	-.0001743
CodedCollegeAthlete	-.348576	.3308712	-1.05	0.292	-.9970716	.2999195
Classpercent	-.0112872	.0050797	-2.22	0.026	-.0212432	-.0013311
ReceptivitytoPersonalCounseli	.0074449	.0037961	1.96	0.050	4.62e-06	.0148852
VerbalConfidencepercentile	-.0074882	.0038337	-1.95	0.051	-.0150022	.0000258
_cons	-4.687653	1.386024	-3.38	0.001	-7.40421	-1.971097

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssista
> n_2 AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation
> i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Dis
> tancefromcampus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile i.Major#c.FamilyEm
> otionalSupportpercen

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -503.52237
Iteration 2:   log likelihood = -498.80575
Iteration 3:   log likelihood = -498.54441
Iteration 4:   log likelihood = -498.54292
Iteration 5:   log likelihood = -498.54292

Logistic regression                             Number of obs     =        943
                                                LR chi2(35)       =     213.73
                                                Prob > chi2       =     0.0000
Log likelihood = -498.54292                     Pseudo R2         =     0.1765
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	.6241207	.4138392	1.51	0.132	-.1869892	1.435231
2	-.0517859	.4510422	-0.11	0.909	-.9358124	.8322406
3	-.3558942	.4565138	-0.78	0.436	-1.250645	.5388564
CodedRace						
1	.162427	.2293548	0.71	0.479	-.2871001	.611954
2	.6141287	.365311	1.68	0.093	-.1018677	1.330125
3	.3659995	.3345317	1.09	0.274	-.2896705	1.021669
TransferPercentile	-.0054162	.0035603	-1.52	0.128	-.0123943	.0015619
ReceptivitytoAcademicAssistan_1	1.031898	.4108869	2.51	0.012	.2265739	1.837221
ReceptivitytoAcademicAssistan_2	-.3430862	.1527877	-2.25	0.025	-.6425445	-.0436279
AcademicStresspercentile	.0017306	.0057172	0.30	0.762	-.0094749	.0129361
FamilyEmotionalSupportpercen	.0128204	.0043657	2.94	0.003	.0042638	.021377
MathandScienceConfidenceper	.0042043	.0042838	0.98	0.326	-.0041919	.0126004
MothersEducation						
1	-.2586691	.2213321	-1.17	0.243	-.692472	.1751339
2	.3713542	.2330283	1.59	0.111	-.0853728	.8280812
3	.1066407	.2965189	0.36	0.719	-.4745257	.6878071
FathersEducation						
1	-.6113059	.2261423	-2.70	0.007	-1.054537	-.1680751
2	-.2445656	.2321869	-1.05	0.292	-.6996435	.2105124
3	-.5362135	.3061224	-1.75	0.080	-1.136202	.0637754
CodedSeniorYearGrades						
1	-.1771381	.1923254	-0.92	0.357	-.5540889	.1998126
2	-.7092657	.2997229	-2.37	0.018	-1.296712	-.1218197
CodedWork						
1	-.0228521	.3038173	-0.08	0.940	-.6183231	.5726188
2	-.2854501	.2596138	-1.10	0.272	-.7942838	.2233837
3	-.6818147	.2849968	-2.39	0.017	-1.240398	-.1232312
Sociabilitypercentile	-.0025173	.0027207	-0.93	0.355	-.0078498	.0028152
StudyHabitspercentile_1	-2.907753	1.779455	-1.63	0.102	-6.39542	.579914
StudyHabitspercentile_2	.0901906	.0535492	1.68	0.092	-.0147639	.1951451
MaxACTSATscore	.1356591	.0290962	4.66	0.000	.0786316	.1926866
Distancefromcampus	-.0009842	.0003783	-2.60	0.009	-.0017258	-.0002427
CodedCollegeAthlete	-.3526171	.336451	-1.05	0.295	-1.012049	.3068146
Classpercent	-.0113023	.0051253	-2.21	0.027	-.0213477	-.001257
ReceptivitytoPersonalCounseli	.0071913	.0038276	1.88	0.060	-.0003106	.0146933
VerbalConfidencepercentile	-.0076823	.0038729	-1.98	0.047	-.015273	-.0000915
Major#c.FamilyEmotionalSupportpercen						
1	-.0160984	.0069702	-2.31	0.021	-.0297597	-.002437
2	-.0160427	.0071276	-2.25	0.024	-.0300124	-.0020729
3	.0054472	.0070972	0.77	0.443	-.008463	.0193573
_cons	-4.954339	1.413014	-3.51	0.000	-7.723796	-2.184882

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssista
> n_2 AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation
> i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Dis
> tancefromcampus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile i.Major#c.Mathand

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -507.05586
Iteration 2:   log likelihood = -502.07831
Iteration 3:   log likelihood = -501.79877
Iteration 4:   log likelihood = -501.79684
Iteration 5:   log likelihood = -501.79684

Logistic regression                             Number of obs     =        943
                                                LR chi2(35)       =     207.22
                                                Prob > chi2       =     0.0000
Log likelihood = -501.79684                     Pseudo R2         =     0.1711
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	1.289634	.7099019	1.82	0.069	-.1017479	2.681017
2	-.5252169	.7578325	-0.69	0.488	-2.010541	.9601076
3	1.106748	.6775159	1.63	0.102	-.2211584	2.434655
CodedRace						
1	.213621	.2290783	0.93	0.351	-.2353643	.6626063
2	.6683171	.3631091	1.84	0.066	-.0433636	1.379998
3	.3851312	.3390333	1.14	0.256	-.2793619	1.049624
TransferPercentile	-.005618	.0035547	-1.58	0.114	-.0125851	.001349
ReceptivitytoAcademicAssistan_1	1.047654	.4116296	2.55	0.011	.2408743	1.854433
ReceptivitytoAcademicAssistan_2	-.3492288	.1529825	-2.28	0.022	-.6490689	-.0493886
AcademicStresspercentile	.0031723	.0057086	0.56	0.578	-.0080163	.0143609
FamilyEmotionalSupportpercen	.0079163	.0028817	2.75	0.006	.0022684	.0135643
MathandScienceConfidenceper	.0141881	.0072627	1.95	0.051	-.0000466	.0284228
MothersEducation						
1	-.2898038	.2204377	-1.31	0.189	-.7218538	.1422462
2	.3578505	.2316272	1.54	0.122	-.0961304	.8118315
3	.0960653	.2929969	0.33	0.743	-.4781981	.6703287
FathersEducation						
1	-.5714432	.2238058	-2.55	0.011	-1.010095	-.1327919
2	-.2062703	.2300159	-0.90	0.370	-.6570933	.2445527
3	-.5666914	.306672	-1.85	0.065	-1.167757	.0343746
CodedSeniorYearGrades						
1	-.1981802	.1922103	-1.03	0.303	-.5749055	.1785451
2	-.6924082	.2995464	-2.31	0.021	-1.279508	-.105308
CodedWork						
1	.0081628	.2987839	0.03	0.978	-.5774428	.5937685
2	-.2440409	.2567343	-0.95	0.342	-.7472308	.2591491
3	-.6641636	.2824102	-2.35	0.019	-1.217677	-.1106499
Sociabilitypercentile	-.0026384	.002712	-0.97	0.331	-.0079537	.002677
StudyHabitspercentile_1	-3.036493	1.778805	-1.71	0.088	-6.522887	.4499003
StudyHabitspercentile_2	.1013547	.053571	1.89	0.058	-.0036427	.206352
MaxACTSATscore	.1390161	.028941	4.80	0.000	.0822927	.1957395
Distancefromcampus	-.0008929	.0003759	-2.38	0.018	-.0016297	-.0001562
CodedCollegeAthlete	-.3347278	.3325406	-1.01	0.314	-.9864955	.3170399
Classpercent	-.0116084	.0050938	-2.28	0.023	-.0215921	-.0016247
ReceptivitytoPersonalCounseli	.0071769	.0038037	1.89	0.059	-.0002782	.014632
VerbalConfidencepercentile	-.0074565	.0038536	-1.93	0.053	-.0150094	.0000963
Major#c.MathandScienceConfidenceper						
1	-.0209799	.0095669	-2.19	0.028	-.0397307	-.0022291
2	-.0048817	.0099204	-0.49	0.623	-.0243253	.0145619
3	-.0150831	.0090387	-1.67	0.095	-.0327986	.0026324
_cons	-5.745604	1.483859	-3.87	0.000	-8.653914	-2.837294

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssista
> n_2 AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation
> i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Dis
> tancefromcampus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile i.Major#c.MaxACTSA
> Tscore

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -505.26699
Iteration 2:   log likelihood = -499.77237
Iteration 3:   log likelihood = -499.54099
Iteration 4:   log likelihood =  -499.5385
Iteration 5:   log likelihood =  -499.5385

Logistic regression                             Number of obs     =        943
                                                LR chi2(35)       =     211.74
                                                Prob > chi2       =     0.0000
Log likelihood =  -499.5385                     Pseudo R2         =     0.1749
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	3.237182	1.250614	2.59	0.010	.7860228	5.688341
2	-1.88692	1.460917	-1.29	0.196	-4.750266	.976425
3	1.289241	1.32278	0.97	0.330	-1.30336	3.881843
CodedRace						
1	.221428	.2291255	0.97	0.334	-.2276498	.6705058
2	.7413795	.3663818	2.02	0.043	.0232844	1.459475
3	.3965628	.33748	1.18	0.240	-.2648858	1.058011
TransferPercentile	-.0056571	.0035694	-1.58	0.113	-.012653	.0013389
ReceptivitytoAcademicAssistan_1	1.072746	.4138501	2.59	0.010	.2616149	1.883877
ReceptivitytoAcademicAssistan_2	-.3572676	.15354	-2.33	0.020	-.6582006	-.0563347
AcademicStresspercentile	.0028234	.0057163	0.49	0.621	-.0083803	.014027
FamilyEmotionalSupportpercen	.0073115	.0028805	2.54	0.011	.0016658	.0129571
MathandScienceConfidenceper	.0039695	.0042614	0.93	0.352	-.0043826	.0123216
MothersEducation						
1	-.2887405	.2210522	-1.31	0.191	-.7219949	.1445138
2	.3693835	.2318658	1.59	0.111	-.0850651	.8238321
3	.1396162	.2925444	0.48	0.633	-.4337603	.7129926
FathersEducation						
1	-.5823625	.2237442	-2.60	0.009	-1.020893	-.143832
2	-.2782615	.2315624	-1.20	0.229	-.7321155	.1755926
3	-.5762716	.3065769	-1.88	0.060	-1.177151	.0246081
CodedSeniorYearGrades						
1	-.1807972	.1936596	-0.93	0.351	-.5603631	.1987687
2	-.747868	.3017228	-2.48	0.013	-1.339234	-.1565021
CodedWork						
1	-.007074	.299793	-0.02	0.981	-.5946575	.5805096
2	-.2960238	.2575869	-1.15	0.250	-.8008848	.2088372
3	-.6787255	.2829816	-2.40	0.016	-1.233359	-.1240917
Sociabilitypercentile	-.0022831	.0027067	-0.84	0.399	-.0075882	.003022
StudyHabitspercentile_1	-2.768979	1.684203	-1.64	0.100	-6.069956	.5319979
StudyHabitspercentile_2	.1073001	.0537991	1.99	0.046	.0018559	.2127443
MaxACTSATscore	.1791416	.0395187	4.53	0.000	.1016863	.2565968
Distancefromcampus	-.00089	.0003728	-2.39	0.017	-.0016207	-.0001593
CodedCollegeAthlete	-.4013962	.3342296	-1.20	0.230	-1.056474	.2536818
Classpercent	-.0116954	.0051354	-2.28	0.023	-.0217606	-.0016302
ReceptivitytoPersonalCounseli	.0074087	.0038241	1.94	0.053	-.0000864	.0149038
VerbalConfidencepercentile	-.0075188	.0038525	-1.95	0.051	-.0150695	.0000319
Major#c.MaxACTSATscore						
1	-.1519804	.0547597	-2.78	0.006	-.2593075	-.0446532
2	.0406684	.0629119	0.65	0.518	-.0826367	.1639734
3	-.0567274	.0591718	-0.96	0.338	-.172702	.0592471
_cons	-5.889163	1.56108	-3.77	0.000	-8.948824	-2.829503

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssista
> n_2 AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation
> i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Dis
> tancefromcampus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile i.Major#c.Classper
> cent

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -506.79599
Iteration 2:   log likelihood =  -500.2405
Iteration 3:   log likelihood = -499.95032
Iteration 4:   log likelihood =  -499.9462
Iteration 5:   log likelihood =  -499.9462

Logistic regression                             Number of obs     =        943
                                                LR chi2(35)       =     210.92
                                                Prob > chi2       =     0.0000
Log likelihood =  -499.9462                     Pseudo R2         =     0.1742
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.8235377	.3650598	-2.26	0.024	-1.539042	-.1080336
2	-.6397893	.3757514	-1.70	0.089	-1.376249	.0966699
3	-.3081892	.3731053	-0.83	0.409	-1.039462	.4230838
CodedRace						
1	.1440113	.2283191	0.63	0.528	-.3034858	.5915085
2	.7463784	.3694147	2.02	0.043	.022339	1.470418
3	.3407818	.3373201	1.01	0.312	-.3203534	1.001917
TransferPercentile	-.0056549	.003556	-1.59	0.112	-.0126245	.0013148
ReceptivitytoAcademicAssistan_1	1.023915	.4122266	2.48	0.013	.2159653	1.831864
ReceptivitytoAcademicAssistan_2	-.3357849	.1534625	-2.19	0.029	-.6365659	-.0350038
AcademicStresspercentile	.0017595	.005693	0.31	0.757	-.0093986	.0129176
FamilyEmotionalSupportpercen	.0074654	.0028758	2.60	0.009	.0018288	.0131019
MathandScienceConfidenceper	.0037836	.0042579	0.89	0.374	-.0045618	.012129
MothersEducation						
1	-.3110389	.2209966	-1.41	0.159	-.7441843	.1221066
2	.3431676	.2315827	1.48	0.138	-.1107262	.7970615
3	.0840486	.29225	0.29	0.774	-.488751	.6568481
FathersEducation						
1	-.5696092	.2235107	-2.55	0.011	-1.007682	-.1315362
2	-.2311352	.2304597	-1.00	0.316	-.6828279	.2205575
3	-.5206586	.3061853	-1.70	0.089	-1.120771	.0794536
CodedSeniorYearGrades						
1	-.1780583	.1928863	-0.92	0.356	-.5561085	.1999919
2	-.7573158	.3010969	-2.52	0.012	-1.347455	-.1671767
CodedWork						
1	.0170639	.2998366	0.06	0.955	-.5706049	.6047328
2	-.2772649	.2573719	-1.08	0.281	-.7817045	.2271746
3	-.6779715	.282951	-2.40	0.017	-1.232545	-.1233976
Sociabilitypercentile	-.002268	.0027081	-0.84	0.402	-.0075759	.0030398
StudyHabitspercentile_1	-2.866155	1.710016	-1.68	0.094	-6.217724	.4854147
StudyHabitspercentile_2	.0909876	.0535354	1.70	0.089	-.01394	.1959151
MaxACTSATscore	.1401685	.0289538	4.84	0.000	.08342	.1969169
Distancefromcampus	-.0009095	.0003768	-2.41	0.016	-.0016481	-.000171
CodedCollegeAthlete	-.4258799	.3351927	-1.27	0.204	-1.082845	.2310857
Classpercent	-.0166423	.0068801	-2.42	0.016	-.0301271	-.0031575
ReceptivitytoPersonalCounseli	.0064522	.003838	1.68	0.093	-.0010702	.0139746
VerbalConfidencepercentile	-.0075735	.0038466	-1.97	0.049	-.0151126	-.0000344
Major#c.Classpercent						
1	.0238404	.0103411	2.31	0.021	.0035723	.0441085
2	-.0198845	.0153892	-1.29	0.196	-.0500467	.0102777
3	.0112225	.0103174	1.09	0.277	-.0089992	.0314443
_cons	-4.610056	1.395533	-3.30	0.001	-7.34525	-1.874861

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssista
> n_2 AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation
> i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Dis
> tancefromcampus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile i.CodedRace#c.Clas
> spercent

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -507.62305
Iteration 2:   log likelihood = -502.88887
Iteration 3:   log likelihood = -502.63625
Iteration 4:   log likelihood = -502.63486
Iteration 5:   log likelihood = -502.63486

Logistic regression                             Number of obs     =        943
                                                LR chi2(35)       =     205.54
                                                Prob > chi2       =     0.0000
Log likelihood = -502.63486                     Pseudo R2         =     0.1698
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.2144286	.2305165	-0.93	0.352	-.6662325	.2373754
2	-.9530284	.2326977	-4.10	0.000	-1.409107	-.4969494
3	-.0110224	.2198841	-0.05	0.960	-.4419872	.4199425
CodedRace						
1	.1328067	.3455882	0.38	0.701	-.5445338	.8101472
2	.8521134	.6510833	1.31	0.191	-.4239865	2.128213
3	-.3481951	.5006438	-0.70	0.487	-1.329439	.6330486
TransferPercentile	-.0055811	.0035478	-1.57	0.116	-.0125347	.0013725
ReceptivitytoAcademicAssistan_1	1.021215	.4090561	2.50	0.013	.2194795	1.82295
ReceptivitytoAcademicAssistan_2	-.3365133	.1522319	-2.21	0.027	-.6348823	-.0381442
AcademicStresspercentile	.0023304	.0056895	0.41	0.682	-.0088209	.0134816
FamilyEmotionalSupportpercen	.0075667	.0028803	2.63	0.009	.0019214	.0132119
MathandScienceConfidenceper	.0035962	.0042427	0.85	0.397	-.0047193	.0119117
MothersEducation						
1	-.3151613	.2202699	-1.43	0.152	-.7468824	.1165599
2	.3221755	.2311488	1.39	0.163	-.1308677	.7752188
3	.0771188	.2935849	0.26	0.793	-.498297	.6525346
FathersEducation						
1	-.5684936	.2237855	-2.54	0.011	-1.007105	-.1298822
2	-.2109007	.229694	-0.92	0.359	-.6610926	.2392912
3	-.5190956	.3059812	-1.70	0.090	-1.118808	.0806166
CodedSeniorYearGrades						
1	-.1918886	.1925985	-1.00	0.319	-.5693747	.1855975
2	-.7362207	.3004031	-2.45	0.014	-1.325	-.1474415
CodedWork						
1	.0024096	.3001886	0.01	0.994	-.5859492	.5907683
2	-.2637179	.2571344	-1.03	0.305	-.7676921	.2402564
3	-.64509	.2826726	-2.28	0.022	-1.199118	-.091062
Sociabilitypercentile	-.0024162	.002706	-0.89	0.372	-.0077199	.0028876
StudyHabitspercentile_1	-2.820384	1.737377	-1.62	0.105	-6.22558	.5848111
StudyHabitspercentile_2	.0973118	.0534594	1.82	0.069	-.0074667	.2020903
MaxACTSATscore	.1378583	.028975	4.76	0.000	.0810683	.1946483
Distancefromcampus	-.0009623	.0003792	-2.54	0.011	-.0017056	-.000219
CodedCollegeAthlete	-.3515569	.3338291	-1.05	0.292	-1.00585	.3027361
Classpercent	-.0134987	.0061879	-2.18	0.029	-.0256267	-.0013708
ReceptivitytoPersonalCounseli	.0071853	.0038146	1.88	0.060	-.0002912	.0146619
VerbalConfidencepercentile	-.0074034	.0038413	-1.93	0.054	-.0149322	.0001253
CodedRace#c.Classpercent						
1	.0010683	.0099689	0.11	0.915	-.0184704	.020607
2	-.0052241	.0149261	-0.35	0.726	-.0344786	.0240305
3	.0273514	.0135156	2.02	0.043	.0008612	.0538415
_cons	-4.728593	1.398036	-3.38	0.001	-7.468693	-1.988494

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssista
> n_2 AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation
> i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Dis
> tancefromcampus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile i.CodedRace#c.Rece
> ptivitytoPersonalCounseli

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -507.07806
Iteration 2:   log likelihood = -502.36826
Iteration 3:   log likelihood = -502.10182
Iteration 4:   log likelihood = -502.10023
Iteration 5:   log likelihood = -502.10023

Logistic regression                             Number of obs     =        943
                                                LR chi2(35)       =     206.61
                                                Prob > chi2       =     0.0000
Log likelihood = -502.10023                     Pseudo R2         =     0.1706
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.2029643	.22996	-0.88	0.377	-.6536776	.2477491
2	-.9739182	.2337873	-4.17	0.000	-1.432133	-.5157034
3	.0090521	.2190969	0.04	0.967	-.42037	.4384741
CodedRace						
1	.9857417	.4565571	2.16	0.031	.0909062	1.880577
2	-.0412136	.892918	-0.05	0.963	-1.791301	1.708873
3	.2835305	.8975039	0.32	0.752	-1.475545	2.042606
TransferPercentile	-.0056529	.0035521	-1.59	0.112	-.0126148	.001309
ReceptivitytoAcademicAssistan_1	.9608596	.4094241	2.35	0.019	.1584032	1.763316
ReceptivitytoAcademicAssistan_2	-.31807	.1522168	-2.09	0.037	-.6164094	-.0197305
AcademicStresspercentile	.0021763	.0057058	0.38	0.703	-.0090069	.0133594
FamilyEmotionalSupportpercen	.0072974	.0028771	2.54	0.011	.0016583	.0129364
MathandScienceConfidenceper	.0032378	.0042872	0.76	0.450	-.0051649	.0116406
MothersEducation						
1	-.2919987	.2194731	-1.33	0.183	-.7221581	.1381607
2	.3634148	.2311545	1.57	0.116	-.0896397	.8164694
3	.104041	.2933225	0.35	0.723	-.4708606	.6789426
FathersEducation						
1	-.5624494	.2232824	-2.52	0.012	-1.000075	-.1248238
2	-.2034914	.2298593	-0.89	0.376	-.6540074	.2470246
3	-.5407299	.3052358	-1.77	0.076	-1.138981	.0575213
CodedSeniorYearGrades						
1	-.1972091	.1919616	-1.03	0.304	-.5734468	.1790286
2	-.719605	.2988558	-2.41	0.016	-1.305352	-.1338584
CodedWork						
1	-.0366013	.299861	-0.12	0.903	-.624318	.5511155
2	-.2760083	.2578431	-1.07	0.284	-.7813715	.2293549
3	-.666341	.2833664	-2.35	0.019	-1.221729	-.110953
Sociabilitypercentile	-.0022782	.0027009	-0.84	0.399	-.0075719	.0030155
StudyHabitspercentile_1	-2.911794	1.81486	-1.60	0.109	-6.468853	.645266
StudyHabitspercentile_2	.092627	.0534917	1.73	0.083	-.0122148	.1974689
MaxACTSATscore	.138306	.0289623	4.78	0.000	.0815409	.1950711
Distancefromcampus	-.0008867	.0003758	-2.36	0.018	-.0016232	-.0001501
CodedCollegeAthlete	-.3620036	.3321858	-1.09	0.276	-1.013076	.2890686
Classpercent	-.0116751	.005111	-2.28	0.022	-.0216924	-.0016578
ReceptivitytoPersonalCounseli	.0104511	.0046567	2.24	0.025	.0013241	.0195782
VerbalConfidencepercentile	-.0079438	.0038532	-2.06	0.039	-.015496	-.0003916
CodedRace#c.ReceptivitytoPersonalCounseli						
1	-.0152563	.0076793	-1.99	0.047	-.0303075	-.0002051
2	.0104026	.0135481	0.77	0.443	-.0161512	.0369565
3	.0013625	.0145004	0.09	0.925	-.0270577	.0297827
_cons	-4.758134	1.396403	-3.41	0.001	-7.495034	-2.021235

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssista
> n_2 AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation
> i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Dis
> tancefromcampus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile i.CodedRace#c.Verb
> alConfidencepercentile

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -506.54946
Iteration 2:   log likelihood = -501.76968
Iteration 3:   log likelihood = -501.52103
Iteration 4:   log likelihood = -501.51975
Iteration 5:   log likelihood = -501.51975

Logistic regression                             Number of obs     =        943
                                                LR chi2(35)       =     207.78
                                                Prob > chi2       =     0.0000
Log likelihood = -501.51975                     Pseudo R2         =     0.1716
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.2159526	.230544	-0.94	0.349	-.6678106	.2359054
2	-1.000841	.2354762	-4.25	0.000	-1.462366	-.5393164
3	-.0072969	.2201557	-0.03	0.974	-.4387941	.4242003
CodedRace						
1	-.4199758	.3705136	-1.13	0.257	-1.146169	.3062175
2	.8005958	.6699071	1.20	0.232	-.5123979	2.11359
3	1.115163	.6884362	1.62	0.105	-.2341474	2.464473
TransferPercentile	-.0055519	.0035556	-1.56	0.118	-.0125209	.001417
ReceptivitytoAcademicAssistan_1	.955151	.4083984	2.34	0.019	.1547047	1.755597
ReceptivitytoAcademicAssistan_2	-.3149446	.1520672	-2.07	0.038	-.6129908	-.0168983
AcademicStresspercentile	.0025669	.005704	0.45	0.653	-.0086126	.0137464
FamilyEmotionalSupportpercen	.0076119	.0028976	2.63	0.009	.0019328	.013291
MathandScienceConfidenceper	.004469	.0042782	1.04	0.296	-.0039162	.0128541
MothersEducation						
1	-.2859455	.2206335	-1.30	0.195	-.7183793	.1464883
2	.3470055	.2312329	1.50	0.133	-.1062027	.8002137
3	.1126427	.2942115	0.38	0.702	-.4640012	.6892866
FathersEducation						
1	-.6240959	.2244269	-2.78	0.005	-1.063965	-.1842272
2	-.2282712	.2309916	-0.99	0.323	-.6810064	.224464
3	-.5771078	.3063653	-1.88	0.060	-1.177573	.0233573
CodedSeniorYearGrades						
1	-.1931782	.1917763	-1.01	0.314	-.5690528	.1826964
2	-.70758	.3002581	-2.36	0.018	-1.296075	-.119085
CodedWork						
1	-.0213208	.2997163	-0.07	0.943	-.608754	.5661125
2	-.2821905	.2575784	-1.10	0.273	-.7870349	.2226539
3	-.6615245	.2833826	-2.33	0.020	-1.216944	-.1061049
Sociabilitypercentile	-.0025845	.0027061	-0.96	0.340	-.0078884	.0027195
StudyHabitspercentile_1	-2.811389	1.765801	-1.59	0.111	-6.272295	.6495169
StudyHabitspercentile_2	.1008397	.053612	1.88	0.060	-.0042379	.2059173
MaxACTSATscore	.1382444	.0288922	4.78	0.000	.0816168	.1948721
Distancefromcampus	-.0009229	.000376	-2.45	0.014	-.0016599	-.0001859
CodedCollegeAthlete	-.374763	.3314803	-1.13	0.258	-1.024452	.2749265
Classpercent	-.0112043	.005117	-2.19	0.029	-.0212335	-.0011751
ReceptivitytoPersonalCounseli	.0083115	.0038317	2.17	0.030	.0008016	.0158215
VerbalConfidencepercentile	-.0092323	.0043292	-2.13	0.033	-.0177174	-.0007472
CodedRace#c.VerbalConfidencepercentile						
1	.0132648	.0065403	2.03	0.043	.0004461	.0260835
2	-.0037932	.0118649	-0.32	0.749	-.0270479	.0194616
3	-.0126642	.0109861	-1.15	0.249	-.0341966	.0088682
_cons	-4.736217	1.397277	-3.39	0.001	-7.47483	-1.997605

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssista
> n_2 AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation
> i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Dis
> tancefromcampus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile i.CodedRace#i.Moth
> ersEducation

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -503.25624
Iteration 2:   log likelihood = -497.94621
Iteration 3:   log likelihood = -497.66584
Iteration 4:   log likelihood = -497.66404
Iteration 5:   log likelihood = -497.66404

Logistic regression                             Number of obs     =        943
                                                LR chi2(41)       =     215.49
                                                Prob > chi2       =     0.0000
Log likelihood = -497.66404                     Pseudo R2         =     0.1780
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.1866003	.2317558	-0.81	0.421	-.6408332	.2676327
2	-.9573816	.2356457	-4.06	0.000	-1.419239	-.4955246
3	-.0252654	.2210033	-0.11	0.909	-.4584239	.4078932
CodedRace						
1	.2934384	.2933936	1.00	0.317	-.2816024	.8684792
2	.7063287	.5186021	1.36	0.173	-.3101128	1.72277
3	-.1663527	.5375072	-0.31	0.757	-1.219847	.8871422
TransferPercentile	-.0052283	.0035745	-1.46	0.144	-.0122341	.0017776
ReceptivitytoAcademicAssistan_1	.9322104	.4165552	2.24	0.025	.1157772	1.748644
ReceptivitytoAcademicAssistan_2	-.3024393	.154458	-1.96	0.050	-.6051715	.0002929
AcademicStresspercentile	.0021705	.0057437	0.38	0.706	-.009087	.013428
FamilyEmotionalSupportpercen	.0073869	.0029035	2.54	0.011	.0016962	.0130777
MathandScienceConfidenceper	.0037697	.0042909	0.88	0.380	-.0046403	.0121797
MothersEducation						
1	-.2505487	.2746396	-0.91	0.362	-.7888325	.2877351
2	.376528	.268996	1.40	0.162	-.1506944	.9037504
3	.1499026	.344478	0.44	0.663	-.5252619	.825067
FathersEducation						
1	-.5727054	.2252059	-2.54	0.011	-1.014101	-.1313099
2	-.1993108	.2314235	-0.86	0.389	-.6528925	.2542709
3	-.6771838	.3151275	-2.15	0.032	-1.294822	-.0595452
CodedSeniorYearGrades						
1	-.1756083	.1929971	-0.91	0.363	-.5538756	.202659
2	-.772767	.3048524	-2.53	0.011	-1.370267	-.1752672
CodedWork						
1	-.0834178	.3060686	-0.27	0.785	-.6833012	.5164656
2	-.3248493	.2618136	-1.24	0.215	-.8379946	.1882959
3	-.6660855	.2867854	-2.32	0.020	-1.228174	-.1039965
Sociabilitypercentile	-.0021161	.0027214	-0.78	0.437	-.00745	.0032177
StudyHabitspercentile_1	-2.801096	1.73613	-1.61	0.107	-6.203848	.6016573
StudyHabitspercentile_2	.0946928	.0539023	1.76	0.079	-.0109537	.2003393
MaxACTSATscore	.1402226	.0291803	4.81	0.000	.0830303	.1974149
Distancefromcampus	-.0009116	.0003823	-2.38	0.017	-.0016609	-.0001623
CodedCollegeAthlete	-.3559916	.3363601	-1.06	0.290	-1.015245	.303262
Classpercent	-.0116056	.0051538	-2.25	0.024	-.0217069	-.0015044
ReceptivitytoPersonalCounseli	.0068643	.0038445	1.79	0.074	-.0006707	.0143993
VerbalConfidencepercentile	-.0068974	.0038821	-1.78	0.076	-.0145062	.0007114
CodedRace#MothersEducation						
1 1	-.2191536	.5292152	-0.41	0.679	-1.256396	.8180891
1 2	-1.130685	.7447753	-1.52	0.129	-2.590418	.3290474
1 3	.133792	.7558943	0.18	0.860	-1.347734	1.615318
2 1	.3619374	.7449584	0.49	0.627	-1.098154	1.822029
2 2	-.3879928	.9830752	-0.39	0.693	-2.314785	1.538799
2 3	-1.352867	1.287514	-1.05	0.293	-3.876349	1.170615
3 1	-.3202357	1.007405	-0.32	0.751	-2.294713	1.654241
3 2	2.479685	1.027085	2.41	0.016	.4666349	4.492735
3 3	.9467141	.9266328	1.02	0.307	-.8694529	2.762881
_cons	-4.747755	1.412329	-3.36	0.001	-7.515869	-1.97964

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssista
> n_2 AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation
> i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Dis
> tancefromcampus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile i.CodedRace#i.Fath
> ersEducation

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -504.26571
Iteration 2:   log likelihood = -499.49614
Iteration 3:   log likelihood = -499.27924
Iteration 4:   log likelihood = -499.27805
Iteration 5:   log likelihood = -499.27805

Logistic regression                             Number of obs     =        943
                                                LR chi2(41)       =     212.26
                                                Prob > chi2       =     0.0000
Log likelihood = -499.27805                     Pseudo R2         =     0.1753
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.1986266	.2309302	-0.86	0.390	-.6512414	.2539882
2	-1.00757	.2368065	-4.25	0.000	-1.471702	-.5434375
3	-.0444515	.2211724	-0.20	0.841	-.4779415	.3890385
CodedRace						
1	-.1751697	.2783019	-0.63	0.529	-.7206313	.370292
2	.6724818	.468181	1.44	0.151	-.2451362	1.5901
3	-.1862278	.5025283	-0.37	0.711	-1.171165	.7987095
TransferPercentile	-.0055304	.0035943	-1.54	0.124	-.0125752	.0015143
ReceptivitytoAcademicAssistan_1	.9835401	.4145226	2.37	0.018	.1710908	1.795989
ReceptivitytoAcademicAssistan_2	-.3222273	.1537248	-2.10	0.036	-.6235224	-.0209321
AcademicStresspercentile	.0015916	.0057862	0.28	0.783	-.0097492	.0129323
FamilyEmotionalSupportpercen	.0072901	.0029018	2.51	0.012	.0016026	.0129776
MathandScienceConfidenceper	.0033935	.0042881	0.79	0.429	-.0050109	.011798
MothersEducation						
1	-.3571939	.2218892	-1.61	0.107	-.7920888	.077701
2	.3104961	.2323926	1.34	0.182	-.144985	.7659771
3	.0198617	.2973493	0.07	0.947	-.5629323	.6026557
FathersEducation						
1	-.7902623	.2675475	-2.95	0.003	-1.314646	-.2658788
2	-.3099661	.2561615	-1.21	0.226	-.8120334	.1921012
3	-.9761107	.3527321	-2.77	0.006	-1.667453	-.2847685
CodedSeniorYearGrades						
1	-.1983222	.1931599	-1.03	0.305	-.5769087	.1802643
2	-.7282451	.3014197	-2.42	0.016	-1.319017	-.1374734
CodedWork						
1	.0445734	.3009683	0.15	0.882	-.5453136	.6344604
2	-.2521229	.2578013	-0.98	0.328	-.7574041	.2531583
3	-.620745	.2836186	-2.19	0.029	-1.176627	-.0648628
Sociabilitypercentile	-.0020099	.0027323	-0.74	0.462	-.0073651	.0033453
StudyHabitspercentile_1	-2.756547	1.692348	-1.63	0.103	-6.073488	.5603952
StudyHabitspercentile_2	.091733	.0544968	1.68	0.092	-.0150788	.1985449
MaxACTSATscore	.1347786	.0290634	4.64	0.000	.0778155	.1917418
Distancefromcampus	-.0009049	.0003846	-2.35	0.019	-.0016587	-.0001511
CodedCollegeAthlete	-.4008764	.3357357	-1.19	0.232	-1.058906	.2571536
Classpercent	-.0118803	.0051393	-2.31	0.021	-.0219531	-.0018075
ReceptivitytoPersonalCounseli	.0067769	.003843	1.76	0.078	-.0007553	.0143091
VerbalConfidencepercentile	-.0077133	.0038927	-1.98	0.048	-.0153429	-.0000837
CodedRace#FathersEducation						
1 1	1.083533	.5459803	1.98	0.047	.0134309	2.153634
1 2	.2487591	.704677	0.35	0.724	-1.132383	1.629901
1 3	1.371405	.7708725	1.78	0.075	-.1394777	2.882287
2 1	-.4522766	.9205516	-0.49	0.623	-2.256525	1.351971
2 2	-.282943	.834087	-0.34	0.734	-1.917724	1.351838
2 3	.7210753	1.593696	0.45	0.651	-2.402511	3.844662
3 1	.5117109	.9309929	0.55	0.583	-1.313002	2.336423
3 2	.4432623	1.032306	0.43	0.668	-1.580021	2.466545
3 3	1.991239	.8899399	2.24	0.025	.246989	3.735489
_cons	-4.392911	1.417135	-3.10	0.002	-7.170445	-1.615376

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssista
> n_2 AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation
> i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Dis
> tancefromcampus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile i.CodedRace#i.Code
> dWork

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -501.25322
Iteration 2:   log likelihood = -495.86445
Iteration 3:   log likelihood = -495.58185
Iteration 4:   log likelihood = -495.57959
Iteration 5:   log likelihood = -495.57959

Logistic regression                             Number of obs     =        943
                                                LR chi2(41)       =     219.66
                                                Prob > chi2       =     0.0000
Log likelihood = -495.57959                     Pseudo R2         =     0.1814
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.1636845	.2317157	-0.71	0.480	-.6178389	.2904699
2	-.9450839	.2373508	-3.98	0.000	-1.410283	-.4798848
3	.0058288	.2207658	0.03	0.979	-.4268642	.4385218
CodedRace						
1	1.281384	.5586707	2.29	0.022	.1864098	2.376359
2	.8764644	.695901	1.26	0.208	-.4874765	2.240405
3	.0502914	1.104973	0.05	0.964	-2.115415	2.215998
TransferPercentile	-.0047966	.0036039	-1.33	0.183	-.0118601	.0022669
ReceptivitytoAcademicAssistan_1	.8435358	.410754	2.05	0.040	.0384727	1.648599
ReceptivitytoAcademicAssistan_2	-.2738852	.1533935	-1.79	0.074	-.5745309	.0267605
AcademicStresspercentile	.0026988	.005782	0.47	0.641	-.0086336	.0140312
FamilyEmotionalSupportpercen	.0075523	.0029092	2.60	0.009	.0018505	.0132542
MathandScienceConfidenceper	.0040995	.0043082	0.95	0.341	-.0043444	.0125434
MothersEducation						
1	-.3075205	.2229137	-1.38	0.168	-.7444233	.1293823
2	.3051926	.2345668	1.30	0.193	-.1545498	.7649351
3	.0997204	.2964578	0.34	0.737	-.4813261	.680767
FathersEducation						
1	-.5697497	.2278568	-2.50	0.012	-1.016341	-.1231585
2	-.222253	.2308298	-0.96	0.336	-.6746711	.2301651
3	-.5688817	.3091543	-1.84	0.066	-1.174813	.0370497
CodedSeniorYearGrades						
1	-.1837857	.1953579	-0.94	0.347	-.5666802	.1991088
2	-.7239374	.3044475	-2.38	0.017	-1.320643	-.1272314
CodedWork						
1	.1423039	.3820391	0.37	0.710	-.606479	.8910869
2	.1161876	.3156213	0.37	0.713	-.5024188	.7347939
3	-.5090216	.3512299	-1.45	0.147	-1.19742	.1793763
Sociabilitypercentile	-.0020248	.002745	-0.74	0.461	-.0074049	.0033552
StudyHabitspercentile_1	-3.061427	1.677603	-1.82	0.068	-6.349469	.2266149
StudyHabitspercentile_2	.0946306	.0543476	1.74	0.082	-.0118886	.2011499
MaxACTSATscore	.1394789	.029034	4.80	0.000	.0825734	.1963844
Distancefromcampus	-.0010333	.0003836	-2.69	0.007	-.0017851	-.0002815
CodedCollegeAthlete	-.2714956	.3399973	-0.80	0.425	-.937878	.3948869
Classpercent	-.0120902	.0051631	-2.34	0.019	-.0222097	-.0019708
ReceptivitytoPersonalCounseli	.00738	.0038561	1.91	0.056	-.0001777	.0149378
VerbalConfidencepercentile	-.0070555	.0039092	-1.80	0.071	-.0147174	.0006064
CodedRace#CodedWork						
1 1	-1.126663	.7281286	-1.55	0.122	-2.553769	.3004429
1 2	-1.754247	.6228412	-2.82	0.005	-2.974993	-.5335006
1 3	-.7076848	.6498835	-1.09	0.276	-1.981433	.5660634
2 1	-.4991215	1.146256	-0.44	0.663	-2.745741	1.747498
2 2	-.441363	.8311351	-0.53	0.595	-2.070358	1.187632
2 3	.1714135	.9951138	0.17	0.863	-1.778974	2.121801
3 1	2.172319	1.442179	1.51	0.132	-.6542996	4.998938
3 2	.2692824	1.195037	0.23	0.822	-2.072946	2.611511
3 3	-.7360058	1.375028	-0.54	0.592	-3.431011	1.959
_cons	-4.927839	1.415275	-3.48	0.000	-7.701727	-2.153951

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssista
> n_2 AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation
> i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Dis
> tancefromcampus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile c.TransferPercenti
> le#c.CodedCollegeAthlete

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -507.24621
Iteration 2:   log likelihood = -502.50083
Iteration 3:   log likelihood = -502.24967
Iteration 4:   log likelihood = -502.24834
Iteration 5:   log likelihood = -502.24834

Logistic regression                             Number of obs     =        943
                                                LR chi2(33)       =     206.32
                                                Prob > chi2       =     0.0000
Log likelihood = -502.24834                     Pseudo R2         =     0.1704
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.217779	.2309532	-0.94	0.346	-.6704389	.234881
2	-.9705502	.2334182	-4.16	0.000	-1.428041	-.513059
3	-.017202	.2193246	-0.08	0.937	-.4470703	.4126663
CodedRace						
1	.1572969	.2275087	0.69	0.489	-.288612	.6032059
2	.6535073	.3624139	1.80	0.071	-.056811	1.363826
3	.3829667	.3379321	1.13	0.257	-.2793682	1.045301
TransferPercentile	-.0070498	.0036238	-1.95	0.052	-.0141523	.0000526
ReceptivitytoAcademicAssistan_1	.9467341	.4139832	2.29	0.022	.135342	1.758126
ReceptivitytoAcademicAssistan_2	-.3149068	.1533978	-2.05	0.040	-.6155611	-.0142525
AcademicStresspercentile	.001271	.0057037	0.22	0.824	-.009908	.0124501
FamilyEmotionalSupportpercen	.0074861	.0028692	2.61	0.009	.0018625	.0131097
MathandScienceConfidenceper	.0034022	.0042493	0.80	0.423	-.0049263	.0117308
MothersEducation						
1	-.2865936	.2198519	-1.30	0.192	-.7174953	.1443082
2	.3459497	.2311	1.50	0.134	-.1069979	.7988974
3	.0954392	.293429	0.33	0.745	-.4796711	.6705495
FathersEducation						
1	-.575815	.2235256	-2.58	0.010	-1.013917	-.1377128
2	-.2071299	.229324	-0.90	0.366	-.6565968	.242337
3	-.5675429	.3055154	-1.86	0.063	-1.166342	.0312562
CodedSeniorYearGrades						
1	-.2090583	.1919881	-1.09	0.276	-.585348	.1672314
2	-.7210072	.2986511	-2.41	0.016	-1.306353	-.1356618
CodedWork						
1	-.0261557	.2993305	-0.09	0.930	-.6128327	.5605214
2	-.2681515	.256828	-1.04	0.296	-.7715251	.2352221
3	-.6692055	.281911	-2.37	0.018	-1.221741	-.1166701
Sociabilitypercentile	-.0025632	.0027012	-0.95	0.343	-.0078574	.0027311
StudyHabitspercentile_1	-2.852334	1.739357	-1.64	0.101	-6.261411	.5567428
StudyHabitspercentile_2	.09177	.0535416	1.71	0.087	-.0131695	.1967096
MaxACTSATscore	.1357495	.0288525	4.70	0.000	.0791996	.1922995
Distancefromcampus	-.0009166	.0003798	-2.41	0.016	-.001661	-.0001723
CodedCollegeAthlete	-2.424842	1.010367	-2.40	0.016	-4.405126	-.444558
Classpercent	-.0117041	.0050849	-2.30	0.021	-.0216703	-.0017379
ReceptivitytoPersonalCounseli	.0075889	.0038142	1.99	0.047	.0001132	.0150646
VerbalConfidencepercentile	-.0078779	.0038488	-2.05	0.041	-.0154215	-.0003343
c.TransferPercentile#c.CodedCollegeAthlete	.035852	.0158703	2.26	0.024	.0047468	.0669572
_cons	-4.395125	1.397004	-3.15	0.002	-7.133202	-1.657047

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssista
> n_2 AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation
> i.CodedSeniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Dis
> tancefromcampus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile c.TransferPercenti
> le#i.MothersEducation

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -505.88651
Iteration 2:   log likelihood = -500.89267
Iteration 3:   log likelihood =  -500.6159
Iteration 4:   log likelihood = -500.61433
Iteration 5:   log likelihood = -500.61433

Logistic regression                             Number of obs     =        943
                                                LR chi2(35)       =     209.59
                                                Prob > chi2       =     0.0000
Log likelihood = -500.61433                     Pseudo R2         =     0.1731
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.1673656	.2304459	-0.73	0.468	-.6190314	.2843001
2	-.9272322	.2338737	-3.96	0.000	-1.385616	-.4688481
3	.062511	.2197416	0.28	0.776	-.3681746	.4931967
CodedRace						
1	.1958875	.2289972	0.86	0.392	-.2529387	.6447137
2	.6441188	.3642379	1.77	0.077	-.0697744	1.358012
3	.425837	.3391304	1.26	0.209	-.2388464	1.09052
TransferPercentile	-.0160063	.0058481	-2.74	0.006	-.0274684	-.0045442
ReceptivitytoAcademicAssistan_1	1.016311	.41124	2.47	0.013	.2102953	1.822326
ReceptivitytoAcademicAssistan_2	-.3417772	.1531339	-2.23	0.026	-.6419141	-.0416403
AcademicStresspercentile	.0024519	.0057104	0.43	0.668	-.0087403	.0136442
FamilyEmotionalSupportpercen	.0074697	.0028861	2.59	0.010	.0018131	.0131263
MathandScienceConfidenceper	.0040577	.0042578	0.95	0.341	-.0042874	.0124029
MothersEducation						
1	-1.582654	.5770508	-2.74	0.006	-2.713653	-.4516556
2	-.7465636	.5677551	-1.31	0.189	-1.859343	.3662159
3	-.0016298	.7383493	-0.00	0.998	-1.448768	1.445508
FathersEducation						
1	-.5852759	.2242326	-2.61	0.009	-1.024764	-.1457882
2	-.2271899	.2298367	-0.99	0.323	-.6776616	.2232819
3	-.5662675	.3064958	-1.85	0.065	-1.166988	.0344533
CodedSeniorYearGrades						
1	-.1819424	.1920371	-0.95	0.343	-.5583282	.1944435
2	-.7399981	.3006012	-2.46	0.014	-1.329166	-.1508306
CodedWork						
1	-.0074585	.2994791	-0.02	0.980	-.5944267	.5795097
2	-.2530391	.2578687	-0.98	0.326	-.7584524	.2523742
3	-.6922715	.2833016	-2.44	0.015	-1.247533	-.1370105
Sociabilitypercentile	-.0028316	.0027179	-1.04	0.297	-.0081585	.0024954
StudyHabitspercentile_1	-2.858409	1.800487	-1.59	0.112	-6.3873	.6704813
StudyHabitspercentile_2	.099183	.0537595	1.84	0.065	-.0061837	.2045497
MaxACTSATscore	.1349388	.0289564	4.66	0.000	.0781852	.1916923
Distancefromcampus	-.0008937	.0003764	-2.37	0.018	-.0016314	-.000156
CodedCollegeAthlete	-.3304596	.3298287	-1.00	0.316	-.976912	.3159927
Classpercent	-.0124913	.0051508	-2.43	0.015	-.0225866	-.0023959
ReceptivitytoPersonalCounseli	.0075689	.0038286	1.98	0.048	.0000649	.0150729
VerbalConfidencepercentile	-.0074257	.0038578	-1.92	0.054	-.0149869	.0001355
MothersEducation#c.TransferPercentile						
1	.021987	.0090293	2.44	0.015	.0042898	.0396841
2	.0185324	.0086962	2.13	0.033	.0014881	.0355767
3	.0017525	.0118749	0.15	0.883	-.0215218	.0250268
_cons	-4.124007	1.423023	-2.90	0.004	-6.913081	-1.334933

