STUDENTS’ PERCEPTIONS OF DIFFERENTIAL TUITION BASED ON ACADEMIC PROGRAM AND THE IMPACT ON MAJOR CHOICE

BY

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THESIS
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Abstract

The growing popularity of charging students different tuition rates based on their academic major, known as differential tuition, has raised many questions regarding the impact this policy has on access and students’ major decisions. These questions have yet to be explored in higher education research. This study attempts to begin to fill this gap by using a student survey at the University of Illinois at Urbana-Champaign (UIUC) to better understand the awareness and perceptions of undergraduates at a large, public, research university regarding differential tuition. The survey sample includes 1,470 undergraduate students at UIUC from the College of Engineering and the College of Liberal Arts and Sciences. The sample includes both students who pay the highest tuition differential on campus and the base tuition rate. Price is hypothesized to matter to undergraduate students when they are selecting their major. Results suggest that price may not be as important as expected to students when selecting their major, but price probably does play some part in students’ decisions regarding the progress they make towards their degree. When students are aware of the tuition differential, they may delay entry into a major or use other cost management strategies to reduce the amount of tuition they are required to pay. Additional findings suggest that the lack of information provided to undergraduates regarding the uses of the tuition differentials collected by certain colleges and departments may be creating negative perceptions of the university. Overall, undergraduates in these two colleges seemed to be aware of tuition differentials, but their knowledge was limited, and they often questioned the magnitude of the tuition differential and the uses of the tuition differential. The study presents further questions regarding the financial knowledge of undergraduates when they make their major decisions. If they are unaware of the details of the tuition differential policy when they are selecting their major, this policy cannot play a role in
their decision making, but this then raises further questions regarding the financial literacy of undergraduates and the information they are provided regarding differential tuition policies on their campus. This thesis hopefully will encourage other researchers to explore the policy of tuition differentials further to ensure undergraduates of all backgrounds have equal access to academic majors.
Acknowledgements

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Chapter 1: Introduction

Introduction

In the February 12, 2013 State of the Union Address, President Obama called attention to increasing college tuition costs:

Through tax credits, grants and better loans, we’ve made college more affordable for millions of students and families over the last few years. But taxpayers can’t keep on subsidizing higher and higher and higher costs for higher education. Colleges must do their part to keep costs down, and it’s our job to make sure that they do.

The cost of college is of concern to both students and taxpayers, and one alternative tuition policy makes the conversation of rising tuition more complicated. One alternative tuition policy that is not only coming up in the news, but in popular culture as well, is that of tuition differentials based on academic major. Charging a different tuition rate to students in majors such as engineering or business, which are considered to be a high cost to the university, has generated much discussion including questions of fairness and how these policies might impact a student’s decision to select a major. This thesis will focus on attempting to understand students’ perspectives of tuition differential policies. This chapter will set the landscape for tuition differentials in the United States for higher education institutions and specifically the landscape of tuition differentials at the University of Illinois at Urbana-Champaign (UIUC).

National Tuition Trends

The sticker price of college continues to rise at public four-year institutions more in the past decade than any of the two previous decades (College Board, 2012b). According to College Board (2012a), “average published tuition and fees at public four-year colleges and universities increased by 31% beyond the rate of inflation over the five years from 2002–03 to 2007–08, and by another 27% between 2007–08 and 2012–13” (p.15). College costs are of growing concern not only for students but also for taxpayers who fund financial aid programs. According to
Trends in Student Aid, a College Board (2012b) report, $236.7 billion in financial aid was distributed to undergraduate and graduate students from federal sources, and an additional $8.1 billion came from private, state and institutional sources. The College Board (2012a) also reports that in 2011–12 “about two-thirds of full-time students paid for college with the assistance of grant aid, and some of the remaining one-third received federal tax credits and deductions to help cover expenses” (p.3). With the continued increases in tuition price, increases in financial aid are required to help students afford the rising tuition costs.

College costs are rising for undergraduates across the nation, but the discussion of why college costs are rising is often left out of this conversation. The many factors that contribute to the increases in college tuition are not always easily discernable. The Delta Cost Project has attempted to evaluate college spending over the years, and in their most recent report, Desrochers and Kirshstein (2013) use the Integrated Postsecondary Education Data System (IPEDS) Analytics: Delta Cost Project Database to describe trends in college spending from 2000–2010. The report details the climate of college costs following the Great Recession of 2008. According to Desrochers and Kirshstein, in 2010, declines in “public funding per student for higher education reached a decade-long low...for the first time, public research and master’s institutions generated more revenue from net tuition than from state and local appropriations.” Increased tuition was not enough to offset the loss of revenue from public sources (p. 1). In addition to this loss in revenue, institutions faced larger enrollments in 2010 than they had seen previously, requiring institutions to do more with less (p. 2). Desrochers and Kirshstein also report that even though students were paying more in tuition, funding for academics at colleges and universities declined in 2010. Universities have many revenue streams including grants, tuition, contracts, and auxiliary services, but many of these sources are not devoted to academics; their purposes
are earmarked for other projects. This paints a complicated picture of how institutions are financed. The funding sources other than those that came from public sources and tuition increased, but since most of the instructional costs are derived from public and tuition sources, the funding for academics declined.

A 2011 report from the Cornell Higher Education Research Institute (CHERI) reports a growing number of colleges and universities are implementing tuition differentials at the undergraduate level based on academic program in order to offset the declining public support and the increase in student enrollments. In the face of financial hardships, concern regarding student access to college is a continuing issue in higher education. A new question, not yet addressed by scholarly research, is should the higher education community now be concerned with access to certain majors? Tuition differentials based on academic major are becoming more prevalent, but are not a recent tuition policy invention, as will be seen in the literature reviewed in Chapter 2. Still, scholarly research investigating the impact these policies may have on student access to certain majors is largely nonexistent. The focus of this thesis is differential tuition based on academic major and investigating how these tuition policies may impact a student’s decision to select a major.

**Definition of Differential Tuition**

The policy of differential tuition involves a base tuition rate that all students at a university are required to pay. The tuition differential is then implemented for certain populations of students. A longstanding, common tuition differential is one that exists for graduate students at a university. Undergraduates usually pay a lower-tuition rate than graduate students. Other tuition differentials might be implemented to charge different tuition rates to full-time and part-time students or upper-division and lower-division undergraduates. Another
common tuition differential at large, research universities is differential tuition based on academic major, or cost-based tuition. This policy provides a base tuition rate for undergraduates at a university with a differential being charged to students in certain majors. These majors with the higher-tuition differential are often thought to be majors that have a higher cost of delivery to the university such as business, engineering, or art. For the remainder of this thesis, when differential tuition is discussed, it will refer to the tuition policy of charging a tuition differential based on academic major, unless otherwise specified. When a tuition differential is referenced, it will also always refer to a higher-tuition charge. Students either pay the base tuition rate or the higher-tuition differential, never a tuition differential that is lower than the base tuition rate.

**Differential Tuition in the Legislature and Current Events**

The higher education community is not the only environment where tuition differentials are being discussed. Most recently, the Washington State legislature took on the policy of differential tuition in early 2013 when the state Senate and House both were presented with a bill (SB5548, HB1043) to ban the practice of differential tuition for different majors at public colleges in the State of Washington, after awarding the universities the power to implement differential tuition for in-state residents in 2011. One motivation for this legislative bill in Washington is the state’s pre-paid tuition (529 plan) called the Guaranteed Education Tuition (GET) program. According to the GET program website (2011), this program allows a family to pay for their student’s education now, guaranteeing they would not pay higher-tuition costs in the future. According to the State of Washington’s Legislative Advisory Committee on Advanced Tuition Payment report (2012), policymakers are worried differential tuition would make it difficult for the GET committee to set prices for their guaranteed tuition program. They
were also concerned that higher-tuition prices for some majors would discourage students from entering those higher-priced majors (Blankinship, 2013).

A similar concern was voiced in Florida in 2012, and has sparked continued debate in the state, when Governor Rick Scott’s Florida Blue Ribbon Task Force proposed, in its final report (2012), that the state focus its support to charge lower tuition for students in “legislatively determined high-skill, high-wage, high-demand (market determined strategic demand) bachelor’s degree programs;” as compared to students in “other bachelor’s degree programs” (p.22). This recommendation calls for a tuition freeze on these high-demand majors that provide more economic return to the state, while tuition for other majors such as history or philosophy would be allowed to increase. This has caused much controversy in Florida with faculty in programs that would not be considered “high-skill, high-wage, high-demand” concerned that tuition for their students will increase (Griswold, 2013). This policy is the exact opposite of most differential tuition policies of other state systems. The literature in Chapter 2 will show that not all majors have the same elasticity of demand, so while increasing tuition for high-demand majors such and engineering or business may not impact enrollment for the general population of students, increasing the price of other majors in the liberal arts or social sciences may threaten the existence of those programs, as concerned opponents to the task force’s recommendations have voiced.

Finally, the debate on the fairness of tuition differentials has moved to popular culture venues as it was discussed in the August 1, 2007 episode of Stephen Colbert’s The Colbert Report, a popular satirical news program. The debate on the consequences and fairness of tuition differentials based on academic major has moved from academia, to the legislature, and even to popular culture, yet scholarly research on this topic is very limited. This study hopes to start to
fill some of this gap, so all parties involved can better understand the implications of this tuition policy as it relates to students.

**Problem Statement**

The constant increase in tuition should be of concern for policymakers, taxpayers, students and families. Some policymakers are searching for ways to maintain student financial aid programs to ensure college remains affordable for students. Taxpayers, as the funders of federal and state financial aid programs should be concerned with the use of their tax dollars to be sure colleges are using revenue from financial aid programs efficiently. Students and families should be concerned with the affordability of college now and in the future. The rising cost of tuition at higher education institutions in the United States is a growing concern for college access. The Department of Education’s Advisory Committee on Student Financial Assistance warns that restrictions to access and limited opportunities for already underrepresented populations in higher education threaten the economic well being of the country and the ability for the United States to compete globally (U.S. Department of Education, 2002, 2006). McPherson and Schapiro (2006) and Heller (2002) both point to issues of the preparedness and financial barriers to low-income students’ access to higher education. To better understand the rising costs of college as well as possible policies or practices to lessen the financial burden for students and families, research on tuition policies in higher education is needed.

Extensive research has exposed the challenges low-income students face in gaining access to higher education because of financial barriers, but fewer studies have attempted to shed light on the possible inequalities that still may exist on college campuses once low-income students are enrolled. Currently, many leading research universities have implemented differential tuition. For example, at the University of Illinois at Urbana-Champaign (UIUC), an
in-state undergraduate, engineering major entering the university in 2012–2013 pays $16,556 in tuition,\(^1\) while an undergraduate with a liberal arts major entering the university at the same time pays the base tuition rate of $11,636 per year (Office of the Registrar, n.d.). This is a differential of $4,920 per year.

In 2008, a survey of 165 research universities revealed that 45% had differential tuition (Nelson, 2008). A 2011 CHERI report examining all types of differentials at doctoral, master’s, and baccalaureate institutions revealed that approximately 25% of public colleges or universities reviewed (n=571) had implemented a tuition differential based on academic major, as of March 2011. The research conducted by CHERI involved website reviews of institutions, which can be a complicated and tedious search as I experienced researching tuition at the institutions in the Big Ten Conference. It is possible these authors did not include differentials that were found in program fees rather than tuition, so this may be an underestimation of the number of institutions that are charging more for certain majors. The different type of institutions reviewed may also explain the large difference in the prevalence of differential tuition between Nelson (2008) and CHERI (2011). This makes it difficult to gain a true understanding of how common tuition differentials based on academic majors are at colleges and universities, which provides another reason more research on tuition differentials is greatly needed to gain a better understanding of the tuition differential landscape in higher education.

Research surrounding the college-going decisions of low-income students has shown that finances play a large role in their decisions. However, little is known if these same financial factors play a role in a low-income student’s selection of an academic major. If low-income students do consider finances in their decision to select a major, they may not be selecting

\(^1\) Tuition figure excludes fees, room and board and other student costs.
higher-cost majors as much as their higher-income peers, which would limit their higher educational opportunities.

The prospect that underrepresented populations of students are gaining easier access into higher education is negated if their choices in programs of study are limited due to finances once they get into college. Having a more diverse student population in higher-cost majors and giving a low-income undergraduate the opportunity to major in a higher-cost field are important considerations when discussing social justice issues in the higher education system. Universities are pressured to prevent tuition costs from rising, but if the gaps in the price for certain majors at large, research universities continue to rise, the effort to make higher education more affordable is challenged.

**Purpose of the Study**

The purpose of this study is to offer a first look at differential tuition based on academic major from the perspective of the undergraduates. The literature review in the following chapter will reveal the lack of attention that has been paid to the perspective of the student as well as the lack of consideration for how differential tuition policies may impact students from different economic backgrounds. While the current literature has begun to ask questions regarding how differential tuition based on academic major may be impacting access to higher educational opportunities, this study attempts to begin to answer these questions for the higher education community.

**Why Study Differential Tuition at UIUC?**

Fitzgerald and Delaney (2002) report on the challenges to educational opportunity in America and the “impending demographic growth and rising colleges costs” that will make these inequalities more difficult to overcome for policymakers. More specifically, that “the
demographic pressures will be exacerbated by college costs, which have risen faster than inflation, with the highest rates of growth occurring at public institutions that enroll 80% of all undergraduate students” (p.3). UIUC is a public, four-year, land-grant institution with a Carnegie Classification of Research University (very high research activity). In the spring of 2013, UIUC had 30,459 enrolled undergraduates. As a public institution, UIUC is the institution type seeing the highest rates of growth in tuition.

Furthermore, CHERI’s web survey of institutions in 2010–2011 attempted to “gauge how prevalent” differential tuition has become. They report that as of 2011, 143 public academic institutions had some form of differential tuition with over half of the “flagship doctoral institutions” having some form of differential tuition, most of which involves differentials based on college or major. The CHERI reports suggests that UIUC would be the “typical” type of institution at which one might find differential tuition based on major.

UIUC also provides what might be considered an exaggerated case of tuition differentials based on academic majors. The tuition differentials at UIUC based on academic major have been in place for 20 years, with the first differential based on major introduced in 1992. The tuition differentials have grown in price and have been applied to more majors in these 20 years making this a longstanding policy at UIUC. The most expensive majors at UIUC are now almost $2,500 more per semester than the base tuition rate. The differential charged at UIUC compared to other universities in the Big Ten Conference can be seen in Table 1.1.
Table 1.1

Differences in the Cost for Liberal Arts Majors and Engineering or Business Majors at Big Ten Universities (per semester)

<table>
<thead>
<tr>
<th>University</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Illinois</td>
<td>$2,460</td>
</tr>
<tr>
<td>University of Michigan</td>
<td>$1,659</td>
</tr>
<tr>
<td>University of Nebraska</td>
<td>$1,122</td>
</tr>
<tr>
<td>University of Iowa</td>
<td>$1,073</td>
</tr>
<tr>
<td>Purdue University</td>
<td>$775</td>
</tr>
<tr>
<td>University of Wisconsin</td>
<td>$700</td>
</tr>
<tr>
<td>Indiana University (Business)</td>
<td>$600</td>
</tr>
<tr>
<td>Michigan State University</td>
<td>$545</td>
</tr>
<tr>
<td>The Ohio State University</td>
<td>$540</td>
</tr>
<tr>
<td>Penn State</td>
<td>$499</td>
</tr>
<tr>
<td>University of Minnesota</td>
<td>$145</td>
</tr>
</tbody>
</table>

Note: Author’s calculations. Northwestern was excluded because there is no undergraduate Engineering program. Fees are for 2012–2013 academic year, In-state Residents, Upper-division (if differentiated), Engineering if available (otherwise Business)

These differentials were calculated based on the bursar or registrar’s office websites for each of the universities, which can be found in the Reference Section. These differentials are based on 2012–2013 academic tuition and fees. The tuition information for these universities was not always easily found. In addition, not all institutions have implemented a different tuition rate for programs. At some institutions (Indiana University, University of Minnesota, The Ohio State University and Purdue University), differentials were only found when looking at specific program fees, rather than UIUC’s tuition policy of having different tuition rates. In addition, it is important to note that some institutions (University of Iowa, University of Michigan, Michigan State University and Penn State) only charge a differential to upper-division undergraduates in the more expensive majors. These are the best estimates for the differences that these majors pay at these campuses, but if there are other differences in cost not available on the institution’s website, these differences are not included. For example, at UIUC, students in addition to paying
a higher-tuition differential in engineering programs also are required to pay laboratory fees for some courses. In any case, the differential at UIUC is the largest charged in the Big Ten Conference. Because of the large differential at UIUC, one might expect that students would be more aware of this tuition difference than they are at a school such as the University of Minnesota that has a much smaller differential which is listed as a program fee rather than a different tuition rate.

Because of the exaggerated differential rate at UIUC, a survey of UIUC undergraduates may provide important information for other universities who may be considering implementing differential tuition or increasing their current differential tuition. This survey will provide a look at how undergraduates view tuition differentials at UIUC based on the information they have been provided as students, which also may advise practices for informing students of tuition differentials at UIUC and other universities.

**Background of Tuition Differentials at UIUC**

UIUC provides an excellent environment to investigate tuition differentials because of the large differential, based on academic major, which has existed at UIUC for over 20 years. Lower and upper division undergraduates were charged different tuition rates beginning with the 1981–1982 academic year (University Office for Planning and Budgeting, 2011). Graduate students are still charged more than undergraduate students, but charging differentials based on freshmen, sophomore, junior, or senior class standing at UIUC was phased out in favor of differential tuition based on major during the 1992–2993 academic year (University Office for Planning and Budgeting, 2011). In this year, any student taking Engineering courses or enrolled in the College of Engineering was charged an additional cost to “provide for academic program improvements” (University Office for Planning and Budgeting, 2011, p. 60). The $500
differential for engineering was phased in over two years. In 1993–1994 differentials for students in Chemistry and Life Sciences ($500), Architecture ($200), Art ($200) and Music ($200) were phased in over two years. In 2004–2005, all students in the College of Fine and Applied Arts and the College of Business were charged a differential. In 2007–2008 the differential for the College of Agricultural, Consumer and Environmental Sciences was phased in over 4 years. The Department of Journalism began charging a differential in 2008–2009 and the Department of Advertising began a differential in 2010–2011. Table 1.2 shows the current tuition levels at UIUC for freshmen entering the university during the 2012–2013 academic year based on academic major.
Table 1.2  
*Tuition Rates for UIUC Undergraduates Entering the University from Summer 2012-Spring 2013 (academic year tuition rate)*

<table>
<thead>
<tr>
<th>College or Major of Enrollment</th>
<th>Tuition Rate for Academic Year</th>
<th>Amount of Differential (Differential Tuition Rate-Base Tuition Rate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All other majors not listed below (base tuition rate)</td>
<td>$11,636</td>
<td></td>
</tr>
<tr>
<td>College of Business: All Majors</td>
<td>$16,556</td>
<td>$4,920</td>
</tr>
<tr>
<td>College of Liberal Arts and Sciences: Biochemistry, Chemistry, Biology, Integrative Biology, and Molecular/Cellular Biology, Chemical Engineering, Math and Computer Science, Statistics and Computer Science, Physics</td>
<td>$16,556</td>
<td>$4,920</td>
</tr>
<tr>
<td>College of Engineering: All Majors</td>
<td>$16,556</td>
<td>$4,920</td>
</tr>
<tr>
<td>College of Agricultural, Consumer, and Environmental Sciences: Animal Sciences, Food Science and Human Nutrition, Technical Systems Management, Agricultural and Biological Engineering, Crop Sciences, Natural Resources and Environmental Sciences, and Agricultural and Consumer Economics</td>
<td>$14,180</td>
<td>$2,544</td>
</tr>
<tr>
<td>College of Fine and Applied Arts: All majors</td>
<td>$13,240</td>
<td>$1,604</td>
</tr>
<tr>
<td>College of Media: Advertising Majors and Journalism Majors</td>
<td>$12,416</td>
<td>$780</td>
</tr>
</tbody>
</table>

The number of departments charging a tuition differential, the amount of time tuition differentials have been practiced at UIUC, and the range of the tuition differentials ($0–$4920 per year) makes UIUC a campus that provides an excellent environment for studying tuition differentials at a large, public research university.
Significance of Study

The results of this study will not be generalizable to all higher education institutions or all students in higher education, but these results will provide an important insight into the undergraduate experience, and may be used to inform tuition policy as well as recruiting policies for certain academic majors, especially at UIUC. The results of this study will also provide other higher education institutions a student’s perspective and may encourage other universities or departments to implement a similar study on their campuses. Questions regarding tuition differentials in higher education are important for higher education access and affordability; these are questions all policymakers and administrators concerned with social justice, perceptions of tuition policies, and financial awareness should be asking on their own campuses.
Chapter 2: Theoretical Framework and Literature Review

Introduction

This chapter sheds light on questions regarding differential tuition first through a discussion on the theoretical framework used for this project, followed by an exploration of related literature. Price sensitivity literature is explored first since it is a more widely studied topic than students’ sensitivity to differential tuition based on major. It also provides a framework for how students are known to react to price, which may help one understand how they might react to differential tuition based on major. While students’ responses to tuition changes based on major is an underexplored area of research, much can be learned from exploring literature that investigates how students react to tuition changes in general. Literature is then reviewed exploring how price can be mitigated by student aid, and how student aid also provides limitations for low-income students that do not apply to students of higher incomes.

The literature review will then move to an exploration of how students select their college and how students make decisions related to their academic major. Most of the college-choice literature includes students’ decisions based on finances, but the major-choice literature leaves these factors out. When financial factors are included in major-choice literature, they are often referring to financial factors regarding students’ earning potential with certain majors, not on students’ ability to pay tuition differentials based on academic major.

Finally, tuition differential literature will be explored by first discussing the higher education finance climate, and how this might support the need for tuition differentials. Several different types of tuition differentials will be explored that have been implemented to correct for the complicated nature of institutional finances. The focus will then move to tuition differentials based on academic major, also referred to as cost-based tuition, with several arguments for why
some institutions implement differential tuition based on major. Finally, recent literature that specifically examines tuition differentials based on academic major and how students might be impacted by these policies will be discussed. While the number of current studies examining tuition differentials based on academic major is limited, these studies provide a good basis for the current research project.

**Theoretical Framework**

This study will borrow from the field of economics to provide a theoretical framework to help understand how students might react to tuition price. Price theory, according to Friedman (2008), “deals with the allocation of resources among different uses, the price of one item relative to another” (p. 7). Friedman continues on to explain, “Prices…transmit information, they provide an incentive to users of resources to be guided by this information, and they provide an incentive to owners of resources to follow this information” (p. 10). Friedman warns that this is an oversimplification of the price system, but as a summary, this suffices. Prices in higher education then transmit information to consumers of the education: students and families.

Price is determined by supply and demand principles. Demand refers to someone’s willingness and ability to pay. Income, price of other complementary resources, preferences, price of substitute resources and expectations of future prices all determine demand (DesJardins & Bell, 2006). When all of these factors are held constant, economists then can look at the relationship between the price of the good and the demand. The Law of Demand states that when all other factors are held constant, when the price of the good increases, the quantity of the good demanded will decrease. The elasticity of demand refers to the “effect of a change in price on quantity demanded” (Friedman, 2008, p.19). This is a term used commonly in the tuition price sensitivity literature. Friedman explains that, “the elasticity of demand depends primarily on the
availability of substitutes” (p.22). The substitutes in the case of higher education would be other degrees within the same institution or competing degrees from other institutions. This is where the concept of thinking of higher education as a marketplace with perfect competition is complicated because of the differentiation of degrees within an institution and between institutions. Paulsen (2001) explains that one degree is not a perfect substitute for another, and “customers perceive each individual seller’s product to possess unique or distinguishing characteristics” (p.195). In the case of higher education, the sellers are the institutions, the products are the degrees, and the customers are students and families.

Price discrimination refers to charging consumers different prices for the same products or different prices based on quantity purchased (DesJardins & Bell, 2006). One example of price discrimination is differential tuition. This is “third-degree price discrimination,” which “is the practice of dividing the relevant market into groups (segments) based on their price elasticity and charging each of these segments different prices for the same good” (DesJardins & Bell, 2006, p. 69). The following literature review will explore research that suggests some programs such as engineering are charging a tuition differential based on the theory that the demand for these degrees is inelastic, so the programs should not see a substantial drop in enrollment with price increases, but this does not take into account the resources of the individual students. Low-income students with fewer resources are more price sensitive when deciding to enroll in college, as will be discussed in the literature review, therefore price does matter for low-income students.

This is an oversimplification of a very complex theory of prices, but DesJardins and Bell (2006) relate these concepts to enrollment management in higher education, stressing the importance of administrators concerned with enrollment and recruitment to be aware of these economic principles. DesJardins and Bell point to the need of administrators in higher education
to recognize the elasticity of demand for degrees from their institutions when setting tuition prices. Some research is available, to be discussed in this chapter, that attempts to determine the elasticity of demand for certain majors, but one important note to make regarding differential tuition is that when degrees were found to be elastic or inelastic, researchers were not examining exactly which students were enrolling or not enrolling before and after price changes. Studies have not been concerned with investigating the behavior of students from different subpopulations, but treated the entire undergraduate student body as one population. Students at one institution do not all have the same resources available to them. The income or resources of the consumer, in this case the students and families, is one factor that determines demand, so one would expect that students of different income levels may have different demands for different degrees regardless of price. In reaction to price, students from different income levels would then also behave differently than their higher-income peers. In short, price matters in the decisions consumers make in the marketplace, so price will also matter to students selecting institutions and programs in higher education.

Using these principles, this study hypothesizes that tuition differential prices do in fact matter in students’ decisions in higher education. In a program with a higher tuition differential, the quantity demanded of the higher-priced degree will be lower, unless the demand for that degree is inelastic. More specifically, it is hypothesized that tuition differentials will influence the academic behavior of undergraduate students. Additionally, it is hypothesized that tuition differentials will influence the academic behavior of different groups of undergraduates differently.
**Price Sensitivity**

Increasing tuition rates and proposals for financial aid funding prompted studies investigating students’ price response to increased tuition (Heller, 1997). Leslie and Brinkman (1987) present a meta-analysis of 25 studies relating to the price response of students in higher education. Ten years later, Heller (1997) offers an expansion to the work done by Leslie and Brinkman presenting a review of approximately 20 quantitative student demand studies that were published after Leslie and Brinkman’s 1987 meta-analysis. Heller specifically focuses on exploring an updated cohort’s price response as well as exploring if price response differs based on student income, race, or college sector. Heller recognizes the variety of studies that exist regarding students’ price response in higher education, but is able to draw one conclusion: while the magnitude of the relationship between tuition and enrollment varies across studies, all of the studies find there is an “inverse relationship between tuition and enrollment rates” in higher education (Heller, 1997, p. 631).

