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The costs of American higher education continue to rise. This increase makes it difficult for students and parents to pay for college. It also presents difficulties for university administrators and leaders who must maintain enrollment and tuition revenues. Understanding how individual students respond to increases in net price by assessing their initial matriculation decision can help university administrators and policy makers understand the results of increasing college costs. This emergent sequential mixed methods study examines the price responsiveness of nonresident freshmen and transfer students admitted to a highly selective master's comprehensive university in the southeast. The findings are multi-faceted, illustrating that needy freshman students are most price-responsive and that the qualitative strand controls for omitted variable bias found in quantitative studies.

UNDERSTANDING HOW FINANCES IMPACT NONRESIDENT
STUDENT COLLEGE ENROLLMENT DECISIONS:
A MIXED METHODS ANALYSIS

by

Susan Davies

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Approved by

David F. Ayers
Committee Chair

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For Nigel

APPROVAL PAGE

This dissertation, written by Susan Davies, has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

Committee Chair David F. Ayers

Committee Members Ye (Jane) He

Terry Ackerman

Colleen Fairbanks

March 6, 2015
Date of Acceptance by Committee

March 6, 2015
Date of Final Oral Examination

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CHAPTER I

INTRODUCTION

The cost of attending college in the United States continues to rise, while the offers of need-based financial aid decrease (Long & Riley, 2007; St. John, Daun-Barnett, & Moronski-Chapman, 2013). More than ever, perhaps, potential students must consider these costs and the burdens of student loan debt in their matriculation decisions. In 2011, more than 60% of parents and students reported that price prevented them from applying to particular colleges (Domina, 2014). This dilemma affects prospective students and their parents as well as university administrators who are trying to enroll students and meet net revenue demands. It is also a high profile political issue, with President Obama's American Graduation Initiative calling for dramatic increases in college graduates by 2020 (Obama, 2009) and for colleges to keep costs affordable (Obama, 2013). The aim of this study was to understand the impact of increases in tuition and financial aid offers on college enrollment decisions. Participants included nonresident students admitted to a highly selective public master's comprehensive university in the southeast. Using both qualitative and quantitative approaches, I hoped to broaden the understanding of how finances impact college matriculation decisions.

Purpose of the Study

In the past four decades the cost of tuition at American colleges and universities has increased, largely in response to decreases in state appropriations, while opportunities

for state and federal financial aid have decreased. These changes have shifted the burden of paying for college to students and parents (St. John et al., 2013). For example, the average cost of a public four-year education increased 270% from 1976 to 2005 when adjusted for inflation, while median family income increased only 23% in real terms during the same period (Long & Riley, 2007). Similarly, the Pell Grant, which was the first federal government, needs-based postsecondary grant program, was intended to cover up to 75% of college costs in 1972. Since its inception, the real value of the Pell Grant has decreased substantially: The Pell Grant covers only about one-third of costs at public four-year colleges (Rubin, 2011). The government's commitment to low-income families has waned.

Even as the focus of federal financial aid policy has shifted away from serving low-income students, there has been a shift toward assisting middle- and high-income students and their families. Examples include federal tax code options which assist higher-income families, a federal financial need calculation which excludes home equity, state merit scholarships which assist upper-class families, and the shift from grants to loans which target middle-income families (Chen, 2008; Long & Riley, 2007). Increases in the use of merit-aid has resulted in decreases in enrollment of low-income and minority students, particularly at more selective universities (Griffith, 2011). In 2005-2006, more than half of all financial aid was in the form of federal loans. "Recent shifts in policy (e.g., more reliance on loans and merit aid) may have materially changed the way aid influences student behavior, especially regarding their college enrollment and continuation decisions" (Chen & DesJardins, 2010, p. 180). In a study of state

government's approaches to the process of setting tuition rates and determining financial aid policy, Doyle argues these acts are political:

In all cases, state decisions about the level of funding to provide to higher education and their degree of involvement in the process of collecting revenue translate into a direct effect of state policy on tuition and financial aid policy. Directly or indirectly, governors and legislators in all states have an effect on the net price of higher education for students. (Doyle, 2012, p. 619)

Both the federal and state governments directly impact the tuition price and financial aid offered to students, directly impacting their access to higher education.

Decisions at the federal and state levels impact individual institutions: "Recent declines in nontuition revenue have forced administrators at public colleges and universities to adopt unusually large tuition increases" (Hemelt & Marcotte, 2011, p. 436). University leaders now seek to understand how to maintain an optimum pricing and financial aid structure to yield the maximum enrollment. This understanding has become even more important in the recent economic climate where there is much pressure to improve the market value of their degrees, while confronting political pressures to decrease costs (Carter & Curry, 2011). DesJardins and Bell (2006) suggested that university leaders should learn from economists who utilize human capital theory "to explain how individuals make decisions regarding the amount of education to acquire" (p. 60). Using a human capital theory framework, students weigh the costs of a college education in the form of tuition and foregone earnings, against the benefits of a college education. Embedded in the human capital theory is the notion that students will seek to maximize their well-being, making an economic decision about college choice. The

economic understanding of supply and demand particularly assists those university leaders responsible for enrollment management, who must offer sufficient financial aid to enroll the class (DesJardins & Bell, 2006). “Economic theory generally measures price responsiveness as an elasticity, defined as the percentage change in the number of enrollees for a given percentage change in tuition” (Curs & Singell, 2010, p. 516). The formula for determining price elasticity is $E_p = \frac{\% \Delta Q_x}{\% \Delta P_x} < 0$ where the numerator represents the percentage change in quantity, or enrollment. The denominator represents the percentage change in price (DesJardins & Bell, 2006).

The ratio of proportionate changes is used to avoid the difficulty that different units of measurement in the numerator and denominator may induce, and having a quantity that is not affected by the units of measurement also facilitates elasticity comparisons for different groups of students (in-state versus nonresidents), by institutional type (four-year versus two-year institutions), or differences over time. (DesJardins & Bell, 2006, p. 63)

If students are responsive to a price change, then the elasticity will exceed the critical value of one and the demand will be elastic. If students are not responsive to a price change, then the elasticity will be a value less than one and the demand will be inelastic. Generally, as price increases, quantity will fall *ceteris paribus* and as price decreases, quantity will rise *ceteris paribus* (DesJardins & Bell, 2006).

All recent studies of student price responsiveness suggest that the offer of financial aid, which decreases the net cost to the student and family, positively impacts enrollment demand. The ranges of significant percentage change in enrollment were 1.1 percentage points (Braunstein, McGrath, & Pescatrice, 1999) to 8.6 percentage points

(Van Der Klaauw, 2002), while the largest percentage change of 20% was found for students in the application stage based upon an expected aid package (Singell & Stone, 2002). There are generally two types of pricing and aid models in American higher education. The high tuition/high aid (HH) model assumes that tuition should not affect one's ability to pay. The net aid in this model is greater for those students with greater need. The low tuition/low aid model (LL) spreads aid more evenly across all students. In determining which model works better in terms of price responsiveness, colleges should measure the elasticity. When students are responsive to a change in price, then tuition revenue declines. When students are not responsive to a change in price, then tuition revenue increases (Curs & Singell, 2010). "Depending on the price responsiveness of students, institutions can also expect net tuition revenues to increase *if* they attract sufficient numbers of students who would not have attended the institution without the financial inducement" (DesJardins, 2001, p. 655). Because of the role of financial aid in potentially shaping price responsiveness, and therefore effecting tuition revenue, the role of financial aid officers in the admissions and conversion process has become more important (Braunstein et al., 1999).

Because nonresident students pay more tuition at public colleges, decreases in nonresident student enrollment can have drastic impacts on tuition revenue if not monitored carefully. Studies that specifically analyzed nonresident student price responsiveness found that declines in nonresident student enrollment resulted in tuition revenue losses which negatively impacted budget stability (Curs & Singell, 2002; Curs & Singell, 2010; DesJardins, 2001; Noorbakhsh & Culp, 2002; Singell & Stone, 2002).

Nonresident, or out-of-state, students have been found to be more price sensitive than in-state students (Curs & Singell, 2010; Singell & Stone, 2002). For these reasons, nonresident students should be analyzed separately from in-state students when studying price responsiveness (Curs & Singell, 2010; DesJardins, Ahlburg, & McCall, 2006; Singell & Stone, 2002).

College and university administrators should annually study the effects of their financial aid packaging on conversion rates of applicants and admitted students in order to better understand the price responsiveness of their unique student population. An informed tuition and financial aid strategy is important with the increase competition for student enrollments (Carter & Curry, 2011). Research indicates that expected aid impacts the application decision (Curs & Singell, 2002; DesJardins et al., 2006; Singell & Stone, 2002), and that incongruence between expected and actual aid also impacts the enrollment decision (Paulsen & St. John, 2002; Perna, 2008). For these reasons, an effective enrollment management strategy must ensure accurate messaging to students, particularly low-income and minority students, regarding the expected net cost of attendance and financial aid package early in the college choice process.

Enrollment effects differ based upon the institution's characteristics, such as tuition level, financial aid policy, and characteristics of the applicant pool and students (Abraham & Clark, 2006; Van Der Klaauw, 2002). Other student characteristics that affect enrollment decisions are personal, demographic characteristics, academic ability, socio-economic status, institutional characteristics, unemployment rates, opportunity costs of attending college, and competitiveness for spots in college because of changes in

the number of high school graduates in one year (Kim, DesJardins, & McCall, 2009; Linsenmeier, Rosen, & Rouse, 2006). There is more to consider, when analyzing the impact of a change in state financial aid policy, such as state per capita income, state enrollment rate, strength of financial aid policies, and number of community colleges. By omitting these important variables, researchers might find an overly positive impact of aid in their studies (Riegg, 2008). The current literature on student responses to increases in tuition or offers of financial aid has focused upon quantitative data collection and analysis. One drawback of this approach is that there are many factors, in addition to the financial aid offer or tuition price, which may influence a student's decision to enroll, and these alternative options are often missing from the studies, creating omitted variable bias (DesJardins, 2001; Riegg, 2008).

Scholars have attempted to address omitted variable bias. DesJardins (2001) acknowledged that if students did not choose the University of Iowa, then they may not have disclosed outside scholarship information, which would provide an incomplete picture of the overall financial package provided to the student. DesJardins (2001) took care to determine the timing when the data were collected and to determine who was included and excluded from the study. Van Der Klaauw (2002) sought to address these limitations of omitted variable bias by using regression discontinuity analysis. Other studies were able to distinguish the effect of the financial aid program by modifying a program while the student and institutional characteristics remain unchanged: (a) the elimination of grants or loan programs (Dynarski, 2003; Linsenmeier et al., 2006); (b) the introduction of a new tuition assistance grant program (Abraham & Clark, 2006;

Dynarksi, 2000; Kane 2007); and (c) the creation of new institutional aid programs that randomly assigned aid to students (DesJardins, 2001; Monks, 2009).

In this study I addressed nonresident student price responsiveness to net price over a four year period at a highly-selective master's comprehensive university in the southeast. I used an emergent, explanatory sequential mixed methods design, collecting and analyzing quantitative data first and then explaining the quantitative results with in-depth qualitative data. In the first, quantitative phase of the study, I analyzed admitted student data from fall 2009 to fall 2012 to measure price elasticity to assess whether net price impacted initial college enrollment. The second, qualitative phase was conducted as a follow up to the quantitative phase to help explain the quantitative results. In this exploratory follow-up, I identified the student population which exhibited the largest responsiveness to increases in net price and explored how finances impacted the college choice decision with those students who were admitted for fall 2014. This exploratory phase helped to control for the omitted variable bias found in most price responsiveness studies, providing breadth and depth to the study of student price responsiveness.

Research Questions

1. a. Do increases in nonresident net price result in a decrease in nonresident freshman student enrollment?
 - b. For which freshman students is the enrollment decrease significant?
2. a. Do increases in nonresident net price result in a decrease in nonresident transfer student enrollment?
 - b. For which transfer students is the enrollment decrease significant?

3. Of the freshman and transfer students who demonstrate a significant decrease in enrollment, which type of students has the greatest odds of not enrolling because of increases in net price?
4. How do individual students in the student group which appears to have the most elastic response to net price consider finances when they are making enrollment decisions?
 - a. How do enrolled students perceive finances in their enrollment decisions?
 - b. How do non-enrolled students perceive finances in their enrollment decisions?

Significance of the Research

While we know a great deal about the relationship between student enrollment patterns in reaction to offers of grants and scholarships and increases in tuition, we still know very little about the individual nonresident student's matriculation decision. The purpose of this study was to expand upon the current research to explore other variables that can explain the relationship between nonresident student matriculation decisions related to price. This research will likely be of interest to policy makers and university administrators who face decisions about setting nonresident tuition prices and financial aid offers. Without accurate and relevant data to inform decisions, policy makers and university administrators may make decisions that impact student access and net tuition revenue. The latter outcome occurred in the state of Pennsylvania when the Board of Governors of the Pennsylvania System of Higher Education increased nonresident student tuition. Between 1990 and 1996 nonresident tuition increased an average of 11.6% per year. During that same time the enrollment of nonresident students declined

approximately 40%, resulting in a significant loss of nonresident tuition revenue in the state (Noorbakhsh & Culp, 2002).

At the selected public institution for this research, institutional costs for nonresident students increased 17% from fall 2008 to fall 2012. At the same time, the governing board for the state system instituted a 6% tuition surcharge on nonresident students for the upcoming fall 2014 academic year, without fully analyzing the potential impact on nonresident student enrollment. This is at a time when new nonresident student enrollment is already unpredictable. I think it is important to study nonresident student price responsiveness because the findings may challenge or support the current governing board's decisions to increase nonresident student tuition. The findings may suggest that a new model is needed, or that the model needs to be adjusted to account for these new variables.

CHAPTER II

REVIEW OF THE LITERATURE AND THEORETICAL FRAMEWORK

Understanding the enrollment behavior of students in response to these financial implications is important for policy makers, university administrators, and education researchers (Abraham & Clark, 2006). Much research has been conducted on student price responsiveness in matriculation decisions. This literature review continues the work of Leslie and Brinkman (1987) and Heller (1997) by examining research published in the past 15 years on student responsiveness to tuition prices and financial aid subsidies in making their initial college enrollment decision. The literature review starts with college choice models, explaining the points in time when price might impact a student's enrollment decision. Next, student price responsiveness is explored with an emphasis on studies conducted at individual colleges, as well as studies of state and federal financial aid. Finally, the research related to student price responsiveness and college access is detailed. These studies are divided into those which focus upon income and race disparities.

College Choice Models

To understand these potential changes in college choice behavior, most researchers examine the college choice process in three stages: (a) college aspirations formed; (b) college search by researching institutions and taking the SAT or ACT; and (c) college choice by applying for admission and enrolling. College choice models

consider student characteristics, institutional characteristics, and contextual factors as influencing application and enrollment decisions (DesJardins et al., 2006). Recent researchers of college choice have added economic factors to their models. Avery and Hoxby (2003) utilized a human capital framework for studying high-aptitude students' college choice, creating a survey to test students against a standard of rational human capital investment. Rubin (2011) also utilized human capital theory as his theoretical framework in studying the impact of Pell Grant offers on college matriculation: "Consequently, under human capital theory, aid, particularly grants, may induce more students to attend postsecondary education because it decreases the marginal cost of education while the marginal benefit remains constant" (p. 677). Using human capital theory as a lens, Rubin (2011) suggested that students make decisions about college choice based upon their comparison of the costs of college to the potential benefits of the college education. The most recent and substantial increases in tuition costs in higher education raise questions for students who must decide whether this increased investment in college will result in a favorable rate of return after graduation. "Human capital theory asserts that changes in prices (e.g., tuition) or subsidies (e.g., grants or loans) that alter the costs of college lead students to reassess the returns to investment in higher education" (Paulsen, 1998, p. 481). St. John et al. (2013) extended this interpretation of human capital theory beyond just the student's investment, arguing that governments also make decisions about investments in education based upon expected returns.

Curs and Singell (2002), DesJardins et al. (2006), and Singell and Stone (2002) analyzed the decision to apply separately from the decision to enroll. They warned

researchers against focusing upon only one stage of the college choice process because an application choice depends upon financial aid as much as an enrollment choice. All three studies found that price responsiveness occurred more at the applicant stage than the enrollment stage. If studies examine only enrollment then they risk underestimating tuition elasticity of enrollment. Singell and Stone (2002) analyzed the effects of merit-aid and need-aid on the student's decision to apply separately from their decision to attend the University of Oregon. The anticipated need had a much greater effect on the application decision than on the enrollment decision. Every \$1,000 increase in the expected aid package (i.e., subsidized aid) was predicted to raise the probability of applying by 20% for in-state students. Every \$1,000 increase in expected unmet need reduced the probability that an in-state student applied for admission by 45.2%. Every \$1,000 increase in expected merit-aid increased the probability of applying for in-state students by 71.8%. "Restated, student selections of where to apply are heavily conditioned by anticipated need, but actual enrollment is not as sensitive to actual need, given the initial influence of anticipated need in determining where to apply" (Singell & Stone, 2002, p. 404). Curs and Singell (2002) also found applicants were more affected by price than enrollees: "Our individual elasticity estimates for UO applicants range between -1.0 and -1.5, which are three to five times greater than the price elasticity found for UO enrollees" (Curs & Singell, 2002, p. 122). DesJardins et al. (2006) affirmed these results at the University of Iowa, finding that enrollment was affected by the level of expected aid during the application process and by sensitivity to differences between

expected awards and actual awards. They found that the amount of expected financial aid was significantly related to applicant behavior.

Student Price Responsiveness

Leslie and Brinkman (1987) offered the first review of studies which examined the relationship between price and enrollment in higher education. Their article was published in 1987; but the studies reviewed were published between 1967 and 1982 and did not capture increases in tuition prices during the 1980's. Only one-quarter of the studies included financial aid or net tuition. For each study, Leslie and Brinkman calculated a student price response coefficient (SPRC), which is the change in college participation rate for every \$100 increase in tuition (1982-1983 dollars) for 18-24 year olds. On average as tuition increased, enrollment declined so the SPRC was -0.6. Leslie and Brinkman predicted that U.S. enrollments would decline for each \$100 increase in tuition, all other factors equal, and suggested that the SPRC should be used for public policy purposes.

Heller (1997) continued the work of Leslie and Brinkman (1987) by reviewing about 20 quantitative studies. He hoped to learn whether tuition and financial aid changes had the same effects on students as they did a decade earlier; whether different types of financial aid affected students differently; and, whether tuition and financial aid had different effects on students from different incomes and races attending different types of colleges. Concerning the relationship between price and enrollment, all studies reviewed found an inverse relationship between tuition and enrollment. Generally every \$100 increase in tuition created a drop of enrollment of 0.50 to 1.00 percentage points, a range

consistent with Leslie and Brinkman (1987), assuming that all other enrollment variables that would affect enrollment demand remained constant. The studies concerning the relationship between financial aid and college enrollment were more complex because of the different types of aid. Some studies found similar effects between tuition on enrollment and aid on enrollment. However, others found students to be less sensitive to aid than they were to tuition, the effect changing depending upon the type of aid. Enrollment was generally more sensitive to grants than to loan or work study wages.

As noted above, an important issue to be considered when formulating policy is that the

majority of these studies analyzed data from the mid-1980s or earlier. All of these data sets were from an era when college tuition, especially at public institutions, was far lower than it is today. (Heller, 1997, p. 650)

Curs and Singell (2010) hypothesized that, with the significant rise in tuition over the past several decades, it is likely that enrollment demand has become more elastic over time.

In spite of the increases in tuition growth over the last thirty years, Hemelt and Marcotte (2011) found that the average tuition and fee elasticity was -0.0958 for total headcount. For their study, they used student enrollment data from all public four-year colleges and universities in the U.S. from 1991 to 2006, and found that elasticity had not increased since Heller (1997):

We estimate that the average tuition and fee elasticity of total headcount is -0.0958. So, at the mean, a \$100 increase in tuition and fees (in 2006 dollars) would lead to a decline in enrollment of a little less than 0.25%. This is quite

similar to estimates of tuition elasticities from the 1980s and early 1990s. (pp. 452–453)

Elasticity of enrollment was most significant at Research I universities, with no significant negative enrollment impacts at comprehensive universities when tuition was increased. Enrollment was positively related to the amount of financial aid and grant funds awarded, and the receipt of the Pell Grant had more impact than the effects of tuition costs on enrollment.

Student Price Responsiveness at Individual Colleges and Universities

More recent research conducted at specific colleges and universities illustrated that there had not been any significant change in elasticity in the past decade. Van Der Klaauw (2002) analyzed the effect of financial aid offers of admitted students at an undisclosed east coast college from 1989 to 1993. Those who filed for financial aid had an enrollment elasticity of 0.86, compared to an enrollment elasticity of 0.13 for non-filers. Therefore a 10% increase in financial aid was predicted to lead to an 8.6% increase in the probability that an average student would enroll. Monks (2009) found similar results at a small, private liberal arts college which decided to offer merit-aid randomly to about 200 admitted students who were going to receive no need-based aid and no merit-based aid in fall 2005. Findings showed the estimated elasticity was 0.17 and the yield of the aid-group was significantly higher than the yield of the non-aid group: 7.1% compared to 3.2%. “These results suggest that price, in the form of merit-aid awards, is significant in influencing enrollment probabilities among extremely high ability applicants to the most selective institutions” (Monks, 2009, p. 105).

Curs and Singell (2010) found that responsiveness to aid declined with ability at the University of Oregon, such that students with higher academic ability were less responsive to aid when controlling for their financial need and other factors. The students with the most financial need were the least responsive to changes in net price when controlling for ability because they tended to be less financially able to attend out-of-state, and would instead choose a low-cost institution in their own state. Applicants in the middle of the need distribution tended to be the most price responsive. Non-needy students tended to be least responsive, affirming Curs and Singell's (2002) supposition that these students generally preferred more costly out-of-state institutions rather than low-cost institutions in their own state. Curs and Singell (2010) ultimately concluded that price responsiveness declines for both in-state and out-of state students as need and ability declines. They suggested that financial aid offers focus largely on the somewhat-needy and needy students to impact an enrollment decision, advocating for an HH model effectively using targeted aid to increase aid-eligible student enrollment:

The HH strategy makes economic sense in the context of prior evidence that enrollment demand is inelastic such that tuition revenue can be realized by increasing the net price charged to well-to-do, less meritorious students and using the new revenue to subsidize needy and/or able students. (p. 538)

DesJardins (2001) studied the impact at the University of Iowa of offering a new scholarship to selected nonresident students to impact the declining enrollment of nonresident students. Since nonresident students pay more in tuition, the declines in enrollment had resulted in tuition revenue losses which impacted budget planning stability. The study found that for every \$1,000 increase in grant aid, the probability of

enrollment increased by about 7.3 percentage points. This significantly high increase was attributed to the lower tuition at the University of Iowa compared to other close competitors and Big Ten schools. High-ability students, those students with a higher admissions index score, were more sensitive to changes in the institutional grant aid than the full set of nonresident students. For every \$1,000 increase in grant aid, the probability of high-ability student enrollment increased by about 8.6 percentage points, compared to 6.9 percentage points for all nonresident students.

Singell and Stone (2002) and Curs and Singell (2002) cautioned researchers from inappropriately combining in-state and out-of-state students when studying price responsiveness as that may result in price elasticity towards zero because their reactions would cancel each other out. At most public colleges, net out-of-state price is more than three times in-state price, and fewer out-of-state recruits enroll. At the University of Oregon, a 1% increase in price decreased the probability of both in-state and out-of-state students enrolling, with the decrease more significant for out-of-state students, leading Curs and Singell (2002) to conclude that out-of-state students are more price sensitive than in-state students. However, Singell and Stone (2002) also found it important to separate out-of-state students by financial need, as many out-of-state students had increased parental wealth. In fact, every \$1,000 increase in expected financial eligibility (i.e., parental wealth) was predicted to raise the probability of applying by 5.1% for in-state students, but lower the probability of applying by 20.7% for out-of-state students. It appeared that non-needy out-of-state students were less likely to apply to a public flagship university. Even though out-of-state students responded differently to offers of

financial aid, “Both in-state and out-of-state applicants are less likely to enroll at the UO if they have unmet need, which suggests that need limits the access of all students” (Curs & Singell, 2002, p. 116).

Noorbakhsh and Culp (2002) also found differences between resident and nonresident students in the state system of Pennsylvania. Using an ordinary least squares analysis, they found that nonresident student demand was price elastic for tuition and total cost of education. However, they could not find the same for resident students. They purposefully selected Pennsylvania for this study because between 1990 and 1996 the state system increased nonresident student tuition an average of 19.6% per year, resulting in about a 40% decrease of nonresident student enrollment. The decrease in nonresident student enrollment was most significant at five institutions located in western Pennsylvania. These institutions were less able to replace nonresident students with resident students because of the slow population growth in the region. “Obviously, a ‘one size fits all’ tuition policy is inappropriate for a university system as geographically diverse as the Pennsylvania State System of Higher Education” (Noorbakhsh & Culp, 2002, p. 285). Now, each institution is allowed to set its own nonresident tuition cost within set parameters articulated by the state system.

Carter and Curry (2011) used a discrete-choice experiment of currently enrolled students to understand the individual student-choice behavior. Enrolled students (n=5606) at a major U.S. university were asked to remember their college choice in retrospect. Results illustrated that the university was in a highly competitive market and that raising tuition would reduce overall revenue because of a lack of enrollment demand.