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssistan_2
> AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedS
> eniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Distancefromcam
> pus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile c.TransferPercentile#i.FathersEduc
> ation

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -506.12986
Iteration 2:   log likelihood = -501.28389
Iteration 3:   log likelihood =  -501.0389
Iteration 4:   log likelihood = -501.03757
Iteration 5:   log likelihood = -501.03757

Logistic regression                             Number of obs     =        943
                                                LR chi2(35)       =     208.74
                                                Prob > chi2       =     0.0000
Log likelihood = -501.03757                     Pseudo R2         =     0.1724
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.2003693	.2304655	-0.87	0.385	-.6520735	.2513348
2	-.9620164	.2340576	-4.11	0.000	-1.420761	-.5032719
3	.0107065	.2195159	0.05	0.961	-.4195368	.4409498
CodedRace						
1	.2153892	.2302979	0.94	0.350	-.2359864	.6667648
2	.6267879	.3647136	1.72	0.086	-.0880375	1.341613
3	.3855251	.3376097	1.14	0.253	-.2761778	1.047228
TransferPercentile	-.0148014	.0053382	-2.77	0.006	-.0252641	-.0043387
ReceptivitytoAcademicAssistan_1	1.013945	.4089535	2.48	0.013	.2124107	1.815479
ReceptivitytoAcademicAssistan_2	-.3385135	.1523545	-2.22	0.026	-.6371228	-.0399043
AcademicStresspercentile	.0019494	.0056874	0.34	0.732	-.0091977	.0130965
FamilyEmotionalSupportpercen	.0079981	.0028909	2.77	0.006	.002332	.0136642
MathandScienceConfidenceper	.0036522	.0042775	0.85	0.393	-.0047315	.0120359
MothersEducation						
1	-.3016198	.2204279	-1.37	0.171	-.7336506	.1304109
2	.3587665	.2313298	1.55	0.121	-.0946316	.8121645
3	.1108812	.2934759	0.38	0.706	-.4643211	.6860834
FathersEducation						
1	-1.943719	.5821541	-3.34	0.001	-3.08472	-.8027175
2	-.8415154	.5672886	-1.48	0.138	-1.953381	.2703498
3	-1.592029	.768046	-2.07	0.038	-3.097372	-.0866868
CodedSeniorYearGrades						
1	-.2131098	.1923781	-1.11	0.268	-.5901638	.1639443
2	-.7368592	.2991622	-2.46	0.014	-1.323206	-.150512
CodedWork						
1	-.0229477	.3005368	-0.08	0.939	-.611989	.5660937
2	-.2514885	.2577471	-0.98	0.329	-.7566637	.2536866
3	-.6731843	.2833934	-2.38	0.018	-1.228625	-.1177436
Sociabilitypercentile	-.0024866	.0027097	-0.92	0.359	-.0077974	.0028242
StudyHabitspercentile_1	-2.846103	1.726677	-1.65	0.099	-6.230328	.5381223
StudyHabitspercentile_2	.0919522	.0535887	1.72	0.086	-.0130796	.1969841
MaxACTSATscore	.1361546	.0288586	4.72	0.000	.0795927	.1927165
Distancefromcampus	-.0009062	.0003778	-2.40	0.016	-.0016467	-.0001657
CodedCollegeAthlete	-.349507	.3315873	-1.05	0.292	-.999406	.3003921
Classpercent	-.0121665	.0051308	-2.37	0.018	-.0222227	-.0021103
ReceptivitytoPersonalCounseli	.0074565	.0038137	1.96	0.051	-.0000182	.0149312
VerbalConfidencepercentile	-.0072982	.0038542	-1.89	0.058	-.0148523	.000256
FathersEducation#c.TransferPercentile						
1	.0235358	.009087	2.59	0.010	.0057255	.0413461
2	.01077	.0087657	1.23	0.219	-.0064104	.0279504
3	.0174771	.0117561	1.49	0.137	-.0055645	.0405187
_cons	-4.157402	1.40582	-2.96	0.003	-6.912758	-1.402046

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssistan_2
> AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedS
> eniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Distancefromcam
> pus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile c.ReceptivitytoAcademicAssistan_1#
> c.Distancefromcampus

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -507.50971
Iteration 2:   log likelihood =  -502.5347
Iteration 3:   log likelihood = -502.28231
Iteration 4:   log likelihood = -502.28069
Iteration 5:   log likelihood = -502.28069

Logistic regression                             Number of obs     =        943
                                                LR chi2(33)       =     206.25
                                                Prob > chi2       =     0.0000
Log likelihood = -502.28069                     Pseudo R2         =     0.1703
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.1512039	.2309717	-0.65	0.513	-.6039001	.3014923
2	-.937944	.2336227	-4.01	0.000	-1.395836	-.4800519
3	.013691	.2188844	0.06	0.950	-.4153145	.4426964
CodedRace						
1	.156101	.2272133	0.69	0.492	-.2892288	.6014309
2	.5665708	.3622718	1.56	0.118	-.1434689	1.27661
3	.3237976	.3367689	0.96	0.336	-.3362573	.9838524
TransferPercentile	-.0053655	.0035433	-1.51	0.130	-.0123102	.0015792
ReceptivitytoAcademicAssistan_1	.9552665	.410032	2.33	0.020	.1516185	1.758914
ReceptivitytoAcademicAssistan_2	-.3818211	.1551542	-2.46	0.014	-.6859178	-.0777244
AcademicStresspercentile	.0023946	.0056772	0.42	0.673	-.0087324	.0135217
FamilyEmotionalSupportpercen	.0078798	.0028677	2.75	0.006	.0022593	.0135004
MathandScienceConfidenceper	.0036442	.0042385	0.86	0.390	-.0046631	.0119514
MothersEducation						
1	-.3156704	.220035	-1.43	0.151	-.7469311	.1155903
2	.3172882	.2314108	1.37	0.170	-.1362686	.770845
3	.0729862	.2945716	0.25	0.804	-.5043634	.6503358
FathersEducation						
1	-.5822417	.2236384	-2.60	0.009	-1.020565	-.1439185
2	-.2137513	.2295534	-0.93	0.352	-.6636676	.236165
3	-.5677045	.3067522	-1.85	0.064	-1.168928	.0335187
CodedSeniorYearGrades						
1	-.1866346	.1920232	-0.97	0.331	-.5629931	.1897239
2	-.7029268	.2992413	-2.35	0.019	-1.289429	-.1164245
CodedWork						
1	-.0136023	.2990563	-0.05	0.964	-.5997419	.5725373
2	-.2637418	.2567563	-1.03	0.304	-.7669749	.2394913
3	-.6752833	.2824226	-2.39	0.017	-1.228821	-.1217452
Sociabilitypercentile	-.0021806	.0027053	-0.81	0.420	-.007483	.0031218
StudyHabitspercentile_1	-2.850136	1.748777	-1.63	0.103	-6.277676	.577404
StudyHabitspercentile_2	.0930606	.0533984	1.74	0.081	-.0115984	.1977196
MaxACTSATscore	.1371999	.0287471	4.77	0.000	.0808566	.1935432
Distancefromcampus	-.0060246	.0024442	-2.46	0.014	-.0108151	-.001234
CodedCollegeAthlete	-.3239603	.3319888	-0.98	0.329	-.9746464	.3267259
Classpercent	-.0115767	.005093	-2.27	0.023	-.0215588	-.0015947
ReceptivitytoPersonalCounseli	.007963	.0038032	2.09	0.036	.0005088	.0154172
VerbalConfidencepercentile	-.0069294	.0038432	-1.80	0.071	-.014462	.0006032
c.ReceptivitytoAcademicAssistan_1#c.Distancefromcampus	.0013139	.0006109	2.15	0.032	.0001165	.0025113
_cons	-4.274695	1.397297	-3.06	0.002	-7.013346	-1.536044

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssistan_2
> AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedS
> eniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Distancefromcam
> pus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile c.ReceptivitytoAcademicAssistan_2#
> c.Distancefromcampus

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -507.63645
Iteration 2:   log likelihood = -502.82126
Iteration 3:   log likelihood = -502.57259
Iteration 4:   log likelihood = -502.57121
Iteration 5:   log likelihood = -502.57121

Logistic regression                             Number of obs     =        943
                                                LR chi2(33)       =     205.67
                                                Prob > chi2       =     0.0000
Log likelihood = -502.57121                     Pseudo R2         =     0.1699
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.1578477	.2307948	-0.68	0.494	-.6101973	.2945019
2	-.9403779	.2334509	-4.03	0.000	-1.397933	-.4828225
3	.0151271	.2188666	0.07	0.945	-.4138437	.4440978
CodedRace						
1	.1609993	.22718	0.71	0.479	-.2842653	.606264
2	.5789748	.3620017	1.60	0.110	-.1305354	1.288485
3	.3341136	.3364027	0.99	0.321	-.3252236	.9934509
TransferPercentile	-.0053448	.0035424	-1.51	0.131	-.0122877	.0015982
ReceptivitytoAcademicAssistan_1	1.088167	.4154471	2.62	0.009	.2739058	1.902429
ReceptivitytoAcademicAssistan_2	-.422695	.160351	-2.64	0.008	-.7369771	-.1084128
AcademicStresspercentile	.0024276	.0056778	0.43	0.669	-.0087006	.0135559
FamilyEmotionalSupportpercen	.0078554	.0028679	2.74	0.006	.0022344	.0134763
MathandScienceConfidenceper	.003643	.0042373	0.86	0.390	-.004662	.0119481
MothersEducation						
1	-.3121027	.2199629	-1.42	0.156	-.7432221	.1190168
2	.3210396	.2311394	1.39	0.165	-.1319853	.7740645
3	.078627	.2944107	0.27	0.789	-.4984073	.6556613
FathersEducation						
1	-.582225	.2234689	-2.61	0.009	-1.020216	-.144234
2	-.2095322	.2294203	-0.91	0.361	-.6591877	.2401233
3	-.557337	.3064869	-1.82	0.069	-1.15804	.0433664
CodedSeniorYearGrades						
1	-.1887877	.1918587	-0.98	0.325	-.564824	.1872485
2	-.7027513	.2993525	-2.35	0.019	-1.289471	-.1160312
CodedWork						
1	-.0027604	.2989703	-0.01	0.993	-.5887314	.5832106
2	-.2509946	.2567493	-0.98	0.328	-.754214	.2522248
3	-.6577222	.2822138	-2.33	0.020	-1.210851	-.1045933
Sociabilitypercentile	-.002198	.0027047	-0.81	0.416	-.007499	.0031031
StudyHabitspercentile_1	-2.843198	1.747417	-1.63	0.104	-6.268073	.5816771
StudyHabitspercentile_2	.0941466	.0533834	1.76	0.078	-.0104829	.1987761
MaxACTSATscore	.1374002	.02876	4.78	0.000	.0810316	.1937689
Distancefromcampus	-.0037946	.0014846	-2.56	0.011	-.0067044	-.0008848
CodedCollegeAthlete	-.3256942	.3317258	-0.98	0.326	-.9758647	.3244764
Classpercent	-.0114908	.0050966	-2.25	0.024	-.0214799	-.0015017
ReceptivitytoPersonalCounseli	.0079645	.0038028	2.09	0.036	.0005111	.0154179
VerbalConfidencepercentile	-.0069682	.003843	-1.81	0.070	-.0145003	.000564
c.ReceptivitytoAcademicAssistan_2#c.Distancefromcampus	.0003945	.0001915	2.06	0.039	.0000192	.0007698
_cons	-4.521897	1.389162	-3.26	0.001	-7.244604	-1.799189

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssistan_2
> AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedS
> eniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Distancefromcam
> pus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile c.AcademicStresspercentile#i.Mothe
> rsEducation

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -506.27514
Iteration 2:   log likelihood = -501.64467
Iteration 3:   log likelihood = -501.39135
Iteration 4:   log likelihood = -501.38987
Iteration 5:   log likelihood = -501.38987

Logistic regression                             Number of obs     =        943
                                                LR chi2(35)       =     208.03
                                                Prob > chi2       =     0.0000
Log likelihood = -501.38987                     Pseudo R2         =     0.1718
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.1529647	.230229	-0.66	0.506	-.6042053	.298276
2	-.9364571	.2341546	-4.00	0.000	-1.395392	-.4775225
3	.0161678	.2199446	0.07	0.941	-.4149157	.4472513
CodedRace						
1	.1823516	.228338	0.80	0.425	-.2651827	.629886
2	.6237804	.3628625	1.72	0.086	-.087417	1.334978
3	.3813229	.3392841	1.12	0.261	-.2836616	1.046307
TransferPercentile	-.0055645	.0035523	-1.57	0.117	-.0125268	.0013978
ReceptivitytoAcademicAssistan_1	.9795758	.4143761	2.36	0.018	.1674135	1.791738
ReceptivitytoAcademicAssistan_2	-.326598	.1534634	-2.13	0.033	-.6273807	-.0258152
AcademicStresspercentile	-.0070043	.006793	-1.03	0.302	-.0203184	.0063098
FamilyEmotionalSupportpercen	.0076886	.0028756	2.67	0.008	.0020526	.0133247
MathandScienceConfidenceper	.0036847	.0042745	0.86	0.389	-.0046931	.0120625
MothersEducation						
1	-.7908198	.3742255	-2.11	0.035	-1.524288	-.0573512
2	-.2615378	.3749397	-0.70	0.485	-.9964061	.4733305
3	-.6987606	.4855607	-1.44	0.150	-1.650442	.2529208
FathersEducation						
1	-.5891868	.2238517	-2.63	0.008	-1.027928	-.1504456
2	-.2359354	.23007	-1.03	0.305	-.6868643	.2149934
3	-.5135337	.304814	-1.68	0.092	-1.110958	.0838907
CodedSeniorYearGrades						
1	-.2006053	.1921285	-1.04	0.296	-.5771704	.1759597
2	-.7215802	.3002785	-2.40	0.016	-1.310115	-.1330451
CodedWork						
1	.0220852	.3003247	0.07	0.941	-.5665403	.6107107
2	-.2081978	.2582169	-0.81	0.420	-.7142936	.297898
3	-.6261975	.2832947	-2.21	0.027	-1.181445	-.0709501
Sociabilitypercentile	-.0028019	.0027177	-1.03	0.303	-.0081285	.0025247
StudyHabitspercentile_1	-3.047221	1.800711	-1.69	0.091	-6.576549	.4821077
StudyHabitspercentile_2	.0888917	.0537279	1.65	0.098	-.016413	.1941963
MaxACTSATscore	.1384466	.0289951	4.77	0.000	.0816171	.195276
Distancefromcampus	-.0008689	.0003777	-2.30	0.021	-.0016092	-.0001286
CodedCollegeAthlete	-.3230512	.3329444	-0.97	0.332	-.9756103	.3295079
Classpercent	-.0119223	.005114	-2.33	0.020	-.0219456	-.0018989
ReceptivitytoPersonalCounseli	.0074432	.0038097	1.95	0.051	-.0000237	.0149101
VerbalConfidencepercentile	-.0075802	.0038594	-1.96	0.050	-.0151444	-.000016
MothersEducation#c.AcademicStresspercentile						
1	.0119934	.0073192	1.64	0.101	-.002352	.0263387
2	.014743	.0071069	2.07	0.038	.0008138	.0286722
3	.018721	.0090855	2.06	0.039	.0009136	.0365283
_cons	-4.324359	1.406025	-3.08	0.002	-7.080116	-1.568601

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssistan_2
> AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedS
> eniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Distancefromcam
> pus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile c.AcademicStresspercentile#i.Coded
> Work

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -507.11266
Iteration 2:   log likelihood = -502.52959
Iteration 3:   log likelihood = -502.28474
Iteration 4:   log likelihood = -502.28335
Iteration 5:   log likelihood = -502.28335

Logistic regression                             Number of obs     =        943
                                                LR chi2(35)       =     206.25
                                                Prob > chi2       =     0.0000
Log likelihood = -502.28335                     Pseudo R2         =     0.1703
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.2195453	.2309048	-0.95	0.342	-.6721105	.2330198
2	-.9621015	.2338679	-4.11	0.000	-1.420474	-.5037288
3	.0234809	.2190993	0.11	0.915	-.4059459	.4529076
CodedRace						
1	.1892758	.2286359	0.83	0.408	-.2588423	.637394
2	.6588511	.3629933	1.82	0.070	-.0526028	1.370305
3	.4169405	.3360446	1.24	0.215	-.2416949	1.075576
TransferPercentile	-.004938	.0035526	-1.39	0.165	-.011901	.002025
ReceptivitytoAcademicAssistan_1	1.016715	.4097254	2.48	0.013	.2136683	1.819762
ReceptivitytoAcademicAssistan_2	-.3383507	.152413	-2.22	0.026	-.6370747	-.0396267
AcademicStresspercentile	-.0045316	.0091867	-0.49	0.622	-.0225372	.0134741
FamilyEmotionalSupportpercen	.0076463	.0028804	2.65	0.008	.0020009	.0132918
MathandScienceConfidenceper	.0032195	.0042567	0.76	0.449	-.0051236	.0115625
MothersEducation						
1	-.2801532	.2192106	-1.28	0.201	-.7097981	.1494917
2	.3637943	.2318239	1.57	0.117	-.0905722	.8181608
3	.086524	.2954098	0.29	0.770	-.4924686	.6655166
FathersEducation						
1	-.5604465	.2233362	-2.51	0.012	-.9981774	-.1227155
2	-.2287665	.2296598	-1.00	0.319	-.6788914	.2213584
3	-.5543903	.306653	-1.81	0.071	-1.155419	.0466386
CodedSeniorYearGrades						
1	-.2043846	.1917078	-1.07	0.286	-.580125	.1713557
2	-.749113	.299339	-2.50	0.012	-1.335807	-.1624194
CodedWork						
1	-.7652826	.4872368	-1.57	0.116	-1.720249	.189684
2	-.4602029	.4127562	-1.11	0.265	-1.26919	.3487844
3	-.7663803	.4623371	-1.66	0.097	-1.672544	.1397838
Sociabilitypercentile	-.0022899	.0027165	-0.84	0.399	-.0076141	.0030344
StudyHabitspercentile_1	-2.79691	1.743289	-1.60	0.109	-6.213694	.6198734
StudyHabitspercentile_2	.0940543	.0534583	1.76	0.079	-.010722	.1988307
MaxACTSATscore	.1398252	.028878	4.84	0.000	.0832254	.1964249
Distancefromcampus	-.0009353	.0003763	-2.49	0.013	-.0016728	-.0001977
CodedCollegeAthlete	-.324467	.3338987	-0.97	0.331	-.9788964	.3299624
Classpercent	-.0107809	.0050903	-2.12	0.034	-.0207577	-.0008041
ReceptivitytoPersonalCounseli	.0077167	.003822	2.02	0.043	.0002257	.0152077
VerbalConfidencepercentile	-.0074229	.003844	-1.93	0.053	-.0149571	.0001112
CodedWork#c.AcademicStresspercentile						
1	.0204354	.0103743	1.97	0.049	.0001022	.0407686
2	.0054028	.0086608	0.62	0.533	-.011572	.0223776
3	.0031197	.0095345	0.33	0.744	-.0155676	.021807
_cons	-4.602741	1.409256	-3.27	0.001	-7.364832	-1.840651

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssistan_2
> AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedS
> eniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Distancefromcam
> pus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile c.FamilyEmotionalSupportpercen#c.C
> lasspercent

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -507.86003
Iteration 2:   log likelihood = -502.69555
Iteration 3:   log likelihood = -502.42729
Iteration 4:   log likelihood = -502.42553
Iteration 5:   log likelihood = -502.42553

Logistic regression                             Number of obs     =        943
                                                LR chi2(33)       =     205.96
                                                Prob > chi2       =     0.0000
Log likelihood = -502.42553                     Pseudo R2         =     0.1701
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.2037	.2299881	-0.89	0.376	-.6544683	.2470683
2	-.9600722	.2326903	-4.13	0.000	-1.416137	-.5040076
3	.0132469	.2184719	0.06	0.952	-.4149501	.4414439
CodedRace						
1	.1619589	.2280997	0.71	0.478	-.2851083	.609026
2	.584569	.3638271	1.61	0.108	-.1285191	1.297657
3	.3752105	.3357531	1.12	0.264	-.2828536	1.033275
TransferPercentile	-.0054258	.0035349	-1.53	0.125	-.012354	.0015025
ReceptivitytoAcademicAssistan_1	.9438819	.4091907	2.31	0.021	.1418828	1.745881
ReceptivitytoAcademicAssistan_2	-.3173018	.1519924	-2.09	0.037	-.6152014	-.0194023
AcademicStresspercentile	.0020416	.005692	0.36	0.720	-.0091145	.0131977
FamilyEmotionalSupportpercen	-.0000817	.0045165	-0.02	0.986	-.0089339	.0087704
MathandScienceConfidenceper	.0039258	.0042358	0.93	0.354	-.0043764	.0122279
MothersEducation						
1	-.2809522	.2196826	-1.28	0.201	-.7115222	.1496178
2	.3603142	.2316771	1.56	0.120	-.0937646	.814393
3	.0926584	.2932979	0.32	0.752	-.482195	.6675118
FathersEducation						
1	-.5642005	.2236365	-2.52	0.012	-1.00252	-.125881
2	-.1865963	.2296768	-0.81	0.417	-.6367545	.263562
3	-.5212136	.3051564	-1.71	0.088	-1.119309	.076882
CodedSeniorYearGrades						
1	-.2015737	.191446	-1.05	0.292	-.576801	.1736536
2	-.699459	.2990272	-2.34	0.019	-1.285542	-.1133764
CodedWork						
1	-.0443046	.2989245	-0.15	0.882	-.6301859	.5415766
2	-.3042476	.2565199	-1.19	0.236	-.8070174	.1985223
3	-.6682847	.281267	-2.38	0.018	-1.219558	-.1170115
Sociabilitypercentile	-.0024242	.0027072	-0.90	0.371	-.0077301	.0028817
StudyHabitspercentile_1	-2.815109	1.73922	-1.62	0.106	-6.223918	.5937006
StudyHabitspercentile_2	.0984144	.0533722	1.84	0.065	-.0061933	.2030221
MaxACTSATscore	.1365394	.0287461	4.75	0.000	.0801981	.1928807
Distancefromcampus	-.0009309	.0003768	-2.47	0.013	-.0016694	-.0001924
CodedCollegeAthlete	-.3623672	.3314872	-1.09	0.274	-1.01207	.2873358
Classpercent	-.0269815	.0090115	-2.99	0.003	-.0446437	-.0093192
ReceptivitytoPersonalCounseli	.0075524	.0038185	1.98	0.048	.0000682	.0150365
VerbalConfidencepercentile	-.0075053	.003842	-1.95	0.051	-.0150355	.000025
c.FamilyEmotionalSupportpercen#c.Classpercent	.0002815	.0001296	2.17	0.030	.0000275	.0005356
_cons	-4.219096	1.400092	-3.01	0.003	-6.963226	-1.474966

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssistan_2
> AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedS
> eniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Distancefromcam
> pus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile c.StudyHabitspercentile_2#i.Mother
> sEducation

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood =  -506.6229
Iteration 2:   log likelihood = -501.85978
Iteration 3:   log likelihood = -501.57741
Iteration 4:   log likelihood = -501.57529
Iteration 5:   log likelihood = -501.57529

Logistic regression                             Number of obs     =        943
                                                LR chi2(35)       =     207.66
                                                Prob > chi2       =     0.0000
Log likelihood = -501.57529                     Pseudo R2         =     0.1715
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.1500531	.2304229	-0.65	0.515	-.6016737	.3015676
2	-.9550411	.234276	-4.08	0.000	-1.414214	-.4958685
3	.0285401	.2198379	0.13	0.897	-.4023343	.4594144
CodedRace						
1	.1734356	.2295436	0.76	0.450	-.2764616	.6233329
2	.6393487	.362778	1.76	0.078	-.0716831	1.350381
3	.4148378	.3374948	1.23	0.219	-.2466399	1.076315
TransferPercentile	-.0054111	.0035503	-1.52	0.127	-.0123694	.0015473
ReceptivitytoAcademicAssistan_1	.9549817	.4118744	2.32	0.020	.1477226	1.762241
ReceptivitytoAcademicAssistan_2	-.315412	.1529148	-2.06	0.039	-.6151194	-.0157045
AcademicStresspercentile	.0031117	.0057294	0.54	0.587	-.0081178	.0143412
FamilyEmotionalSupportpercen	.0076162	.0028761	2.65	0.008	.0019792	.0132531
MathandScienceConfidenceper	.0035348	.0042618	0.83	0.407	-.0048182	.0118878
MothersEducation						
1	.8017057	.6651375	1.21	0.228	-.5019398	2.105351
2	1.56956	.6842253	2.29	0.022	.2285029	2.910617
3	1.600697	.7568813	2.11	0.034	.1172369	3.084157
FathersEducation						
1	-.5630366	.2237588	-2.52	0.012	-1.001596	-.1244774
2	-.2155857	.2303878	-0.94	0.349	-.6671376	.2359661
3	-.489291	.3063476	-1.60	0.110	-1.089721	.1111394
CodedSeniorYearGrades						
1	-.2364582	.1927641	-1.23	0.220	-.6142689	.1413525
2	-.7539157	.3004549	-2.51	0.012	-1.342796	-.165035
CodedWork						
1	-.0111119	.2997789	-0.04	0.970	-.5986677	.5764439
2	-.2255047	.257496	-0.88	0.381	-.7301876	.2791782
3	-.6374995	.2829375	-2.25	0.024	-1.192047	-.0829521
Sociabilitypercentile	-.0026736	.0027147	-0.98	0.325	-.0079943	.0026471
StudyHabitspercentile_1	-3.141942	1.877312	-1.67	0.094	-6.821406	.5375225
StudyHabitspercentile_2	.2144462	.0732827	2.93	0.003	.0708148	.3580776
MaxACTSATscore	.1375076	.0289611	4.75	0.000	.0807448	.1942703
Distancefromcampus	-.0008571	.0003759	-2.28	0.023	-.0015938	-.0001204
CodedCollegeAthlete	-.3315901	.3318118	-1.00	0.318	-.9819292	.318749
Classpercent	-.0120624	.0051143	-2.36	0.018	-.0220863	-.0020384
ReceptivitytoPersonalCounseli	.0073476	.0038053	1.93	0.053	-.0001106	.0148059
VerbalConfidencepercentile	-.0073395	.0038736	-1.89	0.058	-.0149317	.0002526
MothersEducation#c.StudyHabitspercentile_2						
1	-.1578087	.089964	-1.75	0.079	-.3341349	.0185174
2	-.175397	.0918988	-1.91	0.056	-.3555153	.0047213
3	-.2255406	.1069611	-2.11	0.035	-.4351805	-.0159007
_cons	-5.567217	1.441992	-3.86	0.000	-8.393471	-2.740964

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssistan_2
> AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedS
> eniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Distancefromcam
> pus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile c.Distancefromcampus#i.CodedSenior
> YearGrades

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -507.63606
Iteration 2:   log likelihood = -502.94468
Iteration 3:   log likelihood = -502.66231
Iteration 4:   log likelihood = -502.66058
Iteration 5:   log likelihood = -502.66058

Logistic regression                             Number of obs     =        943
                                                LR chi2(34)       =     205.49
                                                Prob > chi2       =     0.0000
Log likelihood = -502.66058                     Pseudo R2         =     0.1697
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.1894986	.2302461	-0.82	0.410	-.6407726	.2617754
2	-.9662476	.2338938	-4.13	0.000	-1.424671	-.5078242
3	.0166341	.2189851	0.08	0.939	-.4125688	.4458369
CodedRace						
1	.159875	.2280461	0.70	0.483	-.2870871	.6068371
2	.6008776	.3608653	1.67	0.096	-.1064054	1.308161
3	.373254	.3369407	1.11	0.268	-.2871376	1.033646
TransferPercentile	-.0053125	.0035474	-1.50	0.134	-.0122654	.0016403
ReceptivitytoAcademicAssistan_1	.9404924	.4094078	2.30	0.022	.138068	1.742917
ReceptivitytoAcademicAssistan_2	-.3103959	.1523022	-2.04	0.042	-.6089028	-.011889
AcademicStresspercentile	.0015536	.0057118	0.27	0.786	-.0096413	.0127485
FamilyEmotionalSupportpercen	.007344	.0028748	2.55	0.011	.0017095	.0129784
MathandScienceConfidenceper	.0034695	.004271	0.81	0.417	-.0049015	.0118405
MothersEducation						
1	-.3034105	.2201363	-1.38	0.168	-.7348696	.1280487
2	.3489173	.2312965	1.51	0.131	-.1044155	.8022501
3	.0930918	.2933438	0.32	0.751	-.4818514	.668035
FathersEducation						
1	-.5816899	.2232447	-2.61	0.009	-1.019242	-.1441383
2	-.1937868	.2291992	-0.85	0.398	-.643009	.2554354
3	-.5133995	.3070646	-1.67	0.095	-1.115235	.0884361
CodedSeniorYearGrades						
1	-.2671492	.2291615	-1.17	0.244	-.7162975	.181999
2	-1.106118	.3542609	-3.12	0.002	-1.800456	-.4117791
CodedWork						
1	.0048095	.2986342	0.02	0.987	-.5805027	.5901218
2	-.2544859	.2558925	-0.99	0.320	-.7560259	.2470541
3	-.6500888	.2816694	-2.31	0.021	-1.202151	-.098027
Sociabilitypercentile	-.0028177	.0027131	-1.04	0.299	-.0081353	.0024998
StudyHabitspercentile_1	-2.939566	1.782691	-1.65	0.099	-6.433577	.5544453
StudyHabitspercentile_2	.0956004	.0537345	1.78	0.075	-.0097173	.2009181
MaxACTSATscore	.1371154	.0287899	4.76	0.000	.0806882	.1935426
Distancefromcampus	-.0016581	.0006644	-2.50	0.013	-.0029604	-.0003558
CodedCollegeAthlete	-.3430569	.33242	-1.03	0.302	-.9945881	.3084743
Classpercent	-.0113269	.0051059	-2.22	0.027	-.0213342	-.0013196
ReceptivitytoPersonalCounseli	.007573	.0038049	1.99	0.047	.0001154	.0150305
VerbalConfidencepercentile	-.0081372	.0038582	-2.11	0.035	-.0156991	-.0005753
CodedSeniorYearGrades#c.Distancefromcampus						
1	.0006257	.0008743	0.72	0.474	-.0010878	.0023392
2	.0019239	.0009264	2.08	0.038	.0001083	.0037395
_cons	-4.500239	1.399093	-3.22	0.001	-7.24241	-1.758068

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssistan_2
> AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedS
> eniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Distancefromcam
> pus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile c.VerbalConfidencepercentile#i.Fat
> hersEducation

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -506.29238
Iteration 2:   log likelihood = -501.46956
Iteration 3:   log likelihood = -501.19794
Iteration 4:   log likelihood = -501.19638
Iteration 5:   log likelihood = -501.19638

Logistic regression                             Number of obs     =        943
                                                LR chi2(35)       =     208.42
                                                Prob > chi2       =     0.0000
Log likelihood = -501.19638                     Pseudo R2         =     0.1721
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.1920274	.2308368	-0.83	0.405	-.6444593	.2604045
2	-.9689713	.2342496	-4.14	0.000	-1.428092	-.5098506
3	.0075358	.2193525	0.03	0.973	-.4223873	.4374589
CodedRace						
1	.2077768	.228666	0.91	0.364	-.2404002	.6559538
2	.5421315	.3639339	1.49	0.136	-.1711658	1.255429
3	.3796416	.3379425	1.12	0.261	-.2827135	1.041997
TransferPercentile	-.0057743	.0035599	-1.62	0.105	-.0127515	.0012029
ReceptivitytoAcademicAssistan_1	.9698844	.4159389	2.33	0.020	.1546591	1.78511
ReceptivitytoAcademicAssistan_2	-.3213699	.1541988	-2.08	0.037	-.623594	-.0191457
AcademicStresspercentile	.0018361	.0057057	0.32	0.748	-.0093469	.0130191
FamilyEmotionalSupportpercen	.0078731	.0028928	2.72	0.006	.0022034	.0135429
MathandScienceConfidenceper	.0035665	.00426	0.84	0.402	-.004783	.0119161
MothersEducation						
1	-.2842933	.2200691	-1.29	0.196	-.7156207	.1470342
2	.3287734	.2313922	1.42	0.155	-.124747	.7822939
3	.0807119	.2953505	0.27	0.785	-.4981644	.6595882
FathersEducation						
1	-.191769	.3902963	-0.49	0.623	-.9567357	.5731978
2	.6431545	.3935273	1.63	0.102	-.1281449	1.414454
3	-.1506496	.5440702	-0.28	0.782	-1.217008	.9157084
CodedSeniorYearGrades						
1	-.164095	.1920595	-0.85	0.393	-.5405247	.2123346
2	-.7016025	.3007764	-2.33	0.020	-1.291113	-.1120917
CodedWork						
1	-.0007884	.299515	-0.00	0.998	-.5878271	.5862502
2	-.2616742	.256397	-1.02	0.307	-.764203	.2408546
3	-.6695145	.282358	-2.37	0.018	-1.222926	-.1161029
Sociabilitypercentile	-.0025144	.0027128	-0.93	0.354	-.0078313	.0028026
StudyHabitspercentile_1	-3.040399	1.807059	-1.68	0.092	-6.58217	.5013725
StudyHabitspercentile_2	.0921217	.0535859	1.72	0.086	-.0129048	.1971482
MaxACTSATscore	.1393562	.0289426	4.81	0.000	.0826297	.1960828
Distancefromcampus	-.0009	.0003767	-2.39	0.017	-.0016384	-.0001616
CodedCollegeAthlete	-.3350106	.3313139	-1.01	0.312	-.9843739	.3143527
Classpercent	-.0108452	.0051202	-2.12	0.034	-.0208805	-.0008098
ReceptivitytoPersonalCounseli	.0081263	.0038228	2.13	0.034	.0006337	.0156189
VerbalConfidencepercentile	-.0010235	.004794	-0.21	0.831	-.0104195	.0083725
FathersEducation#c.VerbalConfidencepercentile						
1	-.0080343	.0071105	-1.13	0.259	-.0219706	.005902
2	-.0183839	.0069903	-2.63	0.009	-.0320846	-.0046832
3	-.008021	.0090435	-0.89	0.375	-.025746	.0097039
_cons	-5.073986	1.409692	-3.60	0.000	-7.836932	-2.311041

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssistan_2
> AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedS
> eniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Distancefromcam
> pus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile i.MothersEducation#i.CodedSeniorYe
> arGrades

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -504.84948
Iteration 2:   log likelihood = -499.60564
Iteration 3:   log likelihood = -499.31649
Iteration 4:   log likelihood = -499.31443
Iteration 5:   log likelihood = -499.31443