Heller (1997) also examines how students’ socioeconomic statuses may impact price response. Heller explains that research (McPherson & Schapiro, 1989; St. John, 1990; Lassila, 2011) supports the original findings of Leslie and Brinkman that low-income students are more sensitive to changes in tuition as compared to higher-income students.

Researchers reviewed by Heller (1997) who investigate price sensitivity differences based on race include: Heller (1994); Kane (1991); Jackson (1989); St. John and Noell (1989); Behrman, Kletzer, McPherson and Schapiro (1992). Findings, according to Heller, suggest that Black students are more sensitive to changes in tuition price than white students, regardless of income, socioeconomic status and ability. The findings for Hispanic/Latino students were not as conclusive (Heller, 1997).
The price sensitivity literature suggests that price does matter in a student’s decision to enroll in higher education, and it especially matters to low-income students. Heller (1997) also offers a review on the studies that estimate a magnitude for how much tuition may impact enrollment. Heller reviews St. John’s (1990) study that examines tuition sensitivity. By controlling for students’ background and financial aid awards, St. John used the sophomore cohort of the High School and Beyond dataset to determine that a $1,000 increase in tuition was associated with a 2.8 percentage point decrease in enrollment. Heller (1997) points out that the inclusion of financial aid awards may have minimized the effect St. John found with the increased tuition price. According to Heller (1997), there are several other studies that have attempted to understand how the magnitude of tuition increases impact enrollments including Savoca (1990); McPherson and Schapiro (1992); Shires (1995); Heller (1996); and Rouse (1994), but depending on the methodology, dataset, institution type, and students, the magnitude estimations were different. However, all studies agree that as tuition rates went up, enrollment went down. Heller (1997) concludes that a tuition increase of $100 would be associated with a drop of enrollment from 0.5 to 1.00 percentage point.

The research that attempts to measure the magnitude of a tuition increase resulting in a lower enrollment rate raises questions regarding how tuition differentials may impact enrollment. Tuition differentials based on academic major have a range of price differences at different institutions and for different majors. The price differential for the most expensive majors at UIUC is $2,400 per semester in 2012–2013. The magnitude of the tuition differential at UIUC may have more of an effect on students’ major selection as compared to smaller differentials in other majors or at other institutions. In any case, in higher education, tuition price has been
shown to have an impact on college enrollment, so one might also wonder if tuition price would have an impact on college major.

Financial Aid

St. John and Starkey (1995) complicate the assumption that students react to one tuition price when making college decisions. St. John and Starkey draw attention to the need to look at more than the student’s response to price. They argue that considering financial aid is important, especially the type of financial aid the student is offered when evaluating students’ college enrollment as well as persistence decisions. St. John and Starkey point to the failure of enrollments to drop during the 1980’s tuition increase as evidence that there is more to a student’s price response behavior than one-single-tuition factor (p. 160). St. John and Starkey use data from the National Postsecondary Student Aid Survey (1986–2987) to conduct a logistic regression to compare their student-response hypotheses to the older single-price response studies. They find that their model, including multiple-price variables, explained enrollment better than models with a single-price variable. Their study also shows that students could respond differently to price in their initial enrollment than they do in their persistence decisions because previous analyses conclude that grant aid had an impact on enrollment decisions, but their current model did not show a positive association between grant aid and persistence. This finding further complicates the idea of persistence and suggests there could be different types of persistence such as within year persistence versus between year persistence. These differences suggest that tuition prices matter more to students’ persistence mid-year than aid. St. John and Starkey argue that this is expected since students may have unexpected expenses or higher need than anticipated mid-year. St. John and Starkey (1995) present several other findings, all
promoting the importance of looking at several price factors when examining students’ price responses to tuition.

The findings of St. John and Starkey (1995) regarding students’ persistence decisions in response to tuition increases are expanded by Paulsen and St. John (2002) who examine how financial factors impact the differences of students’ college-going decisions based on their social class. They acknowledge the barriers to higher education many students face today, which are not addressed by previous college-choice models. Barriers include limited financial means among others. Paulsen and St. John (2002) also acknowledge the contexts in which students make college decisions are varied. Using the financial nexus model, the authors use the National Postsecondary Student Aid Survey of 1987 to conduct a logistic regression to examine persistence, as well as a sequential logistic analysis to examine the impact different sets of variables have on persistence. The results show differences in students’ expectations and perceptions of cost, based on class. The behavior of high-income students was the opposite of low-income students. The response of low-income students to increases in tuition reduced their probability of persisting greatly, while higher-income students were less sensitive to tuition increases. More importantly, findings show that financial aid did not support persistence for the low-income students. Both grants and loans were found to be inadequate in supporting persistence for low-income students. This does not indicate that financial aid is ineffective, but does indicate that aid was not enough to cover college costs to allow low-income students to persist. For high-income students, financial aid showed no direct effects on persistence. This raises concerns for the impact the high-tuition, high-aid environment has on low-income students’ persistence, and the possible existence of unmet need for these students even after financial aid is received. Some important limitations to note cited by Paulsen and St John include...
limitations due to the sample of students. Students in this sample enrolled in college in the fall of 1987. The researchers note the existence of high-tuition, high-aid models in 1987. Since 1987, tuition and aid have significantly increased, so the differences found in this study may be more if duplicated with current student information. The sample also was not surveyed until October, which means students who withdrew from college prior to October were not included in this study. Students who withdraw from college early in the semester may have different patterns of persistence. This sample also does not include students who never chose to enroll in college. This study cannot examine the perceptions or expectations of students who never chose to enroll in college.

St. John and Starkey (1995) and Paulsen and St. John (2002) argue that aid does not impact persistence, but further research suggests that aid may impact enrollment. Heller (1997) expands on Leslie and Brinkman’s conclusion to determine how much financial aid may impact students’ price elasticity. Just as the studies examining the magnitude of students’ price sensitivity found various estimations for how much tuition impacts enrollment, the same is true for the literature that examines how financial aid impacts enrollment patterns. St. John (1990) argues that low-income students probability of enrolling in college increases when grant aid is increased, but low-income students are not more likely to enroll in college if tuition is lowered, which St. John suggests is an indication that a low-income student may react more to the net cost of tuition (price less financial aid received) rather than the sticker price. Increases in financial aid, especially grants, increase the probability that a low-income student will enroll in college. The same financial aid increases do not have an impact on the enrollment patterns of wealthier students.
According to the literature reviewed, enrollment patterns and persistence patterns differ when tuition is increased. Financial aid seems to have a more positive effect on enrollment than on persistence for low-income students. While aid may have an impact on a student’s decision to enroll in college, it does not have the same impact on a student’s persistence. When thinking about how aid might encourage students to enroll in college, it is important to point out the difference in how aid might impact a student’s decision to enter a higher-cost major. At an institution such as UIUC, students select their major when they apply to the university; this is before they would have any knowledge of their financial aid package. For aid to have an impact on a student’s enrollment, they have to have already applied and been accepted to that institution. None of these studies are able to examine the students who decided not to apply to college because of the price; they are only looking at enrollment after admissions and persistence decisions. In addition, aid has a greater effect on students’ enrollment decisions than it does on their persistence decisions. Persistence, just like changing or selecting a major, are decisions that happen after a student’s first semester in college. Changing to a more expensive major may be an unexpected cost that impacts a student’s persistence that aid cannot mitigate, as shown by St. John and Starkey (1995).

If aid is relied on to offset the higher tuition costs, another complication presents itself for low-income students. Financial aid has moved drastically to consisting more of loans than grants (Hearn, 1998). According to Perna (2008), a student’s willingness to borrow to attend college depends on his or her knowledge and source of knowledge regarding student financial aid. Perna (2008) conducted descriptive case studies of high schools to learn more about not only students’ perceptions of loans, but also how school staff and parents influence students’ perceptions of loans, and how the perceptions of loans vary across high school types. Perna (2008) finds that all
students are aware of loans, but the perceptions students have of loans are different depending on the type of high school the student attends. High school students from “low-resource” schools (schools with below average achievement and socioeconomic status) are less willing to take out loans to finance their higher education. This often has to do with their lack of knowledge of financial aid, and mixed messages regarding loans from their school staff and parents.

There are many more factors that impact a low-income student’s decision to enroll in college in addition to type of financial aid including decisions that are impacted by the knowledge these students have regarding financial issues prior to enrollment or even application. King (1996) conducted a telephone survey of 900 high school seniors in the class of 1995. Of the students surveyed, 300 were from families considered to be low-income. Many factors made low-income students in the survey more likely to enroll at a four-year institution including receiving college information from high school counselors and receiving information directly from admissions and financial aid offices rather than print materials. Perhaps these more direct avenues of receiving information prevents misinformation among low-income students.

Boehner and McKeon (2003) examine how misinformation regarding college costs, also known as “sticker shock,” can impact low-income students. Additionally, Bowen (2006) calls for “more aggressive efforts to provide information” as one policy lever that could increase the college-going opportunity of low-income students by reducing the “sticker shock” for students and families (p.29). Sticker shock refers to the reaction a student may have to the tuition price of many institutions before financial aid has been awarded. Students that do not have information regarding financial aid, which most likely would be low-income students (Perna, 2008), may think the sticker price of tuition is the actual price, which deters students from even applying to college. Mumper (1996) explains that information regarding tuition is much more readily
available than information on financial aid programs, which motivates this “sticker shock.” More recently, Scott-Clayton (2011) provides evidence through a review of literature that many students “persistently overestimate costs and are uninformed about sources of potential aid” (p. 2). Furthermore Scott-Clayton explains that financial aid policies assume this “information constraint” does not exist and points to the difficulty in students’ ability to learn specific financial aid information until after they have applied and been admitted to a particular school.

Both the combination of the lack of information regarding actual college costs and the complicated nature of the financial aid process prevents students from making informed college-going decisions, and perhaps major selection decisions if students are also considering finances when making their majors selection decisions.

The act of charging a high tuition price that creates this “sticker shock” at the same time high financial aid is offered is referred to as a high-tuition, high-aid pricing model. According to Bowen (1968), high-tuition, high-aid pricing models are supported by the logic that a higher education is most beneficial to the student and the student’s parents, as opposed to taxpayers, so educational costs should be paid by the student and his or her family. According to this model, offering aid in the form of grants and loans will allow students from low-income families the opportunity to attend, while students from higher-income backgrounds can afford to pay the higher tuition. Directing aid to the students who need it most is the most efficient way to provide aid, and setting tuition as close to the actual cost of providing the education is also a more “efficient use of resources” (Halstead, 1974, p.572). In summary, supporters of high tuition, high aid models argue that students who can afford to pay for their education should, and education should only be subsidized for students who would not be able to afford a higher education without financial assistance (Halstead, 1974, p. 567).
This discussion of high-tuition, high-aid is closely related to one argument in favor of differential tuition based on major. This argument claims that the students who are using the most expensive resources should pay for those resources rather than having the students in lower-cost majors pay higher tuition to subsidize the more expensive needs of other academic programs. This follows the efficiency argument of Halstead, that the cost of the program should be set close to the actual cost of providing that program. One might then wonder if the high-tuition, high-aid model is being implanted to differentiate the cost of majors. This would only be the case if the more expensive tuition for some majors is also being used to help pay for lower-income students to participate in those majors.

One attempt by the US Department of Education to give students a more accurate understanding of college costs is a recent requirement (as of October 29, 2011) that colleges and universities provide “Net Price Calculators” on their websites, which allow prospective applicants to the university to enter information about their personal finances, academics, and other relevant information to get an estimated net price for the particular college rather than relying on the sticker price of each college to determine affordability (Institute for College Access and Success, 2012). The Institute for College Access and Success (2012) provides a review of current Net Price Calculators in use and offers several suggestions for making this resource more useful for prospective colleges, students and their families, but one suggestion not included or reviewed is that of differential tuition based on academic major. Institutions are required to provide an “estimated total cost of attendance” (National Center for Education Statistics, 2013). Because this is an estimation, colleges are not required to vary these estimates by academic major, although some institutions like UIUC do include this type of differential in
their net price calculator (University of Illinois Urbana-Champaign Office of Student Financial Aid, n.d.).

The impact increased tuition rates and increased financial aid has on the enrollment and persistence patterns of low-income students has been investigated in the literature, and all sources agree that as tuition rates increase, enrollment of low-income students in higher education is negatively impacted, but the impact higher tuition has when they are used to differentiate one major from another is not commonly explored. Price matters to low-income students when they are enrolling in school or persisting in school, so one might wonder if price would then impact as student’s entrance into a higher-priced major. Increasing tuition for some majors, while also offering increased aid to these majors follows this high-tuition, high-aid model of setting tuition prices, especially if the aid is targeted to low-income students, but the research also suggests that price cannot always be mitigated by aid, especially for low-income students. Low-income students’ aversion to loans, in a time when loans make up most of the financial aid, may also hinder their ability to realize the higher-cost major is a feasible option for them. In addition, the impact of “sticker shock” on a low-income student’s decision to apply to college might have the same impact on their choice in major. The lack of information some students have regarding the availability of financial aid and the actual cost of college can be a barrier to a low-income student’s decision to enroll in college or even apply. Research does not currently exist to investigate if this same “sticker shock” and debt aversion can influence a student’s choice in major. Finally, if aid is offered to help encourage students to enter higher-cost majors, many majors at UIUC require a student to apply directly to that major, so they are seeing the higher price for tuition before they are even admitted. Differentials then have the potential to
not only deter students from changing their major, but also from applying to that major in the beginning of their college search.

**College Choice and Major Choice**

To better understand how students make a decision on which college to attend and which major to pursue, this section will focus on the college choice and major choice literature. Cabrera and La Nasa (2000a) review the literature on college choice and find that college choice is a product of a three-stage process (predisposition, search, choice) that begins in 7th grade and ends when a student enrolls at a postsecondary institution (p. 17). Cabrera and La Nasa (2000b; 2000c) conducted analyses on the National Educational Longitudinal Study of 1988. This study follows eighth graders from 1988 through their college-choice process. When considering students’ socioeconomic statuses, Cabrera and La Nasa (2000b) find “substantial differences in the patterns of college choice” (p.25). Low-income students were more likely to be less college qualified, which is a large barrier to college attendance for low-income students. According to the literature examined by Cabrera and La Nasa (2000a), factors such as perceptions of the ability to pay and access to financial information impact a low-income student’s college choices. The literature supports the conclusion that low-income students are at a disadvantage when it comes to the preparation necessary to qualify for college, the process it takes to apply and enroll in college and the financial information needed to know how to finance their education.

Literature investigating major choice is also a broadly studied topic in the higher education community. An important historical piece in this field is that of Holland (1973). Holland’s theory of career choice posits that most people can be categorized as one of six personality types, which explain which activities have developed the most interest for them. These interests are shaped by “cultural and personal forces, including peers, parents, social class,
culture, and the physical environment” (p.2). Furthermore, Holland proposes there are six
different kinds of environments, which are each dominated by one of the six personalities.
Holland argues people surround themselves with others of similar interests and that people seek
out environments where they can excel. Holland then states, “a person’s behavior is determined
by an interaction between his personality and the characteristics of his environment” (p.4).
Holland argues that knowing one’s personality and environmental models can allow prediction
of how one might choose their vocation and educational patterns.

Holland’s work focuses on the personality and environment of an individual, and how
that can shape their career plans. Other major-choice literature incorporates financial decisions in
a student’s decision on an academic major. Literature that examines students’ decisions
regarding their college major often only considers financial factors in regard to the potential
earnings and job opportunities students may have with their desired major (Eide & Waehrer,
1998; Cebula & Lopes, 1982; Montmarquette, Cannings, & Mahseredjian, 2002; Malgwi 2005).

Berger (1992) investigates these perceptions of higher earnings for some careers and
finds that engineering and business majors have higher starting salaries when compared to liberal
arts majors. However, Berger also finds that this gap in earning closes between engineering
majors and liberal arts majors. Berger finds that liberal arts majors’ increase in wages is much
faster than that of engineers. While engineering students’ earnings may be higher than other
students immediately following graduation, they do not continue to earn larger amounts over the
course of their career, which provides an argument against charging these engineering students
more while they are undergraduates and also challenges the students assumptions that one major
will always lead to higher earnings. The prospect that students in the majors that are charged
more may have been selecting those majors because they expect they will earn more after
graduation is concerning. Of course, not all students will enter the job market immediately after graduation, but if they do, and if they have increased debt because of their major, the financial returns they were expecting upon graduation may be less.

Beggs, Bantham and Taylor (2008) conducted a qualitative and quantitative study to explore students’ major choices. The researchers conducted 30 interviews in an attempt to ascertain what factors students found to be important in their major selection without the researchers suggestion of the factors from prior literature. In their findings they find six factors influence a student’s major decision including: information search, match with interests, job characteristics, financial considerations, psycho/social benefits, and job characteristics. Financial considerations were prominent enough in the findings to warrant a new category. The researchers then conducted a survey of undergraduates who had already declared a major at a large Midwestern university to determine the importance of these factors with a 17.8% response rate (852 respondents). The order of importance of the factors included to “match with interests” as the most important and “financial considerations” (which were described as financial success in the survey) as ranking number four. The researchers did not reveal the location of the institution, so it is unknown if this institution had differential tuition policies at the time of the study. This factor was not included in the study. One limitation to survey research is that the respondents may be more likely to provide answers they think are expected; such as saying a major selection was a product of interests rather than monetary gain. If completed at another institution, with different majors and other characteristics, the results may have been different.

The literature examining major choice does not yet examine if the same perceived ability to pay that influences a student’s college choice as seen in Cabrera and La Nasa (2000a) may influence a student’s decision to select a major. Major-choice literature may not include tuition
price in the major-choice models because of the difficulty in gathering tuition differentials for different majors for a large number of institutions, but this may start to change as tuition differentials become more widespread at colleges and universities. This study hopes to begin to fill this gap by providing students’ direct perspectives on how or if the price of academic programs influenced their choice in major. If students from different socioeconomic backgrounds are making different college-going decisions because of their perceived ability to pay, they may be making different major decisions based on their perceived ability to pay as well.

**Tuition Differentials**

The literature review so far has focused on how price and financial aid can impact a student’s enrollment and persistence, as well as looking at how students select colleges and majors. Before discussing literature that explores tuition differentials, a look at why tuition differentials might exist is important. A Delta Cost Project report complicated the financing of higher education with a conversation on cross-subsidization. The Delta Cost Project, in a 2010 brief titled *Who Pays for Higher Education? Changing Patterns in Cost, Price, and Subsidies*, discusses the practice of cross-subsidization in higher education. This is the practice of revenues from less expensive programs going to offset the cost of more expensive programs. Lower-division courses are also usually less expensive, so often revenue generated from lower-division undergraduate tuition is used to subsidize the education for the upper-division undergraduates. Finally, the newer form of cross-subsidization is that of students who are paying full price for their education subsidizing the education of students who received institutional discounts or aid. This cross-subsidization makes the finance of institutions complicated. A student’s tuition is not only paying for his or her own education, but it may be used to subsidize the education of one of their peers. This then supports the argument for tuition differentials, where an institution charges
the students who cost the most to educate more, thus making their tuition a better reflection of the actual cost of their education, hence the term “cost-based tuition.”

The use of tuition differentials is a common practice in higher education that attempts to charge different tuition rates to different groups of students, but the way administrators in higher education divide students into these tuition differential groups has changed over time. Yanikoski and Wilson (1984) provide an overview of some of the bases for differentiating tuition at the time of their study and some examples of institutions with specific types of differentials. Some students on college campuses are more expensive to educate than others. Graduate students are more expensive than undergraduates, just as students in their junior or senior year of their undergraduate career are more expensive than freshmen and sophomores because upper-level students have more contact with tenured faculty among other resources (Yanikoski & Wilson, 1984). Yanikoski and Wilson briefly describe ways institutions have varied undergraduate tuition: differentials based on location of classes (on-campus versus off-campus), lower costs for part-time students, and prices scaled based on the number of credits (p.738).

Avila (1972) presents a type of tuition differential that takes peak times of enrollment into consideration. Peak-load pricing of college tuition calls to charge students higher tuition rates during the peak times of attendance such as the winter months and lower tuition rates during off-peak times such as the summer months, among other adjustments to financial practices. According to Avila (1972), by having different tuition rates for different times of the year, a college can increase efficiency and begin to solve the financial concerns that impact many institutions. Differentials are not new to higher education; rather differentials are strategies available for colleges to attempt to maximize revenues without increasing tuition for everyone on campus. The discussion of different types of tuition differentials has evolved over time to include
more types of tuition differentials, and the existence of these other tuition differentials is important to recognize when evaluating tuition differentials based on academic major.

**Tuition Differentials Based on Academic Major**

This section explores several arguments in favor of tuition differentials based on academic major. The first argument explored explains that tuition differentials can more accurately reflect the cost of instruction for a specific program. Second, some proponents of tuition differentials argue that tuition differentials can create access for students in higher education. This argument will be explored, followed by the literature that claims enrollments in higher-cost programs do not suffer because of tuition differentials. Finally, the concept of using price as a signal of quality in higher education is examined.

**Tuition differentials more accurately reflect instructional costs.** A variety of references can be found for differential tuition which include both conceptual theories of how an institution might take advantage of tuition differentials as well as attempts to determine the enrollment effects that actual implementation of tuition differentials might have for certain academic programs. Throughout the literature, one reason given for the need for tuition differentials based on academic program is to offset the higher costs some academic programs require because of higher faculty salaries, laboratory fees, facilities, updated equipment. By having a single-tuition rate for all academic majors, the percentage of instructional costs that students pay through tuition rates varies, which leads to cross-subsidization. Much of the literature advocating for the use of tuition differentials argues that differential tuition based on academic major allows an institution to charge the same percentage of instructional costs to students, which increases the funding of some majors, while keeping tuition rates proportional
for lower-cost majors (Berg & Hoenack, 1987; Hoenack & Weiler, 1975; Yanikoski & Wilson, 1984).

In addition to the benefits for the institution, tuition的不同ials are also described as a method to alleviate undue expense on the students in academic majors that are not as costly for the institution to provide. Little, O’Toole and Wetzel (1997) argue that this is a better pricing strategy for low-income students, since they would be least able to afford higher-tuition rates to pay for the higher expenses of only a few programs. Berg and Hoenack (1987) summarize tuition differential strategies and provide an overview of the tuition policies at the University of Minnesota. They argue that when a single-rate tuition policy is in place, students in lower-cost majors end up subsidizing the tuition for students in higher-cost majors. Differential tuition based on academic major is an effort to create policies that have students paying for the resources they use. Some argue that this is a fairer way to charge students tuition. This is a common argument in support of tuition differentials, but in order for this argument to be convincing, it requires a university to be aware of the actual instructional costs for students in different majors. This requires a detailed analysis of expenses in the different academic departments. In theory, this argument is reasonable, but one must question if institutions actually invest time in the evaluation of expenses, which is the key to this argument.

While this argument is logical and is supported by the 2010 Delta Cost brief’s discussion of cross-subsidization, other research regarding actual practices at universities reveal the implementation of tuition differentials may not be as closely linked to instructional costs as these early reviews of differential tuition suggest. Johnson (2009) in a Delta Cost Project white paper, investigates how much it costs to provide a bachelor’s degree. Johnson reports that there has been no agreement in the higher education community as to how the cost of a degree should be
measured. Johnson recognizes the difficulty in using the same measurements in a variety of policy contexts, but argues that at least using a common language to describe costs would make progress in measuring costs of specific degrees rather than institution-level instructional costs.

Yanikoski and Wilson (1984) advocate strongly for tuition differentials, but caution that they will not work at all institutions because institutional administrators need to understand the costs associated with programs. This is complicated because of the difficulty in determining the actual costs of a specific program. Without knowing specifically how much one degree costs the institution to provide, Yanikoski and Wilson’s advice for institutions to know the cost of their degree programs may be difficult. In addition, decisions need to be made regarding what is included in program budgets including capital programs or costs shared by other departments. These are challenges expressed by Yanikoski and Wilson in 1984, and are also mentioned by Johnson in 2009. Yanikoski and Wilson call for states and institutions to invest the appropriate amount of time in evaluating the costs of programs in order to implement an accurate tuition differential program. In addition to these warnings, the researchers point to the lack of effort in determining specific costs at institutions of the time. At the time of their publication, Yanikoski and Wilson point to the few cases of implemented tuition differentials, some of them by academic major (p. 748). They suggest that further experimentation and evaluation of costs and tuition are needed before tuition differentials are widely adopted at institutions. While Yanikoski and Wilson do not provide empirical results to support their argument, they provide an overview of the use and implementation of tuition differentials at the time. It is interesting to see the same suggestions by Yanikoski and Wilson in 1984 are echoed in a report produced in 2009 expressing the difficulty in determining costs for degrees.
In addition to the difficulty in determining costs for specific degrees, critics of differential tuition have also questioned the causes for implementation and if differential tuition is being used in the manner for which it was intended. Johnson (1979) conducts a one-way analysis of variance to determine if the differences in educational costs between tuition set at four year versus two year colleges explain the tuition differential found among these institutions. This study was done in reaction to a number of states implementing policy, which claimed to set tuition as a certain percentage of instructional costs. Johnson finds that instructional costs between lower-division undergraduates at four-year institutions is not statistically different from instructional costs for students at two-year colleges. Johnson’s findings can be related to differential tuition based on academic major through a look at the base rate of tuition. The findings suggest that if differential tuition based on major truly allowed institutions to keep tuition charged to students close to the cost of instruction, only asking students to pay for the resources they use, then base tuition rates at four-year colleges should be comparable to community colleges. Johnson questions the base tuition rate and points to the low cost of educating lower-division undergraduates, especially in cases where teaching assistants are available.