In-state residents were more sensitive to increases in tuition compared with nonresidents. A different elasticity was found for each academic college because of the competitors in the area and the national reputations of some for the colleges. The largest elasticity was -5.4 for students in the College of Business. This research supports the value of differential pricing for academic programs. Carter and Curry (2011) suggested that studying price sensitivity at the individual institution is more helpful to university leaders and studying price sensitivity in the aggregate is more helpful to policy makers.

Student Price Responsiveness to State and Federal Financial Aid

Research illustrates that state and federal financial aid programs also impact enrollment decisions. Two studies using national data found that decreases in state grants result in a decline in enrollment, and significantly impact the type of institution students attend (Heller, 1999; Kim, 2011). Heller (1999) analyzed how public tuition prices and financial aid expenditures in the 50 states related to undergraduate enrollment rates. Kim (2011) conducted a longitudinal study using National Education Longitudinal Study (NELS) data and found positive relationships between state need-based grants and college enrollment, especially for low-income students at both two-year colleges and private competitive colleges.

Since the early 1990s 21 U.S. states have implemented some form of merit-based program for students to attend post-secondary education. The states' programs vary in terms of whether they also require financial need and also in terms of success at increasing first year student enrollment (Domina, 2014). Zhang and Ness (2010) examined 13 states with merit-aid programs, finding that first year student enrollment

increased by an average of about 10%. Toutkoushian and Hillman (2012) confirmed these results, finding that state merit-aid programs increased college attendance rates, and had a substantially greater impact on in-state attendance rates than increases in state appropriations, suggesting that implementation of state merit-aid programs will increase college enrollment rates more than state appropriations directly to universities. Zhang, Hu, and Sensenig (2013) measured the effect of Florida's Bright Futures program on college enrollment, finding a significant and large increase in the number of first-time students enrolling at Florida's two-year and four-year public institutions.

Domina (2014), however, found that all merit-aid programs were not equally effective. Using data from the 1988 National Education Longitudinal Study (NELS) and the 2002 Education Longitudinal Study (ELS) for students in the 21 states that offer merit-aid programs, he found that merit aid programs that guarantee the full price of in-state public colleges are more effective than less generous programs. He also expanded the scope of influence of the merit-aid programs to understand how the programs influenced students' achievement in high school, specifically by measuring completion of a higher level math course, finding that programs with merit-only criteria influenced high school math taking and achievement more than programs with a financial need component. This finding suggests that the impact of state merit-aid programs influences student behavior in preparing for college academically, as well as financially.

Two significant state grant programs are the Washington, D.C. Tuition Assistance Grant (DCTAG) program and Georgia's Helping Outstanding Pupils Educationally (HOPE) Scholarship. The DCTAG program was established in 1999 as a subsidy for

Washington, D.C. residents to attend public colleges or universities outside of Washington, D.C. The DCTAG program contributes significantly to the current literature on the responsiveness of students to financial aid because it is not targeted at a specific population of students; but, is based solely on residence in Washington, D.C. The DCTAG program benefits are offered to students from a broad socio-economic and academic achievement range, offering a richer data set to understand the impact of financial aid on a broad range of students from diverse socio-economic backgrounds (Abraham & Clark, 2006; Kane, 2007). In contrast, the HOPE Scholarship is a merit-aid program that was instituted in 1993 and funded by a state lottery. At the time of this study, the requirement to qualify for the HOPE Scholarship was at least a B average in high school. In Georgia, lower-income students perform worse in high school, as do black students. “Among high school seniors in 1992 who intended to go to college 24.4% of those of high SES had a grade point average of at least 3.5, while just 10.0 percent of those from low SES families had grades that high” (Dynarski, 2000, p. 640). Therefore, results of studies of price responsiveness to the HOPE Scholarship are not as generalizable to a broad range of students.

With the establishment of the DCTAG program in 1999 there was an increase in the number of D.C. high school graduates taking the SAT, sending scores to colleges or universities, and sending scores to four year colleges. “By changing students’ perceptions of affordability, the DCTAG program could encourage more students to consider college attendance and/or attendance at an eligible public institution, thereby increasing the number of applicants” (Abraham & Clark, 2006, p. 586). The DCTAG program increased

attendance by students who would not normally have gone to college by 8.9% for every \$1,000 of aid and increased the percentage of DC high school graduates enrolling as college freshmen by 3.6% for every \$1,000 of aid (Abraham & Clark, 2006). In the first two years of the program, the number of D.C. residents enrolling around the country increased 23%, the number of FAFSA applications submitted by D.C. residents increased 15%, and the number of Pell Grant recipients from D.C. increased 15%. Each of these increases was larger than changes observed by in-state residents in Maryland or Virginia while the number of high school graduates from D.C. remained flat, leading Kane (2007) to conclude that the only difference in the D.C. residents and the control group (i.e., high school graduates from Maryland and Virginia) was the eligibility of the financial aid subsidy from the DCTAG program. The magnitude of the increase, although large, was consistent with prior estimates of the elasticity of demand for college enrollment (Kane, 2007). “Our analysis suggests that students are price-sensitive in their college application decisions. We find that, by lowering the relative price of public institutions, DCTAG significantly increased the probability that D.C. SAT-takers applied to at least one public four-year college or university” (Abraham & Clark, 2006, p. 607).

Georgia HOPE has also pushed more students into college, pushed students from two-year to four-year colleges by driving down costs, and pushed more students to stay in Georgia rather than pursuing college out-of-state (particularly in border states). Border schools in other states saw a decrease in the attendance of Georgia students, enrollment dropping from 17 percent in 1992 to 9 percent in 1998. Results showed that the HOPE Scholarship increased the college attendance rate in Georgia by 7.0 to 7.9 percentage

points. In Georgia the enrollment rate of 18- to 19-year-olds was 30 percent compared to 41.5 percent in the rest of the Southeast before 1993; after 1993 the enrollment in Georgia rose to 37.8 percentage points while enrollment in the rest of the Southeast did not change appreciably. This change was found to be significant:

Overall, the results suggest that for each \$1,000 of subsidy the college attendance rate of middle- and upper-income youth rises by four to six percentage points. This is a surprisingly large response: the estimate is of the same order of magnitude as those reported by studies that examine the effect of aid on low-income students. (Dynarski, 2000, p. 631)

Federal financial aid programs also influence college enrollment. Two major federal financial aid programs are the Social Security Student Benefit Program and the Pell Grant. In 1982, the federal government eliminated the Social Security Student Benefit Program, which ran from 1965 to 1982 and paid for millions of students to go to college. The program allowed monthly payments to students, aged 18-22, who were Social Security beneficiaries. When this program was eliminated, it was the largest and sharpest change in grant aid in the U.S. except for the creation of the Pell Grant and G.I. Bill. Payment of the Social Security Student Benefit Program was determined by the earnings history of the parent, and the average annual payment in 1980 was \$6,700. This payment was much more than the average Pell payment of \$2,000 and average guaranteed student loan of \$4,500, particularly considering the tuition and fees costs at public four-year colleges of \$1,900 and private colleges of \$7,100 (Dynarski, 2003). At the program's peak, 12% of full-time college-aged students were receiving benefits. After the elimination of the program, the probability of a student with a deceased father

attending college dropped by more than a third (20.8 percentage points) while it barely dropped for those with living fathers (2.6 percentage points). The estimated effect of the Social Security Benefit elimination was a statistically significant 18.2 percentage points. Examined another way the offer of \$1,000 in grant aid increased the probability of attending college by about 3.6 percentage points (Dynarski, 2003). Kane (2007) offered criticism of the sample size of Dynarski's (2003) study suggesting that it is difficult to know whether the responsiveness of such a narrow subgroup—youth with deceased parents—can be generalized to other groups. Moreover, the estimate was based on an exceedingly small sample—107 children of deceased parents before the change in policy and 49 after the change. Nevertheless, Dynarski's (2003) findings are similar to those of other researchers regarding price responsiveness.

Using the human capital model as a theoretical framework, Rubin (2011) asked whether having a Pell Grant eligible Expected Family Contribution (EFC) increased the probability that on-time high school graduates would enroll on-time in college. He hypothesized that, because grant aid would decrease the costs associated with college while the benefits of attending college remained constant, that enrollment would increase. He found that the Pell Grant did not impact on-time college enrollment in comparison to students just above the cutoff who did not receive Pell Grant (Rubin, 2011). His findings are similar to previous studies outlined in Heller (1997), but contrast with Seftor and Turner's (2002) study that found Pell Grants did impact decisions of nontraditional students to enroll in college. Rubin (2011) offered three hypotheses to explain the age-specific responses to the Pell Grant: (a) the Pell Grant award is too small to make a

difference to students directly out of high school; (b) the FAFSA is considered too complicated with an early deadline so that few low-income students complete it, resulting in no aid allocated to them; and (c) if there are problems with the FAFSA submission, students are not notified, but generally have to follow-up to ask questions, which lower-income and minority students are less inclined to do.

Student Price Responsiveness and College Access

Of all of the barriers to higher education for low-income and minority students, the major barrier is affordability, specifically cost, the shift in financial aid policy from grants to loans, and the negative consequences of debt. Lower-income students fall behind their peers in college enrollment rates by about 25 to 30 percentage points since the mid-1980's, even after controlling for academic ability (Rubin, 2011). The likelihood of attending college in the United States varies by family income. In 2004, of families who made less than \$30,000, only 43% of students immediately enrolled in postsecondary education compared to 75% of students from families who made more than \$50,000 (Long & Riley, 2007).

Low-income high school graduates in the top academic quartile attended college at only the same rate as high-income high school graduates in the bottom quartile of achievement. Such gaps, which are also evident in terms of race and ethnicity, suggest that the aid system has not equalized access to higher education. (Long, 2010, p. 27)

Even with the federal grants offered to low-income families, many of those families have difficulty meeting the EFC. "Students' unmet financial need has risen over the past decade, demonstrating that low-income and minority students are especially likely to face

substantial unmet need even after taking into account family contributions and all available grants and loans” (Chen & DesJardins, 2010, p. 202).

Heller (1997) found that race could be used as a proxy for income when studying the relationship between financial aid and tuition. Low-income and minority status continued to emerge as interchangeable variables in the literature. Kaltenbaugh, St. John, and Starkey (1999) found substantial differences in income levels between the African American and European American students in their study. More than one-half of the European American students had family incomes of \$30,000 or higher compared to one-quarter of African Americans, leading researchers to conclude that to the extent that student aid policies distinguish by economics, they also distinguish by ethnicity. After all aid was applied, 56% of Black students had unmet need, compared to only 40% of White students. The patterns were similar when comparing Hispanic students and White students. “In other words, groups whose access to higher education has historically been most limited remained especially likely to have their financial need unfulfilled by family contributions and all sources of grants and loans” (Long & Riley, 2007, p. 56).

The numbers of African-American and Hispanic undergraduates have increased in the past decades, as have the number of bachelor’s degrees awarded; but, these students still are underrepresented among both undergraduates and bachelor’s degree recipients compared to the traditional college-aged population (Perna, 2000). However, by 2050, the majority of college-aged youth will be minorities.

This increased diversity in the nation’s population will exert increasing pressure on the already strapped financial aid system and call for strengthened efforts from higher education researchers and policy-makers to identify and implement

effective financial aid policies to promote equal opportunity in higher education. (Chen & DesJardins, 2010, p. 204)

Because minority students are more sensitive to price and less willing to take loans (Kaltenbaugh et al., 1999), their unique responsiveness to price is important; particularly if higher education policy makers and administrators continue to utilize financial aid as an important resource in equalizing access to higher education (Chen, 2008).

Student Price Responsiveness by Income

Many recent studies illustrate that higher-income students are more likely to enroll in college (Abraham & Clark, 2006; Dynarski, 2000; Kane, 2007; Kim, 2011). Students in the middle- to upper-income bracket were more likely to be utilizing the DCTAG subsidy than high-income students who probably chose private colleges that were ineligible for the DCTAG aid. Kane (2007) posited that lower-income students were either not choosing college or were choosing private for-profit occupational training centers that did not qualify for the DCTAG aid. The HOPE scholarship has also had a negative impact on the college attendance rate in the state by widening the gap between high-income and low-income families. The increase in college attendance for students from higher-income families was 11.4 percentage points relative to nearby states, with no relative rise in college attendance among low-income families compared to nearby states (Dynarski, 2000).

The price responsiveness of students begins with their perception of the availability of aid (Paulsen & St. John, 2002; Perna, 2008). These two studies used a more complex view of social class rather than just socio-economic status. Paulsen and St.

John (2002) examined the sequences of choices, diverse patterns of choices, and educational choices in situated contexts. Their findings supported their hypothesis that as students perceive financial factors and measures of actual dollar amounts as very important, these factors will have a direct impact on college enrollment decisions. Perna (2008) sought to develop a better understanding of high school students' perceptions of loans. Her conceptual framework used the student's "situated context" to understand more about how the student's college enrollment decisions were made in four contextual layers: the student and family contexts, the school and community context, the higher education context, and the broader social, economic, and policy context. Findings showed that lower-income students were more likely to be cost conscious in college choice, compared to higher-income students. Lower-income students were less likely than higher-income students to attend four-year colleges or private colleges, be a full-time student, live on campus, or assume loans. Lower-income and lower-middle-income students were far more responsive to price than upper-middle and upper-income families, and were more likely to be minorities and have a lower percentage of mothers with advanced degrees.

Braunstein et al. (1999) found that low-income students were more responsive to grants, middle-income students were most responsive to loans, and high-income students were least responsive to any form of aid. Findings concluded that the receipt of financial aid had a positive impact on enrollment decisions of students admitted to Iona College in the early 1990s. For every \$1,000 increase in the amount of aid offered, the probability of enrollment increased between 1.1% and 2.5%, leading to the conclusion that financial aid

was significant in the enrollment decision of admitted students. Grants and loans both had a positive impact. Every \$1,000 increase in loan and grant amount increased the probability of enrollment over 5% and 3%, respectively. The offer of work study did not increase the probability of enrollment unless it was packaged with grant or loan assistance. Braunstein et al. (1999) concluded that combinations of financial aid must contain some grant aid to be attractive to admitted students and that family income became less significant as financial aid variables were included.

Student Price Responsiveness by Race

In the question of race, there are marked differences in student price responsiveness. Heller's (1997) review of literature found that African-American students were more sensitive to tuition increase than White students. The results were mixed on Hispanic students and more research and investigation was suggested. In 1999, Heller found that Asian American students were most sensitive to tuition increases, followed by Hispanic and African-American students. White students were found to be the least responsive to price. Kaltenbaugh et al. (1999) found that African American students received more of all types of financial aid, on average, compared to European American students. Perna (2000) found that African-Americans and Hispanics were more likely than Whites to receive grants. African-Americans were more likely than Hispanics and Whites to receive loans. Another study illustrated that the benefits of state needs-based grants were not equally distributed among racial groups. An increase in state need-based grants lowered the probability of enrollment for Hispanics and African Americans at either two-year or four-year colleges. While future research is needed to understand the

differences, the author offered the possibility of limited availability of information about state need based grants, particularly how to apply (Kim, 2011).

Building upon research by DesJardins et al. (2006), Kim et al. (2009) used a similar data set from the University of Iowa to analyze the impact of the total amount of financial aid expectations to identify how expectations of different types of aid affected student college choice. Findings illustrated that students from different race/ethnicity responded differently to financial aid packages. At a rate higher than all other racial groups, Asian Americans of all income levels exhibited an increased likelihood of application as a result of increase in aid, indicating that Asian Americans were more responsive to aid expectations when making applications for admission. For each race group, high income students had the highest application probabilities and low-income students had the lowest application probabilities. A simulation showed that changing financial aid packaging impacted gaps in application of admission by needy students. For Hispanic and African American students, enrollment declined when they expected to receive financial aid but did not, and this effect was more pronounced than for Asian and White students. If a student was offered more aid than expected, then enrollment increased dramatically; but, the actual increase varied based upon race. African American and Hispanic student enrollment increased less than White and Asian student enrollment when actual aid was more than expected. Perhaps the same amount of aid awarded to White and Asian students as to Black and Hispanic students was just not enough to meet the standard of adequate aid. “The differences in enrollment chances by race/ethnicity

suggest that institutions might want to customize financial aid packages for students from different race/ethnic backgrounds” (Kim et al., 2009, p. 763).

Linsenmeier et al. (2006) also suggested that colleges utilize targeted-aid packaging to facilitate college access for low-income and minority students. They studied the effects of a change in financial aid policy at a major northeastern university in 1998. The university changed from packaging financial aid as grants, loans, scholarships, and campus jobs to eliminating loans and replacing that dollar value with grants. The change in financial aid policy increased enrollment of low-income students by 3 percentage points, but these results were not statistically significant. The change also increased enrollment of low-income minority students by 8 to 10 percentage points, and these results were statistically significant. These findings support the idea of targeted-aid packaging that increases the amount of grants in promoting college attendance of low-income minority students.

Kim (2004) used the Freshman Survey of 1994 administered by the Higher Education Research Institute at UCLA to study the impact of various types of aid on four-year college choice, specifically “first-choice,” by racial group.

Considering that the central objective of financial aid is to provide equal educational opportunities to students regardless of financial ability, it is crucial to clarify whether financial aid promotes educational opportunity, not just measured in terms of access (getting students into college) but in terms of choice (which college students want to attend the most). (p. 44)

For all students, the receipt of grants or grants in combination with loans had an overall positive effect on college enrollment at first choice institutions. The receipt of only loans

resulted in no significant impact. Both White and Asian American students were more likely to attend their first-choice institution if they received grants or a combination of grants and loans compared to students who received no grants or no combination of grants and loans. This likelihood was much more significant for Asian American students than White students. Asian Americans seem to put a high value on education and are more willing to take loans than white students, as they view education as an investment in the future. As a result, attending the first-choice institution was more important than price. For both Latino and African American students, financial aid had no impact on enrollment at their first choice institutions. Kim (2004) posits that Latino and African American students probably chose to attend the university where they were offered the most aid rather than prioritize the first-choice institution over price or that other variables such as high school academic achievement, family income, and location of the college may be more significant factors in influencing college choice than financial aid. These findings suggest that a financial aid offer may impact the “first-choice” college enrollment decision for African American and Latino students; but, that White and Asian American students will choose “first choice” over a financial aid offer.

Conclusion

Economic and financial considerations impact the college choice process, from the decision to apply to the decision to enroll. Aggregate studies have found that the tuition and fee elasticity over the past thirty years has remained relatively unchanged (Heller, 1997; Hemelt & Marcotte, 2011; Leslie & Brinkman, 1987) even in spite of the significant increases in tuition costs. Studies of student price responsiveness to

enrollment decisions at individual colleges and universities illustrated an increase in enrollment of 5.1% (Curs & Singell, 2002) to 8.6% (Van Der Klaauw, 2002) when increases in financial aid offers were made. These studies stressed the importance of analyzing student price responsiveness separately for in-state and out-of-state students (Curs & Singell, 2010; DesJardins, 2001; Singell & Stone, 2002), by level of financial need (Singell & Stone, 2002), and by academic ability (Curs & Singell, 2010). Studies of student price responsiveness to state and federal financial aid programs found that state merit-aid programs result in an increase in first year student enrollment and students choosing to stay in-state (Abraham & Clark; 2006; Domina, 2014; Dynarski, 2000; Kane, 2007; Toutkoushian & Hillman, 2012; Zhang & Ness, 2010; Zhang et al., 2013). The groups most impacted by increases in tuition price or offers of financial aid are low-income and minority students, particularly African-American and Hispanic students (Perna, 2000). Findings support targeted-aid packaging for low-income minority students (Kim et al., 2009; Linsenmeier et al., 2006) to allow these students to attend their first-choice college rather than settling for a less expensive option (Kim, 2004).

When large proportions of eligible young people are barred from accessing a public good that is increasingly essential to having full careers and leading full lives (or when they have access only under unacceptably ruinous conditions), then this constitutes a violation of basic feelings of fairness and justice. (Meyer, St. John, Chankseliani, & Uribe, 2013, p. 1)

Understanding student price responsiveness in the college choice process is both a moral obligation, as well as a practical obligation for college and university leaders to meet net revenue and enrollment goals.

CHAPTER III

METHODS

Introduction

The purpose of this research was to understand how students consider finances when making college matriculation decisions. Understanding the impact of finances has become more important as the cost of attending college in the United States continues to rise each year, while the value of the need-based financial aid offers have decreased (Long & Riley, 2007; St. John et al., 2013). Previous research studies on student price responsiveness at individual institutions found that, as the amount of tuition increased or the amount of financial aid decreased, the enrollment decreased (Carter & Curry, 2011; Curs & Singell, 2002; Curs & Singell, 2010; DesJardins, 2001; Monks, 2009; Singell & Stone, 2002; Van Der Klaauw, 2002). Studies that specifically analyzed nonresident student price responsiveness found that declines in nonresident student enrollment resulted in tuition revenue losses which negatively impacted budget stability (Curs & Singell, 2002; Curs & Singell, 2010; DesJardins, 2001; Noorbakhsh & Culp, 2002; Singell & Stone, 2002). Understanding the impact of increases in net price for students, particularly nonresidents, is more important now more than ever. Without accurate and relevant data to inform decisions, policy makers and university administrators may increase nonresident tuition costs such that enrollment will decline, and with it tuition revenues. In the early 1990s this happened in Pennsylvania when the Board of Governors

of the Pennsylvania System of Higher Education increased nonresident tuition dramatically despite warnings to expect significant declines in nonresident enrollments:

While aware that tuition was an effective enrollment management tool for nonresident students, it appears the State System did not adequately understand the access problem . . . Declines in nonresident enrollments actually shifted more of the burden of the fixed cost to state taxpayers and resident students. (Noorbakhsh & Culp, 2002, p. 285)

System governing boards and university leaders must understand the price elasticity of demand to set tuition prices and offer financial aid appropriately to enroll a new nonresident student class.

This study expands the understanding of how finances impact the college choice process in two ways. First, previous research has been quantitative, creating omitted variable bias. For this research, I used an emergent, explanatory sequential mixed methods design (Creswell & Plano Clark, 2011), collecting quantitative data first and then explaining the quantitative results with in-depth qualitative inquiry. Second, previous research has focused upon first-time freshmen. For this study, I analyzed the college matriculation decision for both first-time freshmen and transfer students. In this chapter I discuss the research design. I explain how the data were collected and analyzed for the quantitative study. Next, I explain how the study participants were chosen for the qualitative strand of the study. Then, I detail the qualitative strand including the interview protocol and the data analysis.

Research Questions

1. a. Do increases in nonresident net price result in a decrease in nonresident freshman student enrollment?
b. For which freshman students is the enrollment decrease significant?
2. a. Do increases in nonresident net price result in a decrease in nonresident transfer student enrollment?
b. For which transfer students is the enrollment decrease significant?
3. Of the freshman and transfer students who demonstrate a significant decrease in enrollment, which type of students has the greatest odds of not enrolling because of increases in net price?
4. How do individual students in the student group which appears to have the most elastic response to net price consider finances when they are making enrollment decisions?
 - a. How do enrolled students perceive finances in their enrollment decisions?
 - b. How do non-enrolled students perceive finances in their enrollment decisions?

Research Design

A mixed methods design (see Figure 1) was the best choice for this study because one method alone was not sufficient to fully understand the complexity of students' college choice decisions and the impact of finances. The current literature on student responses to increases in tuition or offers of financial aid has focused only upon quantitative data collection and analysis.

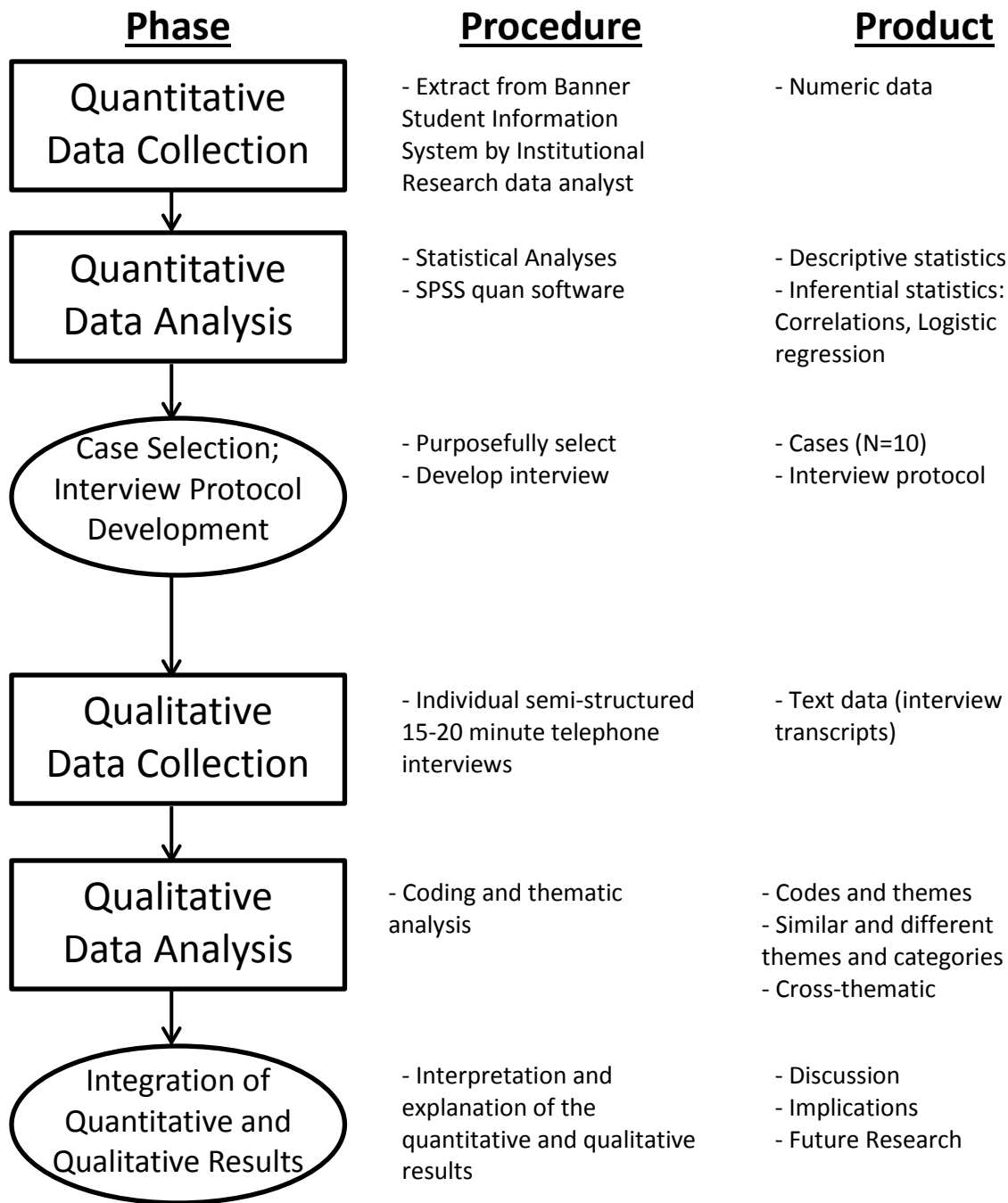


Figure 1. Mixed Methods Design.