Logistic regression                             Number of obs     =        943
                                                LR chi2(38)       =     212.19
                                                Prob > chi2       =     0.0000
Log likelihood = -499.31443                     Pseudo R2         =     0.1752
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.1883552	.2307915	-0.82	0.414	-.6406981	.2639878
2	-.9427134	.2360548	-3.99	0.000	-1.405372	-.4800544
3	.0442378	.2208348	0.20	0.841	-.3885906	.4770661
CodedRace						
1	.2131869	.2308004	0.92	0.356	-.2391735	.6655474
2	.661867	.3643405	1.82	0.069	-.0522272	1.375961
3	.4523834	.3408855	1.33	0.184	-.2157399	1.120507
TransferPercentile	-.0047893	.0035773	-1.34	0.181	-.0118008	.0022221
ReceptivitytoAcademicAssistan_1	.9613903	.4123754	2.33	0.020	.1531493	1.769631
ReceptivitytoAcademicAssistan_2	-.3213365	.1533466	-2.10	0.036	-.6218902	-.0207827
AcademicStresspercentile	.0024875	.0057374	0.43	0.665	-.0087576	.0137325
FamilyEmotionalSupportpercen	.007182	.0028973	2.48	0.013	.0015035	.0128605
MathandScienceConfidenceper	.0045628	.0042715	1.07	0.285	-.0038092	.0129349
MothersEducation						
1	-.8261173	.3173248	-2.60	0.009	-1.448062	-.2041721
2	.136863	.3253559	0.42	0.674	-.5008229	.7745488
3	-.2305777	.4096859	-0.56	0.574	-1.033547	.572392
FathersEducation						
1	-.5889282	.2255607	-2.61	0.009	-1.031019	-.1468373
2	-.2028829	.2309174	-0.88	0.380	-.6554727	.2497069
3	-.5632746	.3087932	-1.82	0.068	-1.168498	.041949
CodedSeniorYearGrades						
1	-.6391958	.2947115	-2.17	0.030	-1.21682	-.0615717
2	-1.105251	.4135531	-2.67	0.008	-1.9158	-.2947022
CodedWork						
1	-.0318594	.3019574	-0.11	0.916	-.6236852	.5599663
2	-.3107441	.2597038	-1.20	0.231	-.8197542	.198266
3	-.6946045	.2850838	-2.44	0.015	-1.253358	-.1358505
Sociabilitypercentile	-.0030902	.0027324	-1.13	0.258	-.0084456	.0022651
StudyHabitspercentile_1	-3.114984	1.755384	-1.77	0.076	-6.555473	.3255055
StudyHabitspercentile_2	.1090596	.0540247	2.02	0.044	.0031732	.214946
MaxACTSATscore	.137833	.0290855	4.74	0.000	.0808264	.1948396
Distancefromcampus	-.0009885	.000383	-2.58	0.010	-.0017391	-.0002378
CodedCollegeAthlete	-.3615174	.3344188	-1.08	0.280	-1.016966	.2939314
Classpercent	-.010601	.0051273	-2.07	0.039	-.0206504	-.0005517
ReceptivitytoPersonalCounseli	.0073385	.0038261	1.92	0.055	-.0001605	.0148375
VerbalConfidencepercentile	-.0083324	.0038973	-2.14	0.033	-.0159711	-.0006938
MothersEducation#CodedSeniorYearGrades						
1 1	.8500369	.4448295	1.91	0.056	-.0218129	1.721887
1 2	1.41127	.5899957	2.39	0.017	.2549	2.56764
2 1	.6133948	.4345802	1.41	0.158	-.2383668	1.465156
2 2	-.363129	.6713347	-0.54	0.589	-1.678921	.9526628
3 1	.6013814	.5470834	1.10	0.272	-.4708823	1.673645
3 2	.8484663	.8554478	0.99	0.321	-.8281806	2.525113
_cons	-4.566377	1.401139	-3.26	0.001	-7.31256	-1.820194

```
. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssistan_2
> AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedS
> eniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Distancefromcam
> pus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile i.FathersEducation#i.CodedSeniorYe
> arGrades

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -505.92815
Iteration 2:   log likelihood = -501.10875
Iteration 3:   log likelihood = -500.83556
Iteration 4:   log likelihood = -500.83378
Iteration 5:   log likelihood = -500.83378

Logistic regression                             Number of obs     =        943
                                                LR chi2(38)       =     209.15
                                                Prob > chi2       =     0.0000
Log likelihood = -500.83378                     Pseudo R2         =     0.1727
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.1713273	.2307574	-0.74	0.458	-.6236035	.2809489
2	-.8891389	.2348332	-3.79	0.000	-1.349404	-.4288743
3	.049834	.2204742	0.23	0.821	-.3822874	.4819554
CodedRace						
1	.1848567	.229393	0.81	0.420	-.2647453	.6344586
2	.6649869	.36481	1.82	0.068	-.0500277	1.380001
3	.391855	.337025	1.16	0.245	-.268702	1.052412
TransferPercentile	-.005288	.0035747	-1.48	0.139	-.0122943	.0017182
ReceptivitytoAcademicAssistan_1	.9572453	.4117078	2.33	0.020	.1503128	1.764178
ReceptivitytoAcademicAssistan_2	-.3168223	.1528546	-2.07	0.038	-.6164118	-.0172329
AcademicStresspercentile	.0018174	.0057176	0.32	0.751	-.0093889	.0130236
FamilyEmotionalSupportpercen	.0075889	.0028875	2.63	0.009	.0019295	.0132483
MathandScienceConfidenceper	.0041161	.0042604	0.97	0.334	-.0042341	.0124662
MothersEducation						
1	-.2870148	.2211606	-1.30	0.194	-.7204817	.1464521
2	.4059869	.2339065	1.74	0.083	-.0524614	.8644352
3	.1898646	.2960439	0.64	0.521	-.3903708	.7701
FathersEducation						
1	-.8007933	.3274049	-2.45	0.014	-1.442495	-.1590915
2	-.5438108	.323864	-1.68	0.093	-1.178573	.090951
3	-1.049228	.4087727	-2.57	0.010	-1.850408	-.2480482
CodedSeniorYearGrades						
1	-.4789163	.2706214	-1.77	0.077	-1.009325	.0514919
2	-1.028663	.3789163	-2.71	0.007	-1.771325	-.2860004
CodedWork						
1	-.0140377	.2999408	-0.05	0.963	-.6019109	.5738355
2	-.2519787	.257643	-0.98	0.328	-.7569496	.2529923
3	-.6654339	.2834792	-2.35	0.019	-1.221043	-.1098248
Sociabilitypercentile	-.0030775	.0027272	-1.13	0.259	-.0084227	.0022676
StudyHabitspercentile_1	-2.920522	1.772643	-1.65	0.099	-6.394839	.553795
StudyHabitspercentile_2	.0967049	.0536468	1.80	0.071	-.0084408	.2018507
MaxACTSATscore	.1357572	.0289814	4.68	0.000	.0789548	.1925596
Distancefromcampus	-.0008624	.0003775	-2.28	0.022	-.0016022	-.0001225
CodedCollegeAthlete	-.3575528	.3337433	-1.07	0.284	-1.011678	.296572
Classpercent	-.0118968	.0051455	-2.31	0.021	-.0219819	-.0018118
ReceptivitytoPersonalCounseli	.0075918	.0038283	1.98	0.047	.0000885	.0150951
VerbalConfidencepercentile	-.0077446	.0038926	-1.99	0.047	-.015374	-.0001153
FathersEducation#CodedSeniorYearGrades						
1 1	.3166543	.4535705	0.70	0.485	-.5723275	1.205636
1 2	.5162712	.6307995	0.82	0.413	-.7200732	1.752616
2 1	.6523806	.4320304	1.51	0.131	-.1943835	1.499145
2 2	.0712715	.6965083	0.10	0.918	-1.29386	1.436403
3 1	.6205495	.5522186	1.12	0.261	-.461779	1.702878
3 2	2.116389	.8695672	2.43	0.015	.4120681	3.820709
_cons	-4.527829	1.396421	-3.24	0.001	-7.264763	-1.790895

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. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssistan_2
> AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedS
> eniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Distancefromcam
> pus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile i.CodedWork#i.CodedSeniorYearGrade
> s

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -505.45673
Iteration 2:   log likelihood = -499.93893
Iteration 3:   log likelihood = -499.66315
Iteration 4:   log likelihood = -499.65846
Iteration 5:   log likelihood = -499.65846

Logistic regression                             Number of obs     =        943
                                                LR chi2(38)       =     211.50
                                                Prob > chi2       =     0.0000
Log likelihood = -499.65846                     Pseudo R2         =     0.1747
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.1669559	.2306108	-0.72	0.469	-.6189449	.285033
2	-.9613217	.2354203	-4.08	0.000	-1.422737	-.4999064
3	.0093968	.2204795	0.04	0.966	-.4227352	.4415288
CodedRace						
1	.131272	.228968	0.57	0.566	-.3174969	.580041
2	.5531546	.3670746	1.51	0.132	-.1662984	1.272608
3	.3260479	.3388499	0.96	0.336	-.3380856	.9901814
TransferPercentile	-.0054071	.0035543	-1.52	0.128	-.0123733	.0015592
ReceptivitytoAcademicAssistan_1	.9867721	.4064529	2.43	0.015	.190139	1.783405
ReceptivitytoAcademicAssistan_2	-.322486	.1514933	-2.13	0.033	-.6194074	-.0255647
AcademicStresspercentile	.0015454	.0057187	0.27	0.787	-.0096631	.012754
FamilyEmotionalSupportpercen	.0074095	.0028861	2.57	0.010	.0017529	.0130661
MathandScienceConfidenceper	.0039095	.0042789	0.91	0.361	-.004477	.012296
MothersEducation						
1	-.2980304	.2205023	-1.35	0.177	-.730207	.1341462
2	.3684643	.2332922	1.58	0.114	-.0887801	.8257087
3	.0734023	.2948291	0.25	0.803	-.504452	.6512567
FathersEducation						
1	-.594629	.2250364	-2.64	0.008	-1.035692	-.1535657
2	-.2599235	.2316036	-1.12	0.262	-.7138582	.1940112
3	-.5737097	.3048726	-1.88	0.060	-1.171249	.0238297
CodedSeniorYearGrades						
1	.6692087	.466136	1.44	0.151	-.2444011	1.582818
2	-1.511454	.8548421	-1.77	0.077	-3.186914	.1640057
CodedWork						
1	.2311204	.4361785	0.53	0.596	-.6237738	1.086015
2	.0667108	.3604865	0.19	0.853	-.6398298	.7732515
3	-.4609668	.3950063	-1.17	0.243	-1.235165	.3132313
Sociabilitypercentile	-.0029046	.0027102	-1.07	0.284	-.0082164	.0024072
StudyHabitspercentile_1	-2.761667	1.72252	-1.60	0.109	-6.137743	.6144094
StudyHabitspercentile_2	.0942397	.0535636	1.76	0.079	-.0107429	.1992224
MaxACTSATscore	.1340718	.0288465	4.65	0.000	.0775337	.1906099
Distancefromcampus	-.0009071	.0003801	-2.39	0.017	-.0016522	-.0001621
CodedCollegeAthlete	-.4921646	.345023	-1.43	0.154	-1.168397	.1840681
Classpercent	-.0116102	.0051143	-2.27	0.023	-.0216341	-.0015864
ReceptivitytoPersonalCounseli	.0071309	.0038179	1.87	0.062	-.000352	.0146138
VerbalConfidencepercentile	-.0077972	.00385	-2.03	0.043	-.0153431	-.0002512
CodedWork#CodedSeniorYearGrades						
1 1	-.9820988	.6251561	-1.57	0.116	-2.207382	.2431846
1 2	1.197398	1.020466	1.17	0.241	-.8026783	3.197475
2 1	-1.161184	.5185897	-2.24	0.025	-2.177601	-.1447673
2 2	.9221115	.8906566	1.04	0.301	-.8235433	2.667766
3 1	-.7012765	.5563763	-1.26	0.208	-1.791754	.389201
3 2	.3976214	1.022386	0.39	0.697	-1.606218	2.401461
_cons	-4.813024	1.408091	-3.42	0.001	-7.572831	-2.053216

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. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssistan_2
> AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedS
> eniorYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Distancefromcam
> pus CodedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile i.MothersEducation#i.CodedWork

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -499.66091
Iteration 2:   log likelihood = -494.15674
Iteration 3:   log likelihood = -493.81091
Iteration 4:   log likelihood = -493.80876
Iteration 5:   log likelihood = -493.80876

Logistic regression                             Number of obs     =        943
                                                LR chi2(41)       =     223.20
                                                Prob > chi2       =     0.0000
Log likelihood = -493.80876                     Pseudo R2         =     0.1843
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	-.1427418	.2326027	-0.61	0.539	-.5986346	.313151
2	-.960726	.2362558	-4.07	0.000	-1.423779	-.497673
3	.0252498	.2221192	0.11	0.909	-.4100959	.4605954
CodedRace						
1	.1582642	.232466	0.68	0.496	-.2973607	.6138891
2	.513649	.370862	1.39	0.166	-.2132272	1.240525
3	.3255954	.3352149	0.97	0.331	-.3314137	.9826046
TransferPercentile	-.0049239	.0036	-1.37	0.171	-.0119799	.002132
ReceptivitytoAcademicAssistan_1	1.027774	.4107942	2.50	0.012	.2226317	1.832916
ReceptivitytoAcademicAssistan_2	-.3326816	.1529041	-2.18	0.030	-.6323681	-.0329951
AcademicStresspercentile	.002403	.0057862	0.42	0.678	-.0089378	.0137438
FamilyEmotionalSupportpercen	.0085654	.0029348	2.92	0.004	.0028134	.0143175
MathandScienceConfidenceper	.0023641	.0043124	0.55	0.584	-.0060881	.0108164
MothersEducation						
1	-1.562068	.6275638	-2.49	0.013	-2.79207	-.3320653
2	-1.087279	.5531752	-1.97	0.049	-2.171483	-.003076
3	-.313951	.6342233	-0.50	0.621	-1.557006	.9291039
FathersEducation						
1	-.6259712	.2266688	-2.76	0.006	-1.070234	-.1817084
2	-.2479836	.2328152	-1.07	0.287	-.7042929	.2083257
3	-.6667134	.3152307	-2.12	0.034	-1.284554	-.0488726
CodedSeniorYearGrades						
1	-.2341881	.1944151	-1.20	0.228	-.6152348	.1468585
2	-.7478942	.3038736	-2.46	0.014	-1.343476	-.1523129
CodedWork						
1	-.8223686	.4892786	-1.68	0.093	-1.781337	.1365998
2	-1.388105	.4287206	-3.24	0.001	-2.228382	-.5478284
3	-1.11214	.4485282	-2.48	0.013	-1.991239	-.2330413
Sociabilitypercentile	-.0023827	.0027414	-0.87	0.385	-.0077558	.0029904
StudyHabitspercentile_1	-3.28301	1.797224	-1.83	0.068	-6.805504	.2394835
StudyHabitspercentile_2	.0968227	.0542626	1.78	0.074	-.0095301	.2031754
MaxACTSATscore	.1475485	.0291732	5.06	0.000	.0903702	.2047269
Distancefromcampus	-.0009578	.0003868	-2.48	0.013	-.001716	-.0001996
CodedCollegeAthlete	-.2562868	.3381083	-0.76	0.448	-.9189669	.4063934
Classpercent	-.0117772	.0051827	-2.27	0.023	-.021935	-.0016194
ReceptivitytoPersonalCounseli	.007676	.0038587	1.99	0.047	.000113	.015239
VerbalConfidencepercentile	-.0080722	.003924	-2.06	0.040	-.0157631	-.0003813
MothersEducation#CodedWork						
1 1	.5879552	.8710702	0.67	0.500	-1.119311	2.295221
1 2	1.919153	.6853308	2.80	0.005	.5759289	3.262376
1 3	.8873995	.7440968	1.19	0.233	-.5710035	2.345802
2 1	2.01759	.7395812	2.73	0.006	.5680375	3.467142
2 2	1.996438	.6223857	3.21	0.001	.7765849	3.216292
2 3	.8984506	.6654671	1.35	0.177	-.405841	2.202742
3 1	.6173963	.9074172	0.68	0.496	-1.161109	2.395901
3 2	.8489674	.7247877	1.17	0.241	-.5715903	2.269525
3 3	-.429793	.8402156	-0.51	0.609	-2.076585	1.216999
_cons	-4.255791	1.419256	-3.00	0.003	-7.037481	-1.474101

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. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssistan_2 Ac
> ademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedSenio
> rYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Distancefromcampus Co
> dedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile i.Major#c.FamilyEmotionalSupportpercen i.M
> ajor#c.MathandScienceConfidenceper i.Major#c.MaxACTSATscore i.Major#c.Classpercent i.CodedRace#c.Classpercent i.CodedRace#c.Recept
> ivitytoPersonalCounseli i.CodedRace#c.VerbalConfidencepercentile i.CodedRace#i.MothersEducation i.CodedRace#i.FathersEducation i.C
> odedRace#i.CodedWork c.TransferPercentile#c.CodedCollegeAthlete c.TransferPercentile#i.MothersEducation c.TransferPercentile#i.Fat
> hersEducation c.ReceptivitytoAcademicAssistan_1#c.Distancefromcampus c.ReceptivitytoAcademicAssistan_2#c.Distancefromcampus c.Acad
> emicStresspercentile#i.MothersEducation c.AcademicStresspercentile#i.CodedWork c.FamilyEmotionalSupportpercen#c.Classpercent c.Stu
> dyHabitspercentile_2#i.MothersEducation c.Distancefromcampus#i.CodedSeniorYearGrades c.VerbalConfidencepercentile#i.FathersEducati
> on i.MothersEducation#i.CodedSeniorYearGrades i.MothersEducation#i.CodedWork i.FathersEducation#i.CodedSeniorYearGrades i.CodedWor
> k#i.CodedSeniorYearGrades

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -434.20909
Iteration 2:   log likelihood = -418.26103
Iteration 3:   log likelihood = -416.78589
Iteration 4:   log likelihood = -416.75375
Iteration 5:   log likelihood = -416.75359
Iteration 6:   log likelihood = -416.75359

Logistic regression                             Number of obs     =        943
                                                LR chi2(131)      =     377.31
                                                Prob > chi2       =     0.0000
Log likelihood = -416.75359                     Pseudo R2         =     0.3116
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	5.931133	2.001998	2.96	0.003	2.00729	9.854976
2	-1.118334	2.086137	-0.54	0.592	-5.207088	2.97042
3	1.807038	2.181978	0.83	0.408	-2.469561	6.083637
CodedRace						
1	.8978883	1.183005	0.76	0.448	-1.420758	3.216535
2	.8111979	2.276883	0.36	0.722	-3.651411	5.273807
3	-2.192534	2.5669	-0.85	0.393	-7.223565	2.838497
TransferPercentile	-.0184146	.0072861	-2.53	0.011	-.0326951	-.0041341
ReceptivitytoAcademicAssistan_1	.7247951	.5866246	1.24	0.217	-.4249679	1.874558
ReceptivitytoAcademicAssistan_2	-.2789745	.2157665	-1.29	0.196	-.7018692	.1439201
AcademicStresspercentile	-.0135293	.0143306	-0.94	0.345	-.0416167	.0145581
FamilyEmotionalSupportpercen	.006056	.0073677	0.82	0.411	-.0083846	.0204965
MathandScienceConfidenceper	.0126646	.0088212	1.44	0.151	-.0046246	.0299538
MothersEducation						
1	-3.054144	1.834675	-1.66	0.096	-6.65004	.541752
2	-1.662552	1.847181	-0.90	0.368	-5.282959	1.957855
3	1.462559	2.213814	0.66	0.509	-2.876435	5.801554
FathersEducation						
1	-1.724565	.8860976	-1.95	0.052	-3.461284	.0121548
2	-.6943703	.9222407	-0.75	0.452	-2.501929	1.113188
3	-2.710069	1.241187	-2.18	0.029	-5.142752	-.2773866
CodedSeniorYearGrades						
1	-.1345929	.7460005	-0.18	0.857	-1.596727	1.327541
2	-4.29751	1.422052	-3.02	0.003	-7.084681	-1.51034
CodedWork						
1	-2.332762	.9966346	-2.34	0.019	-4.28613	-.3793941
2	-1.949458	.8833671	-2.21	0.027	-3.680826	-.2180905
3	-2.405456	.9367549	-2.57	0.010	-4.241462	-.5694502
Sociabilitypercentile	-.0024578	.0032417	-0.76	0.448	-.0088113	.0038957
StudyHabitspercentile_1	-3.766367	2.435457	-1.55	0.122	-8.539774	1.00704
StudyHabitspercentile_2	.1981542	.1022828	1.94	0.053	-.0023164	.3986248
MaxACTSATscore	.2165627	.0511822	4.23	0.000	.1162475	.316878
Distancefromcampus	-.0111691	.0057861	-1.93	0.054	-.0225096	.0001714
CodedCollegeAthlete	-2.564944	1.2041	-2.13	0.033	-4.924936	-.204951
Classpercent	-.0336348	.0131926	-2.55	0.011	-.0594918	-.0077778
ReceptivitytoPersonalCounseli	.0097159	.0052614	1.85	0.065	-.0005963	.0200281
VerbalConfidencepercentile	-.0072225	.0069311	-1.04	0.297	-.0208072	.0063622

Major#c.FamilyEmotionalSupportpercen						
1	-.0156418	.0081816	-1.91	0.056	-.0316775	.0003938
2	-.016814	.009034	-1.86	0.063	-.0345203	.0008923
3	.0055531	.0084359	0.66	0.510	-.010981	.0220871
Major#c.MathandScienceConfidenceper						
1	-.0161287	.0118288	-1.36	0.173	-.0393127	.0070552
2	.0013336	.0123465	0.11	0.914	-.0228651	.0255323
3	-.0188265	.0113747	-1.66	0.098	-.0411204	.0034675
Major#c.MaxACTSATscore						
1	-.1814272	.0770423	-2.35	0.019	-.3324273	-.0304272
2	.0524121	.0823405	0.64	0.524	-.1089723	.2137965
3	-.0413298	.0838596	-0.49	0.622	-.2056916	.123032
Major#c.Classpercent						
1	-.0007733	.0139179	-0.06	0.956	-.0280518	.0265052
2	-.0184732	.0185851	-0.99	0.320	-.0548993	.0179529
3	-.0012111	.0150785	-0.08	0.936	-.0307644	.0283421
CodedRace#c.Classpercent						
1	.0096225	.0122214	0.79	0.431	-.0143309	.033576
2	.0158631	.0222423	0.71	0.476	-.0277309	.0594572
3	.0452211	.0214385	2.11	0.035	.0032025	.0872397
CodedRace#c.ReceptivitytoPersonalCounseli						
1	-.0156822	.0094207	-1.66	0.096	-.0341464	.0027819
2	.0209074	.0190285	1.10	0.272	-.0163879	.0582026
3	-.0190687	.0216508	-0.88	0.378	-.0615035	.0233661
CodedRace#c.VerbalConfidencepercentile						
1	.0077966	.008691	0.90	0.370	-.0092375	.0248308
2	-.0170948	.0178242	-0.96	0.338	-.0520295	.0178399
3	-.0093502	.0159403	-0.59	0.557	-.0405926	.0218921
CodedRace#MothersEducation						
1 1	-1.37712	.6917469	-1.99	0.047	-2.732919	-.0213209
1 2	-2.827474	1.019768	-2.77	0.006	-4.826183	-.8287658
1 3	-1.401221	1.150566	-1.22	0.223	-3.656289	.8538463
2 1	.6205433	1.068304	0.58	0.561	-1.473295	2.714381
2 2	-.335295	1.618146	-0.21	0.836	-3.506803	2.836212
2 3	-3.331484	2.386519	-1.40	0.163	-8.008975	1.346006
3 1	-.9830968	1.378172	-0.71	0.476	-3.684263	1.71807
3 2	1.172032	1.630194	0.72	0.472	-2.023089	4.367153
3 3	-.2776392	1.473397	-0.19	0.851	-3.165445	2.610166
CodedRace#FathersEducation						
1 1	2.265013	.7512626	3.01	0.003	.7925652	3.73746
1 2	1.395771	.942491	1.48	0.139	-.451477	3.24302
1 3	2.556107	1.146693	2.23	0.026	.30863	4.803584
2 1	-.6718706	1.227543	-0.55	0.584	-3.077811	1.73407
2 2	-.0118484	1.36345	-0.01	0.993	-2.684162	2.660465
2 3	1.286615	2.589537	0.50	0.619	-3.788783	6.362014
3 1	-1.548693	1.697842	-0.91	0.362	-4.876401	1.779015
3 2	.9516583	1.372551	0.69	0.488	-1.738492	3.641809
3 3	3.585282	1.732031	2.07	0.038	.1905636	6.98
CodedRace#CodedWork						
1 1	-.3599888	1.058965	-0.34	0.734	-2.435522	1.715545
1 2	-.9542676	.9158343	-1.04	0.297	-2.74927	.8407346
1 3	.3176977	.9611516	0.33	0.741	-1.566125	2.20152
2 1	-1.446041	1.9989	-0.72	0.469	-5.363813	2.471731
2 2	-1.633156	1.666458	-0.98	0.327	-4.899355	1.633042
2 3	-.1735854	1.729043	-0.10	0.920	-3.562447	3.215276
3 1	4.995052	2.193941	2.28	0.023	.6950057	9.295097
3 2	2.013755	1.902539	1.06	0.290	-1.715152	5.742663
3 3	2.166775	2.136773	1.01	0.311	-2.021222	6.354773
c.TransferPercentile#c.CodedCollegeAthlete	.0354146	.0192521	1.84	0.066	-.0023187	.073148
MothersEducation#c.TransferPercentile						
1	.0181331	.0114851	1.58	0.114	-.0043774	.0406435
2	.0130268	.0121877	1.07	0.285	-.0108608	.0369143
3	-.0156598	.0157028	-1.00	0.319	-.0464368	.0151171
FathersEducation#c.TransferPercentile						
1	.0162995	.0119663	1.36	0.173	-.0071541	.039753
2	.006794	.0116221	0.58	0.559	-.0159849	.029573
3	.00879	.0159541	0.55	0.582	-.0224794	.0400594

c.ReceptivitytoAcademicAssistan_1#c.Distancefromcampus	.0035655	.0033843	1.05	0.292	-.0030676	.0101987
c.ReceptivitytoAcademicAssistan_2#c.Distancefromcampus	-.0006362	.001071	-0.59	0.552	-.0027353	.0014628
MothersEducation#c.AcademicStresspercentile						
1	-.0006378	.0123428	-0.05	0.959	-.0248292	.0235535
2	.0017818	.0118211	0.15	0.880	-.0213872	.0249507
3	.0045206	.0154354	0.29	0.770	-.0257322	.0347734
CodedWork#c.AcademicStresspercentile						
1	.0259951	.013965	1.86	0.063	-.0013757	.053366
2	.0141464	.0116038	1.22	0.223	-.0085966	.0368895
3	.0158516	.0126222	1.26	0.209	-.0088874	.0405906
c.FamilyEmotionalSupportpercen#c.Classpercent	.0002568	.0001668	1.54	0.124	-.0000701	.0005836
MothersEducation#c.StudyHabitspercentile_2						
1	-.0414625	.1471172	-0.28	0.778	-.3298069	.2468818
2	-.08638	.1466966	-0.59	0.556	-.3739	.2011401
3	-.1819249	.1848655	-0.98	0.325	-.5442546	.1804047
CodedSeniorYearGrades#c.Distancefromcampus						
1	.0007873	.0010733	0.73	0.463	-.0013164	.002891
2	.0023259	.001243	1.87	0.061	-.0001103	.0047622
FathersEducation#c.VerbalConfidencepercentile						
1	-.0045707	.0087226	-0.52	0.600	-.0216667	.0125253
2	-.0165514	.0090158	-1.84	0.066	-.0342221	.0011192
3	.0094948	.0117884	0.81	0.421	-.0136101	.0325996
MothersEducation#CodedSeniorYearGrades						
1 1	1.159203	.5620092	2.06	0.039	.057685	2.260721
1 2	.9135515	.8147583	1.12	0.262	-.6833455	2.510448
2 1	.5927617	.5966843	0.99	0.321	-.5767181	1.762242
2 2	-.841935	1.027533	-0.82	0.413	-2.855863	1.171993
3 1	.6055014	.795327	0.76	0.446	-.9533108	2.164314
3 2	.0223311	1.209117	0.02	0.985	-2.347495	2.392157
MothersEducation#CodedWork						
1 1	1.068345	1.138691	0.94	0.348	-1.163448	3.300139
1 2	2.108271	.953004	2.21	0.027	.2404176	3.976124
1 3	1.2161	1.003403	1.21	0.226	-.7505333	3.182733
2 1	2.877562	1.085283	2.65	0.008	.7504455	5.004678
2 2	2.276362	.9335928	2.44	0.015	.4465539	4.10617
2 3	1.489523	.9801791	1.52	0.129	-.4315923	3.410639
3 1	1.450843	1.282989	1.13	0.258	-1.063768	3.965455
3 2	.7630531	1.039523	0.73	0.463	-1.274374	2.80048
3 3	.0122077	1.155657	0.01	0.992	-2.252838	2.277254
FathersEducation#CodedSeniorYearGrades						
1 1	-.2727985	.5876089	-0.46	0.642	-1.424491	.8788937
1 2	.058816	.8220605	0.07	0.943	-1.552393	1.670025
2 1	.707072	.5771377	1.23	0.221	-.4240971	1.838241
2 2	.0183292	.9566614	0.02	0.985	-1.856693	1.893351
3 1	-.0077794	.8312518	-0.01	0.993	-1.637003	1.621444
3 2	2.503953	1.17963	2.12	0.034	.191922	4.815985
CodedWork#CodedSeniorYearGrades						
1 1	-1.276524	.8089806	-1.58	0.115	-2.862097	.309049
1 2	2.76637	1.53308	1.80	0.071	-.2384113	5.771152
2 1	-.9910628	.6845678	-1.45	0.148	-2.332791	.3506654
2 2	3.150177	1.430596	2.20	0.028	.3462589	5.954094
3 1	-.4481871	.7400946	-0.61	0.545	-1.898746	1.002372
3 2	2.722886	1.538445	1.77	0.077	-.2924104	5.738182
_cons	-4.002436	2.424179	-1.65	0.099	-8.753739	.7488678

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. logit Retainedtofall2012 i.Major i.CodedRace TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicAssistan_2 Ac
> ademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.MothersEducation i.FathersEducation i.CodedSenio
> rYearGrades i.CodedWork Sociabilitypercentile StudyHabitspercentile_1 StudyHabitspercentile_2 MaxACTSATscore Distancefromcampus Co
> dedCollegeAthlete Classpercent ReceptivitytoPersonalCounseli VerbalConfidencepercentile i.Major#c.MaxACTSATscore i.Major#c.FamilyE
> motionalSupportpercen i.CodedRace#i.MothersEducation i.CodedRace#i.FathersEducation i.CodedRace#i.CodedWork c.TransferPercentile#c
> .CodedCollegeAthlete c.TransferPercentile#i.MothersEducation c.ReceptivitytoAcademicAssistan_1#c.Distancefromcampus c.Receptivityt
> oAcademicAssistan_2#c.Distancefromcampus c.AcademicStresspercentile#i.CodedWork C.VerbalConfidencepercentile#i.FathersEducation i.
> MothersEducation#i.CodedSeniorYearGrades i.MothersEducation#i.CodedWork

Iteration 0:   log likelihood =  -605.4073
Iteration 1:   log likelihood = -450.79711
Iteration 2:   log likelihood = -439.53581
Iteration 3:   log likelihood = -439.01496
Iteration 4:   log likelihood = -439.00165
Iteration 5:   log likelihood = -439.00162

Logistic regression                             Number of obs     =        943
                                                LR chi2(92)       =     332.81
                                                Prob > chi2       =     0.0000
Log likelihood = -439.00162                     Pseudo R2         =     0.2749
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
1	5.384684	1.530896	3.52	0.000	2.384182	8.385186
2	-1.571552	1.697369	-0.93	0.355	-4.898334	1.75523
3	1.092502	1.555161	0.70	0.482	-1.955557	4.140561
CodedRace						
1	.7883863	.7700706	1.02	0.306	-.7209244	2.297697
2	1.45233	1.174926	1.24	0.216	-.8504831	3.755143
3	-2.786369	1.884906	-1.48	0.139	-6.480718	.9079792
TransferPercentile	-.0151503	.0065741	-2.30	0.021	-.0280352	-.0022654
ReceptivitytoAcademicAssistan_1	.8680777	.5664099	1.53	0.125	-.2420654	1.978221
ReceptivitytoAcademicAssistan_2	-.3410718	.2075588	-1.64	0.100	-.7478795	.0657359
AcademicStresspercentile	-.010056	.0108585	-0.93	0.354	-.0313382	.0112261
FamilyEmotionalSupportpercen	.0124727	.005008	2.49	0.013	.0026572	.0222882
MathandScienceConfidenceper	.0042717	.0047513	0.90	0.369	-.0050406	.0135841
MothersEducation						
1	-3.025318	.9554737	-3.17	0.002	-4.898012	-1.152624
2	-2.174939	.9660573	-2.25	0.024	-4.068377	-.2815016
3	.1071446	1.162429	0.09	0.927	-2.171174	2.385464
FathersEducation						
1	-.5916303	.467561	-1.27	0.206	-1.508033	.3247725
2	.2354913	.4547418	0.52	0.605	-.6557863	1.126769
3	-1.406102	.6499043	-2.16	0.030	-2.679891	-.1323131
CodedSeniorYearGrades						
1	-.7283264	.3310392	-2.20	0.028	-1.377151	-.0795015
2	-1.44403	.4816434	-3.00	0.003	-2.388033	-.500026
CodedWork						
1	-1.974676	.868697	-2.27	0.023	-3.677291	-.2720609
2	-1.604395	.7455789	-2.15	0.031	-3.065703	-.1430873
3	-1.692404	.802758	-2.11	0.035	-3.265781	-.1190273
Sociabilitypercentile	-.0010654	.0030529	-0.35	0.727	-.0070489	.0049181
StudyHabitspercentile_1	-3.404029	1.945903	-1.75	0.080	-7.217928	.4098701
StudyHabitspercentile_2	.1448555	.0609969	2.37	0.018	.0253038	.2644072
MaxACTSATscore	.2130635	.0455874	4.67	0.000	.1237138	.3024132
Distancefromcampus	-.0091671	.005343	-1.72	0.086	-.0196391	.001305
CodedCollegeAthlete	-2.635163	1.122881	-2.35	0.019	-4.835969	-.4343568
Classpercent	-.0140217	.0057198	-2.45	0.014	-.0252323	-.0028111
ReceptivitytoPersonalCounseli	.0066153	.0042656	1.55	0.121	-.0017451	.0149757
VerbalConfidencepercentile	-.0042038	.0054749	-0.77	0.443	-.0149345	.0065268
Major#c.MaxACTSATscore						
1	-.2050823	.063936	-3.21	0.001	-.3303946	-.0797701
2	.0671074	.0713484	0.94	0.347	-.072733	.2069477
3	-.0677495	.0661997	-1.02	0.306	-.1974985	.0619996
Major#c.FamilyEmotionalSupportpercen						
1	-.0176885	.0076449	-2.31	0.021	-.0326722	-.0027048
2	-.0185522	.0083056	-2.23	0.026	-.0348308	-.0022735
3	.0054801	.0079495	0.69	0.491	-.0101005	.0210608

CodedRace#MothersEducation						
1 1	-1.278793	.6494264	-1.97	0.049	-2.551646	-.0059408
1 2	-2.51912	.9686817	-2.60	0.009	-4.417702	-.6205393
1 3	-1.966974	1.134773	-1.73	0.083	-4.191089	.2571404
2 1	.3488141	.9281722	0.38	0.707	-1.47037	2.167998
2 2	-.536969	1.396191	-0.38	0.701	-3.273454	2.199516
2 3	-2.501887	1.787482	-1.40	0.162	-6.005287	1.001514
3 1	-.0705532	1.121402	-0.06	0.950	-2.26846	2.127354
3 2	2.535532	1.448739	1.75	0.080	-.3039435	5.375008
3 3	.498183	1.306694	0.38	0.703	-2.062891	3.059257
CodedRace#FathersEducation						
1 1	2.067541	.6860579	3.01	0.003	.7228924	3.41219
1 2	1.123358	.8752434	1.28	0.199	-.5920873	2.838804
1 3	2.417337	1.045676	2.31	0.021	.3678503	4.466823
2 1	-.7698939	1.016408	-0.76	0.449	-2.762016	1.222228
2 2	-.4216782	1.050576	-0.40	0.688	-2.480769	1.637413
2 3	.9072629	2.294556	0.40	0.693	-3.589983	5.404509
3 1	-.8278321	1.427466	-0.58	0.562	-3.625614	1.969949
3 2	.7349146	1.312472	0.56	0.576	-1.837484	3.307313
3 3	2.673074	1.505078	1.78	0.076	-.2768251	5.622973
CodedRace#CodedWork						
1 1	-.4532706	.9243594	-0.49	0.624	-2.264982	1.358441
1 2	-1.031545	.7850552	-1.31	0.189	-2.570225	.5071347
1 3	.1808462	.8383637	0.22	0.829	-1.462316	1.824009
2 1	-.5419838	1.670499	-0.32	0.746	-3.816101	2.732134
2 2	-.7137377	1.265309	-0.56	0.573	-3.193699	1.766223
2 3	.3481716	1.373928	0.25	0.800	-2.344677	3.041021
3 1	5.071351	2.118233	2.39	0.017	.9196911	9.22301
3 2	2.069415	1.794562	1.15	0.249	-1.447862	5.586692
3 3	1.674509	1.946023	0.86	0.390	-2.139626	5.488643
c.TransferPercentile#c.CodedCollegeAthlete	.0417908	.0179184	2.33	0.020	.0066715	.0769102
MothersEducation#c.TransferPercentile						
1	.0210966	.0100901	2.09	0.037	.0013202	.0408729
2	.0185462	.0100524	1.84	0.065	-.0011562	.0382487
3	-.0062517	.0133441	-0.47	0.639	-.0324056	.0199023
c.ReceptivitytoAcademicAssistan_1#c.Distancefromcampus	.0030017	.0030677	0.98	0.328	-.0030108	.0090142
c.ReceptivitytoAcademicAssistan_2#c.Distancefromcampus	-.0005118	.0009705	-0.53	0.598	-.0024139	.0013903
CodedWork#c.AcademicStresspercentile						
1	.0249705	.0123755	2.02	0.044	.0007149	.0492261
2	.0138037	.010395	1.33	0.184	-.0065701	.0341776
3	.0112175	.011446	0.98	0.327	-.0112162	.0336513
FathersEducation#c.VerbalConfidencepercentile						
1	-.0076807	.0079995	-0.96	0.337	-.0233594	.007998
2	-.0179821	.0078518	-2.29	0.022	-.0333713	-.0025928
3	.0010334	.010086	0.10	0.918	-.0187349	.0208017
MothersEducation#CodedSeniorYearGrades						
1 1	1.088931	.5004817	2.18	0.030	.1080049	2.069857
1 2	1.716029	.6732994	2.55	0.011	.3963864	3.035671
2 1	.6898641	.4849955	1.42	0.155	-.2607096	1.640438
2 2	-.470462	.8797297	-0.53	0.593	-2.194701	1.253777
3 1	.9889594	.6276768	1.58	0.115	-.2412644	2.219183
3 2	1.968662	.9915763	1.99	0.047	.0252086	3.912116
MothersEducation#CodedWork						
1 1	.6254906	1.003584	0.62	0.533	-1.341498	2.592479
1 2	1.422462	.8165306	1.74	0.081	-.1779083	3.022833
1 3	.6508489	.8776266	0.74	0.458	-1.069268	2.370966
2 1	2.124374	.9661099	2.20	0.028	.230833	4.017914
2 2	1.71089	.8145539	2.10	0.036	.1143938	3.307387
2 3	.9392802	.8675812	1.08	0.279	-.7611477	2.639708
3 1	.8119599	1.145514	0.71	0.478	-1.433206	3.057126
3 2	.2031187	.9107344	0.22	0.824	-1.581888	1.988125
3 3	-.6783999	1.056469	-0.64	0.521	-2.749041	1.392242
_cons	-4.450378	2.002399	-2.22	0.026	-8.375009	-.5257478

```
. estat gof, group(10)

Logistic model for Retainedtofall2012, goodness-of-fit test

  (Table collapsed on quantiles of estimated probabilities)

      number of observations =       943
           number of groups =        10
     Hosmer-Lemeshow chi2(8) =      2.97
                 Prob > chi2 =    0.9361
```

Caucasian and Hispanic STEM Model

```
. logit Retainedtofall2012 CodifiedGender

Iteration 0:   log likelihood = -561.67594
Iteration 1:   log likelihood = -560.77832
Iteration 2:   log likelihood = -560.77813
Iteration 3:   log likelihood = -560.77813

Logistic regression                             Number of obs     =        867
                                                LR chi2(1)        =       1.80
                                                Prob > chi2       =     0.1802
Log likelihood = -560.77813                     Pseudo R2         =     0.0016
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
CodifiedGender	-.1924505	.1438783	-1.34	0.181	-.4744468	.0895458
_cons	-.5319493	.0944368	-5.63	0.000	-.717042	-.3468565

```
. logit Retainedtofall2012 i.Major

Iteration 0:   log likelihood = -561.67594
Iteration 1:   log likelihood = -553.87108
Iteration 2:   log likelihood = -553.82522
Iteration 3:   log likelihood = -553.82521

Logistic regression                             Number of obs     =        867
                                                LR chi2(3)        =      15.70
                                                Prob > chi2       =     0.0013
Log likelihood = -553.82521                     Pseudo R2         =     0.0140
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Major						
2	-.269031	.1969314	-1.37	0.172	-.6550093	.1169474
3	-.7940411	.2060369	-3.85	0.000	-1.197866	-.3902163
4	-.2246951	.1883413	-1.19	0.233	-.5938373	.144447
_cons	-.3551234	.1148334	-3.09	0.002	-.5801928	-.1300539

```
. logit Retainedtofall2012 i.CodedRace

Iteration 0:   log likelihood = -561.67594
Iteration 1:   log likelihood = -561.25458
Iteration 2:   log likelihood = -561.25449
Iteration 3:   log likelihood = -561.25449

Logistic regression                             Number of obs     =        867
                                                LR chi2(1)        =       0.84
                                                Prob > chi2       =     0.3586
Log likelihood = -561.25449                     Pseudo R2         =     0.0008
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
2.CodedRace	-.148505	.1624079	-0.91	0.361	-.4668187	.1698087
_cons	-.5770075	.0827588	-6.97	0.000	-.7392118	-.4148033

```
. logit Retainedtofall2012 TransferPercentile

Iteration 0:   log likelihood = -561.67594
Iteration 1:   log likelihood = -560.11037
Iteration 2:   log likelihood = -560.10973
Iteration 3:   log likelihood = -560.10973

Logistic regression                             Number of obs     =        867
                                                LR chi2(1)        =       3.13
                                                Prob > chi2       =     0.0767
Log likelihood = -560.10973                     Pseudo R2         =     0.0028

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
TransferPercentile |  -.0054743   .0031032    -1.76   0.078    -.0115564    .0006078
             _cons |  -.2895762   .1971363    -1.47   0.142    -.6759562    .0968039
------------------------------------------------------------------------------

. logit Retainedtofall2012 ReceptivitytoAcademicAssistan

Iteration 0:   log likelihood = -561.67594
Iteration 1:   log likelihood = -560.36649
Iteration 2:   log likelihood = -560.36611
Iteration 3:   log likelihood = -560.36611

Logistic regression                             Number of obs     =        867
                                                LR chi2(1)        =       2.62
                                                Prob > chi2       =     0.1055
Log likelihood = -560.36611                     Pseudo R2         =     0.0023

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
ReceptivitytoAcademicAssistan |  -.0041743   .0025808    -1.62   0.106    -.0092325    .0008839
             _cons |  -.3930848   .1542317    -2.55   0.011    -.6953734   -.0907963
------------------------------------------------------------------------------

. logit Retainedtofall2012 ReceptivitytoFinancialGuidanc

Iteration 0:   log likelihood = -561.67594
Iteration 1:   log likelihood = -560.90897
Iteration 2:   log likelihood = -560.90882
Iteration 3:   log likelihood = -560.90882

Logistic regression                             Number of obs     =        867
                                                LR chi2(1)        =       1.53
                                                Prob > chi2       =     0.2155
Log likelihood = -560.90882                     Pseudo R2         =     0.0014

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
ReceptivitytoFinancialGuidanc |  -.0032092   .0025888    -1.24   0.215    -.0082831    .0018647
             _cons |  -.4237978   .1699931    -2.49   0.013    -.7569781   -.0906174
------------------------------------------------------------------------------

. logit Retainedtofall2012 AcademicStresspercentile

Iteration 0:   log likelihood = -561.67594
Iteration 1:   log likelihood = -558.48691
Iteration 2:   log likelihood = -558.48423
Iteration 3:   log likelihood = -558.48423

Logistic regression                             Number of obs     =        867
                                                LR chi2(1)        =       6.38
                                                Prob > chi2       =     0.0115
Log likelihood = -558.48423                     Pseudo R2         =     0.0057

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
AcademicStresspercentile |  -.0061983   .0024672    -2.51   0.012     -.011034   -.0013627
             _cons |  -.3484649   .1266583    -2.75   0.006    -.5967106   -.1002192
------------------------------------------------------------------------------
```

```
. logit Retainedtofall2012 AttitudeTowardEducatorsperce

Iteration 0:   log likelihood = -561.67594
Iteration 1:   log likelihood = -560.70388
Iteration 2:   log likelihood = -560.70364
Iteration 3:   log likelihood = -560.70364

Logistic regression                             Number of obs     =        867
                                                LR chi2(1)        =       1.94
                                                Prob > chi2       =     0.1632
Log likelihood = -560.70364                     Pseudo R2         =     0.0017
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
AttitudeTowardEducatorsperce	.00345	.0024795	1.39	0.164	-.0014097	.0083098
_cons	-.8061152	.1548953	-5.20	0.000	-1.109704	-.502526

```
. logit Retainedtofall2012 FamilyEmotionalSupportpercen

Iteration 0:   log likelihood = -561.67594
Iteration 1:   log likelihood = -558.31509
Iteration 2:   log likelihood = -558.31256
Iteration 3:   log likelihood = -558.31256

Logistic regression                             Number of obs     =        867
                                                LR chi2(1)        =       6.73
                                                Prob > chi2       =     0.0095
Log likelihood = -558.31256                     Pseudo R2         =     0.0060
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
FamilyEmotionalSupportpercen	.0059135	.0022873	2.59	0.010	.0014305	.0103965
_cons	-.935526	.1443604	-6.48	0.000	-1.218467	-.652585

```
. logit Retainedtofall2012 SenseofFinancialSecurityper

Iteration 0:   log likelihood = -561.67594
Iteration 1:   log likelihood = -560.51701
Iteration 2:   log likelihood = -560.51671
Iteration 3:   log likelihood = -560.51671

Logistic regression                             Number of obs     =        867
                                                LR chi2(1)        =       2.32
                                                Prob > chi2       =     0.1278
Log likelihood = -560.51671                     Pseudo R2         =     0.0021
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
SenseofFinancialSecurityper	.0036611	.0024048	1.52	0.128	-.0010522	.0083745
_cons	-.7845893	.1324976	-5.92	0.000	-1.04428	-.5248988

```
. logit Retainedtofall2012 Selfreportedcollegeprepperc

Iteration 0:   log likelihood = -561.67594
Iteration 1:   log likelihood = -544.16214
Iteration 2:   log likelihood = -544.04214
Iteration 3:   log likelihood = -544.04211

Logistic regression                             Number of obs     =        867
                                                LR chi2(1)        =      35.27
                                                Prob > chi2       =     0.0000
Log likelihood = -544.04211                     Pseudo R2         =     0.0314
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Selfreportedcollegeprepperc	.0165293	.0028733	5.75	0.000	.0108977	.0221608
_cons	-1.638017	.1969536	-8.32	0.000	-2.024039	-1.251995

```
. logit Retainedtofall2012 MathandScienceConfidenceper

Iteration 0:   log likelihood = -561.67594
Iteration 1:   log likelihood = -552.91281
Iteration 2:   log likelihood = -552.87379
Iteration 3:   log likelihood = -552.87379

Logistic regression                             Number of obs     =        867
                                                LR chi2(1)        =      17.60
                                                Prob > chi2       =     0.0000
Log likelihood = -552.87379                     Pseudo R2         =     0.0157

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
MathandScienceConfidenceper |   .0120061    .002933     4.09   0.000     .0062575    .0177547
                     _cons |  -1.436572   .2166087    -6.63   0.000    -1.861117   -1.012027
------------------------------------------------------------------------------

. logit Retainedtofall2012 i.DegreeSought

Iteration 0:   log likelihood = -561.24387
Iteration 1:   log likelihood = -560.30086
Iteration 2:   log likelihood =  -560.3006
Iteration 3:   log likelihood =  -560.3006

Logistic regression                             Number of obs     =        866
                                                LR chi2(2)        =       1.89
                                                Prob > chi2       =     0.3894
Log likelihood =  -560.3006                     Pseudo R2         =     0.0017

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
      DegreeSought |
                2  |  -.2263815   .1660509    -1.36   0.173    -.5518353    .0990722
                3  |  -.0928502   .1836587    -0.51   0.613    -.4528146    .2671143
                   |
             _cons |   -.501857   .1197246    -4.19   0.000    -.7365128   -.2672011
------------------------------------------------------------------------------

. logit Retainedtofall2012 i.MothersEducation

Iteration 0:   log likelihood = -561.67594
Iteration 1:   log likelihood = -557.61531
Iteration 2:   log likelihood = -557.60814
Iteration 3:   log likelihood = -557.60814

Logistic regression                             Number of obs     =        867
                                                LR chi2(3)        =       8.14
                                                Prob > chi2       =     0.0433
Log likelihood = -557.60814                     Pseudo R2         =     0.0072

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
  MothersEducation |
                4  |   -.318508   .1869719    -1.70   0.088    -.6849661    .0479501
                5  |   .2444097   .1816429     1.35   0.178    -.1116038    .6004233
                6  |  -.0761891   .2367963    -0.32   0.748    -.5403014    .3879231
                   |
             _cons |  -.5887872   .1183597    -4.97   0.000    -.8207678   -.3568065
------------------------------------------------------------------------------
```

```
. logit Retainedtofall2012 i.FathersEducation

Iteration 0:   log likelihood =  -559.7644
Iteration 1:   log likelihood = -556.44143
Iteration 2:   log likelihood = -556.43414
Iteration 3:   log likelihood = -556.43414

Logistic regression                             Number of obs     =        864
                                                LR chi2(3)        =       6.66
                                                Prob > chi2       =     0.0835
Log likelihood = -556.43414                     Pseudo R2         =     0.0059

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
  FathersEducation |
                 4 |   -.3723196   .1905358    -1.95   0.051    -.7457629    .0011238
                 5 |    .1581662   .1811005     0.87   0.382    -.1967843    .5131168
                 6 |    .0082066   .2429953     0.03   0.973    -.4680555    .4844687
                   |
             _cons |    -.572142   .1072489    -5.33   0.000     -.782346   -.3619381
------------------------------------------------------------------------------

. logit Retainedtofall2012 i.CodedWork

Iteration 0:   log likelihood = -561.67594
Iteration 1:   log likelihood = -558.41619
Iteration 2:   log likelihood = -558.41141
Iteration 3:   log likelihood = -558.41141

Logistic regression                             Number of obs     =        867
                                                LR chi2(3)        =       6.53
                                                Prob > chi2       =     0.0885
Log likelihood = -558.41141                     Pseudo R2         =     0.0058

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
         CodedWork |
                 2 |   -.0610247   .2600584    -0.23   0.814    -.5707299    .4486804
                 3 |   -.2401549    .212739    -1.13   0.259    -.6571157    .1768059
                 4 |   -.5192442    .233173    -2.23   0.026     -.976255   -.0622334
                   |
             _cons |   -.3646431   .1840894    -1.98   0.048    -.7254516   -.0038346
------------------------------------------------------------------------------

. logit Retainedtofall2012 i.CodedSeniorYearGrades

Iteration 0:   log likelihood = -561.67594
Iteration 1:   log likelihood = -533.39266
Iteration 2:   log likelihood = -532.78271
Iteration 3:   log likelihood = -532.78237
Iteration 4:   log likelihood = -532.78237

Logistic regression                             Number of obs     =        867
                                                LR chi2(2)        =      57.79
                                                Prob > chi2       =     0.0000
Log likelihood = -532.78237                     Pseudo R2         =     0.0514

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
CodedSeniorYearGrades |
                 2 |   -.6519867    .156412    -4.17   0.000    -.9585487   -.3454247
                 3 |   -1.642657   .2452536    -6.70   0.000    -2.123345   -1.161968
                   |
             _cons |   -.1065432   .1060015    -1.01   0.315    -.3143023    .1012158
------------------------------------------------------------------------------
```

```
. logit Retainedtofall2012 i.CodedSelfreportedtimingofde

Iteration 0:   log likelihood = -561.67594
Iteration 1:   log likelihood = -559.75789
Iteration 2:   log likelihood = -559.74318
Iteration 3:   log likelihood = -559.74316

Logistic regression                             Number of obs     =        867
                                                LR chi2(2)        =       3.87
                                                Prob > chi2       =     0.1447
Log likelihood = -559.74316                     Pseudo R2         =     0.0034

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
CodedSelfreportedtimingofde |
                2  |    .7902915   1.114726     0.71   0.478    -1.394531    2.975114
                3  |    1.213748   1.082649     1.12   0.262    -.9082043     3.3357
                   |
             _cons |   -1.79174    1.080116    -1.66   0.097    -3.908728    .3252483
------------------------------------------------------------------------------
```

```
. tabulate Retainedtofall2012 CodedSelfreportedtimingofde

  Retained |  Coded Self-reported timing of
   to fall |   decision to apply to college
     2012* |         1          2          3 |     Total
-----------+---------------------------------+----------
         0 |         6         49        508 |       563
         1 |         1         18        285 |       304
-----------+---------------------------------+----------
     Total |         7         67        793 |       867
```

```
. logit Retainedtofall2012 Sociabilitypercentile

Iteration 0:   log likelihood = -561.67594
Iteration 1:   log likelihood = -559.76568
Iteration 2:   log likelihood = -559.76482
Iteration 3:   log likelihood = -559.76482

Logistic regression                             Number of obs     =        867
                                                LR chi2(1)        =       3.82
                                                Prob > chi2       =     0.0506
Log likelihood = -559.76482                     Pseudo R2         =     0.0034

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
Sociabilitypercentile |  -.0045241   .0023204    -1.95   0.051    -.009072    .0000239
             _cons |  -.3972188   .1318088    -3.01   0.003    -.6555593   -.1388782
------------------------------------------------------------------------------
```

```
. logit Retainedtofall2012 StudyHabitspercentile

Iteration 0:   log likelihood = -561.67594
Iteration 1:   log likelihood =  -555.4514
Iteration 2:   log likelihood = -555.44223
Iteration 3:   log likelihood = -555.44223

Logistic regression                             Number of obs     =        867
                                                LR chi2(1)        =      12.47
                                                Prob > chi2       =     0.0004
Log likelihood = -555.44223                     Pseudo R2         =     0.0111

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
StudyHabitspercentile |   .0083179   .0023729     3.51   0.000     .0036671    .0129687
             _cons |  -1.043042   .1436399    -7.26   0.000    -1.324571   -.7615126
------------------------------------------------------------------------------
```

```
. logit Retainedtofall2012 Max

Iteration 0:   log likelihood = -556.80411
Iteration 1:   log likelihood = -531.63052
Iteration 2:   log likelihood = -531.49144
Iteration 3:   log likelihood = -531.49142

Logistic regression                             Number of obs     =        860
                                                LR chi2(1)        =      50.63
                                                Prob > chi2       =     0.0000
Log likelihood = -531.49142                     Pseudo R2         =     0.0455

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
     MaxACTSATscore |   .1385771   .0201851     6.87   0.000     .0990151    .1781391
              _cons |  -3.723751   .4627194    -8.05   0.000    -4.630665   -2.816838
------------------------------------------------------------------------------

. logit Retainedtofall2012 Distancefromcampus

Iteration 0:   log likelihood = -557.42059
Iteration 1:   log likelihood = -553.50981
Iteration 2:   log likelihood =  -553.5013
Iteration 3:   log likelihood =  -553.5013

Logistic regression                             Number of obs     =        860
                                                LR chi2(1)        =       7.84
                                                Prob > chi2       =     0.0051
Log likelihood =  -553.5013                     Pseudo R2         =     0.0070

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
Distancefromcampus |  -.0008605   .0003274    -2.63   0.009    -.0015022   -.0002189
              _cons |  -.4704514   .0881095    -5.34   0.000    -.6431429   -.2977599
------------------------------------------------------------------------------

. logit Retainedtofall2012 Classpercent

Iteration 0:   log likelihood = -532.63089
Iteration 1:   log likelihood = -502.37365
Iteration 2:   log likelihood = -501.97624
Iteration 3:   log likelihood = -501.97609
Iteration 4:   log likelihood = -501.97609

Logistic regression                             Number of obs     =        827
                                                LR chi2(1)        =      61.31
                                                Prob > chi2       =     0.0000
Log likelihood = -501.97609                     Pseudo R2         =     0.0576

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
      Classpercent |  -.0299545   .0041426    -7.23   0.000    -.0380739   -.0218351
              _cons |   .1685419   .1275318     1.32   0.186    -.0814157    .4184996
------------------------------------------------------------------------------

. logit Retainedtofall2012 CodedPELL

Iteration 0:   log likelihood = -561.67594
Iteration 1:   log likelihood = -560.99537
Iteration 2:   log likelihood = -560.99524
Iteration 3:   log likelihood = -560.99524

Logistic regression                             Number of obs     =        867
                                                LR chi2(1)        =       1.36
                                                Prob > chi2       =     0.2433
Log likelihood = -560.99524                     Pseudo R2         =     0.0012

------------------------------------------------------------------------------
Retainedtofall2012 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
         CodedPELL |   -.170089   .1461099    -1.16   0.244    -.4564592    .1162811
              _cons |  -.5490337    .091119    -6.03   0.000    -.7276236   -.3704437
------------------------------------------------------------------------------
```

```
. logit Retainedtofall2012 i.CodedRace i.Major CodifiedGender TransferPercentile ReceptivitytoAcademicAssistan ReceptivitytoFinancialGuida
> nc AcademicStresspercentile AttitudeTowardEducatorsperce FamilyEmotionalSupportpercen SenseofFinancialSecurityper Selfreportedcollegepre
> pperc MathandScienceConfidenceper i.DegreeSought i.MothersEducation i.FathersEducation i.CodedWork i.CodedSeniorYearGrades Sociabilitype
> rcentile StudyHabitspercentile MaxACTSATscore Distancefromcampus Classpercent CodedPELL

Iteration 0:   log likelihood = -525.83563
Iteration 1:   log likelihood = -449.37915
Iteration 2:   log likelihood = -446.58495
Iteration 3:   log likelihood = -446.57756
Iteration 4:   log likelihood = -446.57756

Logistic regression                             Number of obs     =        814
                                                LR chi2(33)       =     158.52
                                                Prob > chi2       =     0.0000
Log likelihood = -446.57756                     Pseudo R2         =     0.1507
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
1.CodedRace	.0708757	.2402898	0.29	0.768	-.4000837	.541835
Major						
1	-.1725731	.2488123	-0.69	0.488	-.6602362	.31509
2	-.9866173	.2875478	-3.43	0.001	-1.550201	-.4230339
3	.0778656	.2575981	0.30	0.762	-.4270174	.5827486
CodifiedGender	-.0678714	.1967254	-0.35	0.730	-.4534462	.3177034
TransferPercentile	-.0021979	.0037769	-0.58	0.561	-.0096004	.0052046
ReceptivitytoAcademicAssistan	.0058525	.0036004	1.63	0.104	-.0012042	.0129092
ReceptivitytoFinancialGuidanc	-.0036137	.0040058	-0.90	0.367	-.011465	.0042376
AcademicStresspercentile	.0111882	.005932	1.89	0.059	-.0004383	.0228146
AttitudeTowardEducatorsperce	.0009176	.0037021	0.25	0.804	-.0063384	.0081737
FamilyEmotionalSupportpercen	.0069663	.0030602	2.28	0.023	.0009685	.0129641
SenseofFinancialSecurityper	-.0007777	.0036879	-0.21	0.833	-.0080058	.0064504
Selfreportedcollegeprepperc	.0006378	.0044391	0.14	0.886	-.0080627	.0093383
MathandScienceConfidenceper	.0065135	.0043205	1.51	0.132	-.0019546	.0149815
DegreeSought						
1	-.296717	.2246417	-1.32	0.187	-.7370067	.1435727
2	-.1755105	.240082	-0.73	0.465	-.6460625	.2950415
MothersEducation						
1	-.3224626	.2372879	-1.36	0.174	-.7875382	.1426131
2	.1735374	.2469518	0.70	0.482	-.3104793	.6575541
3	.1911887	.3187118	0.60	0.549	-.4334749	.8158523
FathersEducation						
1	-.5092527	.2379393	-2.14	0.032	-.9756052	-.0429001
2	-.1780688	.2456459	-0.72	0.469	-.659526	.3033883
3	-.5948651	.3312635	-1.80	0.073	-1.24413	.0543995
CodedWork						
1	.0172623	.322586	0.05	0.957	-.6149946	.6495193
2	-.131971	.2734099	-0.48	0.629	-.6678445	.4039025
3	-.4950067	.2952228	-1.68	0.094	-1.073633	.0836194
CodedSeniorYearGrades						
1	-.1414168	.2008732	-0.70	0.481	-.5351211	.2522874
2	-.8281912	.3281253	-2.52	0.012	-1.471305	-.1850774
Sociabilitypercentile	-.002871	.0028612	-1.00	0.316	-.0084788	.0027369
StudyHabitspercentile	.0113947	.0045572	2.50	0.012	.0024627	.0203267
MaxACTSATscore	.1245709	.0326809	3.81	0.000	.0605174	.1886243
Distancefromcampus	-.0010036	.0004145	-2.42	0.015	-.0018159	-.0001913
Classpercent	-.0154495	.0059591	-2.59	0.010	-.0271291	-.0037698
CodedPELL	.0719729	.1957464	0.37	0.713	-.311683	.4556288
_cons	-3.681435	1.316766	-2.80	0.005	-6.262249	-1.10062

