THE IMPACT OF COLLEGE COST ON LOW-INCOME STUDENTS AT PRIVATE (NOT-FOR-PROFIT), FOUR-YEAR INSTITUTIONS IN NEW ENGLAND

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DEDICATION

This is dedicated to my best friend, wife, and proof-reader, Laura; and to Colin and Emma “Bag of Donuts” Chillo. The effort and patience that you all put forth during this time did not go unnoticed. I truly appreciate all of the support and times when “daddy was doing his homework.” I cannot thank each of you enough for everything you did for me.

For Emma and Colin, education is one of the most important endeavors in your life. As you reach your educational dreams and aspirations, you will need to rely upon others to help you achieve your goals. And, don’t forget the many wonderful people who will touch your life and help you in your intellectual journey.

I have been fortunate in my life to have parents who cared and invested in my education. Their sacrifice and words of encouragement have enabled me to achieve my academic goals. Thank you, Mom and Dad.

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ABSTRACT

It is clear that the public and policymakers are questioning the value of a college education in terms of attainment and affordability. The goal of the study was to examine the impact of college cost on low-income students at private (not-for-profit), four-year institutions in New England from 2006 through 2011. By examining price, institutional characteristics, financial aid, and student persistence, the study identified through a series of descriptive statistics, crosstabulations, and regression analyses those factors that affected the graduation rates of low-income students pre- and post-implementation of the Higher Education Opportunity Act (HEOA).

The results of the study demonstrated that while private colleges in New England increased their sticker price, tuition discounting was a common practice to help maximize net tuition revenue and enrollment objectives. The implementation of the HEOA did very little to affect college cost for low-income students as institutions executed the Bennett Hypothesis. The data analysis demonstrated that while private colleges were enrolling a larger number of First-Time, First-Year Federal Pell Grant recipients as a percent of their total financial aid population for new students, graduation rates were stagnant for this population.

A series of regional analyses revealed that First-Time, First-Year Federal Pell Grant students were most at risk for high levels of student indebtedness as a result of institutional financial aid priorities and low 6-year graduation rates. While colleges and universities have complied with the financial and regulatory requirements of the HEOA, many of the disclosure components need to become mandatory reporting requirements.

While federal financial aid policies attempt to address issues of efficiency and equity, institutional priorities often run contradictory to these objectives. The movement from need- to
merit-based institutional aid is also affecting low-income students and shifting more of the financial responsibility to the student and their families. As a result, low-income students are borrowing from federal and private sources to meet their educational expenses. As colleges have continued to engage in the Bennett Hypothesis and the purchasing power of the Federal Pell Grant has declined, low-income students are at risk of not achieving the dream of a college education.
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<tr>
<td>CPI</td>
<td>Consumer Price Index</td>
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<tr>
<td>EFC</td>
<td>Estimated Family Contribution</td>
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<td>FAFSA</td>
<td>Free Application for Federal Student Aid</td>
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<td>FTE</td>
<td>Full-Time Equivalent</td>
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<td>GPA</td>
<td>Grade Point Average</td>
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<tr>
<td>HCERA</td>
<td>Health Care and Education Reconciliation Act of 2010</td>
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<td>HEA</td>
<td>Higher Education Act of 1965</td>
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<td>HEOA</td>
<td>Higher Education Opportunity Act of 2008</td>
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<td>HH</td>
<td>High Tuition/High Aid Institution</td>
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<td>IC</td>
<td>IPEDS Institutional Characteristics</td>
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<td>IPEDS</td>
<td>Integrated Postsecondary Education Data System</td>
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<td>LL</td>
<td>Low Tuition/Low Aid Institution</td>
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<td>NACAC</td>
<td>National Association for College Admission Counseling</td>
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<tr>
<td>PLUS</td>
<td>Federal Parent Loan for Undergraduate Students</td>
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<tr>
<td>SFA</td>
<td>IPEDS Student Financial Aid</td>
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<tr>
<td>SPSS</td>
<td>Software Package for Statistics and Simulation</td>
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<tr>
<td>UFG</td>
<td>Unmet Financial Gap</td>
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<td>USDOE</td>
<td>U.S. Department of Education</td>
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Chapter 1
Introduction

In 1817, Thomas Jefferson proposed an educational system that would enable students to have an opportunity to be educated regardless of their ability to pay. Jefferson’s philosophy was to create a primary educational system that would teach the basic skills of reading, writing, and arithmetic. This approach to an egalitarian educational model established a vision for a young nation. By educating young people, Jefferson believed that this would support the values and needs of an emerging democracy while preventing authoritative rule. Today, we have many politicians who support John Adam’s educational-elite philosophy that higher education should only be achieved by those who can afford it. While our Founding Fathers’ may have helped to define and shape our nation, the economic recession which started officially in September 2008 underscored doubt about the value of higher education. Once the hallmark of opportunity, American higher education is economically challenged at the federal, state, and institutional levels (Denneen & Dretler, 2012). This financial challenge has led to increases in student debt and for the first time in over a decade, we have witnessed fewer students heading off to college (Supiano, 2012).

After World War II, the federal government introduced the GI Bill to enable veterans to gain educational and technical training skills to spur the U.S. economy. President Roosevelt envisioned the GI Bill to prevent another economic depression and as a means to prevent post-war poverty. As a result, college enrollments soared during the late 1940s and 1950s and a new middle-class developed. With the conclusion of the war time benefit, the federal government once again intervened in 1965 with the passing of the Higher Education Act (HEA). The HEA was designed to create financial aid opportunities for students to afford college through need-
based grants, work-study, and loans. A major component of the HEA was the Basic Educational Opportunity Grant (later renamed as the Federal Pell Grant). The Basic Educational Opportunity Grant was designed to assist low- and middle-income students with need-based funding to pursue a college education. President Johnson’s ambition was to devise a program that would enhance the efficiency and equity of a federal financial aid program.

Today many students are faced with the economic reality that the cost of education must be financed through loans. While the maximum Federal Pell Grant covered approximately 21% of tuition and fees at private institutions in academic year 2003-04, its purchasing power declined to 19% in academic year 2013-14 (College Board, 2013). Federal need-based financial aid has a limited impact on meeting students’ tuition and fees at four-year private institutions. As a result, students rely on institutional financial aid (need- and merit-based) and loans (federal and private) to meet their educational costs. Colleges and universities have continued to expand their institutional budgets to support financial aid for most students by increasing the cost of attendance. Therefore, many students must rely on federal and private loans to meet unmet educational costs (after financial aid).

As college students seek to develop their human capital and prospects for career opportunities, debt has become a necessary economic transaction for this investment. The research has shown that students from the bottom 75% of the income distribution are especially influenced by debt (Dwyer, McCloud, & Hodson, 2012). As the federal government expanded access to loans through the Health Care and Education Reconciliation Act (2010) (HCERA), the level of educational loan debt is undermining the goal of college accessibility. In 2012-13, students and parents borrowed $110.3 billion in Federal Stafford and PLUS Loans (College Board, 2013). The types of loans students and their families are using to meet the cost of
education is significant because we are witnessing a shift from nonfederal (private loans) to federal loans. As a result, more students are utilizing Federal Stafford loans to meet educational costs. The Federal Perkins Loan program continues to be the smallest loan option and is campus based, which allows the college or university to determine the qualifications of the borrower.

Prior to HCERA, nonfederal loans were responsible for 25% of loan dollars in academic year 2007-08. By 2011, nonfederal loans were responsible for just 7% of loan dollars while federal loans (Federal Subsidized and Unsubsidized Stafford Loans) were responsible for 76% of loan dollars (Figure 1.1).

Figure 1.1. Growth of Federal and Nonfederal Loans

![Figure 1.1. Growth of Federal and Nonfederal Loans](image)

Source: College Board, 2013

While students are accessing federal loans in larger numbers, the repayment terms of these loans are much more favorable than nonfederal loans. As students increase their borrowing
through the federal government, the U.S. Department of Education will generate larger profits as a result of loan volume and interest rates that are set above current market conditions. The $36 billion that will be used by Congress to increase the Federal Pell Grant program over the next 10-years will result in just a $425 increase in the maximum need-based grant ($5,550 in 2010 to a projected maximum Federal Pell Grant of $5,975 in 2017).

This shift in student loan activity and debt further complicates college completion rates across all types of institutions. As the accessibility of nonfederal loans and Federal PLUS Loans declines due to creditworthiness of many low-income students, the ability to meet college costs diminishes for this population. College graduation rates are greatly affected by family income. As family income increases, 4-, 5-, and 6-year graduation rates increase as well. For those students with family income of $70,000 and higher, 75% will graduate from a private institution within 6-years. While students with family income of less than $25,000 (and who qualify for the Federal Pell Grant program), 54% will graduate within 6-years from a private institution and 44% will graduate from a public institution (Council of Independent Colleges, 2012) (Figure 1.2).
**Figure 1.2. 6-Year Graduation Rates by Family Income**

Source: College Board, 2013.

For most families, it is impossible for them to meet the high cost of a college education and it is impossible for them to save enough money to prepare for this expense for when their child is ready to enter into the hallowed halls of American higher education. President Obama, in his 2013 State of the Union Address, warned against “skyrocketing costs that price way too many young people out of higher education, or saddle them with unsustainable debt” (Obama, 2013). In the spring of 2011, the federal government reported that the outstanding student loan debt exceeded $1 trillion dollars for the first time in U.S. history (Mitchell & Randall, 2012). This loss in economic opportunity comes at the expense of federal and need-based grants. As we have seen over the past decade, the rising cost of tuition and fees has diminished the impact of the federal grant program. The Federal Pell Grant program (a need-based grant) is designed to
assist low-income students (as determined by their Free Application for Federal Student Aid, FAFSA) in meeting tuition and fees at accredited institutions across the country. During the most recent ten-year period, the maximum Federal Pell Grant increased by 39% from $4,050 in academic year 2003-04 to $5,645 in academic year 2013-14. After adjusting for inflation, this represents a 10% increase in the dollar value of the Federal Pell Grant purchasing power against institutional tuition and fees. But during the same period of time, private colleges and universities raised their tuition and fees by 25% - adjusting for inflation. As concerns grow over the U.S. deficit and student loan debt, the Federal Pell Grant program is at risk of a “$5.7 billion shortfall starting in FY14” (Nelson, 2012, p. 1). Funding for the Federal Pell Grant has been relatively stagnant over the past decade with only modest increases projected in FY14-16. For the 2013-14 academic year, the maximum Federal Pell Grant increased from $5,550 to $5,645 – just 1.7% or $95 per academic year. While the Congressional Budget Office reported in May 2013 that the U.S. Department of Education generated a $51 billion profit in student lending, only a fraction of this profit will be used to fund the Federal Pell Grant program. Under the 2011 Budget Control Act, congressional leaders voted to apply these earnings to the deficit reduction rather than to expand the federal need-based funding program. As the U.S. Department of Education was posting record earnings, the Federal Pell Grant program went through a series of reductions – from the elimination of the summer Federal Pell Grant component to the elimination of the “ability to benefit” test for those individuals who did not earn a high school degree, but could benefit from a college education.

The federal government implemented the Higher Education Opportunity Act (HEOA) in 2008 to create greater institutional accountability and transparency between colleges and universities and the consumers they serve. Through HEOA, the federal government was
attempting to address issues of affordability and accessibility by introducing new financial and public disclosure regulations. As these regulations were being introduced into the marketplace, the economic recession started. Therefore, finances emerged as a major concern for student persistence across all types of institutions.