Wellman, Desrochers, and Lenihan (2008), of The Delta Cost Project use IPEDS data to explore the financing of higher education. Several important findings add to the discussion of tuition pricing at higher education institutions. First, the researchers find that the share of direct instructional costs coming from faculty salaries has steadily declined in all sectors of higher education when comparing figures from 1987, 1995, and 2005 (p. 28). This is assumed to be due to the rise of hiring part-time faculty rather than hiring tenured faculty at higher education institutions. In addition, students at public institutions are paying a higher percentage of the cost
of their education, but the increased revenue is not going to direct instructional improvements.
The largest increases in spending went to student financial aid and research. Instructional
spending was found to have decreased at public, two-year institutions. This research calls into
question the assumption that students paying higher tuition will benefit from that tuition being
spent on instructional costs to their programs.

The basis for this argument that supports tuition differentials claims that tuition
differentials charge students for the equipment and resources they use on campus rather than
using cross-subsidization. In other words, tuition differentials are a fairer way to charge students
tuition. This argument is called into question by the literature reviewed. There is also a question
in this study’s survey that directly asks undergraduates if differential tuition is fair. The
responses to this question of fairness will be discussed in Chapter 4.

**Tuition differentials create access.** In addition to the argument that claims differential
tuition is creating a fairer way to charge students for instructional costs, proponents of
differential tuition have described it as a policy to provide access to higher education for students
who may not have attended college due to financial reasons. Berg & Hoenack (1987) describe
the impact tuition price may have on a student’s decision-making process to go to college. Berg
& Hoenack use past research as well as the differential tuition implemented by the University of
Minnesota in the early 1980’s to show that cost-based tuition differentials open up educational
pathways to first-generation and low-income students that are impacted by the burden of
increased tuition. Theoretically, Berg and Hoenack argue that differential tuition rates allow
universities to increase the tuition rates of majors that are high in demand and can afford to price
discriminate, while keeping other lower-cost majors still accessible to students who may be
impacted by increased financial burdens. They argue that cost-based or differential tuition can improve the efficiency of higher education.

Karelis (1989) provides a more conceptual article regarding the use of differential tuition, but provides an explanation similar to Berg & Hoenack (1987). Karelis argues that differential tuition is needed, but focuses his argument on the need to attract students to liberal arts majors. He concludes that the lower cost of liberal arts majors will persuade students to pursue these majors rather than the more technically-focused majors with higher tuition. Allowing students to pursue a more generalized undergraduate education will encourage them to gain a broader education so they can continue their education and find a specialization in their post-baccalaureate education. Karelis also argues that differential tuition will decrease attrition since students will be able to remain undecided in their major at a lower cost. There will also be lower-cost options for low-income students according to Karelis (1989). Karelis does not use any empirical evidence to support all of his arguments, but provides these arguments as suggestions for using tuition as a lever for reform in higher education.

The arguments of Berg and Hoenack (1987) and Karelis (1989) regarding differential tuition and the creation of access for low-income students is troubling. Suggesting that low-income students will still have access to liberal arts majors recognizes that these students may then lose access to higher-cost majors. Low-income students would have the opportunity to earn a higher education, but according to these researchers, they may not have the choice in their major. If low-income students are deterred from certain majors due to cost, low-income students would have fewer options for majors than their higher-income peers.

Enrollments will not suffer due to tuition differentials. Supporters of differential tuition not only argue that the policy is fairer for students, but Berg and Hoenack (1987) point to
the inelasticity of enrollment in these higher-cost majors to show that the program enrollments do not suffer due to a higher tuition price. The argument in support of differential tuition posits that majors that lead to careers with a higher-starting salary for students upon graduation have not been shown to suffer greatly in enrollment when tuition is increased. These majors are thought to be inelastic. On the other hand, majors which are lower cost to the university have been show to have elastic enrollment. While these enrollment patterns are not consistent across all institutions, Berg and Hoenack point to the importance of recognizing the demand for certain majors before implementing differential tuition.

Shin and Milton (2007) conducted a regression analysis with data from IPEDS and conclude that students in different academic majors have different tuition elasticity. The researchers hypothesize that this difference in elasticity is due to the difference in the individual financial rates of return of certain academic disciplines, which is supported by their finding that the students in engineering, a generally higher earning discipline, are not price sensitive to the differential tuition in place. The researchers also suggest that the high-tuition, tuition-aid model of tuition pricing may also be providing more financial aid to students, which might explain why enrollment numbers do not change for all majors. Shin and Milton do not look at differences in enrollment patterns of students from different economic backgrounds. Differences in enrollment may have been found for low-income students, a limitation of this study.

Shin and Milton (2007) point to the need for institutions to recognize the between-college effects of students’ enrollment decisions. Students were price insensitive as long as it did not benefit them financially to transfer to another institution. Shin and Milton (2007) find that students are more price sensitive to tuition before they enroll. Once they are attending an institution, they are less sensitive to changes in tuition. The research conducted by Shin and
Milton provides further empirical support for implementing differential tuition for certain inelastic academic majors such as engineering, but cautions institutions to pay attention to other important factors in tuition setting such as the demand for graduates from certain disciplines. Again, it is important to point out that this study does not investigate differences in students’ price sensitivity to differential tuition based on their socioeconomic status. While this is a study that supports tuition differentials, if institutions are concerned about increasing diversity in their higher-cost majors, more research is needed to determine if the enrollment of low-income students or students from other subpopulations decrease because of tuition differentials based on major.

**Tuition differentials as a signal of quality.** McPherson and Winston (1993) explain the difficulty in ranking the “products” of a higher education institution based on quality (p. 70). This is due to the variety of missions and student populations at different colleges across the country. Colleges also are “multiproduct firms” that usually are providing many services to students. Because different institutions are serving different populations, some students at one institution might be better prepared for college than students at another institution, which will complicate teaching those students in the same manner. This requires quality measures to be made by comparing like-institutions rather than comparing all institutions with each other. Furthermore, McPherson and Winston raise the question of what is meant by quality. Is quality determined by how well an institution does with the resources it has, or is quality determined by the caliber of the resources at the institution? If consumers have limited access to information about quality, just as some parents and students do about college, then they search for that information to make decisions regarding which college to attend. A college may invest in a full-color viewbook to provide information to students. The college may invest in on-campus
facilities that are visible to prospective students. McPherson and Winston (1993) explain that another way to communicate quality to students who are uninformed is to be sure the price of the institution does not drop below the price of a school that is lower in quality. In this sense, price can be used as a signal for quality in higher education.

Little, O’Toole, and Wetzel (1997) examine tuition differentials as a marketing strategy for business programs that over time have been forced to compete for a dwindling pool of students due to challenges such as competing institutions, labor market conditions and demographic changes. Little et al. examines a case where tuition differentials were framed as a way to communicate perceived quality to students. Yanikoski (1989) connects the general market research where price is usually seen as a signal of quality to the higher education environment. Yanikoski acknowledges that students and families do not always equate quality and price in higher education, but believes pricing can “reinforce an image of quality” and help “create an image of quality,” as seen in instances when price is increased and demand increases (p.91). According to Little et al. (1997), price differentials can serve as a signal to students of “possible job and salary potential in comparison to other schools in the university.” Little et al. also argue that tuition differentials can increase the accountability of the schools since parents and students will see the higher-cost degree as a “highly valued product,” so they may seek evidence of this value.

This discussion of price as a signal of quality in higher education is focused on comparing one institution to another, not comparing programs within one institution. Prices then can communicate information to students and families about quality of the institutions, but when thinking in terms of differential tuition, how does the information price communicates to students and families differ when the prices are for different programs at one institution?
The case Little et al. (1997) studied was The Virginia Commonwealth University School of Business Administration. This program used a tuition differential to fund the use of new technology in their department. Students in the program were surveyed via phone during the first year tuition differentials were implemented. Students were asked if they thought students in more expensive programs should have to pay an increased tuition and 60% of the students agreed that they should have to pay more. The students surveyed were only students in the School of Business Administration, who would be required to pay the tuition increase, so this study does not provide insight into how students from other majors perceived this tuition increase.

The perceived value or quality of a program that charges more than other programs at an institution is an interesting concept, especially for this current survey. In Chapter 4, results will be discussed, but there are several students who report that differential tuition is a sign of value or quality of the higher-cost degree program. If price is a signal of quality or value of a degree, what does that say about students who are earning degrees that are not charged a tuition differential? Is their degree less valuable or less quality? Using price to signal quality or value is dangerous in higher education, especially in a landscape where the costs of degree programs are not always transparent. If a program charges more, students may assume that means they are getting more for their degree. This could mean a higher-quality education or a better salaries or job prospects after graduation, but as discussed earlier, this is not always the case.

**Summary.** Studies that attempt to predict or evaluate the enrollment impacts of differential tuition such as Berg and Hoenack (1987) and Shin and Milton (2007) conclude that enrollment in certain majors with differential tuition will be impacted, but majors with a higher labor market return, such as engineering, will not. In fact, because some students equate price to quality or value of a degree, increased tuition may even increase the demand for a degree (Little,
O’Toole, & Wetzel, 1997). These studies do not go far enough to investigate the type of students or characteristics of students who are enrolling in higher-cost majors before and after implementation of differential tuition based on major. Research in this area focuses on the discussion of the impact of tuition changes on enrollments in general. Berg and Hoenack (1987); Kareliis (1989); and Yanikoski and Wilson (1984) all suggest increased tuition for certain majors may impact accessibility to those majors for low-income students. By implementing differential tuition, access may remain to lower-cost majors for low-income students, but the opportunity for these students to have access to higher-cost majors with higher personal rates of return may disappear after the implementation of differential tuition. Berg and Hoenack (1987) are explicit in the need for financial aid to go to low-income students in order to attempt to maintain access to these higher-cost majors.

**Recent Research on Tuition Differentials Based on Academic Major**

The previous literature described provides theoretical explanations and statistical evaluations regarding the implementation of differential tuition based on major. The following section reviews research that deals more directly with the decisions made by policymakers at the institutions regarding differential tuition as well as direct impacts these tuition changes may have on students.

George-Jackson, Rincon, and Martinez (2012) examine the net tuition (cost to the student minus gift aid) and aid patterns for low-income students at two large, research institutions. Special attention was focused on the engineering majors at these institutions. Both institutions charge a tuition differential to engineering majors. The researchers use longitudinal data from the Andrew W. Mellon Foundation’s Public University Database project including first-time, full-time freshmen at the two institutions who completed a Free Application for Federal Student Aid
(FAFSA). A high tuition, high aid model was found for engineering programs with the tuition differential. This model has high tuition, but also provides increased financial aid packages for students who are low-income. This is the type of tuition model proposed by researchers such as Berg and Hoenack (1987). George-Jackson et al. also find that the increase of financial aid for low-income students in this higher-cost major diminished in the later years of the students’ undergraduate education. The highest net tuition was found in the years closer to graduation.

Several limitations must be kept in mind when reviewing this research. This data only included students who did enroll in these programs, so there is no way to know if other low-income students chose not to enroll due to financial concerns, but for the students who did enroll in engineering, low-income students received more gift aid than loans as compared to their higher-income peers. The details of state financial aid programs or specific financial aid programs offered by the engineering departments were unknown, but could have a factor in aid to low-income engineering students at these two universities, so this may not be indicative of other engineering programs. In addition to possible institutional aid, students who have higher tuition, will have a higher unmet need, which would allow them access to additional state and federal funds, so this funding may not be due to institutional efforts to maintain high aid. As expressed by the researchers, these results cannot allow one to draw conclusions about other engineering programs across the country. This study also does not provide information on the motivation of students entering or exiting engineering majors, but this study does raise several questions about the impact higher tuition in fields such as engineering may have on low-income students.

Low-income students in higher-cost majors will either be offered more gift aid to lower net tuition costs as described by George-Jackson et al. (2012), or the alternative would be for the
student in the higher-cost major to take out more in student loans. Research has yet to determine which model is more common in higher education, but the literature does suggest barriers to access for low-income students to enter higher-cost majors for both models of tuition and financial aid. In addition, the finding that students closer to graduation received decreased financial aid packages raises questions about students’ ability to complete their degrees.

While George-Jackson et al. focus on students’ financial aid packages in programs with tuition differentials, Nelson (2008) attempts to further understand the impact tuition differentials have on institutions and students by conducting a descriptive study of 165 public research institutions. Surveys and interviews were conducted with Chief Business Officers (CBO) at research universities from all parts of the country. Information was collected from 165 institutions, and a smaller number of Chief Business Officers were interviewed. One finding of this study listed all of the reasons the CBOs provided for implementing differential tuition. The responses to the direct question, “Why did your institution consider adopting tuition differentials?” were coded into four categories. The first category was to cover direct costs. These responses included references to covering increased costs due to student demand, an effort to better reflect the cost of the program and to meet the higher costs of varying programs. The second category was to maintain or enhance the quality of the program. The third was to create additional revenue. These responses included a need for increased revenue during times which were financially difficult, as well as a need for increased revenue for certain targeted initiatives. The final category was due to a decline in state support. Over half of the respondents (55%) provided reasons for implementation that fell into the first category of responses citing direct costs of the program as the driver for tuition differentials for certain academic majors.
In Nelson’s study, none of the participants interviewed had any knowledge of any campus-based inquiries into the actual impact differential tuition had on undergraduate choice of major. They did however cite anecdotal evidence that some students from low-socioeconomic backgrounds were impacted and some were not impacted by the differential tuition. Nelson’s (2008) descriptive study has revealed a lack of information that might exist at institutions with differential tuition, and calls for further inquiry into the impact differential tuition has on students from different backgrounds at specific universities.

Of the institutions that decided against the implementation of differential tuition, over half indicated issues concerning students were the main reason against implementation. Nelson (2008) included a survey question asking why the institution did not implement differential tuition if this was applicable. The responses to this question were categorized into four categories. The first category included responses regarding the concerns of access and affordability. These included responses that vaguely mentioned a concern of fairness to students as well as specific concerns including the following:

Access to areas of study should not be limited by economic means of the students enrolled. Certain programs are much more expensive than others and if we can position appropriate levels of financial aid to remove that concern, we will revisit this topic with our board of trustees” (Nelson, 2008, p. 187).

The second category of responses included legislative concerns including issues regarding who legally has the ability to set tuition in the state or at institutions as well as questions regarding the legality of charging differential tuition. The third category included procedural issues. The last category included responses indicating it was still being considered. The first category indicating concerns of access and affordability had the largest number of responses (39%). Legislative barriers were cited by 26% of the institutions.
As with any survey and interviews, respondents are self-reporting, so limitations exist in the reliability of the respondents’ answers. This is an important consideration. The respondents were anonymous, but there is no way to know if answers that would be seen as unfavorable were withheld from Nelson in an effort to protect the decisions made by the institutions. Nelson also recognizes that the Chief Business Officers may have delegated the task of the survey to someone who may not have had as much knowledge regarding the implementation of differential tuition at certain campuses.

The most direct study available investigating the types of students who are choosing higher-cost majors is still far from determining if higher-cost majors create greater underrepresentation of low-income students in the higher-cost majors. Stange (2012) used data from Nelson’s (2008) study to examine the impact tuition differentials have on the number of degrees earned in engineering, business, and nursing fields. Of the 142 institutions that Stange included in his study, 50 had tuition differentials for these majors. Stange used a difference-in-difference approach to determine the impacts of differential tuition on the number of degrees awarded in business, engineering, and nursing. Stange concludes that cost of major was associated with fewer degrees awarded in engineering, and to a lesser extent business. The same could not be said for nursing. In addition, Stange found no significance in the amount of aid reallocated to students in these higher-cost majors. The number of students in each major at these institutions was not high enough to come to any solid conclusion as to the student characteristics in these majors with and without differential tuition, but Stange says he cannot rule the possibility of these differences out since there was some evidence of fewer Pell Grant recipients in engineering majors with the increased tuition differentials. An important limitation to Stange’s study is the lack of insight into the supply and demand of certain programs at the
institutions included in the data. Stange points out that when schools with tuition differentials have the extra revenue, they may choose different purposes for that increased revenue. It could go to increase capacity, but it could also be used to increase quality of the program.

A limitation to both Nelson (2008) and Stange (2012) is the data used. Since no large datasets exist that use tuitions based on differentials, the data used by Nelson and Stange were collected through a survey and do not include institutions that did not respond to the survey request. These datasets also include only large, public, research universities, so the differential practices at other types of institutions are still unexplored.

There is one survey that attempts to gauge students’ perceptions of tuition differentials. Little, O’Toole, Wetzel (1997), as previously discussed, conducted a telephone survey of current juniors and seniors during the fall of 1993 after the implementation of a 5% tuition increase in upper level business classes at the Virginia Commonwealth University School of Business. Over 90% of the students indicated they would continue their education even with the increased tuition. The rest of the questions included in the survey were focused on the understanding students had regarding the tuition increases, demographic information and information regarding student financial means. This survey provides insight into the perceptions current students have on tuition differential implementation. This study does not provide information regarding students that may have decided not to apply or enroll for the first time in this business school after the tuition differential was implemented, so as Shin and Milton (2007) suggest, if it was not more cost effective for current students to transfer to another institution, they would be expected to stay in their current program regardless of the tuition increase. On the other hand, this study does provide an example of an institution concerned with the student perceptions of differential
tuition, but it does not provide enough information to draw conclusions about student selection of major since all of the respondents were already enrolled in the business major.

A survey was conducted, in February 2013, by the University of Florida/IFAS Center for Public Issues Education, of 523 Florida residents about their perspectives on higher education (Lamm & Odera, 2013). Included in the survey was a question regarding respondents’ perceptions of differential tuition (although the policy was not referred to as differential tuition in the survey). Of the respondents, 69.6% attended at least some college and 33.9% obtained at least a bachelor’s degree. According to the results of the survey:

Over 50% of respondents disagreed or strongly disagreed that college costs are such that most people can afford to pay for a college education. Approximately 35% of respondents agreed or strongly agreed it was acceptable for colleges and universities to charge different amounts for different types of degrees, however less than 30% agreed or strongly agreed it was acceptable for colleges and universities to charge more for STEM degrees (Lamm & Odera, 2013, p. 15). At least in Florida, less than a majority of residents agree with charging a tuition differential based on academic major. This is the first published research that attempts to investigate the perceptions of the public on differential tuition. The results indicate that there is not a wide acceptance of tuition differentials based on academic major by the general population, but more research is needed to investigate the perceptions of students who are actually paying the differentiated costs.

Conclusion

A large body of work exists exploring students’ responses to overall tuition changes, but the impact tuition differentials may have on a student’s decision to select a major is still unknown. A major barrier to investigating this question has to do with available data. Large, student-level datasets do not include tuition rates based on differentials; they often only list the base tuition rate or average tuition rate. Until this data is made more readily available, further
statistical analysis into the impact financial variables have on a student’s decision to select or change a major will be limited.

Differential tuition based on academic major is an important research area that is largely missed in the higher education finance literature. These tuition policies could have a major impact on low-income students’ access to higher-cost majors as well as the major-choice process. Increasing access to higher education for all students is a common focus in the higher education community, but are these students able to have their choice in major, or are perceived high costs forcing low-income students into particular majors? More research, both quantitative and qualitative, is needed to understand the impact these tuition differentials may have on a student’s decision to select a major.

Furthermore, the impact of financial aid on students entering higher-cost majors is also an important area of study to be expanded. The financial aid students in higher-cost majors are receiving is unknown, but the knowledge students have regarding their ability to pay a higher-cost major is also unknown. Do departments take these challenges into account when they are recruiting students? Are higher-income students who have more loans in theses higher-cost majors in a position after graduation to pay back the loans, or are these students entering other graduate or professional education and accruing more debt?

New major-choice models that incorporate tuition price may be appropriate with the growing prominence of tuition differentials based on major. Furthermore, major choice may depend on the specific type of institution being investigated. For example, students at a smaller college without tuition differentials may not consider price in their major decisions, but at a large, research university with tuition differentials, price may be an important factor in major choice. This would require larger-scale studies involving several different institutions.
Finally, are students’ perceptions of quality and value of degrees linked to price? If so, how does this perceived quality and value impact students from degrees without a higher-tuition price? Do they believe their degree to be less valuable?

This study will include both students who are in majors with increased tuition and students who are in majors with the base tuition rate. This will offer a first look at how these two populations of students on the same campus view tuition differentials. An attempt to learn how knowledgeable students are about tuition differentials, and if these tuition differentials are impacting undergraduates’ major choice decisions are central to this study. Questions in the survey also ask undergraduates how fair they believe tuition differentials to be, which will provide important insight into how undergraduates are receiving communication about tuition differentials and how they relate their knowledge to ideas of fairness and purpose of tuition differentials. The study will begin to fill some gaps in the literature regarding students’ perceptions of differential tuition.
Chapter 3: Methodology

Research Questions

Literature supports the finding that students’ responses to overall tuition has an impact on persistence and enrollment decisions, but the impact tuition differentials may have on a student’s decision to select or change a major is still unknown. A major barrier to investigating this question has to do with available data. An attempt to locate data which reports tuition differentials based on major at all higher education institutions was made, but this information is lacking from currently used public datasets such as the Integrated Postsecondary Education Data System (IPEDS). Large, student-level datasets do not include tuition rates based on differentials; they often only list the base tuition rate or average tuition rate. Until this data is made more readily available, further statistical analysis into the impact financial variables have on a student’s decision to select or change a major will be limited.

Due to the lack of data available on institutional differential tuition rates and student enrollment rates, the methodology for this study is a student survey meant to provide an exploratory look at students’ perceptions of tuition differentials. A survey was also used by Nelson (2008) to examine the implementation or non-implementation of differential tuition based on college major according to Chief Business Officers at colleges and universities. Stange (2012) evaluates the impact differential tuition has on the number of degrees earned in fields with higher tuition differentials, for which he uses much of Nelson’s (2008) data. George-Jackson, Rincon, and Martinez (2012) investigate the financial aid packages of students in majors with varying costs at two large, public research universities. Most recently, Lamm and Odera (2013) used a survey to study the higher education perceptions of Florida residents, but no literature currently exists investigating the impact tuition differentials have on a student’s
decision to select a major. A survey was created for this research project in an effort to answer
the following research questions:

1a. Are undergraduate students aware of tuition differentials?
   1b. How did undergraduates learn about tuition differentials?
   1c. Do undergraduates have an accurate understanding of tuition differential levels?
   1d. Why do undergraduates believe there are tuition differentials?

2a. Do undergraduate students factor tuition cost into their decision to enter/change their major?
   2b. Do differences exist in the impact of tuition differentials by tuition charged or college
      of enrollment?
   2c. Do differences exist based on income?
   2d. Do differences exist based on intended career choices?

3. Do students believe the tuition differential is justified/fair?

   Following the arguments of price theory explored in Chapter 2, price is hypothesized to
   matter for students when it comes to selecting their majors, especially students from low-income
   backgrounds.

**Method**

Since no published study has yet to use a survey to investigate these research questions, a
survey was created by the researcher. An effort to use banked survey questions was made to
maintain the reliability and integrity of survey questions, but due to the unique nature of the
research questions, banked questions that were found concerning financial information were not
specific enough to be useful for this study. As discussed in Friedman and Amoo’s (1999) review
of studies exploring rating scales used in surveys, there are many different findings regarding
how the verbal descriptions of Likert scales can influence respondents responses. Survey
research consultants on UIUC’s campus critiqued the survey questions created and advised on the proper scaling of the questions involving a response on a Likert scale. Language was made simple to minimize survey time for the participant as well as to minimize possible confusion. After creating the survey, it was sent to five individuals to test the survey for understanding as well as any technical errors. These individuals provided written feedback regarding the survey, and some questions and explanations were reworded or reorganized to clarify parts of the survey. The survey was administered using a third party online survey tool called SurveyMonkey.

There are several survey questions that allowed respondents to provide an open-ended response. Methods to code these variables were used from Creswell (2003) and Merriam (1998), which both emphasize the need for these categories to be developed from the data rather than categorizing the data into preconceived ideas from the researcher. For this study, I read through all responses and then formed categories based on those responses. As I went through the data with the new categories, some additional categories were formed. Upon completion of coding, some categories were grouped if they were deemed to be similar.

Descriptive statistics, independent sample, two-tailed t-tests ($\alpha=.05$), and logistic regression were used to examine the research questions using STATA 12 Data Analysis and Statistical Software. Because variances are not assumed to be equal, for the independent sample t-tests, Welch’s approximation was used to correct for unequal variances. Robust standard errors were used for the logistic regression. As discussed throughout this thesis, while this study will not provide causal explanations of how differential tuition is impacting students’ major decisions, the descriptive nature of this study will provide important information to researchers. Because this study is not attempting to make explicit causal connections between differential tuition and student majors, descriptive statistics, t-tests and logistic regression will be used to
answer the above research questions. It is also important to note the lack of research that currently investigates these types of research questions. An exploratory study surveying students to better understand how they are perceiving differential tuition is important for other researchers who plan to study this topic further. The results from this survey can provide a foundation for what types of research questions future researchers should be asking.

Development of Survey Instrument

Each question within the survey was developed to support a specific research question. The survey instrument can be found in Appendix A. The survey includes 40 questions. Skip logic was used so no respondent was required to answer all of the questions from the survey. The most questions a respondent was asked to answer was 33. By using skip logic, the respondents’ prior responses shaped their future questions. Because skip logic was used for most of the survey, respondents were not allowed to choose to skip all questions, but they were able to skip demographic questions. The order of the questions asked was the same for each respondent.

The first question explains the survey to the respondent and requires the respondent to consent to the survey. The second question is a qualifying question to be sure only currently enrolled undergraduates at UIUC complete the rest of the survey. Questions 3-5 ask if the respondent is aware of differential tuition, if so how they are aware, as well as a brief statement clarifying that tuition rates do in fact vary by major at UIUC. This statement is included to ensure that all students at this point in the survey at least have knowledge that differential tuition exists at UIUC. Questions 6–24 are asked to learn the respondent’s college and current major. Options are provided for a respondent to indicate a double major. Most respondents would only answer one or two of these questions. Questions 15–21 were created to understand the respondent’s future plans including a plan to change majors as well as future career goals.
Respondents are asked what sector they plan to work in as well as what field in addition to approximately how much they plan to earn annually after graduation. These questions were created to examine differences based on possible future career goals of the respondents.