One drawback of this approach is that there are many factors, in addition to the financial aid offer or tuition price, which may influence a student's decision to enroll, and these alternative options are often missing from the studies, creating omitted variable bias (DesJardins, 2001; Riegg, 2008). By adding qualitative data collection and analysis to this study, I controlled for the potential of omitted variable bias by learning more about how finances impacted the individual student's college choice beyond what the quantitative results explained.

This research problem called for mixed methods because one data source was not sufficient, results needed to be explained, and the quantitative study was enhanced by a second method. These are three of the six reasons that Creswell and Plano Clark (2011) outline for the choice of mixed methods research. "According to the fundamental principle of mixed research, it often should involve the combining of quantitative and qualitative methods, approaches and concepts that have complementary strengths and nonoverlapping weaknesses" (Onwuegbuzie & Johnson, 2006, p. 51).

To produce the strongest study, to combine the methods in the most meaningful and effective way, the sequential explanatory research design was chosen. According to Creswell and Plano Clark (2011), in a sequential explanatory design, the qualitative phase helps to explain the quantitative results. In this design, sampling occurs at two points: once for the quantitative phase and then once for the qualitative phase. Typically the emphasis is on the quantitative phase and the qualitative follow-up should be with a smaller sample of individuals who participated in the quantitative phase initially. The selection of the sample for the qualitative phase should be made based upon statistically

significant results or statistically non-significant results, key significant predictors, variables that distinguish between groups, distinguishing demographic characteristics, or outlier/extreme cases. Sampling which calls for volunteers is not recommended because this sampling procedure makes weaker connections to the quantitative results (Creswell & Plano Clark, 2011).

Mixing in the sequential explanatory design can take two forms: (1) connecting quantitative and qualitative phases of the study through selecting the participants for the second phase and developing qualitative data collection protocols grounded in the results of the statistical tests and (2) integrating quantitative and qualitative results while discussing the outcomes of the whole study and drawing implications. Such mixing of the quantitative and qualitative methods results in higher quality of inferences (Tashakkori and Teddlie, 2003) and underscores the elaborating purpose of the mixed-methods sequential explanatory design. (Ivankova, Creswell, & Stick, 2006, p. 17)

In this study, the quantitative data provided a general picture of the problem, and the qualitative data explained the results and individual's views regarding their college search and choice. The quantitative and qualitative phases of the study were connected through the selection of the participants for the qualitative phase using the results of the statistical tests from the quantitative phase. The results of both quantitative and qualitative phases were integrated and inferences were made based upon both phases for drawing implications at the end of the study.

Site Selection

To understand nonresident student price responsiveness at an individual university, a highly-selective master's comprehensive university (the University) in the southeast was selected. The University is part of a state system in a state that has

historically assumed a progressive stance on higher education. The state embraces a low-tuition, high-aid model (LH) for in-state residents (St. John et al., 2013); but, the system offers large amounts of financial aid to nonresident students only if they are awarded a full academic scholarship. This financial aid is awarded in the form of an out-of-state tuition waiver. For the 2014-2015 academic year the state governing board assessed an out-of-state tuition surcharge on students attending the University. Because no institution-level research had been conducted to date on how increases in nonresident tuition would impact enrollment, nonresident new student enrollment was historically unpredictable, and there was a willingness to learn more about student price responsiveness, this university was purposefully chosen as the site for the research. According to Noorbakhsh and Culp (2002), “It is not surprising that administrators of public institutions have paid little attention to the development of formal pricing strategies for their products” (p. 278). This public University relies upon state appropriations and student tuition as revenue sources. The institutional costs (i.e., tuition, fees, room and board) must be approved by the state’s governing board; therefore, the institution has little control over the pricing structure. The University offers primarily state and federal grants and loans, with some tuition dollars supporting institutional grants and private endowments supporting institutional scholarships. No institutional scholarships are targeted directly to nonresident students, and the nonresident students who receive the largest amounts of institutional scholarships are student athletes. However, University leaders have limited understanding of how even nominal increases

in institutional costs or financial aid offers impact nonresident student enrollment demand.

As noted, aggregate estimates of tuition elasticity are useful for broad national policy decisions, but are less helpful, and may even mislead senior administrators at a given university . . . Thus, aggregate assessments of tuition elasticity are, by definition, less appropriate for understanding demand at any individual university. (Carter & Curry, 2011, p. 1188)

For the quantitative analysis, the last four years or the admitted classes for fall 2009, fall 2010, fall 2011 and fall 2012, were chosen to develop a longitudinal understanding of how nonresident student matriculation decisions were impacted by the increases in institutional costs for those years. Also, the last four years were important in that the dollar amount and percentage increase over this period of time had been more than the dollar amount for the previous four years for nonresident students (see Table 1 and Table 2). The increase from fall 2005 to fall 2008 was 12% or \$2,092 compared to the increase from fall 2009 to fall 2012 of 17% or \$3,605. For the qualitative analysis, the sample included a select group of admitted students for fall 2014. The institutional cost for nonresident students increased to \$26,605 per year in fall 2014, an 8% increase or \$2,128 since fall 2012. These increases in institutional costs were found in the University's Fact Book archives.

Table 1

Nonresident Institutional Costs with Percentage Increase and Dollar Amount from Previous Year (Fall 2009–Fall 2013)

Tuition & Fees	2009–2010	2010–2011	2011–2012	2012–2013	Cumulative Increase
Out-of-State	\$20,872	\$22,532	\$23,735	\$24,477	\$3,605
	5%, \$945	8%, \$1,660	5%, \$1,203	3%, \$742	17%

Table 2

Nonresident Institutional Costs with Percentage Increase and Dollar Amount from Previous Year (Fall 2005–Fall 2009)

Tuition & Fees	2005–2006	2006–2007	2007–2008	2008–2009	Cumulative Increase
Out-of-State	\$17,836	\$18,889	\$19,348	\$19,927	\$2,902
	2%, \$435	6%, \$1,053	2%, \$460	3%, \$579	12%

Quantitative Strand

The purpose of the quantitative strand was to understand statistically whether increases in nonresident net price resulted in decreased student enrollment, and for which types of students was the decreased enrollment most significant. The statistical analyses used to answer RQ1, RQ2, and RQ3 conducted in the quantitative strand revealed an understanding of the price responsiveness of nonresident freshmen and transfer students by need and ability, providing university leaders with information to understand the probability of enrollment.

Data Collection

A staff member in the Office of Institutional Research provided a data set of new nonresident students admitted to the university for four years, fall 2009 to fall 2012. The fall semester admitted classes were used because the majority of students admitted to the university each year are admitted in the fall semester. In total the data set included 8,061 students. Within this data set were 238 international students whose race was coded as nonresident alien. Because international students' decisions to pursue education abroad would differ from American students' decisions to pursue education in another state, the 238 students were excluded from the study. After excluding the international students, the data set included 7,823 students—7,025 freshmen and 798 transfer students. This data set included variables revealed in the literature as being predictors of college enrollment. Many of these are variables that must be controlled for omitted variable bias (Riegg, 2008) include demographic characteristics, academic ability, and socio-economic status. The 15 variables included the following: (a) cohort year indicated the year of admission from 2009 to 2012; (b) student type categorized students as applying as freshmen or transfer students; (c) enrollment indicator categorized students as having enrolled or not enrolled; (d) student residence categorized students as living in a non-border state or a border state of Virginia, South Carolina, Georgia, or Tennessee and used as a proxy for distance from home; (e) race which was used to remove the nonresident alien (international) students from the data set; (f) race category which categorized students as white or minority; (g) sex of male or female; (h) transfer grade point average (GPA) earned at the prior institution; (i) SAT traditional two-score total and students who only

reported an ACT have a converted score in this field according to the ACT to SAT concordance table used by the analyst in Institutional Research; (j) high school grade point average (GPA); (k) predicted grade point average (PGPA) calculated by the university at the time of application; (l) FAFSA indicator of whether the student submitted a FAFSA to the University; (m) estimated family contribution (EFC); (n) student athlete indicator; and (o) net price as total institutional costs less financial aid offered and calculated by the data analyst in Institutional Research. Students categorized as freshmen had missing variables for transfer GPA. Students categorized as transfers had missing variables for SAT, high school GPA, and PGPA. Student athlete status is a unique variable that I have not observed in any other study; however, it is an important variable for understanding nonresident student price responsiveness at this university. The most valuable institutional merit or talent scholarships available for nonresident students are received by student athletes. The student data were then classified into categories suggested in the review of literature.

Net Price

To understand the impact of finances on the college choice decision, the net price was used as the measurement for financial consideration. The net price was defined as the total institutional costs less financial aid offered. More specifically, the total institutional costs included tuition, fees, room and board. The financial aid offered includes grants and institutional scholarships. Loans and work-study, as forms of re-payable financial aid, were not used in the net price calculation. “The net price variable varies across time due to changes in tuition charges and aid generosity and varies across individuals due to

difference in financial aid packages” (Curs & Singell, 2010, p. 521). Using this formula, a dollar increase in scholarships and grants is equivalent to a dollar decrease in the institutional cost.

Academic Ability Categories

To answer RQ1b and RQ2b, students were classified into levels of academic ability following a model similar to Curs and Singell (2010): less-able, somewhat-able, high-ability. To determine the level of academic ability of freshmen students admitted to the university, I analyzed the distribution of PGPA’s. The PGPA is calculated by the university using a formula that includes the standardized test score (SAT) and the high school GPA, with primary weight to the high school GPA. The PGPA is highly correlated with the first year grade point average, and considered to be a strong measure of a student’s ability to be successful at the University in the first year. I chose to analyze the distribution of scores rather than utilize the university’s classification of academic ability because, unlike in Curs and Singell, there are no scholarship programs for nonresident students which provide any guidance on the academic ability categorization. The distribution of PGPA was normal (see Figure 2); so, to determine the three categories I used the percentile function in SPSS to determine the 25th percentile and the 75th percentile and used these PGPA data points as ranges to create the academic ability categories.

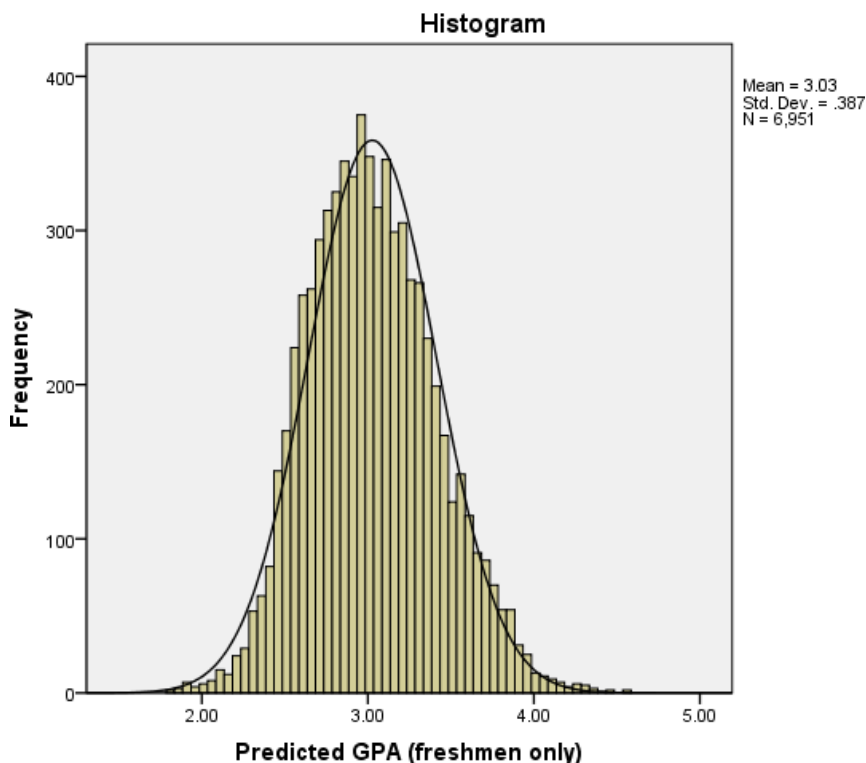


Figure 2. Distribution of Admitted Nonresident Freshmen Predicted Grade Point Averages.

Students with $PGPA < 2.75$ were assigned a value of “1” and categorized as “less-able” ($n = 1,710$). Students with $PGPA \geq 2.75$ & < 3.28 were categorized as “somewhat-able” ($n = 3,469$). Students with $PGPA > 3.28$ were categorized as “high-ability” ($n = 1,772$). In the data set, there were 74 students with missing PGPA's. To determine the level of academic ability of transfer students admitted to the university, I analyzed the distribution of transfer GPAs. The distribution of this variable was also normal and therefore the same rationale was used for determining the transfer GPA categories: Students in the “less-able” category ($n = 130$) had $TransferGPA < 2.73$. Students in the “somewhat-able” ($n = 285$) category had $TransferGPA \geq 2.73$ & < 3.53 . Students in the

“high-ability” category ($n = 147$) had $TransferGPA > 3.53$. There were 236 students missing a transfer GPA.

Financial Need Categories

To answer RQ1b and RQ2b, the student data for financial need were divided into three categories following a similar model to Curs and Singell (2010) and Singell and Stone (2002): non-needy, somewhat-needy, and needy. Students who did not complete a FAFSA or whose EFC exceeded the University’s cost of attendance (COA) for awarding financial aid were categorized as “non-needy” and assigned a value of “1.” The students who had EFC greater than the Pell Grant amount, but less than the cost of attendance for the University for each cohort year were categorized as “somewhat-needy” and assigned a value of “2.” The “somewhat-needy” students were eligible for financial aid in the form of grants or institutional need-based scholarships at the University. The EFC used by the federal government for each cohort year to determine Pell Grant eligibility was used to determine whether a student was “needy” and assigned a value of “3” (see Table 3).

Table 3

Financial Need Categories

Cohort Year	Needy	Somewhat Needy	Non-Needy*
2009	$EFC \leq \$4617$	$EFC = (> \$4617 \ \& \ \leq \$25332)$	$EFC > \$25332$
2010	$EFC \leq \$4617$	$EFC = (> \$4617 \ \& \ \leq \$26773)$	$EFC > \$26773$
2011	$EFC \leq \$5273$	$EFC = (> \$5273 \ \& \ \leq \$29169)$	$EFC > \$29169$
2012	$EFC \leq \$4995$	$EFC = (> \$4995 \ \& \ \leq \$30679)$	$EFC > \$30679$

*Non-Needy also included students who had not submitted a FAFSA (Submitted a FAFSA = 2)

The “needy” students were eligible for Pell Grant and many other forms of financial aid in the form of grants or institutional need-based scholarships at the University. After categorizing the financial need and academic ability variables, the final data set to be used for the quantitative analysis included seventeen variables (see Table 4).

Table 4

List of Variables: Admitted Students Fall 2009–Fall 2012

Variable	Values
Decision to Enroll	Enrolled=1; Not Enrolled=0
Net Price	Institutional Cost minus (Institutional Scholarships + Grants)
Cohort Year	2009; 2010; 2011; 2012
Student Type	Freshman=1; Transfer=2
Student Residence	Border State Resident=1; Non-Border State Resident=2
Race	White=1; Minority=2
Sex	Male=2; Female=2
SAT	highest reported SAT, critical reading and math only (excludes writing)
High School GPA	cumulative high school grade point average reported on transcript
Predicted GPA	predicted first-year GPA calculated by the University at application
Transfer GPA	college grade point average reported from last institution attended
Expected Family Contribution	dollar amount figured by FAFSA completion
Submitted a FAFSA	Submitted FAFSA=1; No FAFSA Submitted=2

Table 4

(Cont.)

Variable	Values
Student Athlete	Student Athlete=1; Not Student Athlete=2
PGPA Category	Less-Able=1; Somewhat-Able=2; High-Ability=3
Transfer GPA Category	Less-Able=1; Somewhat-Able=2; High-Ability=3
Financial Need Category	Non-Needy=1; Somewhat-Needy=2; Needy=3

Data Analysis

The quantitative data were analyzed to answer RQ1, RQ2, and RQ3 resulting in the emergence of the student population for the qualitative strand of the study. To analyze the quantitative data, I used descriptive statistics, correlations, and logistic regression: “Logistic regression is a technique for fitting a regression surface to data in which the dependent variable is a dichotomy” (Howell, 2013, p. 556). Since the dependent variable in this study, decision to enroll, has only two responses of enrolled or not enrolled, logistic regression seemed to be the best choice for analysis. The logistic regression allowed me to predict the odds of enrollment based upon net price.

RQ1a: Do increases in nonresident net price result in a decrease in nonresident freshman student enrollment?

For this question, my hypothesis was that increases in nonresident net price over four years resulted in a decrease in freshman nonresident student enrollment. To answer this question, I first calculated descriptive statistics and graphed the data to help visualize the patterns and relationship between net price and enrollment each year and over the five

year period. Then, I ran correlations to understand the relationships among the variables. Finally, I utilized the binary logistic regression function in SPSS to determine the odds of a freshman student enrolling for net price values of \$0 to \$25,000 in \$5,000 increments.

RQ1b: For which freshman students is the enrollment decrease significant?

To answer this question, I utilized the categories of academic ability and financial need resulting in nine groups of freshmen students: (a) less-able, non-need; (b) less-able, somewhat-need; (c) less-able, need; (d) somewhat-able, non-need; (e) somewhat-able, somewhat-need; (f) somewhat-able, need; (g) high-ability, non-need; (h) high-ability, somewhat-need; and, (i) high-ability, need. I utilized the binary logistic regression function in SPSS and tested the hypothesis that, when considering net price, academic ability and financial need have some additional predictive value for enrollment decision. Finally, I determined the odds of a freshman student enrolling as net price increases from \$0 to \$25,000 in \$5,000 increments based upon academic ability and financial need.

RQ2a: Do increases in nonresident net price result in a decrease in nonresident transfer student enrollment?

For this question, my hypothesis was that increases in nonresident net price over four years resulted in a decrease in transfer nonresident student enrollment. For this question, I used the same analyses as described to answer RQ1 that included descriptive statistics, correlations, and logistic regression.

RQ2b: For which transfer students is the enrollment decrease significant?

To answer this question, I utilized the categories of academic ability and financial need resulting in nine groups of transfer students. I used the same logistic regression as described to answer RQ1.

RQ3: Of the freshman and transfer students who demonstrate a significant decrease in enrollment, which type of students has the greatest odds of not enrolling because of increases in net price?

After understanding the log odds and odds ratios of enrollment for freshmen and transfer students by academic ability and financial need, I compared the outputs for these 18 distinctive groups to identify the category of students by need and ability which illustrated the most significant response to net price.

Through the quantitative analysis, I developed an understanding of how nonresident students responded to net price when making their college matriculation decisions.

Qualitative Strand

The purpose of the qualitative strand was to learn about the unobserved, random utility differences in students' decision making (Van Der Klaauw, 2002), as well as to understand the amount of aid offered at the selected institution for those students who did not enroll (DesJardins, 2001). "Qualitative interviewing begins with the assumption that the perspective of others is meaningful, knowable, and able to be made explicit. We interview to find out what is in and on someone else's mind, to gather their stories" (Patton, 2002, p. 341). The statistical analyses I conducted in the quantitative strand

identified the particular types of students who had the most significant response to net price. To understand more about this student group's enrollment response, I chose to conduct semi-structured interviews with students who had been admitted for the fall semester 2014. "Interviewing is necessary when we cannot observe behavior, feelings, or how people interpret the world around them. It is also necessary to interview when we are interested in past events that are impossible to replicate" (Merriam, 1988, p. 72). Because the quantitative results do not explain all of the reasons that a student may or may not have enrolled at the university, additional data are needed to understand the student's decision-making process. Students admitted for fall semester 2014 were interviewed because their decision to enroll or not to enroll was made within the past year, and still fresh on their minds. Also, they had not yet attended a university. I selected students admitted for fall 2014 because it was important to understand the timing of the student decision when the decision is being made (DesJardins, 2001), and I was able to talk with students admitted for fall 2014 during the month of August, soon after they made their college choice decision and before they enrolled at their selected college.

Data Collection

At this point, I requested a new data set from the staff member in the Office of Institutional Research. Included in the data set were students who had been admitted for fall semester 2014, who were 18 years of age or older, and who shared the characteristics of the identified student group ($N = 195$). This homogenous sampling allowed me to describe the student group in depth (Glesne, 2010). The data set included the student name, personal email address, academic ability category, and whether the student had

indicated or not indicated intent to enroll at the university beginning fall semester 2014. Within this identified student sample, there were two groups: (a) those students who had indicated intent to enroll at the University for fall semester 2014 by submitting their enrollment deposit by May 1 ($n = 51$); and (b) those students who had indicated intent not to enroll at the University for fall semester 2014 by withdrawing their application or by not submitting their enrollment deposit by May 1 ($n = 144$). Within the two categories, I planned to interview 24 total students, 12 students from each enrollment category, and to conduct the interviews during the month of August, as approved by the Institutional Review Board. Conducting the interviews prior to the start of the academic year was important in ensuring that students were more likely to remember their recent college choice decision and why they chose a particular institution without being influenced by attendance.

To recruit participants, I sent an email (see Appendix A) to the students based upon their college choice decision, explaining the purpose of the research and my request to contact them via telephone for a 15–20 minute interview. Once participants electronically agreed to participate and therefore offered consent, interview sessions were scheduled (see Appendix B). The first interview occurred on August 4 and the final interview was conducted on September 9. Interviews took place via telephone and were conducted by the researcher with one researcher and one participant per interview. Interviews were recorded using an audio recording device and immediately transferred to a password-protected computer. I transcribed all interviews and assigned pseudonyms to

each participant in order to protect their identities and minimize any negative effects that may occur from participating in this study.

A standardized open-ended interview format was chosen because “This approach requires carefully and fully wording each question before the interview” (Patton, 2002, p. 344). The standardized open-ended interview is the best choice for this study because it was only possible to interview participants once. I had only a short amount of time for the telephone interviews; therefore, I needed to use the time efficiently and prioritize my highly focused questions. An interview protocol, as suggested by Creswell (2013), was used to help maintain consistency when conducting each of the interviews. This exact interview protocol is now available for those using the findings of the study, which is also a strength of the standardized open-ended interview. Finally, using the standardized open-ended interview facilitates analysis, as responses are easy to find and compare (Patton, 2002).

Interview questions were developed to more fully address the research questions in the study, particularly those not answered in the quantitative analysis, and to control for omitted variable bias (see Appendix C). Questions covered topics such as why the student chose another university, the financial aid offer at the other university, and whether finances played a role in the college choice decision. Participants were encouraged to be as open and honest as possible and encouraged to elaborate on answers when further clarification or detail was deemed necessary by the researcher. This exploratory phase helped to control for the omitted variable bias found in most price

responsiveness studies, providing breadth and depth to the study of student price responsiveness.

Data Analysis

The qualitative data were analyzed to answer research question four:

RQ4: How do individual students in the student group which appears to have the most elastic response to net price consider finances when they are making enrollment decisions?

- a. How do enrolled students perceive finances in their enrollment decisions?*
- b. How do non-enrolled students perceive finances in their enrollment decisions?*

To analyze the qualitative data I used an inductive approach. This approach was theoretically congruent with post-positivist and constructivist assumptions (Hatch, 2002), and was therefore a match for my research paradigm. With this approach I utilized Hatch's (2002) view of qualitative data analysis: "organizing and interrogating data in ways that allow researchers to see patterns, identify themes, discover relationships, develop explanations, make interpretations, mount critiques, or generate theories" (p. 148). The inductive method proceeds from specific to general and searches for patterns of meaning in the data. First, I read the data to identify frames of analysis. Then I utilized descriptive coding, making notes of the quotations that were most salient to my research. This step enabled me to begin to understand the qualitative results: "Coding is only the initial step toward an even more rigorous and evocative analysis and interpretation for a report" (Saldana, 2009, p. 8). Then, I reread the data, refining the salient codes. Next, I

reviewed those descriptive statements and searched for patterns, grouping the descriptive comments into generalizable themes. Finally, I created a master outline expressing relationships within and among the themes. Using this inductive method, I was able to remain open to new possibilities in my research, rather than only seeking answers that would be supported by the literature review. The codes and themes that emerged during the inductive coding process helped me better understand how finances impacted the college choice decision.