```
. logit Retainedtofall2012 i.CodedRace i.Major CodifiedGender TransferPercentile ReceptivitytoAcademicAssistan ReceptivitytoFinancialGuida
> nc AcademicStresspercentile AttitudeTowardEducatorsperce FamilyEmotionalSupportpercen SenseofFinancialSecurityper MathandScienceConfiden
> ceper i.DegreeSought i.MothersEducation i.FathersEducation i.CodedWork i.CodedSeniorYearGrades Sociabilitypercentile StudyHabitspercenti
> le MaxACTSATscore Distancefromcampus Classpercent CodedPELL

Iteration 0:   log likelihood = -525.83563
Iteration 1:   log likelihood = -449.38739
Iteration 2:   log likelihood = -446.59519
Iteration 3:   log likelihood = -446.58788
Iteration 4:   log likelihood = -446.58788

Logistic regression                             Number of obs     =        814
                                                LR chi2(32)       =     158.50
                                                Prob > chi2       =     0.0000
Log likelihood = -446.58788                     Pseudo R2         =     0.1507
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
2.CodedRace	.071384	.240281	0.30	0.766	-.3995582	.5423262
Major						
2	-.1733513	.2487511	-0.70	0.486	-.6608944	.3141919
3	-.9847888	.2872534	-3.43	0.001	-1.547795	-.4217824
4	.0776684	.2576057	0.30	0.763	-.4272294	.5825662
CodifiedGender	-.0704146	.1959296	-0.36	0.719	-.4544294	.3136003
TransferPercentile	-.0021605	.0037677	-0.57	0.566	-.009545	.0052241
ReceptivitytoAcademicAssistan	.0058175	.0035916	1.62	0.105	-.001222	.0128569
ReceptivitytoFinancialGuidanc	-.0036023	.0040047	-0.90	0.368	-.0114513	.0042467
AcademicStresspercentile	.011061	.0058653	1.89	0.059	-.0004349	.0225568
AttitudeTowardEducatorsperce	.0008388	.0036612	0.23	0.819	-.006337	.0080146
FamilyEmotionalSupportpercen	.0069811	.0030587	2.28	0.022	.0009862	.0129759
SenseofFinancialSecurityper	-.0007927	.0036863	-0.22	0.830	-.0080178	.0064323
MathandScienceConfidenceper	.0066029	.0042758	1.54	0.123	-.0017775	.0149834
DegreeSought						
2	-.1763239	.2400334	-0.73	0.463	-.6467807	.2941328
3	-.297325	.224591	-1.32	0.186	-.7375153	.1428653
MothersEducation						
4	-.3223159	.2372592	-1.36	0.174	-.7873355	.1427037
5	.1729786	.2469457	0.70	0.484	-.3110261	.6569833
6	.1936638	.3181493	0.61	0.543	-.4298975	.817225
FathersEducation						
4	-.5091225	.2378916	-2.14	0.032	-.9753815	-.0428635
5	-.1777088	.2456848	-0.72	0.469	-.6592422	.3038246
6	-.5961349	.3310789	-1.80	0.072	-1.245038	.0527678
CodedWork						
2	.0158284	.3223537	0.05	0.961	-.6159733	.64763
3	-.1332936	.2732464	-0.49	0.626	-.6688466	.4022594
4	-.4967833	.2949544	-1.68	0.092	-1.074883	.0813166
CodedSeniorYearGrades						
2	-.1433887	.2004036	-0.72	0.474	-.5361726	.2493951
3	-.8310383	.3274866	-2.54	0.011	-1.4729	-.1891763
Sociabilitypercentile	-.0028412	.0028534	-1.00	0.319	-.0084338	.0027515
StudyHabitspercentile	.0114142	.0045554	2.51	0.012	.0024858	.0203425
MaxACTSATscore	.1257688	.0316143	3.98	0.000	.0638059	.1877316
Distancefromcampus	-.0010082	.0004128	-2.44	0.015	-.0018174	-.0001991
Classpercent	-.0156823	.0057363	-2.73	0.006	-.0269252	-.0044394
CodedPELL	.0703712	.1954303	0.36	0.719	-.3126651	.4534075
_cons	-3.65735	1.306066	-2.80	0.005	-6.217193	-1.097507

```
. logit Retainedtofall2012 i.CodedRace i.Major CodifiedGender TransferPercentile ReceptivitytoAcademicAssistan ReceptivitytoFinancialGuida
> nc AcademicStresspercentile AttitudeTowardEducatorsperce FamilyEmotionalSupportpercen MathandScienceConfidenceper i.DegreeSought i.Mothe
> rsEducation i.FathersEducation i.CodedWork i.CodedSeniorYearGrades Sociabilitypercentile StudyHabitspercentile MaxACTSATscore Distancefr
> omcampus Classpercent CodedPELL

Iteration 0:   log likelihood = -525.83563
Iteration 1:   log likelihood = -449.36095
Iteration 2:   log likelihood = -446.61812
Iteration 3:   log likelihood = -446.61101
Iteration 4:   log likelihood = -446.61101

Logistic regression                             Number of obs     =        814
                                                LR chi2(31)       =     158.45
                                                Prob > chi2       =     0.0000
Log likelihood = -446.61101                     Pseudo R2         =     0.1507
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
2.CodedRace	.0671549	.2394865	0.28	0.779	-.4022302	.5365399
Major						
2	-.1719326	.2485998	-0.69	0.489	-.6591793	.3153141
3	-.9814869	.2867159	-3.42	0.001	-1.54344	-.4195341
4	.0811967	.257007	0.32	0.752	-.4225279	.5849212
CodifiedGender	-.069859	.1959129	-0.36	0.721	-.4538413	.3141232
TransferPercentile	-.0022384	.0037495	-0.60	0.551	-.0095873	.0051104
ReceptivitytoAcademicAssistan	.0057559	.0035795	1.61	0.108	-.0012597	.0127715
ReceptivitytoFinancialGuidanc	-.003212	.0035702	-0.90	0.368	-.0102095	.0037854
AcademicStresspercentile	.0112003	.0058292	1.92	0.055	-.0002247	.0226252
AttitudeTowardEducatorsperce	.0008461	.0036616	0.23	0.817	-.0063306	.0080227
FamilyEmotionalSupportpercen	.0068844	.0030247	2.28	0.023	.000956	.0128128
MathandScienceConfidenceper	.0066182	.0042746	1.55	0.122	-.00176	.0149963
DegreeSought						
2	-.1758705	.2400223	-0.73	0.464	-.6463056	.2945646
3	-.2941953	.2240725	-1.31	0.189	-.7333693	.1449787
MothersEducation						
4	-.3231579	.2371923	-1.36	0.173	-.7880462	.1417304
5	.1683763	.245976	0.68	0.494	-.3137278	.6504805
6	.1848826	.3154769	0.59	0.558	-.4334408	.803206
FathersEducation						
4	-.511134	.2377258	-2.15	0.032	-.9770679	-.0452
5	-.1810722	.2452289	-0.74	0.460	-.661712	.2995676
6	-.5996747	.3306459	-1.81	0.070	-1.247729	.0483794
CodedWork						
2	.0172962	.3223984	0.05	0.957	-.6145931	.6491855
3	-.1294635	.2726546	-0.47	0.635	-.6638567	.4049298
4	-.4894902	.2929548	-1.67	0.095	-1.063671	.0846906
CodedSeniorYearGrades						
2	-.1448664	.2002744	-0.72	0.469	-.537397	.2476642
3	-.8299263	.327377	-2.54	0.011	-1.471573	-.1882792
Sociabilitypercentile	-.0029145	.0028333	-1.03	0.304	-.0084677	.0026387
StudyHabitspercentile	.0114443	.0045526	2.51	0.012	.0025213	.0203673
MaxACTSATscore	.1252713	.0315252	3.97	0.000	.063483	.1870595
Distancefromcampus	-.0010088	.0004129	-2.44	0.015	-.001818	-.0001996
Classpercent	-.0157457	.0057267	-2.75	0.006	-.0269699	-.0045215
CodedPELL	.0806384	.1895464	0.43	0.671	-.2908657	.4521426
_cons	-3.700908	1.289966	-2.87	0.004	-6.229194	-1.172622

```
. logit Retainedtofall2012 i.CodedRace i.Major CodifiedGender TransferPercentile ReceptivitytoAcademicAssistan ReceptivitytoFinancialGuida
> nc AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.DegreeSought i.MothersEducation i.FathersEducatio
> n i.CodedWork i.CodedSeniorYearGrades Sociabilitypercentile StudyHabitspercentile MaxACTSATscore Distancefromcampus Classpercent CodedPE
> LL

Iteration 0:   log likelihood = -525.83563
Iteration 1:   log likelihood =  -449.3801
Iteration 2:   log likelihood = -446.64451
Iteration 3:   log likelihood = -446.63772
Iteration 4:   log likelihood = -446.63772

Logistic regression                             Number of obs     =        814
                                                LR chi2(30)       =     158.40
                                                Prob > chi2       =     0.0000
Log likelihood = -446.63772                     Pseudo R2         =     0.1506
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
2.CodedRace	.0669625	.2394563	0.28	0.780	-.4023631	.5362882
Major						
2	-.1738955	.248394	-0.70	0.484	-.6607387	.3129478
3	-.9832837	.2866103	-3.43	0.001	-1.545029	-.4215379
4	.0804909	.2569593	0.31	0.754	-.4231401	.5841219
CodifiedGender	-.0694034	.1958874	-0.35	0.723	-.4533356	.3145287
TransferPercentile	-.0022752	.0037453	-0.61	0.544	-.0096158	.0050654
ReceptivitytoAcademicAssistan	.0057612	.0035801	1.61	0.108	-.0012557	.0127781
ReceptivitytoFinancialGuidanc	-.0032175	.0035693	-0.90	0.367	-.0102132	.0037783
AcademicStresspercentile	.0105646	.005135	2.06	0.040	.0005002	.0206289
FamilyEmotionalSupportpercen	.0070305	.0029577	2.38	0.017	.0012336	.0128274
MathandScienceConfidenceper	.00657	.0042698	1.54	0.124	-.0017986	.0149386
DegreeSought						
2	-.1802468	.2392463	-0.75	0.451	-.6491609	.2886673
3	-.296682	.2237511	-1.33	0.185	-.735226	.141862
MothersEducation						
4	-.3238532	.2371835	-1.37	0.172	-.7887244	.141018
5	.16731	.2459465	0.68	0.496	-.3147361	.6493562
6	.1839332	.315477	0.58	0.560	-.4343902	.8022567
FathersEducation						
4	-.5126567	.237627	-2.16	0.031	-.9783971	-.0469163
5	-.1805867	.2451919	-0.74	0.461	-.661154	.2999806
6	-.5986396	.3306682	-1.81	0.070	-1.246737	.0494581
CodedWork						
2	.0186605	.3223849	0.06	0.954	-.6132022	.6505232
3	-.1260203	.2723016	-0.46	0.644	-.6597216	.407681
4	-.4862044	.2926231	-1.66	0.097	-1.059735	.0873263
CodedSeniorYearGrades						
2	-.1460829	.2002057	-0.73	0.466	-.5384788	.2463131
3	-.833594	.3269611	-2.55	0.011	-1.474426	-.1927619
Sociabilitypercentile	-.0029162	.002833	-1.03	0.303	-.0084688	.0026364
StudyHabitspercentile	.0112216	.0044465	2.52	0.012	.0025066	.0199366
MaxACTSATscore	.1244512	.0313167	3.97	0.000	.0630715	.1858308
Distancefromcampus	-.0010057	.0004124	-2.44	0.015	-.0018141	-.0001974
Classpercent	-.0158357	.0057162	-2.77	0.006	-.0270392	-.0046322
CodedPELL	.0818929	.1894457	0.43	0.666	-.2894138	.4531996
_cons	-3.59615	1.207036	-2.98	0.003	-5.961897	-1.230404

```
. fp<StudyHabitspercentile> : logit Retainedtofall2012 i.CodedRace i.Major CodifiedGender TransferPercentile ReceptivitytoFinancia
> lGuidanc MathandScienceConfidenceper i.DegreeSought i.MothersEducation i.FathersEducation i.CodedWork i.CodedSeniorYearGrades So
> ciabilitypercentile <StudyHabitspercentile> MaxACTSATscore Distancefromcampus Classpercent CodedPELL
(fitting 44 models)
(....10%....20%....30%....40%....50%....60%....70%....80%....90%....100%)

Fractional polynomial comparisons:
```

StudyHabit~e	df	Deviance	Dev. dif.	P(*)	Powers
omitted	0	908.036	9.382	0.052	
linear	1	904.633	5.979	0.113	1
m = 1	2	899.934	1.280	0.527	-2
m = 2	4	898.654	0.000	--	-2 .5

(*) P = sig. level of model with m = 2 based on chi^2 of dev. dif.

```
Logistic regression                             Number of obs     =        814
                                                LR chi2(28)       =     153.02
                                                Prob > chi2       =     0.0000
Log likelihood = -449.32704                     Pseudo R2         =     0.1455
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
1.CodedRace	.139947	.2344902	0.60	0.551	-.3196453	.5995392
Major						
1	-.1789187	.2472918	-0.72	0.469	-.6636017	.3057644
2	-.9379137	.281672	-3.33	0.001	-1.489981	-.3858467
3	.1287946	.2530529	0.51	0.611	-.36718	.6247692
CodifiedGender	-.1287855	.1925614	-0.67	0.504	-.5061989	.2486278
TransferPercentile	-.0027016	.0037232	-0.73	0.468	-.009999	.0045959
ReceptivitytoFinancialGuidanc	-.0016758	.0033277	-0.50	0.615	-.008198	.0048463
MathandScienceConfidenceper	.0017835	.0038839	0.46	0.646	-.0058287	.0093957
DegreeSought						
1	-.3208348	.2212468	-1.45	0.147	-.7544706	.112801
2	-.2474891	.2344247	-1.06	0.291	-.706953	.2119748
MothersEducation						
1	-.3080141	.2353427	-1.31	0.191	-.7692772	.153249
2	.1525013	.2438267	0.63	0.532	-.3253904	.6303929
3	.1843732	.3146822	0.59	0.558	-.4323925	.801139
FathersEducation						
1	-.4550341	.2355306	-1.93	0.053	-.9166655	.0065973
2	-.0953148	.2404551	-0.40	0.692	-.5665982	.3759686
3	-.5196287	.3253113	-1.60	0.110	-1.157227	.1179697
CodedWork						
1	-.0538158	.3179787	-0.17	0.866	-.6770427	.5694111
2	-.2032891	.2696464	-0.75	0.451	-.7317864	.3252081
3	-.566991	.2903298	-1.95	0.051	-1.136027	.0020449
CodedSeniorYearGrades						
1	-.1863688	.1959775	-0.95	0.342	-.5704776	.19774
2	-.882093	.3254661	-2.71	0.007	-1.519995	-.2441912
Sociabilitypercentile	-.0019848	.0027637	-0.72	0.473	-.0074016	.003432
StudyHabitspercentile_1	-2.599896	1.632244	-1.59	0.111	-5.799036	.5992434
StudyHabitspercentile_2	.0476935	.0421799	1.13	0.258	-.0349776	.1303646
MaxACTSATscore	.1014404	.0296131	3.43	0.001	.0433998	.159481
Distancefromcampus	-.0009942	.0004059	-2.45	0.014	-.0017897	-.0001988
Classpercent	-.0150488	.0056775	-2.65	0.008	-.0261765	-.0039211
CodedPELL	.0033149	.1859191	0.02	0.986	-.3610799	.3677097
_cons	-1.350702	.9275195	-1.46	0.145	-3.168607	.4672028

```
. fp<FamilyEmotionalSupportpercen> : logit Retainedtofall2012 i.CodedRace i.Major CodifiedGender TransferPercentile ReceptivitytoF
> inancialGuidanc <FamilyEmotionalSupportpercen> MathandScienceConfidenceper i.DegreeSought i.MothersEducation i.FathersEducation
> i.CodedWork i.CodedSeniorYearGrades Sociabilitypercentile StudyHabitspercentile MaxACTSATscore Distancefromcampus Classpercent C
> odedPELL
(fitting 44 models)
(....10%....20%....30%....40%....50%....60%....70%....80%....90%....100%)

Fractional polynomial comparisons:
```

FamilyEmot~n	df	Deviance	Dev. dif.	P(*)	Powers
omitted	0	904.633	8.293	0.081	
linear	1	900.843	4.502	0.212	1
m = 1	2	897.421	1.081	0.583	-.5
m = 2	4	896.341	0.000	--	.5 3

(*) P = sig. level of model with m = 2 based on chi^2 of dev. dif.

```
Logistic regression                             Number of obs     =        814
                                                LR chi2(29)       =     155.33
                                                Prob > chi2       =     0.0000
Log likelihood = -448.17034                     Pseudo R2         =     0.1477
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
1.CodedRace	.1426443	.2367393	0.60	0.547	-.3213562	.6066447
Major						
1	-.1964325	.2469597	-0.80	0.426	-.6804646	.2875996
2	-1.043169	.2849685	-3.66	0.000	-1.601697	-.4846411
3	.0496392	.2562588	0.19	0.846	-.4526189	.5518973
CodifiedGender	-.0703693	.1950164	-0.36	0.718	-.4525945	.3118559
TransferPercentile	-.0025856	.0037527	-0.69	0.491	-.0099408	.0047695
ReceptivitytoFinancialGuidanc	-.0018021	.0033361	-0.54	0.589	-.0083407	.0047364
FamilyEmotionalSupportpercen_1	.1810574	.0675656	2.68	0.007	.0486312	.3134836
FamilyEmotionalSupportpercen_2	-7.52e-07	4.35e-07	-1.73	0.084	-1.61e-06	1.01e-07
MathandScienceConfidenceper	.0023752	.0039021	0.61	0.543	-.0052727	.0100231
DegreeSought						
1	-.3323439	.2227048	-1.49	0.136	-.7688373	.1041494
2	-.2101675	.2359044	-0.89	0.373	-.6725316	.2521967
MothersEducation						
1	-.3198277	.236167	-1.35	0.176	-.7827065	.1430511
2	.1432204	.2459837	0.58	0.560	-.3388987	.6253395
3	.1467298	.3147193	0.47	0.641	-.4701086	.7635682
FathersEducation						
1	-.491547	.2365541	-2.08	0.038	-.9551844	-.0279095
2	-.1278397	.2421915	-0.53	0.598	-.6025263	.3468469
3	-.5515147	.3275076	-1.68	0.092	-1.193418	.0903884
CodedWork						
1	.0414519	.3191149	0.13	0.897	-.5840018	.6669056
2	-.1314333	.2704918	-0.49	0.627	-.6615875	.3987209
3	-.4837472	.290803	-1.66	0.096	-1.053711	.0862161
CodedSeniorYearGrades						
1	-.1848256	.1966872	-0.94	0.347	-.5703255	.2006743
2	-.8492441	.3255062	-2.61	0.009	-1.487225	-.2112637
Sociabilitypercentile	-.0023155	.0028335	-0.82	0.414	-.0078689	.003238
StudyHabitspercentile	.0047041	.0032097	1.47	0.143	-.0015868	.010995
MaxACTSATscore	.0998958	.0297374	3.36	0.001	.0416117	.15818
Distancefromcampus	-.0009162	.0004055	-2.26	0.024	-.001711	-.0001214
Classpercent	-.0160453	.0057022	-2.81	0.005	-.0272213	-.0048692
CodedPELL	.0385864	.1878706	0.21	0.837	-.3296332	.4068061
_cons	-2.365303	.978608	-2.42	0.016	-4.283339	-.4472661

```
. fp<AcademicStresspercentile> : logit Retainedtofall2012 i.CodedRace i.Major CodifiedGender TransferPercentile ReceptivitytoFinan
> cialGuidanc <AcademicStresspercentile> FamilyEmotionalSupportpercen MathandScienceConfidenceper i.DegreeSought i.MothersEducatio
> n i.FathersEducation i.CodedWork i.CodedSeniorYearGrades Sociabilitypercentile StudyHabitspercentile MaxACTSATscore Distancefrom
> campus Classpercent CodedPELL
(fitting 44 models)
(....10%....20%....30%....40%....50%....60%....70%....80%....90%....100%)

Fractional polynomial comparisons:
```

AcademicSt~e	df	Deviance	Dev. dif.	P(*)	Powers
omitted	0	900.843	9.740	0.045	
linear	1	895.884	4.781	0.189	1
m = 1	2	895.362	4.259	0.119	.5
m = 2	4	891.103	0.000	--	-2 2

(*) P = sig. level of model with m = 2 based on chi^2 of dev. dif.

```
Logistic regression                             Number of obs     =        814
                                                LR chi2(30)       =     160.57
                                                Prob > chi2       =     0.0000
Log likelihood = -445.55132                     Pseudo R2         =     0.1527
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
1.CodedRace	.1419955	.23696	0.60	0.549	-.3224375	.6064285
Major						
1	-.1978462	.2478835	-0.80	0.425	-.6836889	.2879965
2	-1.019683	.2865817	-3.56	0.000	-1.581373	-.4579935
3	.0459784	.2573718	0.18	0.858	-.458461	.5504178
CodifiedGender	-.0784559	.1962874	-0.40	0.689	-.4631721	.3062602
TransferPercentile	-.0021544	.0037544	-0.57	0.566	-.0095128	.005204
ReceptivitytoFinancialGuidanc	-.0008685	.0033583	-0.26	0.796	-.0074506	.0057136
AcademicStresspercentile_1	-1.243869	.5085599	-2.45	0.014	-2.240628	-.2471102
AcademicStresspercentile_2	.0001071	.0000493	2.17	0.030	.0000105	.0002038
FamilyEmotionalSupportpercen	.0077593	.0029901	2.59	0.009	.0018988	.0136199
MathandScienceConfidenceper	.0061716	.004229	1.46	0.144	-.0021171	.0144602
DegreeSought						
1	-.2893045	.2239778	-1.29	0.196	-.7282928	.1496838
2	-.1340702	.2402581	-0.56	0.577	-.6049675	.3368271
MothersEducation						
1	-.3507674	.2374733	-1.48	0.140	-.8162065	.1146717
2	.1451824	.24632	0.59	0.556	-.337596	.6279607
3	.175225	.3144276	0.56	0.577	-.4410419	.7914918
FathersEducation						
1	-.5225356	.2381507	-2.19	0.028	-.9893024	-.0557687
2	-.1817412	.2448353	-0.74	0.458	-.6616095	.2981272
3	-.5577675	.3278717	-1.70	0.089	-1.200384	.0848493
CodedWork						
1	.0245468	.3220763	0.08	0.939	-.6067112	.6558048
2	-.1852512	.2724608	-0.68	0.497	-.7192646	.3487622
3	-.5163271	.2930052	-1.76	0.078	-1.090607	.0579525
CodedSeniorYearGrades						
1	-.1301238	.1994658	-0.65	0.514	-.5210695	.260822
2	-.8502471	.3270586	-2.60	0.009	-1.49127	-.2092242
Sociabilitypercentile	-.0026228	.002836	-0.92	0.355	-.0081812	.0029356
StudyHabitspercentile	.0119482	.004281	2.79	0.005	.0035577	.0203387
MaxACTSATscore	.1246259	.0310758	4.01	0.000	.0637184	.1855334
Distancefromcampus	-.0009824	.0004081	-2.41	0.016	-.0017823	-.0001826
Classpercent	-.0157269	.0057512	-2.73	0.006	-.026999	-.0044548
CodedPELL	.0792358	.1893571	0.42	0.676	-.2918973	.4503689
_cons	-3.269642	1.113754	-2.94	0.003	-5.452559	-1.086725

```
. fp<ReceptivitytoAcademicAssistan> : logit Retainedtofall2012 i.CodedRace i.Major CodifiedGender TransferPercentile <Receptivityt
> oAcademicAssistan> ReceptivitytoFinancialGuidanc AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidencep
> er i.DegreeSought i.MothersEducation i.FathersEducation i.CodedWork i.CodedSeniorYearGrades Sociabilitypercentile StudyHabitsper
> centile MaxACTSATscore Distancefromcampus Classpercent CodedPELL
(fitting 44 models)
(....10%....20%....30%....40%....50%....60%....70%....80%....90%....100%)

Fractional polynomial comparisons:
```

Receptivit~n	df	Deviance	Dev. dif.	P(*)	Powers
omitted	0	895.884	14.667	0.005	
linear	1	893.275	12.058	0.007	1
m = 1	2	883.639	2.421	0.298	-.5
m = 2	4	881.217	0.000	--	-2 -2

(*) P = sig. level of model with m = 2 based on chi^2 of dev. dif.

```
Logistic regression                             Number of obs     =        814
                                                LR chi2(31)       =     170.45
                                                Prob > chi2       =     0.0000
Log likelihood = -440.60862                     Pseudo R2         =     0.1621
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
1.CodedRace	.0890175	.239402	0.37	0.710	-.3802018	.5582369
Major						
1	-.1757485	.2501518	-0.70	0.482	-.6660369	.31454
2	-.972154	.2888859	-3.37	0.001	-1.53836	-.4059481
3	.0605302	.2581727	0.23	0.815	-.4454789	.5665394
CodifiedGender	-.133463	.1981313	-0.67	0.501	-.5217932	.2548673
TransferPercentile	-.0026277	.0037856	-0.69	0.488	-.0100474	.004792
ReceptivitytoAcademicAssistan_1	-2.028178	1.200009	-1.69	0.091	-4.380152	.3237974
ReceptivitytoAcademicAssistan_2	-17.89022	6.645914	-2.69	0.007	-30.91597	-4.864469
ReceptivitytoFinancialGuidanc	-.0030629	.0034224	-0.89	0.371	-.0097706	.0036449
AcademicStresspercentile	.010198	.0051509	1.98	0.048	.0001024	.0202935
FamilyEmotionalSupportpercen	.0076719	.0029956	2.56	0.010	.0018006	.0135431
MathandScienceConfidenceper	.0061789	.0042463	1.46	0.146	-.0021436	.0145015
DegreeSought						
1	-.2811482	.2262582	-1.24	0.214	-.7246061	.1623097
2	-.1778233	.239888	-0.74	0.459	-.6479951	.2923485
MothersEducation						
1	-.334248	.2387438	-1.40	0.162	-.8021772	.1336812
2	.205284	.2489539	0.82	0.410	-.2826567	.6932246
3	.1415946	.3182328	0.44	0.656	-.4821301	.7653193
FathersEducation						
1	-.5104201	.239913	-2.13	0.033	-.9806409	-.0401994
2	-.1648724	.2467271	-0.67	0.504	-.6484486	.3187038
3	-.6159516	.3342996	-1.84	0.065	-1.271167	.0392636
CodedWork						
1	.0056897	.3272108	0.02	0.986	-.6356317	.6470112
2	-.1780736	.275758	-0.65	0.518	-.7185494	.3624021
3	-.5018873	.2966502	-1.69	0.091	-1.083311	.0795364
CodedSeniorYearGrades						
1	-.1582394	.2015968	-0.78	0.432	-.5533618	.236883
2	-.7967665	.328893	-2.42	0.015	-1.441385	-.152148
Sociabilitypercentile	-.0026604	.0028572	-0.93	0.352	-.0082604	.0029396
StudyHabitspercentile	.0110732	.0044714	2.48	0.013	.0023094	.019837
MaxACTSATscore	.128135	.0314371	4.08	0.000	.0665193	.1897506
Distancefromcampus	-.000987	.0004136	-2.39	0.017	-.0017976	-.0001764
Classpercent	-.0170707	.00578	-2.95	0.003	-.0283994	-.005742
CodedPELL	.1080206	.1917591	0.56	0.573	-.2678202	.4838615
_cons	-3.170023	1.200189	-2.64	0.008	-5.52235	-.8176951

```
. fp<ReceptivitytoAcademicAssistan>, fp(-2 -2) replace: logit Retainedtofall2012 i.CodedRace i.Major CodifiedGender TransferPercen
> tile <ReceptivitytoAcademicAssistan> ReceptivitytoFinancialGuidanc AcademicStresspercentile FamilyEmotionalSupportpercen Mathand
> ScienceConfidenceper i.DegreeSought i.MothersEducation i.FathersEducation i.CodedWork i.CodedSeniorYearGrades Sociabilitypercent
> ile StudyHabitspercentile MaxACTSATscore Distancefromcampus Classpercent CodedPELL
-> logit Retainedtofall2012 i.CodedRace i.Major CodifiedGender TransferPercentile ReceptivitytoAcademicAssistan_1
   ReceptivitytoAcademicAssistan_2 ReceptivitytoFinancialGuidanc AcademicStresspercentile FamilyEmotionalSupportpercen
   MathandScienceConfidenceper i.DegreeSought i.MothersEducation i.FathersEducation i.CodedWork i.CodedSeniorYearGrades
   Sociabilitypercentile StudyHabitspercentile MaxACTSATscore Distancefromcampus Classpercent CodedPELL

Logistic regression                             Number of obs     =        814
                                                LR chi2(31)       =     170.45
                                                Prob > chi2       =     0.0000
Log likelihood = -440.60862                     Pseudo R2         =     0.1621
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
1.CodedRace	.0890175	.239402	0.37	0.710	-.3802018	.5582369
Major						
1	-.1757485	.2501518	-0.70	0.482	-.6660369	.31454
2	-.972154	.2888859	-3.37	0.001	-1.53836	-.4059481
3	.0605302	.2581727	0.23	0.815	-.4454789	.5665394
CodifiedGender	-.133463	.1981313	-0.67	0.501	-.5217932	.2548673
TransferPercentile	-.0026277	.0037856	-0.69	0.488	-.0100474	.004792
ReceptivitytoAcademicAssistan_1	-2.028178	1.200009	-1.69	0.091	-4.380152	.3237974
ReceptivitytoAcademicAssistan_2	-17.89022	6.645914	-2.69	0.007	-30.91597	-4.864469
ReceptivitytoFinancialGuidanc	-.0030629	.0034224	-0.89	0.371	-.0097706	.0036449
AcademicStresspercentile	.010198	.0051509	1.98	0.048	.0001024	.0202935
FamilyEmotionalSupportpercen	.0076719	.0029956	2.56	0.010	.0018006	.0135431
MathandScienceConfidenceper	.0061789	.0042463	1.46	0.146	-.0021436	.0145015
DegreeSought						
1	-.2811482	.2262582	-1.24	0.214	-.7246061	.1623097
2	-.1778233	.239888	-0.74	0.459	-.6479951	.2923485
MothersEducation						
1	-.334248	.2387438	-1.40	0.162	-.8021772	.1336812
2	.205284	.2489539	0.82	0.410	-.2826567	.6932246
3	.1415946	.3182328	0.44	0.656	-.4821301	.7653193
FathersEducation						
1	-.5104201	.239913	-2.13	0.033	-.9806409	-.0401994
2	-.1648724	.2467271	-0.67	0.504	-.6484486	.3187038
3	-.6159516	.3342996	-1.84	0.065	-1.271167	.0392636
CodedWork						
1	.0056897	.3272108	0.02	0.986	-.6356317	.6470112
2	-.1780736	.275758	-0.65	0.518	-.7185494	.3624021
3	-.5018873	.2966502	-1.69	0.091	-1.083311	.0795364
CodedSeniorYearGrades						
1	-.1582394	.2015968	-0.78	0.432	-.5533618	.236883
2	-.7967665	.328893	-2.42	0.015	-1.441385	-.152148
Sociabilitypercentile	-.0026604	.0028572	-0.93	0.352	-.0082604	.0029396
StudyHabitspercentile	.0110732	.0044714	2.48	0.013	.0023094	.019837
MaxACTSATscore	.128135	.0314371	4.08	0.000	.0665193	.1897506
Distancefromcampus	-.000987	.0004136	-2.39	0.017	-.0017976	-.0001764
Classpercent	-.0170707	.00578	-2.95	0.003	-.0283994	-.005742
CodedPELL	.1080206	.1917591	0.56	0.573	-.2678202	.4838615
_cons	-3.170023	1.200189	-2.64	0.008	-5.52235	-.8176951

```
. logit Retainedtofall2012 i.CodedRace i.Major CodifiedGender TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicA
> ssistan_2 ReceptivitytoFinancialGuidanc AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.DegreeSou
> ght i.MothersEducation i.FathersEducation i.CodedWork i.CodedSeniorYearGrades Sociabilitypercentile StudyHabitspercentile MaxACTSATsc
> ore Distancefromcampus Classpercent CodedPELL i.CodedRace#i.FathersEducation i.CodedRace#i.CodedWork i.Major#c.ReceptivitytoFinancial
> Guidanc i.Major#c.AcademicStresspercentile i.Major#c.FamilyEmotionalSupportpercen i.Major#c.MathandScienceConfidenceper i.Major#c.Max
> ACTSATscore i.Major#i.DegreeSought i.Major#c.Classpercent c.TransferPercentile#i.MothersEducation c.TransferPercentile#i.FathersEduca
> tion c.ReceptivitytoAcademicAssistan_2#i.DegreeSought c.ReceptivitytoFinancialGuidanc#i.DegreeSought  c.ReceptivitytoFinancialGuidanc
> #i.MothersEducation c.AcademicStresspercentile#i.CodedWork c.FamilyEmotionalSupportpercen#c.StudyHabitspercentile c.FamilyEmotionalSu
> pportpercen#c.Classpercent c.MathandScienceConfidenceper#i.CodedWork c.Distancefromcampus#i.MothersEducation c.Distancefromcampus#i.C
> odedSeniorYearGrades c.Classpercent#i.FathersEducation i.DegreeSought#i.MothersEducation i.MothersEducation#i.CodedWork i.FathersEduc
> ation#i.CodedSeniorYearGrades i.CodedWork#i.CodedSeniorYearGrades

Iteration 0:   log likelihood = -525.83563
Iteration 1:   log likelihood =  -370.2177
Iteration 2:   log likelihood = -354.46055
Iteration 3:   log likelihood = -352.89025
Iteration 4:   log likelihood = -352.85512
Iteration 5:   log likelihood = -352.85505
Iteration 6:   log likelihood = -352.85505

Logistic regression                             Number of obs     =        814
                                                LR chi2(117)      =     345.96
                                                Prob > chi2       =     0.0000
Log likelihood = -352.85505                     Pseudo R2         =     0.3290
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
1.CodedRace	-.1237511	.880578	-0.14	0.888	-1.849652	1.60215
Major						
1	7.744619	2.693629	2.88	0.004	2.465203	13.02403
2	-2.696286	2.953407	-0.91	0.361	-8.484858	3.092286
3	1.723281	2.847398	0.61	0.545	-3.857516	7.304078
CodifiedGender	-.0316596	.2401729	-0.13	0.895	-.5023899	.4390707
TransferPercentile	-.0112421	.0080305	-1.40	0.162	-.0269815	.0044973
ReceptivitytoAcademicAssistan_1	-2.499983	1.328044	-1.88	0.060	-5.1029	.102935
ReceptivitytoAcademicAssistan_2	-18.96276	11.42885	-1.66	0.097	-41.36289	3.437372
ReceptivitytoFinancialGuidanc	-.0231044	.0093139	-2.48	0.013	-.0413594	-.0048494
AcademicStresspercentile	-.0166121	.0141248	-1.18	0.240	-.0442963	.0110721
FamilyEmotionalSupportpercen	.0050154	.0112363	0.45	0.655	-.0170074	.0270382
MathandScienceConfidenceper	-.0172559	.0155082	-1.11	0.266	-.0476514	.0131397
DegreeSought						
1	-.6893693	.8966134	-0.77	0.442	-2.446699	1.067961
2	-2.292356	.9994039	-2.29	0.022	-4.251152	-.3335606
MothersEducation						
1	-3.253832	1.317313	-2.47	0.014	-5.835717	-.6719463
2	-2.690146	1.294886	-2.08	0.038	-5.228076	-.1522169
3	2.4926	1.661012	1.50	0.133	-.7629245	5.748124
FathersEducation						
1	-1.881712	.9031499	-2.08	0.037	-3.651854	-.1115712
2	-1.917723	.9479839	-2.02	0.043	-3.775737	-.0597082
3	-2.0907	1.233915	-1.69	0.090	-4.50913	.3277293
CodedWork						
1	-5.560296	2.020426	-2.75	0.006	-9.520257	-1.600334
2	-4.835502	1.72932	-2.80	0.005	-8.224908	-1.446097
3	-6.486281	1.879301	-3.45	0.001	-10.16964	-2.802919
CodedSeniorYearGrades						
1	-.006198	.7706355	-0.01	0.994	-1.516616	1.50422
2	-6.399259	1.766	-3.62	0.000	-9.860554	-2.937963
Sociabilitypercentile	-.001812	.0035533	-0.51	0.610	-.0087763	.0051523
StudyHabitspercentile	.0210493	.0086857	2.42	0.015	.0040256	.0380729
MaxACTSATscore	.2388888	.0592472	4.03	0.000	.1227665	.3550111
Distancefromcampus	-.002622	.0013739	-1.91	0.056	-.0053149	.0000709
Classpercent	-.045377	.015749	-2.88	0.004	-.0762444	-.0145096
CodedPELL	.2013081	.2312363	0.87	0.384	-.2519067	.6545229