HEOA was designed to simplify the financial aid process, eliminate preferred private lending lists that colleges provided to students, and establish a number of public disclosure requirements that were intended to help students and their families make informed decisions. The intent of HEOA was to control college costs and to make these costs more transparent to the public. Since the implementation of HEOA, tuition and fees have escalated by 13% from $25,759 in academic year 2007-08 to $29,056 in academic year 2012-13 (College Board, 2013). In New England, cost of attendance increased by 16% since the implementation of HEOA from $42,381 to $49,166. While tuition and fees were accelerating above inflation, state appropriations for higher education across the country fell by 23% (Lingenfelter, 2013, p.31).

The rising cost of college is not a new phenomenon, but one that has been occurring for the past three decades. The challenge today is in the decline at all levels of family income, particularly for those earning less than $30,000 per year. Over the past decade, the income level of those families earning less than $30,000 declined by 14% after adjusting for inflation (College Board, 2013). A second challenge in the rise of college pricing is the inability to save funds at the appropriate level given the fluctuations in costs. Families simply do not have the necessary information to make informed decisions as to the future cost of education.

The creation of federal tax subsidies, rather than increases in need-based grants, has also impacted the cost of education for low-income students. This shift towards federal tax subsidies
away from need-based funding benefits largely middle- and upper-income students because their families have a higher marginal tax rate than lower income students (Elliott & Friedline, 2013). With college savings plans as a major piece of tax subsidies, many low-income students do not have the financial assets to take advantage of the financial benefits of such plans.

The significant increases in college costs coupled with a modest increase of 1% in federal need-based aid between academic year 2010-11 and 2012-13 has resulted in a larger unmet financial gap (UFG) that students and their families must meet (College Board, 2013). While the number of students qualifying for Federal Pell Grant increased by approximately 4 million since academic year 2002-03, total Pell Grant expenditure declined from almost $38 billion to $32 billion in academic year 2012-13 (Congressional Budget Office, 2013). Since the maximum Federal Pell Grant of $5,645 met approximately 19% of the average private not-for-profit tuition and fees in 2013-14, students relied upon nonfederal and federal loans to help cover this unmet financial need (College Board, 2013).

While many private institutions engage in price discrimination by utilizing institutional need- and merit-based funds to reduce the direct cost of attendance, student loan debt (both under the federal loan program and private lending) has escalated. As the cost of attendance escalates and financial aid remains relatively flat, unmet financial need increases and requires that the student assumes greater financial responsibility in meeting tuition charges. Given asymmetric information, the gap between the “sticker price” and “net price” continues to widen for many low-income students. This gap between the sticker price and net price contributes to the escalation of student loan debt, since most students must borrow additional funds outside of the Federal Stafford Loan program. With such a heavy reliance on loans, many students leave college (either through attrition or graduation) with excessive debt.
The transformation of federal financial aid policies and programs is well documented in the literature. The literature also demonstrates the need for additional research on how federal financial aid and institutional price setting affects student persistence for low-income students at private institutions. As the federal government transformed access for millions of low-income students since 1965, private colleges have responded by escalating educational costs and modifying their financial aid policies and programs to maximize their net tuition revenue.

While private colleges continue to raise tuition and fees above the Consumer Price Index (CPI) and federal need-based financial aid remains stagnant, students are faced with a difficult decision of either not continuing with their education or assuming unsustainable debt. With just about 1 out of 5 Federal Pell Grant recipients earning a college degree within 6-years, low-income students are the most vulnerable population (College Board, 2013).

As colleges and universities must comply with HEOA, policymakers should explore the relationship between cost and educational attainment to ensure that the federal government’s goal of accessibility continues to be at the forefront of our educational policies for the 21st century. In his 2013 State of the Union Address, President Obama stressed the value of a highly educated citizenry in a global economy (Obama, 2013). If we are to accomplish this goal, we need to rethink the pricing model for higher education to ensure that a greater number of students graduate from our colleges and universities. As more students go off to college and fewer earn a college degree, are we missing an opportunity to improve our society while burdening young adults with excessive debt? Colleges and universities must play a more critical role in developing financial aid policies and programs that are efficient and equitable.
**Purpose of the Study**

The purpose of this study is to develop guidance and recommendations for how private colleges and universities can approach price setting strategically in alignment with improving the 6-Year Graduation Rate of low-income students. As private colleges and universities must comply with HEOA, there is a need to explore the relationship between cost and educational attainment to ensure that the goals of accessibility and affordability are met.

**Significance of the Study**

It is clear that the public and policymakers are questioning, as they should, the value of a college education in terms of attainment and affordability. Ultimately, the data responding to the research questions will allow for guidance and recommendations to assist college administrators and policymakers in developing pricing strategies and financial aid policies that ensure accessibility and affordability. As private, four-year colleges have utilized the Bennett Hypothesis to improve net tuition revenue by minimizing the effects of federal and state financial aid, it is important that corresponding financial aid policies are developed to improve graduation and retention rates of low-income students.

Much of the literature on student persistence has focused on faculty interactions with students inside and outside of the classroom. However, few researchers have focused on the role of college cost and its effect on the enrollment patterns of low-income students. While much of the research on student persistence and graduation stresses the importance of academic fit, there has been little research on financial fit.
**Research Questions**

The goal of the study is to examine the impact of college cost on low-income students at private (not-for-profit), four-year institutions in New England. By examining price, institutional characteristics, financial aid, and student persistence, guidance and recommendations will be drafted to assist college administrators in improving student retention and graduation rates of low-income students. Given HEOA’s financial and public disclosure regulations upon colleges and universities, institutions are held accountable by the federal government to ensure that costs are transparent and student persistence is measured to demonstrate institutional effectiveness.

The research to prepare the guidance and recommendations will be bound by the following questions: (1) how does college cost affect the enrollment patterns of Federal Pell Grant recipients? and (2) how did the implementation of the HEOA affect Federal Pell Grant recipients? The data collected from these two questions will result in understanding how college cost and unmet financial need affects the enrollment patterns of low-income students.

The first research question seeks to identify how pricing affects the 6-Year Graduation Rate of low-income students. This question requires a review of institutional characteristics, pricing, financial aid (including institutional grants and student loans), and 6-Year Graduation Rates. The second research question seeks to identify how the introduction of the federal policy (HEOA) affected low-income students. This question requires a pre- and post-assessment of those variables affecting an institution’s 6-Year Graduation Rate. By understanding the relationship between these variables, a level of understanding of how college cost, student loan indebtedness, and student persistence can be developed through the examination of the data and institutional performance.
**Perspective of the Researcher**

As an executive in higher education, my career has focused exclusively in working at private colleges focused on creating educational opportunity. Given the recent economic recession, many private institutions have realized that their business models no longer fit the economic realities of the marketplace. The market failure of the past seven years demonstrated that the business model of simply raising tuition above inflation no longer works to maximize accessibility and affordability. My interest in examining college cost and its impact on low-income students is prevalent in today’s discussions and serves as an opportunity to address a major concern for most non-elite private colleges. Without a doubt, the next twenty-five years in higher education will be marked by transformation. Unless colleges and universities can address cost and affordability, a new generation of students will opt out of the educational marketplace or will decide to attend state colleges and universities. But given the decision of many states to reduce their appropriations to higher education, public colleges and universities will also face significant challenges to access and affordability.

Over the next decade, higher education will face a number of challenges that will affect the marketplace. A significant issue will be a decline in the traditional-aged student population, which will mean stronger competition for colleges and universities in the New England region (WICHE, 2012). By 2021-22, we are anticipating a 7% drop in traditional-aged students within the New England region (WICHE, 2012). As more students (including adult learners) from diverse racial backgrounds arrive on college campuses around the country, first generation students will become more of a majority on those college campuses that occupy tier III and IV positions within the marketplace. Many colleges will need to prepare for this new generation of students on their campuses. As the marketplace becomes more diverse, tier II, III and IV colleges
will need to prepare for a population that has historically lower levels of educational attainment and less financial capacity to meet their cost of education (St. John, Paulsen, & Carter, 2005). As educators, we need to ensure that education continues to be available for all students not just those who can afford it. Our Founding Fathers believed that education was essential for an emerging democracy and for the advancement of the social compact between each individual and the government. Today, we have the opportunity once again to demonstrate the power of education to advance the intellectual potential of each individual and its ability to benefit society as a whole. As we look ahead, we must ensure that every student regardless of her/his ability to pay has the opportunity to advance her/his intellectual potential.
Chapter 2
Literature Review

Federal Financial Aid: Efficiency and Equity

A goal of the federal government in higher education has been to create and sustain accessibility. The concepts of efficiency (production) and equity (value) are central to the federal government’s role in providing financial aid to expand college accessibility. The political economy of education involves a series of trade-offs between efficiency and equity. Funding of public and private higher education through government subsidies, such as need-based aid and guaranteed students loans ensure that the balance of efficiency and equity is achieved to promote economic growth and address inequalities. How this balance between efficiency and equity will be achieved will depend largely upon the relevance of efficiency to equity or equity to efficiency. Without trade-offs between efficiency and equity, economic growth is limited (Hanushek, 1989). The challenge lies with the notion of a trade-off between efficiency and equity as being obtainable.

The trade-off between efficiency and equity may result in the creation of a program designed to increase equality at the expense of efficiency and vice versa. Historically, the federal financial aid system is more focused on the production (efficiency) than the value (equity) of the educational objective that is trying to be achieved (Le Grand, 1990). Without trade-offs between efficiency and equity, economic growth is limited. The obtainment of Pareto-Optimality in political economy will require a series of trade-offs to ensure that the balance between efficiency and equity is maximized to the point that no one is better off without making another individual worse off. Since federal need-based financial aid is portable and granted directly to the individual, the system tends to focus on efficiency rather than equity.
For Federal Pell Grant recipients, this leads to unmet financial need and a greater reliance on loans to make higher education affordable. The federal government has increased spending in the Federal Pell Grant program by “84% since 2008-09, after adjusting for inflation, and the number of recipients has risen 52% since then” (Mitchell, 2013, p.1). With this infusion of public monies into the Federal Pell Grant program, the average award is just $3,685. Given the dollar value of the award, Federal Pell Grant recipients must rely on both federal and private loans to make a college education affordable. The reality is that Federal Pell Grant recipients are financially challenged and this financial uncertainty leads to higher student attrition. According to Josh Mitchell, one out of four Federal Pell Grant recipients will graduate from college within 6-years. While this number is staggering given the public investment in higher education, post-traditional students are worst off with just “3% graduating within 6-years” (Mitchell, 2013). As such, higher education is under increased scrutiny from the public and policymakers who are dissatisfied with rising prices and under-performing graduation rates.

While the Federal Stafford Loan program makes a greater attempt to Pareto-Optimality by providing subsidized loans, these subsidies remove financial resources that could be re-invested in the Federal Pell Grant program. Federal need-based grants and guaranteed student loans are used by the federal government to achieve both efficiency and equity in higher education. The political economy of higher education depends upon both political and market mechanisms to achieve greater accessibility and economic growth in terms of social capital for both the individual and for society.

Subsequent to the passage of the HEA in 1965, the federal government has provided need-based grants, loans, and work-study subsidies. Federal financial need-based grant aid through Federal Pell Grants (the largest need-based grant provided to students by the federal
government based upon their estimated family contribution as calculated on the FAFSA) and Supplemental Educational Opportunity Grants (federal need-based grant provided to students by the federal government based upon the host institution’s federal allocation of the fund) is designed to reduce the cost of attendance for low-income students. While federal policymakers intended to reduce cost of attendance through need-based grant aid, private institutions are minimizing this reduction by escalating their costs and shifting institutional need-based funding (grant-aid) to merit-based (scholarships based upon academic qualifications) funding (Turner, 2012).