Chapter Summary

With the increases in tuition and decreases in financial aid offered in the past decades, access to college has become more limited for students. The purpose of this research project was to understand how increases in net price can impact a nonresident student's college enrollment decision at a particular university in the southeast whose state system continues to increase nonresident tuition cost, without fully understanding potential impacts to nonresident student enrollment. For this research, I used an emergent, explanatory sequential mixed methods design (Creswell & Plano Clark, 2011), collecting and analyzing quantitative data first and then explaining the quantitative results with in-depth qualitative inquiry and analysis. This study revealed which group of freshmen and transfer students are more responsive to fluctuations in net price. Then, it explained the results beyond the numbers to understand more about how finances have impacted the individual student's college choice decision.

CHAPTER IV

RESULTS

The purpose of this study was to understand how admitted students responded to price in their college enrollment decisions at a highly selective public master's comprehensive university in the southeast. This study expanded upon the current research by exploring other variables that can explain the relationship between nonresident student matriculation decisions related to price by using an emergent, explanatory sequential mixed methods design. It also expanded upon prior research, which generally focuses upon only freshmen students, by considering a quantitative analysis of transfer student enrollment decisions. The results of this study are important for policy makers, system governing boards, and university leaders responsible for setting tuition prices and financial aid offers. In the previous chapter, the methods for answering each research question were defined with an explanation of how the quantitative results would inform the qualitative sampling. In the following chapter I present the quantitative and qualitative results. Then, I integrate the quantitative and qualitative results and draw inferences available with a mixed-methods sequential explanatory design.

Quantitative Results

The purpose of the quantitative strand was to statistically understand whether increases in net price resulted in decreased nonresident student enrollment. If decreased student enrollment occurred, for which categories of admitted students, by need and

ability, were the odds of enrollment most significant? A data set of freshmen ($N = 7,025$) and transfer students ($N = 798$) admitted to the University from fall 2009 to fall 2012 was provided by the Institutional Research office at the University. Students in the data set were divided into nine categories by financial need (needy, somewhat-needy, non-needy) and ability (high-ability, somewhat-able, less-able). These data were analyzed to answer the quantitative research questions.

Of the 7,025 freshmen students admitted over four years (see Table 5), only 1,216 or 17.3% of the students chose to enroll at the University. Most freshmen students, or 57.1% of those admitted, submitted a FAFSA. The average EFC for the admitted freshmen students was \$26,954, with a range of \$0 to \$100,059. The average net price was \$22,156, with a range of -\$12,736 to \$24,477. On average, the EFC for admitted freshmen students was greater than the average net price required for nonresident students to attend the University. As a highly selective university, the academic profile of the admitted freshmen was strong with a mean SAT of 1178, high school GPA of 3.84, and PGPA of 3.03. Students admitted were overwhelmingly white (89.0%), and therefore the racial categorization used was white or minority as the numbers for individual racial categories were too small for analysis.

Table 5

Count of Variables: Freshmen Admitted Students Fall 2009–Fall 2012 ($N = 7,025$)

Variable	Value	Frequency
Decision to Enroll	Enrolled	1,216 (17.3%)
	Non-Enrolled	5,809 (82.7%)

Table 5

(Cont.)

Variable	Value	Frequency
Cohort Year	2009	1,621 (23.1%)
	2010	2,488 (35.4%)
	2011	1,480 (21.1%)
	2012	1,436 (20.4%)
Home State	Border State	4,007 (57.0%)
	Non-Border State	3,018 (43.0%)
Race	White	6,253 (89.0%)
	Minority (non-White)	614 (8.7%)
	Missing/Blank	158 (2.2%)
Gender	Male	2,755 (39.2%)
	Female	4,270 (60.8%)
FAFSA	Submitted FAFSA	4,010 (57.1%)
	No FAFSA Submitted	3,015 (42.9%)
Athletic Status	Student Athlete	202 (2.9%)
	Not Student Athlete	6,823 (97.1%)
SAT	<i>n</i>	6,999
	<i>M</i>	1177.56
	Range	650-1600
High School GPA	<i>n</i>	6,999
	<i>M</i>	3.84
	Range	1.72-5.84
Predicted GPA	<i>n</i>	6,951
	<i>M</i>	3.03
	Range	1.81-4.57
Expected Family Contribution	<i>n</i>	3,972
	<i>M</i>	\$26,954.47
	Range	\$0.00-\$100,059.00
Net Price	<i>n</i>	7,025
	<i>M</i>	\$22,155.89
	Range	-\$12,736.26-\$24,477.00

Table 6 compares those admitted freshmen students based upon their enrollment decisions. Enrolled freshmen students were more likely to submit a FAFSA (74.1%) compared to non-enrolled students (53.5%). The average EFC for the enrolled and non-enrolled freshmen students was nearly equal, \$26,983.70 and \$26,946.03, respectively. The average net price for enrolled students was \$20,307.15, slightly less than the average net price for non-enrolled students (\$22,542.89). Non-enrolled students presented higher academic credentials with a mean SAT of 1184, high school GPA of 3.87, and PGPA of 3.05 compared to that of enrolled students with a mean SAT of 1144, high school GPA of 3.70, and PGPA of 2.90. The percentage of minority students who enrolled at the University (10.9%) was greater than the percentage that did not enroll (8.3%).

Table 6

Count of Variables: Enrolled ($n = 1216$) vs. Non-Enrolled ($n = 5809$) Freshmen Students

Variable	Value	Enrolled	Non-Enrolled
Home State	Border State	670 (55.1%)	3,337 (57.4%)
	Non-Border State	546 (44.9%)	2,472 (42.6%)
Race	White	1,058 (87.0%)	5,195 (89.4%)
	Minority (non-White)	132 (10.9%)	482 (8.3%)
	Missing/Blank	26 (2.1%)	132 (2.3%)
Gender	Male	507 (41.7%)	2,248 (32.7%)
	Female	709 (58.3%)	3,561 (61.3%)
FAFSA	Submitted FAFSA	901 (74.1%)	3,109 (53.5%)
	No FAFSA Submitted	315 (25.9%)	2,700 (46.5%)
Athletic Status	Student Athlete	194 (16.0%)	8 (0.1%)
	Not Student Athlete	1,022 (84.0%)	5,801 (99.9%)

Table 6

(Cont.)

Variable	Value	Enrolled	Non-Enrolled
SAT	<i>n</i>	1,214	5,785
	<i>M</i>	1144	1184
	Range	640-1490	810-1600
High School GPA	<i>n</i>	1,214	5,785
	<i>M</i>	3.70	3.87
	Range	1.91-5.81	1.72-5.84
Predicted GPA	<i>n</i>	1,212	5,739
	<i>M</i>	2.90	3.05
	Range	1.81-4.57	1.90-4.55
Expected Family Contribution	<i>n</i>	890	3,082
	<i>M</i>	\$26,983.70	\$26,946.03
	Range	\$0.00-\$99,999	\$0.00-\$100,059
Net Price	<i>n</i>	1,216	5,809
	<i>M</i>	\$20,307.15	\$22,542.89
	Range	-\$12,736.26-\$24,477	\$11,259-\$24,477

Of the 798 transfer students admitted over four years (see Table 7), 321 or 40.2% of the students chose to enroll at the University. Most transfer students, or 60.8% of those admitted, submitted a FAFSA. The average EFC for the admitted transfer students was \$15,538, with a range of \$0 to \$99,999. The average net price was \$21,293, with a range of -\$11,881 to \$24,477.00. Therefore, the average net price was \$5,755 more than the average EFC for transfer students. The average transfer GPA from the prior institution attended was 3.13. As with freshmen students, transfer students admitted were overwhelmingly white (85.5%), and therefore the racial categorization used was white or minority as the numbers for individual racial categories were too small for analysis.

Table 7

Count of Variables: Transfer Admitted Students Fall 2009–Fall 2012 ($N = 798$)

Variable	Value	Frequency
Decision to Enroll	Enrolled	321 (40.2%)
	Non-Enrolled	477 (59.8%)
Cohort Year	2009	174 (21.8%)
	2010	269 (33.7%)
	2011	167 (20.9%)
	2012	188 (23.6%)
Home State	Border State	301 (37.7%)
	Non-Border State	497 (62.3%)
Race	White	682 (85.5%)
	Minority (non-White)	94 (11.8%)
	Missing/Blank	22 (2.8%)
Gender	Male	349 (43.7%)
	Female	449 (56.3%)
FAFSA	Submitted FAFSA	485 (60.8%)
	No FAFSA Submitted	313 (39.2%)
Athletic Status	Student Athlete	39 (4.9%)
	Not Student Athlete	759 (95.1%)
Transfer GPA	<i>n</i>	565
	<i>M</i>	3.13
	Range	1.00-4.00
Expected Family Contribution	<i>n</i>	480
	<i>M</i>	\$15,538.38
	Range	\$0-\$99,999
Net Price	<i>n</i>	798
	<i>M</i>	\$21,292.98
	Range	-\$11,880.74-\$24,477.00

Table 8 compares those admitted transfer students based upon their enrollment decisions. Enrolled transfer students were more likely to submit a FAFSA (72.0%)

compared to non-enrolled students (53.2%). The average EFC for the enrolled transfer students was \$19,191.18 compared to \$12,233.46 for non-enrolled students. The average net price for enrolled students was nearly equal to their EFC at \$19,888.99, while the average net price for non-enrolled students was \$22,237.81, more than \$10,000 above their EFC. Non-enrolled students presented higher academic credentials with a mean transfer GPA of 3.20 compared to that of enrolled students with a mean transfer GPA of 3.06. The percentage of minority students who enrolled at the University (16.5%) was greater than the percentage that did not enroll (8.6%).

Table 8

Count of Variables: Enrolled ($n = 321$) vs. Non-Enrolled ($n = 477$) Transfer Students

Variable	Value	Enrolled	Non-Enrolled
Home State	Border State	125 (38.9%)	176 (36.9%)
	Non-Border State	196 (61.1%)	301 (63.1%)
Race	White	259 (80.7%)	423 (88.7%)
	Minority (non-White)	53 (16.5%)	41 (8.6%)
	Missing/Blank	9 (2.8%)	13 (2.7%)
Gender	Male	157 (48.9%)	192 (40.3%)
	Female	164 (51.1%)	285 (59.7%)
FAFSA	Submitted FAFSA	231 (72.0%)	254 (53.2%)
	No FAFSA	90 (28.0%)	223 (46.8%)
	Submitted		
Athletic Status	Student Athlete	39 (12.1%)	0 (0.0%)
	Not Student Athlete	282 (87.9%)	477 (100%)
Transfer GPA	n	300	265
	M	3.06	3.20
	Range	1.33-4.00	1.00-4.00

Table 8

(Cont.)

Variable	Value	Enrolled	Non-Enrolled
Expected	<i>n</i>	228	252
Family	<i>M</i>	\$19,191.18	\$12,233.46
Contribution	Range	\$0.00-\$99,999.00	\$0-\$99,999.00
	<i>n</i>	321	477
Net Price	<i>M</i>	\$19,888.99	\$22,237.81
	Range	-\$11,880.74-\$24,477.00	\$12,536.00-\$24,477.00

RQ1a: Do increases in nonresident net price result in a decrease in nonresident freshman student enrollment?

For this question, my hypothesis was that increases in nonresident net price over four years would result in a decrease in freshman nonresident student enrollment. To answer this question, I used descriptive statistics and graphed the data to understand the patterns and relationship between net price and enrollment each year and over the four year period (see Figure 3). Results showed that enrollment change was -2.06% from 2009 to 2010 while average net price increased 7.45%; enrollment increased 13.68% from 2010 to 2011 while average net price increased 3.51%; and, enrollment decreased -2.47% from 2011 to 2012 while average net price increased 2.22%. Over the four year period, the new freshmen enrollment increased 8.59% (n=25) while average net price increased 13.68% (\$2,811). Using the formula for determining price elasticity, $E_p = \frac{\% \Delta Q_x}{\% \Delta P_x} < 0$ (DesJardins & Bell, 2006), the price elasticity is 0.63. As the elasticity is a value less than

one and all freshmen students do not appear to be responsive to a price change, then the freshman student enrollment demand is inelastic.

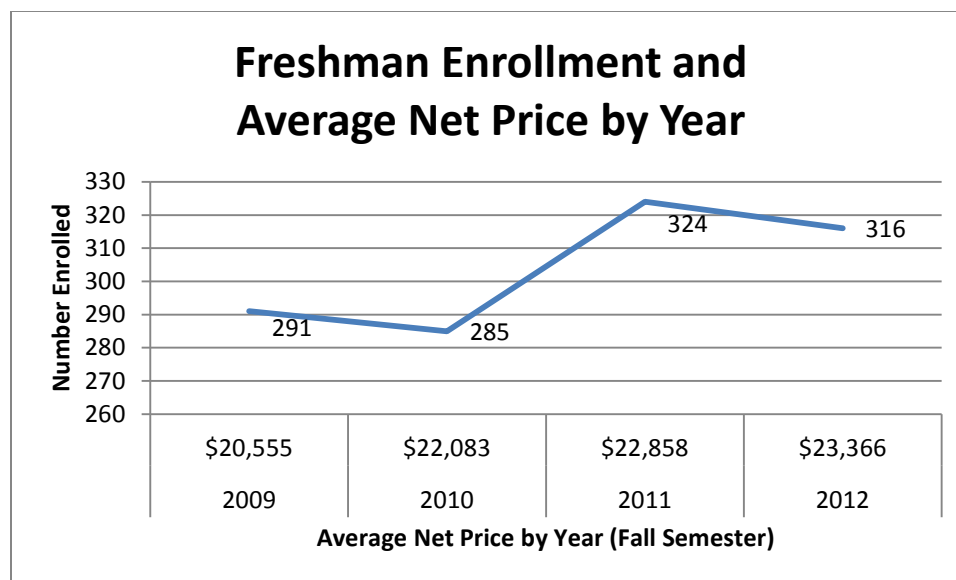


Figure 3. Freshman Enrollment and Average Net Price by Year.

Then, I used SPSS to run correlations between variables to better understand the data and a post-hoc analysis in G Power to understand the power. For all analyses where significance was found, the power was very high (.83-1.0) because of the large sample size. When power is very high and effect size is small or moderate, statistical significance will often be found (Howell, 2013). The variables of enrollment and net price had a negative relationship or $r = -0.27$ ($p < 0.01$). While the strength of the relationship between these two variables was moderate, the negative direction indicated that freshmen students tended to enroll as net price decreased and students did not enroll as net price increased. Other variables had a weak, significant correlation ($p < 0.01$) with enrollment: High School GPA, Predicted GPA, race, SAT Total, and Submitted a FAFSA. The

Student Athlete indicator and enrollment variables had a moderate, significant correlation (see Table 9). As enrollment occurred, high school GPA, predicted GPA, and SAT Total scores decreased. As enrollment occurred, FAFSA was submitted and students were more likely to be student athletes and minority. There was no significant relationship between enrollment and expected family contribution, sex, or student residence. The power for these analyses was very low, showing that the chance of finding a significant difference between enrollment and these variables is very low given the sample size and effect size.

Table 9

Freshman Enrollment Correlation Coefficients

Variable	Pearson Correlation	Sig (2-tailed)	<i>n</i>	Power
EFC	.001	.97	3,972	.00
High School GPA	-.136**	.00	6,999	1.0
Net Price	-.270**	.00	7,025	1.0
Predicted GPA	-.152**	.00	6,951	1.0
Race	.035**	.00	6,867	.82
SAT Total	-.137**	.00	6,999	1.0
Sex	-.023	.05	7,025	.49
Student Athlete	-.358**	.00	7,025	1.0
Student Residence	.018	.13	7,025	.33
Submitted a FAFSA	-.157**	.00	7,025	1.0

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

To understand admitted freshman student choice further, I utilized the binary logistic regression function in SPSS to determine the log odds, or natural logarithm of the

odds, of admitted freshman enrollment based upon net price. Decision to enroll was the dependent variable. Net price was the independent variable (see Figure 4).

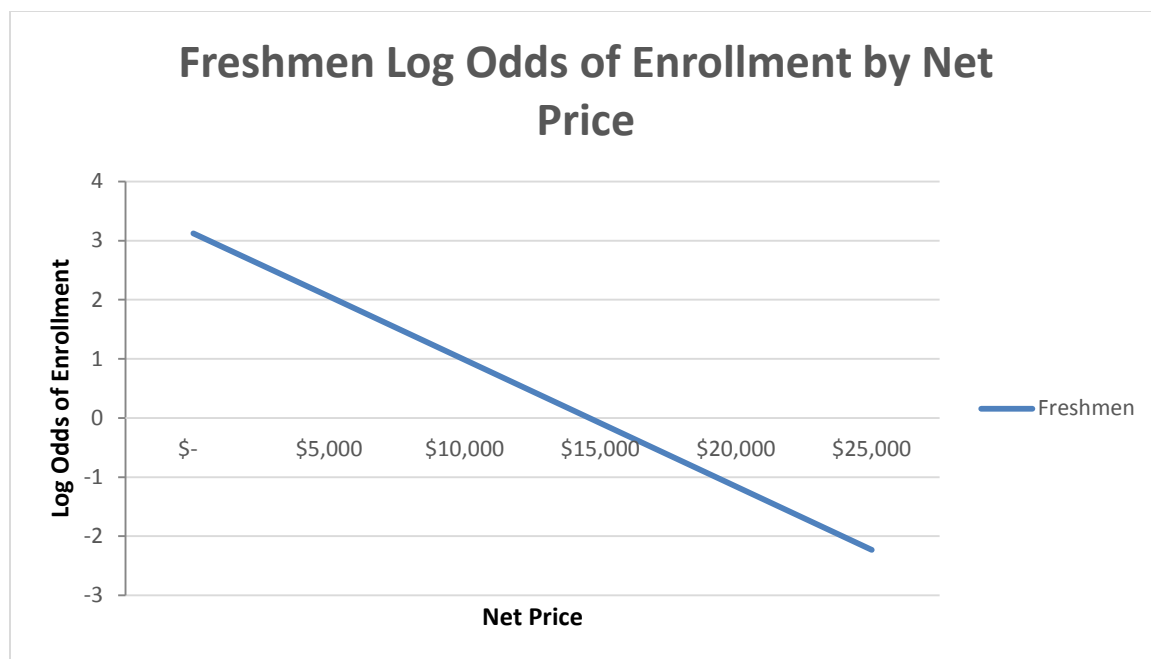


Figure 4. Freshmen Log Odds of Enrollment with Independent Variable Net Price.

This analysis resulted in a regression equation: $\text{Log odds} = (-.0002141635) * (\$) + 3.125$. The negative coefficient for enrollment indicates that the log odds go down as the net price increases. Using the log odds compresses the scale to make it more symmetric and more easily interpreted. If the log odds are less than one then the log odds will be negative; if greater than one then the log odds will be positive. When the net price approached \$15,000 the log odds of an admitted freshman student enrolling at the University became negative.

A more common way of interpreting the results of the logistic regression would be to convert the log odds to odds (see Figure 5). To figure the odds, I exponentiated the

coefficient (Howell, 2013). This analysis resulted in in a regression equation:

Odds = $\text{Exp}[(-.0002141635) * (\$) + 3.125]$. Thus, an admitted freshman student was 22.8 times more likely to enroll at the University when the net price was \$0; 7.8 times more likely when the net price was \$5,000; and 2.7 times more likely when the net price was \$10,000. Generally, an admitted nonresident freshman student was 25 times more likely to enroll when the net price was \$0 than when the net price was \$15,000.

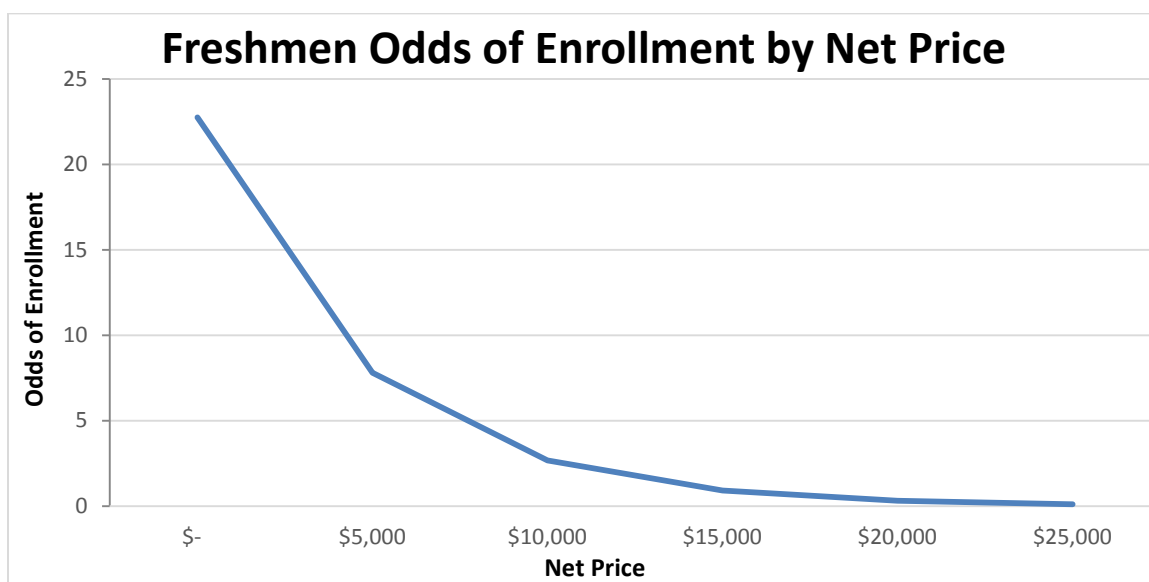


Figure 5. Freshmen Odds of Enrollment with Independent Variable Net Price.

In answering RQ1 about the total admitted freshmen population, the descriptive statistics indicated that increases in nonresident net price over four years did not result in a decrease in all freshman nonresident student enrollment. The correlations indicated a weak negative linear relationship between all freshmen enrollment decisions and net price. These results appeared to prove my hypothesis to be false: Increases in nonresident net price over four years did not result in a decrease in total freshman

nonresident student enrollment and the demand is inelastic. However, the logistic regression indicated that the odds of enrollment decreased as net price increased for a population of all freshmen students, illustrating an elastic demand. These results suggested a further need to understand which freshmen students were most price responsive in enrollment decisions.

RQ1b. For which freshman students is the enrollment decrease significant?

To answer this question, I utilized the binary logistic regression function in SPSS to determine an odds ratio to understand the log odds of a freshman student enrolling as net price increased based upon academic ability and financial need (see Table 10). The results (see Figure 6) illustrated that students in the less-able/high-need category had the largest negative slope or b-coefficient of -0.00049 followed by the somewhat-able/high-need category where $b = -0.00048$ and the high-ability/high-need category where $b = -0.00046$. The results for all three of these categories of students were statistically significant ($p < 0.05$).

Table 10

Count (n) of Admitted Freshmen by Academic Ability and Financial Need Categories

Academic Ability	Financial Need			Total
	Non-Needy	Somewhat Needy	High Need	
Less-Able	1146	371	180	1697
Somewhat-Able	2172	872	411	3455
High-Ability	1073	515	173	1761
Total	4391	1758	764	6913



Figure 6. Freshmen Log Odds of Enrollment by Academic Ability and Financial Need.

Other statically significant results were found for less-able/some-what needy, less-able/not needy, somewhat-able/not needy, and high-ability/not needy freshmen students. While the results were not significant, it was interesting to learn that the high-ability/somewhat-needy students and the somewhat-able/somewhat-needy students have negative log odds of attending the University even when the net price is \$0. That is, the probability that they will attend the University is zero for all values of net price.

A more common way of interpreting the results of the logistic regression would be to convert the log odds to odds (see Figure 7). Students who were less-able/high-need were 4,680 more times likely to enroll when the net price was \$0; 393.4 times more likely

to enroll when the net price was \$5,000; 33.1 times more likely when the net price was \$10,000; and 2.8 times more likely when the net price was \$15,000.

