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# Factors Influencing College Choice: A Study of Enrollment Decisions at a Regional Comprehensive University

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# Factors Influencing College Choice:
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# Regional Comprehensive University

## Trevor Draisey[*]

**ABSTRACT.** This research uses a linear probability model to analyze the enrollment decisions of applicants to Sycamore U[1] and identify factors that affect the likelihood of enrolling. The results of this regression indicate that Sycamore U faces challenges in enrolling minority students, as do many similar institutions, but that aspiring teachers and students with a family connection to Sycamore U are more likely to enroll. Students also appear to react strongly to merit-based financial aid and, to a lesser extent, need-based financial aid offerings from Sycamore U.

## Introduction

In 2012, 41 percent of United States citizens ages 18 to 24 were enrolled in college (National Center for Education Statistics). Each of those people faced unique circumstances that influenced the decision on which college to attend. College choice is important because it directly influences preparedness for the workforce and future earnings.

Sycamore U is a regional comprehensive university known for its teacher preparation programs. Enrollment at Sycamore U has declined about eight percent over the last five years. With acceptance rates of 76-83 percent (Forbes 2015), Sycamore U's declining enrollment is not due to increased selectivity.

This research will shed light on the factors that influence the enrollment decisions of students who have been admitted to Sycamore U, which likely represents a variety of regional comprehensive universities.

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[1]Data for this research are confidential. Sycamore U is a pseudonym for a regional comprehensive university.

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By identifying the factors that influence prospective students in deciding whether to attend Sycamore U, I hope to provide insight on how Sycamore U and similar universities can adapt to maximize enrollment subject to application and admittance. I will use data provided by the Sycamore U Admissions Office to analyze relevant application information.

## Literature Review

Past research on college choice has split the issue into two separate decisions: whether to attend college and which college to attend. The question of whether a high school student will attend college is easier to answer because the factors that influence that decision are relatively constant. Choice of a specific college is much more complicated.

College choice is a highly personal decision, and the factors that influence the choice vary significantly from person to person, making modeling difficult. Every college has something unique to offer, and students respond differently to the characteristics of each college. Hosler and Gallagher (1987, 209) developed a model that splits the college decision into three phases: predisposition, search, and choice. The predisposition phase represents the decision on whether to attend college. The search and choice phases represent the decision on which college to attend. During the search phase, prospective college students compile a set of universities they may choose to attend. The choice phase focuses on analyzing that set to find the best fit (Hosler and Gallagher 1987, 215-216).

Chapman (1981, 492) further broke down the factors that influence the search and choice phases of the college decision into three distinct areas: student characteristics, relatively fixed college characteristics, and college efforts to communicate with students.

## Student Characteristics

Colleges have little control over individual student characteristics, but the correlation between student characteristics and college choice is very strong. For example, socioeconomic status is a strong indicator of the type of college that a student will attend. Students from families of high socioeconomic status are more likely to attend four-year universities

while students from families with lower socioeconomic status have a tendency to attend two-year institutions (Chapman 1981, 493). This split may be a result of the different abilities of families to pay tuition. Low-income students may not consider four-year colleges because they could not afford tuition without significant aid. Lovenheim and Reynolds (2012, 33) studied the relationship between wealth and college choice using home values as a proxy for wealth. They found that increasing home wealth led to a higher likelihood of applying to flagship universities.

Student aptitude, as reflected by test scores (ACT/SAT) and high school performance (GPA), influence the type of students that colleges target and the colleges that students attend. High school students tend to choose colleges where the academic abilities and achievements of the student population reflect their own abilities and achievements. Colleges contribute by publishing average student test scores (Chapman 1981, 493). Kim and Hull (2015, 160), as they are often required to do, which are studied by academically advanced students; these students may conclude that high-achieving and highly motivated students were more likely to attend highly selective colleges.

Significant people in the lives of high school students also play a role in influencing college choice. Anyone can be considered a significant person, but the term generally refers to family, friends, teachers, and academic counselors. Among the different roles of significant people, parents have the greatest explicit influence on college choice (Chapman 1981, 495). Siblings also have a significant influence. Goodman et al. (2015, 76) found that 20 percent of younger siblings attend the same college as their older siblings. The reason may be that parents and siblings provide advice or that students may be more comfortable with the environment at a specific college if they have been exposed to it through a sibling, parent, or other significant person.