Questions 22–26 were developed to gauge how accurate the respondent’s knowledge is regarding differential tuition. Question 25 provides the respondent with a table of the current tuition prices for undergraduates at UIUC in the different majors. This table was created to mirror the previous questions when respondents were asked to rank majors from least to most expensive. This table was included so all students at this point have accurate knowledge as to the different prices students pay at UIUC. It is also meant to provide respondents with the correct answer to the ranking question they completed prior to viewing the table. Question 26 was designed using the themes Nelson (2008) found common when a survey was conducted of Chief Business Officers (CBO) at universities with differential tuition. The question was developed to investigate how undergraduates understand the use of differential tuition, but rather than giving respondents an open-ended question they may not know how to begin to answer, they were provided with possible reasons that have been reported by actual CBO’s as well as an open-ended textbox which will provide them the opportunity to add additional reasons for differential tuition they also believe to be true.

Questions 27–30 ask if a student was aware of differential tuition when they selected their major, how important tuition was when they selected their major as well as how fair they believe the policy of differential tuition to be at UIUC. Question 30 is an open textbox, which allows respondents to explain why the tuition policy is fair or unfair. Questions 31–35 ask respondents questions regarding changing majors and if tuition impacted their previous major decisions. Questions 36-40 are demographic questions. Demographic information requested in
the survey includes a question regarding the respondents’ race/ethnicity, gender, estimated annual family income and financial aid received during the current semester. Questions attempting to measure respondents’ income were included in the survey in order to specifically address research questions exploring differences based on student income. Respondents are asked to select their annual family income from a multiple-choice list. Categories are based on $25,000 increments based on the U.S. Department of Health and Human Services 2013 federal poverty guideline of $23,550 for a family of four. The amount of $25,000 was also used following the College Board Advocacy and Policy Center (2012a) report on *Trends in Student Aid* finding that 86% of dependent, Pell Grant recipient households earn $50,000 or less (p.26). An additional question asking students to report financial aid received during the 2012–2013 academic year is also included. Any students who report receiving a Pell Grant will be determined to be low-income for the purposes of this study. Two questions are included regarding income to attempt to accurately report results based on income.

**Sampling**

Due to limitations of funding, limitations of access to undergraduate students as survey participants, and the ideal environment tuition differentials at UIUC provides (as discussed in Chapter 1), the researcher limited the respondent pool to UIUC. Every effort was made to recruit undergraduates from a variety of majors to participate in the survey. Due to limitations in access to undergraduates at UIUC, this study will include data from survey respondents in the College of Liberal Arts and Sciences (LAS) and the College of Engineering (COE). More details regarding the profile of students in these colleges will be presented later in this section. All students in these colleges received the same invitation email explaining the survey and providing a link to complete the survey in SurveyMonkey. The invitation came from administrators in the
college, so no access to student emails was provided unless the respondents chose to contact me on their own. A College of LAS advising office sent the survey to all undergraduates in the College of LAS. The Office of the Dean for the College of Engineering sent the survey to all undergraduates in the COE. Respondents were instructed that they had two weeks to complete the survey. The survey was sent to the College of LAS students in early February 2013, and students in the COE received the survey in early April 2013. Students in different colleges completed the survey during the same semester. The reason for the time delay in sending the COE survey was due to the desire of administrators in the college to wait a significant amount of time after their college climate survey was released to students before they sent an additional survey to students. Undergraduates in the College of Business and the College of Agricultural, Consumer and Environmental Sciences also received an invitation to complete the survey, but the response rate was very low (less than 15 respondents per college), so these respondents are not included in the final results. Students in these colleges received the invitation in an email including other announcements or from their student associations, which may be the reason for the lower response rate. No additional effort was made to send additional invitations to students in the College of Business or the College of Agricultural, Consumer and Environmental Sciences because the COE and the College of LAS provides respondents who both are charged the tuition differential at UIUC and students who are charged the base tuition rate at UIUC, and there was a high enough response rate from these two colleges not to warrant further inquires of other colleges. The email inviting the student to participate in the survey can be found in Appendix B.

Biases to note in only collecting responses from the College of LAS and the COE include the lack of respondents represented from colleges that pay a lesser tuition differential than the COE. The responses for this study will come from students who are paying the most and the least
on campus. In addition, the departments that charge a tuition differential in these colleges are science, technology, engineering and math (STEM) departments. There are no students who may be paying more for the arts or business. There are also differences in the population of students in these colleges, which will be explored in Chapter 4 when the sample of survey respondents is summarized. For example, the College of LAS is a more diverse student body than the COE.

The survey was targeted to colleges at UIUC that include both students in majors with a tuition differential as well as students who pay the base tuition rate. The College of LAS includes 45 departments offering a variety of majors. In the College of LAS, nine majors in three departments are charged a tuition differential. The COE includes 13 departments, all of which charge students a tuition differential. According to UIUC Division of Management Information (DMI), in the Spring of 2013, the College of LAS had 10,733 enrolled undergraduate students and the COE had 6,451 enrolled undergraduate students. Of the students enrolled in the College of LAS, 3611 (33.64%) were enrolled in majors that charge a tuition differential (Division of Management Information, 2013). All students enrolled in the COE are charged a tuition differential. Because colleges need to maintain anonymity of their students, no other identifying information was available when sampling from the population of students at UIUC except knowing in which college the student was enrolled. The survey was sent to 10,062 undergraduate students (58.55% of surveys sent) who are charged a tuition differential (includes both students from COE and College of LAS) and 7,122 undergraduate students (41.44% of surveys sent) who are charged the base tuition rate (includes students from the College of LAS who are in majors that do not charge a tuition differential).

The exploratory nature of this study and the limited access to identifying information of students makes a convenience sample necessary. No other literature has provided insight into the
perspectives of undergraduates enrolled in a variety of majors regarding differential tuition. This study provides a first glance at the possible impact differential tuition may have on undergraduates’ major selection process. This survey can be used as a foundation for other surveys of undergraduates and may provide motivation for other researchers to investigate these research questions and encourage data sources to include tuition differentials rather than just base tuition or average tuition rates on college campuses.

The history of a low-response rate of undergraduates for survey requests was another consideration made when sampling for this study. For example, a climate survey conducted by the University of Illinois in 2011 produced a student response rate of 13.1%. It was for this reason that the survey was sent to over 10,000 students. The response rate for this survey was 9.51%. The response rate for the campus-wide climate survey was similar to the response rate for this current survey. In addition, the description of the survey sample (to be discussed in Chapter 4) is comparable to the campus-wide student profile. There were 1,634 surveys returned, but not all of these responses were useable (see Chapter 4 for further discussion). While a larger response rate does not necessarily mean a smaller sampling error, larger sample sizes are necessary to investigate possible differences between subpopulations as this study intends to investigate (Dillman et al, 2009, p. 60). In addition, because of the exploratory nature of this study, the more undergraduate perspectives included in the study, especially considering the open-ended nature of some questions, will provide a better understanding of undergraduate perspectives regarding tuition differentials at UIUC.

Significance

While results for this student survey are not generalizable to all higher education institutions, this study will provide valuable information regarding the perception of differential
tuition of undergraduates at UIUC, a large, public, research institution. The perceptions of students regarding differential tuition at UIUC may be indicative of students’ perceptions at other similar institutions. Results will hopefully encourage other universities to explore the perceptions of differential tuition on their campuses, which may help inform recruiting techniques for both admissions representatives as well as departmental representatives and financial literacy trainings for undergraduate students on campus. The results also may inform decisions of university administrators who are considering implementation of tuition differentials, or administrators who are considering changing their current tuition differential policies.

Ethical Considerations

This study and the survey protocol used were evaluated and approved by the Institutional Review Board at the University of Illinois at Urbana-Champaign. The approval letter can be found in Appendix C. Issues such as informed consent, confidentiality, as well as an evaluation of risks and benefits were considered.

Informed Consent. Participants were provided with an informed consent document as the first page of the survey, by clicking the Submit button on the survey, they agreed that they were 18 or older and wished to participate in the study. They were instructed to print that page of the survey if they wished to keep a copy for their records. The Informed Consent document can be found in Appendix D.

Risks and Benefits. This study subjected the survey respondents to no known risks. The information learned from this survey could inform the higher education community as to the student perspective regarding differential tuition, which can help inform tuition policies or recruitment practices for specific majors. The survey also includes some facts regarding
differential tuition at UIUC the respondents may not have been aware of prior to the study. This was done intentionally so all respondents who complete the survey have an accurate understanding of differential tuition at UIUC.

Confidentiality. Every measure was taken to ensure the privacy of survey respondents. Emails were sent on the researcher’s behalf, so no email addresses were obtained as a result of completing the survey. SurveyMonkey creates a unique Respondent ID for each survey respondent, so no identifying information is collected. SurveyMonkey also has the option to collect an Internet Protocol (IP) Address, but this option was not selected, so there was no personal information obtained. In addition, information in this study is reported in aggregate so as not to reveal the identity of respondents when cell sizes are smaller than 10.

Biases

I began this study with a background in working with students in higher education, especially students from low-income backgrounds. This experience gave me first hand knowledge of how low-income students factor finances into their higher education decisions, but I had no prior experience in working with students who discussed differential tuition. More recently, I spent time as an academic advisor working with new students at UIUC. Through this experience, I heard other advisors speak of situations where students were surprised they were in a major with a tuition differential. This prompted me to wonder exactly how much students knew about tuition differentials based on major.

I also spent time as a research assistant for a project that investigated underrepresented students in science, technology, engineering and math majors (STEM). Since many of the majors with tuition differentials are STEM majors, and low-income students are one of the populations
underrepresented in STEM fields, this experience also informed my decision to pursue the research topic of differential tuition and how this policy might impact low-income students.

Suggestions from current research motivated me to investigate how finances may influence students’ major selection, and personal experience motivated me to also investigate if undergraduates have an accurate knowledge of tuition differentials. My background in working with students may have biased the types of questions included in the survey and possibly the manner in which the questions were asked, but efforts were made to reduce this bias by having the survey instrument reviewed by outside sources.

Limitations

Surveys present their own limitations in research. Efforts were made in the survey design to ensure respondents understood the questions through testing of the survey by non-researchers. Respondents are reporting their own perspectives and their personal financial information, so the possibility of misinformation exists or respondents could report what they perceive to be the correct answer rather than their opinion. Efforts were also made to attempt to gain an accurate understanding of respondents’ economic background. This is the reason respondents are asked specifically if they received a Pell Grant in the question asking about their financial aid packages. While students may not have an accurate understanding of their family’s annual income, they may be more aware of the information in their financial aid package. Using the Pell Grant as a proxy for family income has its own limitations because low-income students who did not apply for federal financial aid or low-income students who do not qualify for federal financial aid would not be included as low-income in the results of this study. Using the Pell Grant as a proxy for income likely underestimates the number of low-income students in the survey sample.
Comparisons will be made based on subpopulations. Summary statistics of the respondents will be provided in the next chapter to better describe the sample of students who chose to complete the survey. However, this does not imply that generalizations can be made to these subpopulations. These comparisons are the first attempt to determine differences in students’ perceptions of differential tuition. Hopefully they will inform future research, but are not meant to be conclusive evidence of all opinions of every member of a subpopulation at UIUC. UIUC is also only one type of higher education institution. Researchers conducting similar surveys at other types of institutions may find students have very different reactions to price than students at UIUC.

In addition, limitations also exist because of the specific questions asked in the survey. No question was included to distinguish domestic students from international students or in-state residents versus out-of-state residents. It is important to note that tuition differentials based on residency status are even larger than the tuition differential based on academic major, but out-of-state engineering students still are charged a higher tuition differential than out-of-state students in a liberal arts major. Similarly international students in the College of Engineering are charged a higher tuition differential than international students in liberal arts majors. Residency status questions were not included to limit the length of the survey, but it is important to recognize that some students completing the survey may be charged a tuition differential much larger than the tuition differential charged to in-state engineering students. The omission of residency information may underestimate how much tuition a student is actually charged. The base tuition rate for students who entered UIUC from the Summer 2012 through Spring 2013 with an in-state residency status is $11,636, out-of-state residency status is $25,778 and international residency status is $26,578. The engineering tuition for students who entered UIUC from the Summer 2012
through Spring 2013 with an in-state residency status is $16,556, out-of-state residency status is $30,698 and international residency status is $33,498.

The Truth In Tuition policy in Illinois is also important to explain, and causes limitations to estimating the amount of tuition a student is charged. Students who entered UIUC in the Summer of 2004 or later are guaranteed the same tuition rate for four academic years (Public Act 93-0228). This is why all tuition rates at UIUC are described as tuition for students who entered the university from the Summer to the Spring of a certain academic year. All students who entered the university from the Summer 2012 through Spring 2013 will pay the same tuition rate for four consecutive academic years. This tuition rate is guaranteed. Students who entered the university from the Summer 2011 through Spring 2012 will have a slightly lower tuition rate that is guaranteed for four consecutive academic years. This makes it difficult to determine exactly how much tuition is charged to students because knowing the student’s term of entry is required.

This survey includes the respondent’s class year (freshmen, sophomore, junior, senior) and their graduation date, but not their term of entry. Due to limitations in drawing conclusions about tuition rates without having the entry term of the students, the results will be made based on if the respondent pays the tuition differential or the base tuition rate. Because the tuition differential based on academic majors still stands regardless of entry term, important information regarding the relation of students’ perceptions of differential tuition based on academic major and their tuition differential levels are relevant. Table 3.1 shows all tuition rates survey respondents might be experiencing based on entry term, residency, and major according to the UIUC Registrar’s website. Since some survey respondents indicated they are 5th year undergraduates. Tuition rates in Table 3.1 go back for five academic years for students in the College of LAS or COE who are full-time.
Discussion of the survey respondents included in this survey, and the results of this study will be discussed in the following chapter.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Tuition Rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resident</td>
<td>$9,242</td>
<td>$9,484</td>
<td>$10,386</td>
<td>$11,104</td>
<td>$11,636</td>
</tr>
<tr>
<td>Non-resident</td>
<td>$23,026</td>
<td>$23,626</td>
<td>$24,528</td>
<td>$25,246</td>
<td>$25,778</td>
</tr>
<tr>
<td>International</td>
<td>$23,626</td>
<td>$23,626</td>
<td>$25,028</td>
<td>$25,996</td>
<td>$26,578</td>
</tr>
</tbody>
</table>

| Differential Tuition Rate for College of Engineering, Chemical Engineering, Math and Comp Science, Stats and Comp Science, and Physics |
| Resident | $13,802 | $13,802 | $15,114 | $15,928 | $16,556 |
| Non-resident | $27,944 | $27,944 | $29,256 | $30,070 | $30,698 |
| International | $27,944 | $27,944 | $31,756 | $32,820 | $33,498 |

| Differential Tuition Rate for Chemistry and Life Sciences in College of LAS |
| Resident | $13,802 | $13,802 | $15,114 | $15,928 | $16,556 |
| Non-resident | $27,944 | $27,944 | $29,256 | $30,070 | $30,698 |
| International | $27,944 | $27,944 | $29,756 | $30,820 | $31,498 |
Chapter 4: Data and Results

Introduction

Descriptive statistics, independent sample two-tailed t-tests and logistic regression were used to examine the research questions (α=0.05). This chapter begins with a summary of the survey respondents. The analyses will then continue to address each research question individually².

1a. Are undergraduate students aware of tuition differentials?

1b. How did undergraduates learn about tuition differentials?

1c. Do undergraduates have an accurate understanding of tuition differential levels?

1d. Why do undergraduates believe there are tuition differentials?

2a. Do undergraduate students factor tuition cost into their decision to enter/change their major?

2b. Do differences exist in the impact of tuition differentials by tuition charged or college of enrollment?

2c. Do differences exist based on income?

2d. Do differences exist based on intended career choices?

3. Do students believe the tuition differential is justified/fair?

One reason proponents of differential tuition argue for the increased tuition of certain majors is that students in majors such as engineering plan to go into careers where they will earn more than students majoring in liberal arts majors or other lower-cost majors (Yanikoski & Wilson, 1984). Because students were directly asked questions that address this assumption in the survey, the results will be examined as a subcomponent of Research Question 3 to determine

² These research questions are investigated only for students in the College of Engineering and the College of LAS as discussed in Chapter 3.
if this is a reasonable assumption to make regarding students in engineering and science-based majors at UIUC. Differences in responses based on the respondents’ socioeconomic backgrounds, tuition charged, and different colleges of enrollment will be compared when possible.

**Definitions of Subgroups**

Variables were created to examine differences between several subgroups of respondents including income, major tuition charged, and college of enrollment. Respondents identified their college of enrollment in the beginning of the survey. Respondents are either in the College of Liberal Arts and Sciences (LAS) or the College of Engineering (COE). In regard to income, respondents were asked what types of financial aid they were awarded during the 2012–2013 academic year. Differences between incomes will be estimated based on the respondents self-reported receipt of the Pell Grant, a federal grant given to students from low-income families (as discussed in Chapter 3). Finally, respondents indicated all of their current and previous majors. All of the current majors selected by a respondent were examined, and if at least one of those majors was determined to charge a higher tuition differential than base tuition, according to UIUC Registrar’s tuition rate information, that respondent was included in a group that indicates they are charged the higher-tuition differential. For this reason, when the results refer to students charged a tuition differential, this tuition differential should be assumed to mean a higher-tuition differential than base tuition. Respondents who did not have a major in this higher-tuition category are included in a group who is charged the base tuition rate, although it is important to note that students may be charged additional fees if they are taking lab courses or other courses that required additional fees but not the entire tuition differential. Also note the use of the word “charged” and not “paid.” Students are all technically “charged” the sticker price of tuition, but
often receive financial aid to help offset the cost, thus leaving their actual cost of tuition less than
the tuition they were charged/the sticker price of tuition. For the remainder of this project, if a
group of students is described as being charged a certain tuition rate, this is assumed to mean
sticker price.

**Description of Sample**

The total number of survey respondents was 1,634, but 138 of those responses were
incomplete or reported they were not currently enrolled students, so these respondents were
dropped from the sample. In addition, respondents from the College of Agricultural, Consumer
and Environmental Sciences (n=10), the College of Applied Health Sciences (n=1), the College
of Business (n=11), the College of Fine and Applied Arts (n=2), the College of Media (n=1) and
the Division of General Students (n=1) were dropped. These respondents were dropped because
of the low-response rate from the college of enrollment. Several of these colleges were also not
targeted for this survey, but respondents may have received the email invite if they were included
in the email list for the College of LAS or COE. Dropping these respondents would allow for
more accurate comparisons between a respondents tuition charged. Several of these colleges
charge a tuition differential that is not as high as business, science or engineering, so the
exclusion of these few respondents provides a clearer distinction between respondents being
charged the most and least on campus based on their academic major. Table 4.1 provides a
description of the survey respondents. The total number of respondents used for the analysis in
this study is 1,470. Respondents currently enrolled in the COE totals 415 and respondents in the
College of LAS totals 1,055. Of these respondents, 47.89% (n=704) are in majors that charge the
base tuition rate at UIUC, and 52.11% (n=766) are in majors that charge a tuition differential. All
majors in the COE and the science majors in the College of LAS are charged the highest tuition
differential based on academic major. This means the survey includes respondents charged the base tuition rate and respondents charged the higher science/engineering tuition differential.

Respondents who identified as female comprised 52.58% \( (n=773) \) of the sample, and male respondents comprised 45.51% \( (n=669) \). The remainder of the respondents preferred not to answer or skipped this question. It is important to note the differences in gender for respondents in different colleges. There are many more females responding from the College of LAS and many more males responding from the COE. At UIUC, there are more males in the COE than females, so the gender difference in the COE would be expected in survey respondents, but the College of LAS has a more equal gender distribution as seen in Table 4.2. This is one limitation to this survey sample.

The majority of respondents identified as white (63.66%). The next largest race category was Asian/Pacific Islander (20.95%). This mirrors the UIUC campus. In addition, of the total respondents, 3.75% of respondents identified as Hispanic/Latino \( (n=55) \), 2.86% as Black/African American \( (n=42) \), and 0.07% as American Indian/Alaskan Native \( (n=1) \). Several respondents indicated they identified as more than one race, \( (5.04\%, n=74) \), 3.88% \( (n=57) \) respondents preferred not to answer and 2 (0.14%) respondents did not answer. Approximately 32.38% \( (n=476) \) of respondents reported formally changing their major at UIUC at least once. More detail regarding the description of respondents can be found in Table 4.1. This table also includes differences based on college of enrollment. One important note to make regarding the description of the survey sample is that the sample has an approximately equal number of respondents who pay the tuition differential and who pay the base tuition rate.

Table 4.2 shows the current profile of undergraduates at UIUC according to the Division of Management Information 2012–2013 Campus Profile data. Information for all undergraduates
as well as undergraduates in the COE and the College of LAS is included. The only information provided by the Division of Management Information are the percentage of females, underrepresented undergraduates and the percentage of undergraduates who received need-based aid. When comparing the survey sample to the actual undergraduates on campus, the survey seems to have comparable representation of students from all class levels (freshmen, sophomore, junior, senior). The measure for low income is stricter for this survey as only students who received the Pell Grant were included. The Campus Profile includes all need-based “federal aid, state aid, private aid, and institutional grants, scholarships, waivers, loans, and work/study.” A more accurate comparison can be made based on UIUC information from the National Center for Education Statistics College Navigator. Financial aid information from the College Navigator indicates 20% (n=6,437) of all undergraduate students received a Pell Grant for the 2010–2011 academic year. This is a much more comparable number to the sample for this survey. It is also expected that more of these low-income students would be in the College of LAS as compared to COE, which is seen in this survey sample.
Table 4.1
Description of Survey Respondents

<table>
<thead>
<tr>
<th>Respondent Characteristics</th>
<th>Total Respondents</th>
<th>COE</th>
<th>LAS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian/Alaskan Native</td>
<td>0.07%</td>
<td>0.00%</td>
<td>0.09%</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>20.98%</td>
<td>27.47%</td>
<td>18.39%</td>
</tr>
<tr>
<td></td>
<td>308</td>
<td>114</td>
<td>194</td>
</tr>
<tr>
<td>Black/African American</td>
<td>2.86%</td>
<td>1.46%</td>
<td>3.41%</td>
</tr>
<tr>
<td></td>
<td>42</td>
<td>6</td>
<td>36</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>3.75%</td>
<td>2.65%</td>
<td>4.17%</td>
</tr>
<tr>
<td></td>
<td>55</td>
<td>11</td>
<td>44</td>
</tr>
<tr>
<td>White</td>
<td>63.42%</td>
<td>58.80%</td>
<td>65.12%</td>
</tr>
<tr>
<td></td>
<td>931</td>
<td>244</td>
<td>687</td>
</tr>
<tr>
<td>Multiple Races/Ethnicities</td>
<td>5.04%</td>
<td>6.26%</td>
<td>4.07%</td>
</tr>
<tr>
<td></td>
<td>74</td>
<td>26</td>
<td>48</td>
</tr>
<tr>
<td>Prefer not to Answer</td>
<td>3.88%</td>
<td>3.37%</td>
<td>4.07%</td>
</tr>
<tr>
<td></td>
<td>57</td>
<td>14</td>
<td>43</td>
</tr>
<tr>
<td>System Missing</td>
<td>0.14%</td>
<td>0.00%</td>
<td>0.20%</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total American Indian/Alaskan Native, Black/African American, Hispanic/Latino</strong></td>
<td>6.68%</td>
<td>4.11%</td>
<td>7.67%</td>
</tr>
<tr>
<td></td>
<td>98</td>
<td>17</td>
<td>81</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>45.57%</td>
<td>71.08%</td>
<td>35.45%</td>
</tr>
<tr>
<td></td>
<td>669</td>
<td>295</td>
<td>374</td>
</tr>
<tr>
<td>Female</td>
<td>52.66%</td>
<td>27.23%</td>
<td>62.56%</td>
</tr>
<tr>
<td></td>
<td>773</td>
<td>113</td>
<td>660</td>
</tr>
<tr>
<td>Other/PNA</td>
<td>1.77%</td>
<td>1.69%</td>
<td>1.80%</td>
</tr>
<tr>
<td></td>
<td>26</td>
<td>7</td>
<td>19</td>
</tr>
<tr>
<td>System Missing</td>
<td>0.14%</td>
<td>0.00%</td>
<td>0.20%</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>College of Enrollment</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>College of Engineering</td>
<td>28.23%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>415</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College of LAS</td>
<td>71.77%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1,055</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Major Tuition Price</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In Major with Base Tuition</td>
<td>47.89%</td>
<td>0.00%</td>
<td>66.73%</td>
</tr>
<tr>
<td></td>
<td>704</td>
<td>0</td>
<td>704</td>
</tr>
<tr>
<td>In Major With Differential</td>
<td>52.11%</td>
<td>100.00%</td>
<td>33.27%</td>
</tr>
<tr>
<td></td>
<td>766</td>
<td>415</td>
<td>351</td>
</tr>
<tr>
<td><strong>Income</strong></td>
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<td></td>
</tr>
<tr>
<td>Did not receive Pell Grant</td>
<td>78.57%</td>
<td>84.82%</td>
<td>76.11%</td>
</tr>
<tr>
<td></td>
<td>1,155</td>
<td>352</td>
<td>803</td>
</tr>
<tr>
<td>Received Pell Grant</td>
<td>21.43%</td>
<td>15.18%</td>
<td>23.89%</td>
</tr>
<tr>
<td></td>
<td>315</td>
<td>63</td>
<td>252</td>
</tr>
<tr>
<td><strong>Class</strong></td>
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<td></td>
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<tr>
<td>Freshmen</td>
<td>21.77%</td>
<td>25.54%</td>
<td>20.28%</td>
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<td></td>
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<td>106</td>
<td>214</td>
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<tr>
<td>Sophomore</td>
<td>24.56%</td>
<td>26.02%</td>
<td>23.98%</td>
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<td></td>
<td>361</td>
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<td>253</td>
</tr>
<tr>
<td>Junior</td>
<td>27.62%</td>
<td>26.02%</td>
<td>29.07%</td>
</tr>
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<td></td>
<td>406</td>
<td>108</td>
<td>298</td>
</tr>
<tr>
<td>Senior</td>
<td>25.37%</td>
<td>22.17%</td>
<td>26.63%</td>
</tr>
<tr>
<td></td>
<td>373</td>
<td>92</td>
<td>281</td>
</tr>
<tr>
<td>Other</td>
<td>0.68%</td>
<td>0.24%</td>
<td>0.85%</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total Undergraduates</strong></td>
<td>1,470</td>
<td>415</td>
<td>1,055</td>
</tr>
</tbody>
</table>
Table 4.2

<table>
<thead>
<tr>
<th>Description of UIUC Students (2012–2013, unless otherwise specified)</th>
<th>All</th>
<th>Undergraduates</th>
<th>Engineering</th>
<th>LAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self identify as American Indian/Alaskan Native, Native Hawaiian &amp; Pacific Islander, African American, Hispanic/Latino</td>
<td>14.20%</td>
<td>7.20%</td>
<td>16.30%</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>44.50%</td>
<td>16.00%</td>
<td>49.70%</td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With Need-Based Aid (2011–2012)</td>
<td>46.00%</td>
<td>38.60%</td>
<td>47.80%</td>
<td></td>
</tr>
<tr>
<td>Received Pell Grant (2010–2011, NCES)</td>
<td>20.00%</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>With any financial aid (2011–2012)</td>
<td>72.40%</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Class</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshmen</td>
<td>22.65%</td>
<td>18.19%</td>
<td>18.32%</td>
<td></td>
</tr>
<tr>
<td>Sophomore</td>
<td>23.31%</td>
<td>22.28%</td>
<td>22.47%</td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td>23.38%</td>
<td>23.63%</td>
<td>26.63%</td>
<td></td>
</tr>
<tr>
<td>Senior</td>
<td>28.57%</td>
<td>32.53%</td>
<td>30.89%</td>
<td></td>
</tr>
<tr>
<td>International Undergraduates</td>
<td>13.90%</td>
<td>23.80%</td>
<td>13.10%</td>
<td></td>
</tr>
<tr>
<td>Out of State Resident</td>
<td>21.50%</td>
<td>39.60%</td>
<td>18.00%</td>
<td></td>
</tr>
<tr>
<td>Total Undergraduates</td>
<td>31,901</td>
<td>6,763</td>
<td>11,150</td>
<td></td>
</tr>
</tbody>
</table>

Notes: Division of Management Information, University of Illinois at Urbana-Champaign Campus Profile 2012–2013; US Department of Education, National Center for Education Statistics (NCES) College Navigator, 2010–2011

Analysis of Research Questions

Research question 1a: Are undergraduate students aware of tuition differentials?

