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Esse quam videri, perhaps: State policy and institutional factors impacting low-income student enrollment at North Carolina's public and private four-year institutions

Leslie Neal Holly
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**ESSE QUAM VIDERI, PERHAPS:
STATE POLICY AND INSTITUTIONAL FACTORS IMPACTING
LOW-INCOME STUDENT ENROLLMENT AT NORTH CAROLINA'S
PUBLIC AND PRIVATE FOUR-YEAR INSTITUTIONS**

A Dissertation

Presented to:

The Faculty of the School of Education

The College of William & Mary

In Partial Fulfillment
Of the Requirements for the Degree
Doctor of Philosophy

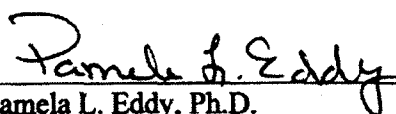
by
Leslie Neal Holly
April 2012

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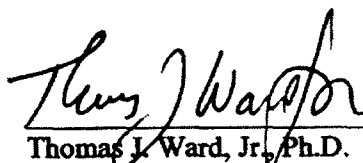
By

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Table of Contents

Acknowledgments	v
List of Tables.....	viii
List of Figures	ix
Abstract	x
Chapter One: Introduction.....	2
North Carolina in Context.....	7
Defining LSES Students	10
LSES Students and College Going	11
Challenges to LSES Postsecondary Access	13
LSES Students and College Enrollment Patterns.....	17
A “Mixed” State System for LSES Enrollment	19
Purpose and Research Questions	21
Significance of Study	22
Study Design	22
Definitions.....	23
Limitations	25
Delimitations	25
Summary	26
Chapter Two: Literature Review	28
History and Postsecondary Education Culture in North Carolina	32
Early Private Colleges.....	33
Development of the Public University System	33
Public Support for Private Institutions.....	35
Three Episodes in North Carolina Higher Education History	35
Presbyterians and the Scotch-Irish Immigration	36
The Populist Movement of the Late 19th Century.....	38
Public/Private Partnerships and the Creation of Research Triangle Park	40
History in Perspective a Summary	42
North Carolina Postsecondary Education Policy Levers	47
The Intersection of Politics and Culture in North Carolina	47
North Carolina Political Culture in Context.....	49
Key Higher Education Legislation.....	52
Key Higher Education Policies	54
Policy Implications.....	57
Affordability.....	57
Right of Access	58
The Blending of Public and Private Institutions in North Carolina	59
Policy Summary	60
North Carolina Institutional Behaviors	61
Policy Implementation at the Institutional Level.....	63
Institutional Price and Perceived Costs	64
State Financial Aid	67
Institutional Financial Aid.....	70
Institutional Selectivity	77
Institutional Action Conclusions.....	82
Summary	83

Chapter Three: Methodology	88
Research Questions	88
Selection Quantitative Methodology.....	90
Study Population and Sample	90
Data Sources	92
Limitations of Data	92
Description of the Variables.....	94
Methods of Analysis	99
Method Applied to Question 1	100
Method Applied to Question 2.....	100
Method Applied to Question 3.....	101
Summary	101
Chapter Four: Data Analysis and Results	103
Modification of Sample.....	103
Description of the Sample	104
Description of Calculated Variables	108
Results by Research Questions	109
Question 1	109
Question 2	113
Question 3	117
Summary	123
Chapter Five: Conclusions and Recommendations	125
Discussion of the Findings	125
Question 1	126
Question 2	128
Question 3	130
Implications for Policy and Practice	135
The Equilibrium of a Controlled Marketplace	137
The Influence of Higher Education in North Carolina.....	140
Addressing Inequalities	142
Policy Recommendations.....	142
A Self Critique of the Study.....	143
Recommendations for Future Research	146
Conclusions	148
References	153