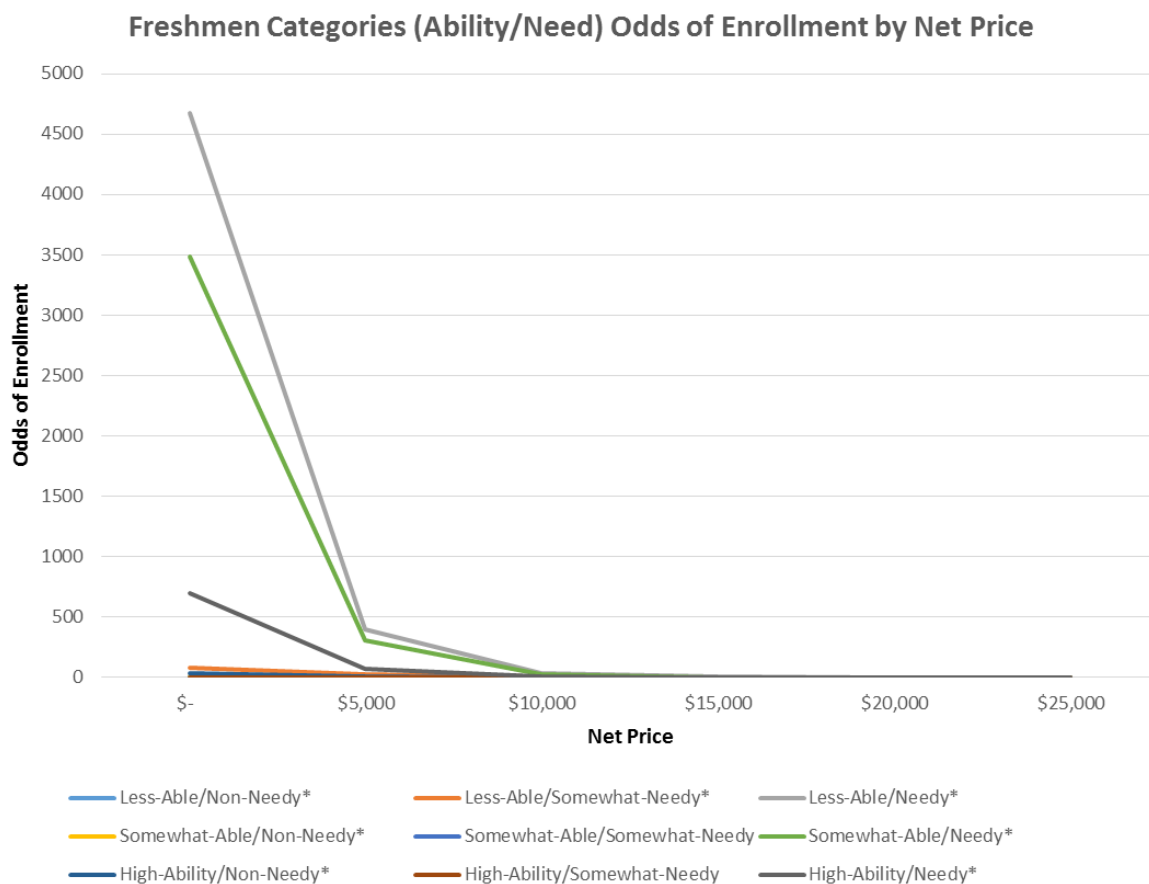


Figure 7. Freshmen Odds of Enrollment by Academic Ability and Financial Need.

As the logistic regression analysis for all freshmen students illustrated that the log odds of students enrolling became negative around \$15,000, Table 11 includes the odds of students enrolling by category at this net price value. In this scenario, the less-able/needy, less-able/somewhat-needy, and somewhat-able/needy students are more likely to enroll than the other six categories of students—even with a net price of \$15,000. This could mean that students in these categories are willing to take loans for

\$15,000 or pay out-of-pocket or a combination of these approaches. The students least likely to enroll are high-ability/somewhat-needy, followed by somewhat-able/somewhat-needy, and somewhat-able/non-needy. Perhaps these students have more college options and qualify for more merit aid at other institutions. Because the high-need admitted freshmen students had the largest negative slope or b-coefficient, and these findings were statistically significant, students in this category for all ability levels were considered to be the most responsive to price and had the enrollment decrease which was most significant as net price increases.

Table 11

Odds of Enrollment with Net Price \$15,000—Freshmen Students

	Non-Needy	Somewhat Needy	High Need
Less-Able	0.92*	2.41*	2.78*
Somewhat-Able	0.40*	0.27	2.29*
High-Ability	0.72*	0.00	0.66*

* $p < 0.05$

RQ2a: Do increases in nonresident net price result in a decrease in nonresident transfer student enrollment?

For this question, my hypothesis was that increases in nonresident net price over four years resulted in a decrease in nonresident transfer student enrollment. To answer this question, I used descriptive statistics and graphed the data to understand the patterns and relationship between net price and enrollment each year and over the four year period (see Figure 8). Results showed that nonresident transfer student enrollment increased

28.13% from 2009 to 2010 while average net price increased 5.41%; enrollment increased 10.98% from 2010 to 2011 while average net price increased 2.38%; and, enrollment change was -7.69% from 2011 to 2012 while average net price increased 0.57%. Over the four year period, the enrollment increased 31.25% (n=20) while average net price increased 8.54% (\$1,723). Using the formula for determining price elasticity, $E_p = \frac{\% \Delta Q_x}{\% \Delta P_x} < 0$ (DesJardins & Bell, 2006), the price elasticity is 0.27. As the elasticity is a value less than one and all transfer students do not appear to be responsive to a price change, then the transfer student enrollment demand is inelastic.

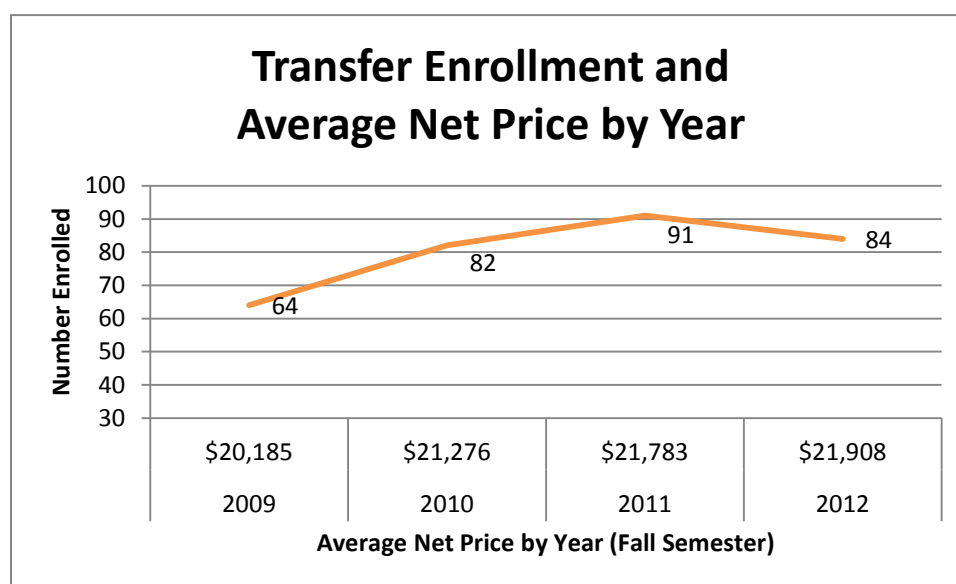


Figure 8. Transfer Enrollment and Average Net Price by Year.

As with the freshmen student analysis, I used SPSS to explore correlations to better understand the relationships between variables and a post-hoc analysis in G Power to understand the power. For all analyses where significance was found, the power was

very high (.68-1.0) because of the large sample size. When power is very high and effect size is small or moderate, statistical significance will often be found (Howell, 2013). The variables of enrollment and net price had a negative relationship or $r = -.24$ ($p < 0.01$). While the strength of the relationship between these two variables was weak, the negative direction indicated that students enrolled as net price decreased, and students did not enroll as net price increased. Other variables had a weak, significant correlation with enrollment: Expected Family Contribution, race, sex, Submitted a FAFSA, and Transfer GPA. The Student Athlete indicator and enrollment variables had a moderate, significant correlation (see Table 12). As enrollment occurred, transfer GPA decreased and expected family contribution increased. As enrollment occurred, FAFSA was submitted and students were more likely to be student athletes, minority, and male. There was no significant relationship between enrollment and student residence. The power for this analysis was very low, showing that the chance of finding a significant difference between the enrollment and student residence variables was very low given the sample size and effect size.

To understand admitted transfer student choice further, I utilized the binary logistic regression function in SPSS to determine the log odds of admitted transfer enrollment based upon net price. Decision to enroll was the dependent variable. Net price was the independent variable (see Figure 9). This analysis resulted in a regression equation: $\text{Log odds} = (-0.0001431169) * (\$) + 2.677$. The negative coefficient for enrollment indicates that the log odds go down as the net price increases. Using the log odds compresses the scale to make it more symmetric and more easily interpreted. If the

log odds are less than one then the log odds will be negative; if greater than one then the log odds will be positive. When the net price approached \$20,000 the odds of an admitted transfer student enrolling at the University became zero.

Table 12

Transfer Enrollment Correlation Coefficients

Variable	Pearson Correlation	Sig (2-tailed)	<i>n</i>	Power
EFC	.166**	.00	480	0.96
Net Price	-.240**	.00	798	1.00
Race	.122**	.00	776	0.93
Sex	-.086*	.02	798	0.68
Student Athlete	-.276**	.00	798	1.00
Student Residence	-.021	.56	798	0.09
Submitted a FAFSA	-.188**	.00	798	1.00
Transfer GPA	-.128**	.00	565	0.87

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

A more common way of interpreting the results of the logistic regression would be to convert the log odds to odds (see Figure 10). This analysis resulted in a regression equation: $Odds = \text{Exp}[(-0.0001431169) * (\$) + 2.677]$. Thus, an admitted transfer student was 14.5 times more likely to enroll at the University when the net price was \$0; 7.1 times more likely when the net price was \$5,000; and 3.5 times more likely when the net price was \$10,000. This student was 8.6 times more likely to enroll when the net price was \$0 than when the net price was \$15,000.

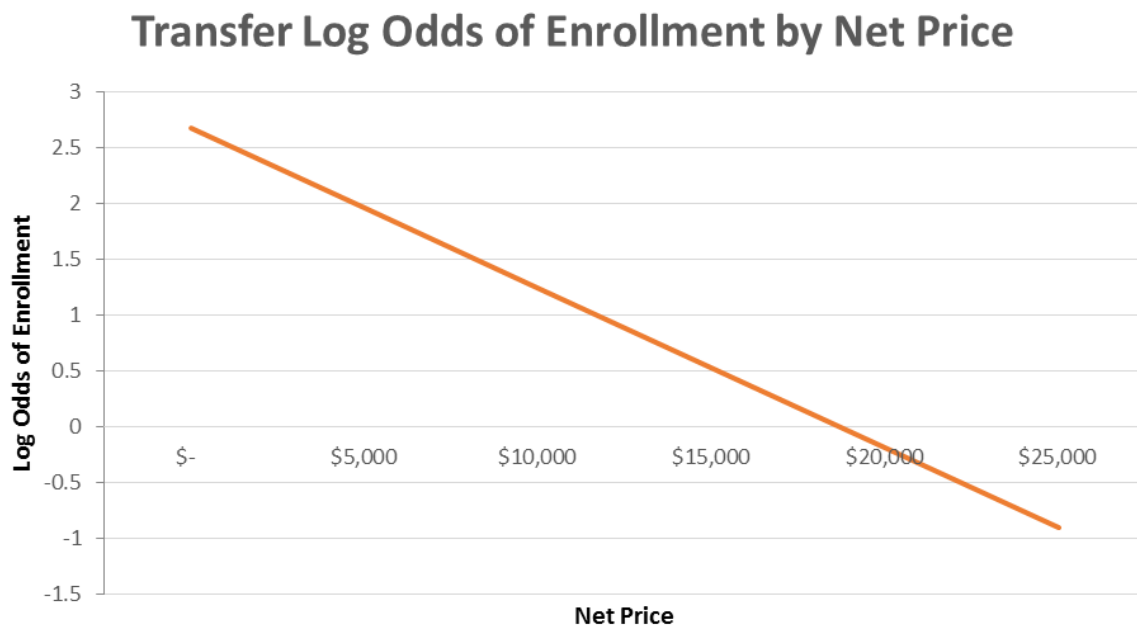


Figure 9. Transfer Log Odds of Enrollment with Independent Variable Net Price.

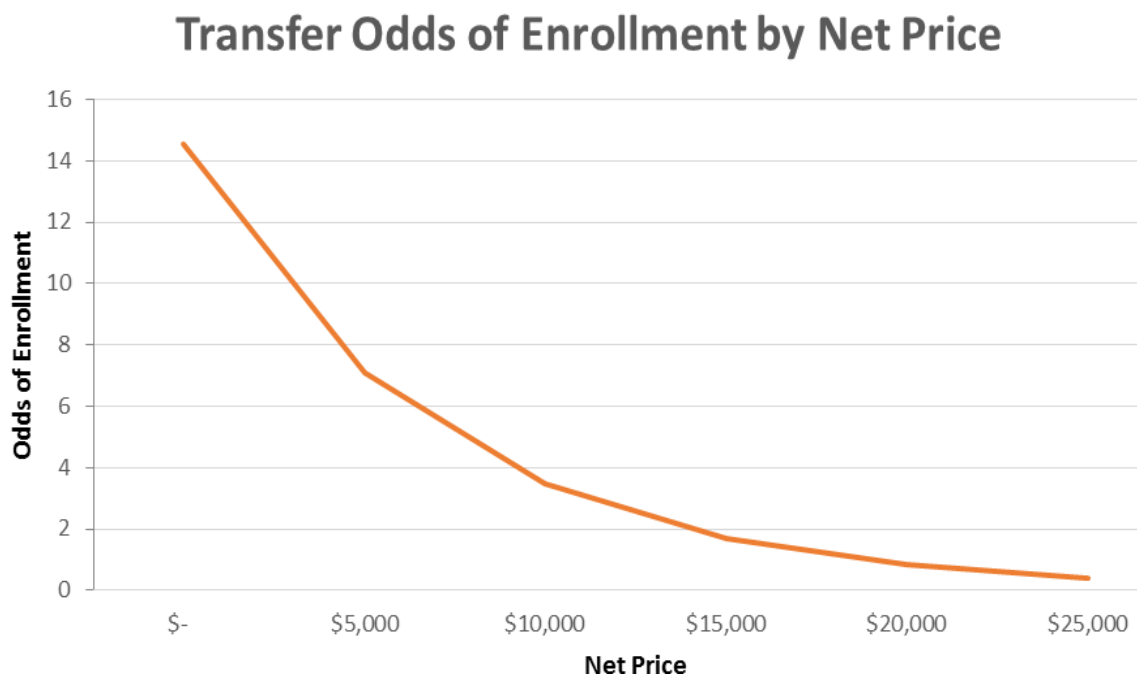


Figure 10. Transfer Odds of Enrollment with Independent Variable Net Price.

In answering RQ2a about the total admitted transfer population, the descriptive statistics indicated that increases in nonresident net price over four years did not result in a decrease in all transfer nonresident student enrollment. The correlations indicated a weak negative linear relationship between all transfer enrollment decisions and net price. These results appeared to prove my hypothesis to be false: Increases in nonresident net price over four years did not result in a decrease in total nonresident transfer student enrollment and demand is inelastic. However, the logistic regression indicated that the odds of enrollment decreased as net price increased, illustrating an elastic demand. These results suggested a further need to understand which transfer students were most price responsive when making enrollment decisions.

RQ2b: For which transfer students is the enrollment decrease significant?

To answer this question, I utilized the binary logistic regression function in SPSS to determine an odds ratio to understand the log odds of a transfer student enrolling as net price increased based upon academic ability and financial need (see Table 13). The results (see Figure 11) illustrated that students in the less-able/non-needy category had the largest negative slope or b-coefficient of -0.000370 followed by the high-ability/needy category where $b = -0.000369$ and the somewhat-able/needy category where $b = -0.000333$. However, only the results for the high-ability/needy and somewhat-able/needy students were statistically significant ($p < 0.05$). Other statically significant results were found for less-able/needy students.

Table 13

Count (*n*) of Admitted Transfers by Academic Ability and Financial Need Categories

	Non-Needy	Somewhat Needy	High Need	Total
Less-Able	63	34	33	130
Somewhat-Able	127	89	69	285
High-Ability	63	41	43	147
Total	253	164	145	562

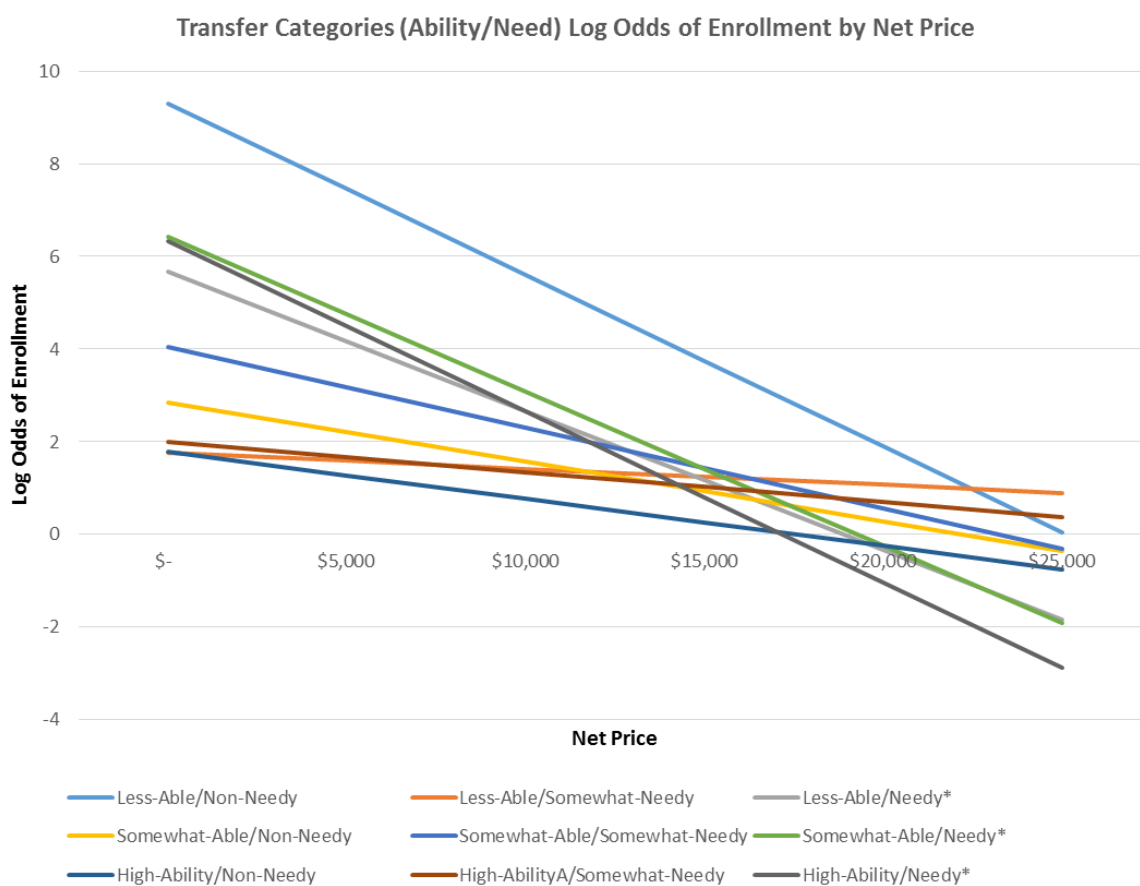


Figure 11. Transfer Log Odds of Enrollment by Academic Ability and Financial Need.

A more common way of interpreting the results of the logistic regression would be to convert the log odds to odds (see Figure 12). Students who were high-ability/needed were 563 more times likely to enroll when the net price was \$0; 88.9 times more likely to enroll when the net price was \$5,000; 14.0 times more likely when the net price was \$10,000; and 2.2 times more likely when the net price was \$15,000.

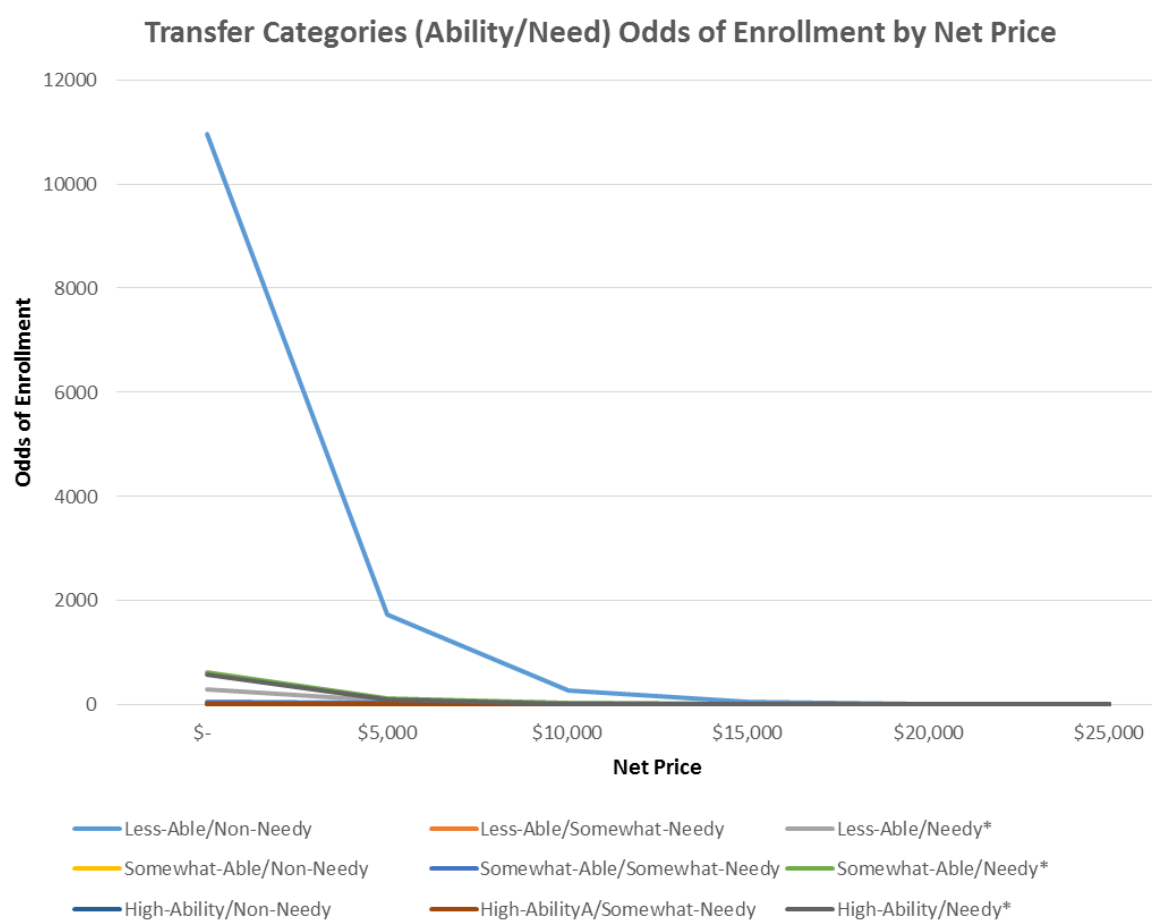


Figure 12. Transfer Odds of Enrollment by Academic Ability and Financial Need.

As the logistic regression analysis for all transfer students illustrated that the odds of students enrolling became negative around \$20,000, Table 14 includes the odds of

students enrolling by category at this net price value. In this scenario, the less-able/non-needy and less-able/somewhat-needy students are more likely to enroll than the other eight categories of students—even with a net price of \$20,000. This could mean that students in these categories are willing to take loans for \$20,000 or pay out-of-pocket or a combination of these approaches. The students least likely to enroll are less-able/needy, followed by somewhat-able/needy, and high-ability/non-needy. Note that the only categories with statistically significant odds were the needy category for all ability levels.

Table 14

Odds of Enrollment with net price \$20,000—Transfer Students

	Non-Needy	Somewhat Needy	High Need
Less-Able	6.59	2.89	0.71*
Somewhat-Able	1.32	1.73	0.77*
High-Ability	0.77	1.99	0.35*

* $p < 0.05$

Because the high-ability/needy admitted transfer students have the largest negative slope or b-coefficient, students in this category are considered to be the most responsive to price and have the enrollment decrease which is most significant as net price increases.

RQ3: Of the freshman and transfer students who demonstrate a significant decrease in enrollment, which type of students has the greatest odds of not enrolling because of increases in net price?

To answer this question, the answers from RQ1a and RQ2a were compared. Specifically, the negative slopes of b-coefficients were compared to determine which category of students was most responsive to increases in net price. In RQ1a, I determined that freshmen students in the less-able/high-need category had the largest negative slope or b-coefficient of -0.00049 followed by the somewhat-able/high-need category where $b = -0.00048$ and the high-ability/high-need category where $b = -0.00046$. The results for all three of these categories of students were statistically significant ($p < 0.05$). In RQ2a, I determined that transfer students in the high-ability/need category had the largest negative slope or b coefficient of -0.000369 ($p < 0.05$). These results show that freshmen students of all academic ability levels in the high-need category were more responsive to price than the most responsive transfer students. The high-need freshmen students had the greatest odds of enrolling because of decreases in net price.

Qualitative Results

The qualitative phase was connected to the quantitative phase of the study through the selection of the participants for the second phase as suggested by Ivankova et al. (2006). As a result of the quantitative findings, all academic ability levels of most recently admitted freshmen students in the high-need category were selected for further study in the qualitative strand. This selection of the participants for the qualitative phase was made based upon statistically significant results and distinguishing characteristics as suggested by Creswell and Plano Clark (2011). By selecting all academic ability levels, I ensured a large enough sample size to conduct an adequate number of interviews within the established timeline of the month of August. The Office of Institutional Research

provided the student data for the qualitative strand based upon a request for fall 2014 admitted nonresident freshmen students with $EFC \leq \$5157$. Within this identified student sample, there were two groups: (a) those students who had indicated intent to enroll at the University for fall semester 2014 by submitting their enrollment deposit by May 1 ($n = 51$); and (b) those students who had indicated intent not to enroll at the University for fall semester 2014 by withdrawing their application or by not submitting their enrollment deposit by May 1 ($n = 144$).

RQ4: How do individual students in the student group which appears to have the most elastic response to net price consider finances when they are making enrollment decisions?