CodedRace#FathersEducation						
1 1	1.662276	.6925528	2.40	0.016	.3048972	3.019654
1 2	-.0543817	.9213731	-0.06	0.953	-1.86024	1.751476
1 3	.9782752	1.047891	0.93	0.351	-1.075553	3.032103
CodedRace#CodedWork						
1 1	.6707085	1.029728	0.65	0.515	-1.34752	2.688937
1 2	-.5329473	.8935669	-0.60	0.551	-2.284306	1.218412
1 3	.4199861	.9449252	0.44	0.657	-1.432033	2.272005
Major#c.ReceptivitytoFinancialGuidanc						
1	.0059931	.010908	0.55	0.583	-.0153861	.0273724
2	.0197234	.0127292	1.55	0.121	-.0052253	.0446721
3	-.0079627	.0116085	-0.69	0.493	-.030715	.0147895
Major#c.AcademicStresspercentile						
1	-.0024322	.0118518	-0.21	0.837	-.0256614	.020797
2	.0078428	.013808	0.57	0.570	-.0192203	.0349059
3	.0178569	.0113393	1.57	0.115	-.0043678	.0400816
Major#c.FamilyEmotionalSupportpercen						
1	-.0229044	.0095552	-2.40	0.017	-.0416322	-.0041766
2	-.0188034	.0103598	-1.82	0.070	-.0391082	.0015015
3	.0049771	.0094366	0.53	0.598	-.0135184	.0234725
Major#c.MathandScienceConfidenceper						
1	-.0132074	.0139029	-0.95	0.342	-.0404566	.0140419
2	-.0031461	.015669	-0.20	0.841	-.0338567	.0275645
3	-.0104522	.0135598	-0.77	0.441	-.0370289	.0161245
Major#c.MaxACTSATscore						
1	-.2270221	.0875925	-2.59	0.010	-.3987002	-.055344
2	.0411168	.0968148	0.42	0.671	-.1486367	.2308702
3	-.0434319	.0949378	-0.46	0.647	-.2295065	.1426428
Major#DegreeSought						
1 1	-1.275117	.6721845	-1.90	0.058	-2.592574	.0423404
1 2	-1.103296	.7759053	-1.42	0.155	-2.624043	.4174502
2 1	1.252738	1.126615	1.11	0.266	-.9553879	3.460863
2 2	.6975662	1.057199	0.66	0.509	-1.374506	2.769638
3 1	-.4878482	.7638975	-0.64	0.523	-1.98506	1.009363
3 2	-.1008353	.7809709	-0.13	0.897	-1.63151	1.42984
Major#c.Classpercent						
1	-.0081615	.0168443	-0.48	0.628	-.0411757	.0248527
2	-.0250063	.0217983	-1.15	0.251	-.0677301	.0177176
3	-.0183273	.0166044	-1.10	0.270	-.0508713	.0142167
MothersEducation#c.TransferPercentile						
1	.0192856	.0128465	1.50	0.133	-.0058931	.0444643
2	.0020318	.0129308	0.16	0.875	-.0233121	.0273757
3	-.0296182	.0175994	-1.68	0.092	-.0641124	.0048759
FathersEducation#c.TransferPercentile						
1	.0123654	.0130986	0.94	0.345	-.0133074	.0380382
2	.0152646	.0127315	1.20	0.231	-.0096887	.0402179
3	.0132604	.0177904	0.75	0.456	-.0216082	.048129
DegreeSought#c.ReceptivitytoAcademicAssistan_2						
1	-75.00337	45.46728	-1.65	0.099	-164.1176	14.11086
2	5.119083	17.45624	0.29	0.769	-29.09453	39.33269
DegreeSought#c.ReceptivitytoFinancialGuidanc						
1	.0124019	.0105546	1.18	0.240	-.0082847	.0330885
2	.0347369	.0109327	3.18	0.001	.0133092	.0561646
MothersEducation#c.ReceptivitytoFinancialGuidanc						
1	.0004982	.0110364	0.05	0.964	-.0211326	.0221291
2	.0086666	.0104277	0.83	0.406	-.0117713	.0291046
3	-.0154913	.0139189	-1.11	0.266	-.0427719	.0117893
CodedWork#c.AcademicStresspercentile						
1	.0469626	.0171133	2.74	0.006	.0134212	.080504
2	.0226275	.0135354	1.67	0.095	-.0039013	.0491564
3	.0327944	.0149026	2.20	0.028	.0035858	.062003

c.FamilyEmotionalSupportpercen#c.StudyHabitspercentile	-.0000428	.0001234	-0.35	0.729	-.0002846	.000199
c.FamilyEmotionalSupportpercen#c.Classpercent	.0005415	.0002071	2.62	0.009	.0001357	.0009474
CodedWork#c.MathandScienceConfidenceper						
1	.0350788	.0184271	1.90	0.057	-.0010376	.0711952
2	.0315123	.014594	2.16	0.031	.0029086	.0601161
3	.0531568	.0161692	3.29	0.001	.0214657	.0848478
MothersEducation#c.Distancefromcampus						
1	-.0008228	.001532	-0.54	0.591	-.0038255	.0021799
2	-.0012434	.0015168	-0.82	0.412	-.0042163	.0017295
3	.0026548	.001662	1.60	0.110	-.0006027	.0059123
CodedSeniorYearGrades#c.Distancefromcampus						
1	.0014279	.0012523	1.14	0.254	-.0010265	.0038823
2	.0039947	.0016529	2.42	0.016	.0007552	.0072343
FathersEducation#c.Classpercent						
1	.0027971	.0166902	0.17	0.867	-.0299151	.0355093
2	.0068068	.0174186	0.39	0.696	-.027333	.0409466
3	.002993	.0263751	0.11	0.910	-.0487012	.0546871
DegreeSought#MothersEducation						
1 1	-.3703851	.7199734	-0.51	0.607	-1.781507	1.040737
1 2	1.29222	.6732948	1.92	0.055	-.0274134	2.611854
1 3	-.5873685	.9946553	-0.59	0.555	-2.536857	1.36212
2 1	.1912366	.6385665	0.30	0.765	-1.060331	1.442804
2 2	1.049084	.6409833	1.64	0.102	-.2072205	2.305388
2 3	-1.311496	.8874976	-1.48	0.139	-3.050959	.4279677
MothersEducation#CodedWork						
1 1	1.636579	1.27319	1.29	0.199	-.8588282	4.131985
1 2	2.380238	1.087487	2.19	0.029	.2488019	4.511674
1 3	.7972915	1.150451	0.69	0.488	-1.457551	3.052134
2 1	2.789773	1.213161	2.30	0.021	.4120214	5.167525
2 2	2.431405	1.062094	2.29	0.022	.3497395	4.513071
2 3	.7926475	1.108588	0.72	0.475	-1.380145	2.96544
3 1	1.483187	1.481767	1.00	0.317	-1.421024	4.387397
3 2	.5604714	1.23925	0.45	0.651	-1.868415	2.989358
3 3	-.7683383	1.396184	-0.55	0.582	-3.504808	1.968132
FathersEducation#CodedSeniorYearGrades						
1 1	.3882546	.6091801	0.64	0.524	-.8057165	1.582226
1 2	-.3817642	1.059043	-0.36	0.718	-2.45745	1.693921
2 1	.6997368	.6282039	1.11	0.265	-.5315203	1.930994
2 2	-.3244201	1.029142	-0.32	0.753	-2.341502	1.692662
3 1	.4040522	.8042838	0.50	0.615	-1.172315	1.98042
3 2	2.631336	1.599553	1.65	0.100	-.5037315	5.766403
CodedWork#CodedSeniorYearGrades						
1 1	-1.167397	.8859432	-1.32	0.188	-2.903813	.5690203
1 2	3.804856	1.897052	2.01	0.045	.0867029	7.523009
2 1	-.7271625	.729322	-1.00	0.319	-2.156607	.7022824
2 2	5.335978	1.710745	3.12	0.002	1.98298	8.688976
3 1	-.4099141	.7856366	-0.52	0.602	-1.949734	1.129905
3 2	4.881958	1.85697	2.63	0.009	1.242364	8.521553
_cons	.1210737	2.611125	0.05	0.963	-4.996637	5.238784

```
. logit Retainedtofall2012 i.CodedRace i.Major CodifiedGender TransferPercentile ReceptivitytoAcademicAssistan_1 ReceptivitytoAcademicA
> ssistan_2 ReceptivitytoFinancialGuidanc AcademicStresspercentile FamilyEmotionalSupportpercen MathandScienceConfidenceper i.DegreeSou
> ght i.MothersEducation i.FathersEducation i.CodedWork i.CodedSeniorYearGrades Sociabilitypercentile StudyHabitspercentile MaxACTSATsc
> ore Distancefromcampus Classpercent CodedPELL i.CodedRace#i.FathersEducation i.Major#c.AcademicStresspercentile i.Major#c.FamilyEmoti
> onalSupportpercen i.Major#c.MaxACTSATscore c.TransferPercentile#i.MothersEducation c.ReceptivitytoFinancialGuidanc#i.DegreeSought c.A
> cademicStresspercentile#i.CodedWork c.FamilyEmotionalSupportpercen#c.Classpercent c.MathandScienceConfidenceper#i.CodedWork c.Distanc
> efromcampus#i.CodedSeniorYearGrades i.DegreeSought#i.MothersEducation i.MothersEducation#i.CodedWork i.FathersEducation#i.CodedSenior
> YearGrades i.CodedWork#i.CodedSeniorYearGrades

Iteration 0:   log likelihood = -525.83563
Iteration 1:   log likelihood = -383.14804
Iteration 2:   log likelihood = -371.22033
Iteration 3:   log likelihood = -370.59594
Iteration 4:   log likelihood = -370.59401
Iteration 5:   log likelihood = -370.59401

Logistic regression                             Number of obs     =        814
                                                LR chi2(84)       =     310.48
                                                Prob > chi2       =     0.0000
Log likelihood = -370.59401                     Pseudo R2         =     0.2952
```

Retainedtofall2012	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
1.CodedRace	-.2491522	.339152	-0.73	0.463	-.9138779	.4155735
Major						
1	5.717194	2.009783	2.84	0.004	1.778092	9.656297
2	-2.270056	2.240593	-1.01	0.311	-6.661538	2.121426
3	-1.604602	2.128765	-0.75	0.451	-5.776904	2.5677
CodifiedGender	-.1158479	.2241924	-0.52	0.605	-.5552568	.3235611
TransferPercentile	-.0100686	.0071888	-1.40	0.161	-.0241584	.0040212
ReceptivitytoAcademicAssistan_1	-2.68647	1.302926	-2.06	0.039	-5.240159	-.1327812
ReceptivitytoAcademicAssistan_2	-20.69133	7.618523	-2.72	0.007	-35.62337	-5.759303
ReceptivitytoFinancialGuidanc	-.0187823	.0061849	-3.04	0.002	-.0309045	-.00666
AcademicStresspercentile	-.0180869	.0129612	-1.40	0.163	-.0434903	.0073165
FamilyEmotionalSupportpercen	.0041299	.0076137	0.54	0.588	-.0107926	.0190524
MathandScienceConfidenceper	-.0232643	.0122063	-1.91	0.057	-.0471882	.0006595
DegreeSought						
1	-1.375735	.7450027	-1.85	0.065	-2.835913	.0844435
2	-2.561408	.7129648	-3.59	0.000	-3.958793	-1.164022
MothersEducation						
1	-3.629257	1.116131	-3.25	0.001	-5.816833	-1.44168
2	-2.988402	1.062756	-2.81	0.005	-5.071366	-.9054372
3	1.481843	1.43054	1.04	0.300	-1.321964	4.285649
FathersEducation						
1	-1.080815	.4072168	-2.65	0.008	-1.878945	-.2826844
2	-.8575189	.3917548	-2.19	0.029	-1.625344	-.0896935
3	-1.301718	.5088232	-2.56	0.011	-2.298993	-.304443
CodedWork						
1	-4.654533	1.804458	-2.58	0.010	-8.191205	-1.117862
2	-4.559454	1.514437	-3.01	0.003	-7.527695	-1.591212
3	-5.659096	1.66064	-3.41	0.001	-8.91389	-2.404301
CodedSeniorYearGrades						
1	.1000118	.7103356	0.14	0.888	-1.29222	1.492244
2	-5.57649	1.536845	-3.63	0.000	-8.588651	-2.56433
Sociabilitypercentile	-.0023584	.0033591	-0.70	0.483	-.0089421	.0042253
StudyHabitspercentile	.0176153	.0052415	3.36	0.001	.0073421	.0278885
MaxACTSATscore	.2003917	.0519827	3.85	0.000	.0985075	.302276
Distancefromcampus	-.00228	.0008447	-2.70	0.007	-.0039356	-.0006245
Classpercent	-.0460697	.012552	-3.67	0.000	-.0706711	-.0214684
CodedPELL	.228729	.2205587	1.04	0.300	-.2035581	.6610161
CodedRace#FathersEducation						
1 1	1.424641	.6496212	2.19	0.028	.151407	2.697875
1 2	.5988043	.815102	0.73	0.463	-.9987663	2.196375
1 3	1.00891	.9463171	1.07	0.286	-.845837	2.863658
Major#c.AcademicStresspercentile						
1	.0069932	.0099184	0.71	0.481	-.0124465	.0264328
2	.0044432	.0110462	0.40	0.688	-.017207	.0260934
3	.022279	.0095949	2.32	0.020	.0034733	.0410847
Major#c.FamilyEmotionalSupportpercen						
1	-.0209827	.0087568	-2.40	0.017	-.0381457	-.0038198
2	-.0207906	.0094728	-2.19	0.028	-.0393569	-.0022242
3	.0050317	.0089378	0.56	0.573	-.0124861	.0225495

.

Major#c.MaxACTSATscore						
1	-.2241475	.0740189	-3.03	0.002	-.3692218	-.0790731
2	.0901587	.0855692	1.05	0.292	-.077554	.2578713
3	.0130157	.0792922	0.16	0.870	-.1423942	.1684256
MothersEducation#c.TransferPercentile						
1	.0263351	.011319	2.33	0.020	.0041502	.0485199
2	.0128065	.0106852	1.20	0.231	-.0081361	.0337491
3	-.0148902	.0145593	-1.02	0.306	-.0434258	.0136454
DegreeSought#c.ReceptivitytoFinancialGuidanc						
1	.0153146	.0094452	1.62	0.105	-.0031976	.0338268
2	.034875	.008859	3.94	0.000	.0175117	.0522383
CodedWork#c.AcademicStresspercentile						
1	.0427462	.0161069	2.65	0.008	.0111773	.0743151
2	.0223845	.0124596	1.80	0.072	-.002036	.0468049
3	.0322592	.0140106	2.30	0.021	.0047989	.0597195
c.FamilyEmotionalSupportpercen#c.Classpercent	.0004569	.0001877	2.43	0.015	.0000889	.0008248
CodedWork#c.MathandScienceConfidenceper						
1	.0313417	.0174281	1.80	0.072	-.0028167	.0655
2	.0297054	.0136345	2.18	0.029	.0029824	.0564285
3	.0498293	.015182	3.28	0.001	.0200732	.0795854
CodedSeniorYearGrades#c.Distancefromcampus						
1	.0010241	.0011293	0.91	0.364	-.0011893	.0032375
2	.0036396	.0012495	2.91	0.004	.0011905	.0060886
DegreeSought#MothersEducation						
1 1	-.5507331	.666788	-0.83	0.409	-1.857614	.7561474
1 2	1.223038	.6241413	1.96	0.050	-.0002563	2.446332
1 3	-.5641882	.9123933	-0.62	0.536	-2.352446	1.22407
2 1	.2872534	.5834456	0.49	0.622	-.8562789	1.430786
2 2	1.161669	.5960749	1.95	0.051	-.0066163	2.329955
2 3	-1.401384	.8245099	-1.70	0.089	-3.017394	.2146257
MothersEducation#CodedWork						
1 1	1.517071	1.150978	1.32	0.187	-.7388041	3.772946
1 2	2.346709	.9557926	2.46	0.014	.4733898	4.220028
1 3	.6295009	1.029057	0.61	0.541	-1.387413	2.646415
2 1	2.710403	1.022909	2.65	0.008	.7055388	4.715268
2 2	2.493014	.8649714	2.88	0.004	.7977013	4.188327
2 3	.6446187	.9138313	0.71	0.481	-1.146458	2.435695
3 1	1.113672	1.296002	0.86	0.390	-1.426445	3.65379
3 2	.5046204	1.065491	0.47	0.636	-1.583704	2.592945
3 3	-1.100315	1.227739	-0.90	0.370	-3.506639	1.306008
FathersEducation#CodedSeniorYearGrades						
1 1	.4018799	.5380555	0.75	0.455	-.6526895	1.456449
1 2	-.6777863	.914222	-0.74	0.458	-2.469629	1.114056
2 1	.794517	.5235645	1.52	0.129	-.2316504	1.820685
2 2	-.2326327	.9234885	-0.25	0.801	-2.042637	1.577372
3 1	.4132555	.7162937	0.58	0.564	-.9906543	1.817165
3 2	2.522961	1.076456	2.34	0.019	.4131456	4.632777
CodedWork#CodedSeniorYearGrades						
1 1	-1.324048	.8282221	-1.60	0.110	-2.947333	.2992377
1 2	3.087874	1.723263	1.79	0.073	-.28966	6.465408
2 1	-.8713155	.6758855	-1.29	0.197	-2.196027	.4533957
2 2	4.458478	1.512905	2.95	0.003	1.493239	7.423718
3 1	-.6004559	.737063	-0.81	0.415	-2.045073	.8441609
3 2	3.745962	1.639878	2.28	0.022	.5318611	6.960063
_cons	1.346413	2.112358	0.64	0.524	-2.793733	5.486558

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. estat gof, group(10)

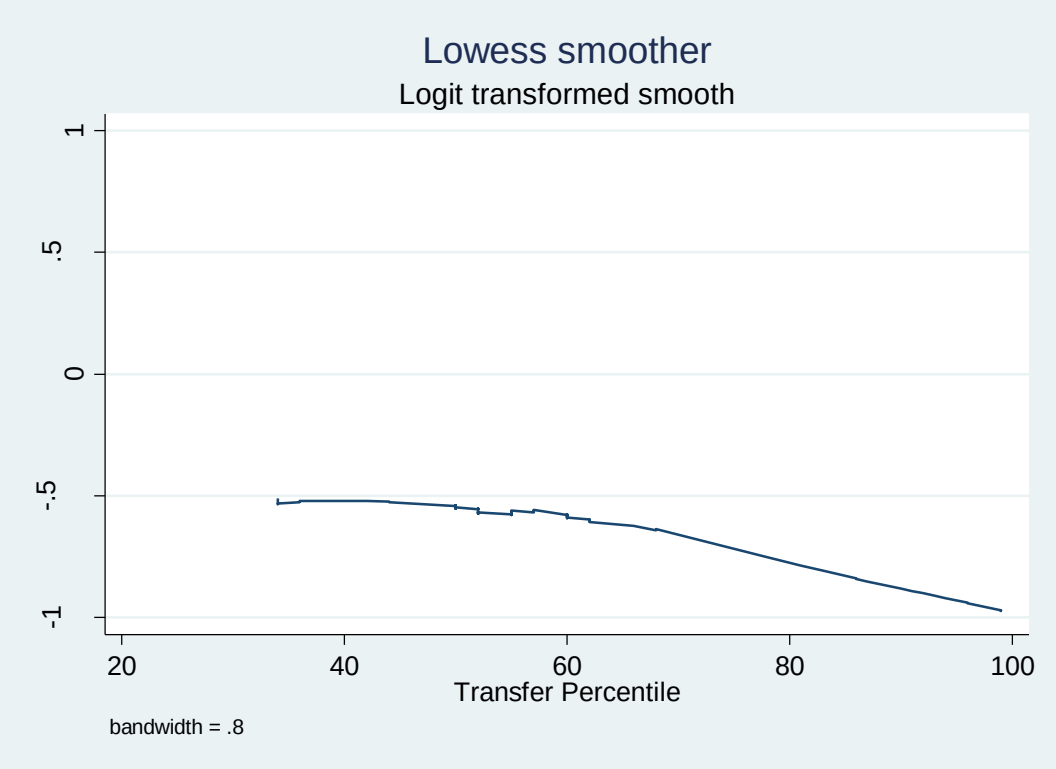
Logistic model for Retainedtofall2012, goodness-of-fit test

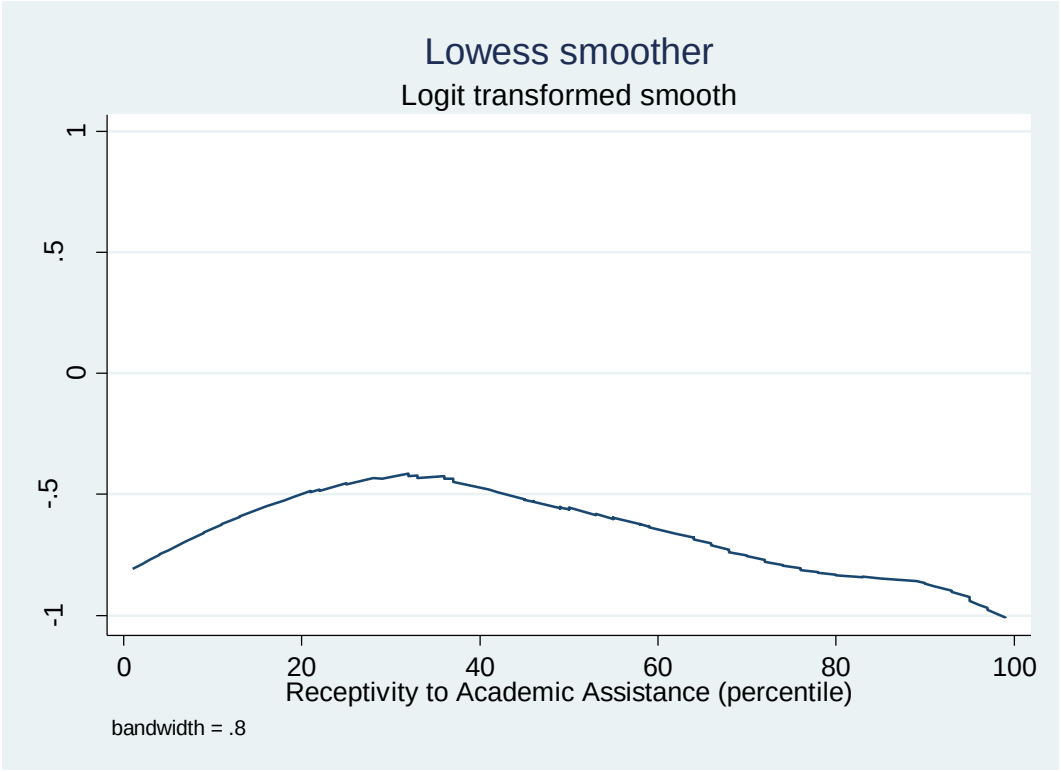
(Table collapsed on quantiles of estimated probabilities)

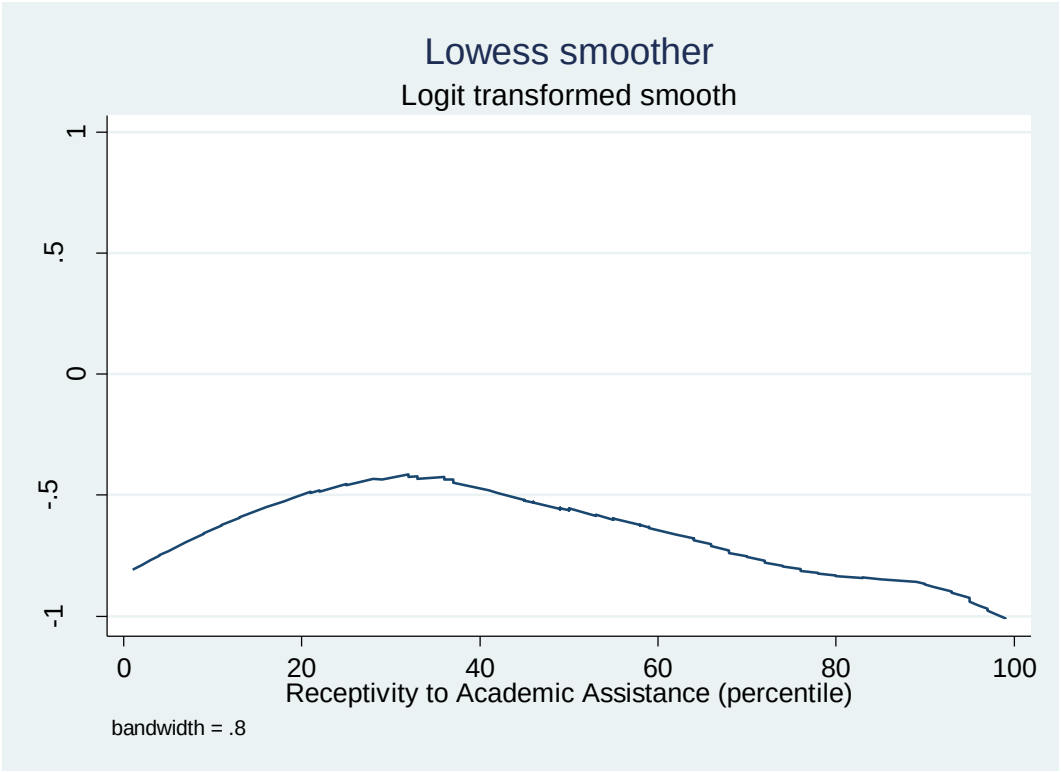
number of observations = 814
number of groups = 10
Hosmer-Lemeshow chi2(8) = 7.63
Prob > chi2 = 0.4705

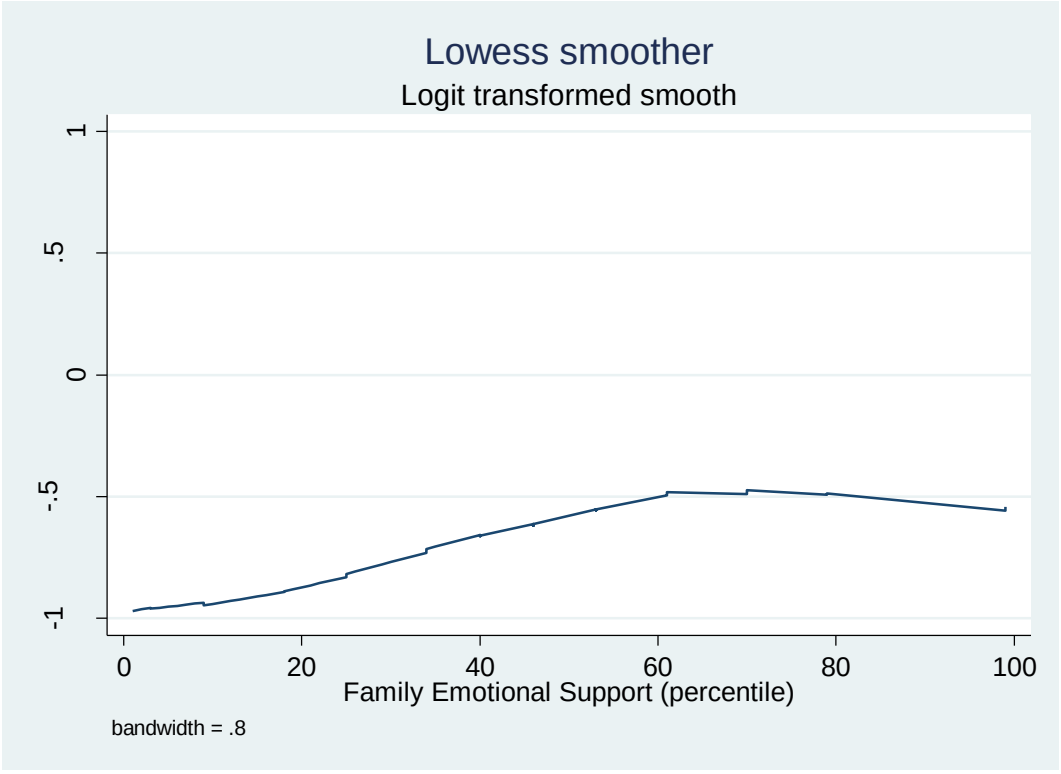
Appendix III

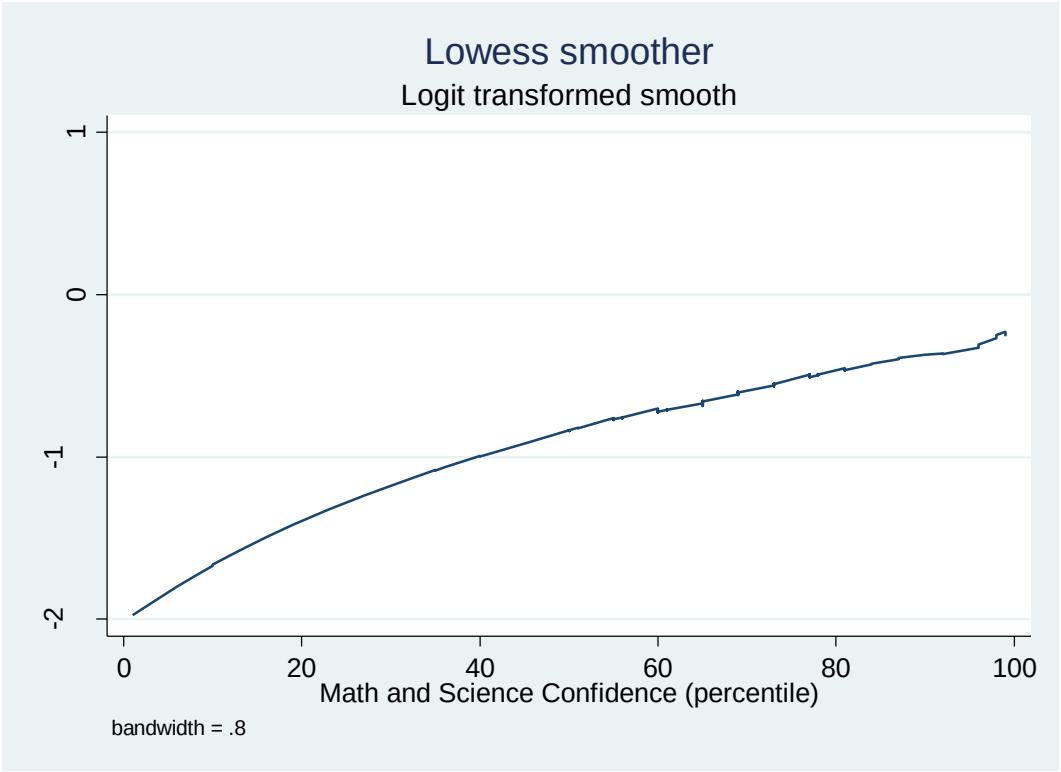
All STEM Lowess Smooth Plots

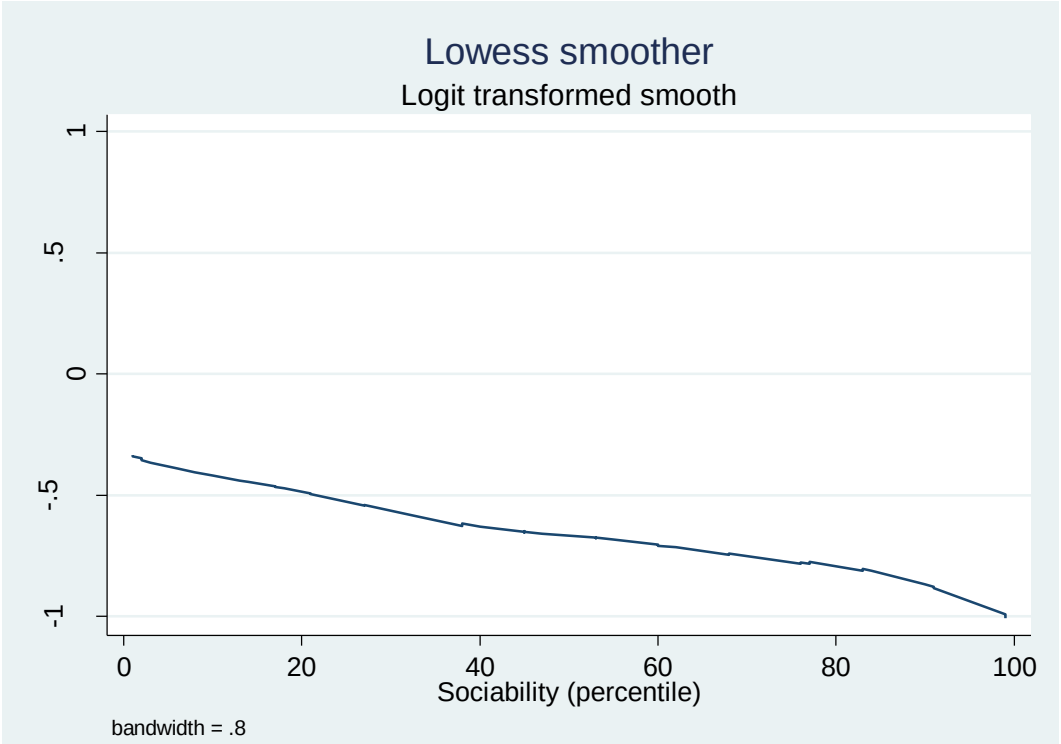


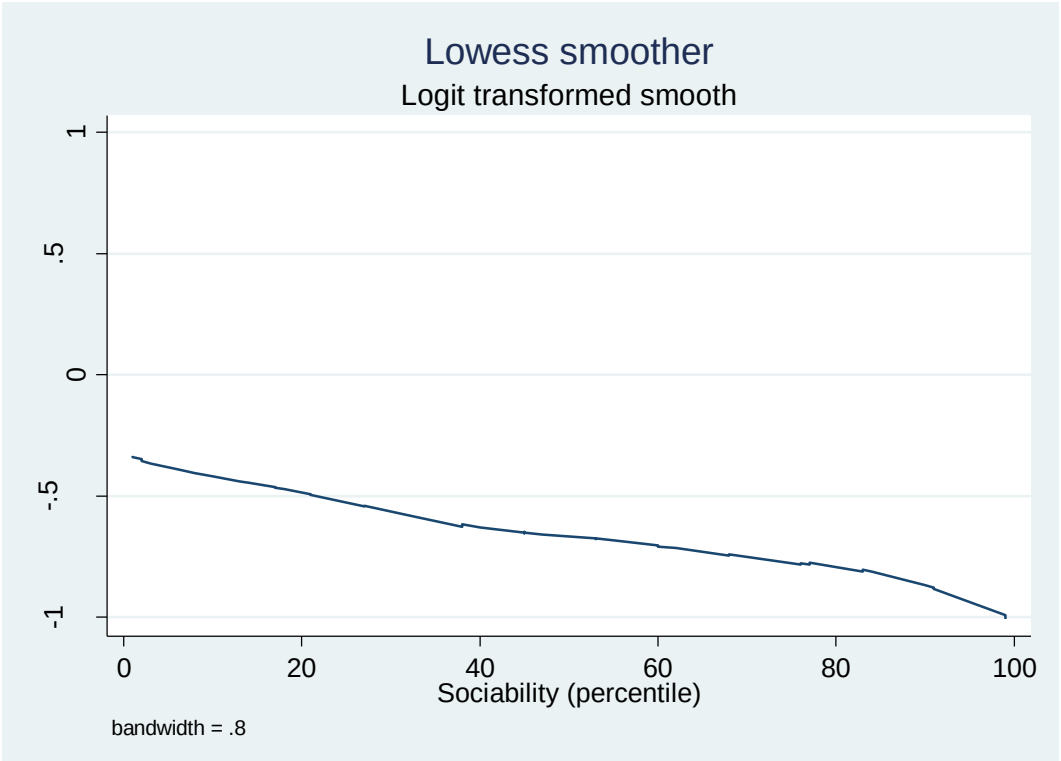

Lowess smoother
Logit transformed smooth
1
.5
0
-.5
-1
0
20
40
60
80
100
Receptivity to Academic Assistance (percentile)
bandwidth = .8

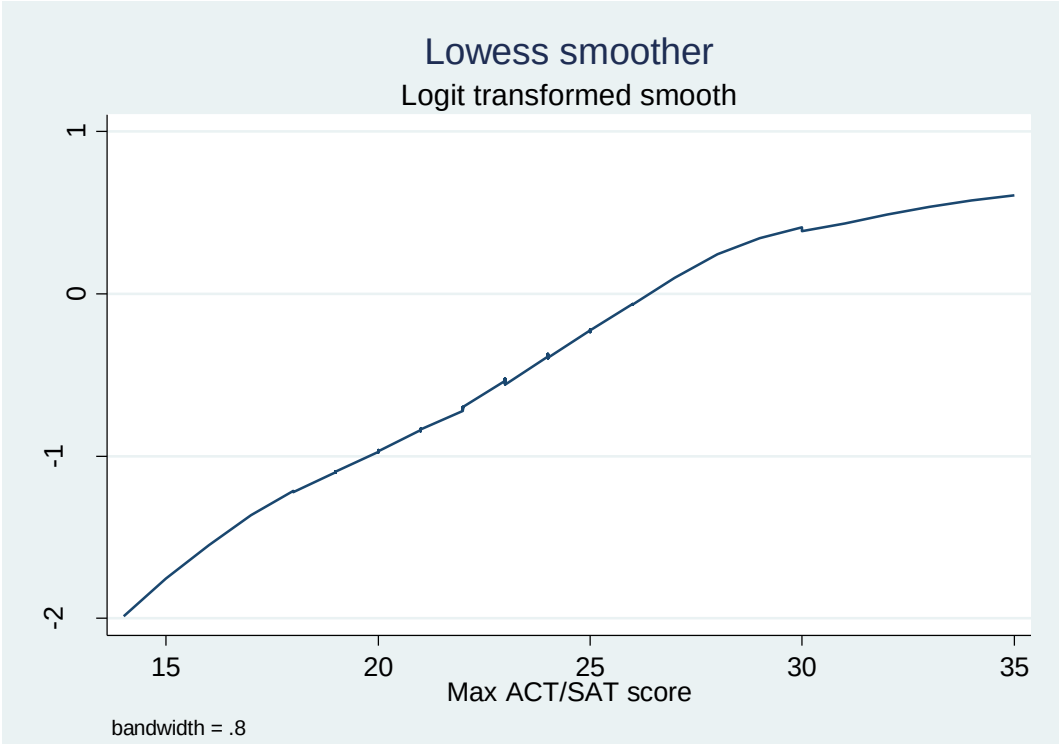

Lowess smoother
Logit transformed smooth
1
.5
0
-.5
-1
0
20
40
60
80
100
Receptivity to Academic Assistance (percentile)
bandwidth = .8

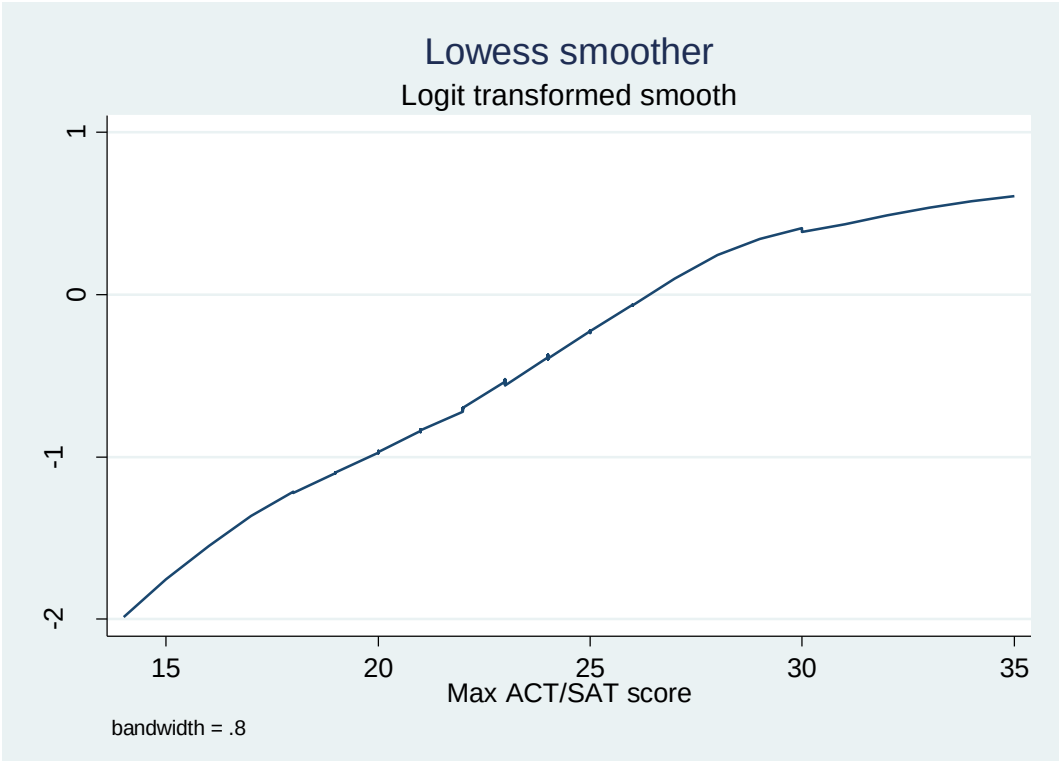

Lowess smoother
Logit transformed smooth
1
.5
0
-.5
-1
0
20
40
60
80
100
Family Emotional Support (percentile)
bandwidth = .8

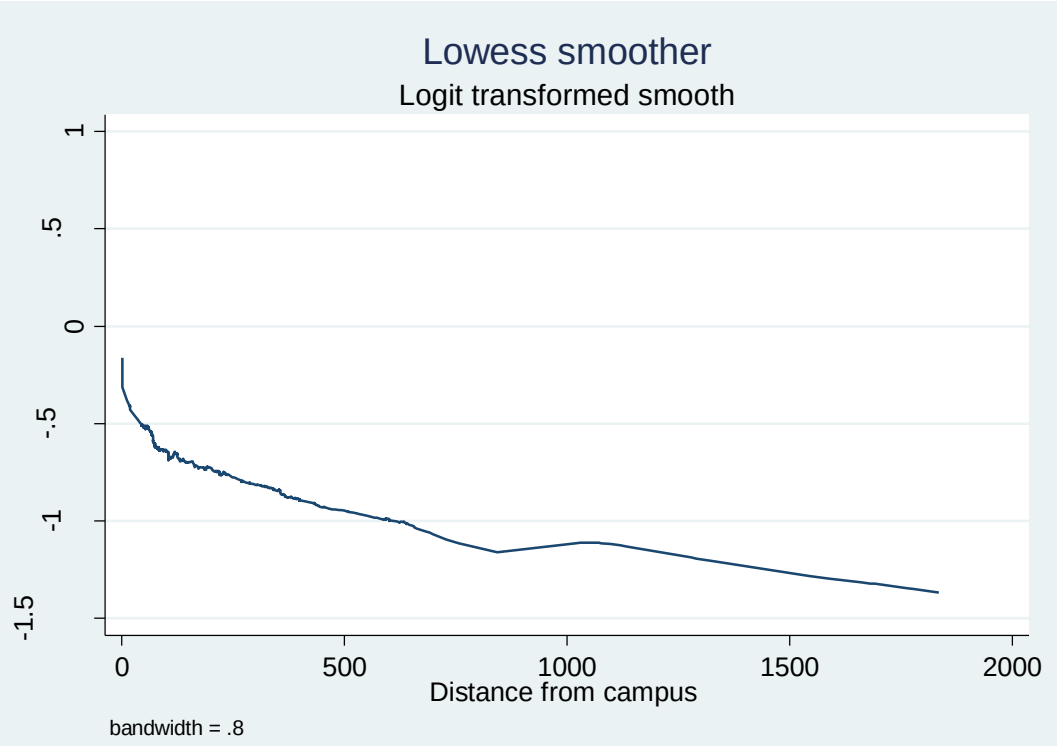

Lowess smoother
Logit transformed smooth
1
0
-1
-2
0
20
40
60
80
100
Math and Science Confidence (percentile)
bandwidth = .8

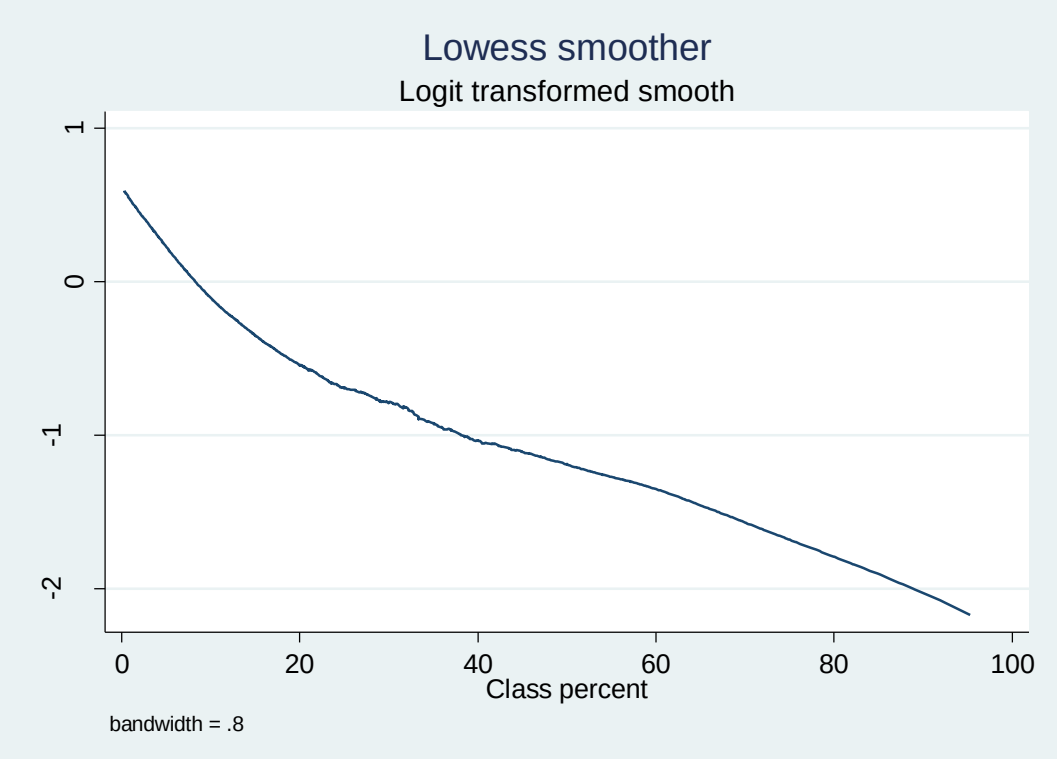

Lowess smoother
Logit transformed smooth
1
.5
0
-.5
-1
0
20
40
60
80
100
Sociability (percentile)
bandwidth = .8

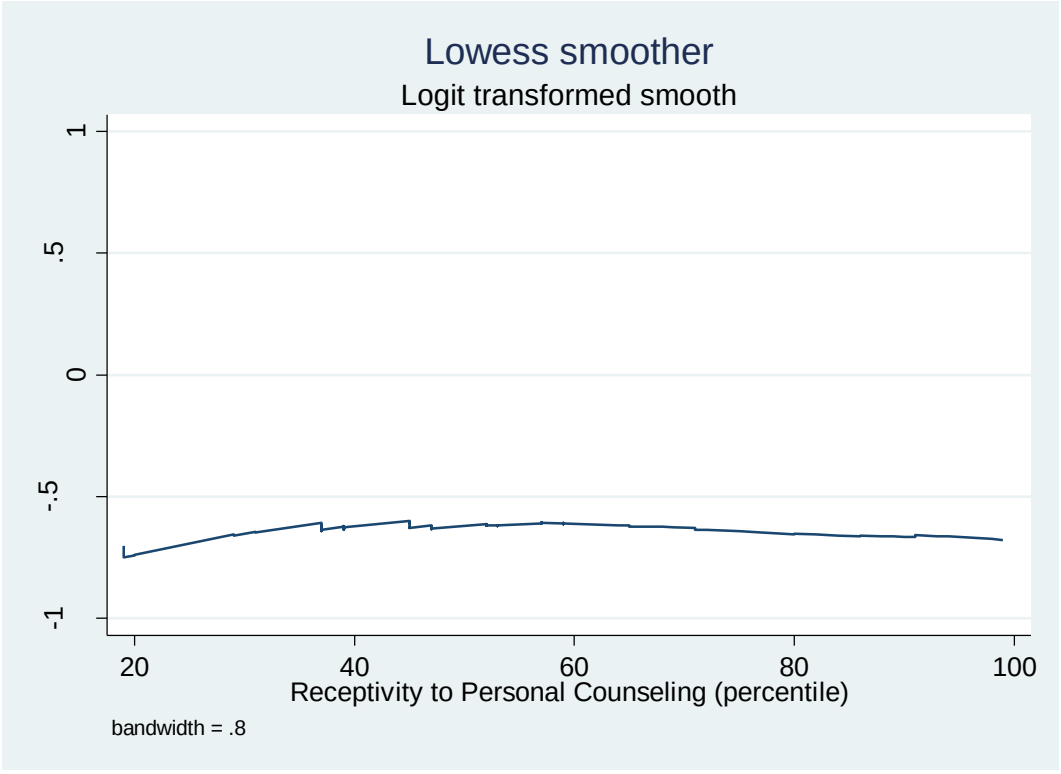

Lowess smoother
Logit transformed smooth
1
.5
0
-.5
-1
0
20
40
60
80
100
Sociability (percentile)
bandwidth = .8

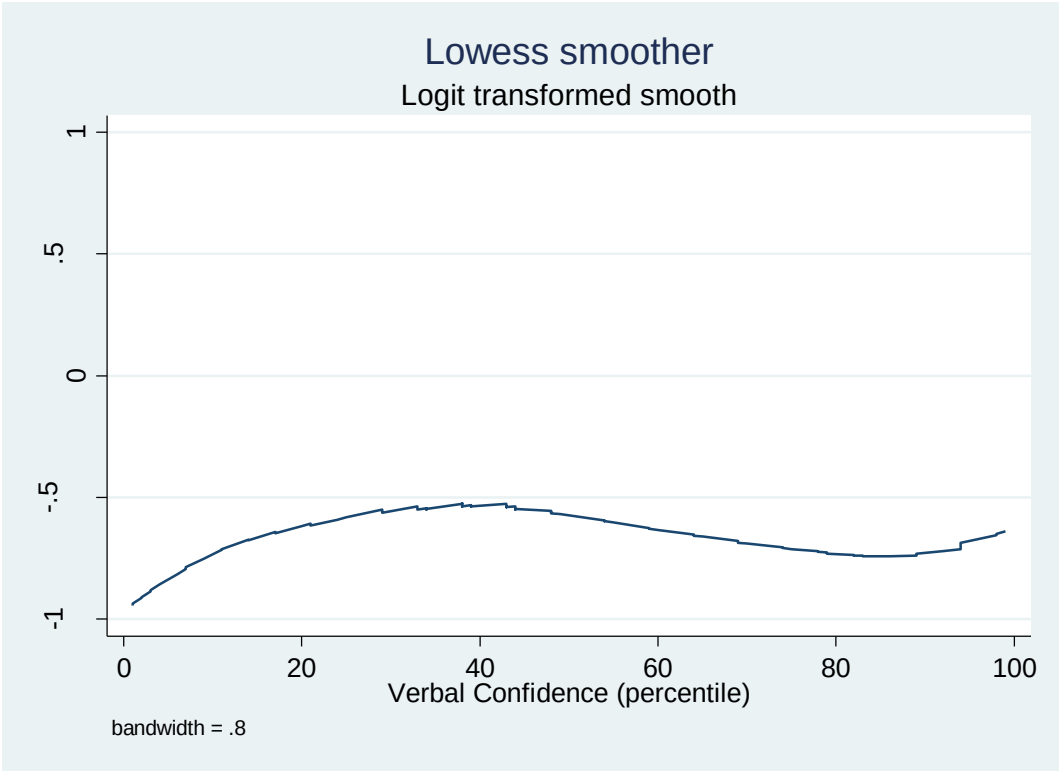

Lowess smoother
Logit transformed smooth
1
0
-1
-2
15
20
25
30
35
Max ACT/SAT score
bandwidth = .8