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List of Tables

Table 1. Significant Historical Episodes in North Carolina Postsecondary History from 1729-1981, Highlighting State Intervention.....	44
Table 2. Comparison of Institutional Aid at North Carolina Public and Private Institutions with Similar Freshmen Enrollment During the 2008-2009 Academic Year.....	73
Table 3. Comparison of Maximum and Minimum Range of Pell Grant Recipients, Average Institutional Aid Award, and Total Endowment Assets During the 2008-2009 Academic Year	75
Table 4. Description of Variables	95
Table 5. Descriptive Statistics for the Sample, Separated by Sector, for the 2008/09 Academic Year Cohort.....	105
Table 6. Institutions Whose 2008-2009 Pell and Federal Grants Varied by More Than 3% in the 2008-2009 Academic Year	110
Table 7. The Number and Percentage of Students Receiving Federal Grants from 2002-2009	111
Table 8. Regression Results for Model 1.....	113
Table 9. Regression Coefficients for Model 1.....	114
Table 10. Regression Results for Model 1 Using Stepwise Method	116
Table 11. Regression Coefficients for Model 1 Using Stepwise Method	116
Table 12. Regression Results for Model 2.....	118
Table 13. Regression Coefficients for Model 2.....	118
Table 14. Regression Results for Model 2 Using Stepwise Method	121
Table 15. Regression Coefficients for Model 2 Using Stepwise Method	121
Table A1. Total Freshmen Enrollment, Total Federal Grant Recipients, and Total Percentage of Federal Grant Recipients at North Carolina Public and Private, Non-profit, Institutions in 2008/09.....	121

List of Figures

Figure 1. Venezia, Callan, Finney, Kirst, and Usdan's (2005) Contours of Governance Model.	29
Figure 2. Modified Contours of Governance Model	32
Figure 3. Comparison of Total Federal Grant Recipients and the Total Incoming Freshmen Cohort Across the Entire Sample during the 2008-2009 Academic Year	106
Figure 4. Comparison of In-state Tuition and the Average Institutional Grant Award within the Public Sector (n =16) during the 2008-2009 Academic Year	107
Figure 5. Comparison of In-state Tuition, and the Average Institutional Grant Award within the Private Sector (n = 33) during the 2008-2009 Academic Year	107

Abstract

North Carolina is a state with a rich higher education history, which matches the diversity and number of higher education institutions that can be found there. The significant investment of both tax dollars and public support for higher education in North Carolina has created a unique environment in which public policy significantly impacts both public and private universities.

The purpose of this study was to examine the effect of state policies, through institutional characteristics at North Carolina four-year public and private colleges and universities on LSES student enrollment over time. Although public universities enroll more LSES students, national trends suggest that LSES enrollment percentages are growing at private universities and declining at public institutions. The analysis found that there was no sector shift in LSES student enrollment in North Carolina from 2002 to 2009. Furthermore, the outcomes of the analysis demonstrated the influence of North Carolina higher education policies on both public and private institutions through controlling and stabilizing LSES enrollment in both sectors. Although it was anticipated that institutional selectivity and wealth would have negative effects on LSES enrollment, high SAT scores were the only selectivity or wealth related variable to have a significant negative effect on LSES enrollment throughout the decade. Ultimately, the findings discuss a special sector equilibrium regarding LSES enrollment, the product of policies that stem from state history and a unique culture of popular postsecondary support.

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Andy: I wonder how expensive it is.

Aunt Bee: I don't know.

Andy: I never gave that part of it much thought, it seemed so far away.

Aunt Bee: Helen would know about it.

Andy: Yeah, that is a good idea! Maybe I will talk to her and find out how much a college education costs these days.

-The Andy Griffith Show, original air date November 20, 1967.

Chapter One: Introduction

North Carolina is a state with a rich higher education history, which matches the diversity and number of higher education institutions that can be found there. The state boasts 16 public four-year universities coordinated through the University of North Carolina, 36 private, non-profit universities, 58 comprehensive public community colleges, and a small number of proprietary trade schools and colleges. Many credit the state's public and private higher education system for the state's growth and prosperity over the last several decades, as the state faced a difficult transition from an economy centered on textiles and agriculture to one focused on finance, medicine, and technology. The success of Research Triangle Park, located in the Raleigh-Durham area, has been used as national example of the positive economic returns of investing public and private dollars into higher education (Vredeveld, 2011). Further, Courtright and Fry (2007) found the adjusted rate of return for North Carolina's investment in higher education was 11.5%.