The first research question focuses on undergraduate students’ knowledge of tuition differentials. There are several survey questions that relate to the general knowledge of undergraduates at UIUC. Respondents were first asked if tuition rates differ by academic major at UIUC, and only 8.71% (n=128) of respondents reported that tuition rates do not differ by major.
**Group differences.** Independent sample t-tests were conducted to investigate group differences between respondents who reported that tuition rates do in fact differ based on major and respondents who reported that tuition rates do not differ based on major.

*Difference by income.* No significant difference was found between students of different incomes and their response to the question of whether differential tuition exists at UIUC in the conducted t-test (Table 4.3).

**Table 4.3**

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>M</th>
<th>Std. Error</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not receive Pell</td>
<td>1,155</td>
<td>0.9117</td>
<td>0.0083</td>
<td>0.2839</td>
</tr>
<tr>
<td>Received Pell</td>
<td>315</td>
<td>0.9175</td>
<td>0.0155</td>
<td>0.2756</td>
</tr>
<tr>
<td>Combined</td>
<td>1,470</td>
<td>0.9129</td>
<td>0.0073</td>
<td>0.2820</td>
</tr>
<tr>
<td>Diff</td>
<td></td>
<td>-0.005772</td>
<td>0.0176</td>
<td></td>
</tr>
</tbody>
</table>

\[
t = -0.3273
\]

Welch's df = 511.531

Pr(|T|>|t|) = 0.7435

**Difference by college of enrollment.** As seen in Table 4.4, a significant difference was found between a student’s college of enrollment and their response to this question (t=3.85, Pr(|T|>|t|)=0.0001). Approximately 95.18% of respondents in the COE reported that tuition rates vary by major compared to 89.76% of respondents in the College of LAS. This is a difference of 5.4%. This is a significant difference based on college enrollment and indicates that the respondents from different colleges of enrollment have a different awareness of the tuition differential policy at the time of this survey.
Difference by tuition charged. A significant relationship was also found between the tuition the student is charged (base tuition rate versus the most expensive tuition differential) and their response to this initial survey question ($t = -5.27$, $Pr(\mid T \mid > \mid t \mid) < 0.001$). Approximately 87.21% of students who are charged the base tuition rate reported there was a difference in tuition based on major, while 95.04% of students who pay the increased tuition differential reported that tuition does vary based on major. This difference of 7.8% shows a significant relationship based on the tuition a student is charged and their awareness of this tuition policy (Table 4.5). This indicates that students who do not pay the tuition differential are less aware of the tuition policy.

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>M</th>
<th>Std. Error</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>College of Engineering</td>
<td>415</td>
<td>0.9518</td>
<td>0.0105</td>
<td>0.2144</td>
</tr>
<tr>
<td>College of LAS</td>
<td>1,055</td>
<td>0.8976</td>
<td>0.0093</td>
<td>0.0093</td>
</tr>
<tr>
<td>Combined</td>
<td>1,470</td>
<td>0.9129</td>
<td>0.0074</td>
<td>0.282</td>
</tr>
<tr>
<td>Diff</td>
<td>0.0542</td>
<td>0.0141</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$t = 3.85$

Welch's df= 1,065.7

$Pr(\mid T \mid > \mid t \mid) = 0.0001$
Table 4.5

Respondents' Awareness of Differential Tuition Based on Tuition Charged

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>M</th>
<th>Std. Error</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Tuition</td>
<td>704</td>
<td>0.8721</td>
<td>0.0126</td>
<td>0.3341</td>
</tr>
<tr>
<td>Rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Differential</td>
<td>766</td>
<td>0.9504</td>
<td>0.0078</td>
<td>0.2173</td>
</tr>
<tr>
<td>Tuition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combined</td>
<td>1,470</td>
<td>0.9129</td>
<td>0.0073</td>
<td>0.282</td>
</tr>
<tr>
<td>Diff</td>
<td></td>
<td>-0.0782</td>
<td>0.0148</td>
<td></td>
</tr>
<tr>
<td>t=</td>
<td>-5.2716</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Welch's df=</td>
<td>1.191.68</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pr(</td>
<td>T</td>
<td>&gt;</td>
<td>t</td>
<td>)=</td>
</tr>
</tbody>
</table>

Discussion of research question 1a (Are undergraduates aware of tuition differentials?). In both of these group comparisons, the students in majors without the tuition differential and students in the College of LAS had more responses indicating they were unaware that differentials exist based on academic major at UIUC. It is important to note that in a future question, eight students admitted that they actually were not aware tuition varied by major at the time of the survey, but when they were presented with the statement in the survey informing them that tuition does in fact vary by major at UIUC, they went back a question and changed their answer. It is unknown how many other students did this, so this analysis may overestimate the number of students who were actually aware of tuition differentials at UIUC.³

Even if several students changed their answer to this survey question, these results indicate that a large number of students are at least aware that differential tuition based on

³ These respondents remained in the survey sample, since only a few actually identified themselves. Removing these respondents would still not remove those students who did not admit to changing their answer, so no respondents were excluded from the sample due to this change in answer.
academic major exists at UIUC. The differences between the awareness of students in different 
colleges and students of different tuition levels raise questions about the admissions processes or 
practices used to inform students of finances for different colleges. It is not surprising that 
students who pay the tuition differential are more likely to know the differential exists, but these 
differences may take some students by surprise if they decide to switch to a more expensive 
major later in their college career. Also, just because a student indicates they are aware tuition 
differentials exist, does not mean they understand the policy or if the policy has an impact on 
their tuition.

Research question 1b: How did undergraduates learn about tuition differentials? To 
better understand where the students received their information on tuition differentials, students 
were asked from where they learned about tuition differentials only if they indicated they were 
aware of tuition differentials in the previous question. They were offered 10 choices and also an 
option to enter an alternate answer. The choices included:

- Admissions Office
- College Advisor
- College Professor
- Family Member
- Financial Aid Package
- High School Counselor
- High School Teacher
- Own research Online
- Parent
- Peer
- Other (please specify)

Respondents were directed to select all that apply. Of the respondents who were aware of tuition 
differentials, 92 students specified an “other” response when asked where they learned about 
tuition differentials. When students specified their “other” selection, the researcher coded the 
answers. The new categories were more broadly defined so the original 10 answer options could
be recoded into these new categories seen in Table 4.6. Percentages were calculated based on all of the total responses from the 1342 respondents who indicated they were aware of tuition differentials (2206 total responses). Responses that included admissions office, college faculty or advisors were coded into a category called “University Staff or Faculty.” University staff or faculty informed 448 respondents (20.31%) about tuition differentials. Family member, parent, and peer responses were coded into one category called “Family or Friends.” A large number of respondents reported they learned about tuition differentials from family or friends (647 respondents, 29.33%). Responses indicating independent research online or personal experience in selecting or changing majors were coded into a new category called “Independent Research/Experience.” Most respondents selected an answer that indicated they learned about tuition differentials from their own personal research online or their own experience in exploring different majors (789 respondents, 35.77%). A total of 69 respondents reported that they learned of tuition differentials at UIUC from someone at their high school (3.13%). The remaining respondents learned about tuition differentials directly from their financial aid packages (218 respondents, 9.88%) or they reported they did not know about tuition differentials until they received their tuition bill or saw their tuition drop or increase with a change in major (18 respondents, 0.82%). For example, one respondent reported that they learned of tuition differentials, “when I switched majors and suddenly tuition cost more.” The respondents who indicated they learned of tuition differentials through their tuition bill required a new category to be added, but all other responses fit into one of the original categories provided in the survey.

Of the 92 respondents who selected “other,” 17 respondents indicated that they guessed or did not know that tuition differed based on major (18.48%). Of these 17 respondents, 8 indicated that they actually did not know that tuition differed by major, but when they were
presented with the statement that all respondents were given explaining that tuition did in fact vary by major at UIUC, they went back to the question and changed their answer (as discussed in the previous section).

Table 4.6
Summary of Responses: Where Did You Learn About Tuition Differentials?

<table>
<thead>
<tr>
<th>Responses</th>
<th>% of Total Responses</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Research/Experience</td>
<td>35.77%</td>
<td>789</td>
</tr>
<tr>
<td>Family/Friends</td>
<td>29.33%</td>
<td>647</td>
</tr>
<tr>
<td>University Staff/Faculty</td>
<td>20.31%</td>
<td>448</td>
</tr>
<tr>
<td>Financial Aid</td>
<td>9.88%</td>
<td>218</td>
</tr>
<tr>
<td>High School Staff</td>
<td>3.13%</td>
<td>69</td>
</tr>
<tr>
<td>Tuition Bill</td>
<td>0.82%</td>
<td>18</td>
</tr>
<tr>
<td>Guessed/I didn't know</td>
<td>0.77%</td>
<td>17</td>
</tr>
<tr>
<td>Total Responses</td>
<td></td>
<td>2,206</td>
</tr>
</tbody>
</table>

Discussion of research question 1b (How did undergraduates learn about tuition differentials?). Respondents were able to select more than one source for their tuition differential information, but it is still interesting to note the large number of students who reported sources that either involved their own research online, probably using university websites, and their personal family and friends. Many of the times when respondents indicated they learned of tuition differentials from their peers, they found themselves comparing tuition with their friends in other majors, so they were not aware of the tuition differential until they met students in majors that charged a different tuition than their own. For example, one respondent explained, “I compared tuition rates with fellow students in different majors.” For the most part, it seems that most students learn about tuition differentials from their own personal connections or their own research online. This raises the same question as the results from research question 1a. One might wonder if students are receiving accurate information regarding tuition differentials if they are relying on their own research/experiences, family and friends.
Research question 1c: Do undergraduates have an accurate understanding of tuition differential levels? To further gauge the information undergraduates understand about tuition differentials, they were asked to rank 5 majors from most to least expensive. The correct ranking from most to least expensive is Business and Engineering majors, Food Science and Human Nutrition majors, Fine and Applied Art majors, Advertising majors and English majors (see Appendix A for format of ranking question in survey instrument). Of all respondents, 10.82% were able to correctly rank these majors according to tuition price, 40.82% of respondents successfully ranked both the most and least expensive majors, 37.35% of respondents ranked the most expensive major correctly but not the least expensive, and 4.22% of respondents successfully ranked the least expensive major but not the most expensive (See Table 4.7).

Table 4.7
Summary of Responses for the Ranking of Majors by Tuition Price

<table>
<thead>
<tr>
<th></th>
<th>% of All Respondents</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successfully ranked all majors</td>
<td>10.82%</td>
<td>159</td>
</tr>
<tr>
<td>Successfully ranked at least the most expensive, but not all majors</td>
<td>37.35%</td>
<td>549</td>
</tr>
<tr>
<td>Successfully ranked most expensive, but not least expensive</td>
<td>40.82%</td>
<td>600</td>
</tr>
<tr>
<td>Successfully ranked least expensive, but not most expensive</td>
<td>4.22%</td>
<td>62</td>
</tr>
<tr>
<td>Other Responses</td>
<td>6.8%</td>
<td>100</td>
</tr>
<tr>
<td>Total Respondents</td>
<td></td>
<td>1,470</td>
</tr>
</tbody>
</table>

As seen in Table 4.8, when comparing the rankings of students in majors with tuition differentials versus students in majors without tuition differentials, in both instances, the highest percentage of students in both groups successfully ranked either both the most and least expensive majors or the most expensive majors. Students from both groups had trouble identifying the correct ranking for all majors, or if they were able to rank the most expensive, they were unable to rank the least expensive as well. When examining differences by college, of
the students in the College of LAS, 5.3% were only able to accurately rank the English majors, while in the COE, only 1.4% of students were only able to accurately rank the English majors.
Table 4.8
Summary of Responses for the Ranking of Majors by Tuition Charged

<table>
<thead>
<tr>
<th></th>
<th>Base tuition rate</th>
<th>Differential tuition</th>
<th>College of Engineering</th>
<th>College of LAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successfully ranked all majors</td>
<td>10.37%</td>
<td>11.23%</td>
<td>10.60%</td>
<td>10.90%</td>
</tr>
<tr>
<td>Successfully ranked at least the most</td>
<td>43.18%</td>
<td>38.64%</td>
<td>41.93%</td>
<td>35.92%</td>
</tr>
<tr>
<td>expensive and least expensive, but not</td>
<td>33.38%</td>
<td>40.99%</td>
<td>40.96%</td>
<td>35.92%</td>
</tr>
<tr>
<td>all majors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Successfully ranked most</td>
<td>6.25%</td>
<td>2.35%</td>
<td>1.45%</td>
<td>5.31%</td>
</tr>
<tr>
<td>expensive, but not least expensive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Successfully ranked least</td>
<td>6.82%</td>
<td>6.79%</td>
<td>5.06%</td>
<td>7.49%</td>
</tr>
<tr>
<td>expensive, but not most expensive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Responses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Respondents</td>
<td>704</td>
<td>766</td>
<td>415</td>
<td>1,055</td>
</tr>
</tbody>
</table>
Discussion of research question 1c (Do undergraduates have an accurate understanding of tuition differential levels?). These results indicate that while students are aware differential tuition exists at UIUC, they may not be fully aware of the tuition rates for certain majors. They are able to more easily identify the most expensive majors, but the undergraduate respondents do not as accurately identify the majors with the smaller tuition differentials. This was true for respondents from both colleges and students who pay both tuition rates.

Research question 1d: Why do undergraduates believe there are tuition differentials? Questions were also included in the survey to understand the purpose undergraduates assign to differential tuition. Respondents were given the option to select from five response choices, and they were also provided with an open-response textbox to give their reasons for why they believe tuition differentials exist by major. They were asked to select all answers that applied. All of these choices were based on the responses of Chief Business Officers as reasons for the implementation of tuition differentials in a previous survey (Nelson, 2008). The response choices included in this survey from Nelson (2008) were “to directly cover the more expensive costs of some academic programs (for example more expensive lab equipment requirements)…to maintain the quality of the academic program,” and “to provide more revenue during hard financial times.” The last two choices provided to respondents for this survey included “to hire highly skilled faculty” and “to reduce class sizes.” Nelson’s survey respondents mentioned both class size and faculty salaries, but Nelson included these in the category to “maintain or enhance quality.” Because all of these responses could be considered correct responses, the motivation for asking this question was to primarily examine the responses undergraduates offered in the open-response textbox. In addition, one valuable comparison that
can be made based on the respondents’ selection of the answer choices provided is comparing the students’ reasoning for differential tuition and the reasons expressed by Chief Business Officers in Nelson’s 2008 survey. Percentages here are based on total number of responses (Table 4.9).

Since students could choose more than one response the total number of responses was 3,634. Of the answer choices provided to students in this survey, the most popular response was to cover the direct costs of some academic programs such as lab equipment (35.56%, n=1,295). The other reasons from second most popular to least popular were to hire highly skilled faculty (24.11%, n=876), to maintain the quality of the academic program (20.42%, n=742), to provide more revenue during hard financial times (11.06%, n=402), and to reduce class size (6.52%, n=237).

Table 4.9
Summary of Responses: What are Some Reasons Why UIUC Charges Different Tuition Rates for Different Majors?

<table>
<thead>
<tr>
<th>Responses</th>
<th>% of All Responses</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>To cover the direct costs of some academic programs</td>
<td>35.56%</td>
<td>1,295</td>
</tr>
<tr>
<td>To hire highly skilled faculty</td>
<td>24.11%</td>
<td>876</td>
</tr>
<tr>
<td>To maintain the quality of the academic program</td>
<td>20.42%</td>
<td>742</td>
</tr>
<tr>
<td>To provide more revenue during hard financial times</td>
<td>11.06%</td>
<td>402</td>
</tr>
<tr>
<td>To reduce class size</td>
<td>6.52%</td>
<td>237</td>
</tr>
<tr>
<td>Other</td>
<td>2.26%</td>
<td>82</td>
</tr>
<tr>
<td>Total Responses</td>
<td></td>
<td>3,634</td>
</tr>
</tbody>
</table>

Nelson’s (2008) survey of Chief Business Officers included 27 respondents who indicated the reason for implementing differential tuition. The most respondents indicated the differentials were to “cover direct costs” (17 respondents, 62.96%). A total of five respondents indicated differentials were to “maintain or enhance quality” (18.52%). An additional five respondents (18.52%) indicated differentials were implemented for “additional revenue,” and three respondents (11.11%) indicated a “decline in state support” motivated the differential
tuition policy. Both the Chief Business Officers in Nelson’s survey and the respondents from this current survey cite direct costs as the main reasons for tuition differentials.

Of the 1,470 total respondents, 92 respondents chose to offer their own explanation for tuition differentials in the open-ended textbox. These responses were coded into two categories based on the researcher’s discretion of grouping like responses. One category of responses included explanations that were expressing beliefs of unfairness or provided an opinion that reflects poorly on the university for having the policy. These responses provided no concrete explanation for differential tuition. The other responses provided concrete reasons for why tuition differentials exist, many of which were included in Nelson’s survey. There were 10 respondents who reiterated one of the response selections provided, so these were not considered as “other” responses and were included in the above results. The researcher coded the 82 “other” responses. One respondent stated that they did not know.

The majority of the “other” responses were negative perceptions of the purpose or intention behind differential tuition (49 respondents, 59.76%). The researcher included all responses that expressed a negative view of the university or the departments for implementing tuition differentials in this category. These responses did not include concrete explanations for the implementation of tuition differentials, but instead offered the student’s opinion on the suspicious intentions or motivation for the policy. Examples of these responses include:

- “Because they can.”
- “They just want to earn more money.”
- “Greed”
- “Because they can get away with it”

There were some respondents who believed the university charges more for certain majors because the university wants to profit as a business. Several respondents made it clear that their
personal financial situation influenced their response stating that it was an unfair policy, so it was clear the financial burden of paying tuition differentials was impacting their response.

The other 33 respondents offered other reasons for differential tuition (40.24%), many of which have been given by other sources or were included in Nelson’s survey (2008). These “other” responses included concrete motivations for the implementation of the tuition differentials without offering an opinion on fairness as the other respondents had. These responses included references to prestige, declining state support, high demand of certain majors that allows increases in tuition without seeing decreases in enrollment, and because students who are paying the higher tuition are thought to make more in their career after graduation. All of these are topics discussed later in this chapter. Examples of some of these responses include:

• “engineering needs more money to invest in research or labs and stuff like that.”
• “UIUC is amongst the best engineering schools in US as well in the world…so it needs to keep up to the standards.”
• “Higher demand for engineering degrees than for English degrees.”

Discussions of research question 1d (Why do undergraduates believe there are tuition differentials?). Many of the responses that included negative perceptions of the university or programs were expressing the respondent’s belief of fairness. Questions regarding fairness of tuition differentials were asked later in the survey, but it is clear that some respondents were already thinking about fairness before they were directly asked. It is also interesting to note the variety of responses provided for this survey question. There is not much explanation of tuition differentials on UIUC’s website, there is certainly no specific reference to tuition differentials being implemented because of supply and demand principles. Undergraduates have their own perceptions of why tuition differentials are in existence, and perhaps with a lack of explanation from administrators or inadequate explanations, they form their own opinions, whether those opinions are accurate or not is another question. If
undergraduates have negative opinions on the motivation of their university, this may impact their future desire to donate to the university later in their life. This has implications for the amount of individual giving the university receives from alumni.

**Research question 2a: Do undergraduate students factor tuition cost into their decision to enter/change their major?**

To answer this research question, respondents were first asked if they were aware of tuition differentials when they selected their most current major. When asked if respondents were aware of tuition differentials when they selected their current major, 70.68% \( (n=1,039) \) of respondents reported yes, they were aware of differential tuition. Of the survey respondents, 4 did not respond to this question, which left 29.05% \( (n=427) \) of respondents reporting that they did not know there were tuition differentials when they selected their major. It is important to note the gap between the number of students who were unaware of a tuition differential at the time of this survey (8.71%) and the percentage of students who were unaware of tuition differentials at the time they selected their academic major (29.05%). These values suggest that some students may not be learning about tuition differentials until they have already made their major selection. At UIUC, since students are required to make some major selections prior to admission to the university, they would be making these decisions before they are enrolled students on campus and before they received financial aid information.

**Importance of price when selecting current major.** All respondents were asked to rank the importance of price in selecting their current major on a five-point scale. Table 4.10 shows all respondents answers on this five-point scale. Of all respondents, 9.25% reported that price was extremely important or very important in selecting their current major (136 respondents). Of the 136 respondents who reported that price was extremely important or very important in selecting their current major, 2.5% of respondents were unaware of tuition differentials based on
major when they selected their current major. Of all respondents, 59.39% reported tuition price was not at all important in the selection of their major.

Table 4.10

<table>
<thead>
<tr>
<th>% of All Respondents</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all important (1)</td>
<td>59.39%</td>
</tr>
<tr>
<td>Slightly important (2)</td>
<td>17.62%</td>
</tr>
<tr>
<td>Somewhat important (3)</td>
<td>13.74%</td>
</tr>
<tr>
<td>Very important (4)</td>
<td>5.92%</td>
</tr>
<tr>
<td>Extremely important (5)</td>
<td>3.33%</td>
</tr>
<tr>
<td>Total Respondents</td>
<td>1,470</td>
</tr>
</tbody>
</table>

**Importance of price in selecting previous majors.** Respondents indicated how many times they formally changed their major at UIUC. A total of 32.38% of respondents (n=476) reported they changed their major at least once. Of the 476 respondents who reported changing their major, 225 respondents changed from a major that charged the base tuition rate to a major that also charged the base tuition rate, so they would have experienced no tuition change when they changed their major. A total of 133 respondents changed from a previous major with no tuition differential to a major with a tuition differential, and 62 respondents had at least one previous major that had a tuition differential and are currently in a major without a tuition differential. This means a total of 195 respondents experienced at least one change in tuition price when they changed their major. As see in Table 4.11, when asked how much the price of tuition of their previous major impacted their decision to change their major, the majority of respondents selected this did “not at all” impact their decision (80.04%). Of the other respondents who reported a major change, 8.82% reported tuition price had “a little” impact on their major change, 5.04% reported this impacted their major change “to some extent,” and 6.09% reported that it impacted their major “a lot” or “a great deal.” There was no significant
difference found between the impact tuition had on a students’ major change based on income or based on whether the respondent currently is charged the base tuition rate versus the higher tuition differential. When looking at the impact price had on respondents’ major change based on whether they changed from a lower-cost major to a higher-cost major or from a higher-cost major to a lower-cost major, the results are similar to Table 4.11 where most students report price had no impact on their major change.

Table 4.11
Summary of Responses: How Much Did the Price of Your Previous Major Impact Your Decision to Change Your Major?

<table>
<thead>
<tr>
<th>% of All Respondents</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all (1)</td>
<td>80.04%</td>
</tr>
<tr>
<td>A little (2)</td>
<td>8.82%</td>
</tr>
<tr>
<td>To some extent (3)</td>
<td>5.04%</td>
</tr>
<tr>
<td>A lot (4)</td>
<td>2.94%</td>
</tr>
<tr>
<td>A great deal (5)</td>
<td>3.15%</td>
</tr>
<tr>
<td><strong>Total Respondents</strong></td>
<td><strong>476</strong></td>
</tr>
</tbody>
</table>

Discussion on the importance of tuition in an undergraduates’ selection/change of major.

There were a total of 29 respondents who indicated price had “a lot” or “a great deal” to do with their change in major. Throughout the survey respondents were able to answer open-ended questions in textboxes. Several students explained situations where they or other students either delayed their declaration of a more expensive major due to cost or they chose to spend more time in a lower-priced major due to cost when their ultimate career goals would require a more expensive major upon graduation. These answers were for other open-ended questions such as questions of what their previous major was and how fair they believe differential tuition to be. Because these stories are scattered throughout the survey responses, the number of students who reported such activities were less than 10. However, these students shared these stories when they were not directly asked if they delayed selection or altered their major decisions due to cost.
For example, one student explained in response to the question of fairness that, “…people may utilize the rule and get admitted to a cheaper major and then transfer to more expensive majors and save money.” Another student explained their personal experience in managing the tuition differential in their response to what their current major is:

I have 2 majors…I have chosen to spend most of my time (3 out of 4 years) in [the less expensive college], even though I hate the administration of [the less expensive college] due to the price differential.  