Lowess smoother
Logit transformed smooth
1
0
-1
-2
15
20
25
30
35
Max ACT/SAT score
bandwidth = .8

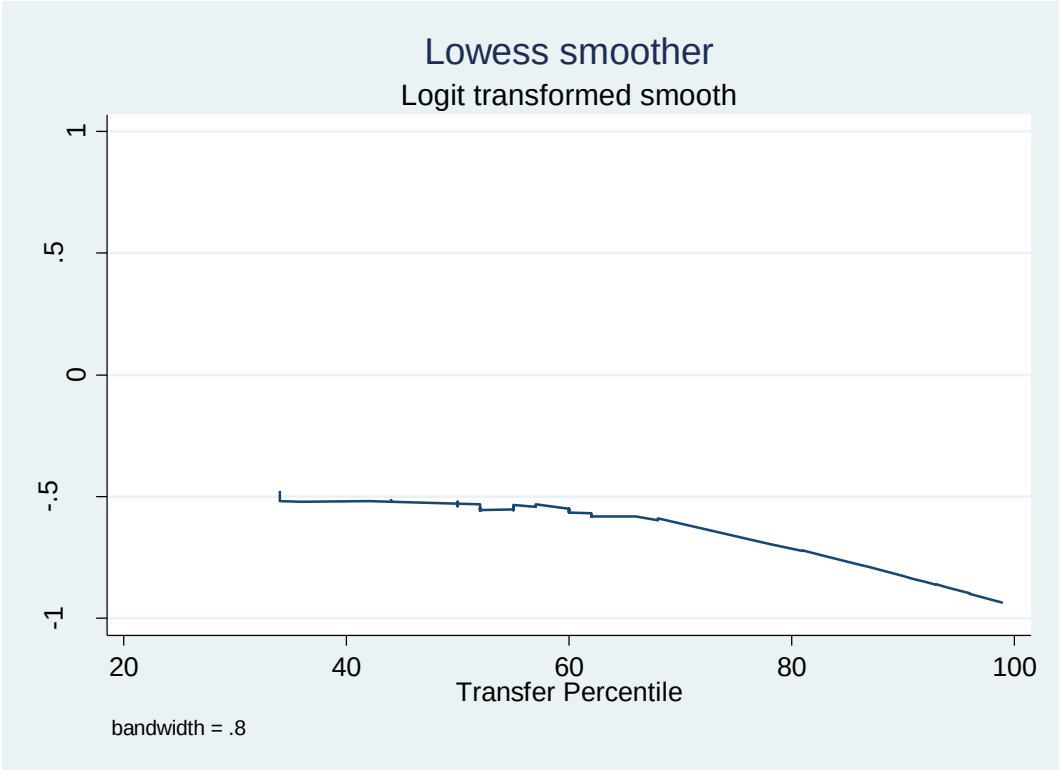

Lowess smoother
Logit transformed smooth
1
.5
0
-.5
-1
-1.5
0
500
1000
1500
2000
Distance from campus
bandwidth = .8

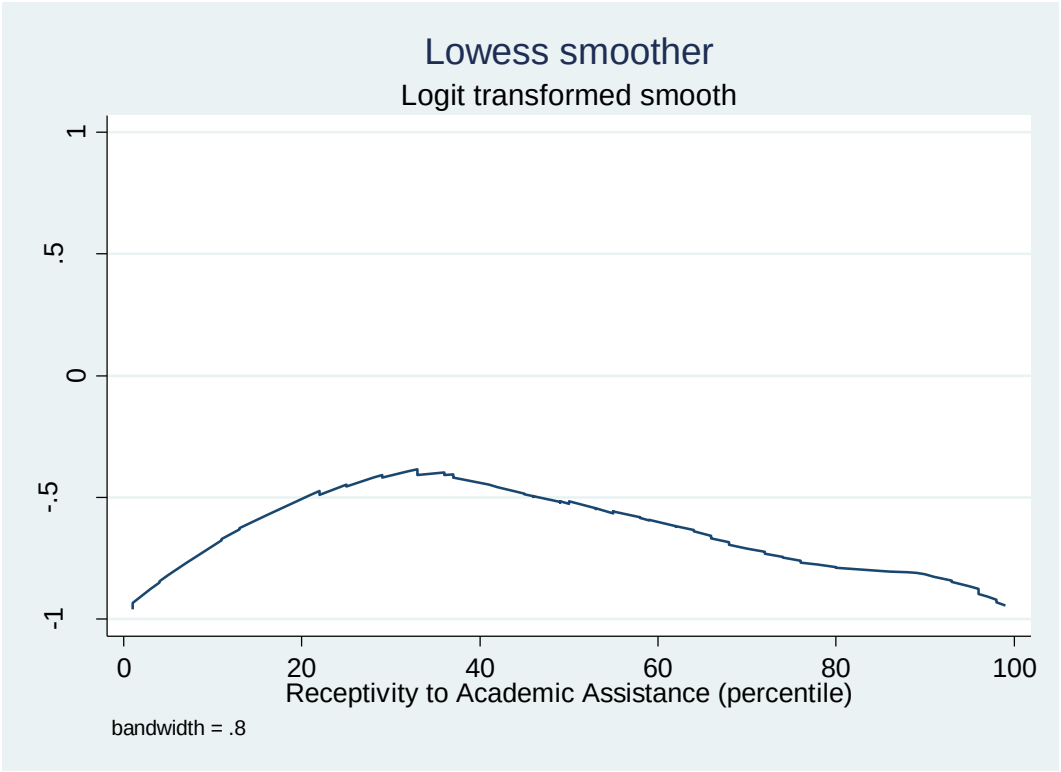

Lowess smoother
Logit transformed smooth
1
0
-1
-2
0
20
40
60
80
100
Class percent
bandwidth = .8

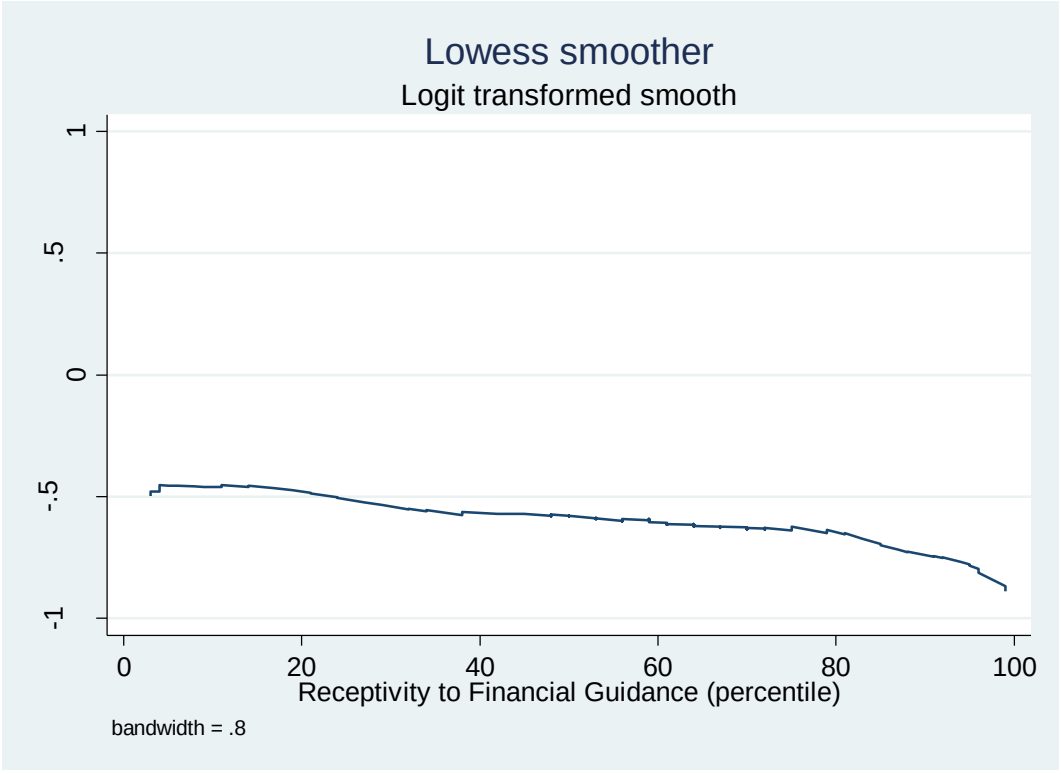


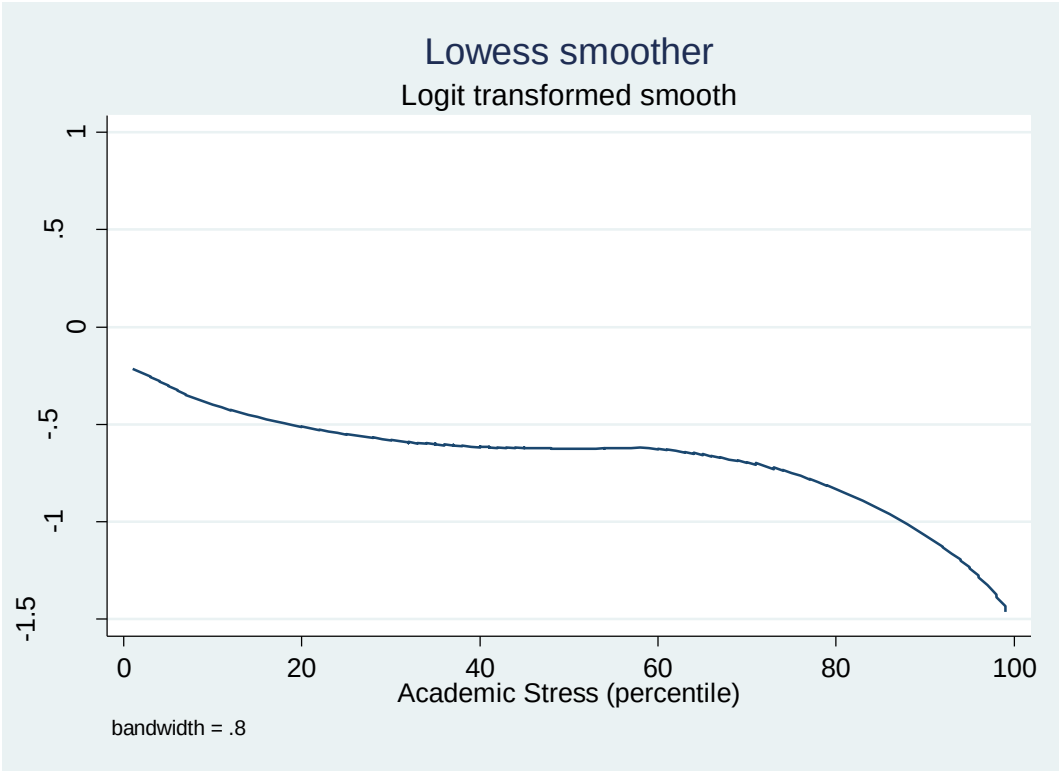


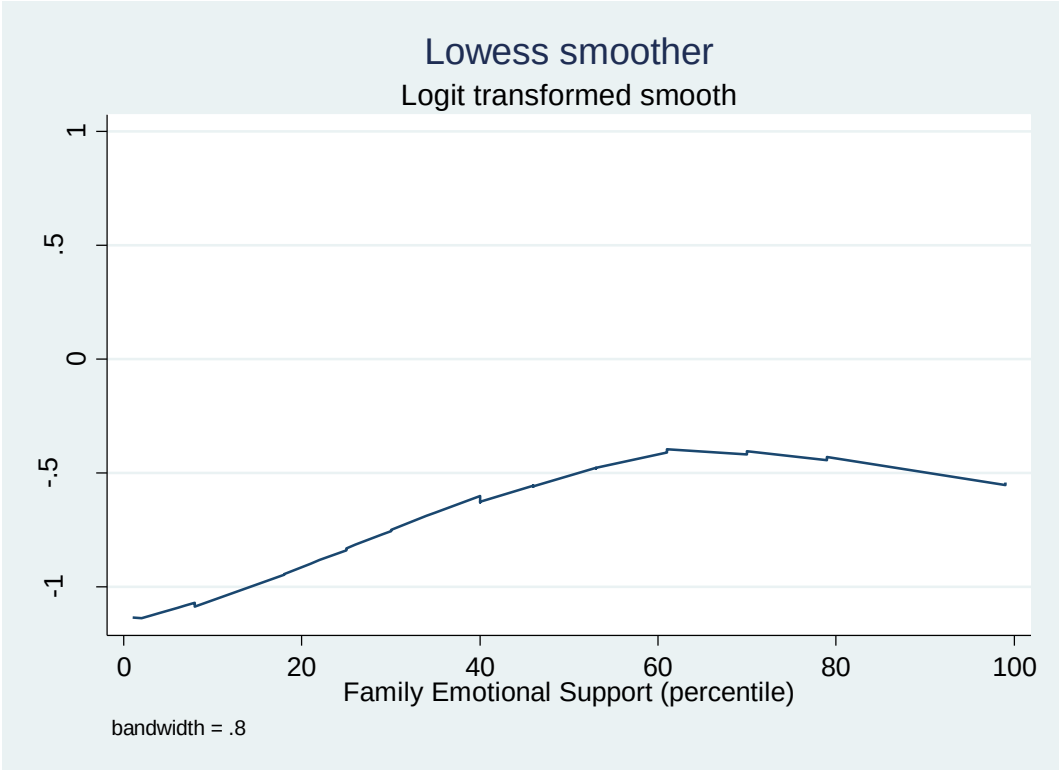
Caucasian and Hispanic STEM Lowess Plots

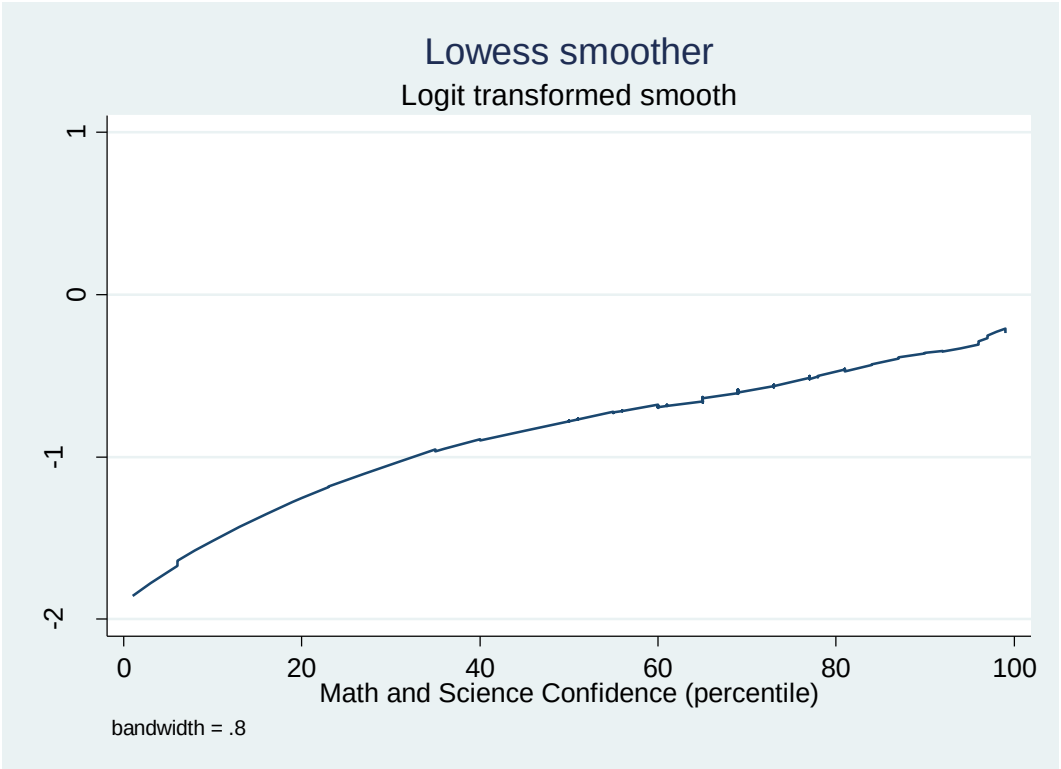

Lowess smoother
Logit transformed smooth
1
.5
0
-.5
-1
20
40
60
80
100
Transfer Percentile
bandwidth = .8

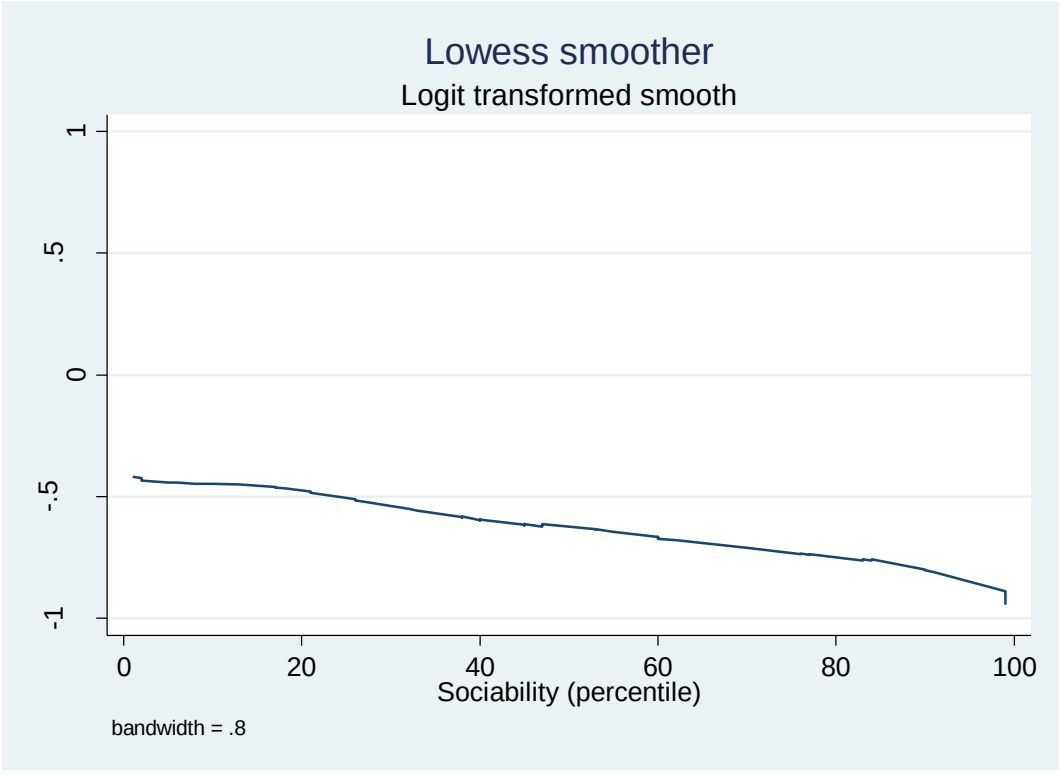

Lowess smoother
Logit transformed smooth
1
.5
0
-.5
-1
0
20
40
60
80
100
Receptivity to Academic Assistance (percentile)
bandwidth = .8

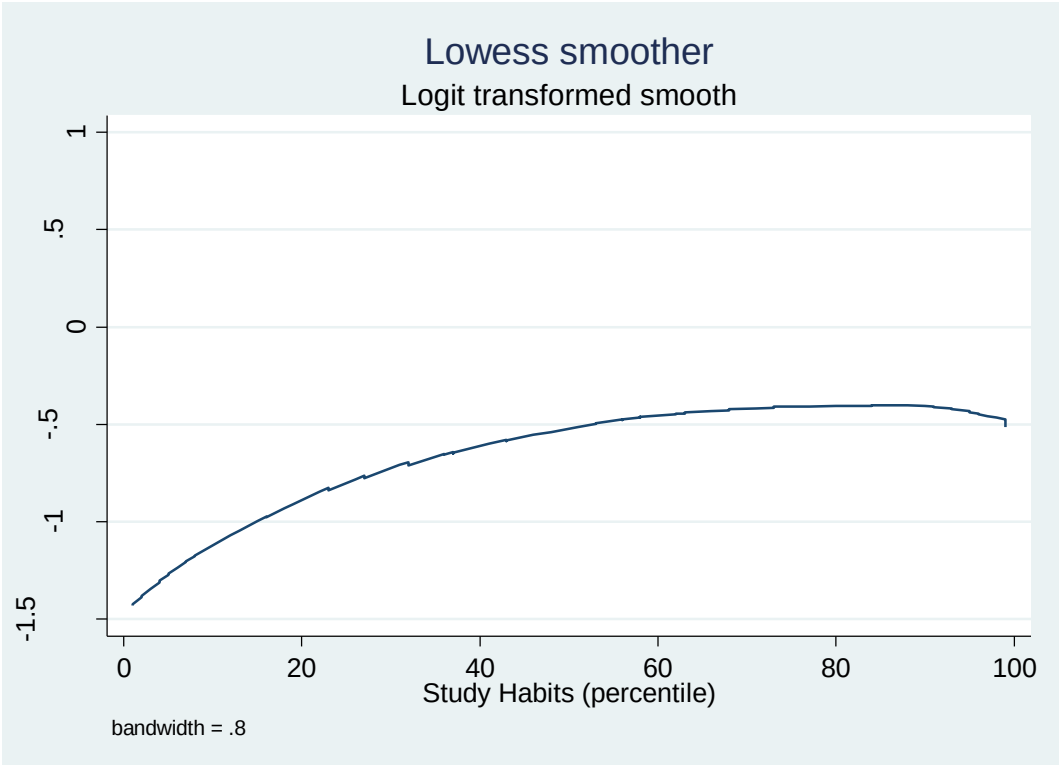

Lowess smoother
Logit transformed smooth
1
.5
0
-.5
-1
0
20
40
60
80
100
Receptivity to Financial Guidance (percentile)
bandwidth = .8

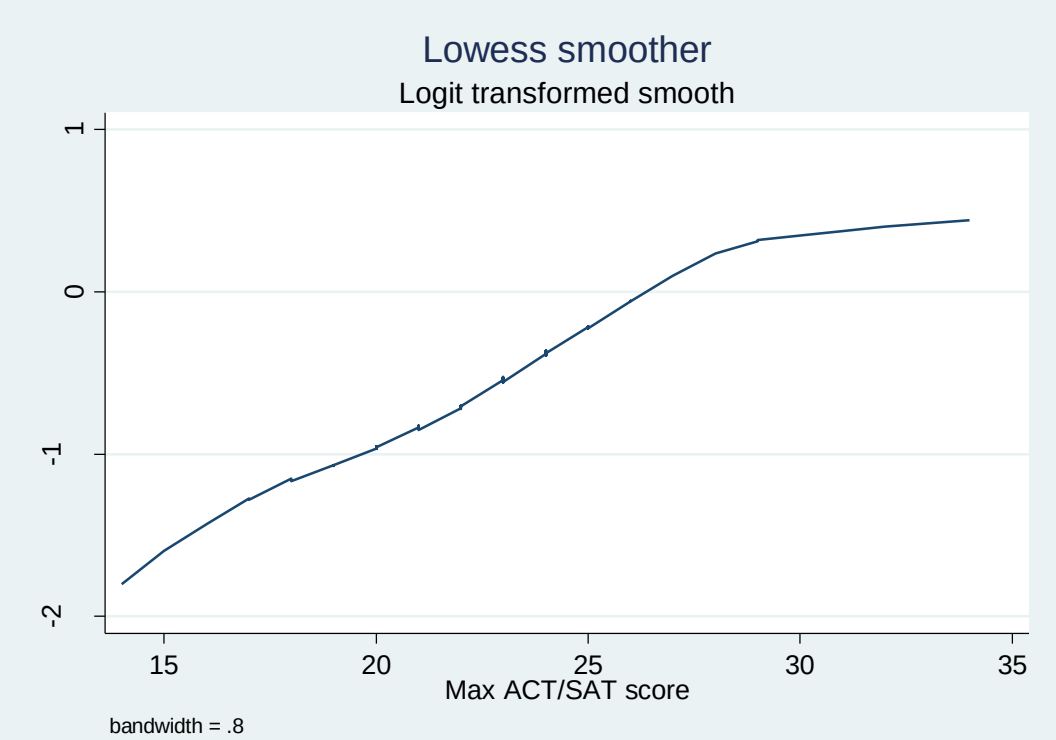

Lowess smoother
Logit transformed smooth
1
.5
0
-.5
-1
-1.5
0
20
40
60
80
100
Academic Stress (percentile)
bandwidth = .8

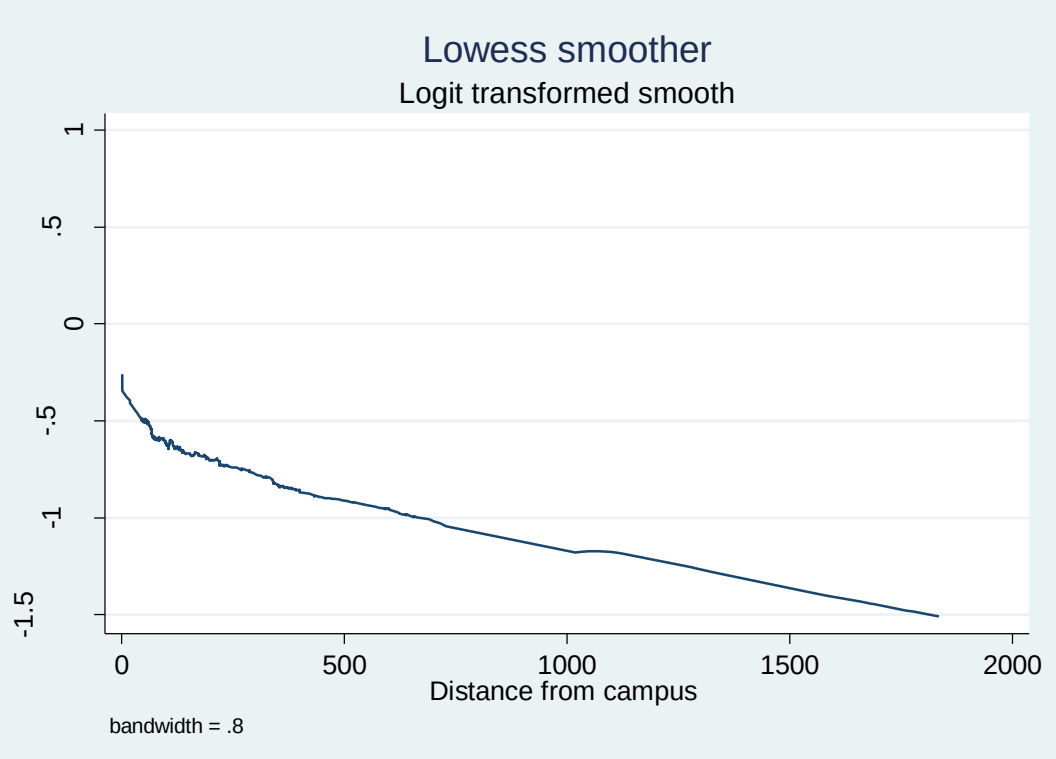

Lowess smoother
Logit transformed smooth
1
.5
0
-.5
-1
0
20
40
60
80
100
Family Emotional Support (percentile)
bandwidth = .8

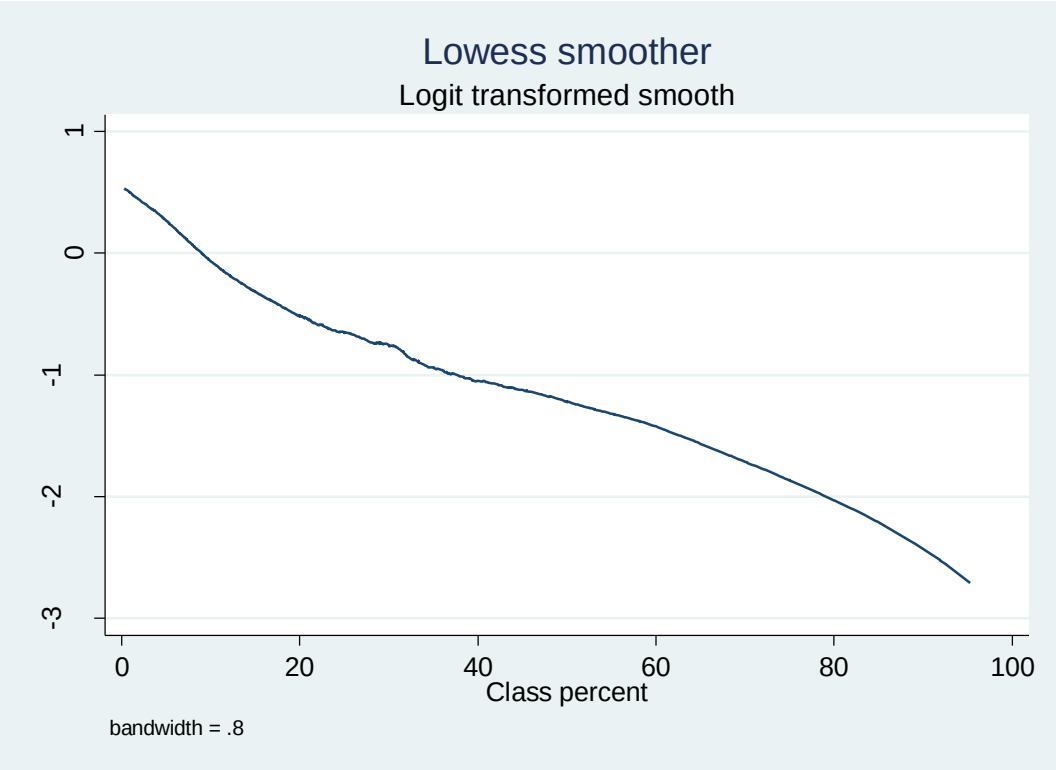

Lowess smoother
Logit transformed smooth
1
0
-1
-2
0
20
40
60
80
100
Math and Science Confidence (percentile)
bandwidth = .8


Lowess smoother
Logit transformed smooth
1
.5
0
-.5
-1
0
20
40
60
80
100
Sociability (percentile)
bandwidth = .8


Lowess smoother
Logit transformed smooth
1
.5
0
-.5
-1
-1.5
0
20
40
60
80
100
Study Habits (percentile)
bandwidth = .8


Lowess smoother
Logit transformed smooth
1
0
-1
-2
15
20
25
30
35
Max ACT/SAT score
bandwidth = .8

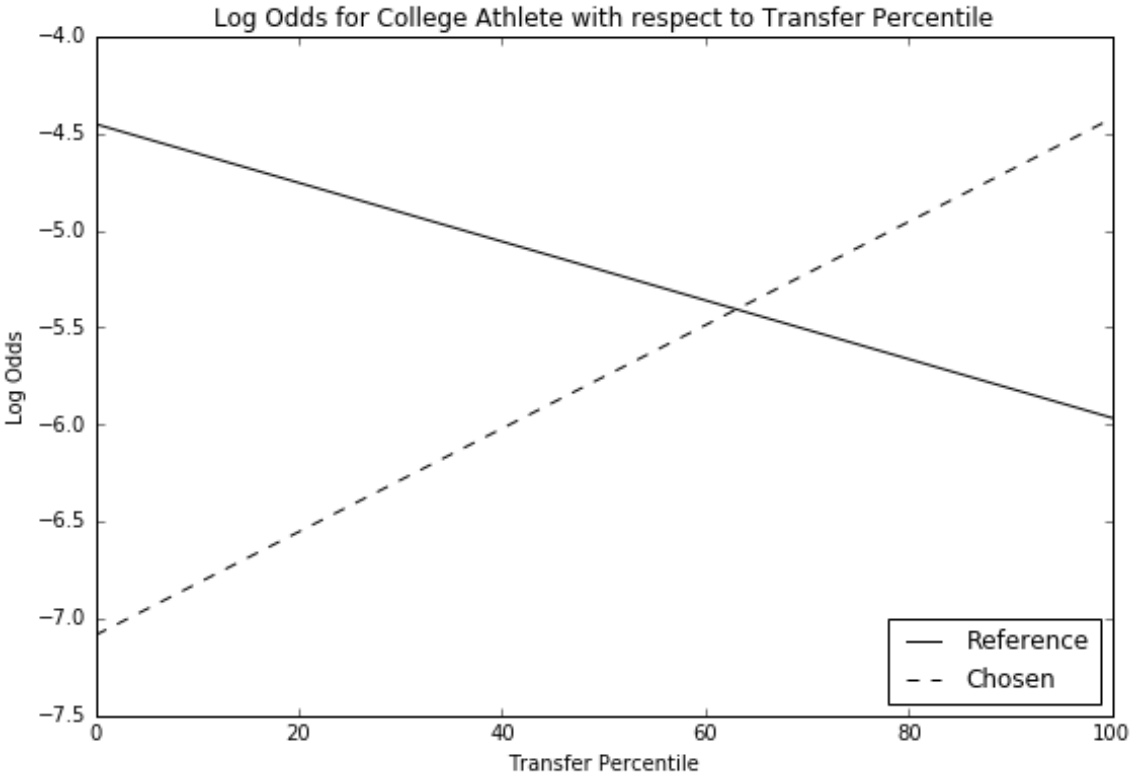

Lowess smoother
Logit transformed smooth
1
.5
0
-.5
-1
-1.5
0
500
1000
1500
2000
Distance from campus
bandwidth = .8

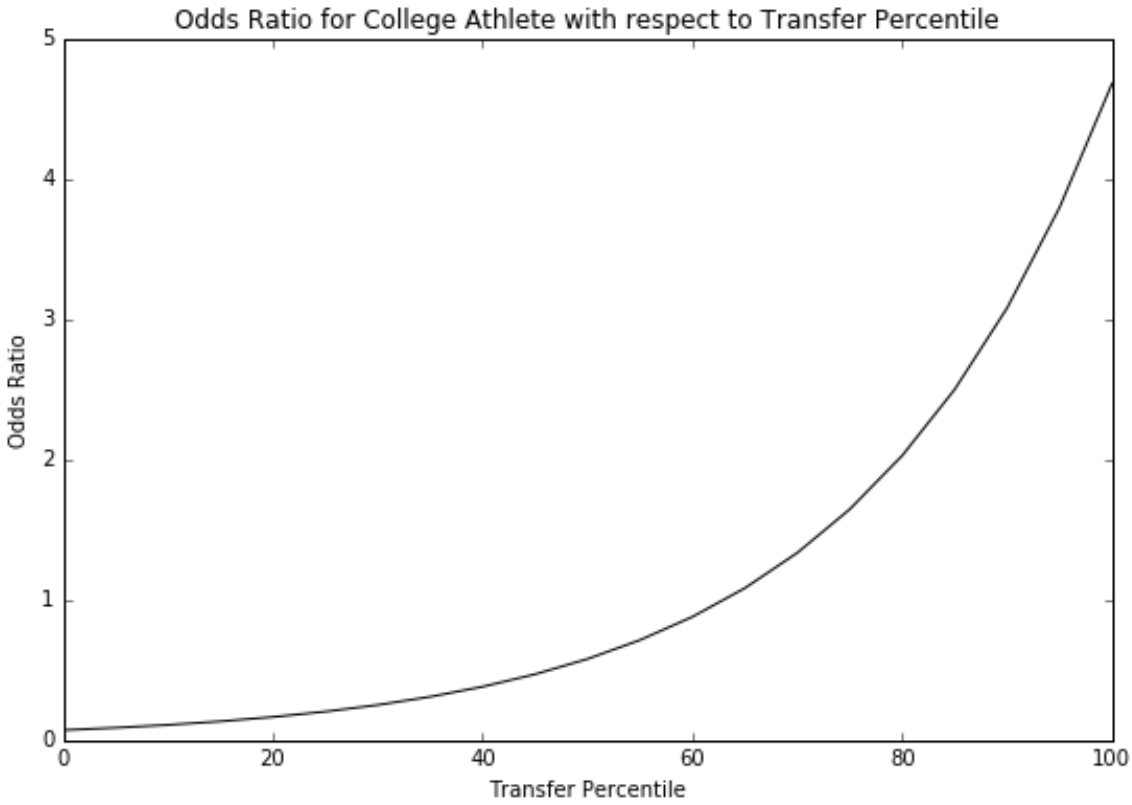

Lowess smoother
Logit transformed smooth
1
0
-1
-2
-3
0
20
40
60
80
100
Class percent
bandwidth = .8

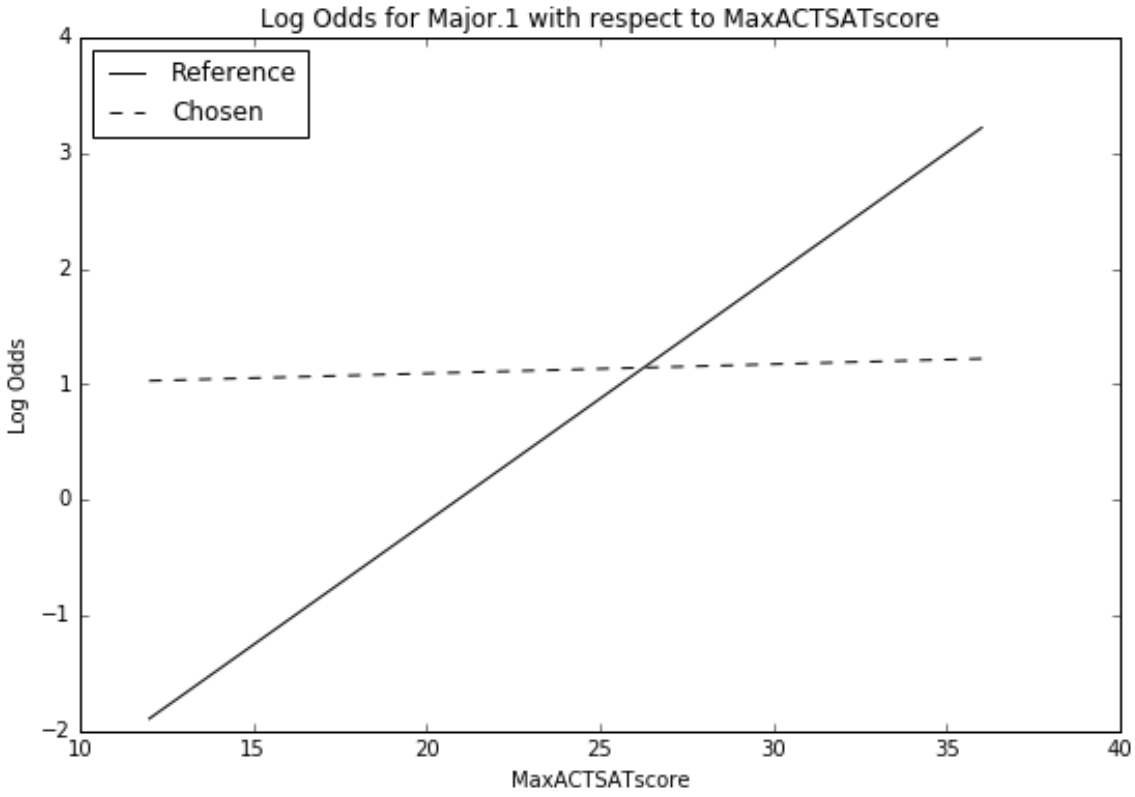
Appendix IV

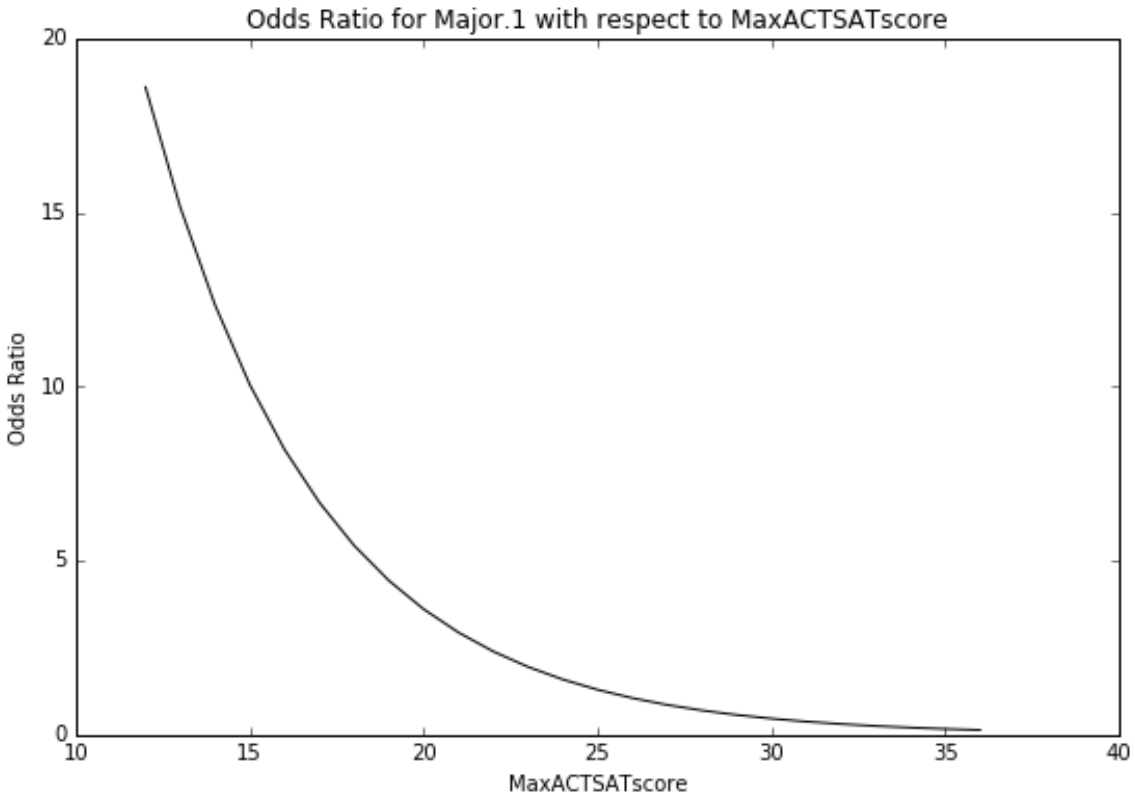
Log Odds and Odds Ratio Graphs

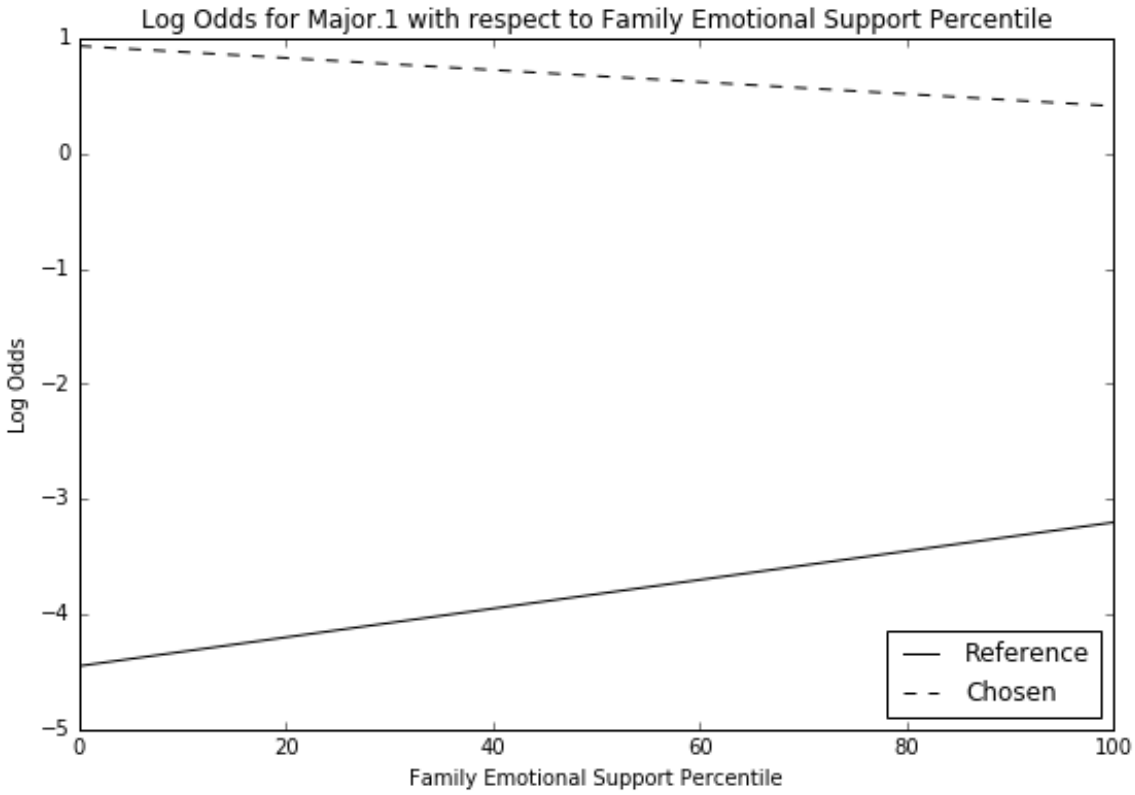
All STEM

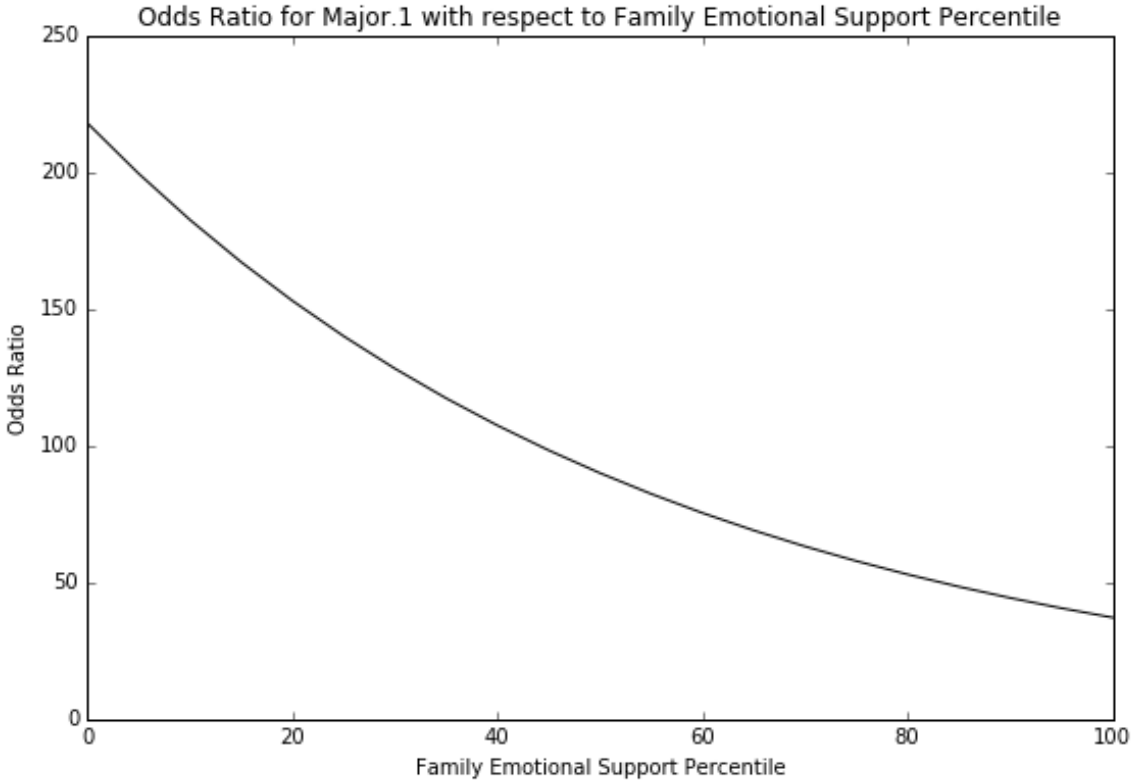


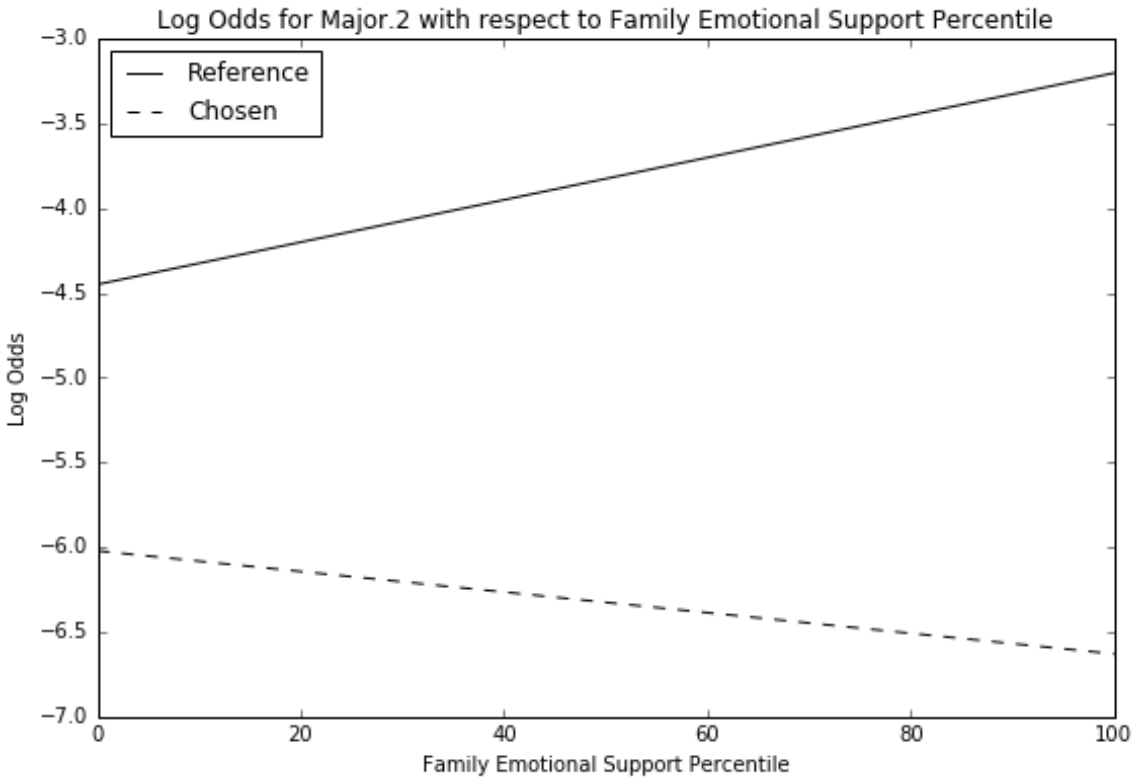

Odds Ratio for College Athlete with respect to Transfer Percentile
Odds Ratio
Transfer Percentile
0
1
2
3
4
5
0
20
40
60
80
100