According to Elliott and Friedline, there are two financial aid policy shifts that colleges and the federal government have undertaken in recent years. On the institutional level, many private colleges and universities have shifted their financial aid policies and programs from need-based funding to merit-based. While income and assets are determined by the student’s FAFSA, merit-based aid is determined by grade point average (GPA) and standardized test scores (Elliott & Friedline, 2013).

As private colleges price discriminate, there is a significant shift between need- and merit-based aid. With merit-aid determined by GPA and standardized test scores, a low-income student may not have the same educational opportunities (such as standardized test preparation and Advanced Placement courses) as a wealthier student. As colleges shift more of their institutional financial aid resources into merit-based aid, this will eliminate certain funding opportunities for students who do not qualify. These students may need to rely upon more loan funds to meet educational costs than would be ideal. The challenge with merit-based aid is that it does not take into consideration need-based levels. As such, a financially distressed student has the same level of entitlement as a student with little to no financial need (Elliott & Friedline,
The strategic use of merit-based funding enables the institution to leverage its financial resources to attract a certain group of students that meet their enrollment priorities. Unfortunately this shift in merit-based funding has benefited middle- and upper-income students who do not have financial need, but who are unwilling to pay the sticker price of the institution (Baum & Lapovsky, 2006).

The creation of tax subsidies and college savings plans has also impacted student accessibility and affordability. The introduction of tax subsidies has benefited middle- and upper-income students because their families have a higher marginal tax rate than lower-income students (Elliott & Friedline, 2013). With college savings plans as a major piece of tax subsidies, many low-income students do not have the financial assets to take advantage of the benefits of such plans. Research from Elliott and Friedline illustrate a strong positive relationship between net worth and saving account and college enrollment and graduation (Elliott and Friedline, 2013).

Over the past twenty-five years (1977-2012), the maximum and average Federal Pell Grants have been relatively stagnant. According to the College Board (2012), the maximum Federal Pell Grant increased by just $11 (0.2%), while the average Federal Pell Grant grew by $682 (22.7%). While the federal government kept need-based aid stagnant, it made loans more accessible to students and their families. With the passage of the HCERA in 2010, all federal student loans are guaranteed by the federal government (U.S. Department of Education, 2009). By removing private lenders from the student loan program, the federal government made it easier for students to qualify for loans. By expanding access and loan amounts, the federal government imposes a greater obligation on behalf of the student to pay for college. Today, 66% of students attending a private (not-for-profit) college will borrow approximately $29,000 over
four-years through the Federal Stafford Loan program to meet educational costs (College Board, 2012). As a result, a record 21 million students attended a post-secondary institution in the fall of 2010 (IPEDS, 2013). With a greater obligation being placed on students and their families to meet college costs, many private institutions will use financial aid strategically to maximize net tuition revenue.

**Price Strategies/Setting Tuition**

The Bennett Hypothesis (named after former U.S. Secretary of Education William Bennett) proposes that private institutions will likely use a tuition increase to strategically off-set the benefits of federal and state financial aid by reducing institutional need-based aid (Turner, 2012). Colleges and universities will maximize their net tuition revenue by increasing price in accordance with federal and state need-based aid (Singell & Stone, 2007). By increasing the cost of education, private institutions have the economic opportunity to capture tuition revenue for other areas of the enterprise. As a result, this institutional behavior of reducing need-based aid counteracts the benefits of federal student aid by ensuring that the increase in the cost of attendance captures the economic opportunity that is presented by need-based funding. The growing gap between net price (sticker price less financial aid) and federal financial aid forces many students to increase their reliance on loans and the amount of these loans will increase over the four-year period to meet their educational costs.

Federal financial need-based grant aid (Federal Pell Grant and Supplemental Educational Opportunity Grant) is designed to reduce the cost of attendance for low-income students. While federal policymakers intended to reduce institutional cost through need-based grant aid, private institutions are minimizing this reduction by escalating their costs and transferring institutional need-based funding to merit-based funding. This transfer of institutional funds has benefited
middle- and upper-income students at the expense of low-income, Federal Pell Grant eligible students (Turner, 2012).

Price setting by colleges and universities is rather complex given that net price elasticity (after financial aid) varies with financial need and academic ability. By awarding financial aid (federal, state, and institutional need- and merit-based aid), private colleges and universities can effectively price discriminate. In order to effectively price discriminate, the institution must have some market power to change the net price (either higher or lower) for some students. The estimated family contribution (EFC), as determined on the student’s FAFSA, provides colleges and universities with the applicant’s wealth information. Since colleges and universities have complete information by knowing the student’s financial and academic information as provided on the FAFSA and on the application for admission, institutions also know which schools they are competing with for that student based on the information provided by the applicant on the FAFSA as well. This information allows institutions to price discriminate in order to maximize enrollment and net tuition revenue (Lawson & Zerkle, 2006).

Colleges and universities seek to maximize the academic quality of their entering class by targeting institutional aid to segments of the student population based upon income and academic ability. The institution can effectively price discriminate because of the obtainment of complete information during the admission and financial aid application process. Since students are required to complete an application for admission and a FAFSA for financial aid consideration, the institution has complete information on both academic and financial ability. With both academic and financial information on each student, the institution can stratify student populations by income and academic ability (Epple, Romano, & Sieg, 2001). By targeting specific student populations, colleges and universities can use need- and merit-based institutional
funds to maximize enrollment and net tuition revenue. Through tuition discounting, colleges and universities identify different net prices for different students based upon attributes that are important to the institution. While institutions will establish net prices that best meet institutional priorities, they do not necessarily meet the best interest of the student.

Colleges and universities have the benefit of knowing that as students’ progress academically over the four-year period, their loan eligibility increases as well and this creates economic certainty for institutions to raise their cost of attendance. Coupled with the ability to price discriminate, institutions have dynamic information to effectively adjust their price to increase net tuition revenue on a per student basis.

In regards to price discrimination, there are two price models – high tuition (>25,000)/high aid (>45% tuition discount rate) (HH) and low tuition (<25,000)/low aid (<45% tuition discount rate) (LL). HH institutions contend that the list price is the true cost of college, but the net price should reflect a student’s ability to pay. Proponents of HH support this type of net price setting on the grounds of efficiency and equity (Curs & Singell, 2010). Conversely, LL institutions will maintain low tuition and a low discount regardless of need-levels as determined by the student’s FAFSA. Proponents of LL institutions support the spread of financial aid (though limited) across all student populations.

While price setting is done prior to enrollment, further adjustments in price may occur during the enrollment period at the institution in support of access and academic quality. The level of adjustment will vary contingent upon student persistence, availability of institutional and federal-based campus funds, and other academic and student life variables. The adjustment at HH institutions will be made on an individual level to ensure price responsiveness results in continued enrollment. At LL institutions, price responsiveness will decline as the Financial Aid
office tends not to increase need-based aid for the student (Curs & Singell, 2010). In most cases, students attending a LL institution will have much less access to institutional financial aid.

HH institutions tend to be more successful than LL institutions in granting access to the neediest and academically able students (Curs & Singell, 2010). Through private fundraising and a larger institutional financial aid budget, HH institutions rely less on federal and state aid support. Recently, a number of states have implemented tuition scholarship programs (i.e. Georgia’s Hope Scholarship) to bolster enrollments in LL institutions (Long, 2004). HH institutions have responded to state supported scholarship programs by increasing their tuition charges. As a result, HH institutions reduce the intended benefits of the scholarship for the recipients and increase the cost of the college for non-recipients (Long, 2004). HH institutions in Georgia have an economic incentive to increase tuition charges in order to capture the Hope revenue (in terms of the median dollar amount of the state grant). The increase in tuition also reduces institutional need-based aid so that the state scholarship acts as an economic substitute. In addition, the state scholarship increases student demand for in-state institutions (Long, 2004).

From a policy perspective, the pricing strategies of private institutions fall short of an important federal goal to reduce student indebtedness (Turner, 2012). As a result, the neediest students (as determined by their EFC) must decide to either pursue loan options or withdraw from the institution. The loan component becomes significant as it shifts a larger portion of the cost onto the student. As student debt increases during the enrollment period, the likelihood that the student will graduate diminishes (Baum & O’Malley, 2003). While the federal government has committed over “$660 billion in federal student aid between 1998 and 2006, the cost of education continues to escalate” (Turner, 2010, p.463). Given this investment by the federal
governments, many questions regarding the value and ability of colleges to improve graduation rates and to reduce costs that contribute to higher sticker prices are under debate by the public.

**The Effects of Student Aid**

Since HEOA requires colleges and universities to disclose their graduation and retention rates, the impact of financial aid on student progression is significant for two reasons. First, student aid recipients are aware that the “clock” is ticking. Given the federal, state, and institutional compliance regulations on duration of time, students are advised during the financial aid entrance interview process on the maximum time they may receive financial assistance. It is important to note that most institutions will limit their need- and merit-based funding for a specified duration of time to ensure that the student is meeting both grade point and credit hour requirements as mandated by the USDOE. Second, the type and balance of the aid award is important to ensure that students do not take on excessive debt. By balancing need- and merit-based grants and awards with student loans, the institution can control the amount of indebtedness that the student assumes over the duration of her/his study (Desjardins, Ahlburg, & McCall, 2002). Financial aid does matter in creating the right incentives for students to complete their degrees within the duration of study period. When students have some financial obligation for their educational costs, they tend to be more focused on their studies than their full-pay counterparts (Glocker, 2011).

The federal government developed the student aid program to create educational opportunities for low-income students. The availability of these funds is critical not only in creating access to higher education, but to ensure affordability as well. When students have the appropriate level of funding, they are more likely to be engaged in their studies, which results in on-time completion (Epple et al., 2001). Financial aid recipients have an incentive to complete
their degree on-time because of the time duration that the federal government and institutions place on the student for aid eligibility. Given the limitation of time, student aid recipients tend to complete their degree requirements faster than comparable students who are supported by their parents (Glocker, 2011).

The relationship between financial aid and postsecondary enrollment choice plays a critical role for low-income students. The ability to reduce the institution’s sticker price through financial aid will enhance the decision of low-income students to attend that particular college or university. How federal and state aid policies differentially affect students’ postsecondary enrollment choices depends upon their family income and race/ethnicity. The challenge for creating greater access in higher education is that there is a clear and consistent gap in college enrollment for students who are from low-income and non-White racial/ethnic groups (Kim, 2012). Graduation and persistence rates demonstrate that low-income and students of color are most at risk of not graduating (College Board, 2013).

With the expansion in college enrollment largely as a result of post-traditional students, we have witnessed a decline in federal and state financial need-based grant support (Dwyer, et al., 2012). By moving more of the financial support into loans as a primary solution for meeting educational costs, students are now faced with overwhelming debt – more than $29,000 for a private four-year college education (College Board, 2012). Dwyer, McCloud, and Hodson formalized a theory based upon excessive debt (more than $10,000) and its detrimental effect on an institution’s graduation and retention rates. The researchers found that when a student borrows more than $10,000 per year to meet educational costs, he/she have a higher likelihood of dropping out of college (Dwyer et al., 2012). The challenge of not exceeding the $10,000 threshold requires that the student has parental assistance in meeting educational costs. Since the
Federal Stafford Loan program limits the dollar amount borrowed annually, students must seek out private loans to meet the balance of their educational costs.