## Fixed College Characteristics

College characteristics that are fixed in the short or long term make up the bulk of what prospective students see at a college. Some fixed characteristics can be changed over time, while others are out of the college's control. One important fixed characteristic is campus location. A college can't move its campus, and students may be more likely to attend a college near home than one far away (Chapman 1981, 497). This relationship is particularly strong among low achieving students and

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students from families with low socioeconomic status. The relationship between location and college choice becomes more pronounced for out-of-state students who may face higher tuition costs at out-of-state universities.

Cost is one of the most researched aspects of college choice. Changes in tuition and financial aid disproportionately affect students from families of low socioeconomic status (Kim, DesJardins, and McCall 2009, 742). According to Avery and Hoxby (2004, 242-243), a "rational" decision-maker would choose the college that maximizes the difference between the present value of future benefits and the present value of costs of college, assuming he is an informed, utility-maximizing individual. In practice, students exhibit a poor understanding of the quality of education they may be trading in exchange for small financial aid awards at a lower quality college (Cohodes and Goodman 2013, 28).

One of the most important university characteristics for the student is the availability of desired programs. Students who plan to major in highly specialized fields are particularly sensitive to the availability of that program, while students targeting less specialized programs are less sensitive. Third-party rankings of colleges provide students with a measurement of the quality of the available programs at a college. Griffith and Rask (2005) studied the effects of the U.S. News and World Report collegiate rankings on students' college decisions and found that high-ability students pay particular attention to the ranking when choosing colleges.

## College Efforts to Communicate with Students

As state and federal funding to universities falls, schools must rely more heavily on tuition as a source of revenue (DesJardins 2002, 531). Maximizing enrollment is important for universities to remain financially viable and competitive with other universities. To maximize enrollment, universities strive to differentiate themselves and to catch the attention of potential students through marketing campaigns (Goenner and Pauls 2006, 1). Chapman (1981, 500-503) argues that universities' marketing efforts play a minimal role in influencing students' college choice and that university officials are overly optimistic about the effectiveness of printed advertisement materials. Printed advertisements are more effective in reinforcing a student's decision than influencing the decision itself (Chapman 1981, 503).

Athletic success is another pathway to reach prospective students. Pope and Pope (2015) found that success in men's basketball and football led to a significant increase in the number of SAT scores received by a university. The influx of SAT scores reflects an increase in awareness similar to what would be expected from an effective advertising campaign. Athletic success is not indicative of the quality of academic programs, so less-informed students may be influenced more than well-informed students by athletic success.

## Sycamore U Background

Statistics gathered from Sycamore U, Forbes 2015 list of America's top colleges, and the U.S. News and World Report College Compass provide background information on the demographics of the student body at Sycamore U in each of the areas that influence college choice. Sycamore U accepts about 75-85 percent of the students who apply, so characteristics of Sycamore U and its student body that may affect a student's decision are important pieces of background information.

## Student Characteristics

Socioeconomic status is one of the primary student characteristics outlined by Chapman (1981). At Sycamore U, 85-90 percent of the student body receives financial aid (Forbes 2015), which is slightly above the national average of 83 percent at public four-year institutions (National Center for Education Statistics). This may be an indicator that the average student at Sycamore U comes from a slightly lower socioeconomic background than the average college student or that students from high socioeconomic backgrounds are not likely to attend Sycamore U.

High school students tend to choose colleges where the academic ability of the student population is similar to their own (Chapman, 1981, 493). The interquartile range of ACT composite scores of Sycamore U students is 20-25, so students with similar ACT scores may be more likely to attend Sycamore U. It may be difficult for Sycamore U to recruit students with the highest level of aptitude who prefer more selective universities.

The lack of diversity at American universities has been under scrutiny

recently and may affect recruiting. Sycamore U's student body is very racially homogeneous. Over 80 percent of the student population is White/Caucasian. Black/African American and Latino/Hispanic students are the largest minority groups at Sycamore U, each making up less than five percent of the student body. Less than 12-15 percent of Sycamore U's student body is considered non-resident or international. This lack of diversity generated efforts to create a comfortable, inclusive environment for minority students. In general, regional comprehensive schools may struggle to recruit minority students when compared to Research I schools in the same region.