The small number of respondents who indicated price plays a factor in their change of major is still an important concern for administrators and faculty who want students to major in fields they select based on interest and talent rather than price. It is also important to note for future research that students who switch from a higher-priced major to a lower-priced major are not the only students who may be making decisions based on price. Students who switch from lower-priced majors to higher-priced majors may have been delaying their entrance into a higher-cost major to avoid the higher tuition. Students may be using different strategies to make the tuition differentials more manageable. This would indicate that students were not completely avoiding majors with higher costs, but they may be making decisions to cope with the differential tuition that could impact the quality of their education and/or college experience. For example, if a student is delaying entrance into a certain major or college due to finances, they may not have access to necessary university resources or peer/faculty connections important to be successful in their desired major or career field.

Research question 2b: Do differences exist in the impact of tuition differentials by tuition charged or college of enrollment? Similar to the previous analysis on respondents’ awareness of the tuition differential policy, respondents who are charged the increased tuition

---

4 The names of the programs and colleges were masked to protect the identity of the student.
differential based on their major were more aware of the tuition differential than respondents who are not currently charged the tuition differential based on their major (77.72% compared to 63.44%, difference is 14.28 percentage points). As seen in Table 4.12, the independent t-test conducted indicates a significant difference based on tuition charged indicating a respondents awareness of tuition at time of major was greater for students if they are currently in a major that charges a higher tuition (t=-6.05, Pr(|T|>|t|)<0.0001).

Table 4.12

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>M</th>
<th>Std. Error</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Tuition Rate</td>
<td>703</td>
<td>0.6344</td>
<td>0.0182</td>
<td>0.4819</td>
</tr>
<tr>
<td>Differential Tuition</td>
<td>763</td>
<td>0.7772</td>
<td>0.0151</td>
<td>0.4164</td>
</tr>
<tr>
<td>Combined</td>
<td>1,466</td>
<td>0.7087</td>
<td>0.0119</td>
<td>0.4545</td>
</tr>
<tr>
<td>Diff</td>
<td></td>
<td>-0.1428</td>
<td>0.0236</td>
<td></td>
</tr>
</tbody>
</table>

\[ t= -6.046 \]

\[ \text{Welch's df}= 1,394.65 \]

\[ \text{Pr(|T|>|t|)= 0.0000} \]

An additional t-test was conducted to investigate the differences in awareness at the time the respondents selected their current major based on their college of enrollment. Respondents in the COE were more likely to be aware of the tuition differential when they selected their current major when compared to students in the College of LAS (81.88% compared to 66.54%). As seen in Table 4.13, this is a difference of 15.34 percentage points and indicates a significant relationship between the respondents’ college of enrollment and their awareness of tuition differential (t=6.4212, Pr(|T|>|t|)<0.0001).
Table 4.13
Respondents Awareness of Differential Tuition When They Selected Their Current Major Based on College of Enrollment

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>M</th>
<th>Std. Error</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>College of Engineering</td>
<td>414</td>
<td>0.8188</td>
<td>0.0189</td>
<td>0.3856</td>
</tr>
<tr>
<td>College of LAS</td>
<td>1,052</td>
<td>0.6654</td>
<td>0.0145</td>
<td>0.4721</td>
</tr>
<tr>
<td>Combined</td>
<td>1,466</td>
<td>0.7087</td>
<td>0.0118</td>
<td>0.4545</td>
</tr>
<tr>
<td>Diff</td>
<td></td>
<td>0.1534</td>
<td>0.0239</td>
<td></td>
</tr>
<tr>
<td>t=</td>
<td>6.4212</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Welch's df=</td>
<td>920.425</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pr(</td>
<td>T</td>
<td>&gt;</td>
<td>t)</td>
<td>=</td>
</tr>
</tbody>
</table>

Importance of price when selecting current major. There was no significant difference found when the respondents who indicated price was very or extremely important were compared based on majors with tuition differential charged (10.05%) and majors with the base tuition rate (8.30%). When respondents who indicated price was very or extremely important were compared based on their college of enrollment there was a significant difference (Table 4.14). An independent sample t-test indicated a significant difference in the importance respondents assigned to price when selecting a major based on the respondents’ colleges of enrollment. Of students in COE, 12.29% reported price was very or extremely important compared to 8.06% of respondents in the College of LAS (t=2.3275, Pr(|T|>|t|)=.0202).
Table 4.14

*Respondents Who Reported Differential Tuition was Very or Extremely Important, by College of Enrollment*

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>M</th>
<th>Std. Error</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>College of Engineering</td>
<td>415</td>
<td>0.1229</td>
<td>0.0161</td>
<td>0.3287</td>
</tr>
<tr>
<td>College of LAS</td>
<td>1,055</td>
<td>0.0806</td>
<td>0.0084</td>
<td>0.2723</td>
</tr>
<tr>
<td>Combined</td>
<td>1,470</td>
<td>0.0925</td>
<td>0.0076</td>
<td>0.2898</td>
</tr>
<tr>
<td>Diff</td>
<td></td>
<td>0.0423</td>
<td>0.0182</td>
<td></td>
</tr>
</tbody>
</table>

\[t= 2.3275\]

Welch's df= 650.183

Pr(|T|>|t|)= 0.0202

Discussion of research question 2b (Do differences exist by tuition charged based on academic major or college of enrollment?). Differences based on the tuition charged to a student were not significant. The significant difference based on a respondents’ college of enrollment was significant, but it was also small. Regardless, it is important to note that COE students reported price was important in their major selection even though they are in the highest priced major. This was also seen in the difference based on tuition charged. Students in majors that charged the tuition differential considered tuition to be very or extremely important slightly more than students in majors without the tuition differential. There could be several explanations for these results. Perhaps price is more important to students in higher-priced majors like engineering because they are paying a higher tuition and have to consider this more. Students in engineering may also have had the option to go to a higher priced university’s engineering program, so perhaps UIUC COE was their lower-cost option. Students not paying a tuition differential perhaps don’t think about price at all when selecting their major. Again, this may not impact all students’ decisions to enter a higher-priced major, but it does seem that some students are thinking about price when they declare their major.
Research Question 2c: Do differences exist based on income? There was no significant difference found in the number of low-income students who were aware of differential tuition at the time they selected their current major (69.57%) versus the number of higher-income students who were aware of differential tuition at the time they selected their current major (71.5%). See Table 4.15 for t-test results.

Table 4.15
Respondents Awareness of Differential Tuition when Selecting Current Major Based on Need-Based Financial Aid Received

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>M</th>
<th>Std. Error</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not receive Pell</td>
<td>1,151</td>
<td>0.7150</td>
<td>0.0133</td>
<td>0.4516</td>
</tr>
<tr>
<td>Received Pell</td>
<td>315</td>
<td>0.6957</td>
<td>0.0262</td>
<td>0.4650</td>
</tr>
<tr>
<td>Combined</td>
<td>1,466</td>
<td>0.7987</td>
<td>0.0119</td>
<td></td>
</tr>
<tr>
<td>Diff</td>
<td></td>
<td>0.0193</td>
<td>0.0294</td>
<td></td>
</tr>
</tbody>
</table>

\[ t = 0.9976 \]

Welch’s df = 489.236
Pr(|T|>|t|)= 0.3190

Importance of price when selecting current major. An independent sample t-test was conducted to compare Pell recipients (low-income students) with non-Pell recipients (higher-income peers). As seen in Table 4.16, approximately 12.38% of low-income respondents reported price was extremely or very important as compared to 8.40% of higher-income peers (\( t = -1.96 \), Pr(|T|>|t|)=0.05). There is a 3.98% difference between these two groups indicating a significant relationship between a respondents’ income and their measure of the importance of price in the selection of their current major.
Table 4.16
Respondents who Reported Tuition Price was Very or Extremely Important in Their Decision to Select Their Current Major, by Need-Based Financial Aid Received

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>M</th>
<th>Std. Error</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not Receive Pell</td>
<td>1,155</td>
<td>0.0840</td>
<td>0.0082</td>
<td>0.2775</td>
</tr>
<tr>
<td>Received Pell</td>
<td>315</td>
<td>0.1238</td>
<td>0.0186</td>
<td>0.3299</td>
</tr>
<tr>
<td>Combined</td>
<td>1,470</td>
<td>0.0925</td>
<td>0.0075</td>
<td>0.2898</td>
</tr>
<tr>
<td>Diff</td>
<td></td>
<td>-0.0398</td>
<td>0.0203</td>
<td></td>
</tr>
</tbody>
</table>

$t= -1.9618$
Welch's df= 443.185
$Pr(|T|>|t|)= 0.0500$

Discussion of research question 2c (Do differences exist based on income?). Low-income students reported price was important in their decision to select their current major more than higher-income students. This is a significant finding, and one that was hypothesized. However, the finding is still weaker than was expected. The weaker result may be due to the financial aid available for underrepresented students at UIUC. Both need-based and merit-based aid is available for underrepresented students at UIUC, so if low-income students are receiving this institutional aid, they may be less inclined to focus on price when selecting their major as a student without this institutional aid or a student at an institution that does not offer the same amount of institutional aid to underrepresented students. The finding still suggests that low-income respondents are factoring price into their major decisions more than their higher-income peers. This result does not necessarily provide evidence that low-income students will not major in higher-priced majors, but it certainly raises some important questions. If low-income students are paying more attention to the price of a certain major, it is more likely they would be making more cost-based decisions regarding their major as compared to their higher-income peers. Again, this may not mean low-income students are completely avoiding higher-cost majors, but
they may be taking different financing approaches within the institution to manage the tuition differential, such as delaying declaration of a major.

**Research question 2d: Differences based on future career goals.** One argued justification for differential tuition in the literature is that students in these higher-cost majors will earn more upon graduation (Yanikoski & Wilson, 1984). If students are planning to seek employment in sectors that generally pay more, like the private, for-profit sector, perhaps they will not be as concerned with the price of tuition for their specific major. All respondents were asked to offer predictions for their intended career plans after graduation. As seen in Table 4.17, 49.66% of respondents (730) indicated they would plan to attend law school, medical school, graduate school, or some other professional education after graduation from UIUC. A total of 33.33% of respondents plan to enter the private, for-profit sector upon graduation (490 respondents). Students who planned to seek employment in the private non-profit sector totaled 2.93% (43 respondents) and public sector totaled 10.75% (158 respondents). A total percentage of 3.33% of respondents (49 respondents) indicated they would enter the military, own their own business or pursue some other career path upon graduation.
Table 4.17
Summary of Responses: What are your Future Career Goals for all Respondents and Respondents by Tuition Charged

<table>
<thead>
<tr>
<th>Responses</th>
<th>Total Respondents</th>
<th>Tuition Differential</th>
<th>Base Tuition Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law School, Med School, Grad School, other professional education</td>
<td>49.66%</td>
<td>730</td>
<td>50.26%</td>
</tr>
<tr>
<td>Private for-profit</td>
<td>33.33%</td>
<td>490</td>
<td>40.73%</td>
</tr>
<tr>
<td>Private, non-profit</td>
<td>2.93%</td>
<td>43</td>
<td>0.52%</td>
</tr>
<tr>
<td>Public sector</td>
<td>10.75%</td>
<td>158</td>
<td>5.35%</td>
</tr>
<tr>
<td>Military</td>
<td>1.02%</td>
<td>15</td>
<td>0.78%</td>
</tr>
<tr>
<td>Own Business</td>
<td>1.02%</td>
<td>15</td>
<td>1.04%</td>
</tr>
<tr>
<td>Other</td>
<td>1.29%</td>
<td>19</td>
<td>1.31%</td>
</tr>
<tr>
<td>Total Responses</td>
<td>1,470</td>
<td>766</td>
<td>1,31%</td>
</tr>
</tbody>
</table>

To determine if students with different career plans assigned different importance values to tuition price, additional t-tests were conducted. Students who indicated price was very or extremely important in their selection of their current major were compared based on career plans. No significant differences were found (Table 4.18).
Table 4.18
T-test Results Comparing Importance Respondents' Assign to Price in Selection of Their Current Major by Career Plans

| Groups                        | Not at all Important, slightly, somewhat | Very, Extremely Important | Difference | Pr(|T|>|t|) |
|-------------------------------|------------------------------------------|---------------------------|------------|---------|
|                               | Obs           | M           | Std. Err | Std. Dev | Obs           | M           | Std. Err | Std. Dev | Obs     | M           | Std. Err | Std. Dev | t       | Pr(|T|>|t|) |
| Law School, Med School, Grad School, other professional education | 1,334   | 0.4992     | 0.0137   | 0.5002    | 136         | 0.4706     | 0.0423   | 0.5010    | 0.0287   | 0.0451   | 0.6357   | 0.5259 |
| Private for-profit            | 1,334   | 0.3336     | 0.0129   | 0.4727    | 136         | 0.3309     | 0.0405   | 0.4723    | 0.0027   | 0.0425   | 0.0635   | 0.9494 |
| Private, non-profit           | 1,334   | 0.0285     | 0.0045   | 0.1664    | 136         | 0.0367     | 0.0162   | 0.1889    | 0.0083   | 0.0369   | 0.0492   | 0.6234 |
| Public sector                 | 1,334   | 0.1049     | 0.0084   | 0.3066    | 136         | 0.1323     | 0.0292   | 0.3401    | -0.0274  | 0.0303   | -0.9030  | 0.3679 |
Discussion of research question 2c (Differences in importance of price based on future career goals). One might expect that students who are choosing careers that are expected to make less or are intending on going to graduate or another professional school would assign more importance to the price of tuition in choosing a major. These students might be hesitant to take on more debt if they anticipate future debt in graduate school, or if they plan on going into the public or non-profit sector they might be concerned about taking on debt as an undergraduate that will be difficult to pay off with a smaller salary upon graduation. However, these results suggest that students who are choosing different career plans may not assign more importance to tuition price when selecting their major. They may not be making decisions based on their financial costs to degree completion.

Research question 3: Do students believe the tuition differential is justified/fair?

Respondents were asked to rank how fair they believed the policy of tuition differentials to be on a five-point scale. Of the total respondents, 9.52% responded that differential tuition was “not at all fair,” and 25.92% responded that it was “slightly fair.” An additional 38.91% ranked fairness as “somewhat fair” (3 on the scale). Only 5.51% of respondents reported that differential tuition was “extremely fair” (5 on the scale), but an additional 20.14% reported the policy is “very fair” (see Table 4.19).
Table 4.19
Response to Survey Question: How Fair is the Policy of Differential Tuition for Different Academic Majors?

<table>
<thead>
<tr>
<th>Responses</th>
<th>% of Total Respondents</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all fair (1)</td>
<td>9.52%</td>
<td>140</td>
</tr>
<tr>
<td>Slightly fair (2)</td>
<td>25.92%</td>
<td>381</td>
</tr>
<tr>
<td>Somewhat fair (3)</td>
<td>38.91%</td>
<td>572</td>
</tr>
<tr>
<td>Very fair (4)</td>
<td>20.14%</td>
<td>296</td>
</tr>
<tr>
<td>Extremely fair (5)</td>
<td>5.51%</td>
<td>81</td>
</tr>
<tr>
<td>Total Respondents</td>
<td></td>
<td>1,470</td>
</tr>
</tbody>
</table>

Independent sample t-tests\(^5\) were conducted to both investigate the differences in respondents who reported the tuition differential was “not at all” or “slightly fair” and to investigate differences in respondents who reported the tuition differential was “very” or “extremely fair.” Both comparisons were made because the research question requires an examination of the respondents’ beliefs surrounding fairness and unfairness, unlike the previous questions regarding the importance of tuition differentials where research questions were only examining which respondents felt price was important, not unimportant.

For respondents who reported differential tuition was “very” or “extremely fair.” An independent sample t-test was conducted to determine if there were differences in income, or tuition charged for students who reported tuition differentials were very or extremely fair (4 or 5 on the 5 point scale). There were no significant differences found based on tuition charged based on the student’s major (Table 4.20) or income (Table 4.21).

\(^5\) Note the majority of respondents selected 3 “Somewhat Fair.” It is important to recognize that the grouping of the “somewhat fair” responses may drive results, but this response category was not removed because there is a fairness level assigned to this response. While this is not a perfect scale of fairness, it can still provide some important insight into undergraduate perceptions of fairness. See Chapter 3 for discussions of rating scales.
Table 4.20
Respondents who Reported Differential Tuition was Very or Extremely Fair, by Tuition Charged

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>M</th>
<th>Std. Error</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Tuition Rate</td>
<td>704</td>
<td>0.2571</td>
<td>0.0165</td>
<td>0.4373</td>
</tr>
<tr>
<td>Differential Tuition</td>
<td>766</td>
<td>0.2559</td>
<td>0.0158</td>
<td>0.4366</td>
</tr>
<tr>
<td>Combined</td>
<td>1,470</td>
<td>0.2565</td>
<td>0.0114</td>
<td>0.4368</td>
</tr>
<tr>
<td>Diff</td>
<td></td>
<td>0.0012</td>
<td>0.0228</td>
<td></td>
</tr>
</tbody>
</table>

\[ t = 0.0538 \]

Welch's df = 1,459.19

Pr(|T|>|t|) = 0.9571

Table 4.21
Respondents who Reported Differential Tuition was Very or Extremely Fair, by Need-Based Financial Aid Received

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>M</th>
<th>Std. Error</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not Receive Pell</td>
<td>1,155</td>
<td>0.2623</td>
<td>0.0129</td>
<td>0.4401</td>
</tr>
<tr>
<td>Received Pell</td>
<td>315</td>
<td>0.2349</td>
<td>0.0239</td>
<td>0.4246</td>
</tr>
<tr>
<td>Combined</td>
<td>1,470</td>
<td>0.2565</td>
<td>0.0114</td>
<td>0.4368</td>
</tr>
<tr>
<td>Diff</td>
<td></td>
<td>0.0274</td>
<td>0.0272</td>
<td></td>
</tr>
</tbody>
</table>

\[ t = 1.0078 \]

Welch's df = 514.165

Pr(|T|>|t|) = 0.3140

Results for respondents who reported differential tuition was “not at all” or “slightly fair.” However, the same comparisons were made for students who reported tuition differentials were “not at all fair” or “slightly fair” (1 or 2 on the 5 point scale). Approximately 31.53% of respondents who are charged the base tuition rate indicated differential tuition was slightly or not at all fair compared to 39.03% who are charged the tuition differential. The independent sample t-test, as seen in Table 4.22, indicates a significant difference of 7.50 percentage points (t=-3.01, Pr(t<0)=0.0026).
To better understand which students reported that differential tuition was slightly or not at all fair, a logistic regression was conducted. The variables gender, race (White and Asian versus non-White/Asian), tuition charged, and income were included to predict the respondents’ report of differential tuition being slightly or not at all fair. The overall model (N=1,401) was found to be insignificant (Wald chi-squared=8.19, df=4, p=0.08), but the findings relating to the individual variables are telling. The tuition a student is charged is a significant predictor of the belief in “unfairness” even when gender, race, and income are held constant. As seen in Table 4.23, respondents who are charged the tuition differential were 1.32 times more likely to report differential tuition was slightly or not at all fair when controlling for gender, race, and income (z=2.37, p=0.018).
Table 4.23
Logistic Regression Results for Respondents who Reported Differential Tuition was Slightly or Not at All Fair

| Variable                | Coef.  | Odds Ratio | Robust St. Err. | z    | P>|z| |
|-------------------------|--------|------------|-----------------|------|-----|
| Charged Differential    | 0.2757 | 1.3175     | 0.1531          | 2.37 | 0.018 |
| Female                  | -0.1014| 0.9035     | 0.1047          | -0.88| 0.381 |
| Race non-White/Asian    | 0.1052 | 1.1110     | 0.1937          | -0.60| 0.546 |
| Received Pell Grant     | -0.0328| 0.9677     | 0.1342          | -0.24| 0.813 |
| Constant                | -0.7063| .4934      | 0.0584          | -5.97| 0.000 |

Number of Observations = 1,401
Wald chi2(4) = 8.19
p = 0.0848

The independent sample t-test to test the difference between low-income and higher-income students’ beliefs of fairness is not significant, but it is still important to note that 35.76% of non-low-income students and 34.28% of low-income students report the policy as slightly or not at all fair (Table 4.24), and 26.23% of non-low-income students and 23.49% of low-income students report the policy is very or extremely fair (Table 4.25).

Table 4.24
Respondents who Reported Differential Tuition was Slightly or Not at All Fair, by Need-Based Financial Aid Received

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>M</th>
<th>Std. Error</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not receive Pell</td>
<td>1,151</td>
<td>0.3576</td>
<td>0.0141</td>
<td>0.4795</td>
</tr>
<tr>
<td>Received Pell</td>
<td>315</td>
<td>0.3428</td>
<td>0.0268</td>
<td>0.4754</td>
</tr>
<tr>
<td>Combined</td>
<td>1,470</td>
<td>0.3544</td>
<td>0.0125</td>
<td></td>
</tr>
<tr>
<td>Diff</td>
<td>0</td>
<td>0.0147</td>
<td>0.0303</td>
<td></td>
</tr>
</tbody>
</table>

t = 0.4862
Welch’s df = 503.026
Pr(|T|>|t|) = 0.6271
Table 4.25
Respondents who Reported Differential Tuition was Very or Extremely Fair, by Need-Based Financial Aid Received

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>M</th>
<th>Std. Error</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not receive Pell</td>
<td>1,151</td>
<td>0.2623</td>
<td>0.0129</td>
<td>0.4401</td>
</tr>
<tr>
<td>Received Pell</td>
<td>315</td>
<td>0.2349</td>
<td>0.0239</td>
<td>0.4246</td>
</tr>
<tr>
<td>Combined</td>
<td>1,470</td>
<td>0.2565</td>
<td>0.0114</td>
<td></td>
</tr>
<tr>
<td>Diff</td>
<td></td>
<td>0.0274</td>
<td>0.0272</td>
<td></td>
</tr>
</tbody>
</table>

\[ t = 1.0078 \]
\[ \text{Welch's df} = 514.165 \]
\[ \text{Pr(|T|>|t|)} = 0.3140 \]

**Discussion of undergraduates’ ranking of fairness.** The differences found are interesting because the very students who believe tuition differentials are unfair are the students in the majors with tuition differentials, even when controlling for gender, race, and income. This may be because students who are not paying the tuition differential are less aware of the policy and implications as explored in the previous research questions, but it also may be an indication that even if students believe the tuition differential is unfair, they will still select majors with tuition differentials. In addition, respondents seem to have similar beliefs regarding the fairness of tuition regardless of their income. Becker (1960) proposes a theory of commitment, which may help explain why students would stay in a major they feel is priced unfairly. This theory argues that once an individual invests in a certain action or activity by placing several “side-bets”, the more they invest, the harder it is for that individual to disinvest without suffering a loss. Students in higher cost majors may feel they have invested too much financially to change majors, so they continue in the higher cost major regardless of price.

**Respondents’ explanations for their beliefs of fairness.** Respondents were asked to explain their response to the survey fairness question. A total of 702 respondents answered this open-ended question. The researcher coded the responses based on categories created after first
reading all of the responses. Like-responses were grouped, but with the many complex answers students provided, it became too difficult to limit the answers to just one category. Respondents answers were coded as several dummy variables rather than one variable similar to the survey questions that allowed respondents to select more than one source from which they learned of tuition differentials and the survey question that allowed respondents to select more than one reason for tuition differentials. Because one respondent could have multiple responses, the total number of responses after all answers were coded is 874. Table 4.26 shows the categories that were used and the frequencies for all responses.

Table 4.26

<table>
<thead>
<tr>
<th>Coded Responses for the Respondents’ Explanations of Fairness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responses</td>
</tr>
<tr>
<td>Materials, Resources, Facilities</td>
</tr>
<tr>
<td>Miscellaneous/No reason</td>
</tr>
<tr>
<td>Potential Future Earnings/Job Security</td>
</tr>
<tr>
<td>Cost Prohibits Choice</td>
</tr>
<tr>
<td>Faculty Costs</td>
</tr>
<tr>
<td>Reputation, Prestige, Ranking</td>
</tr>
<tr>
<td>Worth/Value of Program/Degree</td>
</tr>
<tr>
<td>Quality</td>
</tr>
<tr>
<td>Supply/Demand of Major</td>
</tr>
<tr>
<td>Difficulty of Program</td>
</tr>
<tr>
<td>Total Responses</td>
</tr>
</tbody>
</table>

The most common responses were related to respondents’ beliefs about the labs, equipment, facility, research, and resource costs (47.25%). Many students made this argument based on comparing their major to the COE at UIUC, which has new facilities and two dedicated quads as well as many extra resources for students such as dedicated career services staff and a certain amount of free printing on campus. The remainder of this section will further explain these fairness categories and will provide example responses.
Materials, Resources, Facilities. Some respondents argued that the cost of extra labs and equipment made tuition differentials fair. Examples of these responses include:

- “To cover costs of lab equipment and extra services.”
- “If a program needs more resources, they can charge more. It's perfectly fair. Engineering needs lots of lab equipment. English majors need nothing at all…”
- “Lab courses in engineering and science majors clearly cost more, and engineers also get access to more resources on north campus.”
- “Majors such as engineering require a lot of expensive equipment and thus it is understandable that tuition would be higher in order to pay for such equipment.”

A few students argued that tuition differentials were unfair because while they pay a higher tuition, they do not believe their majors are benefiting from the increased tuition as much as other majors like engineering:

- “The technology used in classes is very old. Some of the computers used in my [STEM] courses are older than I am. Also, in [some STEM major] labs, we were frequently given less material than was necessary for the lab. To sum up, [some STEM] majors are paying more, to obtain less.”
- “I appreciate that I do not have to pay for equipment and resources that I will never have to use, but on the other hand if I was in a major that had higher tuition, I would find it unfair that I have to pay extra for things that I need to complete my degree.”

Potential Future Earnings/Job Security. Other fairness responses were supported by beliefs surrounding the idea that students in higher-cost majors such as business and engineering will have better job security and higher earnings after graduation:

- “I understand that lab equipment is very expensive (ie [sic] engineering or biochemical equipment) however the students in these majors tend to out earn other graduates so they will most likely make up the difference in future income.”
- “People in more expensive majors have a greater chance of having a higher paid salary out of college”
- “…the more expensive majors like business and engineering have good job security and provide exceptional training. Students should have no issue making up the costs…”

---

6 The names of the majors and departments were removed so as not to reflect poorly on a specific major or departments or to identify the student.
A few respondents used this same idea to argue that tuition differentials are unfair stating that there was no way to know for sure that all students in higher-priced majors would go into a profession where they would earn a higher salary:

- “I feel like the majors that people think "make the most money" are the majors who have higher tuition rates, which should be unfair to them in a way, depending on how you look at the situation.”
- “A major will not always determine what you will do after college.”