To answer this research question, I conducted telephone interviews with ten nonresident students who had been admitted as freshmen to the University for fall semester 2014 and who had the similar characteristics (i.e., high-need) of the students identified in the quantitative analysis to have the greatest odds of not enrolling because of increases in net price. One anomaly that emerged in the qualitative data file was Angel. She was a permanent resident of the United States who immigrated to the United States in 2007 with her mother and sister. As such, she was an in-state resident; but, was incorrectly coded in the University's student information system as a nonresident student and received the email invitation to participate in the research project. Even though she was not a nonresident, I included her interview in the qualitative results because she was assessed the nonresident tuition and fees.

Three of the ten students chose to enroll at the University (see Table 15). Seven of the ten students chose to enroll at another college (see Table 16). The semi-structured interview protocol (see Appendix C) was organized to learn how students considered finances in each stage of the college choice process (DesJardins et al., 2006). The qualitative results are presented thematically based upon these stages: (a) college aspirations formed; (b) college search by researching institutions and applying for admission; and (c) college choice decision by enrolling.

Enrolled Students' Perceptions of Finances in Enrollment Decisions

RQ4a. How do enrolled students perceive finances in their enrollment decisions?

Table 15

Enrolled Students Interviewed

Name	Academic Ability Category	Home State	Loans/Amount*	Out-of-Pocket Payment*
Chelsea	Somewhat	SC	Yes/?	None
Megan	Less	GA	Yes/?	\$5,071.50/semester
Oliver	Less	NJ	Yes/?	None

* Amounts based upon self-reported financial data during the phone interview. Students did not share the amount of their loans.

College aspirations formed. During the interviews, the enrolled students did not talk about actively preparing themselves academically for college. They did not seem to be focused on their grades or on expectations of earning merit scholarships. Two of the three students who enrolled at the University were coded less-able academically and one of the three was coded somewhat-able, which could explain this finding. When asked

about taking classes in high school that would prepare her for college, Megan responded, “I did take one, two honors courses my senior year but other than that I did not take any AP’s or anything.” Chelsea admitted that her grades in high school would not qualify her for any merit scholarships:

Really into my freshman year of high school I didn’t really care too much about doing the work. I’ve always been in the honors program but my grades my freshman year definitely brought down my GPA so I knew I wasn’t going to get too many merit scholarships.

All of the students, however, talked about always knowing that they would attend college: “I was expected to go to college. My father went to college. My mom didn’t. It was kind of just the norm that they wanted me to attend a university” (Oliver). All three had one or more parents who attended and graduated from college. Megan’s mother had earned a master’s degree. None of the students talked about being low socio-economic status or needy; and, they did not seem deterred about attending college or being able to pay for college. Chelsea expected that she would receive grants and loans to pay for college:

They have always encouraged me going to college the only difference between them was that my mom is really into me taking out student loans and supporting me behind that vs. my father . . . And, my father isn’t really about me going out-of-state and he doesn’t like the fact that I’m going to get so in-debt with all of my loans. (Chelsea)

Megan’s family did not know what to expect regarding financial aid or scholarships: “I was the first one to go through the process, like we just didn’t know what to expect so honestly I don’t have a really solid answer, just like probably I was expecting *more*; but I

didn't get more <laughs>" (Megan). Oliver's family had saved for college, but still "just expected to receive a substantial amount of financial aid and grants and we just took out federal loans" (Oliver). As these students formed their college aspirations, loans and grants were considered to be expected aid for paying for college rather than merit scholarships.

College search. When asked what characteristics they were looking for in colleges, the students mentioned their majors, a smaller setting, atmosphere and feel, community, and quality of the education: "I think the campus itself 'cause I think college is an experience that you can't be unhappy at. And, the area and their science department" (Chelsea). Megan was looking for a college that was "not too big" and in a "smaller setting." Additionally, she said, "and I didn't want to be too far away from home; but, I didn't want to be close enough . . . like a 30 minute drive away. I didn't want to be that close, so that was important to me, too." Only Oliver talked about affordability; and, he talked about affordability a lot: "Well, like I said again we wanted . . . the most affordable schools we could because we had not won the lottery, yet, we're hoping to <chuckles>. That's basically it." Unlike the findings in the literature (Curs & Singell, 2002; DesJardins et al., 2006; Singell & Stone, 2002), none of the students answered "yes" that they considered costs when applying for colleges.

The three students did not talk about a desire to attend college out-of-state. Only Megan talked about being far enough away from her family. Oliver applied to four out-of-state schools and only one in-state college in New Jersey; but, he didn't mention that as a desire to get out-of-state. Chelsea and Megan only applied to two and three colleges,

respectively—both in-state and out-of-state. When asked about attending college with friends, Chelsea answered that attending college with friends “was never a factor.” Megan also indicated that she did not have any friends from her high school who were planning to attend the University. When asked if Oliver planned to attend college with friends from his high school or community, he answered, “Uh, no.” Even though they said that they were not planning to attend college with friends, Both Chelsea and Megan had friends or relatives who had attended the University. That seemed to make a difference in encouraging a campus visit and learning more about how the University might be a good fit for them: “Well, my friend who’s going to be my roommate has been my best friend since elementary school and her grandparents own [a] hotel . . . and she was going up to visit . . . and we both just decided to tour the college at the same time” (Chelsea). Megan’s cousin attended the University and told her “all these great things about it and she thought that I would really like it so that’s why I ended up applying” (Megan). All three of these students visited all or nearly all of the schools that they applied to, including the out-of-state schools. The visit to the University made an impression on Chelsea and Megan and truly sealed the deal for them in terms of which college to attend: “Once I got in I decided to visit. And, once I just stepped on the campus, I was just like ‘Okay, yeah, this is the place for me.’ It’s just like really laid back and I just really enjoyed it” (Megan).

College choice decision. All three of the students decided to enroll at the University and all three of the students answered “no” when asked whether financial aid or costs were the ultimate factor in their college choice decision. Both Megan and

Chelsea were offered financial assistance from their state merit aid programs—the HOPE Scholarship in Georgia and Life Scholarship in South Carolina—and did not choose those. In fact, both students seemed very unsure about what amount of funding these awards would have provided. Chelsea thought “about \$5,000 per year.” Megan never received a financial aid award letter that included the full amount of the HOPE scholarship from a college in Georgia. She indicated that she would not receive that until she enrolled: “Maybe, and I don’t know how much I would’ve qualified for the HOPE Scholarship. It would’ve been *something* obviously ‘cause I qualified for it; but, it was a really confusing thing to figure out” (Megan). Oliver turned down an offer for more financial aid at another out-of-state college and “affordability” continued to be mentioned in his college search and final college choice decision: “Because it would end up being one of the affordable schools and I just had a feeling that this was the right school for me” (Oliver).

After receiving admission and financial aid offers from different colleges, all of the students compared the costs before making a final enrollment decision. During the interview I asked each student to explain what it looked like when they sat down with their parents to compare the college costs at the different institutions they were finally considering for their ultimate college choice. I asked Oliver if he waited to receive all of his financial aid awards before making a decision, and he replied yes and then explained the conversation he had with his parents:

Well, we got them. We compared them and we just talked about the best long-term path for paying back the loans . . . I mean, if I got a *lot* more at any other universities that I applied, I would’ve gone there; but, it wasn’t a significant—

there wasn't a significant difference in order for me to change my decision.
(Oliver)

To convince her father, Chelsea compared the costs of colleges in South Carolina with the cost of the University, and this comparison resulted in only a \$1,000 difference. When I asked Chelsea if this cost comparison was what ultimately helped to convince her father that she could enroll at the University she said, "Yes. It was. I also had a back-up of why [the University] was such a good school for me, but that was mainly it." Chelsea indicated that her loans and grants covered her college costs. Chelsea always knew that she was going to assume student loans for college, and she wants to start paying off her loans while she is enrolled at the University. She plans to work at a local hotel owned by her friend's grandparents. She asked, "If I am in school and I'm planning on having a job and I start making monthly payments would I have to continue making those monthly payments once I start?"

Megan described her conversations with her parents in great detail. While she and her parents thought the University was the best fit for her when they visited, the financial decision was difficult and their decision was made on May 1, the final deadline date for submitting an acceptance agreement and enrollment deposit. She described the serious conversations with her very worried parents:

Parents: We don't want we just don't want you to have college with loans like that just really makes us really worried . . . if you do this, you need to understand how severe like that this is *real*.

Megan: I understand and I don't know how I can make you understand it.

Parents: You need to realize that this is for *real* and this is *real money* and you have to pay it back.

Ultimately, Megan prepared a PowerPoint presentation detailing why she wanted to attend the University and why it was the best fit for her, as well as demonstrating her understanding of the consequences of the loans. Also, Megan is the only enrolled student who talked about the out-of-pocket expenses that she is paying per semester: "I think its \$5,071.50." Megan is also looking for additional scholarships and financial aid for her second year at the University.

When asked to provide advice for students choosing to enroll in college in the future, all of the students situated their advice in a financial context. Megan suggested that students start looking for scholarships and "*free money a lot* earlier." She also explained how her experiences have impacted her younger brother who is a freshman in high school who is now getting a job, saving, and being encouraged to be more academically focused in school. Oliver simply advised students to "choose the most affordable college."

Summary. In summary, the enrolled needy freshmen students, categorized as less-able and somewhat-able academically, did not expect merit scholarships when they were forming their college aspirations. They mentioned expecting loans and grants or not having any expectations of how to pay for college. None of the students considered costs when they were applying for college, although Oliver regularly mentioned "affordability" as an attribute that he was seeking in a college. All three of the enrolled students visited

all or nearly all of the colleges that they applied to, and all three visited the University prior to enrollment and making the final college choice decision. When asked, all three students indicated that financial aid and costs were not the ultimate factor in their college choice decision. Based upon how they compared the financial aid packages offered, each student could have attended a lower-cost college. Based upon the analysis of these interviews, the enrolled students appear to have an inelastic demand to net price.

Non-enrolled Students' Perceptions of Finances in Their Enrollment Decisions

RQ4b. How do non-enrolled students perceive finances in their enrollment decisions?

Table 16

Non-enrolled Students Interviewed

Name	Ability Category	Home State	College Choice	Loans/Amount*	Out-of-Pocket Payment*
Amanda	Somewhat	VA	In-state private	No	\$6,000/year
Angel	High	NC**	In-state 2-year college	No	None
Ellie	High	GA	In-state public	No	\$12,000/semester
Justin	High	FL	In-state public	No	\$500/semester
Kelly	Somewhat	TN	In-state private	\$3,000/year	None
Khadeeja	High	FL	In-state public	No	None
LaKeisha	Somewhat	TN	Out-of-state private	\$12,000/year	\$3,000/year

* Amounts based upon self-reported financial data during the phone interview.

** Angel was incorrectly coded as a nonresident student for tuition purposes in the student information system.

College aspirations formed. Four of the seven students who did not enroll at the University were considered high-ability and three of the seven were considered somewhat-able students. In terms of developing their college aspirations, all seven students talked about enrolling in a number of Advanced Placement courses or even dual-enrollment with a local community college. The students talked about actively preparing themselves academically for college. All of the students except Angel talked about always knowing that they would attend college. They used language that expressed that it was just the next step, that their parents expected them to attend, and that it was always assumed. LaKeisha described her parents' expectations about attending college: "I think that it was always assumed that I would go to college, it was never a conversation, 'Hey you thinking about going to college?' it was more 'You're going to college' <emphatically>." Kelly, Khadeeja, LaKeisha, and Ellie all had one or more parents who attended and graduated from college. Three of them (Khadeeja, LaKeisha, and Ellie) had parents who earned master's degrees. That their parents had attended college seemed to impact their feelings about loans. They used language about not wanting to have loans like their parents did. Their parents were still paying their loans, and their parents did not want the students to have that same experience.

Justin and Amanda, both first generation college students, framed attending college in a financial context. Justin said, "I wanted to be the first in my family to go to college, get a nice job out of it, not have to worry about struggling financially for the rest of my life." Amanda stated, "From a really young age my mother has always said to me that going to college was my best option that way I always have that standard, well-off

position when I'm older." Three of the students were first-generation college students: Justin, Amanda, and Angel. These students did seem to have a bit more independence than the other students in the decision-making process; but, not substantially. Amanda talked about being financially on her own for the decision and loans. Angel discussed that she did not even talk with her parents about college advice. Justin talked about his mother encouraging him to apply for scholarships; but, he also acknowledged that he and his mother did not have a lot of firsthand knowledge regarding the college search process, so he felt relatively uninformed. "I mean, I was just—my parents didn't go to college so this was all a firsthand experience for me."

College search. When asked what characteristics they were looking for in colleges, students talked about their intended major, academic integrity, student life, social life, student organizations, and the atmosphere and feel of the campus. The location of the college was important as well. Students talked about attending college with "a big outdoor scene" (Ellie), gave consideration for the weather, and just looking for something new or different:

And, then overall as far as college life I was looking for something that would be *not something* that I would be used to and definitely something completely different but also exciting and had a lot of opportunities for student life and social life and interactions and stuff like that. (Amanda)

Khadeeja talked about wanting to go to a larger college: "I wanted a nice, like a college that had like a homey feel, but then if I stepped out of the campus that there's a lot of things to do." The students never mentioned affordability or financial considerations in the characteristics of the college that they most wanted to attend.

Most of the students did talk about a strong desire to attend college out-of-state and also a lack of desire to attend college with friends from their high school or community. When asked about attending college with friends, Amanda stated: “Not really I always thought we would go our separate ways.” When asked, Ellie quickly said that she did not intend to attend college with friends from her high school or community: “And I wanted something—I wanted—I didn’t want to go to the school that everyone else was going to and I didn’t want to be in-state.” Lakeisha described a similar situation: “No. I knew that I did not want to go—I wanted to start fresh. I wanted to start anew. I couldn’t imagine myself going to school with them. I just wanted to be able to come home and be able to talk about different worlds and how they collide.”

When discussing their college search, many of the students talked about going to a different state. Amanda said, “I just always wanted something *other than Virginia*, to be honest. I wasn’t trying to stay in-state. I also was *really trying* to go to Texas.” Ellie stated, “I figured that I mean I lived in Roswell, Georgia my entire 18 years of my life so might as well experience something new and something where *I chose to be*.” Justin longed for something geographically different from his home state of Florida: “But, then half of me was just I need to get out of this state, it’s too hot. It’s you know so many tourists . . . seeing the world that I never saw being in this little town here.” When asked if she applied to any colleges in her home state of Tennessee, Lakeisha answered with a bit of a laugh: “No, I wanted to be within a day’s drive from my family <laughter>.”

Four of the seven students did not visit any colleges. Many explained that they did not visit because they were interested in colleges that were out-of-state and it was

difficult to travel to see those schools. Instead of visiting the colleges, Lakeisha read about the schools on different web sites: “I did a lot of student review web sites and read up on schools.” The only college that Khadeeja visited was the one where she ultimately enrolled, an in-state public college: “I didn’t really do a lot of research like when I was applying but it was more of like I had known about these schools before and I always knew that I wanted to apply to them so it was just I didn’t really do a lot more outside research.” Only Ellie and Justin talked about actively visiting colleges including the University, and Kelly talked about visiting the University’s general geographic area quite a bit for hiking and outdoors activities.

Unlike the findings in the literature (Curs & Singell, 2002; DesJardins et al., 2006; Singell & Stone, 2002), six of seven of the students did not consider costs when applying for colleges. When asked directly that question, they indicated that they had not really considered costs when they were applying for college. The only student who answered in the affirmative was Angel: “So, I really looked into the cost of college and the cost of moving where I’m going at cause I know some of my friends go to like California and that’s like you know much higher tuition and stuff like that.” For Ellie, the costs became more important “as the process [of applying] went on.” Justin talked about completing any free application for admission and Lakeisha discussed the importance of application fee waivers provided by her high school counselor. Many of the students were expecting some academic scholarship award based upon their academic preparation in high school, such as Justin:

I'm in this mindset of such a small little city in Florida. I graduated third in my class but it's only out of 140. So, I was like wow, I was like graduating third maybe someone is going to give me a full ride. That's what I was really hoping for—a full ride somewhere so that myself nor my mother had to worry about loans or paying out-of-pocket for stuff like that. We just we finally sat down I had \$2,200 in scholarships and that's why [University of] Florida was just the best option for me. (Justin)

Most of the students were expecting some type of grant based upon their income, like Khadeeja: “I thought that I would get a lot of grants.” But, there were also students who had no idea what to expect in terms of aid, like Ellie:

I honestly had no idea. I was—especially on a level. I mean I made good grades but they weren't like *exemplary* so I wasn't expecting anything for my grades or stuff like that so I was kind of trying to do outside scholarships but I wasn't expecting too much from that either, so, I really didn't know what to expect. (Ellie)

The parent conversations prior to and during the college search process were important in understanding how finances impacted the ultimate college choice decision. For some students, the conversation early on was that it would be the student's responsibility to pay. Kelly shared a summary of the conversations she had with her mom about college: “Honestly she'd always kind of just said it was my choice because I'm the one that's having to pay for my college and I always knew that it whatever the cost paying for it was going to be on me” (Kelly). Amanda also understood that she would be responsible for the costs of college:

Well, it would always be like that she would help me in whatever she could and then ultimately it might fall down on me so keep that in mind when applying and so that way I don't go *over* my limits of what I could afford myself when I actually graduated and had to start making payments. (Amanda)

For many students, such as Khadeeja, Kelly, and Ellie, the conversation early was to stay away from having to pay loans: “. . . they also encouraged me to not be in a position where I would need to pay off loans they are very much against that . . . So, they wanted me to go to a place where they could pay for it” (Ellie). Kelly’s mother had just finished college and had “tons of student loans”; but, her current salary did not cover all of the bills and loans. Her mother advised her to “choose whatever you think you can handle in your student loans in the future.” In sharing her father’s view point, Khadeeja said, “He was strongly opposed to me taking off loans since he is still paying off the loans from all of his degrees.” Unlike the other six students, Angel did not have the conversations about choosing a college or paying for college with her parents. When asked what advice she would give to students, she answered:

I think definitely like you know talk to your parents about it, too, because I never really talked to my parents about it. They would ask me and I would just like answer them but I didn’t really like you know *fully* like talk to them on my college like on what college I wanted to go to and stuff like that. (Angel)

College choice decision. Even though many students exhibited a desire to attend college out-of-state and without their friends from high school and their communities, six of the seven students chose to stay in-state for college. All of these decisions were influenced by finances and some of the decisions were exclusively based upon finances, particularly the attractive state merit aid offers in Georgia and Florida and financial aid offers at private colleges in-state. Ultimately, Amanda and Kelly chose to enroll at private colleges in-state. Ellie, Justin, and Khadeeja chose to enroll at public universities in Georgia and Florida with assistance from the HOPE Scholarship and Bright Futures,

respectively. Angel chose a community college close to her home. Only LaKeisha chose an out-of-state college; but, she had a sponsor who offered to assist with payment. All of the students answered “yes” when asked whether costs and financial aid were the ultimate factor in their final college choice decision.

A relevant finding is that five of the seven students interviewed either never received a financial aid award letter from the University or received one too late for the University to be considered for the college choice decision. After receiving financial aid offers from different schools, many of the students compared costs. When asked to remember their financial aid offers from the multiple schools they were considering, nearly all of the students could remember the offers clearly and were able to share the conversations that they had with their parents as they considered the offers. When asked why she ultimately chose an in-state private college, Kelly answered, “Because I couldn’t afford the out-of-state tuition at [the University] . . . [in-state private college] wound up offering me quite a bit of money, so I had to just choose [in-state private college] because it was going to cost less.” When trying to decide between her first choice, an out-of-state private college, and the in-state private college she ultimately chose, Amanda indicated: “The financial aid that I received was quite significant in the differences so I would still have about \$20,000 to get for one year.” Instead of paying \$20,000 a year at the out-of-state private college, she will only pay \$6,000 out-of-pocket a year at in-state private college she ultimately chose and can use a payment plan. For Angel, costs and financial aid were the factors that influenced the decision: “I’m actually attending the community college since the cost is really low. It’s not really high. It’s not expensive at all.” And,

reflecting on one of a few conversations with her parents, she said: “Well, at first they said that I can go to any colleges that I want. But, then it’s more on me like on *myself* that I want to like lessen tuition for my college so that’s why I chose [in-state community college].”

State merit aid programs in Georgia, Florida, and Tennessee played a significant role in keeping four students in-state. Ellie, Justin, Khadeeja, and Kelly all benefited from increased financial aid offers for in-state students. Justin was confused early in the admissions process that his Bright Futures scholarship would be accepted at the University: “Bright Futures—I thought that they were going to be able to accept; but, it’s only a Florida thing.” Ultimately, Justin was trying to decide between the offer at an in-state public college and the University: “It was a tie between them and [the University] . . . And, ultimately [the University] just unfortunately didn’t give me the money.” When asked what financial aid offer would have led him to choose the University, Justin replied: “Just the same offer, really. I mean acceptance of the Bright Futures would have put me at maybe \$2,000 for the entire academic year.” When asked why she chose to stay in-state, Ellie answered, “Well, it was sort of a financial decision. I received the HOPE scholarship . . . it was just a very competitive offer from them.” Kelly received financial aid to stay in Tennessee, even though she was attending a private college: “The rest of it was like Tennessee Lottery and the HOPE Scholarship and stuff, which was like academics and partly of my mom’s income.”

During the interview I asked each student to explain what it looked like when they sat down with their parents to compare the college costs at the different institutions they

were finally considering for their ultimate college choice. Several of the students could offer a very detailed review of those conversations. Ellie provided great detail of the conversations with her parents and the decision-making process, which seemed intense as she really wanted to attend the University. For Ellie, the opportunity to compare the financial aid package from the University with the financial aid package from the in-state public college “was a really big deal because that [the University] was where I wanted to go.” Ellie described in detail the process for applying and interviewing for scholarships, and how she waited to receive her scholarship and financial aid offer before making a final decision about the university:

So, we you know looked at what FAFSA gave us for [the university] and I mean I looked and then my parents looked and then we talked about it. I mean I kind of knew already that it just wouldn't be enough. And we even discussed I was even thinking about going to live with my aunt for a year in North Carolina so that I could get in-state. But, that didn't seem like the best decision.

On the other hand, Lakeisha did not talk with her parents too much about college and paying for college, even explaining that this has been frustrating for her:

But, honestly, we haven't had any real conversations about paying. I'm like 'Mom, my FAFSA needs to be filled out' and she's like 'Oh, okay, whatever'—finances haven't really been discussed, and so when it comes time for it I have gotten really frustrated and I had to fill out the parent PLUS loan. I didn't know how to do that so I don't think that finances was ever really discussed. And, yeah, it's kind of weird. (Lakeisha)

When I asked if they had discussed finances at all now, just two days before Lakeisha starts at an out-of-state private college, she answered: “No <laughter>. No. I mean, now that you bring it up I really . . . <thoughtful, nervous laughter>.” Khadeeja described

more of a lack of conversation with her dad: “He really was like if I don’t get enough money from schools I couldn’t go to them because he was strongly opposed to me taking off loans since he is still paying off the loans from all of his degrees. So he really just didn’t want me to go through that.”

Whether or not to take loans continued to be a significant factor in students’ decisions about which college to attend. Parents generally discouraged students from taking loans, in large part because they were still paying their own loans, and also because they did not want their children to have the burden of college loans after graduation. For several students, their goal was to have no loans, and their parents paid out-of-pocket to keep them from having loans. Kelly and Lakeisha each have taken loans in the amounts of \$3,000 and \$12,000 per year respectively. The parent conversations about not taking loans were regularly discussed during the interviews.

The students and parents who were especially averse to taking loans were willing to pay out-of-pocket for their college expenses. Amanda is taking advantage of a payment plan at her in-state private college for the less than \$6,000 per year that she owes after loans. Her mom is helping her with that amount. Ellie’s parents are paying \$11,000-\$12,000 per semester. Justin is only paying about \$500: “I saved up a bunch of money. I worked 45 hours a week this summer at my job. I saved enough money, it was like \$500 maybe and through all of the figuring out we did a lot of math and that’s about what I’ll need.” Lakeisha will pay between \$1,000 and \$3,000 per year plus her loan. Lakeisha had the benefit of a sponsor who contributed \$10,000 towards her fall semester costs:

Well, my sponsor in high school—I don't even know how I got chosen to be sponsored—but their daughter goes to [out-of-state private college], so he was like, if I go to [out-of-state private college] he will help sponsor me there so there was a big financial gain in that and I mean it was one of the schools that I had chosen so it's not like it was too far-fetched but I think that it was mostly because he said he would sponsor me.

When asked to provide advice for students choosing to enroll in college in the future, many of the students situated their advice in a financial context. When offering advice to other students about choosing college, Angel again focused upon costs: “If you don't want to be in debt forever then community college is like one of the biggest thing . . . And, then transfer like what I'm going to do, in like next two years.” When asked to provide some advice to other students about choosing a college out-of-state, Lakeisha offered this advice:

I mean definitely ask a lot of questions you can never ask too much and read a lot about it 'cause they tell you about how to pay interest back so you don't have high interest rates and things like that. Always call the financial aid office cause if they'll help you they will. And you always need help.

Ellie offered, “. . . be prepared with your grades, be ready and be prepared by knowing what your parents pay for and how much college is and start looking early kind of feel it out.” Justin said, “Spend more time on scholarships. Nothing is bad about out-of-state schooling at all especially if they give the major or the courses that you want to do in the future for your career. The best option is scholarships.” Kelly, who lives in a county that borders North Carolina suggested, “Definitely look at states that offer you know colleges that offer like the same amount of tuition for out-of-state students or I know some colleges if you live in a bordering county then you can pay in-state tuition.” Khadeeja

said, “I think that everyone should experience that it’s really exciting and if you have the money to pay for it that’s even better.”