## College Characteristics

Approximately 90 percent of Sycamore U's students were in-state residents, which indicates an inability to draw out-of-state students. Effective out-of-state recruiting hinges on high-school students having heard of the college. For colleges with nationally successful athletics programs, that visibility comes hand-in-hand with athletic success. This is an advantage enjoyed by some of Sycamore U's closest competitors. Because Sycamore U has a disadvantage in national visibility to out-of-state recruits, it must work harder to generate the same amount of attention. Sycamore U is well known for its education programs. The quality of these majors gives Sycamore U a leg up in recruiting students interested in teaching careers. By appealing to students based on the availability of desired programs, Sycamore U has created a reputation of excellence in its region.

## Data and Descriptive Statistics

Data for this study were collected and compiled by the department of admissions and financial aid at Sycamore U. The data set consists of application and financial aid information from 11,508 students who applied and were accepted to Sycamore U from the fall semesters in 2013 to 2015. All personal identifiers were removed from the data before I was granted access to ensure the privacy of all students involved. The data are preliminary and will be expanded in the future.

The data for the individual applicants include variables for student characteristics and external influences. Sycamore U's application process

does not require the applicant to provide information about other universities the applicant has applied to, so Sycamore U's fixed characteristics cannot be compared to the fixed characteristics of other universities. Variables for institutional efforts to communicate with students or student visits to campus will be added to the data in the future but are not available to me now. Descriptive statistics for each variable are presented in Table 1.

TABLE 1–Descriptive Statistics
N=11,508

| Variable | Mean | Standard Deviation | Minimum | Maximum | Expected Sign |
|----------|------|--------------------|---------|---------|---------------|
| ENROLL | 0.467 | 0.499 | 0 | 1 | N/A |
| MALE | 0.385 | 0.487 | 0 | 1 | - |
| BLACK | 0.059 | 0.237 | 0 | 1 | - |
| ASIAN | 0.016 | 0.125 | 0 | 1 | - |
| LATINO | 0.023 | 0.149 | 0 | 1 | - |
| OTHER | 0.079 | 0.270 | 0 | 1 | - |
| ACT | 23.052 | 3.852 | 11 | 36 | N/A |
| GPA | 3.485 | 0.401 | 1.52 | 4.49 | N/A |
| HSPERC | 0.709 | 0.196 | 0 | 1 | N/A |
| CORE | 18.679 | 2.121 | 8 | 42 | N/A |
| INDEX | 283.851 | 33.773 | 82 | 385 | + |
| INDEXSQR | 81,711.64 | 19,086.27 | 6724 | 148,225 | - |
| NONRES | 0.196 | 0.397 | 0 | 1 | - |
| SIBLING | 0.033 | 0.178 | 0 | 1 | + |
| LEGACY | 0.152 | 0.359 | 0 | 1 | + |
| FIRSTGEN | 0.162 | 0.368 | 0 | 1 | ± |
| EDMAJOR | 0.147 | 0.355 | 0 | 1 | + |
| PELL | 0.219 | 0.413 | 0 | 1 | ± |
| MERITPERC | 0.039 | 0.108 | 0 | 1 | + |
| NEEDPERC | 0.002 | 0.021 | 0 | 0.690 | + |

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## Model

In this research, I place a high value on clear and understandable results that can be easily interpreted by readers unfamiliar with regression analysis. For that reason, I use a linear probability model instead of a logistic regression to model the binary dependent variable. In linear probability modeling, ordinary least squares regression is applied to a binary dependent variable. The dependent variable can be interpreted as a probability. In this case, it is the probability of enrollment. In this study, the probability of enrollment is modeled as a function of the individual student characteristics and external influences available in the data. Figure [1] presents the final form of the model estimated in this research with the expected sign included on each coefficient. A positive coefficient indicates that an increase in the independent variable increases the probability of enrollment, while a negative coefficient means that an increase in the independent variable decreases the probability of enrollment. The expected sign of each coefficient is predicted based on the findings of past literature and the variable's theoretical relationship with enrollment. Coefficients can be interpreted as the percentage point change in the probability of enrollment correlated with a one-unit increase in the independent variable.