Like the rest of the nation, the state has felt the impact of the "great recession" of this decade and its legislature has made bold spending cuts across state agencies, but to date has avoided major cuts to public higher education. As of 2009, North Carolina ranked 5th in the nation in higher education on spending per full-time student (\$8,854, U.S. average \$6, 733), 4th in spending per capita (\$410, U.S. average \$277), and 4th in spending per \$1,000 in income (\$11.92, U.S. average \$7.19) (Rodewald, 2009). In 2010,

the General Assembly funded over \$100 million of expansion projects at the both the university and community college level (National Conference on State Legislatures, 2010).

North Carolina's public institutions have experienced enrollment growth from 2005 to 2010, with full-time enrollment growing by 24%, well above the national average of 8.9% (Bell, Carnahan, & L'Orange, 2011). In 1997, only 57.4% of all North Carolina high schools students graduated in four years; by 2008, the rate of high school graduations had increased to 72.8%, just above the national average of 71.1% (Diplomas Count, 2011). Part of this increase may be explained by students simply completing high school, but not graduating with a regular diploma. As of 2010, only 42% of North Carolina high school graduates completed high school on-time and with a regular diploma (Alliance for Excellent Education, 2011). In 2010, the high school graduation rate increased again to a level of 74.2% (North Carolina Department of Instruction, June 7, 2011). Total high school graduates increased from 65,681 in 2002 to 83,294 in 2008 (State Board of Education, 2006, 2009). Yet, not all of these students are qualified for college admissions. However, even slight increases in the high school graduation rate can contribute to enrollment growth at the public universities as more students now met admission criteria. Of the 2008 North Carolina high school graduating cohort, 37% of students reported that they intended to enroll at a public, four-year, universities, another 10% at private universities, 36% at community colleges, 2% at trade schools, and 15% of students going directly into the workforce, joining the military, or undecided (State Board of Instruction, 2009).

North Carolina ranks high in postsecondary spending, but it ranks 43rd in K-12 per pupil spending (U.S. Census Bureau, 2012). The funding gap between K-12 and postsecondary education represents a critical challenge for low-income success at the K-12 level and may create barriers for these students to matriculation in institutions of higher education. Although high school graduation rates have increased, the gains may be explained by increases in middle and upper-income students completing on-time, while graduation rates for low-income students, especially minorities, remain near 55% (Diplomas Count, 2011). According to Gillen and Vedder, (2008), for every 100 students that begin 9th grade in North Carolina only 64 will graduate high school. Of those 64 students who complete high school, 41% will enroll in some form of higher education in the state, with only 18 students graduating from college within a decade (Gillen & Vedder, 2008). These figures demonstrate that there is not only a gap in funding between K-12 and postsecondary education, but also a matriculation gap as well. Even with the high levels of state support for higher education and the overwhelming number of students who intend to go on to postsecondary education, only 25% of North Carolina residents have some form of postsecondary degree, below the national average of 27.2% (Gillen & Vedder, 2008). Gillen and Vedder (2008) suggested that high level of investment in higher education in North Carolina in relation to the number of “uneducated” residents represents “great inefficiencies and wasted resources in the system” (p. 37).

A robust nonprofit private higher education sector also operates in North Carolina. The state has developed a strong relationship with its four-year, nonprofit private institutions. According to the North Carolina Independent College and

Universities (NCICU) (2010), state funding accounted for 11.1% (\$116,953,998) of total federal, state, and institutional financial aid during the 2008-2009 academic year across the 36 private campuses. Further, private institutions account for one-third of the state's postsecondary graduates each year (NCICU, 2010). While the average public University of North Carolina System allocation per student is \$12,668, in-state residents that qualify for financial aid can receive up to \$5,000 in state financial assistance to attend an in-state private university. Thus, students at private universities in North Carolina also benefit from state support.