Summary. In summary, the non-enrolled needy freshmen students, categorized as somewhat-able and high-ability academically, appeared academically focused and expected to earn merit scholarships and be awarded financial need grants when they were forming their college aspirations. The students always knew that they would go to college, even the first-generation students, and they did not consider costs when applying for colleges. Only Angel mentioned costs when applying. The students generally did not visit the colleges where they applied, and most of them applied to numerous out-of-state colleges based upon a desire to try something new or leave their home state. Financial aid and costs were the factors in their ultimate college choice decision; but, unfortunately five of the seven students never received a financial aid offer from the University to compare to offers from other colleges. Parent conversations were much more frequent and salient during the college search and college decision processes, except for LaKeisha and Angel who had few conversations with parents about financial considerations. Generally, the students and their parents were averse to loans, primarily because many of their parents were still paying their student loans from college. This resulted in a surprising willingness to pay out-of-pocket for college and to stay in-state, particularly when offered competitive state merit-aid grants and scholarships. Based upon these interviews, the enrolled students appear to have an elastic demand to increases in net price.

Integration of Quantitative and Qualitative Results

One of the values of utilizing mixed methods is the ability to integrate the quantitative and qualitative results while discussing the findings and drawing inferences (Ivanakova et al., 2006). In this study, the quantitative results provided an understanding of how all freshmen and transfer students responded to increases in net price and also how nine categories, by need and ability, of freshmen and transfer students responded to increases in net price. These results alone can be used to inform system governing boards' and university leaders' decision-making regarding tuition amounts and financial aid offers; but, these results in aggregate create omitted variable bias in not considering the individual student decision in the college choice process.

The quantitative analysis indicated that, for freshmen students, as high school GPA, SAT score, and PGPA increased the likelihood of enrollment decreased. This finding was corroborated in the qualitative analysis. The enrolled students who were interviewed were less-able or somewhat-able academically, and they seemed much less focused on academics than their non-enrolled peers. The non-enrolled students, who were somewhat-able and high-ability academically, talked about making choices in high school to enroll in academically rigorous curricula to prepare themselves for college. In completing the quantitative analysis, I proposed that the somewhat-able and high-ability students might have more college options based upon their academic profile. This supposition was supported by the qualitative results as students talked about the state merit-aid and other merit scholarships received at the institutions where they ultimately enrolled.

The logistic regression analysis showed that less-able/neediest students were most price responsive, followed by somewhat-able/neediest and high-ability/neediest students. The qualitative analysis, however, indicated that the somewhat-able/neediest and high-ability/neediest students were more responsive to net price increases. These students were also the non-enrolled students whose ultimate college choice decision was highly influenced by financial aid and costs. Most of the non-enrolled students had competitive offers from state merit aid programs or scholarships from private colleges that they felt compelled to accept to reduce the chance of student loan debt in the future.

The quantitative analysis illustrated that the odds of freshmen enrollment decreased to zero as net price approached \$15,000. The qualitative results were not sufficient to fully support or refute that finding. The non-enrolled students indicated that they were paying some out-of-pocket expenses, from zero up to \$12,000 per semester. Only one non-enrolled student had assumed a loan of \$3,000 per year. Generally, the non-enrolled students indicated that they were likely to enroll at the college where they would assume no loans and have to pay the least in out-of-pocket expenses. The enrolled students all assumed loans; but, the students did not share the amount of the loan. This information would have been helpful in understanding how the qualitative results explained the quantitative results.

Even though all of the students interviewed were considered financially needy and qualified for the Pell Grant based upon their EFC calculated by the FAFSA, they did not talk about having significant financial issues. They talked more in terms of making things work to go to college. They did not seem deterred from the possibility of going to

college: “I mean, like we would we had *money issues probably* but not like not major ones just we weren’t rich” (Ellie). The resiliency of the students and their parents in either assuming loans or paying out-of-pocket for college costs cannot be measured in the quantitative analysis. Instead, the quantitative analysis valued the financial comparison as primary in the college choice decision. For the enrolled students, their ultimate college choice was not financial, but based upon perceived best fit for academics, campus culture, and opportunities. And, this value was illustrated in the interviews with the non-enrolled students who were more likely to make a college choice decision based upon costs and financial aid.

One of the most noticeable variables missing from the quantitative analysis was knowledge of whether the financial aid award package was ever viewed, considered, or compared with other colleges’ offers. Of the seven non-enrolled students, five never saw a financial aid offer from the University. Amanda said, “I don’t think I ever received one to be honest.” Kelly also received no financial aid award, “I wasn’t offered anything, um, I flat out wasn’t going to receive anything from financial aid, no like, nothing.” Khadeeja received her offer after the May 1 commitment deadline: “But one of the reasons why I didn’t go there was because I got their offer *way* late.” And, Lakeisha had some difficulties with the Office of Admissions receiving her transcript, and therefore her relationship with the University was somewhat tainted. She admitted, “So, I don’t think that I paid attention cause I was so upset that my stuff wasn’t in, so I think I kind of disregarded [the University] after that. I didn’t pay attention.” Angel never mentioned a financial aid award, largely because the University was not one of her top options. If she

had received an award, perhaps she would have realized that she was coded as a nonresident student for tuition purposes. Unfortunately, Kelly committed to her in-state private college by their March 1 deadline, well before she would have received her financial aid award from the University. When asked what offer would have led her to choose the University, she stated:

Honestly, just about anything I absolutely loved that college so much that if it had been even remotely feasible for me to go there I would have . . . and it was going to cost me over \$50,000 a year without any help and I just I couldn't do it at all.

Not only was Kelly forced to commit to an early deadline by her in-state private college, her information about the cost to attend the University was incorrect. The annual cost for 2014-2015 was \$26,605, nearly half of what she assumed and she never viewed the financial aid award. Without information about whether students are viewing their financial aid awards or comparing net price at all institutions where they are admitted, the value of the quantitative analysis wanes.

The use of mixed methods provided an opportunity to explain the quantitative results, and also to understand the limitations of utilizing only one method in studying student price responsiveness. Without the qualitative analysis, information about the timing of the financial aid package, parental influence concerning student loans, the effectiveness of state merit aid programs in keeping students in-state, and the resiliency of students and families to make college work regardless of costs, would have been lost. With the qualitative analysis, I was able to understand why the high-ability and somewhat-able students did not chose the University, and a bit more about the financial

packages that they expected to receive at the institution where they ultimately enrolled.

Also, the qualitative findings reinforced that parents and students do compare net price—not sticker price. This information will be useful for university leaders and system governing boards to understand what combination of tuition pricing and financial aid strategy would attract needy, academically capable students to enroll at the University.

CHAPTER V

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS FOR FUTURE RESEARCH

The cost of attending college in the United States has increased and the offers of financial aid have decreased (Long & Riley, 2007; St. John et al., 2013). As a result, many students make decisions about their college choice with an economic lens. Students weigh the cost of education in the form of tuition and foregone earnings against the benefits of an education in the form of future earnings (Avery & Hoxby, 2003; DesJardins & Bell, 2006; Rubin, 2011). Students most impacted by increases in tuition price or offers of financial aid are low-income and minority students (Perna, 2000). Findings of previous research support targeted-aid packaging for low-income minority students (Kim et al., 2009; Linsenmeier et al., 2006) to allow these students to attend their first-choice college rather than settling for a less expensive option (Kim, 2004). University leaders, federal policy makers, and state governing board members must understand the implications of increased tuition prices and decreased financial aid offers, particularly for low-income students, for college to remain accessible to this population of students.

Numerous aggregate studies have documented the price elasticity of college student enrollment demand (Heller, 1997; Hemelt & Marcotte, 2011; Leslie & Brinkman, 1987), informing governance and policy decisions about tuition pricing and federal and state financial aid offers. Studies conducted at individual institutions, in contrast, may

assist university leaders to develop an effective enrollment management strategy (Carter & Curry, 2011) that focuses upon meeting net revenue goals, as well as creating college access. Institution-level studies, specifically about nonresident students, have revealed that nonresident students should be studied separately from in-state students because they are more price sensitive than in-state students (Curs & Singell, 2010; DesJardins, 2001; Singell & Stone, 2002). Further, student price responsiveness should be studied by level of financial need (Curs & Singell, 2010; Singell & Stone, 2002) and academic ability (Curs & Singell, 2010).

The purpose of this study was to understand how nonresident students responded to net price at a highly-selective master's comprehensive university in the Southeast. This study is unique to others in two ways. First, I quantitatively analyzed both freshmen and transfer student price responsiveness, whereas nearly all other studies have considered only freshmen students. Second, the study utilized an emergent, explanatory sequential mixed methods design collecting and analyzing the quantitative data and then using a qualitative study to better explain the quantitative results. Nearly all other studies utilize only quantitative methods to understand student price responsiveness to matriculation decisions.

Overview of the Research Findings

In this explanatory mixed methods design, the quantitative analysis first considered the enrollment decisions of admitted freshmen and transfer students for four years from fall 2009 to fall 2012. These years were selected because institutional costs had increased 17% from fall 2009 to fall 2012 or \$3,605. During this time, only 17.3% of

the admitted freshmen ($N = 7,095$) and 40.2% of the admitted transfer students ($N = 798$) chose to enroll at the university. With RQ1, RQ2, and RQ3 I sought to understand whether increases in nonresident net price resulted in decreases in enrollment, and if so, for what particular types of students categorized by financial need and academic ability. These results determined which type of students had the greatest odds of not enrolling at the university as a result of increases in net price. Students admitted for fall 2014 who had the same characteristics in terms of financial need and academic ability were selected for the qualitative strand of the study to explain the quantitative results (RQ4).

RQ1a: Do increases in nonresident net price result in a decrease in nonresident freshman student enrollment?

Several analyses were used to answer this research question. In simply graphing the enrollment and net price per year, over the four years, the total nonresident freshman student enrollment increased 8.59% while the net price increased 13.68%. For those freshmen students who did enroll at the University, the average net price was \$20,307.15 compared to the average EFC of \$26,983.70. For those freshmen students who did not enroll, the average net price was a bit higher at \$22,542.89 compared to a similar average EFC of \$26,946.03. These figures would suggest that, on average, nonresident students had more funds to contribute to their education than the net price at the University required. These simple analyses seemed to indicate that increases in nonresident net price did not result in decreases in nonresident freshman student enrollment. However, a logistic regression analysis illustrated that as net price increased, the odds of enrollment decreased. When the net price approached \$15,000 the odds of freshmen students

choosing to enroll at the University decreased to zero. Further analysis indicated a significant negative correlation between enrollment and these four variables: net price, high school GPA, PGPA, and SAT total score. These correlation results suggested that freshman enrollment would be negatively impacted by increases in net price and academic ability.

RQ1b: For which freshman students is the enrollment decrease significant?

To answer this question, freshmen students were categorized by financial need (needy, somewhat-needy, non-needy) and academic ability (high-ability, somewhat-able, less-able) as modeled in Curs and Singell (2010). Freshmen students who were classified as financially needy were most responsive to increases in net price. The less-able students were most responsive, followed by somewhat-able, and high-ability. Students who were least likely to attend were high-ability/somewhat-needy, somewhat-able/somewhat-needy, and somewhat-able/non-needy students.

RQ2a: Do increases in nonresident net price result in a decrease in nonresident transfer student enrollment?

Several analyses were used to answer this research question. In simply graphing the enrollment and net price per year, over the four years, the total nonresident transfer student enrollment increased 31.25% while the net price increased only 8.54%. These simple graphs seemed to indicate that increases in nonresident net price did not result in decreases in nonresident transfer student enrollment. However, for those transfer students who did enroll at the University, the average net price was \$19,888.99 compared to the average EFC of \$19,191.18. For those transfer students who did not enroll, the average

net price was a bit higher at \$22,237.81 compared to a much lower average EFC of \$12,233.46. These figures would suggest that, on average, nonresident transfer students had less funds to contribute to their education than the net price at the University required, particularly for those students who did not enroll. A logistic regression analysis illustrated that as net price increased, the odds of enrollment decreased. When the net price approached \$20,000 the odds of transfer students choosing to enroll at the University decreased to zero. Further analysis indicated a significant negative correlation between enrollment and these two variables: net price and transfer GPA. These correlation results suggested that enrollment would be negatively impacted by increases in net price and academic ability. A significant positive correlation existed between enrollment and EFC, suggesting that as EFC increased, enrollment increased.

RQ2b: For which transfer students is the enrollment decrease significant?

To answer this question, transfer students were categorized by financial need (needy, somewhat-needy, non-needy) and academic ability (high-ability, somewhat-able, less-able) as modeled in Curs and Singell (2010). Transfer students who were categorized as less-able/non-needy were most responsive to increases in net price and most likely to attend followed by high-ability/needy and somewhat-able/needy. However, only the results for the high-ability/needy and somewhat-able/needy students were statistically significant ($p < 0.05$). Transfer students least likely to attend were high-ability/somewhat-needy and less-able/somewhat-needy students.

RQ3: Of the freshman and transfer students who demonstrate a significant decrease in enrollment, which type of students has the greatest odds of not enrolling because of increases in net price?

Comparing the b-coefficients produced by the logistic regression revealed the category of students most responsive to increases in net price. Freshmen students in the less-able/high need category had the largest negative slope or b-coefficient, followed by the somewhat-able/high-need and the high-ability/high-need categories of students. These results showed that freshmen students in the high-need category were most responsive to price.

RQ4: How do individual students in the student group which appears to have the most elastic response to net price consider finances when they are making enrollment decisions?

To explain the quantitative results, I interviewed nonresident freshmen students in the most recently admitted class of fall 2014 who were categorized as financially needy. All admitted students in this category were contacted via email for an interview, and only 10 responded and were interviewed by the deadline of August, 2014. Deadline for data collection was reached.

RQ4a: How do enrolled students perceive finances in their enrollment decisions?

Based upon my understanding from the three enrolled students, I found that the qualitative results supported the quantitative results. Students choosing to enroll at the University were less academically focused. The students I interviewed were categorized as somewhat-able or less-able. The students talked about always knowing that they would

attend college. The students visited nearly all of the colleges they applied to, including the University, and they talked about characteristics of the college that were important to them. When looking for a college, the costs did not play a large role in their application or enrollment decisions. Only Oliver talked about applying to the most affordable schools. All three students answered “no” when asked whether financial aid or costs were the ultimate factors in their college choice decisions. The students expected to receive grants and take loans to pay for college and were all willing to assume loans. Both Chelsea and Megan qualified for state merit aid programs in South Carolina and Georgia, respectively; but, instead chose to attend college out-of-state with a more expensive net price. These students appeared to demonstrate an inelastic demand to net price.

RQ4b: How do non-enrolled students perceive finances in their enrollment decisions?

Based upon my understanding from the seven non-enrolled students, I found that the qualitative results supported the quantitative results. Students choosing not to enroll at the University were more academically focused. The students I interviewed were categorized as high-ability or somewhat-able. Nearly all of the students talked about always knowing that they would attend college. Compared to the enrolled students, the non-enrolled students were less likely to visit out-of-state colleges where they applied. Like the enrolled students, the non-enrolled students did not consider costs when applying for colleges. However, all non-enrolled students indicated that financial aid or costs were the ultimate factor in their college choice decision. Ultimately, six of the seven students stayed in-state for college. State merit aid programs in Georgia, Florida, and

Tennessee played a significant role in keeping four students in-state. Many of the students who had parents who had attended college were discouraged by their parents from assuming loans as their parents were still paying their college student loans. Subsequent conversations with parents about paying for college became salient in the college choice decision, leading these students to demonstrate an elastic demand to net price by choosing other institutions where loans were not needed. Comparing costs after receiving all financial aid awards was an important part of the college decision process between the students and their parents. However, five of the seven non-enrolled students did not receive the financial aid offer from the University. This finding is important as all quantitative analyses depend upon the students having a comparable net price when making the enrollment decision.

Significance of the Study

This study of student price responsiveness is significant because it utilized a sequential explanatory mixed methods design when most prior studies have utilized only quantitative methods. By explaining the quantitative results with qualitative methods, I was able to address some of the omitted variable bias that had been noted in previous studies. The qualitative strand expanded the quantitative results by providing a glimpse at the decision-making process of prospective freshmen students in making their final decisions about college. For example, non-enrolled students explained all financial aid offers received, including the institution where they ultimately enrolled and external scholarships. This information filled a gap noted by DesJardins (2001) in his study at the University of Iowa, and allowed me to understand the potential influences of state merit

aid and sponsors in providing financial incentives for students to choose other colleges. Another example is that the students explained more about their willingness or aversion to assume loan debt or pay out-of-pocket for their college expenses. Finally, five of the seven non-enrolled students never viewed a financial aid offer from the University. The previous quantitative studies, including the quantitative strand in this study, assumed that the students and parents compared the financial aid offer with other offers; however, this assumption cannot be confirmed in a quantitative study alone. The qualitative study explained the limits of the quantitative analysis by revealing some assumptions.

Nearly all of researchers acknowledge two potential sources of endogeneity that create bias in studies on this problem. First, the college choice process should be examined as independent variables for application, enrollment, and financial aid receipt, rather than all stages simultaneously (Riegg, 2008). Several studies separated the application decision from the enrollment decision to control for this limitation and found that the impact of financial aid was more significant on the decision to apply rather than the decision to enroll (Curs & Singell, 2002; DesJardins et al., 2006; Singell & Stone, 2002). Other studies found that the perception of aid impacted price responsiveness (Paulsen & St. John, 2002; Perna, 2008), as did the difference between expected and actual aid (Kim et al., 2009). These prior studies argued that an understanding of student price responsiveness at each stage of the decision process is needed to design appropriate financial aid offers and strategies to impact enrollment. This study, however, only analyzed the college enrollment decision. Based upon the qualitative results, the students

interviewed indicated that expected aid or tuition costs did not impact their willingness to apply to a specific college.

This study expanded the understanding of student price responsiveness to include transfer students in addition to freshmen students. While the transfer students were not selected as the sample for the qualitative study, I learned that transfer students are less price responsive than freshmen students. Their odds of attending the University dropped to zero as the net price reached \$20,000, where freshmen student odds of attending dropped to zero as the net price reached \$15,000, even though transfer students had a lower average EFC than freshmen students. This difference in willingness to pay more could be because transfer students anticipate enrolling at the University for fewer years than freshmen students, and therefore are willing to pay more per year. This finding is significant as university administrators consider financial aid packaging for transfer students compared to freshmen students.

This study is significant because it illustrates to policy makers and university leaders that, even though the enrollment of the total group of nonresident students had not been adversely impacted as net price increased, those students who were most price responsive—needy freshmen students—were impacted if the University was not able to offer sufficient financial aid to reduce the net price. Rather than solely examining the institutional costs when making decisions about tuition increases, policy makers should review the net price for students by examining the distinct financial aid offers that are made at individual institutions, particularly those with lower endowments and inabilities to offer more lucrative financial aid. Additionally, policy makers should examine the

price responsiveness by need and ability to understand how their decisions about tuition and financial aid offers impact certain groups of students.

Study Limitations

There are two limitations of this study based upon the review of literature. Riegg (2008) suggested that, to control for omitted variable bias, analyses of student price responsiveness should control for state per capita income, state enrollment rate, strength of financial aid policies and number of community colleges. These variables were not collected or controlled for in this study. There were many variables collected that were not utilized in the regression analysis. Avery and Hoxby (2003) noted a problem with studying how students respond to aid at only one institution is that the focus is upon a narrow set of students and results are not generalizable. This study only examined one institution, the University, and while specific results may not be generalizable, the suggestions for practice and future research inform the literature on student price responsiveness.

The data set also presented limitations. First, information about external scholarships was not included in the calculation for net price. Generally students only notify the institution they plan to attend if they have external scholarships (DesJardins, 2001). This created a limitation in the quantitative data because the external scholarship award could have influenced a decision to enroll in college at all by allowing the student to have sufficient funds to pay for college. This limitation was revealed during the qualitative strand when students discussed external scholarships they received. Next, the freshman academic ability category was developed based upon the student's PGPA. At

the University, the PGPA is highly correlated with the first-year cumulative GPA, and therefore should be the best predictor of academic success at the University. However, the PGPA is calculated by a formula which weights the high school grade point average very highly and only minimally considers the standardized test score. When conducting the quantitative analysis, I struggled with using the PGPA as a measure of academic ability because, in my experience, students with higher standardized test scores have many more options for merit scholarships and college choices than students with lower standardized test scores—even if they have the same high school GPA. If I were to conduct this study again, I would develop another way to categorize academic ability that considered the standardized test score. Finally, during the interviews the enrolled students did not share the amount of their student loans. This information was important in helping to explain the quantitative results. If this study is to be replicated, then that question must be asked more clearly and a response sought from the students.

Because of the timing of this study, the fall 2014 admitted student class was not included in the quantitative data analysis. According to Onwuegbuzie and Johnson (2006), this results in sample integration legitimation: “Unless exactly the same individuals or groups are involved in both the qualitative and quantitative components of a study, constructing meta-inferences by pulling together the inferences from the qualitative and quantitative phases can be problematic” (p. 56). The fall 2014 enrolled data could be quantitatively analyzed to confirm that student enrollment behavior mirrored the five previous year’s classes to control for this sample integration legitimation. Finally, because of the timing of the study, only 10 students were

interviewed for the qualitative strand. Future studies like this should begin the qualitative data collection immediately after the May 1 deadline for making a decision about the college choice. At this time students will be able to remember more about their decision process and perhaps be more likely to speak with the researcher (DesJardins, 2001).

Implications for Practice

This sequential explanatory mixed methods analysis revealed implications for practice for institutions, and specifically this University. Most notably, the qualitative results illustrated a gap in communication received by the students and parents regarding the financial aid package. Five of the seven non-enrolled students never saw a financial aid package from the University. Enrollment management professionals should analyze the business process associated with the financial aid award package. When is the award letter sent to students? How is it sent to students? How can the University confirm that the students and parents have received and reviewed the financial aid award package and understand the net price due for four years of study? One student, Kelly, thought that it would cost \$50,000 per year to attend the University, when the actual institutional costs were about half that amount. Not only did students have a lack of vital information in making a decision about attending the University, Kelly had misinformation that impacted her decision to enroll. The quantitative results become meaningless if students and parents do not have the information about net price to make their college enrollment decision.

Conversations between students and parents emerged as salient in all stages of the college decision-making process, from forming college aspirations to making the final

college choice decision. Parents of needy students, especially those who had attended college and assumed student loans, were averse to their students assuming any loans. These parents would prefer to pay out-of-pocket for college expenses or for their students to accept the best financial aid offer from a college. Enrollment management professionals at college and universities should think about how they can help to facilitate these student-to-parent conversations. What additional information or instruction could be provided to families? An effective enrollment management strategy must ensure accurate messaging to students, particularly low-income and minority students, regarding the expected net cost of attendance and financial aid package early in the college choice process.

A few enrollment indicators emerged during the quantitative and qualitative analyses. Both freshmen and transfer students who submitted the FAFSA to the University were more likely to enroll. This supports previous findings that enrollment increased for students who were FAFSA filers (Van Der Klaauw, 2002). Based upon the conversations with the ten students, if a nonresident student applied to and visited the University, then they were more likely to attend the University, perhaps regardless of costs. All three enrolled students visited campus. The campus visit led all three of the students to feel that the University was the best college fit for them. Many of the non-enrolled students never visited the University. Those students relied upon web searches, virtual campus visits, and current student blogs to make a college choice decision. Enrollment management professionals should consider how the neediest students are able or unable to visit the campus, particularly if they are nonresident students who may have

a farther distance and more expenses associated with travel. Are the virtual campus tours effective in showcasing the University to the prospective student? Are there alternative mechanisms for assisting students with travel costs to visit campus?

Implications for Policy

This study revealed that financially needy freshmen and transfer students responded to net price increases when making enrollment decisions. These findings supported prior research suggesting that the most significant barrier to higher education for low-income students was affordability—specifically cost, the shift in financial aid policy from grants to loans, and the negative consequences of debt (Rubin, 2011). Even with the federal grants offered to low-income families, many of those families have difficulty meeting the EFC (Chen & DesJardins, 2010). Because the likelihood of attending college in the United States varies by family income and lower-income students fall behind their higher-income peers in college enrollment rates (Long, 2010; Long & Riley, 2007; Rubin, 2011), it is important for policy makers at the federal, state, and institution levels to understand the enrollment behavior of students in response to financial decisions is (Abraham & Clark, 2006).

From this college access perspective, federal financial aid policy must change. First, the value of the Pell Grant must be increased for the most financially needy students. Prior research illustrates, and this study supports, that low-income students are more responsive to grants rather than loans (Braunstein et al., 1999). In 2011, Rubin noted that the Pell Grant award was too small to make a difference in college attendance rates for students directly out of high school. From 2011 to 2014, the maximum Pell

Grant award has actually decreased (U.S. Department of Education, 2011; U.S. Department of Education, 2014), while tuition has increased. If federal lawmakers want low-income students to attend college, then the value of the Pell Grant must increase to a greater percentage of the total cost of higher education to reduce the net price for low-income students and families. Second, policy actors at the Department of Education must adjust the calculation of EFC to consider existing college loan debt held by parents. In 2010, Long predicted that the shift in federal financial aid from grants to loans would have a negative effect on the debt burden of future college attendees. In the qualitative strand of this study, students revealed that their parents' existing college loan debt impacted students' willingness to assume loan debt for their education. Instead students made enrollment decisions based upon price and families made decisions to pay out-of-pocket at less expensive institutions rather than assuming loan debt. If the EFC calculation included existing parental college loan debt and if the value of the Pell Grant increased, then low-income students would be equipped to make better choices about college enrollment—independent of price. Without increasing the Pell Grant and considering existing college loan debt in families, federal policy makers make higher education far beyond the reach of low-income students, widening the gap in educational opportunity.