*Reputation, Prestige, Ranking, Worth/Value of Degree.* Some respondents indicated that their belief about the fairness or unfairness of tuition differentials were supported by ideas surrounding the reputation, quality, prestige, or value of certain degrees. Some students argued that it was acceptable to charge higher tuition for programs that have a better reputation, are more prestigious, or that are more valued by either the university or society:

- “Cost seems to be correlated with reputability of program at UIUC”
- “More tuition - more ranked major”
- “They have to pay for lab fees and such and they are paying for the reputation that program has”
- “My engineering degree is highly ranked for a reason. A higher cost is expected for a highly valued degree and to hire top-notch faculty.”
- “…I can understand how the more prestigious majors at the university which the university is know[n] for (i.e [sic]engineering) may cost more money to keep the prestige of the program.”

Other respondents argued that tuition differentials are unfair because it suggests the university values higher-priced degrees more or takes advantage of a student’s desire to be in a highly prestigious program:

- “You're basically saying that one major is better than the other…”
- “Education is education. The money value we place on certain majors creates inequality between majors in a society where money equals importance.”
- “It sets a bad precedent that some students and their educational endeavors are valued more highly than others…”
Quality of degree program. Some respondents equated higher tuition prices with the quality of a program:

- “Business and Engineering majors take much more rigorous classes and, in my opinion, receive a better education.”
- “You get what you pay for.”
- “Why should it be more expensive to learn to be an engineer vs. an English major? That is like saying one is higher quality.”
- “It [differential tuition] makes sense if its a higher quality education”
- “If I pay less for my education, then perhaps the University does not invest much resources into [my department].”
- “Better schooling should cost more money, so the more sought after and renowned majors should be more expensive”

Supply/Demand of certain majors. Some respondents argued that differential tuition is fair or unfair because these majors are high in demand.

- “It seems that engineering is a more desirable degree than for an English major. Thus, there is a greater demand for engineering, naturally leading to a higher price.”
- “If it truly does go to specialized equipment for the major, then that's fair. If those students are charged more just because there is more market demand for those majors, then that is abhorrent.”

Difficulty of the degree program. Other respondents pointed to the rigor of the program to justify differential tuition:

- “In engineering you use a lot of expensive resources and the program is more difficult so it makes sense to pay more”
- “Some majors expect more out of their students so it makes sense that there would be a different price for tuition.”

Cost Prohibits Choice. Some students expressed concern that there is a possibility that higher-tuition costs are deterring or delaying certain students from selecting higher-cost majors. Some respondents reported personal experiences with these types of decisions. Respondents who referenced this idea often were advocating for low-income students. For example:

- “…it's just unfortunate that those students who can hardly afford college to begin with can't take part in certain majors on the sole basis of cost differentials.”
• “I don't think it's completely unfair because as a [STEM] major, I realize that I'm using lab equipment, facilities, etc., that an English major, for example, would not need. However, it would be nice if it wasn't such a significant difference because I would hate to be someone who WOULD have to take into account that majoring in a science is an additional $5000 a year, for example, when choosing my major.”
• “Depending on one's financial situation, it can discourage students from selecting their desired major”
• “Selects against lower class students for entrance into higher earning jobs after college, upper class students have unfair access to education leading to high paying jobs”

One student shared his/her personal story in a previous quote explaining that as a student with a double major he/she is required to spend some academic semesters in the more expensive college and other academic semesters in the less expensive college. This student has spent more academic semesters in the less expensive college because of the tuition differential even though they would prefer to be in the more expensive college. Another personal account was told by a current engineering student who reported that he/she spent their first year at UIUC in a major in the College of LAS that did not have the tuition differential because of the lower tuition costs.⁷

Other respondents suggested that their science or engineering major should be subsidized or have reduced tuition because more engineers and scientists were needed in society. These students were not necessarily advocating for low-income students, but their responses imply that higher costs may deter some students from selecting certain majors:

• “A land-grant institution should fund to the betterment of its own land, thus should subsidize the costs for those who give the most back - ACES and Engineering.”
• “UIUC should subsidize majors that will produce the most employable students and give the best preparation for work after graduation. It makes no sense to encourage students to major in fields that will make them unemployable post-graduation.”

Miscellaneous, no reason. Finally, the “miscellaneous, no reason” category includes respondents who provided answers that were too difficult for the researcher to interpret, they expressed discontent with the tuition differential policy but did not provide an explanation, or

⁷ Note that quotes were not used in these two examples to protect the identities of the respondents.
they did not answer the question provided. Some students offered opinions on the fairness of differential tuition that were not easily categorized above, so they were included in the miscellaneous category, but are still interesting perspectives to include. One respondent referred to degrees as a product: “The overpriced cost of college aside, the University has the right to set prices for each product it sells. In this case, the product is a degree.” Students also offered suggestions for the tuition policy stating “the reasoning behind the different tuition rates should be explained upfront.” One student also reported that the tuition differential is fair as long as prospective students are notified. One offered the suggestion that courses for underclassmen should be cheaper in the higher-cost majors than those courses for upperclassmen because underclassmen do not have as much access to labs, equipment, or faculty. This is a policy that has been implemented at other Big Ten universities.

*Conditional Fairness.* In addition to providing an explanation of fairness listed in the previous descriptions, many of the respondents also included a conditional explanation of fairness (104 respondents), so another variable was created to account for this. These respondents offered a reason for the fairness or unfairness of tuition differentials explained by one of the coded variables in Table 4.26, but then offered clarification usually stating that they understand and believe tuition differentials are fair only if they meet certain conditions, like paying for direct equipment expenses. Some respondents believe tuition differentials are necessary, but they are skeptical that the amount of tuition differential is absolutely needed:

- “Fair only if the money I pay for my major goes directly to my college alone”
- “I agree that it takes more money for some majors based on equipment used but I’m not sure if it is really as expensive as the difference is.”

*Group comparisons on fairness explanation responses.* To explore possible differences in respondents’ explanations of their beliefs regarding the fairness of differential tuition, t-tests
were conducted. Because all of the students in the College of Engineering pay the tuition differential, and because many of the fairness explanations referenced the higher differential in engineering, the t-tests conducted on the differences in the explanations of fairness for students in the College of LAS and the COE are found in Table 4.27. Significant differences were found for explanations categorized as “potential future earnings/job security” and “reputation, prestige, ranking.” College of Engineering respondents (5.3%) were significantly more likely to use the program or department’s reputation, prestige, and ranking to explain their fairness response as compared to respondents in the College of LAS (2.37%). This 2.93% difference shows a significant difference in the college of enrollment for respondents who point to the reputation, prestige, or ranking of a program to explain their belief in fairness or unfairness (t=2.4497, Pr(|T|>|t|)=.0146). Differences based on the respondents’ college of enrollment also show a significant difference for respondents in the number of respondents who referenced potential earnings and job security (t=2.1637, Pr(|T|>|t|)=.0309). Students in the College of Engineering (6.75%) were more likely to reference potential earnings and job security in their explanation of fairness than students in the College of LAS (3.79%).
# Table 4.27

**T-test Results Comparing Responses for the Respondents' Explanations of Fairness by College of Enrollment**

| Responses                      | College of Engineering | College of LAS | Difference | Pr(|T|>|t|) |
|--------------------------------|------------------------|----------------|------------|-----------|
|                                | Obs | M      | Std. Error | Obs | M      | Std. Error | M       | Std. Error | t    | Pr(|T|>|t|) |
| Materials, Resources, Facilities | 415 | 0.2482 | 0.0212     | 1,055 | 0.2938 | 0.0140     | -0.0456 | 0.0254     | -1.7937 | 0.0732    |
| Potential Future Earnings/Job Security | 415 | 0.0675 | 0.0123     | 1,055 | 0.0379 | 0.0059     | 0.0295  | 0.0136     | 2.1637  | 0.0309    |
| Faculty Costs                  | 415 | 0.0313 | 0.0086     | 1,055 | 0.0389 | 0.0059     | -0.0075 | 0.0104     | -0.7228 | 0.4700    |
| Supply/Demand of Major         | 415 | 0.0144 | 0.0059     | 1,055 | 0.0085 | 0.0028     | 0.0059  | 0.0065     | 0.9098  | 0.3633    |
| Reputation, Prestige, Ranking  | 415 | 0.0530 | 0.0110     | 1,055 | 0.0237 | 0.0047     | 0.0293  | 0.0119     | 2.4497  | 0.0146    |
| Difficulty of Program          | 415 | 0.0048 | 0.0034     | 1,055 | 0.0095 | 0.0030     | -0.0046 | 0.0045     | -1.0293 | 0.3036    |
| Cost Prohibits Choice          | 415 | 0.0337 | 0.0089     | 1,055 | 0.0512 | 0.0068     | -0.0174 | 0.0112     | -1.5619 | 0.1186    |
| Quality                        | 415 | 0.0289 | 0.0082     | 1,055 | 0.0161 | 0.0039     | 0.0128  | 0.0091     | 1.4063  | 0.1601    |
| Worth/Value of Program/Degree  | 415 | 0.0241 | 0.0075     | 1,055 | 0.0227 | 0.0045     | 0.0013  | 0.0088     | 0.1527  | 0.8787    |
Future earnings/job security assumption. As discussed earlier, a common assumption by both policymakers and undergraduates in this survey is that students in higher-cost majors will probably earn more upon graduation. T-tests were conducted to determine if there were differences in respondents career plans based on the tuition they are charged in their current major (Table 4.28). A fairly equal percentage of both students in majors with the tuition differential (50.26%) and students in majors with base tuition (49.01%) have plans to pursue further education after graduation. Of the students paying a tuition differential, 40.73% plan to go into the private, for-profit sector, while only 25.29% of students paying the base rate of tuition have the same career plan. These results are significant showing students in majors with the tuition differential are planning to go into the for-profit sector more than students in majors with the base tuition rate. In contrast, students paying the base tuition rate plan to enter the private, non-profit sector more than students in majors with the tuition differential (5.54% versus 0.52%, respectively). The same comparison can be made for students with plans to enter the public sector (16.62% versus 5.35%, respectively).
<table>
<thead>
<tr>
<th>Responses</th>
<th>Base Rate Tuition</th>
<th>Tuition Differential</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Obs</td>
<td>M</td>
<td>Std. Err</td>
</tr>
<tr>
<td>Law School, Med School, Grad School, other professional education</td>
<td>704</td>
<td>0.4900</td>
<td>0.0188</td>
</tr>
<tr>
<td>Private for-profit</td>
<td>704</td>
<td>0.2529</td>
<td>0.0164</td>
</tr>
<tr>
<td>Private, non-profit</td>
<td>704</td>
<td>0.0554</td>
<td>0.0086</td>
</tr>
<tr>
<td>Public sector</td>
<td>704</td>
<td>0.1662</td>
<td>0.0140</td>
</tr>
</tbody>
</table>
These totals show that students’ career goals are typical of what one might expect. Students in higher-priced majors are planning to go into the private sector more than students in majors that pay the base tuition rate, while students in the lower-priced majors are planning on going into the non-profit or public sector more than students in higher-priced majors. Students from all majors seem to have plans to further their education after their undergraduate degree is complete. It is important to note that for some majors, the natural progression of the field/major is for undergraduates to continue to graduate school, law school, medical school, or some other professional educational program. The argument supporting differential tuition that students in higher-priced majors will earn higher wages upon graduation has been challenged by these results. According to Butler (2009), on average, employees in the private, for-profit sector make more than employees in the public or non-profit sectors in positions of management, business, and technology. One then can fairly assume that students entering the for-profit sector may earn more than students entering the non-profit or public sectors. One cannot assume that students will enter the job market immediately after their undergraduate students. Students may instead continue in their education and increase their debt burden prolonging when they will actually receive the higher income for their higher-priced degree program.

**Discussion of research question 3 (Do students believe the tuition differential is justified/fair?).** The survey provided very rich data surrounding the fairness question. Many students provided their personal, detailed input. The most interesting results indicate that less than 10% of respondents believe differential tuition is not at all fair, but when respondents’ beliefs were investigated further, more important findings were revealed that involve the beliefs undergraduates hold regarding how the cost of a major may reflect beliefs of the institution. The respondents who believed their degree was valued more highly by the university because they
pay a higher tuition or other respondents who believed their degree was valued less by the university because they pay a lower tuition was unfortunate. Students assigned value/worth based on price tag of their major. This inflates the feelings of prestige of students in higher-cost majors and takes worth away from students in lower-cost majors, a result I did not expect to see. As non-profit entities, universities rely on donations. Any negative feelings students have of their university as they are earning their bachelor’s degree may have an impact on their willingness to donate to the institution later in their career.

Undergraduates seem to have many opinions regarding the fairness of differential tuition, and many of these perspectives are based on misinformation. The financing of a higher education institution is of course complicated, especially when undergraduates are not made aware of specific reasoning behind certain tuition polices. Several students assumed the increased tuition was being directed to fund research. They were also unsure if the increased tuition revenue was staying within the department or going to the institution as a whole. This confusion prompted many students to provide a response of conditional fairness recognizing that while they think the differential charged goes directly to their department, they were unsure of the actual uses or the actual amounts necessary. These issues speak to the financial literacy issues surrounding tuition price in college. Undergraduates pay tuition, which is a growing portion of instructional costs, but they are not informed as to where their money is going. One interesting point to note regarding these fairness responses is that most of the responses that were categorized based on commonalities were not used to exclusively defend the fairness or unfairness of differential tuition by the respondents. Respondents who offered these justifications were sometimes using them to defend the fairness of differential tuition and other times respondents were using the same reasons to argue the unfairness of differential tuition.
Summary of Results

The descriptive tests conducted provide important feedback regarding the perceptions of undergraduates concerning differential tuition. No causal connections can be made based on these descriptive results, but the findings are still important to better understand how undergraduates view tuition differentials.

Research questions 1a-1d reveal that students are overwhelmingly aware of tuition differentials at UIUC, although it is unclear if they knew before they took the survey, or if the survey helped to inform them of this fact. In any case, students who are currently paying the tuition differential were more likely to report that UIUC did in fact have tuition differentials based on major. This raises questions regarding the surprise students might face if they decided to change their major and then realize their tuition price will go up. This also raises interesting questions regarding the admissions, advising, or administrative processes used in the different colleges to inform students of tuition differentials. Are all students made equally aware of tuition differentials, or is this information mostly provided to students who it currently directly impacts?

Looking more closely at the source of students’ knowledge and their understanding of tuition differentials, many students learn about this tuition policy from their own research online or from family and friends. When asked to rank majors on campus from highest to lowest, it was clear based on differences between students’ responses who are in higher-priced majors versus students who pay the base tuition rate that students were better able to accurately rank the major in which they enrolled. Additionally, many students were aware of what the highest-priced majors were, regardless of their major. This again questions what information is being directed to students. Are they informed of tuition policies in other departments and colleges or just their own?
Students have a wide range of opinions for the purposes of tuition differentials, but the majority of students assume these tuition differentials exist because of concrete resources students in higher-priced majors need such as lab equipment or higher-paid faulty members. The survey respondents also expressed negative perceptions of the motives of UIUC for charging tuition differentials. There was also skepticism expressed regarding the use of the tuition differential. I was surprised by the personal, detailed answers many students provided. Some students felt very passionately about their opinion. All of these findings suggest that while students may be aware that tuition differentials are charged based on major at UIUC, they may not know which majors are charged the tuition differentials, and they may not understand the exact reason for the differential. This could be because the university does not communicate this to them, but it also could be because they are learning about tuition differentials on their own or from family and friends. The misinformation among peers at UIUC may be spreading.

The question regarding the impact tuition differentials may have on an undergraduates’ selection of major brought about interesting, and somewhat surprising results. An important comparison to make involves the difference between the number of students who knew tuition differentials existed at the time of the survey, but did not know differentials existed when they selected their current major. One would hope undergraduates learn about tuition differentials before they select their major, but at a large university like UIUC, undergraduates are required to select their major before admission to the university, so this may explain why it seems many undergraduates were not yet aware of tuition differentials when they selected their major.

When directly asked if price was important in selecting their major, many students replied no, but there is still a small percentage of students who report that price was important, and the majority of these students are low-income. Differences do in fact exist in the importance
students assigned to price in their selection of major among students of different income groups. This supports the hypothesis for this study and is an important finding that finally sheds light on the question of how differential tuition might impact low-income students. The type of institution where the survey was administered also could have impacted these results. While these are not definitive findings and do not prove or disprove that low-income students are not selecting higher-priced majors based on tuition price, the results do call for more research into the matter to be sure students of all socioeconomic backgrounds are given the same career opportunities.

There were no differences found in the number of students assigning a high level of importance to price in selection of majors based on their future career goals. Considering future career plans and future earnings are used to justify tuition differentials, undergraduates who are selecting their major may not be thinking of tuition differentials in the same way as policy makers, or at least price did not rank high enough in importance to warrant a 4 or 5 on a 5-point scale. Similarly, when investigating the fairness of tuition differentials according to undergraduates, students in the higher-priced majors were more likely to report tuition differentials were not at all or slightly fair. As stated earlier, this may be because they are the students subjected to the higher tuition, but this also could be a sign that while undergraduates believe tuition differentials are unfair, if they are required to pay more to major in the subject they desire, they will. This puts undergraduates in a vulnerable position. If they wish to major in more expensive majors, they may choose these majors regardless of price. This is not to say they should not select the major they feel the most passionate about, but it does raise questions as to how much tuition should be raised for students. Students in certain majors may continue to pay the increased tuition regardless of price. This does not mean prices should be increased.
Finally, in regard to the question of fairness of tuition differentials, undergraduates have a wide variety of opinions on this matter. College of Engineering students were more likely to justify their beliefs of fairness or unfairness of tuition differentials by referencing the prestige/reputation of the program as well as reporting higher salaries and better job security than College of LAS students. This may shed some light as to why students choose engineering regardless of the higher price tag. The majority of students justify tuition differentials by pointing to the concrete resources students in higher-priced majors receive such as labs, materials, and nicer facilities. An interesting caveat to this finding is that students used the same arguments to both argue the fairness and unfairness of tuition differentials. This was a surprising finding, but reveals the complex perceptions of undergraduates regarding tuition differentials. One more interesting and substantial finding is that students from all tuition levels are planning on going to graduate school, medical school, law school, or some other professional educational opportunity after their undergraduate education regardless of their potential earnings after their education is complete. This questions the argument that students in higher-priced majors can afford higher tuition because they will be earning more upon graduation. Close to half of the survey respondents are planning on pursuing additional education, and about half of these students are in majors with a tuition differential and the other half are in majors without the tuition differential. While some students in graduate programs may not necessarily accrue more debt if they hold positions that include tuition waivers and stipends, a certain number of these students pursuing further education will not have these same opportunities for tuition waivers and may increase their debt burden.

The most alarming finding in this study was the students’ explanations of fairness. Students who believed the price of the program was a signal of rigor, worth, or quality of the
program raise troubling questions as to what type of messages are being sent to undergraduates regarding the use of tuition differential by academic program. Students have many financial concerns over their college career, but providing more detailed explanation to all students, regardless of majors, as to the reasons and uses of differential tuition based on academic major may alleviate some of these perceptions, that the sticker price of a degree is a sign of how much the university values that degree and those students in that degree.
Chapter 5: Conclusions, Implications, and Suggestions for Future Research

Introduction

The results of this study raise several questions regarding differential tuition based on academic major. This chapter will discuss the themes that were discovered from the results of the student survey administered. The first theme deals with the financial awareness of undergraduates. The next theme speaks to the results related to the impact differential tuition may have on an undergraduate’s selection of major. Finally, the use of price as an indication of quality or value of degree and how some engineering students may see their degree as a luxury good is explored. Implications for students, administrators and policies will be discussed. This chapter will conclude with suggestions for future research.

Conclusions

One of the main conclusions to draw from the results of this study is related to the financial awareness of undergraduates at UIUC. Students seem to be aware of tuition differentials, but the extent of their knowledge regarding what tuition differentials actually are is questionable. Many students are aware that the more technical majors such as engineering and science are more expensive, but both the magnitude of the tuition differential and the reason for the tuition differential are not as well known by students. Departmental websites often point to the necessity of the differential tuition because of the need for new or updated equipment. Other than the equipment and resources students can physically see on campus, they are unsure of the other uses for tuition differentials. Many students suggested this money was going to research. Their lack of understanding for the uses of tuition differentials is not necessarily due to indifference, but it does not seem that the direct use of tuition differentials has ever been explicitly stated by administration to allow undergraduates to understand the magnitude of the
tuition differential. Perhaps students would be less skeptical of the magnitude of the tuition differential at UIUC if they were given concrete explanations for where all of the additional revenue is being spent. If students are not given concrete explanations for the tuition differential, they will make their own assumptions about the use of tuition differentials, which can give them a negative view of the university. Ultimately, this may impact the reputation of the university in the eyes of the students and the future alumni of UIUC.

The timing of when students learned of tuition differentials is also an interesting finding. The original question for this research was to determine if students were making major decisions based on the tuition differential. More students were aware of tuition differentials at the time of the survey than they were when they selected their current major. Since students select a major when they apply to UIUC, many students are selecting their major as a senior in high school. There seems to be a delay in information getting to students regarding tuition differentials. Without the knowledge of specific costs associated with an academic program, students cannot make decisions based on higher or lower costs of certain majors. It is unclear if this lack of information is due to the students not being presented the information during the admissions process or if the students are not paying enough attention to the tuition information presented. The delay in undergraduates becoming aware of this tuition policy is troubling because students are making major decisions without knowing the financial implications of their decisions. This was evident by some students in the survey reporting they did not know of tuition differentials until they saw their tuition bill increase or decrease with a change in major. Students should not avoid majors simply because of price, but being aware of the price difference between certain majors may help students plan for increases in tuition due to a declaration of a higher-priced
major. This could impact their persistence decisions once they select their major, if finances are a concern for the student.

After completion of this study, rather than questioning if students are making major decisions based on tuition differentials, the question is now raised if students are even aware of tuition differentials when they select their major. If they are unaware, this raises an ethical question. Students are making large-financial decisions in college based on incomplete or misinformation. Awareness and understanding of these financial decisions is necessary so students can be informed consumers and are not taking on unmanageable amounts of debt. As informed consumers, undergraduates would be better able to plan their finances during the academic year. Undergraduates are a vulnerable population. They are students who want to attend the flagship university in their state, and if they desire a higher-priced degree, they may be willing to pay no matter the cost. This leads one to wonder if colleges and universities should continue to raise the cost of higher-priced majors or if they should find ways to minimized the tuition differential so students are not required to find alternate strategies to manage the cost of higher-priced majors such as delaying declaration of a major.

Price theory informed the hypothesis for this study that price would matter in undergraduates major decisions, but the impact tuition price has on a students’ selection of major was not as great as expected. This is not conclusive evidence that price either matters or does not matter in a student’s selection of a major, but the results suggest that students are using different financial management strategies in an effort to reduce their tuition burden. A few students reported that they delayed entrance into a higher-cost major in order to avoid the higher-tuition price. If a few students reported this, there certainly are students who did not report this in the survey, and there are probably students who did not take the survey, but used these same
strategies. This would indicate that price does matter. Students are still entering higher-priced majors, but they are using strategies to reduce the price of their desired major.

The literature reviewed included research that suggests certain majors can have increased tuition prices without reducing the number of students who enroll in those majors. This survey revealed one reason students may be willing to pay a higher tuition for majors such as engineering. This reason relates to the value or quality they assign to their degree program. Many students suggested the higher price of a major was a sign that the program was of high quality or higher value than other degree programs that cost less on campus. Students seem to be viewing their engineering degree as a luxury good, and they reported it was fair because of the prestige, ranking and quality of the program. The question is raised regarding which comes first for the program. Is it high quality because the program is charging students more, or is the program able to charge more because it is high quality? If the program is charging more because it is high quality, this again is an ethical question. If students are viewing engineering degrees as luxury goods, and they are willing to pay whatever it takes to get them, should universities still charge more? While it is unknown if this is a reason for tuition differentials at large universities, the literature relating to the elasticity of demand for certain majors suggests that students will enroll in engineering degrees regardless of tuition increases, but what students is this leaving out? What students are forced to use other financial management strategies to have access to this luxury good?

The focus of this study was to determine how students are making financial decisions, but this study also found several instances where prices were sending signals, perhaps unintentionally, to students. The comments of several students in lower-cost majors regarding what the higher price of other majors on campus signals to them was troubling. Students in
lower-cost majors viewed price as a signal that their degree was not as valuable both to society and to the university. Students in a variety of majors seem to be viewing price as a signal that the university is willing to invest more in certain majors than in others. Better communication from administration to the students regarding the purpose of tuition differentials may alleviate this feeling on campus. Signaling theory may help explain this phenomenon. Signaling theory was introduced by Spence in 1973 in relation to the job market to describe the communication of prospective employees with employers. This theory has since been related to higher education policy including work by Venezia and Kirst (2005) who propose that policy signals send messages to students and families about the necessary academic preparation for college arguing that these signals can send mixed messages that can hinder student success. Further study into the signals tuition policies are sending to students may find these same mixed messages causing students to act on misinformation or misinterpreted signals.

The fairness beliefs of undergraduates are also interesting and very relevant for administration at institutions who rely on the donations of alumni to further their mission. The expression of conditional fairness by undergraduates revealed that many students understood tuition differentials were necessary, but they were uncertain if the amount of tuition differential was fair and necessary. It was clear many students were assuming the tuition differential was used for tangible resources for students in certain majors, but students were skeptical that this was the actual use. If students view the tuition policies of their undergraduate institutions as unfair, they may be less willing to give back to their institution in the future.

Implications

Students. The ability for students to plan their finances is critical to their persistence in higher education. Unexpected increases in tuition can jeopardize a student’s ability to stay in
college. If students do not fully understand the tuition differences based on major, a change in major may cause an unexpected tuition increase for some students. The ability to plan their finances is diminished if students are not fully aware of the difference in price for certain majors. This has implications for some students’ persistence in college, especially low-income students who are more sensitive to price changes mid-year as discussed in the literature.