### Figure [1]—Final Model

$$P(ENROLL) = \beta_0 - \beta_1(MALE) - \beta_2(BLACK) - \beta_3(ASIAN)$$
$$- \beta_4(LATINO) - \beta_5(OTHER) + \beta_6(INDEX) - \beta_7(INDEXSQR)$$
$$- \beta_8(NONRES) + \beta_9(SIBLING) + \beta_{10}(LEGACY)$$
$$\pm \beta_{11}(FIRSTGEN) + \beta_{12}(EDMAJOR) \pm \beta_{13}(PELL)$$
$$+ \beta_{14}(MERITPERC) + \beta_{15}(NEEDPERC) + \varepsilon$$

*ENROLL* is a dummy variable that takes a value of one if the applicant enrolled at Sycamore U or zero otherwise. In this analysis, about 47 percent of the students accepted to Sycamore U enroll for classes in the fall semester. This will serve as the dependent variable in my analysis to determine the factors that influence the probability that a student enrolls at Sycamore U.

## Student Characteristics Variables

*MALE* is a dummy variable equal to one if the applicant is male or zero if the applicant is female. Sycamore U's student population is majority female, and the percentage of applicants who are male mirrors the student population fairly closely. About 39 percent of the applicants in this study are male. If students prefer to attend universities with student populations that mirror their own individual characteristics (Chapman, 1981, 493), I expect *MALE* to have a negative coefficient, meaning that male applicants are less likely to attend Sycamore U.

*BLACK, ASIAN, LATINO*, and *OTHER* are each dummy variables that take a value of one for the race/ethnicity with which the student self-identified in the application process. Each of these variables represents a minority population at Sycamore U, where the student body is predominantly white. *OTHER* includes multiple possible responses on the application, including American Indian, unknown, and two or more. Of the minority applicants, Black students make up the largest percentage of the applicant pool at about six percent. Asian and Latino students each make up approximately two percent of the total data set. Students who identified as one of the ethnicities included in the *OTHER* variable combine to make up nearly eight percent of applicants. The student population at Sycamore U is about 86 percent White, so I expect that minority students are less likely to enroll compared to White students. Therefore, I expect a negative coefficient for each minority variable.

*ACT* measures the maximum score on the ACT exam that each individual applicant submitted to Sycamore U. The test is scored on a scale from one to 36, where 36 is the maximum possible score. The minimum score received in this data set was 11, while the maximum was a perfect 36. The average score among all applicants was about 23, which is within the interquartile range of the ACT scores of Sycamore U's student body.

*GPA* measures the grade point average that the applicant received in high school. Grade point averages are generally measured on a scale from zero to four but some high schools allow GPA's greater than four if the student participated in honors level or advanced placement courses. In this data set, very few values exceed four, but the maximum value is 4.49. The minimum value is 1.52.

*HSPERC* is the percentile class rank the applicant achieved in high school. It can take values from zero to one, where one means that the

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student was the top the class and zero means the student was last. Both extremes are represented in this data set, but the average percentile rank among applicants is about the 71st percentile.

*CORE* indicates the number of high school classes completed in the core subject areas, as defined by the governing state body.

*INDEX* is a proprietary measure used by Sycamore U to make admission decisions. It is a weighted combination of each of the previously defined performance variables (*ACT, GPA*, *HSPERC*, and *CORE*). Because *INDEX* is a linear combination of the four performance variables, I cannot include all of these variables in a regression analysis. I use only *INDEX* and exclude the other performance variables.

Sycamore U automatically accepts all students with an *INDEX* greater than or equal to a specific score. Students with a lower score may still be admitted on a case-by-case basis. I expect *INDEX* to have a positive coefficient as students approach and remain near the automatic acceptance score. However, applicants with extremely high *INDEX* scores, indicative of high aptitude, may be more likely to enroll at a more selective university. To account for the potential diminishing likelihood of enrollment among high scoring applicants, I use the *INDEXSQR* variable. This is the squared value of the applicant's *INDEX* score. I expect this variable to have a negative coefficient to reflect decreasing probability of enrollment among applicants with the highest aptitude. The average *INDEXSQR* was nearly 82,000.