This loan debt requires colleges and universities to examine their financial aid policies and programs to determine the type of funding they will award to those students who are already financially challenged. By assuming debt in the short-term to meet tuition and fees, students do not have the necessary financial support (parental or self-help) to sustain the level of debt over a period of time. As the amount of debt increases annually, the likelihood that the student completes his/her academic degree diminishes greatly (Lawson & Zerkle, 2006).
Chapter 3
Methodology

Sample Population

The sample population in this study was all four-year private, not-for-profit institutions in New England (n = 123). After reviewing the Integrated Postsecondary Education Data System (IPEDS) dataset, 14 institutions (Atlantic Union College, Bard College at Simon’s Rock, Boston Baptist College, Cambridge College, College of St. Mary Magdalen, Daniel Webster College, Goddard College, Hebrew College, Hellenic College, Holy Apostle College and Seminary, Laboure College, New England School of Art, New Hampshire Institute of Art, and Saint John Seminary) were excluded from the study given changes in control (not-for-profit to for-profit) or non-reporting of key Institutional Characteristics (IC) and Student Financial Aid (SFA) data in the IPEDS dataset since 2006. If an institution did not report a 6-Year Graduation Rate in any given year, it was automatically excluded from the data. As a result, 109 institutions were included in the study population (Table 3.1).
<table>
<thead>
<tr>
<th>Geographic Location</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecticut</td>
<td>14</td>
<td>12.8</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>7</td>
<td>6.4</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>57</td>
<td>52.3</td>
</tr>
<tr>
<td>Maine</td>
<td>11</td>
<td>10.1</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>9</td>
<td>8.3</td>
</tr>
<tr>
<td>Vermont</td>
<td>11</td>
<td>10.1</td>
</tr>
<tr>
<td>n</td>
<td>109</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table note: n = the number of institutions located within that specific state
Source: Integrated Postsecondary Education Data System.

Carnegie Classification, as reported in IPEDS IC, was used in the study as a means to group similar institutions according to their academic programs and mission. The Carnegie Classification (Table 3.2) provided a general indicator to assist in identifying institutions. Baccalaureate colleges and universities (n=46) are the majority institutional type in the New England region at 42.2%. These institutions are primarily undergraduate degree-granting colleges and universities, which award fewer than 50 Master’s degrees or 20 Doctoral degrees within an academic year. Master’s institutions (n=36) are those colleges and universities that award at least 50 Master’s degrees or no more than 20 Doctoral degrees within an academic year. Research universities (n=12) represent the smallest institutional type in the New England region at 11.0%. These institutions include Doctorate-granting colleges and universities that award at least 20 research Doctoral degrees within an academic year. Specialty institutions (n=15) are those colleges and universities that award more than 75% of their degrees in a single field such as art, theology, education, or business (Carnegie Foundation, 2013).
Table 3.2 Carnegie Classification of New England Institutions

<table>
<thead>
<tr>
<th>Carnegie Classification</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baccalaureate</td>
<td>46</td>
<td>42.2</td>
</tr>
<tr>
<td>Master’s</td>
<td>36</td>
<td>33.0</td>
</tr>
<tr>
<td>Research</td>
<td>12</td>
<td>11.0</td>
</tr>
<tr>
<td>Specialty</td>
<td>15</td>
<td>13.8</td>
</tr>
<tr>
<td>n</td>
<td>109</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table note: n = the number of institutions with that specific Carnegie Classification
Source: Integrated Postsecondary Education Data System.

**Research Design**

The goal of the study is to examine the impact of college cost on Low-Income Students at private (not-for-profit), four-year institutions in New England. By examining price, institutional characteristics, financial aid, and graduation rates, the researcher was able to assess how institutions performed pre- and post-implementation of HEOA. Given HEOA’s financial and public disclosure regulations upon colleges and universities, institutions are held accountable by the federal government to ensure that costs are transparent and student persistence is measured to demonstrate institutional effectiveness. The study was bound by two fundamental questions: (1) how does college cost affect the enrollment patterns of Federal Pell Grant recipients (Low-Income Students)? and (2) how did the implementation of the HEOA affect Low-Income Students enrollment? The data collected from these two questions resulted in understanding how college cost and unmet financial need affected the enrollment patterns of Low-Income Students. The first research question sought to identify how net pricing affects the 6-Year Graduation Rates of Low-Income Students. This question required a review of institutional pricing, financial aid (including institutional grants and student loans), and 6-Year Graduation Rates. The second research question sought to identify how the HEOA affected Low-Income Students. By
examining the pre- and post- IPEDS IC and SFA datasets as a result of the HEOA, the researcher sought to understand the relationship between the new financial regulatory disclosures and their effect on Low-Income Students. Since the HEOA went into effect in 2009, 6-Year Graduation Rates are not yet available. Additional research on how HEOA affected 6-Year Graduation Rates will need to be conducted when the data becomes available in 2015.

The primary data source used in this analysis is the IPEDS dataset from 2006 through 2011. The U.S. Department of Education (USDOE) requires institutions participating in Title IV Federal financial aid programs to complete IPEDS at the appropriate time each year. This study draws upon data from IC and SFA datasets of IPEDS. The IC and SFA datasets were organized to assess the pre- and post-effects as a result of the federal government’s introduction of HEOA. The datasets were constructed to gather IC and SFA data for two periods: (1) 2006 through 2008; and (2) 2009 through 2011. By arranging the dataset into these two distinct periods of time, the researcher was capable of assessing the effects of HEOA on low-income students.

A quantitative research design was selected and utilized in this study given the amount of data that could be used to answer the research questions. A controlled inquiry into the research questions enabled the researcher to understand the cause and effects of those variables affecting the graduation rates of Low-Income Students. A second critical feature of quantitative research is the ability to define and operationalize the variables used in the study. Given the variables selected for this study, the USDOE has developed industry specific definitions to address each variable under consideration. The use of these definitions allows for clarity in the measurement of each variable. And finally, the reliability and validity of the data has been confirmed by the USDOE.
Measures

The study examines a number of independent variables used to assess their potential relationship with the dependent variable of 6-Year Graduation Rates. The variables used in this study were derived from the IPEDS IC and SFA dataset, with exception of the Tuition Discount Rate variable. Since IPEDS collects the Average Institutional Grants, the researcher derived each institution’s Tuition Discount Rate based upon the percentage of Average Institutional Grant and Tuition and Fees.

Selectivity (Independent Variable). Admission selectivity is the ratio between applications and acceptances. This percentage reflects the total number of first-year students accepted for admission compared to the number of students who applied for admission. Institutions with a lower percentage of accepted students are more selective than those college and universities who have a higher percentage rate. The variable Selectivity is used as a quality indicator illustrating the potential student demand for the college or universities and the institution’s decision to accept an applicant based upon an establish criteria. The mean Selectivity increased from 2006 to 2011 by 3.6% from 59.5% (SD = 21.9) to 63.1% (SD = 24.4).

Low-Income Student Enrollment (Independent Variable to address Research Question 1 and a Dependent Variable to address Research Question 2). While there is no direct way to measure the size of the Low-Income Student population enrolled at an institution, the First-Time, First-Year Federal Pell Grant recipient variable allows for an indirect measure of students from households with incomes of $30,000 and less. Based upon this income range or if they qualified for free or reduced breakfast as determined by their local school district, students would have an EFC that would make them eligible for a Federal Pell Grant. The number of first-time, first-year students who received a Federal Pell Grant divided by the financial aid cohort produced the
percentage of First-Time, First-Year Federal Pell Grant recipients. The mean First-Time, First-Year Federal Pell Grant increased from 22.4% ($SD = 13.0$) in 2006 to 31.1% ($SD = 15.2$). Due to changes in federal financial aid eligibility rules and regulations (2009-2010), more students became eligible for Federal Pell Grants in 2009. These changes along with the height of the economic recession contributed to a larger number of students qualifying for Federal Pell Grants starting in 2010.

6-Year Graduation Rates (Dependent Variable). The institution’s 6-Year Graduation Rate is a cumulative measure of the 4-, 5-, and 6-Year Graduation Rates. This percentage is based upon the number of first-time, first-year students who complete their studies without interruption from one semester to the next. Graduation rates do not include transfer students or students who go beyond the 6-Year Graduation Rate. A higher 6-Year Graduation Rate reflects institutional quality and effectiveness given that students graduate with a baccalaureate degree. The mean 6-Year Graduation Rates for New England institutions remained relatively consistent from 64.0% ($SD = 20.4$) in 2006 to 65.4% ($SD = 20.4$) in 2011.

Pricing (Independent Variable). Prior to the implementation of HEOA, colleges and universities reported only their tuition and fees. In 2009, institutions were required to report all direct and indirect charges. Direct charges included tuition, fees, and room and board. The federal government began reporting the direct charges as part of the institution’s Cost of Attendance, along with charges for books and supplies, transportation, and personal educational expenses. To assess the effectiveness of HEOA, tuition and fees were collected from 2006 through 2011. The mean Tuition and Fees increased substantially during this period of time from $23,426 ($SD = $6,548) in 2006 to $32,524 ($SD = $7,688) in 2011. Cost of Attendance was
collected from 2009 through 2011. The mean Cost of Attendance increased from $41,874 ($SD = $7,792) in 2009 to $45,370 ($SD = $8,145) in 2011.

*Tuition Discount Rate (Independent Variable, see Appendix B).* The Tuition Discount Rate was derived based upon the Average Institutional Grant and Tuition and Fees for that given academic year. Since Average Institutional Grant was not available in the 2006 SFA dataset, Tuition Discount Rate could not be calculated for this specific year. The mean Tuition Discount Rate increased from 47.1% ($SD = 16.4$) to 49.9% ($SD = 16.0$) in 2011. This variable was used to assess its effect on institutional price and how institutions used their institutional funding to reduce the Sticker Price. This Net Price calculation was used to understand the potential relationship between UFG and 6-Year Graduation Rates.

*4-Year Student Indebtedness (Independent Variable, see Appendix B).* The 4-Year Student Indebtedness variable is a cumulative assessment of a student’s debt from all lending sources – federal, private, and institutional. The 4-Year Student Indebtedness variable does include the PLUS. This cumulative index was used to determine when a student would exhaust eligibility under the Federal Stafford Loan program. Using the U.S. Department of Education’s regulations on the federal lending maximum, each of the institution’s 4-Year Student Indebtedness figure was compared to the maximum allowed under the Federal Stafford Loan provision. The 4-Year Student Indebtedness data were not collected prior to the HEOA. By 2011, the mean 4-Year Student Indebtedness was $31,021 ($SD = $8,672).

*Instructional Expense/ Total FTE (Independent Variable).* The variable Instructional Expense/ Total FTE is a financial reporting category designed to include academic instruction and most cost centers associated with the academic delivery of a program of study. This variable provides information as to how much the institution pays for the academic component per FTE
and it gives some indication of endowment spending on instructional expenses per student. The mean Instructional Expense/ Total FTE increased modestly from $11,137 ($SD = $9,062) in 2006 to $11,655 ($SD = $10,358).