Students who are using alternative financing strategies such as delaying the declaration of their intended major are also at a disadvantage. At an institution such as UIUC, where students apply directly to a major prior to enrollment at the university, if students are delaying entrance into a higher-priced degree such as engineering, they may be missing out on important opportunities for them to make connections to faculty and other students in their degree program, during their first year. The specific resources available to students in the higher-priced majors would not be available to the student until they transitioned to their higher-priced degree program.

Both of these implications speak to the ability of students to succeed in these higher-cost majors. Certain majors such as engineering already suffer from an underrepresentation of low-income students. The higher costs and possible delay of students to select these majors can put this underrepresented population further in jeopardy of not persisting in these higher-priced majors, putting them at a further disadvantage compared to their higher-income peers who may not be making the same financial decisions.

**Administrators.** The persistence of students in degree programs is of concern to administrators. Informing students of tuition differentials early enough in their college career, perhaps even before they apply to UIUC, may be an effort that can help some students both prepare for the additional cost of some majors and may help open a dialogue for students who
are thinking about delaying their major selection to avoid higher costs. In addition to providing information to undergraduates and prospective students that the tuition differentials exist, targeting financial aid to students who wish to pursue these higher-cost majors and are in need of extra financial assistance in order to persist and complete their higher-cost degree is important to ensure access remains open to higher-cost majors.

In addition to persistence, administrators should be concerned with how students perceive their university. As non-profits, colleges and universities rely on donations to help fund their institutions. Alumni can be a source of these donations once they are established in their careers, but if they have negative perception of tuition policies at their institutions when they are undergraduates, perhaps they will be less inclined to donate to their former institutions as adults. Increasing the transparency for the use of tuition differentials to justify the magnitude of the differential at UIUC may help eliminate the many questions undergraduates have regarding the use of tuition differentials and the need for such a high tuition differential at UIUC.

The surprising reaction of some students in lower-cost majors who see the higher tuition in some programs as a signal the university is not investing enough in their lower-cost majors should also be of concern to administrators. It was clear that tension and possibly jealousy existed for some students who thought they were not valued as much on the college campus. Some students saw the programs with the higher tuition differential as being favored by the university. It is unclear how common these types of views are, but having this tension and jealousy between undergraduates on a college campus may disrupt the feeling of community on campus and could jeopardize the inclusive culture for which most colleges and universities strive.
Policy. Policymakers at the national level have already started to make improvements not only in the financial aid application system, but also in the efforts to provide more accurate information to students about college costs with the required Net Price Calculators. Tuition differentials complicate the college cost information further, and make it even more important for students to not only be informed of the cost of their education at their prospective college, in their desired major, but to also be informed that those costs may differ if they decide to change their major. To be sure students are well-informed of all relevant financial information early enough to make informed decisions about college costs, information about tuition differentials based on academic program should be readily available. Since Net Price Calculators are already required to be accessible on college websites, adding an additional stipulation that this calculator should provide information for all tuition differentials would be a useful next step in providing more easily accessible tuition differential information to students and families.

Future research

This study has raised many new questions regarding differential tuition in higher education. First, the findings in this study suggest that students may be making decisions in reaction to higher tuition differentials. Whether they are completely avoiding higher-cost majors, or if they are pursuing alternative paths to their desired degree program to manage the tuition differential, there are negative implications for both scenarios, so future research investigating these possibilities is warranted. To better understand how undergraduates are reacting to tuition differentials on a national scale, an accurate representation of the number of institutions with tuition differentials as well as the amount of the tuition differentials is necessary. Keeping up-to-date records of these tuition policies in the large national higher education datasets would make the study of tuition differentials much easier for researchers in higher education and would allow
the higher education community to better understand how tuition differentials are impacting students’ decisions regarding their undergraduate major. Making this data more widely available may make it possible for researchers working with models of major choice to begin to understand if/how tuition differentials might impact a student’s major choice.

Until the national data is available, individual institutions can investigate how differential tuition is impacting the access to higher-cost majors on their campus, or if institutions are debating the implementation of a tuition differential or faced with the prospect of increasing their tuition differential, they can use campus-wide student surveys to determine how these policies would impact students’ decisions and the students’ perceptions of their institution. Other institutions with a different population of students may find different results of a similar survey.

The timing of when students are learning about tuition differentials as well as their source of information could also be valuable information for institutions to understand. When and how to best communicate these tuition policies to students may be important for students to make educated financial decisions. Being sure that students are learning of tuition differentials so they are aware of the tuition for their desired major in addition to being sure their information is coming from reliable sources is another line of research that might benefit specific institutions.

All of the students in this study already declared their major. Important information can be gathered from future research if the perceptions and beliefs of undergraduates who have not declared their major are investigated. Perhaps these students are more or less aware of tuition differentials. They may be more aware if they are investigating different majors while they are students in college, or they may be less aware if they are not currently paying the higher tuition differential. This may provide important information regarding how students are selecting their major when tuition differentials are implemented as well as information regarding different
financing strategies students are using. Perhaps more students in an undeclared major would be found to be delaying the declaration of their major to avoid the higher tuition.

Investigating the differences in males versus females is also warranted because of the high number of males from the COE and the high number of females from the College of LAS who were included in the survey. This may indicate that there are differences in how females and males view these tuition differential policies and would be an interesting line of future research.

Finally, recognizing that not all undergraduates have full control over their college-going and financing decisions is important. Parents of college-aged students may have a big impact in their decisions to select a major and the decisions they make regarding higher education finances, especially if the parents are financially supporting their students. The number of students who reported price was very or extremely important in their decision to select their major in this survey may be indicative of the institution type where the survey was administered. An institution with a higher population of low-income students, first-generation students or independent students may find that students assign more importance to price when they are selecting their major. For an institution such as UIUC, research that investigates the perceptions and decisions parents make in reaction to the differential tuition policies would be important to fully understanding how these tuition policies are impacting students’ behavior regarding their major in college, since parents often do still play an active role in their child’s higher education decisions.

The findings of this study were not expected, but definitely call for more research into tuition differentials in higher education. Some students are making decisions based on tuition differentials, and low-income students reported that price was important in their decision to declare a major more than their higher-income peers. The prospect that students may be
managing the tuition differential by delaying entry to a major is unfortunate and has negative implications for both the institution and the students. Further research is needed to determine if these findings are relevant at other institutions, but certainly should be considered at UIUC and at other institutions that are planning to implement or increase tuition differentials on their campus. At the very least, institutions should be concerned with the possibility that undergraduates are viewing the tuition differentials in a negative light when there are no clear reasons provided by the institution. Hopefully future research regarding tuition differentials will be easily accessible to not only other researchers in higher education, but also to the administrators and policymakers who are responsible for setting tuition levels at higher education institutions since the question of equality for all students to enter a major without apprehension due to affordability should be of concern to all involved in higher education.
References


Bowen, W. G. (2006). Extending opportunity: What is to be done?. In M. S. McPherson, & M. O. Schapiro (Eds.), *College access: Opportunity or privilege?*. (pp. 19–33). New York: The College Board.


http://www.deltacostproject.org/analyses/delta_reports.asp


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Appendix A: Survey Instrument

*1. Online Consent

You are invited to participate in a research study on your decisions regarding the selection of your major. This study is conducted by Erica Harwell and Dr. Jennifer Delaney, in the Department of Educational Policy, Organization and Leadership from the University of Illinois at Urbana-Champaign.

This study will take approximately 5-7 minutes of your time. You will be asked to complete an online survey.

Your decision to participate or decline participation in this study is completely voluntary and you have the right to terminate your participation at any time without penalty. Due to the design of the survey, you will be unable to skip questions, but you may stop participation at anytime by closing your browser.

Your participation in this research will be completely confidential and data will be averaged and reported in aggregate. You will not be asked to provide any identifying information. Your decision to participate, decline, or withdraw from participation will have no effect on your current status or future relations with the University of Illinois. Possible outlets of dissemination may be a master's thesis, journal articles, and conference presentations. Although your participation in this research may not benefit you personally, it will help us understand how students select their major, which will help to inform policymakers in higher education.

There are no risks to individuals participating in this survey beyond those that exist in daily life.

If you have questions about this project, you may contact the Responsible Principle Investigator (RPI): Dr. Delaney, or the Principle Investigator (PI): Erica Harwell [contact information was removed for publication]. If you have any questions about your rights as a participant in this study or any concerns or complaints, please contact the University of Illinois Institutional Review Board at 217-333-2670 (collect calls will be accepted if you identify yourself as a research participant) or via email at irb@illinois.edu.

Please print a copy of this consent form for your records, if you so desire.

I have read and understand the above consent form, I certify that I am 18 years old or older and, by clicking the submit button to enter the survey, I indicate my willingness to voluntarily take part in the study.
voluntarily take part in the study.

☐ Submit

*2. Are you a student at the University of Illinois at Urbana-Champaign who is currently enrolled in classes?

☐ Yes
☐ No

*3. Do tuition rates differ by major on this campus?

☐ Yes
☐ No

*4. How did you learn that tuition rates differ by major on this campus? (select all that apply)

☐ Admissions Office
☐ College adviser
☐ College professor
☐ Family member
☐ Financial aid package
☐ High school counselor
☐ High school teacher
☐ Own research online
☐ Parent
☐ Peer
☐ Other (please specify)

5. Before you proceed, you should know that at the University of Illinois at Urbana-Champaign, tuition rates do in fact vary by major.
6. What is your current college? If you have several majors in different colleges select your primary major as the answer for this question.

- College of Agricultural, Consumer and Environmental Sciences
- College of Applied Health Sciences
- College of Business
- College of Education
- College of Engineering
- College of Fine and Applied Arts
- Division of General Studies
- College of Liberal Arts and Sciences
- College of Media
- School of Social Work
- Other (please specify)
7. What is your current major in the College of Agricultural, Consumer and Environmental Sciences? Select all that apply. If you have an additional major from another college, please select “other” and type your additional major(s) in the text box provided in addition to selecting your major from this college.

- Agribusiness, Markets and Management
- Agricultural and Biological Engineering
- Agricultural and Consumer Economics
- Agricultural Leadership Education
- Agricultural Science Education
- Agroecology
- Animal Sciences
- Companion Animal and Equine Science
- Consumer Economics and Finance
- Crop Agribusiness
- Crop Sciences
- Crops
- Dietetics
- Environmental Economics and Policy
- Family Studies
- Farm Management
- Finance in Agri-Business
- Financial Planning
- Fish and Wildlife Conservation
- Food Science
- Food Science and Human Nutrition
- Global Change and Landscape Dynamics
- Horticulture
- Hospitality Management
- Human Development and Family Studies
- Human Dimensions in the Environment
- Human Nutrition
- Integrated Pest Management
- Natural Resources and Environmental Sciences
- Plant Biotechnology and Molecular Biology
8. What is your current major in the College of Applied Health Sciences? Select all that apply. If you have an additional major from another college, please select “other” and type your additional major(s) in the text box provided in addition to selecting your major from this college.

- Policy, International Trade and Development
- Public Policy and Law
- Resource Conservation and Restoration Ecology
- Science, Pre-Veterinary and Medical
- Secondary Education: Agricultural
- Specialty Crops
- Sustainable Landscapes
- Technical Systems Management
- Technology and Management (Animal Sciences)
- Other (please specify)

Community Health
Health
Health Education and Promotion
Health Planning and Administration
Human Communication Science
Kinesiology
Kinesiology - Physical Education (K-12)
Recreation Management
Recreation, Sport, and Tourism
Rehabilitation and Disability Studies
Secondary Education: Kinesiology - Physical Education (K-12)
Speech and Hearing Science
Speech Language Pathology
Sport Management
Tourism Management
Other (please specify)
9. What is your current major in the College of Business? Select all that apply. If you have an additional major from another college, please select “other” and type your additional major(s) in the text box provided in addition to selecting your major from this college.

- Accountancy
- Entrepreneurship
- Finance
- Information Systems and Information Technology
- International Business
- Management
- Marketing
- Supply Chain Management
- Other (please specify)

10. What is your current major in the College of Education? Select all that apply. If you have an additional major from another college, please select “other” and type your additional major(s) in the text box provided in addition to selecting your major from this college.

- Early Childhood Education (birth through grade 3)
- Elementary Education (K-9)
- Special Education
- Other (please specify)
11. What is your current major in the College of Engineering? Select all that apply. If you have an additional major from another college, please select "other" and type your additional major(s) in the text box provided in addition to selecting your major from this college.

- Agricultural and Biological Engineering
- Computer Engineering
- Computer Science
- Electrical Engineering
- Engineering Mechanics
- Engineering Physics
- General Engineering
- Industrial Engineering
- Materials Science and Engineering
- Mechanical Engineering
- Nuclear, Plasma & Radiological Engineering
- Other (please specify)

[Text box for additional major(s)]
12. What is your current major in the College of Fine and Applied Arts? Select all that apply. If you have an additional major from another college, please select "other" and type your additional major(s) in the text box provided in addition to selecting your major from this college.

- Acting
- Architectural Studies
- Art Education (K-12)
- Art History
- Costume Design and Technology
- Crafts: Ceramics
- Crafts: Metals
- Dance
- Graphic Design
- Industrial Design
- Jazz Studies
- Landscape Architecture
- Lighting Design
- Music
- Music Composition Theory
- Music Education (K-12)
- Music History
- Music Instrumental Performance
- Music Open Studies
- Music Voice Performance
- New Media
- Painting
- Photography
- Scenic Design
- Scenic Technology
- Sculpture
- Secondary Education: Art (K-12)
- Sound Design and Technology
- Stage Management
- Theatre
13. What is your current major in the College of Liberal Arts and Sciences? Select all that apply. If you have an additional major from another college, please select "other" and type your additional major(s) in the text box provided in addition to selecting your major from this college.

- Theatrical Studies
- Urban Planning
- Other (please specify)
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Other (please specify):
14. What is your current major in the College of Media? Select all that apply. If you have an additional major from another college, please select "other" and type your additional major(s) in the text box provided in addition to selecting your major from this college.

- Journalism
- Media and Cinema Studies
- News-Editorial Journalism
- Other (please specify)

15. Is your anticipated major at graduation the same as your current major?
- Yes
- No

16. What is your anticipated major at graduation? Please select the appropriate major from the drop-down menus. Majors are categorized by College. If you are unsure of your major at graduation, select other and type "undecided." In order to view all College options, you may need to scroll to the right.

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17. What is your anticipated graduation date?

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<th>Anticipated Graduation Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month</td>
</tr>
</tbody>
</table>
18. What are your career plans after you receive your undergraduate degree? If you are unsure of your career plans, please select the option you think is most likely.

- I will seek employment in the public sector (state, federal, local government positions)
- I will seek employment in the private, for-profit sector (private firm, company, corporation)
- I will seek employment in the private, non-profit sector (church, non-profit, community organization)
- Graduate School, Law School, Medical School, Other Professional School
- Military
- Own my own business
- Other (please specify)

19. After graduation, do you plan to work in the same field that you are currently majoring in?

- Yes
- No
- I don't know

20. What field do you intend to work in after graduation?

21. What is your best estimate for how much you will earn annually from your first job in your intended field?

- $0-$25,000 per year
- $26,000-$50,000 per year
- $51,000-$75,000 per year
- $76,000-$100,000 per year
- More than $100,000 per year
- I do not know.
22. How much is your tuition for the 2012-2013 academic year, at the University of Illinois at Urbana-Champaign (this number excludes room, board, housing, books, transportation, meal costs)?

- Less than $12,000
- $12,000-$14,000
- More than $14,000
- I do not know
- Other (please specify)

23. If you were to guess, how much do you think your tuition is at the University of Illinois at Urbana-Champaign for the 2012-2013 academic year (this number excludes room, board, housing, books, transportation, meal costs)?

- Less than $12,000
- $12,000-$14,000
- More than $14,000
- Other (please specify)

24. Which majors do you think are the most expensive for students? Please rank the following majors with 1 being the major you think is the most expensive and 5 begin the major you believe is the least expensive.

- Advertising Majors
- Business or Engineering Majors
- English Majors
- Fine and Applied Arts Majors
- Food Science and Human Nutrition Majors
25. At the University of Illinois at Urbana-Champaign, students are charged a tuition rate based on their major. For example, a student who is studying English or psychology is charged the base tuition rate of $11,636. A student who is studying engineering is charged more – tuition of $16,556 (a differential of $4,920). A list of the majors with tuition differentials can be found below. If a major is not listed, the tuition rate is the base rate of $11,636. These tuition rates are yearly tuition rates for in-state resident, undergraduates who entered the university from Summer 2012-Spring 2013.

<table>
<thead>
<tr>
<th>Major Type</th>
<th>College of Origin</th>
<th>Tuition Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business or Engineering Majors</td>
<td>College of Business: All Majors</td>
<td>$16,556</td>
</tr>
<tr>
<td></td>
<td>College of Engineering: All Majors</td>
<td>$16,556</td>
</tr>
<tr>
<td></td>
<td>College of Liberal Arts and Sciences: Biochemistry, Chemistry, Biology, Integrative Biology, and Molecular/Cellular Biology, Chemical Engineering, Math and Computer Science, Statistics and Computer Science, Physics</td>
<td>$16,556</td>
</tr>
<tr>
<td>Food Science and Human Nutrition Majors</td>
<td>College of Agricultural, Consumer, and Environmental Science (ACES): Animal Sciences, Food Science and Human Nutrition, Technical Systems Management, Agricultural and Biological Engineering, Crop Sciences, Natural Resources and Environmental Sciences, and Agricultural and Consumer Economics</td>
<td>$14,180</td>
</tr>
<tr>
<td>Fine and Applied Arts Majors</td>
<td>College of Fine and Applied Arts: All Majors</td>
<td>$13,240</td>
</tr>
<tr>
<td>Advertising Majors</td>
<td>College of Media: Advertising Majors and Journalism Majors</td>
<td>$12,416</td>
</tr>
<tr>
<td>English Majors</td>
<td>Base Tuition Rate: All other majors not listed above</td>
<td>$11,636</td>
</tr>
</tbody>
</table>
26. In your opinion, what are some reasons why the University of Illinois charges different tuition rates for different majors? Check all that apply.

☐ To hire highly skilled faculty

☐ To reduce class sizes

☐ To directly cover the more expensive costs of some academic programs (For example, more expensive lab equipment requirements)

☐ To maintain the quality of the academic program

☐ To provide more revenue during hard financial times

☐ Other (please specify)
27. Were you aware, or not aware, of the different tuition rates for certain majors when you chose your current major?
- Yes, I was aware.
- No, I was not aware.
- Other (please specify)

28. How important was the price of tuition in your decision to select your current major?

<table>
<thead>
<tr>
<th>Importance of Cost in decision to select current major</th>
<th>Not at all important</th>
<th>Slightly important</th>
<th>Somewhat important</th>
<th>Very important</th>
<th>Extremely important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Importance of Cost in decision to select current major</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

29. In your opinion, how fair is the policy of different tuition rates for different majors?

<table>
<thead>
<tr>
<th>Fairness of tuition policy</th>
<th>Not at all fair</th>
<th>Slightly fair</th>
<th>Somewhat fair</th>
<th>Very fair</th>
<th>Extremely fair</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fairness of tuition policy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

30. Please explain your answer to the question above.

31. How many times have you formally changed your major while at the University of Illinois at Urbana-Champaign?
- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- More than 7

32. Was your previous major(s) in the same department as your current major?
- Yes
- No
33. What was your previous major? Please select the appropriate major(s) from the drop-down menus. Majors are categorized by College. Select as many majors as applicable. In order to view all College options, you may need to scroll to the right.

<table>
<thead>
<tr>
<th>College of Agricultural, Consumer and Environmental Sciences</th>
<th>College of Applied Health Sciences</th>
<th>College of Business</th>
<th>College of Education or School of Social Work</th>
<th>College of Engineering</th>
<th>College of Fine and Applied Arts</th>
<th>College of Liberal Arts and Sciences</th>
<th>Division General Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Major</td>
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<td>2nd Major</td>
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<td>3rd Major</td>
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<td>4th Major</td>
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<td>5th Major</td>
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<td>6th Major</td>
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<td>7th Major</td>
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<td>8th Major</td>
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<tr>
<td>9th Major</td>
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<tr>
<td>Other (please specify)</td>
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</tr>
</tbody>
</table>

*34. Were you aware, or not aware, of the different tuition rates of certain majors when you selected your previous major(s)?

☐ Yes, I was aware
☐ No, I was not aware

*35. How much did the price of tuition for your previous major, compared to other majors, impact your decision to switch your major?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>A little</th>
<th>To some extent</th>
<th>A lot</th>
<th>A great deal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
**36. What is your current class year?**
- [ ] Freshman
- [ ] Sophomore
- [ ] Junior
- [ ] Senior
- [ ] Other

Other (please specify)

**37. What is your estimated annual family income?**
- [ ] $25,000 or less per year
- [ ] $26,000-$50,000 per year
- [ ] $51,000-$75,000 per year
- [ ] $76,000-$100,000 per year
- [ ] More than $100,000 per year
- [ ] Prefer not to answer

**38. Please indicate which forms of financial aid you received this semester. (Check all that apply)**
- [ ] Pell Grant
- [ ] MAP Grant
- [ ] Illinois Promise
- [ ] Gates Millennium Scholarship
- [ ] Other Grants or Scholarships (examples: Rotary Club, Boys and Girls Club...)
- [ ] Loan (examples: Perkins, Stafford, unsubsidized, subsidized, PLUS...)
- [ ] I received no financial aid this year
- [ ] Other (please specify)

Other (please specify)
*39. What is your race/ethnicity? (Check all that apply)

☐ American Indian or Alaskan Native
☐ Asian / Pacific Islander
☐ Black or African American
☐ Hispanic or Latino
☐ White / Caucasian
☐ Prefer not to answer
☐ Other (please specify) ____________________________

*40. What is your gender?

☐ Male
☐ Female
☐ Prefer not to answer
☐ Other (please specify) ____________________________

Thank you for completing the survey. You may now exit out of your browser.

If you have questions about this project, you may contact the Responsible Principle Investigator (RPI): Dr. Delaney, jdelaney@illinois.edu, 217-333-0807 or the Principal Investigator (PI): Erica Harwell, harwell2@illinois.edu, 414-507-0323. If you have any questions about your rights as a participant in this study or any concerns or complaints, please contact the University of Illinois Institutional Review Board at 217-333-2670 (collect calls will be accepted if you identify yourself as a research participant) or via email at irb@illinois.edu.
Appendix B: Invitation to Potential Respondent to Participate

Hello,

As an undergraduate student at UIUC, you are either in the process of selecting your major, or you have already done so. You are invited to participate in a research study on your decisions regarding your major selection. This study is conducted by Erica Harwell and Dr. Jennifer Delaney, in the Department of Educational Policy, Organization and Leadership from the University of Illinois at Urbana-Champaign.

You will find a link to a survey below. This survey is completely voluntary. Any information you can provide in this survey would be greatly appreciated.

If you wish to complete this survey, please click on the following link.

Link will be provided here.

If you have questions about this project, you may contact the Responsible Principle Investigator (RPI): Dr. Delaney or the Principle Investigator (PI): Erica Harwell. If you have any questions about your rights as a participant in this study or any concerns or complaints, please contact the University of Illinois Institutional Review Board at 217-333-2670 (collect calls will be accepted if you identify yourself as a research participant) or via email at irb@illinois.edu.

Thank you,

Erica Harwell

M.S. Student
Department of Educational Policy, Organization and Leadership
University of Illinois at Urbana-Champaign
harwell2@illinois.edu
Appendix C: Institutional Review Board Approval

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Office of the Vice Chancellor for Research
Institutional Review Board
528 East Green Street
Suite 203
Champaign, IL 61820

December 11, 2012

Jennifer Delaney
Ed Organization and Leadership
362 Education
MC-708

RE: Differential Tuition and Student’s Decisions to Enter a Higher Cost Major
IRB Protocol Number: 13382

Dear Jennifer:

Thank you for submitting the completed IRB application form for your project entitled Differential Tuition and Student’s Decisions to Enter a Higher Cost Major. Your project was assigned Institutional Review Board (IRB) Protocol Number 13382 and reviewed. It has been determined that the research activities described in this application meet the criteria for exemption at 45CFR46.101(b).

Category 2 applies because the study involves undergraduate students completing an anonymous online survey regarding their awareness of cost-based tuition policies at UIUC.

This determination of exemption only applies to the research study as submitted. Exempt protocols are approved for a maximum of three years. Please note that additional modifications to your project need to be submitted to the IRB for review and exemption determination or approval before the modifications are initiated.

We appreciate your conscientious adherence to the requirements of human subjects research. If you have any questions about the IRB process, or if you need assistance at any time, please feel free to contact me or the IRB Office, or visit our website at http://www.irb.illinois.edu.

Sincerely,

Ronald A. Banks, Human Subjects Research Coordinator, Institutional Review Board
Appendix D: Informed Consent

Online Consent

You are invited to participate in a research study on your decisions regarding your major selection. This study is conducted by Erica Harwell and Dr. Jennifer Delaney, in the Department of Educational Policy, Organization and Leadership from the University of Illinois at Urbana-Champaign.

This study will take approximately 15 minutes of your time. You will be asked to complete an online survey.

Your decision to participate or decline participation in this study is completely voluntary and you have the right to terminate your participation at any time without penalty. You may skip any questions you do not wish to answer. If you do not wish to complete this survey just close your browser.

Your participation in this research will be completely confidential and data will be averaged and reported in aggregate. You will not be asked to provide any identifying information. Your decision to participate, decline, or withdraw from participation will have no effect on your current status or future relations with the University of Illinois. Possible outlets of dissemination may be a master’s thesis, journal articles, and conference presentations. Although your participation in this research may not benefit you personally, it will help us understand how students select their major, which will help to inform policymakers in higher education.

There are no risks to individuals participating in this survey beyond those that exist in daily life.

If you have questions about this project, you may contact the Responsible Principle Investigator (RPI): Dr. Delaney, or the Principle Investigator (PI): Erica Harwell [contact information was removed for publication]. If you have any questions about your rights as a participant in this study or any concerns or complaints, please contact the University of Illinois Institutional Review Board at 217-333-2670 (collect calls will be accepted if you identify yourself as a research participant) or via email at irb@illinois.edu.

Please print a copy of this consent form for your records, if you so desire.

I have read and understand the above consent form, I certify that I am 18 years old or older and, by clicking the submit button to enter the survey, I indicate my willingness to voluntarily take part in the study.