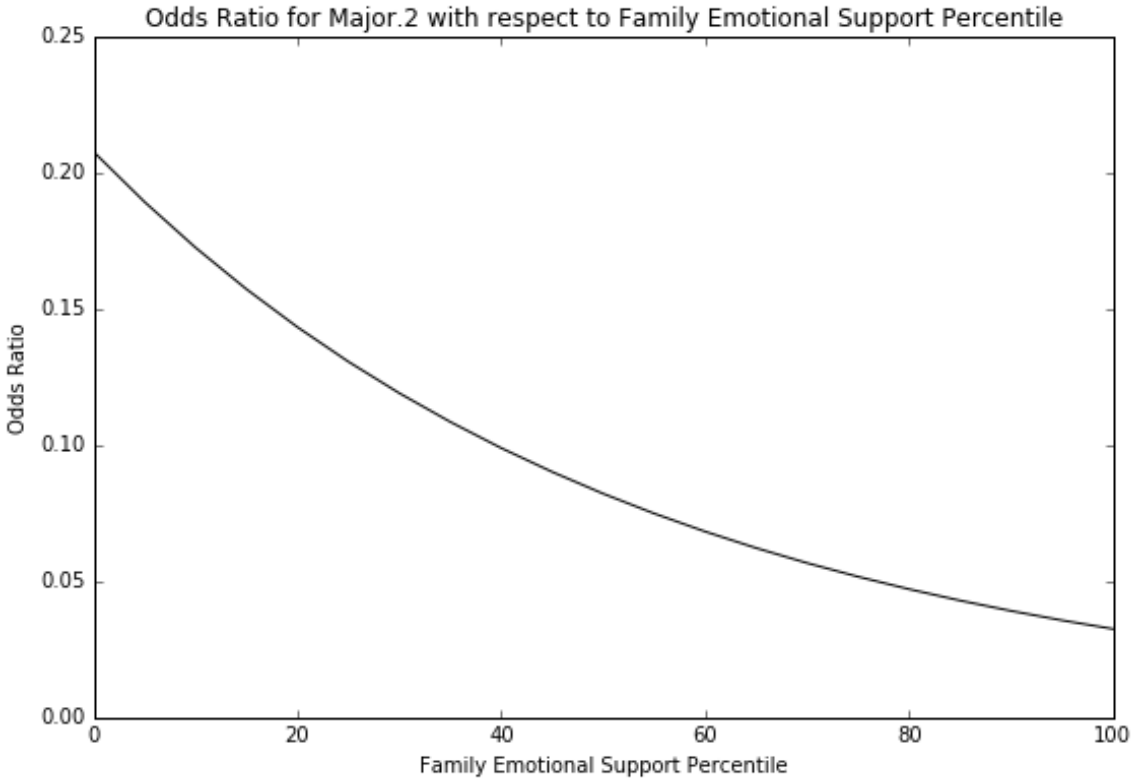

Log Odds for Major.1 with respect to MaxACTSATscore
Reference
Chosen
Log Odds
MaxACTSATscore
4
3
2
1
0
−1
−2
10
15
20
25
30
35
40

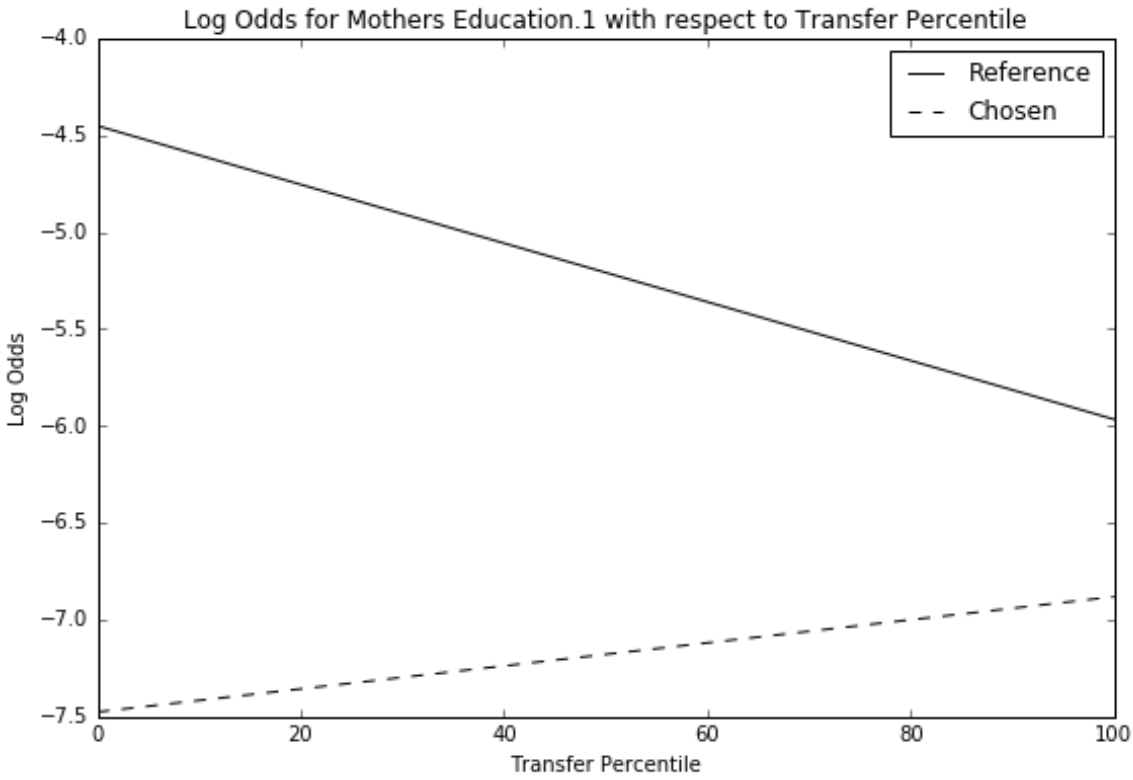

Odds Ratio for Major.1 with respect to MaxACTSATscore
Odds Ratio
MaxACTSATscore
20
15
10
5
0
10
15
20
25
30
35
40

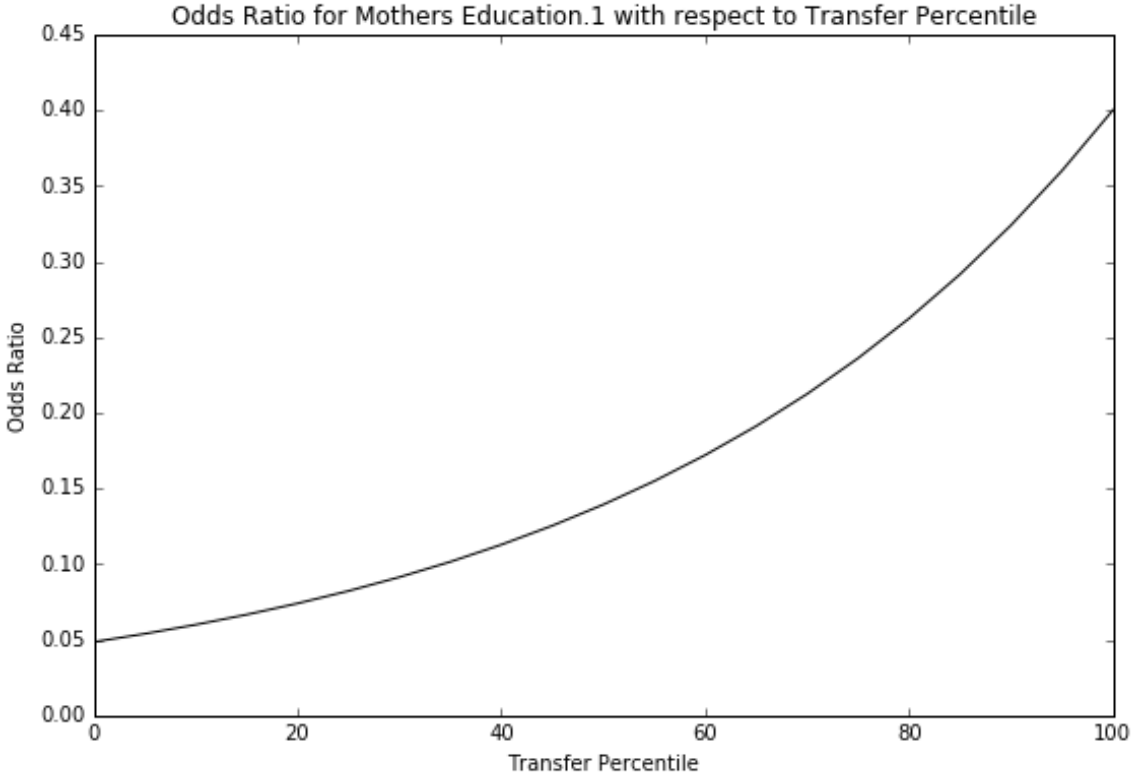

Log Odds for Major.1 with respect to Family Emotional Support Percentile
Log Odds
Family Emotional Support Percentile
Reference
Chosen
1
0
−1
−2
−3
−4
−5
0
20
40
60
80
100

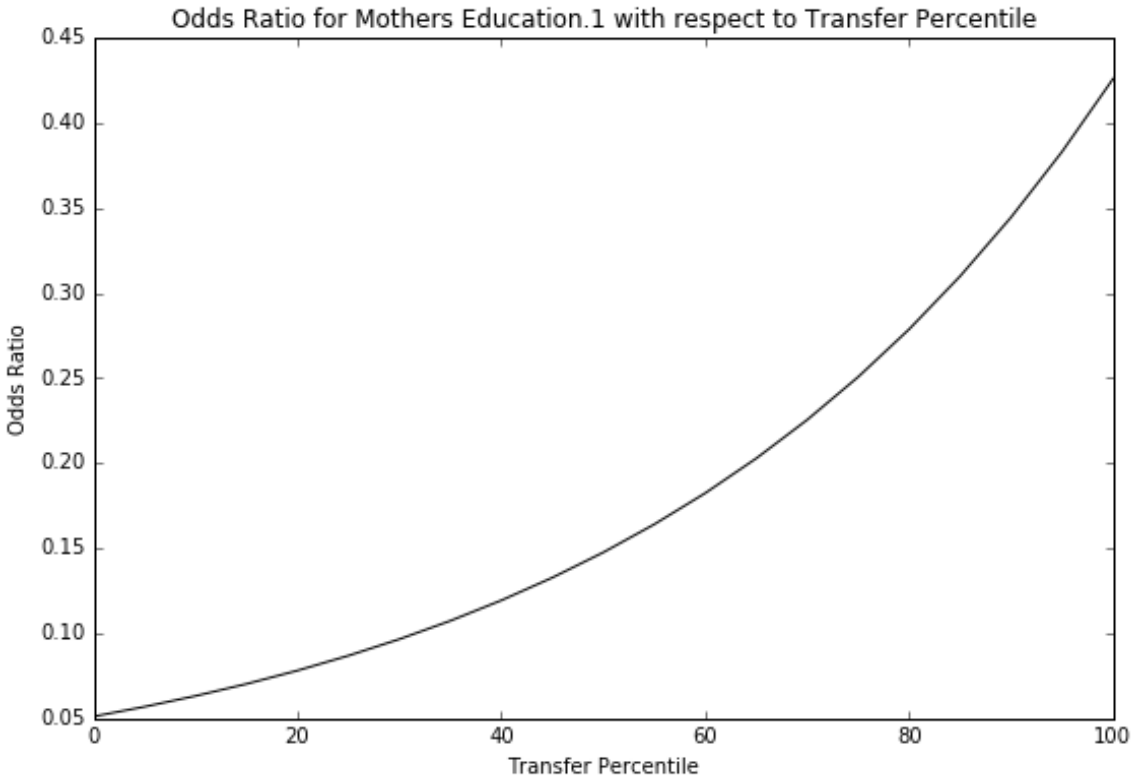

Odds Ratio for Major.1 with respect to Family Emotional Support Percentile
Odds Ratio
Family Emotional Support Percentile
250
200
150
100
50
0
0
20
40
60
80
100

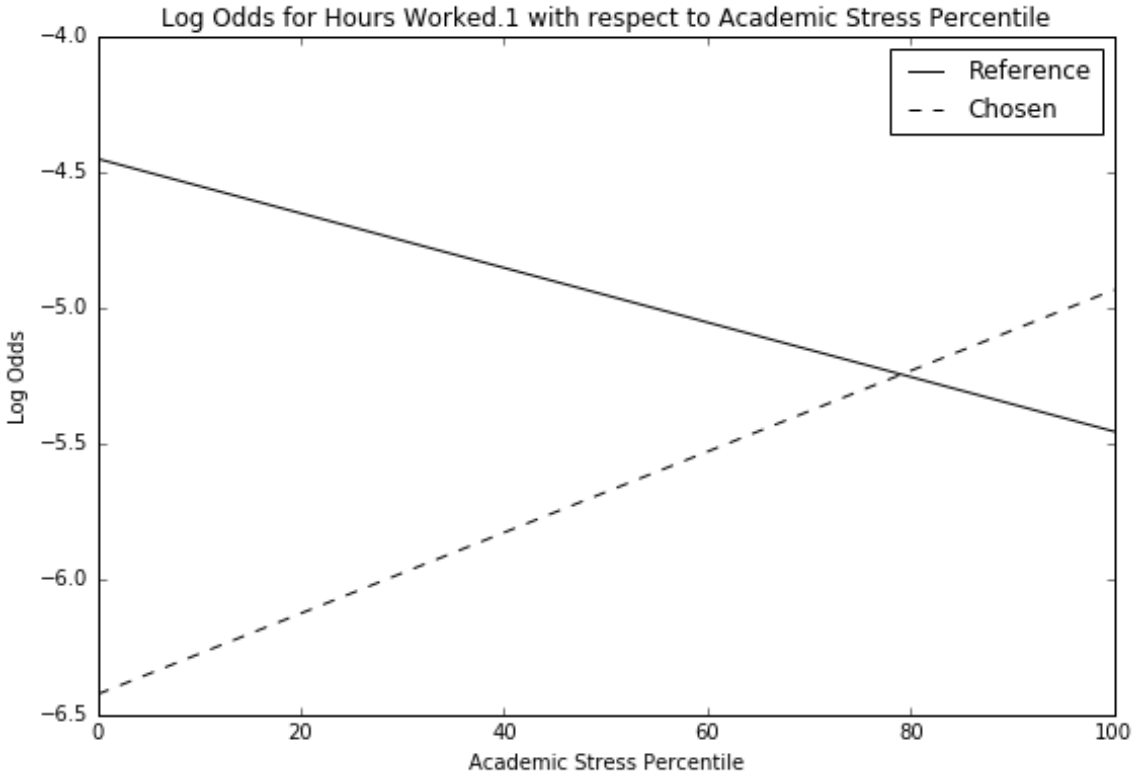

Log Odds for Major.2 with respect to Family Emotional Support Percentile
Reference
Chosen
Log Odds
−3.0
−3.5
−4.0
−4.5
−5.0
−5.5
−6.0
−6.5
−7.0
0
20
40
60
80
100
Family Emotional Support Percentile

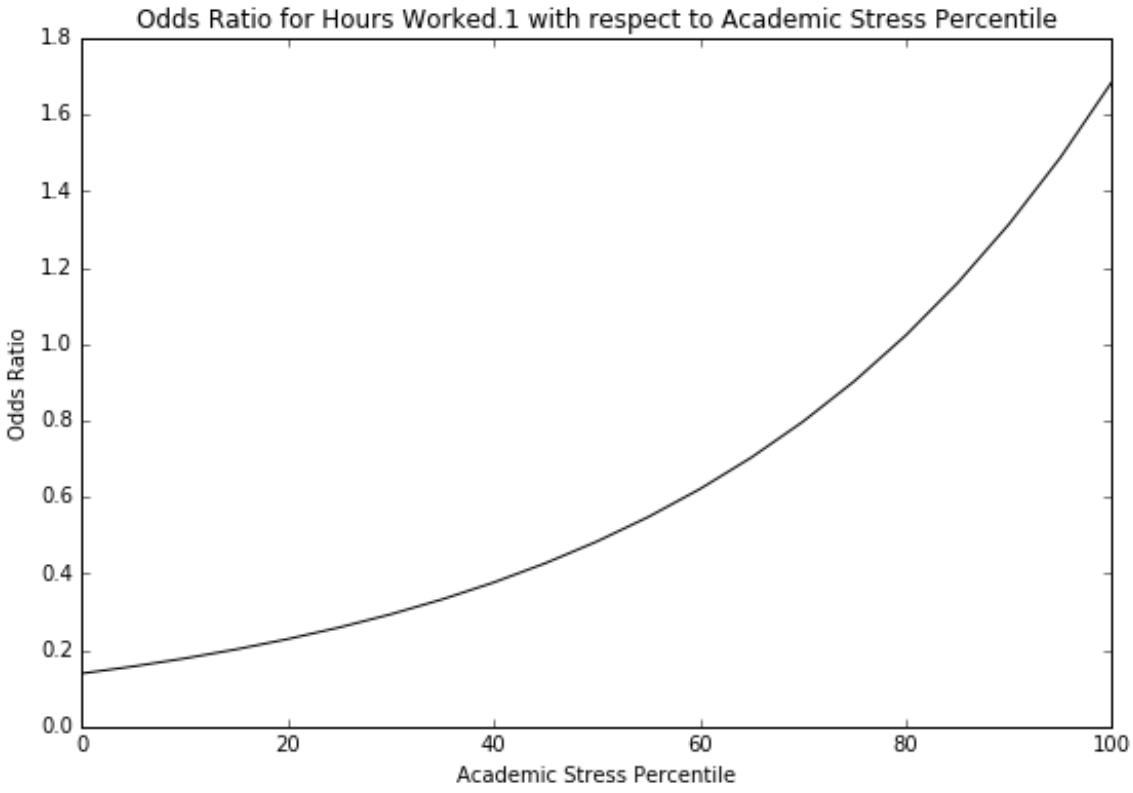

Odds Ratio for Major.2 with respect to Family Emotional Support Percentile
Odds Ratio
0.25
0.20
0.15
0.10
0.05
0.00
0
20
40
60
80
100
Family Emotional Support Percentile

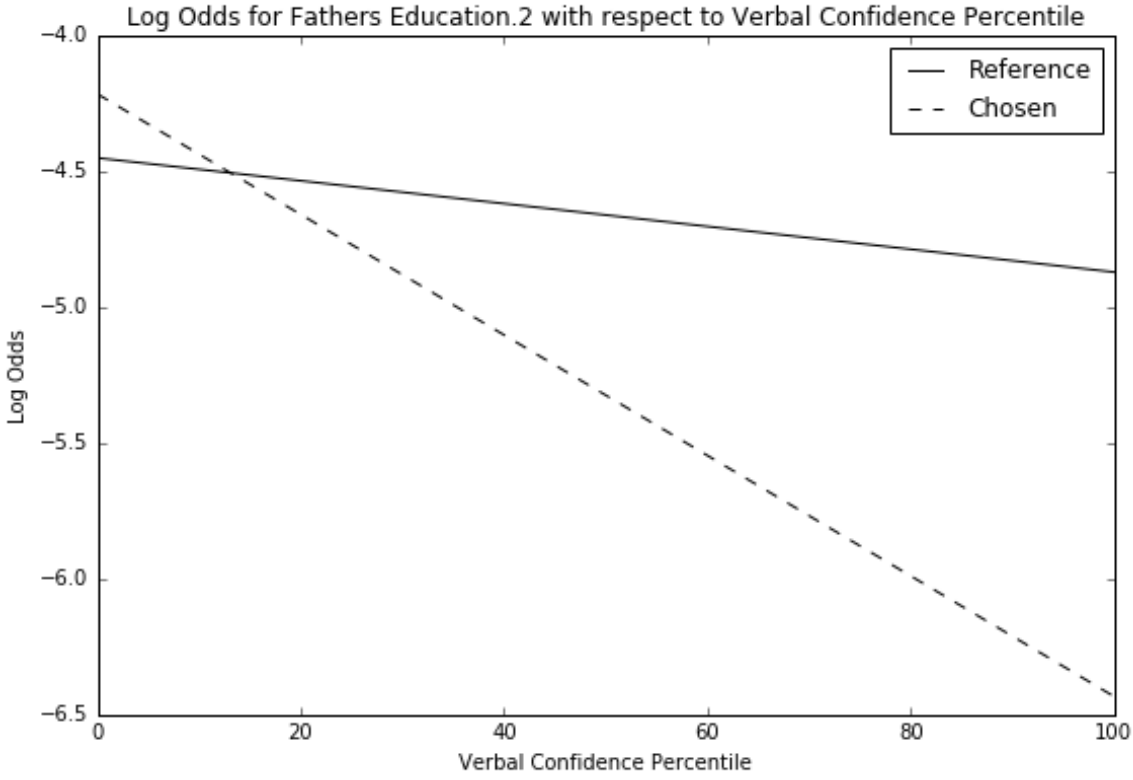

Log Odds for Mothers Education.1 with respect to Transfer Percentile
Reference
Chosen
Log Odds
Transfer Percentile
−4.0
−4.5
−5.0
−5.5
−6.0
−6.5
−7.0
−7.5
0
20
40
60
80
100

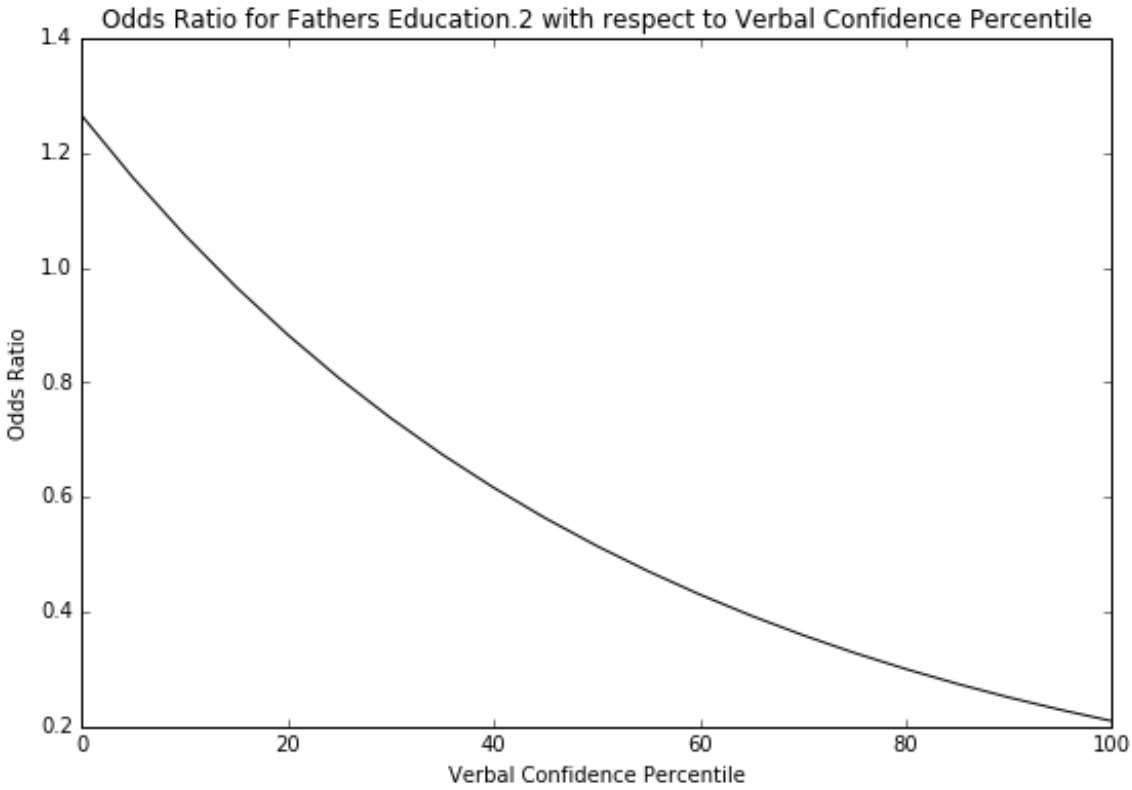

Odds Ratio for Mothers Education.1 with respect to Transfer Percentile
Odds Ratio
Transfer Percentile
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0
20
40
60
80
100


Odds Ratio for Mothers Education.1 with respect to Transfer Percentile
Odds Ratio
Transfer Percentile
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0
20
40
60
80
100

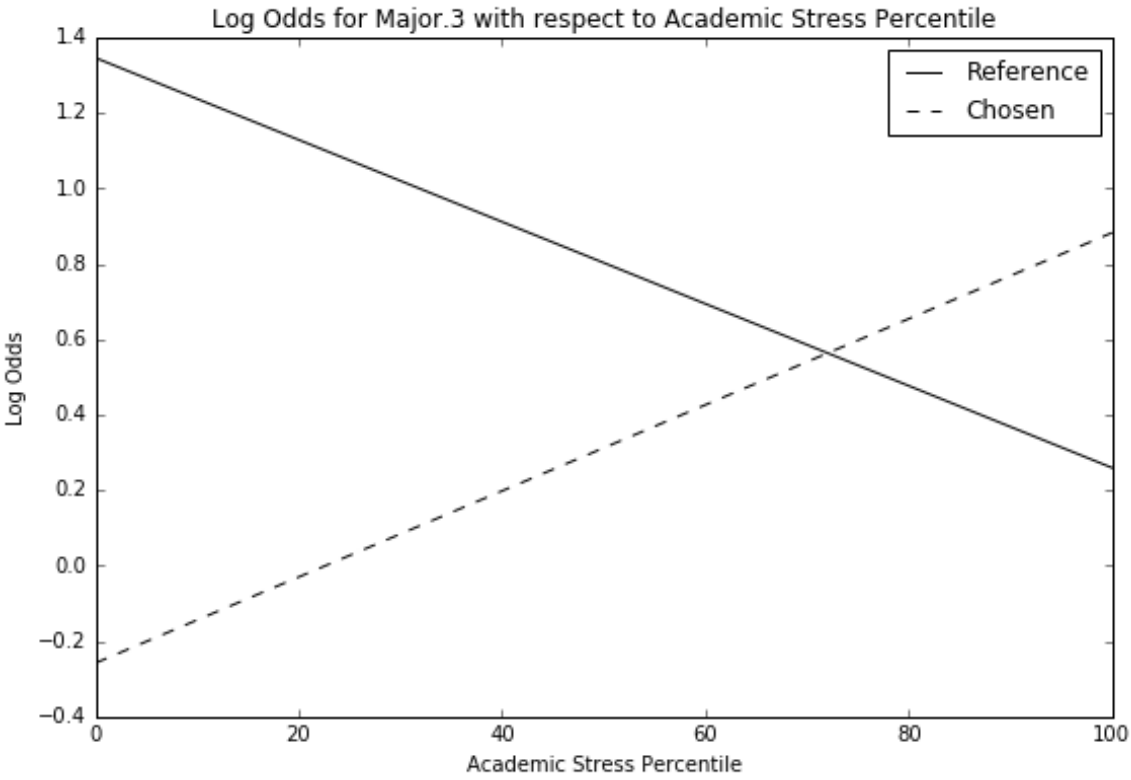

Log Odds for Hours Worked.1 with respect to Academic Stress Percentile
Log Odds
Academic Stress Percentile
Reference
Chosen
−4.0
−4.5
−5.0
−5.5
−6.0
−6.5
0
20
40
60
80
100

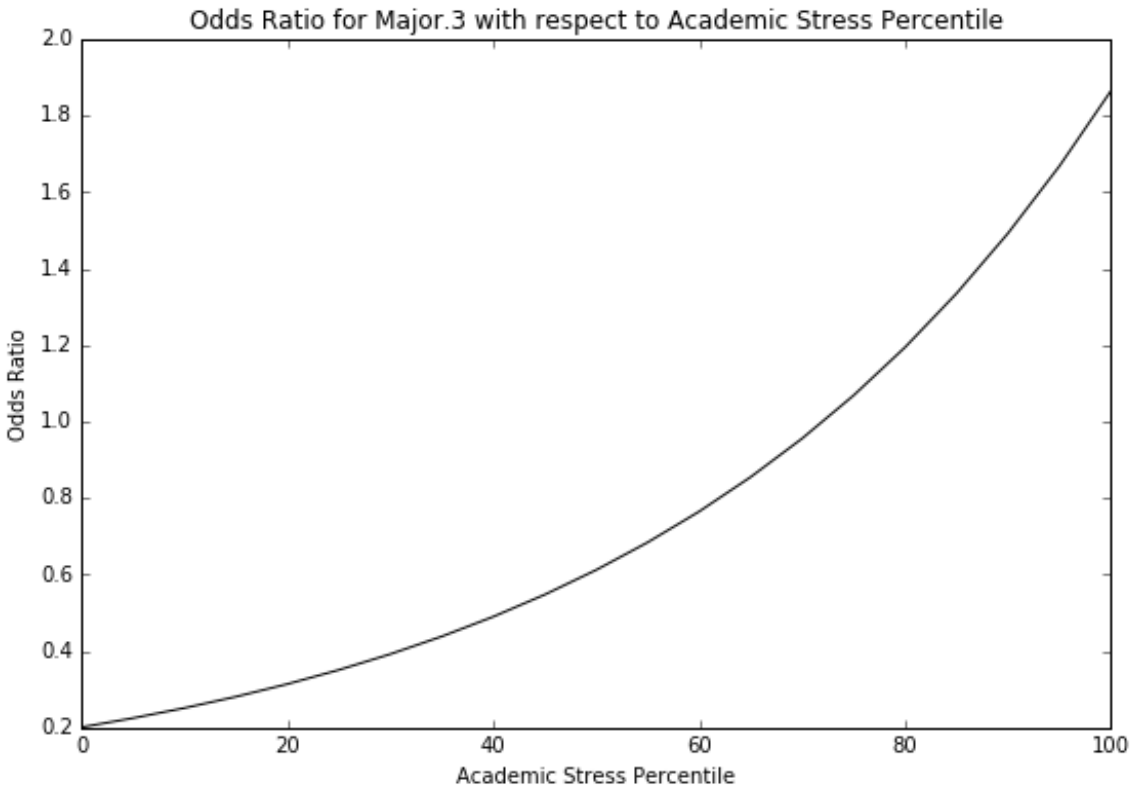

Odds Ratio for Hours Worked.1 with respect to Academic Stress Percentile
Odds Ratio
Academic Stress Percentile
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
0
20
40
60
80
100

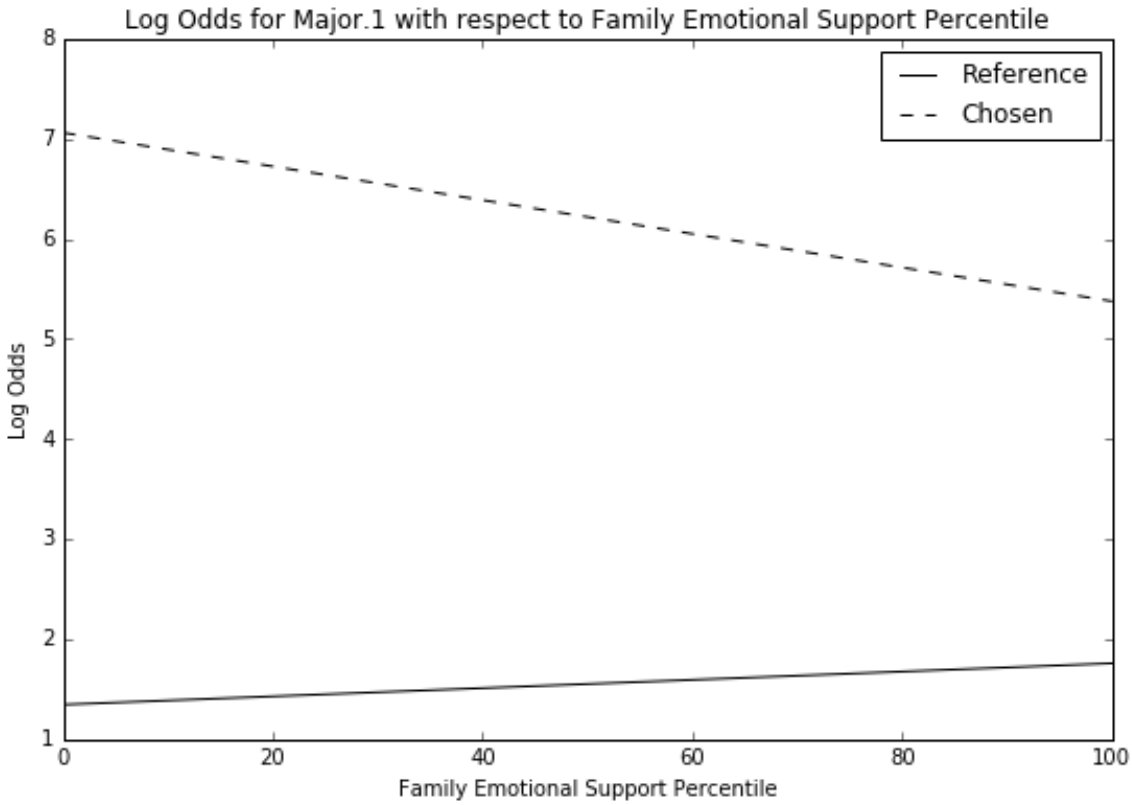

Log Odds for Fathers Education.2 with respect to Verbal Confidence Percentile
Reference
Chosen
Log Odds
Verbal Confidence Percentile
−4.0
−4.5
−5.0
−5.5
−6.0
−6.5
0
20
40
60
80
100

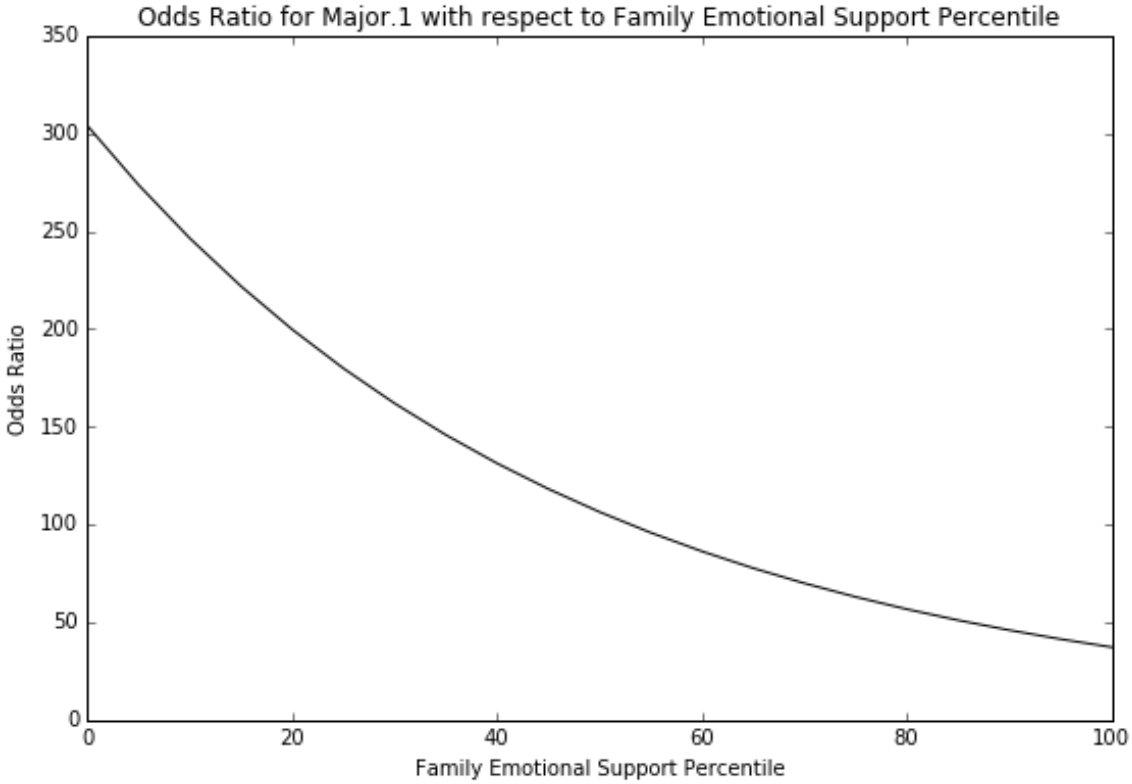


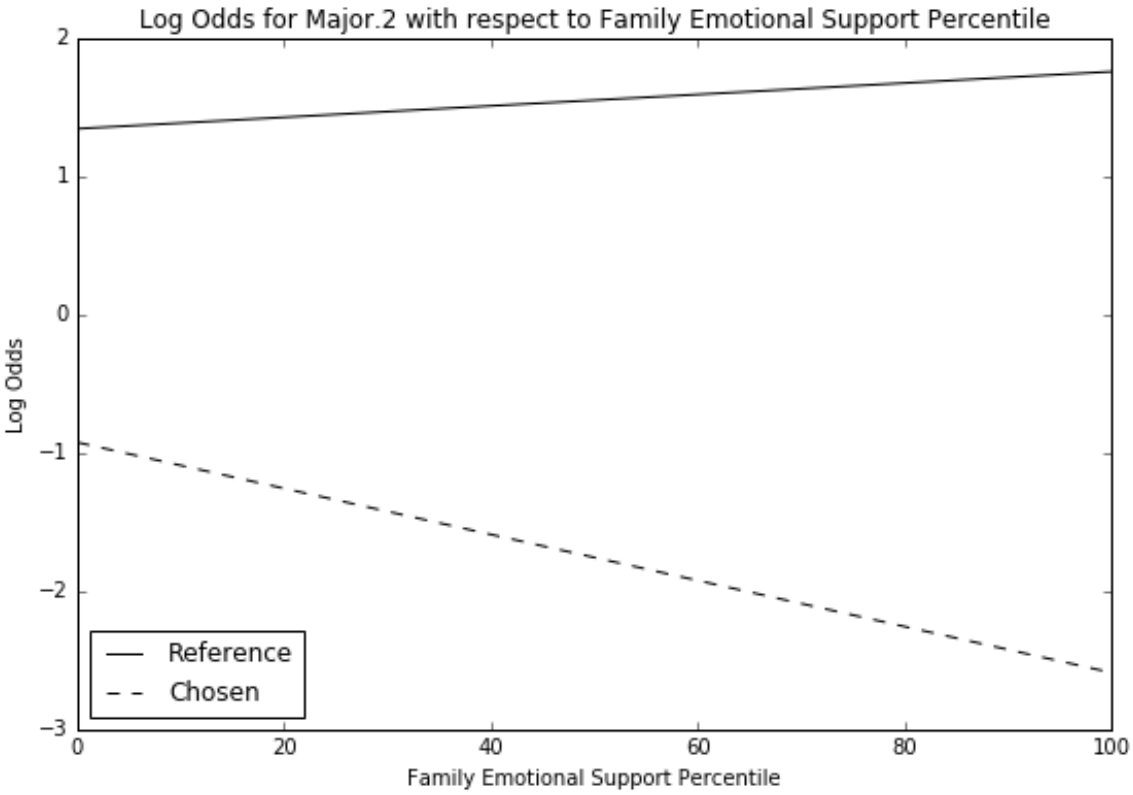
Caucasian and Hispanic STEM

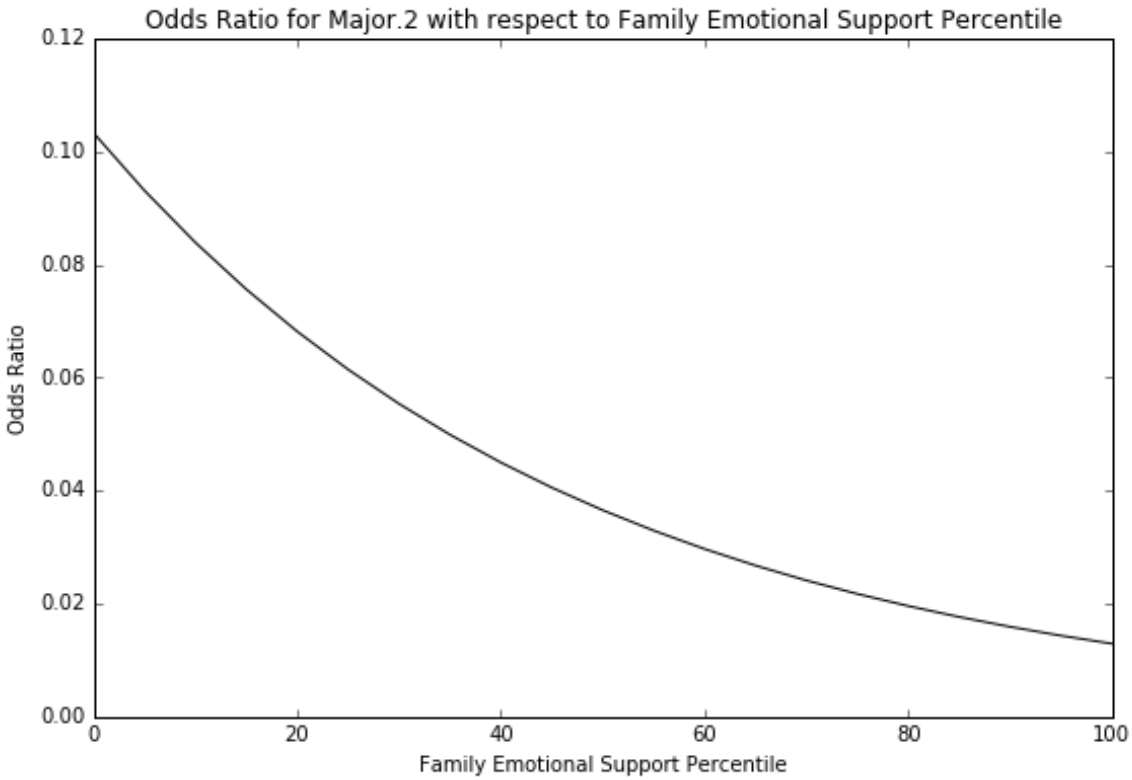

Log Odds for Major.3 with respect to Academic Stress Percentile
Reference
Chosen
Log Odds
Academic Stress Percentile
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
0
20
40
60
80
100