**Data Collection**

For each of the 109 institutions, selected IC and SFA data was collected from 2006 through 2011 directly from the IPEDS database. This date range provided a pre- and post-dataset to understand the effects of the HEOA on an institutional level. The dataset does not include any proprietary nor individual student information. Student data was reported to IPEDS by each college or university within cohorts as required by the U.S. Department of Education. Institutional identity was reported by using their Title IV code in accordance with the identification process as used by IPEDS. Since the IPEDS dataset is available to the public, no consent was needed to obtain the data.

**Data Analysis**

Data were collected and entered into SPSS (Software Package for Statistics and Simulation) for statistical analyses. A series of descriptive statistical calculations were conducted on each of the independent and dependent variables: (1) descriptive statistical calculations for population mean, median, and standard deviation were executed; (2) crosstabulations were also executed to organize the data between variables; and (3) a series of regression analyses were used to assess the potential relations (either positive or negative) among the variables.

Separate linear and hierarchical multiple regression analyses were conducted to understand how the independent variables affected the dependent variable. In examining the relations between the dependent variable, a series of regression analyses were conducted utilizing a number of independent variables from the study to assess the strength and association
of the relations. Nested and un-nested regression analyses were conducted to understand the potential relations between selected independent and dependent variables. These types of regression analyses also aided in identifying those variables that contributed either positively or negatively to the 6-Year Graduation Rates of Low-Income Students.

Since all data presented in this study are based upon actual institutional survey responses, the data are not subject to sampling errors. The analysis of the data and the differences discussed in the study were tested and determined to be statistically significant at $p < 0.05$. 
Chapter 4

Results

Enrollment at New England Institutions

From 2006 through 2008, the mean undergraduate Enrollment FTE at New England institutions experienced a 3.7% decline from 2,441 \((SD = 2,717)\) to 2,351 \((SD = 2,665)\). During this period of time, the percentage of First-Time, First-Year Federal Pell Grant recipients was relatively stable at 22.2%. While the mean undergraduate Enrollment FTE declined in 2007 by 3.9% and continued to do so through 2011 as compared to fall 2006, the height of the economic recession was starting to be felt in the marketplace as of 2008. From 2008 to 2011, the mean undergraduate Enrollment FTE experienced a 4.2% increase from 2,352 \((SD = 2,665)\) to 2,450 \((SD = 2,770)\). This increase was fueled by an acceleration of First-Time, First-Year Federal Pell Grant recipients. By 2011, the mean percentage of First-Time, First-Year Federal Pell Grant recipients increased from 22.4\% \((SD = .13)\) in 2006 to 31.1\% \((SD = .15)\) in 2011. Adjusting for the economic recession and the introduction of new federal financial and regulatory policies (introduced by the 2008 HEOA and the 2010 HCERA), 2011 mean undergraduate Enrollment FTE returned to 2006 levels (Figure 4.3).
Acceptance Rate

As colleges and universities were confronted with declining enrollments and financial uncertainty in the marketplace, institutions increased the number of students accepted for fall admission starting in 2007. In 2006, the overall mean Acceptance Rate was 59.5% ($SD = .22$). After mean undergraduate Enrollment FTE declines in 2006 and 2007, the mean Acceptance Rate escalated to 77.2% ($SD = 1.08$) in 2008. As the mean undergraduate Enrollment FTE began to increase in 2009, colleges and universities strategically adjusted their Acceptance Rate to become more selective. After 2008, the mean Acceptance Rate declined to their lowest average of 59.9% ($SD = .24$) in 2009 and then, adjusted upwards to 63.1% ($SD = .24$) in 2011 (Figure 4.4).
Low-Income Student Enrollment

Within one year of the changes in the federal financial aid eligibility rules and regulations (2009 to 2010), the mean percentage of First-Time, First-Year Federal Pell Grant recipients increased by 6.3% from 22.4% \((SD = .13)\) in 2009 to 28.7% \((SD = .16)\) in 2010. By 2011, the mean percentage of First-Time, First-Year Federal Pell Grant recipients increased to a high of 31.1% \((SD = .15)\). Low-Income Student Enrollment increased by 8.7% from 22.4% \((SD = .15)\) in 2006 to 31.1% \((SD = .15)\) in 2011 (Figure 4.5). This increase in Low-Income Student Enrollment enabled colleges and universities throughout New England to maintain their enrollment objectives.
Colleges and universities were divided into three equal groups based upon their percentage of First-Time, First-Year Federal Pell Grant recipients. Based upon a normal distribution of the study’s population (n = 109), institutions were identified as Small (0 to 20% of first-time, first-year student population received a Federal Pell Grant), Moderate (21% to 37%), and Large (38% or more) (Table 4.3). The institutions were identified using their Carnegie Classification to group like institutions based upon their academic programs and mission together.
Table 4.3 Low-Income Enrollment by Carnegie Classification

<table>
<thead>
<tr>
<th>Low-Income Enrollment</th>
<th>Carnegie Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baccalaureate</td>
</tr>
<tr>
<td>Small (0 to 20%)</td>
<td>13</td>
</tr>
<tr>
<td>Moderate (21 to 37%)</td>
<td>14</td>
</tr>
<tr>
<td>Large (38% or more)</td>
<td>19</td>
</tr>
<tr>
<td>n</td>
<td>46</td>
</tr>
</tbody>
</table>

Table notes: n = number of institutions within that particular category; IPEDS data based upon Low-Income Enrollment were not available for one institution; Carnegie Classification is used to group like colleges and universities based upon academic programs and mission; Low-Income Enrollment is based upon First-Time, First-Year Federal Pell Grant recipients. Source: Integrated Postsecondary Education Data System.

Of the 36 institutions that have a Large Low-Income Enrollment population, Baccalaureate institutions enroll the highest number of Federal Pell Grant recipients (n = 19), Master’s institutions have the highest Moderate Low-Income Enrollment population (n = 19), and all 12 Research institutions have a Small Low-Income Enrollment population.

Selectivity

College and university admission Selectivity was utilized as a way to study changes in Price (Tuition and Fees or Cost of Attendance) and Aid (Tuition Discount) over time. Institutions were classified based upon the percentage of Applicants Accepted for admission to the college or university for fall admission. Based upon a normal distribution of the study’s population (n = 109) Acceptance Rate for the most recent academic year, the variable Selectivity classified colleges and universities into three distinct admission categories based upon NACAC standards: Highly Selective (n = 25, 45% and less of the applicants for admission were accepted), Selective
(n = 57, 45% to 80%), and Less Selective (n = 25, 80% or more of the applicants were accepted for admission).

In identifying low-income institutions, the variable Selectivity plays a systematic role in understanding the enrollment patterns of First-Time, First-Year Federal Pell Grant recipients. It appears from Table 2 that Highly Selective institutions (n = 22) tend to enroll a smaller percentage of Low-Income students across New England. Institutions with Moderate and Large Low-Income Enrollment tend to be Selective or Less Selective in their Selectivity (Table 4.4).

**Table 4.4 Low-Income Enrollment by Institutional Selectivity**

<table>
<thead>
<tr>
<th>Low-Income Enrollment</th>
<th>Highly Selective (45% and Less)</th>
<th>Selective (45% to 80%)</th>
<th>Less Selective (80% or More)</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small (0 to 20%)</td>
<td>22</td>
<td>13</td>
<td>1</td>
<td>36</td>
</tr>
<tr>
<td>Moderate (21 to 37%)</td>
<td>3</td>
<td>22</td>
<td>11</td>
<td>36</td>
</tr>
<tr>
<td>Large (38% or more)</td>
<td>0</td>
<td>22</td>
<td>13</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td><strong>n</strong></td>
<td><strong>57</strong></td>
<td><strong>25</strong></td>
<td><strong>107</strong></td>
</tr>
</tbody>
</table>

Table notes: n = number of institutions within that particular category; IPEDS data on Low-Income Enrollment and/or Selectivity were not available for two institutions; Selectivity is determined by the institutions acceptance rate for fall admission; Low-Income Enrollment is based upon First-Time, First-Year Federal Pell Grant recipients. Source: Integrated Postsecondary Education Data System.

**Selectivity and 6-Year Graduation Rates**

To assess the effects of the variable Selectivity on 6-Year Graduation Rates, New England colleges and universities were classified into percentiles based upon their graduation rates for first-time, first-year students entering in the fall 2005. Of the 25 Highly Selective institutions, 84% had 6-Year Graduation Rates in the 90th percentile or higher. While 62.1% of
Selective and Less Selective institutions (n = 54) have 6-Year Graduation Rates in the 50\textsuperscript{th} percentile or less (Table 4.5).

**Graduation Rates**

The variable 6-Year Graduation Rates is a cumulative measure of the 4-, 5-, and 6-year graduation rates for those students who entered an institution as a First-Time, First-Year student in the fall semester. The variable 6-Year Graduation Rates does not include transfer students. As indicated in Table 4.5, institutions that are Highly Selective in their admissions process tend to have 6-Year Graduation Rates at the 90\textsuperscript{th} percentile while Less Selective institutions tend to have 6-Year Graduation Rates at the 50\textsuperscript{th} percentile. Colleges and universities that are Selective in their admissions process have a greater dispersion in their 6-Year Graduations Rate with 12 institutions at the 25\textsuperscript{th} percentile, 14 institutions at the 50\textsuperscript{th} percentile, and 18 institutions at the 75\textsuperscript{th} percentile.

Overall, 6-Year Graduation Rates improved modestly from 63.1\% ($SD = .20$) in 2006 to 65.4\% ($SD = .20$) in 2011 – an overall change of 2.3\%. It is important to note that 6-Year Graduation Rates are not yet available post HEOA. The first set of 6-Year Graduation Rates post HEOA will be available in the 2015 IPEDS IC dataset.
Table 4.5 Graduation Rate by Percentile Based Upon Selectivity

<table>
<thead>
<tr>
<th>Institutional Selectivity</th>
<th>Graduation Rate by Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly Selective (45% and Less)</td>
<td>10th Percentile: 0 8 3 11</td>
</tr>
<tr>
<td></td>
<td>25th Percentile: 0 12 5 17</td>
</tr>
<tr>
<td></td>
<td>50th Percentile: 1 14 12 27</td>
</tr>
<tr>
<td></td>
<td>75th Percentile: 3 18 5 26</td>
</tr>
<tr>
<td></td>
<td>90th Percentile: 21 5 0 26</td>
</tr>
<tr>
<td>Selective (45% to 80%)</td>
<td>40th Percentile: 25 57 25 107</td>
</tr>
<tr>
<td></td>
<td>Less Selective (80% or More)</td>
</tr>
</tbody>
</table>

Table notes: n = number of institutions within that particular category; IPEDS data on Graduation Rate and/or Selectivity were not available for two institutions; Selectivity is determined by the institutions acceptance rate for fall admission; Graduation Rate by Percentile is based upon the institutions 6-Year Graduation Rate of first-time, first-year students entering in fall 2005. Source: Integrated Postsecondary Education Data System.

Cost and 6-Year Graduation Rate

To understand the relationship between college cost and 6-Year Graduation Rates, colleges and universities were classified into three cost categories. Utilizing a normal distribution, institutions with tuition and fees of $27,500 and less were classified as “Low Tuition” (n = 28); institutions ranging from $27,501 to $40,250 were classified as “Moderate Tuition” (n = 52); and institutions with tuition and fees of $42,251 and higher as “High Tuition” (n = 29).