The significant investment of both tax dollars and public support for higher education in North Carolina has created a unique environment in which public policy significantly impacts both public and private universities. Although a majority of state funding is focused on the University of North Carolina System (UNC System), private non-profit universities also enjoy state funding via in-state student tuition grants. To the casual observer, the array of public and private institutional choices within the state, bolstered by a degree of public subsidy, would afford any qualified student the opportunity to pursue a university education. Yet, for low-income or low socioeconomic status (LSES) students and their families, access to postsecondary education and choice of attendance at four-year institutions may be limited by the same policies and funding opportunities that have developed impassioned public support for higher education in the state. Because of state K-12 and postsecondary policies, such as state mandated curriculum tracks at the secondary level and corresponding minimum admissions standards at all UNC System universities, many LSES students are academically misaligned with public university matriculation.

To allow for additional in-state students to matriculate in the state's public universities, the University of North Carolina Board of Governors created a policy in 1985 named the "18% rule" that caps out-of-state students at 18% of total enrollment. Further, to help improve academic quality, the Board developed a policy in 1988 that set universal minimum admissions requirements throughout the UNC System. The standards now require high school students to complete Algebra II, two years of foreign language, and advanced science courses to enroll in a college in the UNC System. Although reasonable and well intentioned, the adoption of minimum requirements led the North Carolina Board of Education (K-12 state authority) to develop curriculum "tracks" within the secondary schools. The curriculum tracks resulted in a disproportionate number of LSES students placed in high school courses that would not allow them to meet the UNC System minimum requirements for admission (Mickelson & Everett, 2008). Thus, while LSES students and families may understand that UNC System institutions are affordable, they may not understand all the necessary requirements for admission. The disconnect between LSES enrollment in the public university system also contradicts efforts by the North Carolina General Assembly to provide low tuition and need-based grants to LSES families. During the 2008-2009 academic year the average Pell grant recipient (which may be considered a proxy for LSES students) enrollment in the freshmen cohort at UNC System institutions was 35% (IPEDS, 2011). Yet, the institutional average for UNC System institutions ranged from 13% at UNC-Chapel Hill to 70% at Fayetteville State University (IPEDS, 2011).

The combination of North Carolina's higher education funding allocation per full-time student and its system of centralized governance results in tuition costs well below

the national average. Hearn, Griswold, and Marine (1996) found that states such as North Carolina, Texas, and Wyoming have significantly lower levels of tuition relative to other states, however, due to the scope of their study, they were unable to determine the historical and cultural foundations behind policies that discourage high levels of “resistance” to higher tuition costs (p. 243). What remains unknown is the effect of state policies on LSES student enrollment. Thus, the purpose of this study was to examine the effect of state policies, through institutional characteristics at North Carolina four-year public and private colleges and universities on LSES student enrollment over time.

North Carolina in Context

The current financial crisis leaves students and other stakeholders questioning how North Carolina’s leaders are addressing access and affordability to higher education. Due to declining revenues, most states have frozen or decreased higher education spending. North Carolina followed this trend and cut direct institutional operational funding by 17% from 1990 to 2010 (Ferreri & Price, 2011). Although the General Assembly reduced institutional allocations, it simultaneously increased financial aid appropriations by 10% since 2005, 3% more than the national average (Bell, Carnahan, & L’Orange, 2011). The impact of the increased aid allocations is reflected in institutional net tuition revenues, which decreased at North Carolina public institutions by 20% (Bell et al., 2011). Yet, during this same period the national average state net tuition revenues increased by 40% (Bell et al., 2011). A majority of states have cut institutional subsidies and state financial aid resulting in significant increases in tuition costs, North Carolina has resisted this trend and even though the state decreased institutional subsidies, the concurrent increase in aid allocations resulted in declines in net tuition revenues. This

suggests that the state continues to invest in postsecondary access and the UNC Board of Governors has kept a tight hold on tuition increases.