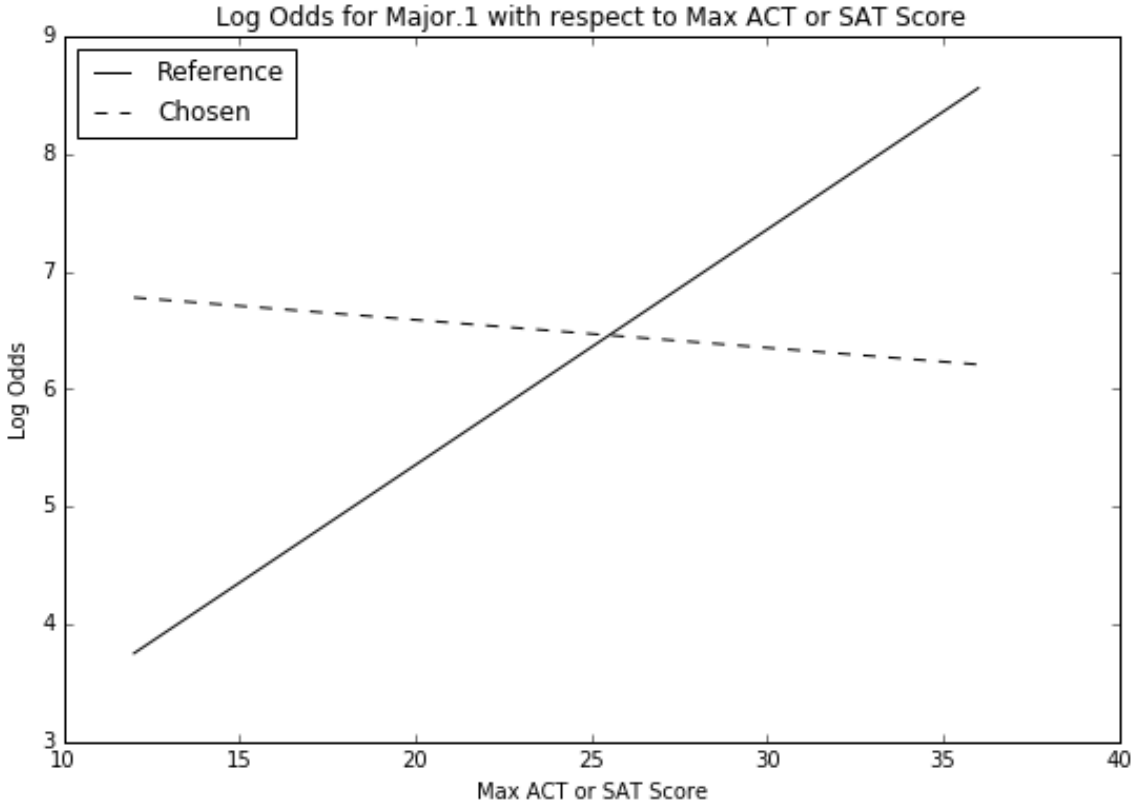

Odds Ratio for Major.3 with respect to Academic Stress Percentile
Odds Ratio
Academic Stress Percentile
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0
20
40
60
80
100

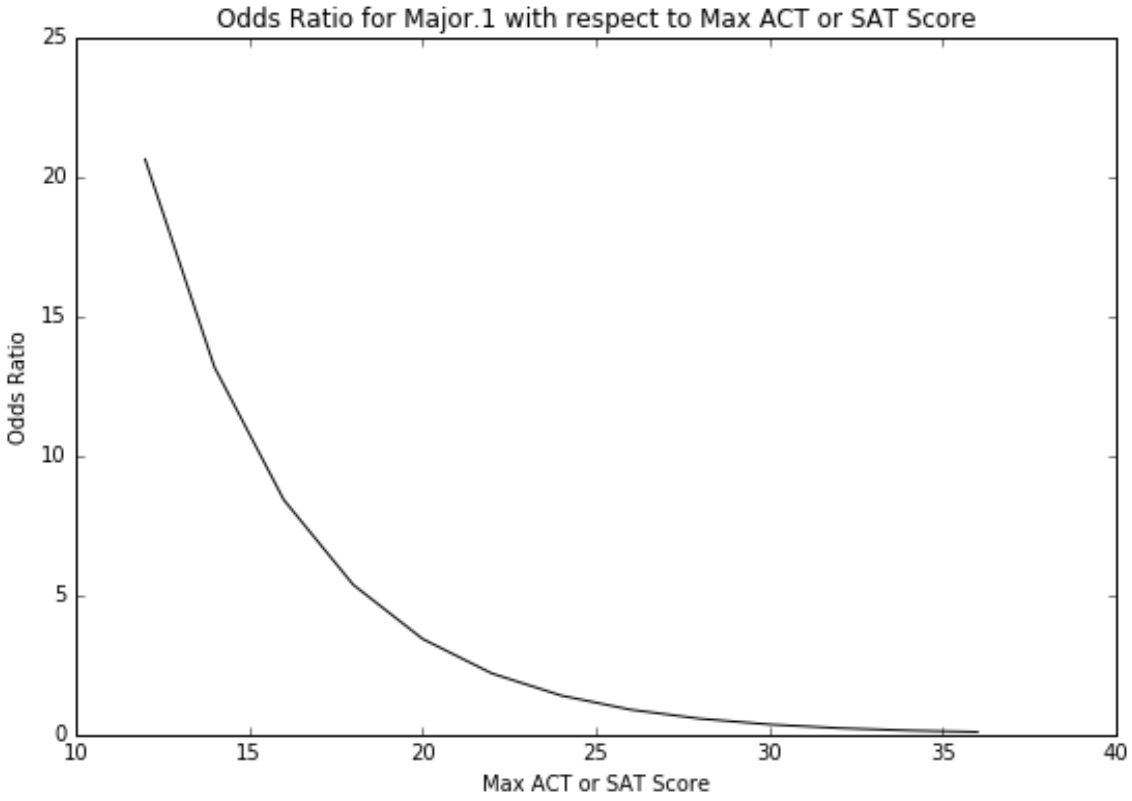

Log Odds for Major.1 with respect to Family Emotional Support Percentile
Reference
Chosen
Log Odds
Family Emotional Support Percentile
8
7
6
5
4
3
2
1
0
20
40
60
80
100

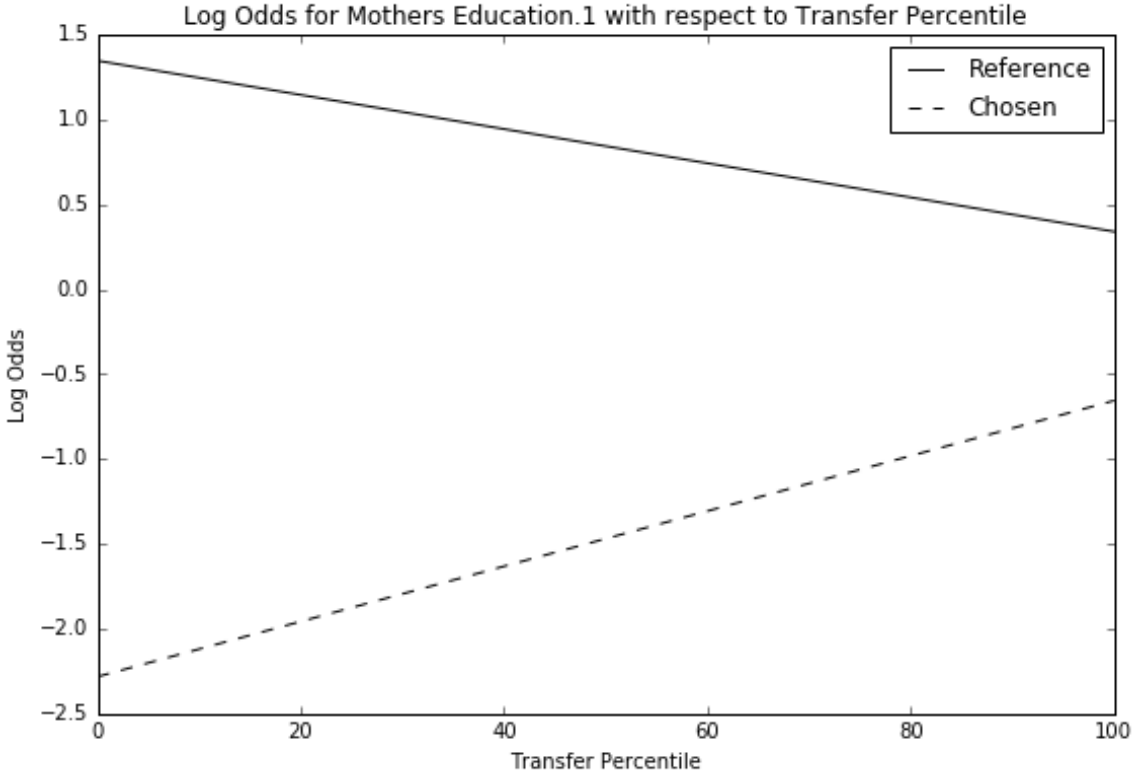

Odds Ratio for Major.1 with respect to Family Emotional Support Percentile
Odds Ratio
Family Emotional Support Percentile
350
300
250
200
150
100
50
0
0
20
40
60
80
100

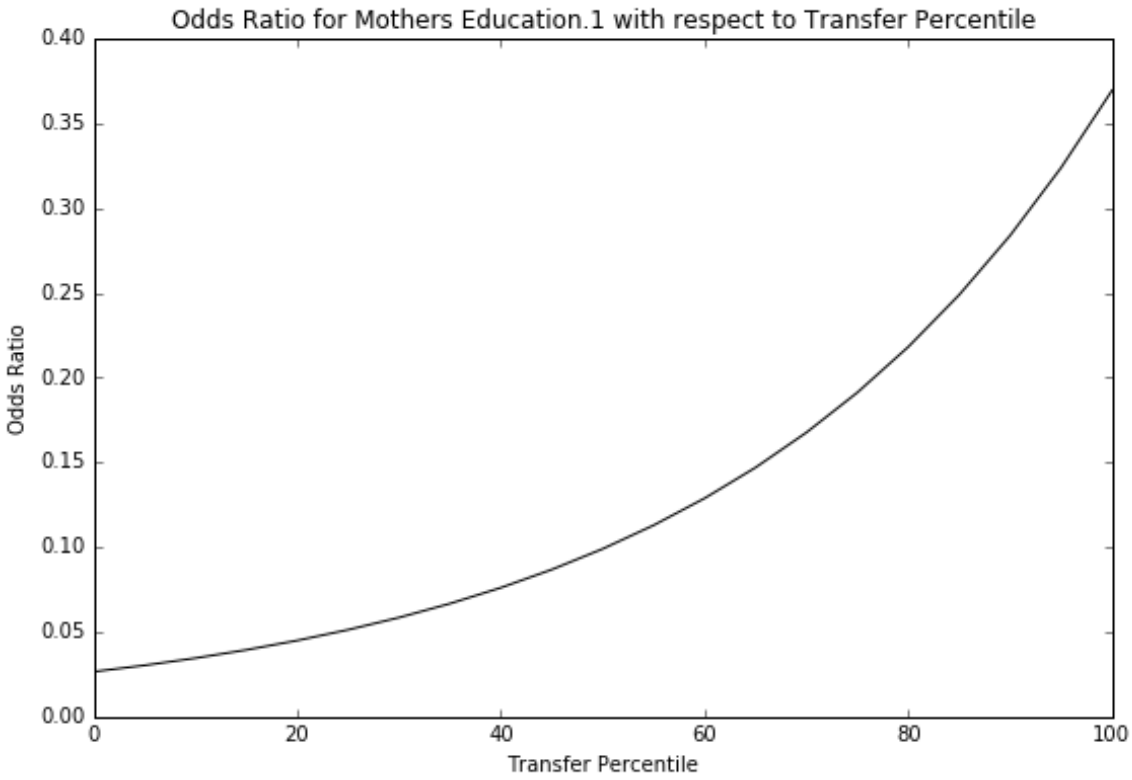

Log Odds for Major.2 with respect to Family Emotional Support Percentile
Log Odds
Family Emotional Support Percentile
Reference
Chosen
2
1
0
−1
−2
−3
0
20
40
60
80
100

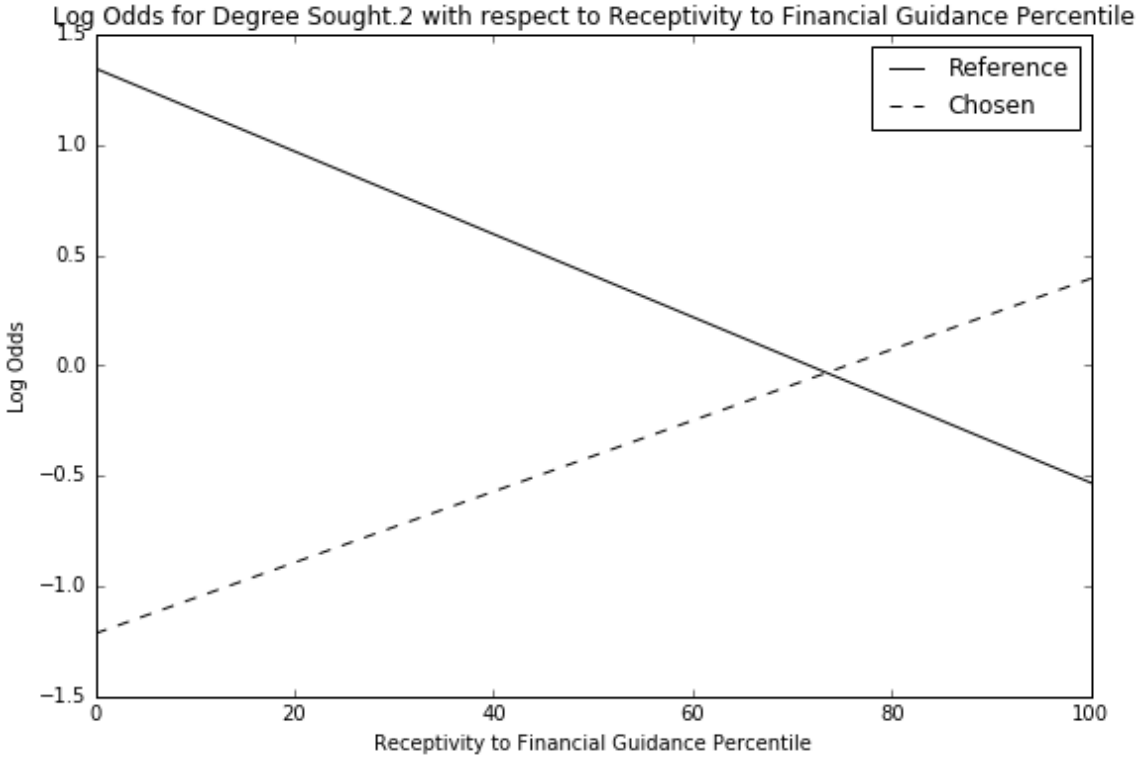

Odds Ratio for Major.2 with respect to Family Emotional Support Percentile
Odds Ratio
Family Emotional Support Percentile
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0
20
40
60
80
100

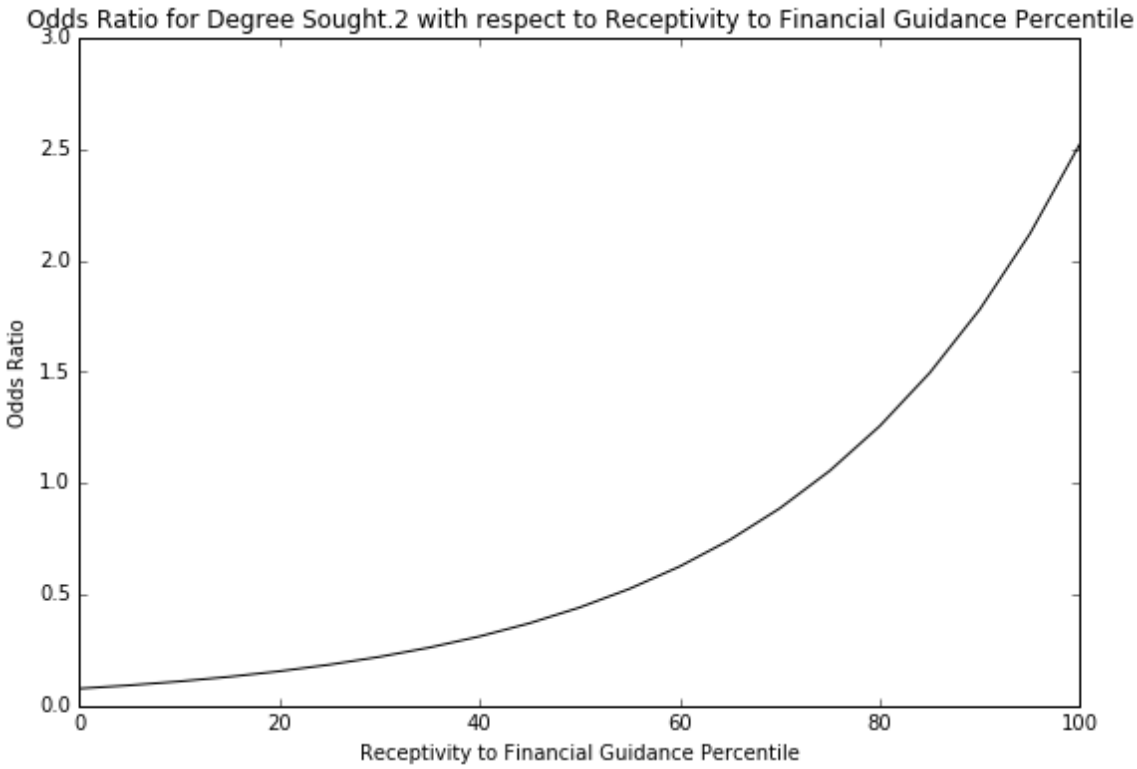

Log Odds for Major.1 with respect to Max ACT or SAT Score
Reference
Chosen
Log Odds
Max ACT or SAT Score
9
8
7
6
5
4
3
10
15
20
25
30
35
40

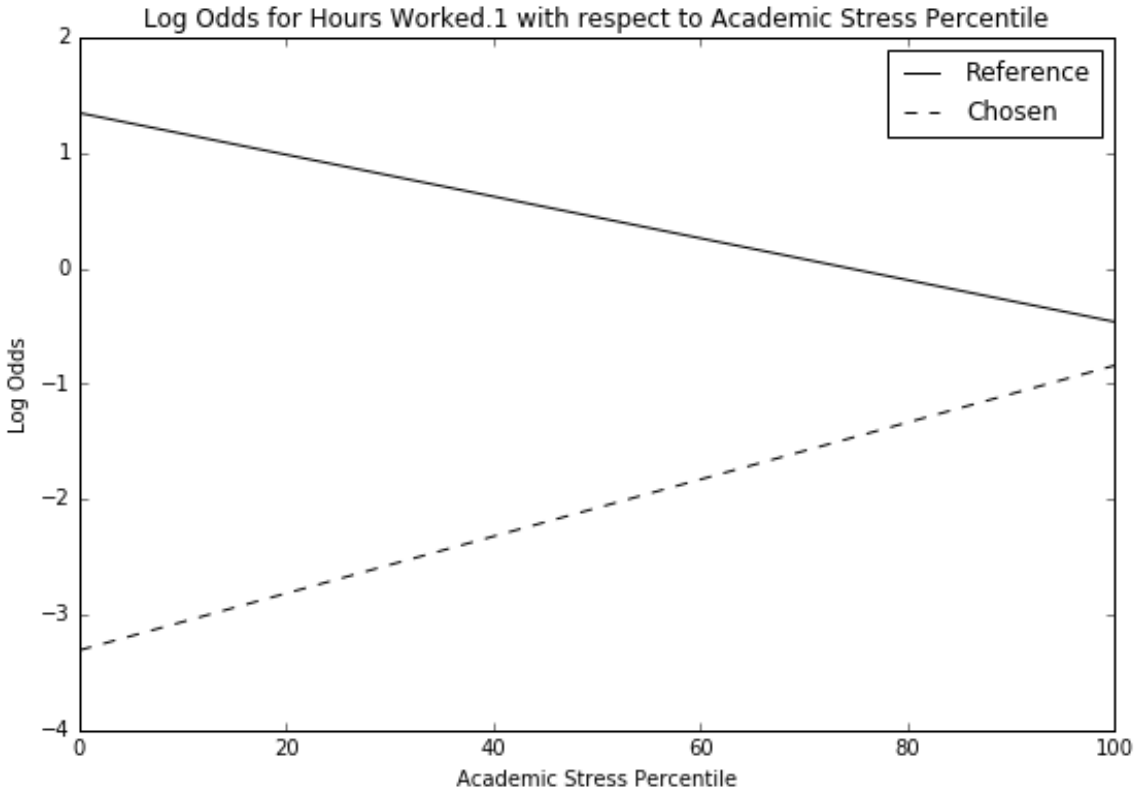

Odds Ratio for Major.1 with respect to Max ACT or SAT Score
Odds Ratio
Max ACT or SAT Score
25
20
15
10
5
0
10
15
20
25
30
35
40

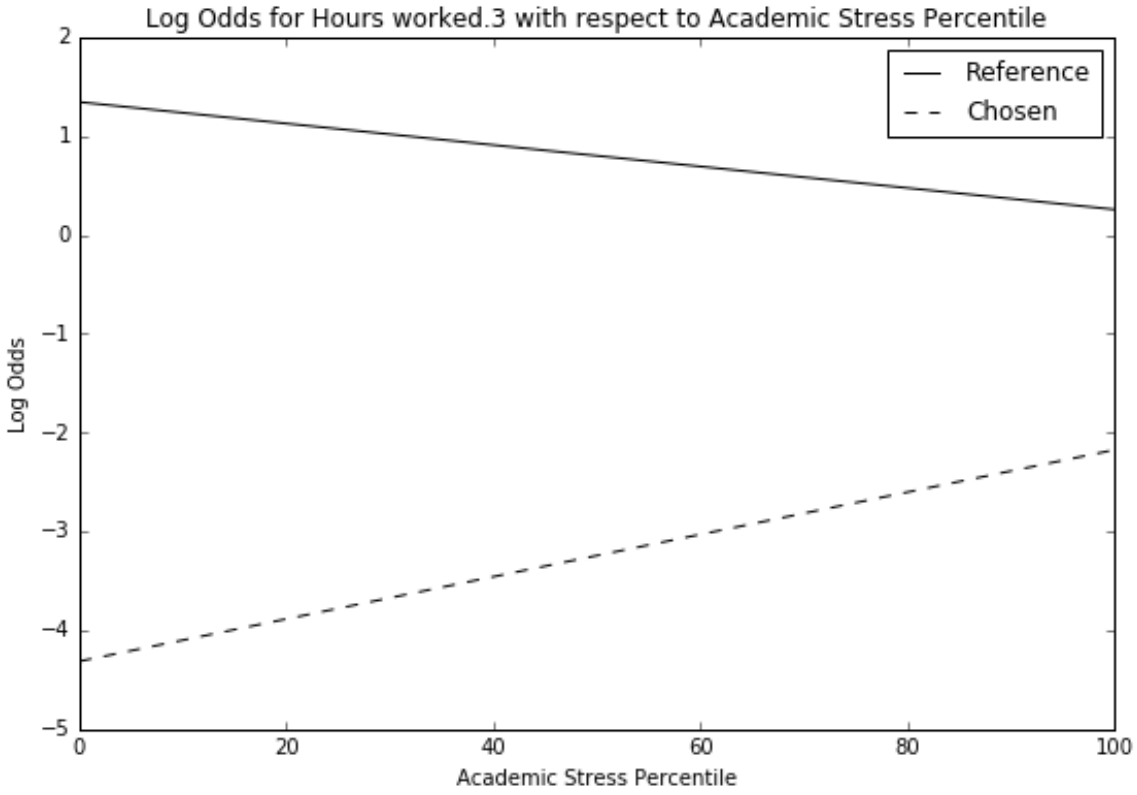

Log Odds for Mothers Education.1 with respect to Transfer Percentile
Reference
Chosen
Log Odds
Transfer Percentile
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
−2.5
0
20
40
60
80
100

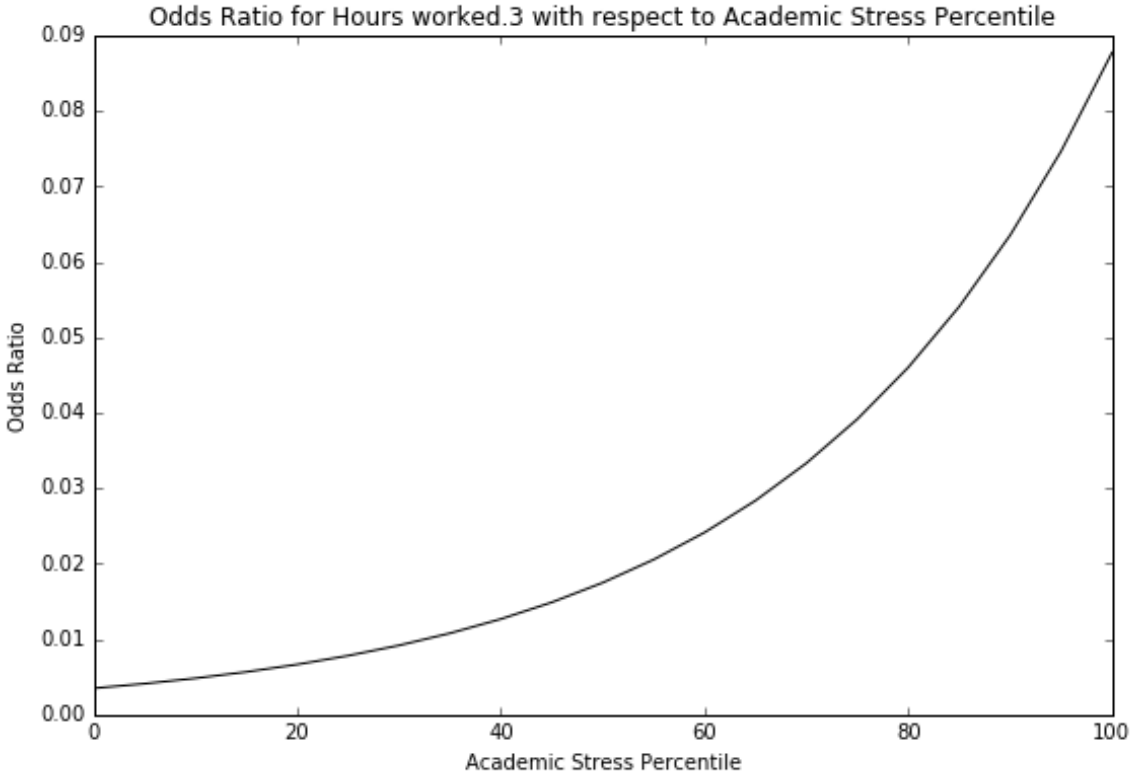

Odds Ratio for Mothers Education.1 with respect to Transfer Percentile
Odds Ratio
Transfer Percentile
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0
20
40
60
80
100

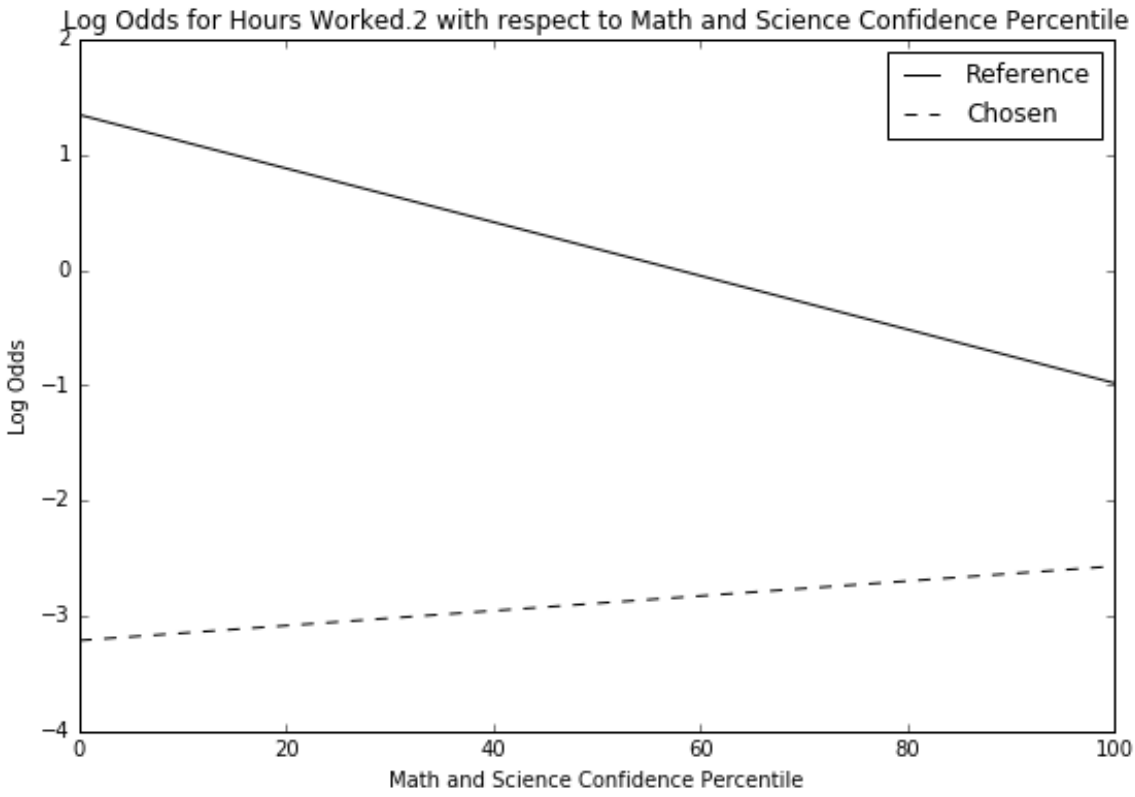

Log Odds for Degree Sought.2 with respect to Receptivity to Financial Guidance Percentile
Reference
Chosen
Log Odds
Receptivity to Financial Guidance Percentile
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
0
20
40
60
80
100

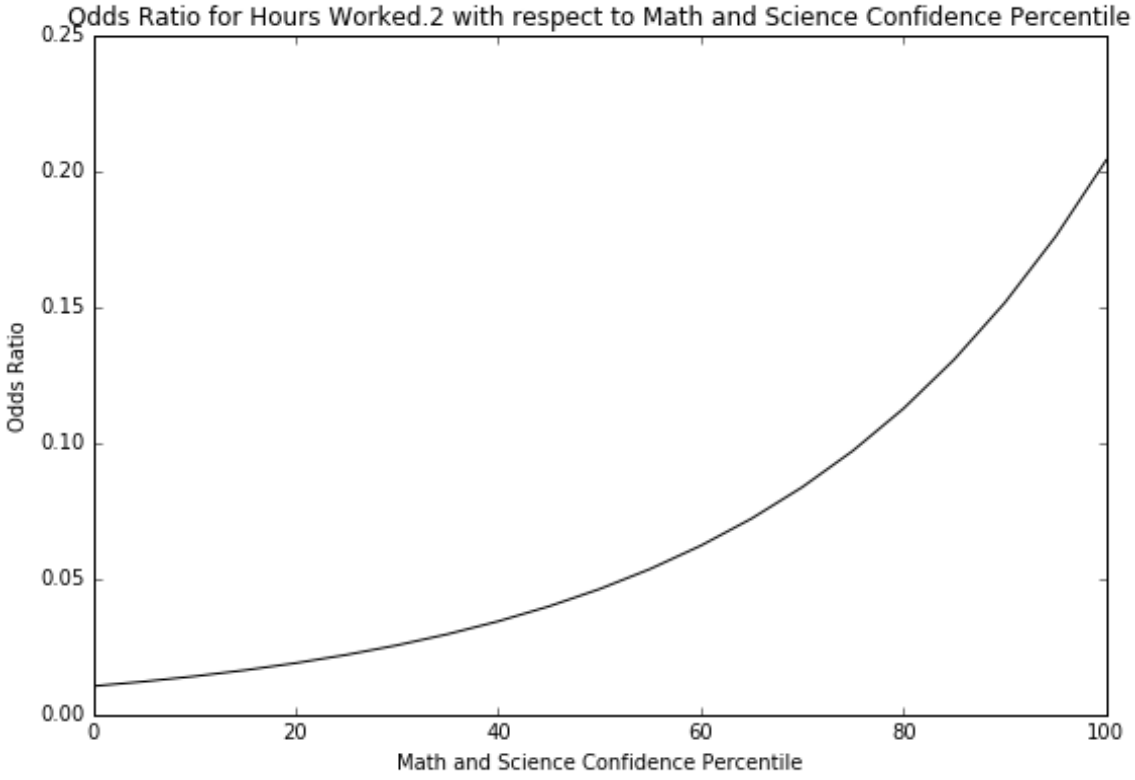

Odds Ratio for Degree Sought.2 with respect to Receptivity to Financial Guidance Percentile
Odds Ratio
Receptivity to Financial Guidance Percentile
0.0
0.5
1.0
1.5
2.0
2.5
3.0
0
20
40
60
80
100

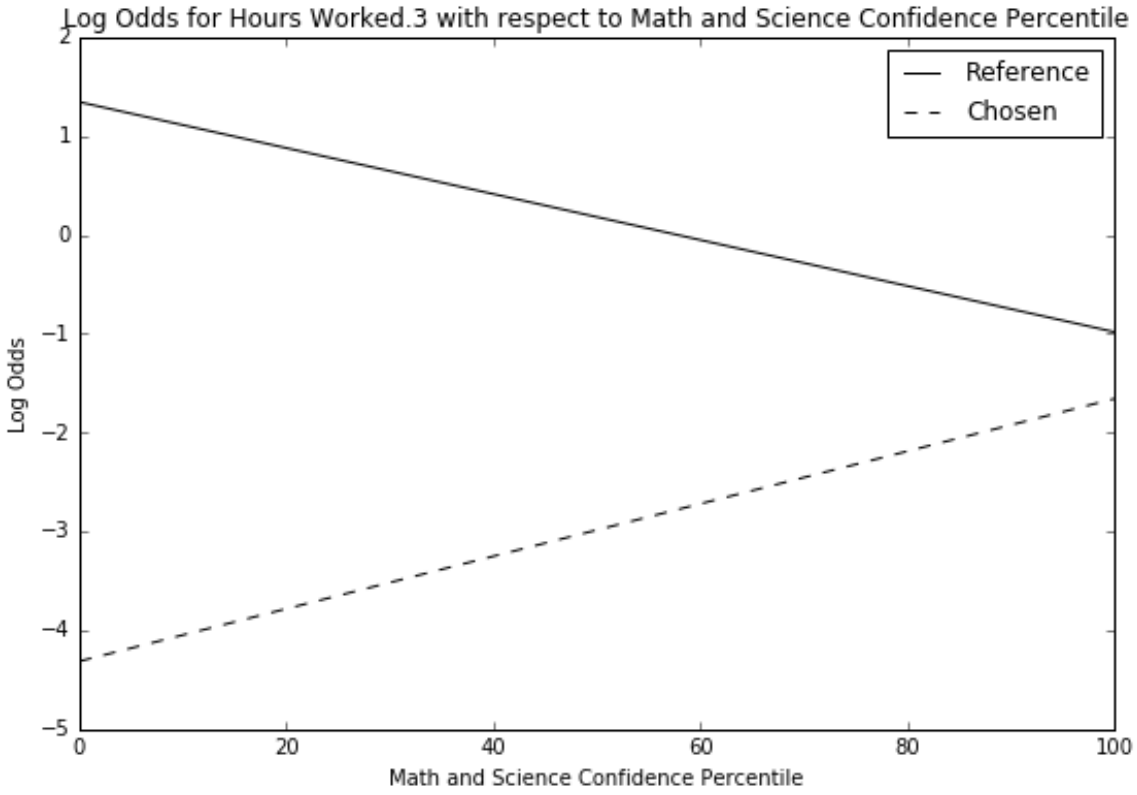

Log Odds for Hours Worked.1 with respect to Academic Stress Percentile
Reference
Chosen
Log Odds
Academic Stress Percentile
2
1
0
−1
−2
−3
−4
0
20
40
60
80
100

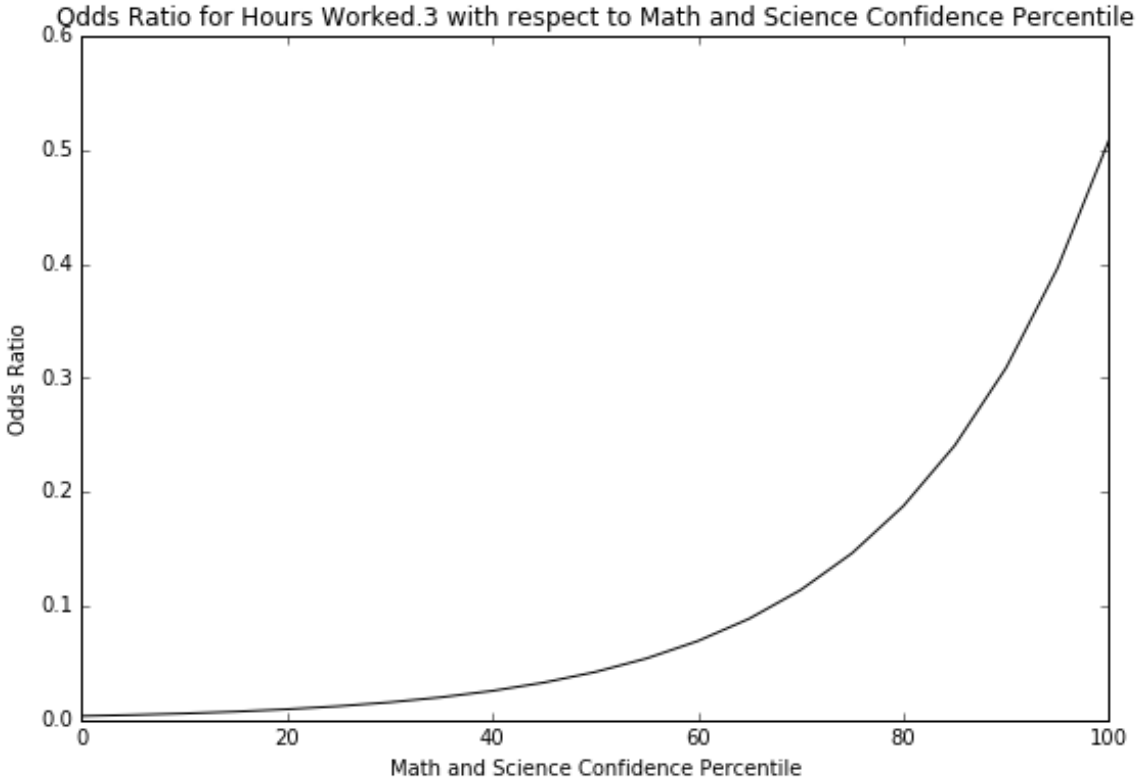

Log Odds for Hours worked.3 with respect to Academic Stress Percentile
Reference
Chosen
Log Odds
Academic Stress Percentile
2
1
0
−1
−2
−3
−4
−5
0
20
40
60
80
100

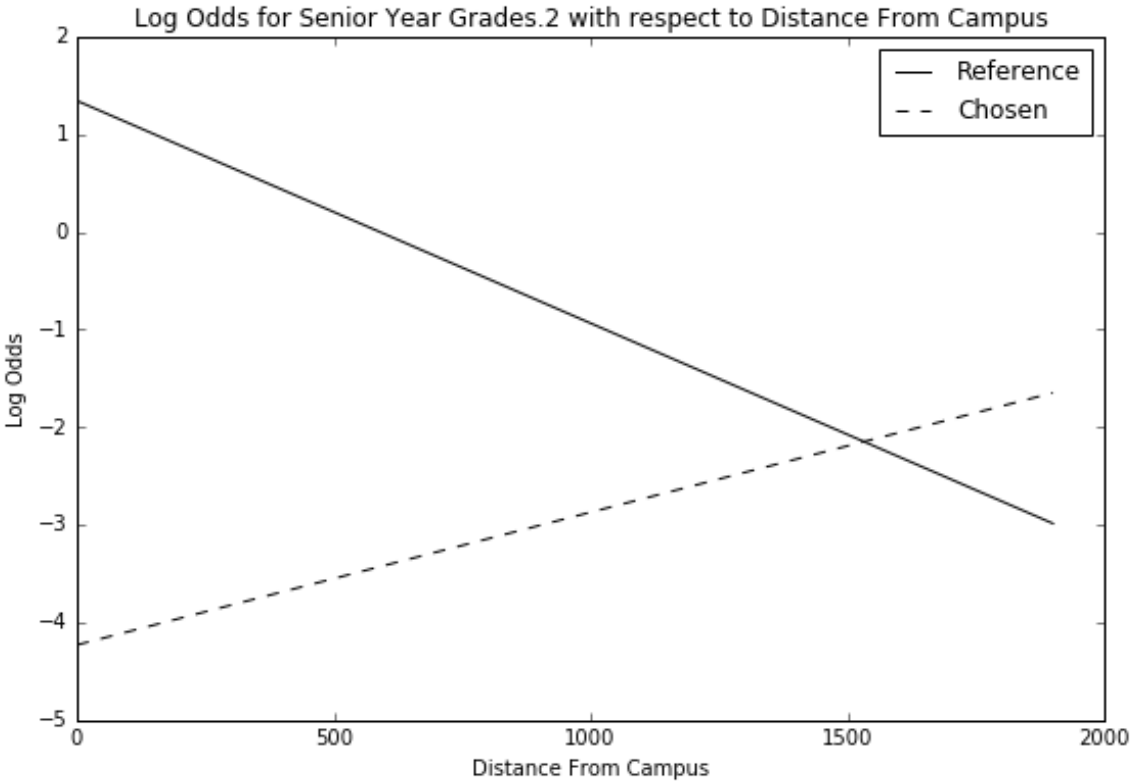

Odds Ratio for Hours worked.3 with respect to Academic Stress Percentile
Odds Ratio
Academic Stress Percentile
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
0
20
40
60
80
100

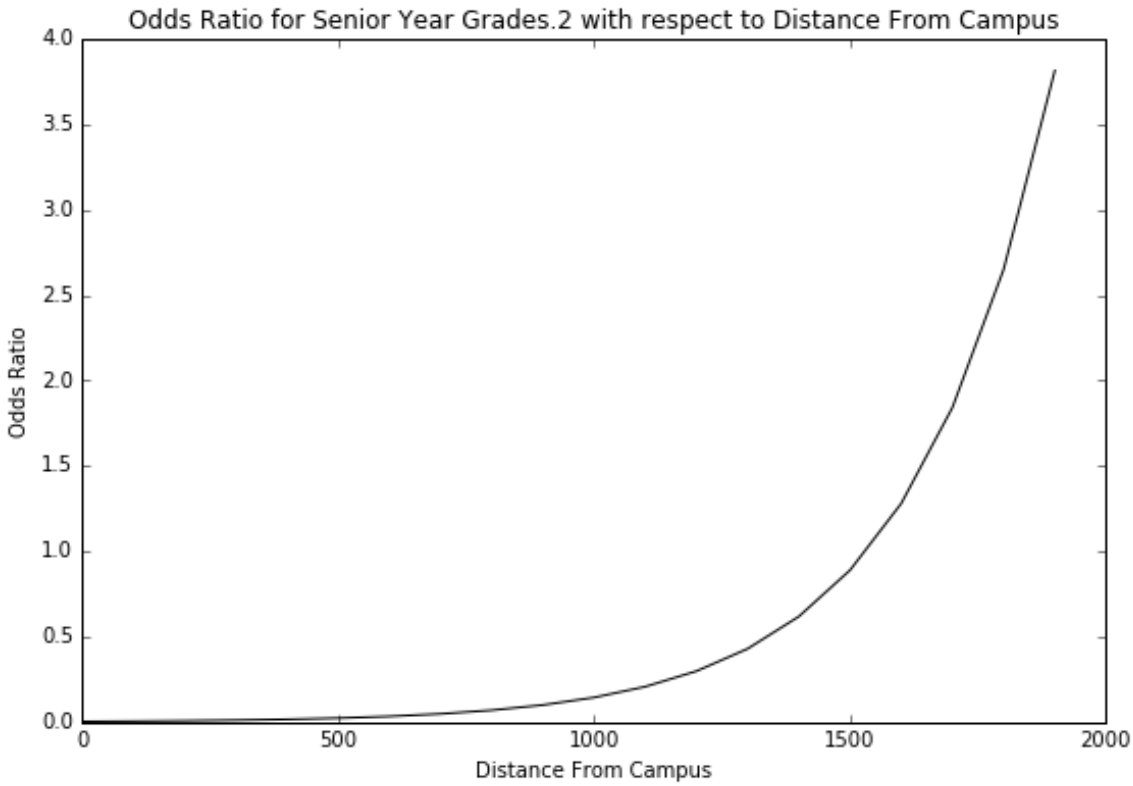

Log Odds for Hours Worked.2 with respect to Math and Science Confidence Percentile
Reference
Chosen
Log Odds
Math and Science Confidence Percentile
2
1
0
−1
−2
−3
−4
0
20
40
60
80
100


Odds Ratio for Hours Worked.2 with respect to Math and Science Confidence Percentile
Odds Ratio
Math and Science Confidence Percentile
0.25
0.20
0.15
0.10
0.05
0.00
0
20
40
60
80
100


Log Odds for Hours Worked.3 with respect to Math and Science Confidence Percentile
Reference
Chosen
Log Odds
Math and Science Confidence Percentile
2
1
0
−1
−2
−3
−4
−5
0
20
40
60
80
100


Odds Ratio for Hours Worked.3 with respect to Math and Science Confidence Percentile
Odds Ratio
Math and Science Confidence Percentile
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0
20
40
60
80
100


Log Odds for Senior Year Grades.2 with respect to Distance From Campus
Reference
Chosen
Log Odds
Distance From Campus
2
1
0
−1
−2
−3
−4
−5
0
500
1000
1500
2000




```
. tabulate Retainedtofall2012
```

Retained to fall 2012*	Freq.	Percent	Cum.
0	708	70.52	70.52
1	296	29.48	100.00
Total	1,004	100.00	

```
. tabulate CodedRace
```

Coded Race	Freq.	Percent	Cum.
1	634	63.15	63.15
2	233	23.21	86.35
3	7	0.70	87.05
4	69	6.87	93.92
5	14	1.39	95.32
6	27	2.69	98.01
7	20	1.99	100.00
Total	1,004	100.00	