As the Low-Income Enrollment population expanded as measured by the percent of First-Time, First-Year, Federal Pell Grant recipients and college costs increased dramatically across the region during this period of time, 6-Year Graduation Rates at Low-Tuition institutions continued to lag behind High-Tuition institutions. Of the 28 Low-Tuition
institutions in 2011, a total of 22 (78.6%) colleges and universities had 6-Year Graduation Rates at below the 50\textsuperscript{th} percentile as compared to just 1 (3.5%) of the High-Tuition institutions. At the 75\textsuperscript{th} and 90\textsuperscript{th} percentiles, High-Tuition institutions continued to outperform Low-Tuition institutions by a ratio of almost 5 to 1. Moderate Tuition institutions tended to have 6-Year Graduation Rates at the 50\textsuperscript{th} and 75\textsuperscript{th} percentiles, with 73.1% falling within these ranges. A total of 70 (n = 82) colleges and universities with Moderate to High Tuitions tended to have 6-Year Graduation Rates at the 50\textsuperscript{th} percentile and higher (Table 4.6).

**Table 4.6 Graduation Rate by Percentile and Price (Tuition and Fees)**

<table>
<thead>
<tr>
<th>Graduation Rate by Percentile</th>
<th>Price (Tuition and Fees)</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low Tuition</td>
<td>Moderate Tuition</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-------------</td>
<td>------------------</td>
</tr>
<tr>
<td>10\textsuperscript{th} Percentile</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>25\textsuperscript{th} Percentile</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>50\textsuperscript{th} Percentile</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>75\textsuperscript{th} Percentile</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>90\textsuperscript{th} Percentile</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>n</td>
<td>28</td>
<td>52</td>
</tr>
</tbody>
</table>

Table notes: n = number of institutions within that particular category; Graduation Rate by Percentile is based upon the institutions 6-Year Graduation Rate of first-time, first-year students entering in fall 2005; Price is based upon the institution’s sticker price for tuition and fees. Source: Integrated Postsecondary Education Data System.

**6-Year Graduation Rates and Low-Income Enrollment**

While the federal government does not require mandatory reporting of institutional First-Time, First-Year Federal Pell Grant 6-year Graduation Rates as part of the SFA dataset of IPEDS, it is important to understand the potential effect that Low-Income Enrollment may have
upon an institution’s graduation rate. In examining the data, 91.7% of those institutions with Small Low-Income Enrollment had a 6-Year Graduation Rate at the 75th percentile or higher (n = 33) as compared to just 6 (16.2%) of Large Low-Income Enrollment institutions. Institutions with Large Low-Income Enrollment tended to have 62.2% (n = 23) of the colleges and universities at the 10th and 25th percentiles for 6-Year Graduation Rates. Moderate Low-Income Institutions tend to have 77.8% (n = 22) of the colleges and universities at the 50th and 75th percentiles (Table 4.7).

Table 4.7 Graduation Rate by Percentile and Low-Income Enrollment

<table>
<thead>
<tr>
<th>Low-Income Enrollment</th>
<th>Graduation Rate by Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0 to 20%)</td>
</tr>
<tr>
<td>10th Percentile</td>
<td>0</td>
</tr>
<tr>
<td>25th Percentile</td>
<td>0</td>
</tr>
<tr>
<td>50th Percentile</td>
<td>2</td>
</tr>
<tr>
<td>75th Percentile</td>
<td>11</td>
</tr>
<tr>
<td>90th Percentile</td>
<td>23</td>
</tr>
<tr>
<td>n</td>
<td>36</td>
</tr>
</tbody>
</table>

Table notes: n = number of institutions within that particular category; Graduation Rate by Percentile is based upon the institutions 6-Year Graduation Rate of first-time, first-year students entering in fall 2005; Low-Income Enrollment is based upon First-Time, First-Year Federal Pell Grant recipients. Source: Integrated Postsecondary Education Data System.

Pricing

Since 2006, mean Tuition and Fees have escalated by 38.8% (SD = $7,688) or $9,098 in the New England region. The mean Tuition and Fees in 2006 was $23,426 (SD = $6,548) as compared to $32,524 (SD = $7,688) in 2011. After the implementation of HEOA, mean Tuition
and Fees increased from $28,691 (SD = $7,196) in 2009 to $32,524 (SD = $7,688) in 2011 – an increase of $3,833 (13.4%). Based upon the mean Tuition and Fees at New England institutions, it does not appear that the HEOA had any effect in controlling the Sticker Price of colleges and universities (Figure 4.4). While the mean Tuition and Fees increased in the region, the Sticker Price did not affect overall Enrollment in New England; as the mean Undergraduate Enrollment FTE increased by 2.5% during this period (Figure 4.3).

While the Sticker Price of colleges and universities increased, institutions also increased their Tuition Discount Rate. By 2011, the mean Tuition Discount Rate at a New England institution was 49.9% (SD = .16). This was an increase of 2.9% since 2007. As a result, institutions minimized their increases in price by increasing their institutional aid. Since 2009, the mean Average Net Price After Grants increased by 3.4% ($815) from $24,291 (SD = $5,000) to $25,106 (SD = $5,186). The variable Average Net Price Low-Income Students takes into consideration the net price that a First-Time, First-Year Federal Pell Grant recipient pays for the academic year. The mean Average Net Price Low-Income Student increased from $17,238 (SD = $7,225) in 2009 to $17,746 (SD = $7,016) in 2011 an increase of $508 (3%) (Figure 4.6). Given the escalation of the Sticker Price to full-pay students, financial aid recipients were made better off as a result of the institution’s tuition discount strategy.
During the period of 2006 through 2008, the variables Cost of Attendance and Average Net Price After Grants (from federal, state, and institutional sources) were not available in IPEDS SFA. With the implementation of the HEOA, colleges and universities were required to provide their Cost of Attendance and their Average Net Price After Grants. In 2009, IPEDS SFA dataset included Cost of Attendance containing each institution’s Tuition and Fees, books and supplies, and room and board. The mean Cost of Attendance for an institution located in New England increased 8.4% from $41,875 (SD = $7,792) in 2009 to $45,370 (SD = $8,145) in 2011.

An additional variable that affects institutional price is Instructional Expense/ Total FTE. The variable Instructional Expense/ Total FTE is a financially discrete reporting category that captures total institutional instructional expenditure for a given academic year. Though mean

**Figure 4.6. Mean Sticker and Net Price**

![Graph showing mean tuition and fees, average net price, and average net price for low-income students from 2006 to 2011.](image-url)

Source: Integrated Postsecondary Education Data System.
Cost of Attendance increased 8.4% from $41,874 (SD = $7,792) in 2009 to $45,370 (SD = $8,145) in 2011, the mean Instructional Expense/Total FTE decreased by $27 from $11,682 (SD = $10,861) in 2009 to $11,655 (SD = $10,357) in 2011. The mean Instructional Expense/Total FTE accounted for 25.7% of the mean Cost of Attendance. This variable has considerable dispersion given the range that institutions commit to Instructional Expense from a minimum of $2,856 to a maximum of $92,022.

*Tuition Discounting*

As colleges and universities responded to declining enrollments by increasing their Sticker Price, institutions also increased their Tuition Discount Rates. While the mean Tuition Discount Rate was 47.1% (SD = .16) in 2007, colleges and universities in New England escalated their mean Tuition Discount Rate to almost 51.7% (SD = .18) in 2010. By increasing their financial aid expenditure, more than half of the revenue from Cost of Attendance was committed to financial assistance. After hitting a high of 51.7% (SD = .18) in 2010, the mean Tuition Discount Rate did decline to just below 50% (SD = .16) in 2011 (Figure 4.7).
Increase in the Tuition Discount Rate had a direct benefit to students. As colleges and universities increased their expenditures in institutional financial aid, the mean Average Institutional Grant increased 12.8% from $15,208 (SD = $8,692) in 2009 to $17,153 (SD = $8,547) in 2011. Though the Cost of Attendance increased 8.4% from $41,796 (SD = $7,792) in 2009 to $45,320 (SD = $8,145) in 2011, the mean Average Net Price After Grants increased modestly from $24,291 (SD = $5,000) to $25,105 (SD = $5,186) – an increase of $814 (3.4%). The mean Average Net Price Low-Income Students increased modestly as well from $17,238 (SD = $7,225) in 2009 to $17,746 (SD = $7,016) in 2011.

Since the HEOA requires colleges and universities to disclose their Federal Pell Grant recipients’ graduation rates and loan indebtedness when asked, they are not required to report the data to IPEDS. In this study, the researcher extrapolated from IPEDS SFA the variable Average

**Figure 4.7. Mean Tuition Discount Rate**

Source: Integrated Postsecondary Education Data System.
Net Price Low-Income Students from 2009 through 2011 to understand how price affects the enrollment patterns of this student population. This variable includes all grant and merit aid from federal, state, and institutional sources. In 2009, the mean Average Net Price Low-Income Students was $17,237 ($D = $7,225). As a result of institutional tuition discounting and increases in the Federal Pell Grant program, the mean Average Net Price Low-Income Students increased in 2010 by just $49 (0.3%) to $17,286 ($D = $7,130). But, the mean Average Net Price Low-Income Students increased in 2011 by $460 (2.7%) to $17,746 ($D = $7,016). Over the three-year period, the Average Net Price Low-Income Students increased by $508 or 2.9%. By modestly increasing the net price for Low-Income Students during this period, colleges and universities kept the mean 4-Year Student Indebtedness relatively stable.

**Student Loan Debt**

In calculating the variable 4-Year Student Indebtedness, all student loans (federal, state, and private) were reported. The mean 4-Year Student Indebtedness declined 1.2% from $31,389 ($D = $9,893) in 2009 to $31,021 ($D = $8,672) in 2011. In examining the mean dollar value of loans, it appears that most students did not exceed the maximum limit under the Federal Stafford (Unsubsidized and Subsidized) Loan program when they completed their studies within 4 academic years (Figure 4.8). The 4-Year Student Indebtedness data illustrates the inherent program for many Low-Income students. If they need more than four-years to complete their undergraduate studies, they will exhaust their Federal Stafford Loan eligibility half-way through their fifth academic year. Assuming that their family does not have the creditworthiness to secure a Federal PLUS Loan, a Low-Income student would face the reality of trying to secure a third-party private loan for the Net Price or to terminate their studies without a degree. This will impact both retention and graduation rates of an institution. Since the 6-Year Graduation Rates
for the entering class of 2009 will not be available until 2015, it is premature to assess the impact of HEOA on Low-Income student debt on persistence rates.

*Figure 4.8. Mean 4-Year Student Indebtedness 2009 - 2011*

Source: Integrated Postsecondary Education Data System.

In examining 4-Year Student Indebtedness and Carnegie Classification, Research institutions had the lowest 4-Year Student Indebtedness at $25,833 ($D = $7,777) as compared to Master’s institutions who had the highest amount of student indebtedness at $34,617 ($D = $6,007) (Figure 4.9).
Baccalaureate institutions with Small Low-Income Enrollments had the lowest 4-Year Student Indebtedness amount at $23,706 \((SD = 5,870)\). Large Low-Income Enrollment Baccalaureate institutions had the highest 4-Year Student Indebtedness amount at $33,173 \((SD = 8,963)\). While Small Low-Income Enrollment institutions had the lowest 4-Year Student Indebtedness amount at $28,684 \((SD = 8,153)\), Moderate Low-Income institutions had the highest 4-Year Student Indebtedness amount at $34,382 \((SD = 7,382)\).