## External Influence Variables

*NONRES* is a dummy variable that takes a value of one if the student did not attend a high school in Sycamore U's state. This variable may have relevance in measuring distance from Sycamore U's campus and cost. Out-of-state students typically travel a longer distance from home to attend. In addition, Sycamore U does not have tuition reciprocity with any other states that would allow students from another state to attend at the same cost as in-state students. The lack of reciprocity means that non-resident students pay more in tuition than in-state residents to attend Sycamore U. As tuition increases, all else equal, I would expect the probability of enrollment to fall. Tuition plus room and board for in-state residents is between $12,000 and $18,000. Nonresident students pay about $10,000 more to attend Sycamore U. About 20 percent of the applicants in this study are not in-state residents. Due to the potential

effects of distance and cost, I expect *NONRES* to have a negative coefficient.

*SIBLING* and *LEGACY* measure the effect that significant people close to the applicant may have on the college choice. *SIBLING* takes a value of one if the applicant has an older sibling who attended or is attending Sycamore U. About three percent of applicants have a sibling who attended or is attending Sycamore U. *LEGACY* takes a value of one if either or both of the applicant's parents attended Sycamore U. About 15 percent of the applicants in this data set are legacy students. I expect *SIBLING* to have a positive coefficient because younger siblings tend to enroll in the same university as their older siblings (Goodman et al., 2015). I expect to see a similar relationship among legacy students. If a parent who attended Sycamore U influences the applicant's decision, I expect the *LEGACY* variable to have a positive coefficient.

*FIRSTGEN* takes a value of one if neither of the applicant's parents attended college. If either of the applicant's parents went to college, it equals zero. If parents are unable to provide advice or experience in making a college choice, first generation students may turn to other significant people, like academic counselors, for advice on choosing a college. About 16 percent of Sycamore U applicants are first generation college students. The sign of the coefficient for *FIRSTGEN* is difficult to predict because it is not clear what other significant people the student may turn to if parents cannot provide advice.

*EDMAJOR* takes a value of one if the applicant is a declared or aspiring education major. Sycamore U is well known for its education program, so students who aspire to a career in education may be influenced by the quality of the programs at Sycamore U. I expect *EDMAJOR* to have a positive coefficient because it reflects the presence and quality of a desired program. About 15 percent of applicants intend to pursue a major in education.

*PELL* indicates whether a student is eligible for a federal Pell Grant. Pell Grants are offered to students on the basis of need, taking into account the ability of the student's family to contribute to tuition (U.S. Department of Education, 2015). Eligibility for a Pell Grant may be an indicator of the applicant's socioeconomic status. Students from a low socioeconomic background may be more likely to attend a two-year school or community college (Chapman, 1981, 493). However, receiving a Pell Grant may broaden the college options for a student who otherwise could not afford a four-year university like Sycamore U. It is not clear

which effect is dominant from the literature, so it is difficult to predict a sign for the coefficient on the PELL variable. Over 20 percent of the students in this study were eligible for Pell Grants.

*MERITPERC* and *NEEDPERC* each measure the percentage of tuition plus room and board covered by merit or need-based financial aid offered by Sycamore U. This variable does not include state or federal aid that could be used at other universities. These percentages account for annual changes in tuition and difference in tuition for nonresident students by matching each student with the appropriate tuition and expenses. Each variable may take a value from zero to one. Applicants who received aid over the cost of tuition and expenses were given a value of one. The average percentages of merit and need-based aid in this data set are about four percent and 0.2 percent respectively. These averages are biased by the majority of students who did not receive either type of aid. Multiple students received more than 100 percent of tuition plus room and board in merit-based aid. The maximum percent of need-based aid provided by Sycamore U in this research is 69 percent. I expect both *MERITPERC* and *NEEDPERC* to have positive coefficients.

## Results and Discussion

The results of the regression analysis are presented in Table 2. After removing data points with missing values in the independent variables, the data contained information for 11,235 individual applicants. All independent variables are significant at the one-percent level ($p<.01$). The F-statistic measures the overall fit of the model, and an F-stat of 427.82, in this case, indicates that the model is significantly different from the null model at the one-percent level. The adjusted $R^2$ equal to 0.363 means that the model can explain about 36 percent of the observed variation in the dependent variable.