As federal government officials institute the College Scorecard and pledge to keep college affordable (Obama, 2013), they might also consider policy related to the financial aid award letters. Financial aid counseling (Perna, 2008) and ease of application process (Dynarski, 2000) have been noted as important for low-income students. The

next step would be to make financial aid award letters more similar among institutions, allowing for easy comparison between institutions. In the qualitative strand of this study, each student talked about comparing college costs; but, many of the students seemed confused by their financial aid packages and the total costs required. A standard template using easily understood terms with the same definitions across institutions would allow students and family members to make the best financial decision for college enrollment.

State policy implications exist as well. The university in this study is a part of a state system with a governing board that makes the final decisions regarding all institutional costs. At times of decreased state appropriations for public colleges, university governing boards look to students and parents to assume the increased costs and nonresident student tuition can appear to be a quick money maker. In fact, all nonresident students attending the University for fall 2014 were assessed an additional 6% tuition surcharge to gain increased revenue for the state. However, as Noorbakhsh and Culp (2002) documented in Pennsylvania, where nonresident student tuition increased an average of 19.6% each year resulting in 40% decrease of nonresident student enrollment, a one size fits all policy for all campuses is inappropriate. The initial analyses in this study illustrated that nonresident student enrollment did not decrease in spite of increases in institutional costs and net price, which may lead state governing board members and university administrators to think that raising nonresident tuition is a common-sense revenue generator. However, closer analyses revealed that the most financially needy students were most responsive to increases in net price. Therefore, I join Curs and Singell (2010) in suggesting a high-tuition/high-aid (HH) model that

focuses financial aid offers on needy students to impact an enrollment decision. Utilizing a HH pricing model appears to be an effective strategy when institutional aid is available to colleges (Curs & Singell, 2010); however, a LL pricing model may be required for those colleges without substantial endowments to offer institutional aid in the absence of adequate state and federal funding. On this campus, if low-income students will continue to enroll, then the net price must be kept low. If the financial aid policy cannot be changed to accommodate lowering the net price for nonresident students, then an education at this University will be beyond their financial reach.

For the University to make changes in financial aid policy, more flexibility must be afforded by the state governing board and the one size fits all approach must be discontinued. First, before suggesting increases in nonresident institutional costs or assessing an additional tuition surcharge, policy analysts should calculate net price at each campus for nonresident students by level of need. Next, governing board members must ask which students will be impacted by the increases in institutional costs and net price. Is there appropriate financial aid in place to reduce the net price for those students who are most needy and still maintain enrollment and meet net revenue goals? Finally, the state governing board should create policy allowing each campus to utilize increased tuition revenue to decrease net price for neediest students—regardless of state residence. When making policy decisions about tuition increases, governing board members must offer more flexibility at the campus level to manage the financial aid policy to reduce net price for students who are most responsive, by need and ability, to reach enrollment goals and maintain college access opportunities.

Suggestions for Future Research

This study revealed many opportunities for future research. The current research study could be adjusted to focus upon the parents of the students who were most responsive to price. Parent conversations were salient for all students interviewed. A mixed methods approach to understanding the parent perspective on the college choice process would add to the current literature. One parent responded to my request for participation by explaining that she had been very involved in the decision-making process and would be willing to participate in the interview for her student, who was very busy. If interviews were conducted with parents, it would be important to learn whether the parent had substantial student loan debt to confirm my finding that parents with loans were averse to their students assuming loan debt. What impact does it have on a student's college choice decision if the parents had substantial loan debt? If the parents had saved for college? Also, learning the parent perception about the conversations regarding the college choice would unpack the findings that needy students are most price responsive. This future research would expand upon Perna's (2008) conclusions regarding perception of loans and could further explore her assertion that low-income families were more cost-conscious and far more responsive to price than their higher-income peers.

For future studies it would be helpful to interview more students to understand how they received support and made decisions. Unfortunately, in conducting this study I faced time constraints that forced me to complete the interviews by the end of August 2014. However, with more time, the qualitative strand should be expanded to include interviews with students in all nine of the need and ability categories. By interviewing

students in all nine categories, the approaches to the college enrollment decision-making process could be compared and contrasted and the quantitative findings could be more fully explained. If more time were available, then questions about the loan amounts for enrolled students should be asked. How much of their available loan did they accept? These and other questions could be answered and expanded upon if more students were interviewed and more time was available.

Future studies should focus more upon transfer student price responsiveness. The average EFC of the transfer students admitted to the University was less than the net price; yet, 40.2% of the students who were admitted chose to enroll. There are opportunities to consider differentiated financial aid packages for transfer students and to further understand the transfer student price responsiveness with a qualitative study. Are the transfer students more willing to pay a higher net price since they will attend fewer years at the University? Were finances the ultimate factor in their college enrollment decision? Or, was another factor more salient in the decision-making for a transfer student? More research is necessary to understand transfer student price responsiveness at this University, as well as nationally.

While this study attempted to illuminate which students were most responsive to price in the college choice decision, the results also revealed which students were least responsive to price and which students had the lowest odds of enrolling at the university regardless of price. The logistic regression analysis indicated that high-ability/somewhat-needy and somewhat-able/somewhat-needy freshmen students were least price responsive, demonstrating negative log odds of enrolling—regardless of net price.

Perhaps these students have more college options and qualify for more merit aid at other institutions. Understanding more about these students' college choice decisions would be important for the University in the future.

Conclusion

The cost of attending college in the United States continues to rise, while the offers of need-based financial aid decrease (Long & Riley, 2007; St. John et al., 2013). This change has resulted in a shift to student and parents to pay for college in the form of loans or out-of-pocket expenses. Ultimately, this forces many families to make economic decisions about college. At the same time, university leaders must realize enrollment goals to meet tuition revenue goals. Changes in nonresident student enrollment can have a significant impact on tuition revenue since nonresident students pay a significantly higher tuition rate. This situation means that university leaders must understand how to maintain optimum enrollment, particularly of nonresident students, to ensure budget stability. The discourse around college enrollment decisions—for both the university and the family—ultimately becomes highly influenced by finances.

Overall new nonresident student enrollment at this university has not declined with the increases in net price in the last four years. This might lead university leaders and state governing board members to conclude that nonresident tuition can continue to rise with an inelastic demand. However, when analyzed by need and ability groupings, the needy freshmen students were most responsive to net price. If the institutional cost of attendance continues to rise with no subsequent financial aid discounting to result in a

decreased net price, then needy students will likely not attend the University, resulting in decreased nonresident enrollment and less tuition revenue.

REFERENCES

- Abraham, K. G., & Clark, M. A. (2006). Financial aid and students' college decisions: Evidence from the District of Columbia Tuition Assistance Grant Program. *The Journal of Human Resources, 41*(3), 578–610.
- Avery, C., & Hoxby, C. M. (2003). *Do and should financial aid packages affect students' college choices?* (NBER Working Paper 9482). Retrieved from <http://www.nber.org/papers/w9482.pdf>
- Braunstein, A., McGrath, M., & Pescatrice, D. (1999). Measuring the impact of income and financial aid offers on college enrollment decisions. *Research in Higher Education, 40*(3), 247–259.
- Carter, R. E., & Curry, D. J. (2011). Using student-choice behavior to estimate tuition elasticity in higher education. *Journal of Marketing Management, 27*(11–12), 1186–1207.
- Chen, R. (2008). Financial aid and student dropout in higher education: A heterogeneous research approach. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. 23, pp. 209–239). Netherlands: Springer.
- Chen, R., & DesJardins, S. L. (2010). Investigating the impact of financial aid on student dropout risks racial and ethnic differences. *The Journal of Higher Education, 81*(2), 179–208.

- Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches* (3rd ed.). Thousand Oaks, CA: Sage.
- Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research* (2nd ed.). Thousand Oaks, CA: Sage.
- Curs, B., & Singell, Jr., L. D. (2002). An analysis of the application and enrolment processes for in-state and out-of-state students at a large public university. *Economics of Education Review, 21*, 111–124.
- Curs, B. R., & Singell, Jr., L. D. (2010). Aim high or go low? Pricing strategies and enrollment effects when the net price elasticity varies with need and ability. *The Journal of Higher Education, 81*(4), 515–543.
- DesJardins, S. L. (2001). Assessing the effects of changing institutional aid policy. *Research in Higher Education, 42*(6), 653–678.
- DesJardins, S. L., Ahlburg, D. A., & McCall, B. P. (2006). An integrated model of application, admission, enrollment, and financial aid. *The Journal of Higher Education, 77*(3), 387–429.
- DesJardins, S. L., & Bell, A. (2006). Using economic concepts to inform enrollment management. In R. K. Toutkoushian & M. B. Paulsen (Eds.), *New directions for institutional research: No. 132. Applying economics to institutional research*. San Francisco, CA: Jossey-Bass.
- Domina, T. (2014). Does merit aid program design matter? A cross-cohort analysis. *Research in Higher Education, 55*, 1–26. doi: 10.1007/s11162-013-9302-y

- Doyle, W. R. (2012). The politics of public college tuition and state financial aid. *The Journal of Higher Education*, 83(5), 617–647. doi: 10.1353/jhe.2012.0033
- Dynarski, S. (2000). Hope for whom? Financial aid for the middle class and its impact on college attendance. *National Tax Journal*, 53(3), 629–661.
- Dynarski, S. M. (2003). Does aid matter? Measuring the effect of student aid on college attendance and completion. *American Economic Review*, 93(1) 279–288.
- Glesne, C. (2010). *Becoming qualitative researchers: An introduction* (4th ed.). Boston, MA: Allyn & Bacon.
- Griffith, A. L. (2011). Keeping up with the Joneses: Institutional changes following the adoption of a merit aid policy. *Economics of Education Review*, 30, 1022–1033.
- Hatch, J. (2002). *Doing qualitative research in education settings*. Albany, NY: State University of New York Press.
- Heller, D. E. (1997). Student price response in higher education: An update to Leslie and Brinkman. *The Journal of Higher Education*, 68(6), 624–659.
- Heller, D. E. (1999). The effects of tuition and state financial aid on public college enrollment. *Review of Higher Education*, 23 (1), 65–89.
- Hemelt, S. W., & Marcotte, D. E. (2011). The impact of tuition increases on enrollment at public colleges and universities. *Educational Evaluation and Policy Analysis*, 33(4), 435–457.
- Howell, D. C. (2013). *Statistical methods for psychology* (8th ed.). Belmont, CA: Wadsworth.

- Hurwitz, M. (2012). The impact of institutional grant aid on college choice. *Educational Evaluation and Policy Analysis, 34*(3), 344–363 doi: 10.3102/0162373712448957
- Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using mixed-methods sequential explanatory design: From theory to practice. *Field Methods, 18*(3), 3–20. doi: 10.1177/1525822X05282260
- Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher, 33*(7), 14–26.
- Kaltenbaugh, L. S., St. John, E. P., & Starkey, J. B. (1999). What difference does tuition make? An analysis of ethnic differences in persistence. *The Journal of Student Financial Aid, 29*(2), 21–31.
- Kane, T. J. (2007). Evaluating the impact of the D.C. tuition assistance grant program. *Journal of Human Resources, 42*(3), 555–582.
- Kim, D. (2004). The effect of financial aid on students' college choice: Differences by racial groups. *Research in Higher Education, 45* (1), 43–70.
- Kim, J. (2011). Exploring the relationship between state financial aid policy and postsecondary enrollment choices: A focus on income and race differences. *Research in Higher Education*, Advance online publication. doi: 10.1007/s11162-011-9244-1
- Kim, J., DesJardins, S. L., & McCall, B. P. (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*, 741–774.

- Leslie, L. L., & Brinkman, P. T. (1987). Student price response in higher education. *Journal of Higher Education*, 58, 181–204.
- Linsenmeier, D. M., Rosen, H. S., & Rouse, C. E. (2006). Financial aid packages and college enrollment decisions: An econometric case study. *Review of Economics and Statistics*, 88(1), 126–145.
- Long, B. T. (2010). Making College Affordable by Improving Aid Policy. *Issues in Science and Technology*, 26(4), 27–38.
- Long, B. T., & Riley, E. (2007). Financial aid: A broken bridge to college access? *Harvard Educational Review*, 77(1), 39–63.
- Merriam, S. B. (1988). *Case study research in education: A qualitative approach*. San Francisco, CA: Jossey-Bass.
- Meyer, H.D., St. John, E. P, Chankseliani, M., & Uribe, L. (2013). *Fairness in Access to Higher Education in a Global Perspective: Reconciling Excellence, Efficiency, and Justice*. Sense Publishers.
- Monks, J. (2009). The impact of merit-based financial aid on college enrollment: A field experiment. *Economics of Education Review*, 28, 99–106.
- Noorbakhsh, A., & Culp, D. (2002). The demand for higher education: Pennsylvania's nonresident tuition experience. *Economics of Education Review*, 21, 277–286.
- Obama, B. (2009, July 14). *Remarks at Macomb Community College in Warren, Michigan*. Retrieved from *The American Presidency Project* website at <http://www.presidency.ucsb.edu/ws/index.php?pid=>

Obama, B. H. (2013). Remarks by the President in the State of the Union address.

<http://www.whitehouse.gov/the-press-office/2013/02/12/remarks-president-state-union-address>

Onwuegbuzie, A. J., & Johnson, R. B. (2006). The validity issues in mixed research.

Research in the Schools, 13(1), 48–63.

Onwuegbuzie, A. J., Johnson, R. B., & Collins, K. MT. (2009). Call for mixed analysis:

A philosophical framework for combining qualitative and quantitative approaches. *International Journal of Multiple Research Approaches, 3*(2), 114–139.

Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage.

Paulsen, M. B. (1998). Recent research on the economics of attending college: Returns on investment and responsiveness to price. *Research in Higher Education, 39*(4), 471–489.

Paulsen, M. B., & St. John, E. P. (2002) Social class and college costs: Examining the financial nexus between college choice and persistence. *Journal of Higher Education, 73*(2), 189–346.

Perna, L. W. (2000). Differences in the decision to attend college among African Americans, Hispanics, and Whites. *The Journal of Higher Education, 71*(2), 117–141.

Perna, L.W. (2008). Understanding high school students' willingness to borrow to pay college prices. *Research in Higher Education, 49*(7), 589–606.

- Riegg, S. K. (2008). Causal inference and omitted variable bias in financial aid research: Assessing solutions. *The Review of Higher Education*, 31(3), 329–354.
- Rubin, R. (2011). The Pell and the poor: A regression-discontinuity analysis of on-time college enrollment. *Research in Higher Education*, 52(7), 675–692.
- Saldana, J. (2009). *The coding manual for qualitative researchers*. Thousand Oaks, CA: Sage.
- St. John, E. P., Daun-Barnett, N., & Moronski-Chapman, K. M. (2013). *Public policy and higher education*. New York, NY: Routledge.
- Seftor, N., & Turner, S. (2002). Back to school: Federal student aid policy and adult college enrollment. *Journal of Human Resources*, 37(2), 336–352.
- Singell, L., & Stone, J. (2002). The good, the poor, and the wealthy: Who responds most to college financial aid? *Bulletin of Economic Research*, 54(4), 393–407.
- Toutkoushian, R. K. & Hillman, N. W. (2012). The impact of state appropriations and grants on access to higher education and outmigration. *The Review of Higher Education*, 36(1), 51–90. doi: 10.1353/rhe.2012.0063
- U.S. Department of Education. (2009). *2007–08 National Postsecondary Student Aid Study (NPSAS:08): Undergraduate data analysis system*. Retrieved October 8, 2010, from <http://nces.ed.gov/surveys/npsas/>
- U.S. Department of Education. (2011). *2011–2012 Federal Pell Grant payment and disbursement schedules*. Washington, DC: Author. Retrieved from <http://ifap.ed.gov/dpcletters/attachments/P1101.pdf>

- U.S. Department of Education. (2014). *2014–2015 Federal Pell Grant payment and disbursement schedules*. Washington, DC: Author. Retrieved from <http://ifap.ed.gov/dpcletters/GEN1401.html>
- Van Der Klaauw, W. (2002). Estimating the effect of financial aid offers on college enrollment: A regression-discontinuity approach. *International Economic Review*, 43(4), 1249–1287.
- Zhang, L., & Ness, E. C. (2010). Does state merit-based aid stem brain drain? *Educational Evaluation and Policy Analysis*, 32(2), 143–165.
- Zhang, L., Hu, S., & Sensenig, V. (2013). The effect of Florida's Bright Futures Program on college enrollment and degree production: An aggregated-level analysis. *Research in Higher Education*, 54, 746–764.

APPENDIX A**EMAIL INVITATION TO PARTICIPATE TO STUDENTS WHO INTEND/DO NOT INTEND TO ENROLL****Email Invitation to Participate to Students Who Intend to Enroll**

Dear <Insert First Name>:

I am a doctoral student candidate conducting research on how finances (costs) impact college enrollment decisions of students who have been admitted to Appalachian State University and plan to attend in the fall semester 2014.

If you are interested, participation would require 15–20 minutes of your time to complete a telephone interview. All information obtained in this study is strictly confidential unless disclosure is required by law. Identifying information will be kept confidential and participants will be assigned codes to protect their identity. Participation will not affect your relationship with Appalachian now or in the future.

Please see the attached Consent Form and click here to agree to participate. You can also reply to sbdavies@uncg.edu with your availability to participate during the month of July, and I will provide you with additional information.

After the telephone interview, I would be happy to offer you advice on how to find financial aid and scholarships or how to make the most of your first year. As Associate Vice Chancellor for Enrollment Management at Appalachian State University, I have some expertise in these areas that might be useful for you.

I greatly appreciate your willingness to participate!

Thank you for your time,

Susan Davies

Email Invitation to Participate to Students Who Do Not Intend to Enroll

Dear <Insert First Name>:

I am a doctoral student candidate conducting research on how finances (costs) impact college enrollment decisions of students who have been admitted to Appalachian State University; but, who do not plan to attend in the fall semester 2014.

If you are interested, participation would require 15–20 minutes of your time to complete a telephone interview. All information obtained in this study is strictly confidential unless disclosure is required by law. Identifying information will be kept confidential and participants will be assigned codes to protect their identity. Participation will not affect your relationship with Appalachian now or in the future.

Please see the attached Consent Form and click here to agree to participate. You can also reply to sbdavies@uncg.edu with your availability to participate during the month of July, and I will provide you with additional information.

After the telephone interview, I would be happy to offer you advice on how to find financial aid and scholarships or how to make the most of your first year. As Associate Vice Chancellor for Enrollment Management at Appalachian State University, I have some expertise in these areas that might be useful for you.

I greatly appreciate your willingness to participate!

Thank you for your time,

Susan Davies

APPENDIX B**INFORMED CONSENT****UNIVERSITY OF NORTH CAROLINA AT GREENSBORO
CONSENT TO ACT AS A HUMAN PARTICIPANT**

Project Title: Understanding How Finances Impact College Enrollment Decisions: A Mixed Methods Analysis

Principal Investigator and Faculty Advisor: Susan Davies and Dr. David Ayers

Participant's Name: _____

What is the study about?

This is a research project that aims to gain a deeper understanding of how finances, specifically net price, impacts the college enrollment decision of nonresident students through the integration of both qualitative and quantitative data collection and analysis methods.

Why are you asking me?

An email was sent to a select group of admitted nonresident students to Appalachian State University, inviting participation in this study. You were selected because you are <planning to enroll or not planning to enroll> and you responded to the email indicating a willingness to participate in the interview.

What will you ask me to do if I agree to be in the study?

You will be asked to participate in a 15–20 minute telephone interview. If you have any questions about this project you can contact Susan Davies at sbdavies@uncg.edu.

Is there any audio/video recording?

Your interview will be audio recorded. Because your voice will be potentially identifiable by anyone who hears the audio file, your confidentiality for things you say while being recorded cannot be guaranteed although the researcher will try to limit access to the audio file of your interview as described below.

What are the risks to me?

The Institutional Review Board at the University of North Carolina at Greensboro has determined that participation in this study poses minimal risk to participants. If you have questions, want more information or have suggestions, please contact Susan Davies at sbdavies@uncg.edu (principal investigator) or Dr. David Ayers at dfayers@uncg.edu (faculty advisor). If you have any concerns about your rights, how you are being treated, concerns or complaints about this project or benefits or risks associated with being in this study please contact the Office of Research Integrity at UNCG toll-free at (855)-251-2351.

Are there any benefits to society as a result of me taking part in this research?

This study may benefit Appalachian State University and other Master's Comprehensive universities in understanding how costs impact enrollment decisions of nonresident students. It may also benefit university administrators and policy makers who make decisions about nonresident student tuition.

Are there any benefits to *me* for taking part in this research study?

There are no direct benefits to participants in this study.

Will I get paid for being in the study? Will it cost me anything?

There are no costs to you or payments made for participating in this study.

How will you keep my information confidential?

All information obtained in this study is strictly confidential unless disclosure is required by law. Identifying information will be kept confidential and participants will be assigned codes to protect their identity. Audio recordings will initially be made using a digital voice recorder. Immediately following the interviews, the digital files will be transferred to a password protected computer, and deleted from the digital voice recorder. All data will be stored on a password protected computer or in locked filing cabinets. You are encouraged to participate in the interview in a private area.

What if I want to leave the study?

Your participation in this study is voluntary. You have the right to refuse to participate or to withdraw at any time, without penalty. If you do withdraw, it will not affect you in any way. If you choose to withdraw, you may request that any of your data which has been collected be destroyed unless it is in a de-identifiable state.

What about new information/changes in the study?

If significant new information relating to the study becomes available which may relate to your willingness to continue to participate, this information will be provided to you.

Voluntary Consent by Participant:

By signing this consent form/completing this survey/activity (used for an IRB-approved waiver of signature) you are agreeing that you read, or it has been read to you, and you fully understand the contents of this document and are openly willing consent to take part in this study. All of your questions concerning this study have been answered. By electronically signing this form and returning it to sbdavies@uncg.edu, you are agreeing that you are 18 years of age or older and are agreeing to participate, or have the individual specified above as a participant participate, in this study described to you by Susan Davies.

Signature: _____ Date: _____

APPENDIX C
INTERVIEW PROTOCOL

Interview Steps:

1. Dial the Telephone Number
2. Greet Participant
3. Develop Rapport
4. Complete demographic information & sign consent form
5. Begin Interview
6. Thank participant for their help

Developing Rapport Questions:

- Are you having a nice summer?
- Do you have any plans for vacation?
- Did you have a memorable end to your senior year of high school?

Initial Instructions:

Thank you for agreeing to help me with my project. Today I want to ask you a few questions that will help me better understand nonresident students' college enrollment decisions. Your participation in this study is voluntary. You have the right to refuse to participate or to withdraw at any time, without penalty. If you do withdraw, it will not affect you in any way. If you choose to withdraw, you may request that any of your data which has been collected be destroyed unless it is in a de-identifiable state.

[Bring out tape recorder]

In order to help me remember what you say today, I would like to record our conversation. I am only recording the conversation for my use. At no time will I share the audio recording with anyone. Your responses will be kept confidential. Is it okay with you if I record what we talk about?

[Press record, state interview title, date, & participant name]

College Choice Questions

1. To begin, please tell me a little bit about yourself and your family.
 - a. Age
 - b. Race *<if necessary, to confirm the data set>*
 - c. Parent's level of education, employment
2. Describe your high school experiences as they relate to your choice to attend college.
 - a. Public or private high school
 - b. Did you plan to attend college with friends from your high school or community?
3. Talk a bit about your college search process.
 - a. How many colleges did you apply to?
 - b. How many in-state and out-of-state?
 - c. What characteristics were you looking for in a college?
 - d. Where are you planning to go to college?
4. Why did you ultimately choose to enroll at *<Appalachian or other institution>*?
5. What other factors influenced your decision?

Financial Questions for Students Who Do Not Plan to Enroll

Role of Finances in the College Choice Decision:

1. What conversations did you have with your parents about paying for college?
2. What type of financial aid or scholarships did you expect to receive?
 - a. Did costs play a role in determining the colleges you applied to?
 - b. Did costs play a role in your final college choice decision?
3. Did you receive any outside scholarships (i.e., from your community, local organization, not affiliated with the university you plan to attend)?
4. I know that you received *<this financial aid package at Appalachian>*.
 - a. What was your financial offer at the other university?
 - b. What financial offer would have led you to choose Appalachian?
5. Is financial aid the factor that influenced your enrollment decision?
6. How did you consider financial aid packages when they are making enrollment decisions?
7. What advice would you give to students who would like to attend college out-of-state?

Financial Questions for Students Who Do Plan to Enroll

Role of Finances in the College Choice Decision:

1. What conversations did you have with your parents about paying for college?
2. What type of financial aid or scholarships did you expect to receive?
 - a. Did costs play a role in determining the colleges you applied to?
 - b. Did costs play a role in your final college choice decision?
3. Did you receive any outside scholarships (i.e., from your community, local organization, not affiliated with the university you plan to attend)?
4. I know that you received <this financial aid package at Appalachian>.
 - a. What was your financial offer at your second choice college?
 - b. What financial offer would have led you to choose it over Appalachian?
5. Is financial aid the factor that influenced your enrollment decision?
6. How did you consider financial aid packages when they are making enrollment decisions?
7. What advice would you give to students who would like to attend college out-of-state?

Closing

Ok, we're done. Thank you for helping me with this today! Your time is much appreciated! Do you have any questions for me about financial aid or scholarships or how to have a successful first year?

[*Stop tape recorder*]