In regard to Financial Fit, Low-Income students had greater financial opportunity in managing low-levels of student indebtedness by attending Small Low-Income Enrollment Baccalaureate institutions. While there are unique social and personal benefits of attending a college or university with a Large Low-Income Enrollment population as a First-Time, First-Year Federal Pell Grant recipient, only a Master’s level institution would have a financial benefit as well for this student population. For those students attending a Master’s level institution with
Large Low-Income Enrollment, the 4-Year Student Indebtedness would be about $6,000 less than those who attend a Small Low-Income Enrollment Master’s institution. For Baccalaureate institutions, a First-Time, First-Year Federal Pell Grant recipient could expect to have about $10,000 additional in student loans than their counterpart at a Baccalaureate institution with a Small Low-Income Enrollment Population (Figure 4.10).

*Figure 4.10. 4-Year Student Indebtedness of Low-Income Students by Carnegie Classification*

Source: Integrated Postsecondary Education Data System.

**Regression Analyses**

Separate linear and hierarchical multiple regression analyses were conducted to understand how the independent variables affected the dependent variable. In examining the relations between the dependent variable, a series of regression analyses were conducted utilizing a number of independent variables from the study to assess the strength and association of the relations.
Low-Income Enrollment and 6-Year Graduation Rates

Utilizing a linear regression analysis, there was a significant negative association between 6-Year Graduation Rates and Low-Income Enrollment. Low-Income Enrollment was strongly associated with an institution’s 6-Year Graduation Rate, $F(1,107) = 124.71, p < .001, R^2 = .53$. Low-Income Enrollment significantly predicted declines in an institution’s 6-Year Graduation Rate, $\beta = -.73, t(29) = -11.17, p < .001$. As an institution’s Low-Income Enrollment increased, the institution would be expected to have lower 6-Year Graduation Rates than those institutions with lower Low-Income Enrollment.

Also, significant positive effects were noted when examining the relations between the dependent variable (Selectivity) and the independent variable (Low-Income Enrollment). Low-Income Enrollment was strongly associated with an institution’s Selectivity, $F(1, 105) = 50.71, p < .001, R^2 = .33$. Low-Income Enrollment positively affected an institution’s Selectivity, $\beta = .48, t(7) = 7.12, p < .001$. Institutions with high acceptance rates (Selectivity) experienced higher rates of Low-Income Enrollment than those colleges and universities with lower Low-Income Enrollment.

The relations between First-Time, First-Year Federal Pell Grant recipients and 6-Year Graduation Rates demonstrated a significant negative association, $F(1, 107) = 128.20, p < .001, R^2 = .55$. First-Time, First-Year significantly predicted declines in the 6-Year Graduation Rate of an institution, $\beta = -.99, t(32) = -11.32, p < .001$. As a college or university enrolls a higher number of First-Time, First-Year Federal Pell Grant recipients, those institutions experienced declines in their 6-Year Graduation Rate (Figure 4.11).
Selectivity and 6-Year Graduation Rates

An institution’s Selectivity was strongly associated with 6-Year Graduation Rates, $F(1,105) = 54.84, p < .001, R^2 = .34$. Selectivity significantly predicted declines in institutional 6-Year Graduation Rates, $\beta = -.59, t(20) = -7.41, p < .001$. As an institution accepted higher rates of applicants for admission, it experienced a lower 6-Year Graduation Rate than those institutions with lower acceptance rates.

Cost and 6-Year Graduation Rates

There was a significant positive association between Price (Tuition and Fees) and 6-Year Graduation Rates. Price was strongly associated with an institution’s 6-Year Graduation Rate, $F(1,107) = 136.08, p < .001, R^2 = .56$. Price significantly predicted increases in an institution’s 6-
Year Graduation Rate, $\beta = .75$, $t(1) = 11.67$, $p < .001$. Those colleges and universities with a high Sticker Price experienced higher 6-Year Graduation Rates than those lower priced institutions (Figure 4.12).

**Figure 4.12. Predicted Relations between Price and 6-Year Graduation Rates**

There is a moderate negative association between Average Net Price Low-Income Student and 6-Year Graduation Rate, $F(1,107) = 32.50$, $p < .001$, $R^2 = .23$. Average Net Price Low-Income Student moderately predicted declines in an institution’s 6-Year Graduation Rate, $\beta = -.48$, $t(19) = -5.70$, $p < .001$. Those institutions with a higher Average Net Price Low-Income Student experienced a lower 6-Year Graduation Rate than those colleges and universities with a lower Average Net Price (Figure 4.13).

Source: Integrated Postsecondary Education Data System.
In assessing the relations between 4-Year Student Indebtedness and 6-Year Graduation Rates, there is a moderate association between the two variables, $F(1,107) = 19.35, p < .001, R^2 = .15$. The independent variable 4-Year Student Indebtedness was moderate negatively associated with the dependent variable 6-Year Graduation Rates, $\beta = -.39, t(13.93) = -4.40, p < .001$. As the 4-Year Student Indebtedness increased for a student, the institution experienced a decline in its 6-Year Graduation Rate (Figure 4.14).
To assess the impact of the HEOA upon 6-Year Graduation Rates, a hierarchical regression analyses were conducted pre- and post-implementation of the federal policy. From 2006 to 2008, a total of five independent variables (Price, Selectivity, Instructional Expense/Total FTE, Percent of First-Time, First-Year Federal Pell Grant Recipients, and Tuition Discount Rate) were selected to assess the association with the dependent variable (6-Year Graduation Rate). These five independent variables were strongly associated with 6-Year Graduation Rates, $F(5,95) = 26.72, p < .001, R^2 = .58$. Given the slope, we can assume that the model explains 58% of the variability in 6-Year Graduation Rates. Of the independent variables selected, Price (Tuition and Fees) had the strongest positive association with 6-Year Graduation Rates, $\beta = .29$, $t$
= 2.07, \( p < .001 \). While, Selectivity had the strongest negative association with 6-Year Graduation Rates, \( \beta = -.26, t = -2.28, p < .001 \).

From 2009 to 2011, the same independent variables were selected to assess the post-implementation effects of the HEOA upon 6-Year Graduation Rates. During this period, the five independent variables continued to have a strong positive association with 6-Year Graduation Rates, \( F(5,101) = 54.01, p < .001, R^2 = .73 \). Given the slope, we can assume that the model explains 73% of the variability in 6-Year Graduation Rates. Of the independent variables selected, Price continued to have the strongest positive association with 6-Year Graduation Rates, \( \beta = .20, t = 1.63, p < .001 \). While Selectivity had the strongest negative association prior to the implementation of HEOA, First-Time, First-Year Federal Pell Grant had the strongest negative association with 6-Year Graduation Rates post-implementation, \( \beta = -.41, t = -4.46, p < .001 \). As a result of HEOA, the five independent variables affected 6-Year Graduation Rates stronger than they did prior to the implementation of the federal policy.

Since Cost of Attendance was introduced as a financial measure in 2009, it replaced Price as an independent variable in the hierarchical regression analysis to assess its impact on 6-Year Graduation Rates. By replacing Price with Cost of Attendance (and keeping the other four independent variables constant), these five independent variables were strongly associated with 6-Year Graduation Rates, \( F(5,99) = 65.33, p < .001, R^2 = .77 \). Given the slope, we can assume that the model explains 77% of the variability in 6-Year Graduation Rates. By replacing Price with Cost of Attendance, the model improves the explanation of the variability in 6-Year Graduation Rates from 58% to 77%. Cost of Attendance had a strong positive association with 6-Year Graduation Rates, \( \beta = .69, t = 9.78, p < .001 \).
Chapter 5

Summary of Findings

The results of the study demonstrated that while private colleges in New England increased their sticker price, tuition discounting was a common practice to help maximize net tuition revenue and enrollment objectives. The implementation of the HEOA did very little to affect college cost for low-income students. The data analyses demonstrated that while private colleges were enrolling a larger number of First-Time, First-Year Federal Pell Grant recipients as a percent of their total financial aid population for new students, graduation rates were stagnant for this population.

In conducting a series of regional analyses, First-Time, First-Year Federal Pell Grant students were most at risk for high levels of student indebtedness as a result of institutional financial aid priorities and low 6-Year Graduation Rates. While colleges and universities have complied with the financial and regulatory requirements of the HEOA, many of the disclosure components need to become mandatory reporting requirements on the IPEDS IC and SFA dataset. By requiring this data, we can accurately measure institutional effectiveness and performance of First-Time, First-Year Federal Pell Grant students at particular institutions.

While federal financial aid policies attempt to address issues of efficiency and equity, institutional priorities (such as net tuition revenue and enrollment capacity) often run contradictory to these objectives. The movement from need- to merit-based institutional aid is affecting low-income students and shifting more of the financial responsibility to the student and their families, who do not have the capacity to meet institutional net price. As a result, low-income students are borrowing from federal and private sources to meet their educational expenses at an alarming rate.
Recommendations and Conclusions

Given rising prices, student indebtedness, and stagnant graduation rates, higher education is being challenged today to rethink its academic and financial models. Despite the implementation of the HEOA, the public and policymakers continue to question the value of a college education. While HEOA mandated colleges and universities to disclose academic and financial information to the public, it has not fundamentally changed the higher educational model in the United States. Since the reauthorization in 2008, the sticker price at New England private (not-for-profit) institutions has increased from a mean of $26,662 ($SD = $6,770) to $32,524 ($SD = $7,688) in 2011 – an increase of 22.0%. While the mean Tuition and Fees have increased by 22.0%, 6-Year Graduation Rates remained relatively stagnant at 65.4% ($SD = 20.4) – an improvement of just 1 point in the graduation rate percentage since 2008.

The future for private higher education in New England will be marked by a number of challenges. As demographics shift over the next decade and more students will qualify for Federal Pell Grants, this will require institutions and the federal government to rethink its policy and approach to higher education. The balance between regulation and policy will require a new approach to institutional pricing and financial aid eligibility. The results of the study show the importance of the interaction between institutional pricing behavior and the interaction of federal need-based financial aid. If we are to be successful in transforming institutional capacity to the betterment of all constituencies, we must create a new equilibrium in regulations and policies that control college cost and reallocate limited financial aid resources to improve the graduation rates of low-income students.

As we look ahead, there are three recommendations that need further consideration. First, the results of study clearly demonstrate that the Bennett Hypothesis is alive and well at private colleges and universities in New England. Given the increases in Tuition and Fees, private
institutions have manipulated the federal need-based program to limit institutional need-based aid and to improve net revenue. Second, we need to increase the purchasing power of the Federal Pell Grant for low-income students. As the federal government expanded access to the Federal Pell Grant program, it did not provide an infusion of funds to dramatically increase the purchasing power of the federal need-based grant. Given limited revenues to expand the Federal Pell Grant program, we must rethink the efficiency and equity of the federal financial aid program. And finally, we must look ahead to the upcoming reauthorization and ensure that the HEOA is effective in addressing the many public policy questions surrounding higher education.

While the goals of accessibility and affordability are paramount, we must ensure that public policy continues to hold all constituents accountable and that the aspiration of Thomas Jefferson for an educated citizenry is achieved.

**The Bennett Hypothesis is Alive and Well**

Since colleges and universities can effectively price discriminate, pricing behavior by the institution can have an adverse effect on the purchasing power of the Federal Pell Grant. In perfect competition, colleges would not be able to adjust their institutional financial aid programs (need- or merit-based) to compensate for the inclusion of federal and state need-based aid. Since colleges can price discriminate by targeting need- and merit-based funds to individual students who best match institutional priorities, they can seek out the financial benefits that federal need-based aid brings by adjusting their net price for low-income students.