Contrary to expectations, the positive coefficient on *MALE* means that the probability that a male applicant enrolls at Sycamore U is 2.3 percentage points greater than a female applicant, all else equal. The initial expectation assumed that students tend to choose a university where the student body mirrors their own characteristics. While this may still be true for other variables, it is not true on the basis of gender. There is a much simpler explanation for the positive coefficient that I failed to recognize initially. USA Today (2013) reported that about 28 percent of married graduates met in college. Young men may attend Sycamore U in

hopes of finding a suitable spouse among the majority female population.

TABLE 2–Regression Results

| Variable | Coefficient | Standard Error |
|---|---|---|
| Constant | -0.093 | 0.212 |
| MALE | 0.023*** | 0.008 |
| BLACK | -.163*** | 0.017 |
| ASIAN | -0.175*** | 0.031 |
| LATINO | -0.199*** | 0.026 |
| OTHER | -0.106*** | 0.014 |
| INDEX (10) | 0.06*** | 0.002 |
| INDEXSQR (1000) | -0.015*** | 0.0003 |
| NONRES | -0.218*** | 0.010 |
| SIBLING | 0.105*** | 0.021 |
| LEGACY | 0.061*** | 0.011 |
| FIRSTGEN | 0.051*** | 0.011 |
| EDMAJOR | 0.426*** | 0.011 |
| PELL | 0.128*** | 0.010 |
| MERITPERC | 1.644*** | 0.038 |
| NEEDPERC | 0.809*** | 0.176 |
| N = 11,235 | Adj. $R^2$=0.363 | F=427.82*** |

***Significant at the one-percent level

Among minority applicants, the idea that students choose schools that mirror their own characteristics seems to be accurate, as indicated by the

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negative coefficient on each variable for minority students. White applicants are the excluded category, so each coefficient indicates the change in the probability of enrollment relative to an otherwise equal White student. Latino students are the least likely to attend Sycamore U and have a probability of enrollment that is 20 percentage points lower than an otherwise equivalent White student. The other minority races or ethnicities are between ten and 18 percentage points less likely to attend Sycamore U.

*INDEX* and *INDEXSQR* each behave as expected. A ten point increase in an applicant's Index correlates with a six percentage point increase in the probability of enrollment. This effect is offset, to a degree, by the negative coefficient on *INDEXSQR.* A 1,000 point increase in *INDEXSQR* correlates with a 1.5 percentage point decrease in the probability of enrollment.

Students below and only slightly above Sycamore U's automatic admittance score are more likely to attend Sycamore U because their aptitude is comparable to the student body at Sycamore U, consistent with previous research. On the other hand, because Sycamore U would not be considered a highly selective college by most metrics, students with very high Indexes may be more likely to attend more prestigious, selective universities. In Table 2, and in this interpretation of the results, I scale the coefficients on *INDEX* and *INDEXSQR* by ten and 1,000 respectively to make it easier to interpret large changes in the variables.

Consistent with expectations, nonresident applicants are less likely to enroll at Sycamore U. Greater tuition costs and distance from home for nonresident students combine to correlate with a nearly 22 percentage point drop in the probability of enrollment. Sycamore U's recruiting base is restricted by the fact that out-of-state students enroll at a lower rate. By expanding recruiting efforts out of state, especially for its well-known majors, Sycamore U could increase the number of nonresident students who apply and possibly increase the likelihood that nonresident students will enroll. A reciprocity arrangement would lower the costs for certain nonresident students to attend Sycamore U. However, it is not clear whether the net effect would be positive for Sycamore U, as some in-state residents may choose to attend out-of-state schools. I have not been able to locate any research on the net effect of reciprocity agreements, but this would be a very interesting topic of future research.

The statistical influence of significant people is consistent with the results published by Chapman (1981) and Goodman et al. (2015), who

concluded that siblings and parents influence a high school student's college choice. The results for *SIBLING* and *LEGACY* indicate that applicants with a sibling who attended Sycamore U have a ten percentage point higher probability of enrolling, while legacy applicants have about a six percentage point higher probability. Although the expected coefficient of the *FIRSTGEN* variable was unclear at the outset, the results indicate that first generation students are more likely to attend Sycamore U by about five percentage points. Because Sycamore U is smaller than nearby Research I universities, it may be more attractive and feel more comfortable to students who have fewer significant people to advise them.

Sycamore U is well known for its education program, so the positive coefficient on the *EDMAJOR* variable is consistent with expectations. Aspiring or declared education majors are over 40 percentage points more likely to enroll at Sycamore U than students pursuing other majors. This is a positive indicator of students' knowledge of the quality programs at Sycamore U and an area that Sycamore U can focus recruiting efforts in the future. By focusing on the programs it does well, Sycamore U can target advertising to students over a wider geographical area to draw in more students who may not be aware of Sycamore U otherwise. I believe this would be particularly effective in drawing in nonresident students because Sycamore U must provide a good reason for those students to travel farther from home and pay more tuition to attend.

Students who are eligible for Pell Grants have a 13 percentage point higher probability of enrolling, compared to students not eligible for Pell Grants. Although these students may come from lower socioeconomic backgrounds, Pell Grants enable them to enroll in colleges that they may not be able to afford without the grant. The other types of financial aid represented in this analysis have similar positive effects on the probability of enrollment, but they take on much larger coefficients.

Receiving an additional one percent of tuition and expenses in merit-based aid from Sycamore U increases the probability of enrollment by about 1.6 percentage points. Additional need-based aid correlates with a 0.8 percentage point increase in probability of enrollment per one percentage point increase in the percent of tuition covered by aid. Merit-based aid appears to be more influential in the enrollment decision than need-based aid. This may be because merit-based aid gives applicants a sense of accomplishment that makes them feel special and appreciated by the university. Need-based aid, on the other hand, may not provide the

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same feeling because it is based on circumstance instead of achievement. Because students are very responsive to merit-based aid, even in small amounts, Sycamore U could expand merit-based aid scholarships or redistribute large, single scholarships into many smaller scholarships.

The *MERITPERC* variable brings up one of the negative features of a linear probability model: probabilities are not bounded by zero and one. The coefficient of 1.644 on *MERITPERC* implies that a student who receives 100 percent of tuition and expenses in aid would be 164 percentage points more likely to attend Sycamore U. Obviously, this relationship cannot be true, as probabilities must be between zero and one by definition. While this is a problem for students who receive large amounts of aid, I believe the variable still provides a valuable picture of the effects of merit-based aid at the margins.

## Conclusion

This study uses ordinary least squares regression to estimate a linear probability model applied to preliminary data on applicants to Sycamore U in the fall semesters from 2013 to 2015. It analyzes the factors that affect the probability that an individual applicant will enroll at Sycamore U. When final data is available, it will be necessary to update this research with additional variables and more complete data.

Previous literature indicates that the college a student chooses depends on the student's individual characteristics in relation to the student body at a particular college, as well as external influences like significant people, costs, and the availability of desired majors (Chapman, 1981). Like many regional comprehensive universities' enrollments, enrollment at Sycamore U fell nearly ten percent from 2010 to 2015, so it is important to identify the factors that affect an individual student's college choice. This knowledge will allow Sycamore U to focus its recruiting efforts to raise enrollment.

Although the Sycamore U student body is primarily female, male applicants are slightly more likely to enroll at Sycamore U. On the other hand, the results indicate that Sycamore U has room for improvement in recruiting minority students. Minority students are ten to 20 percentage points less likely to enroll at Sycamore U compared to White students who currently make up over 85 percent of the student body. Like many universities, Sycamore U has undertaken efforts to improve inclusiveness and diversity on campus that may improve its ability to recruit minority

students in the future. This is an area where future research is necessary to judge the effectiveness of those initiatives.

Students who reside out of state are also less likely to attend Sycamore U because of the distance and additional costs associated with attending an out-of-state university. Students with a sibling or parent who attended Sycamore U and first generation students have about a five to ten percentage point higher probability of enrolling. This may be because significant people exert their own preferences on the student or the student simply feels more comfortable with the environment at Sycamore U.

Any assistance that students receive to cover the cost of tuition increases the probability that the student will attend Sycamore U. Merit-based aid has the greatest influence, with a 1.6 percentage point increase in probability of enrollment for a one-percentage point increase in merit-based aid. Need-based aid and eligibility for a Pell Grant also lower the cost of attendance and increase the probability of enrollment. Merit-based aid may be most effective because it makes students feel accomplished and appreciated by a university.

## References

**Avery, Christopher, and Caroline M. Hoxby.** 2004. "Do and Should Financial Aid Packages Affect Students' College Choices?" *National Bureau of Economic Research* (September): 231-301. Accessed January 18, 2016. http://www.nber.org/chapters/c10102.