Colleges and universities are applying the Bennett Hypothesis to their pricing models. According to the Bennett Hypothesis, colleges and universities will use federal need-based aid in their financial aid models to reduce their institutional funds to capture additional net tuition revenue (Bennett, 1993). By knowing which students are eligible for federal need-based aid, the
institution can effectively adjust their need-based funds to maximize the net tuition revenue per student.

In 2011, the mean Tuition and Fees at a New England private (not-for-profit) institution was $32,524 ($D = $7,688). The Average Net Price After Grants for all students in 2011 was $25,105 ($D = $5,186). Based on the study’s data, we can assume that a non-Federal Pell Grant student received an institutional discount of approximately $7,422 (22.8%). While a student who was eligible for a Federal Pell Grant (adjusting for the average Federal Pell Grant of $3,800) received an institutional discount of $10,978 (33.8%) (College Board, 2013). The net institutional need-based aid difference based upon the study’s data between the non-Federal Pell Grant and the Federal Pell Grant recipient was just $3,556.

The Average Net Price for Low-Income Students attending a New England institution is $17,286 ($D = $7,130). For many of these students, this UFG is a significant barrier to the federal government’s goals of accessibility and affordability. Without significant parental financial resources, these students assume the financial responsibility for meeting the entire cost of attendance. For many of these students, they must rely on federal and private loans to meet their UFG. Since many of these students will be eligible to borrow additional funds through the Federal Unsubsidized Stafford Loan as a result of a PLUS denial, they will exhaust their eligibility for Federal Stafford Loans prior to earning their college degree. As a result, just one out of five Federal Pell Grant recipients will graduate within 6-years (College Board, 2013).

Given these results, we must rethink how low-income students meet their educational costs in order to graduate. Colleges and universities must work with the federal government more closely to ensure that net price and loan eligibility do not exclude students from the dream of a college education or burden those students who start but never finish given the financial
realities that many of these students confront. A college education may be too expensive for most Americans, but it’s too expensive for society not to have our young people educated. Given the competitive environment of a global economy, we need to ensure that our young people are educated and have the necessary skills to compete effectively. Without a college education or career skills, many of these individuals will face a life-time of low earnings and periods of unemployment. To be competitive in the 21st Century, America will depend on an educated workforce that can be innovative and results-driven. Colleges and universities must assume a greater role and responsibility to ensure that the dream of a college education is within reach of all students regarding their financial means.

*Ending the Financial Subsidy on the Federal Stafford Loan*

The student loan challenges confronting Congress have the potential to further create economic uncertainty as students and their families assess the best way to meet their educational expenses. While the interest rate on Federal student loans is designed to help fund the Federal Pell Grant program, the debate in Congress over interest rates has the potential of creating a greater economic uncertainty. With more than $1.7 trillion dollars in federal educational loans since the implementation of the HEA, $292 billion of that amount was extended in the last 15-years (Mitchell & Randall, 2012). As student default rates climb and income-level repayments reduce the amount of monies returned into the program, this loss in economic opportunity comes at the expense of the Federal Pell Grant program.

The decision whether to continue with the economic subsidy on the Federal Subsidized Stafford Loan to undergraduate students is timely given the upcoming reauthorization. While the Congressional Budget Office (CBO) is reporting a projected funding shortfall in the Federal Pell Grant program over the next five-years, Congress should terminate the interest benefit to provide
more funding for the Federal Pell Grant program. The CBO estimates that this benefit costs approximately $4 billion per year. While the Federal Pell Grant program is in need of approximately $8 billion over the next two academic years, would it make more sense to leave the benefit intact or to remove it in favor of funding need-based aid at the near-appropriate level (Congressional Budget Office, 2013)?

In conducting a cost benefit analysis, it is important to examine all costs and benefits in the short- and long-term. The direct costs plus the opportunity cost will help us to identify the cost of providing the subsidy of the Federal Subsidized Stafford Loan to all eligible students. As we examine the benefits that are provided to students through the Federal Stafford Loan program, we should not underestimate the costs of providing the subsidy to all students. By providing the subsidy to all undergraduate students who demonstrate eligibility based upon the results of their FAFSA and the cost of education at the institution they are attending, the subsidy eliminates the opportunity to fully fund other need-based financial aid programs.

As the cost of a college education escalates beyond the financial means of most Americans, approximately 80% of all full-time students attending college will receive financial assistance from the federal government (National Center for Educational Statistics, 2013). It is estimated that “7.4 million students borrow through the Federal Stafford Loan program each year” (Smole, 2013, p.5). Given these numbers, the federal financial aid program is under tremendous pressure to keep up with the rising cost of a college education.

Since interest on the Federal Stafford Loan is paid by the government during enrollment, the student does not have any out-of-pocket loan expenses. The government assumes all financial cost for the loan during this period. Student loan debt is paid off through equal monthly installments for up to a twenty-year period. With the introduction of the Income-Based
Repayment plan, the Federal Subsidized Stafford Loan has become a regressive benefit since the government will target students earning higher incomes in repayment. Students are required to meet equal monthly installment payments under the Income-Based Repayment plan for 240 months. After the twenty-year period (and assuming all payments have been made), the loan balance is forgiven. The benefits of the Income-Based Repayment plan are further expanded for those students with low- and middle-income during the repayment period. Higher-income students also receive further benefits as well, since the total number of payments is reduced in the plan. The challenge of the Income-Based Repayment Plan is that monthly and total payments are based on the individual’s income rather loan balance. Since the repayment term is set to 240 months, loan forgiveness will take place regardless of the loan balance.

Given the projected funding shortfall in the Federal Pell Grant program over the next two fiscal years, Congress needs to assess whether or not it should continue to provide subsidies to students who borrow through the Federal Stafford Loan program. While the original intent was to have origination fees and repayments through the Federal Stafford Loan program fund the expansion of the Federal Pell Grant program, the number of low-income students who qualify for need-based financial aid has severely impacted the government’s ability to fund need-based grants at the appropriate levels to meet educational costs.

As a result of the HCERA, two shifts in the federal student loan program took place. First, the federal government stepped in to address market inequities within the private lending business. The market inequities created economic uncertainty for both the borrower and the institution. As a result, many students were faced with the uncertainty of qualifying for loans to assist in meeting educational costs. The second effect was the creation of the Income-Based Repayment Plan. The Income-Based Repayment Plan has had a far more substantial effect in
making the Federal Stafford Loan a regressive benefit. Since repayment is based on income rather than loan balance, the borrower receives additional benefits included but not limited to loan forgiveness once 240 payments have been made on time.

In our current federal loan model, the individual receives substantial benefits through the government’s action of providing loans and repayment terms that favor the student. While this activity has a number of positive benefits, not all individuals are truly benefiting from the program. If we eliminate the loan subsidy, the government would be able to fund an additional $4 billion in the Federal Pell Grant program (Turner, 2012). This increased funding will greatly assist low-income students in achieving their dreams of a college education. With the Income-Based Repayment Plan benefit, there is no additional need to add benefits for student loan borrowers who are not eligible for need-based funding.

The Federal Subsidized Stafford Loan program provides a number of benefits and assists many students and their families with the means to finance a college education. The upcoming reauthorization of the HEOA provides the policy window to make changes to the student loan program and to ensure that the necessary funding for the Federal Pell Grant program supports the President’s call for greater college access and affordability. As Congress ended the subsidy for graduate student loan borrowers’ two-years ago, it must do the same in order to ensure that the Federal Pell Grant program has the necessary resources to meet the goals of efficiency and equity.

**Looking Ahead**

With the upcoming HEOA reauthorization, we have an opportunity to address the shortcomings of the 2008 reauthorization. While there are many public policy questions that must be addressed, we need to ensure that colleges and universities are compliant with the
regulations of the HEOA. The USDOE must have the capability and willingness to hold institutions accountable to ensure the integrity of HEOA. In addition, the USDOE must expand disclosure regulations on the academic performance of low-income students.

Under the current regulations of HEOA, colleges are required to report 6-year graduation rates but are not required to report the graduation rates of Federal Pell Grant recipients. While HEOA requires colleges to disclose the graduation rates of Federal Pell Grant recipients, institutions must only disclose them upon request and are not required to submit them as part of their IPEDS IC or SFA dataset. A new dataset tracking the graduation rates of Federal Pell Grant recipients must be developed as part of the upcoming reauthorization.

This will enable the public and policymakers to assess institutional performance and it will allow low-income prospective students an opportunity to see how similar students have performed academically and financially at that particular institution. The ability to fit academically and financially at a particular institution is critically important to the overall success of a low-income student. This question of match requires additional studies to ensure that low-income students do not underestimate their academic ability to succeed at more challenging academic institutions.

We also need to standardize the way academic and financial information is calculated and collected by the various institutions and the USDOE. Given the diverse formats and descriptors that colleges and universities use to disclose their information, we must develop standards similar to the ones used in IPEDS for these disclosures. This will also assist Congress in converting all disclosure and make available datasets to report requirements. By making these datasets part of the reporting requirements on IPEDS IC and SFA, prospective students and their families have greater opportunities to be more effective in comparing one college to another.
This simplification of information will enable many low-income students to compare institutions on factors that are relevant to their situation.

In addition, this simplification could also lead to changes in the FAFSA application. Since many Federal Pell Grant recipients were eligible for free and reduced lunch during high school, we could use this information to assist students earlier in the admission process to gain a better understanding as to the financial information on college affordability. By having low-income students wait until January 1 to file their FAFSA, this creates uncertainty for many students and disconnects this critical enrollment component from the admission process. In order to change institutional and student behavior, we need to change the process and give the individual student the necessary information to select the right institution based upon both academic and financial factors.

While higher education in America is being challenged on a number of fronts, it is critical that as a society we continue to explore and identify those initiatives to ensure that the vision of our Founding Fathers remains relevant well into the 21st Century. By aspiring to our Founding Fathers’ vision of education, institutions of higher learning create hope and economic opportunity. The financial commitment to need-based financial aid for low-income students ensures that college and universities create the intellectual opportunities for students who may otherwise have never pursued higher education in the first place. While the recent economic downturn may have dimmed the dream of a college education for many, we cannot allow it to dampen innovation and the American spirit. As we look ahead to the next generation of students, we must continue to create hope and opportunity for those students who have the intellectual potential to achieve a college education.
References


Appendix A

NOTIFICATION OF IRB ACTION

Date: December 13, 2013  
IRB #: CPS13-12-04

Principal Investigator:  
Douglas Flor  
Joseph Chillo

Department:  
Doctor of Law And Policy

Address:  
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Northeastern University

Title of Project:  
The Impact of College Cost on Low-Income Students at Private (nonprofit), Four-Year Institutions in New England

Participating Sites:  
N/A

Approval Status:  
Approved

DHHS Review Category:  
EXEMPT, CATEGORY #4

C Randall Colvin, Ph.D., Chair  
Northeastern University Institutional Review Board

Nan C. Regina, Director  
Human Subject Research Protection

This approval applies to the protection of human subjects only. It does not apply to any other university approvals that may be necessary.

No further action or IRB oversight is required, as long as the project remains the same. However, you must inform this office of any changes in procedures involving human subjects. Changes to the current research protocol could result in a reclassification of the study and further review by the IRB.

Northeastern University FWA #4630
Appendix B

New Variables Not Included in the IPEDS Dataset

4-Year Student Indebtedness

Average Student Debt per Year * 4 = Student Indebtedness

Tuition Discount Rate

Average Institutional Grant / Tuition and Fees = Tuition Discount Rate