**Chapman, David W.** 1981. "A Model of Student College Choice." *Journal of Higher Education* 52, no. 5 (September-October): 490-505. Accessed February 3, 2016. http://www.jstor.org/stable/1981837.

**Cohodes, Sarah, and Joshua Goodman.** 2013. "Merit Aid, College Quality and College Completion: Massachusetts' Adams Scholarship as an In-Kind Subsidy." *Harvard Kennedy School Faculty Research Working Paper Series* (May): 1-31. Accessed February 2, 2016. http://web.hks.harvard.edu/publications.

**DesJardins, Stephen L.** 2002. "An Analytic Strategy to Assist Institutional Recruitment and Marketing Efforts." *Research in Higher Education* 43, no. 5 (October): 539-553. Accessed March 16, 2016. https://deepblue.lib.umich.edu.

**Forbes.** 2015. "America's Top Colleges." http://www.forbes.com/colleges/university-of-northern-iowa/ Accessed March 15, 2016

**Goenner, Cullen F., and Kenton Pauls.** 2006. "A Predictive Model of Inquiry to Enrollment." *Research in Higher Education* 47, no. 8 (December): 935-956. Accessed January 18, 2016. http://www.jstor.org/stable/40197517.

**Goodman, Joshua, Michael Hurwitz, Jonathan Smith, and Julia Fox.** 2015. "The Relationship between Siblings' College Choices: Evidence from One Million SAT-Taking Families." *Economics of Education Review* 48 (October): 75-85. Accessed

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February 2, 2016. http://dx.doi.org/10.1016/j.econedurev.2015.05.006.

**Griffith, Amanda, and Kevin Rask.** 2005. "The Influence of the U.S. News and World Report Collegiate Rankings on the Matriculation Decision of High-Ability Students: 1995-2004." *Cornell Higher Education Research Institute* (September): 1-24. Accessed March 18, 2016. http://digitalcommons.ilr.cornell.edu/cheri/29/.

**Hossler, Don, and Karen S. Gallagher.** 1986. "Studying College Choice: A Three-Phase Model and the Implications for Policy Makers.*" Journal of the American Association of Collegiate Registrars and Admissions Officers* 62, no. 3 (Spring): 207-221. Accessed March 18, 2016. https://www.researchgate.net/publication/234741450.

**Kim, Jiyun, Stephen L. DesJardins, and Brian P. McCall.** 2009. "Exploring the Effects of Student Expectations about Financial Aid on Postsecondary Choice: A Focus on Income and Racial/Ethnic Differences." *Research in Higher Education* 50, no. 8 (December): 741-774. Accessed January 18, 2016. http://www.jstor.org/stable/40542342.

**Kim, Kyung Hee, and Michael F. Hull.** 2015. "Effects of Motivation, ACT/SAT, GPA, and SES on College Choice for Academically Advanced Students and Other Students." *World Journal of Educational Research* 2, no. 2: 140-167. Accessed March 15, 2016. http://www.scholink.org/ojs/index.php/wjer.

**Loveheim, Michael F., and C. Lockwood Reynolds.** 2012. "The Effects of Housing Wealth on College Choice: Evidence from the Housing Boom." *Journal of Human Resources* 48, no. 1 (Winter): 1-35. Accessed March 18, 2016. http://jhr.uwpress.org.proxy.lib.uni.edu/content/by/year.

**Pope, Devin G., and Jaren C. Pope.** 2014. "Understanding College Application Decisions: Why College Sports Success Matters." *Journal of Sports Economics* 15, no. 2: 107-131. Accessed February 2, 2016. http://faculty.chicagobooth.edu/.

**U.S. Department of Education.** 2015. "Federal Pell Grant Program: Purpose." http://www2.ed.gov/programs/fpg/index.html (Accessed March 15, 2016).

**U.S. News and World Report.** 2016. "Education Rankings and Advice." http://colleges.usnews.rankingsandreviews.com/best-colleges/uni-1890 (Accessed March 15, 2016).

**USA TODAY.** 2013. "College Students Still Often Find Spouses on Campus." http://www.usatoday.com/story/news/nation/2013/10/15/college-marriage-facebook/2989039/. (Accessed April 30, 2016).