Since 2000, tuition has increased an average of 175% in North Carolina; for instance, at North Carolina State University (NC State) in-state tuition increased from \$1,831 in the 2000 academic year to \$5,153 in 2011 (Ferreri & Price, 2011). Even with this dramatic increase in price, NC State's \$5,153 tuition price is well below the national average tuition of \$8,244 at four-year public institutions (College Board, 2011a). Though North Carolina still has relative low tuition costs, the shifts in state funding could be affecting North Carolina residents in other ways, such as increases in student loans. Between the 2002-2003 and 2008-2009 academic years the average amount of individual student loans, per year attended, in North Carolina increased by 40% at public institutions (\$3,492 to \$5,215) and 53% at private institutions (\$4,035 to \$6,982) (IPEDS, 2011). Heller (2003) found that when states decrease institutional subsidies and increase aid dollars, postsecondary access for LSES students could negatively be affected. Even when tuition increases are controlled for by corresponding increases state financial aid, incremental increases in tuition prices have dramatic effects of LSES student enrollment (Heller, 1997; Leslie & Brinkman, 1987; St. John, 1990). LSES students and their families are sensitive to the "sticker price" of college costs, and with limited knowledge of the financial aid available from the state and federal government, many LSES student simply do not apply to college at all. Hahn and Price (2008) reported that 177,000 LSES students who were academically qualified to attend the most highly selective institutions in the nation did not even apply to college.

What may be occurring in North Carolina is a form of spending control where the General Assembly is decreasing direct institutional appropriations and shifting funding to student portable aid. Reductions in state allocations to public institutions in states with decentralized governance systems normally result in individual institutions reacting by a combination of increasing tuition, cutting financial aid, increasing overall enrollment, and increasing the number of out-of-state student who pay higher levels of tuition (Curs & Dar, 2010a). In states, like North Carolina, where the General Assembly and the UNC System have a great deal of control, institutions have “less flexibility in changing tuition levels in response to state aid policies” (Curs & Dar, 2010a, p. 19). The “18% rule” on out-of-state students imposed by the UNC Board of Governors is an example of the power of centralized governance that the UNC System has over public institutions in North Carolina. This policy limits institutions making up budget shortfalls by shifting increases in enrollment to higher paying out-of-state students.

North Carolina is also in a precarious legal position concerning the cost of postsecondary education based on its constitutional mandate. North Carolina’s third constitution (ratified in 1971) explicitly states “public institutions of higher education, as far as practicable, be extended to the people of the State free of expense” (Article IX, Section 9, para. 1). As state support decreases and tuitions increase, many parents and students are evoking the constitution as an argument that tuition increases should be limited. Every state has some provision(s) for higher education in its constitution or general statutes, yet North Carolina is one of only a minority of states that are mandated by their constitution to have free or reasonably low-cost tuition. Other states, such as California, Ohio, and Texas have legislative mandates regulating tuition and fees that can

easily be altered without constitutional ratification (Bell et al., 2011). The fact that North Carolina's constitution specifically states "free" creates a monumental legislative obstacle for institutional leaders, policymakers, and higher education stake holders who want to significantly reduce state support for higher education.

The constitutional mandate and a series of state legislation passed throughout the 1970's has resulted in the development of a sophisticated system of private and public four-year institutions in North Carolina. But who do these institutions serve? Are students from all economic backgrounds equally served by this well-coordinated and, comparably, well subsidized public university system? In order to answer these questions it is important to understand the major policy reforms that have addressed postsecondary access in the last century, as well as the current state of college access, particularly as it relates to LSES students.

Defining LSES Students

Effective in 2011, updated federal poverty rates defined low-income individuals as "individuals whose family's taxable income for the preceding year did not exceed 150 percent of the poverty level amount" (Office of Postsecondary Education, 2011, para. 2). This means that a family of four earning \$33,525 dollars or less is considered low-income. Both federal and state governments use these poverty measures to calculate the expected family contribution (EFC) that determines what types and how much financial aid students will receive (College Board, 2011b). However, poverty measures based solely on income are often seen as limited, because they do not address the holistic nature of the multiple challenges, beyond monetary wealth, that poor families and individuals face. Furthermore, these holistic challenges continue for those whose income exceeds the

minimum poverty standards. Rather than focusing on income measures alone, social service programs, along with state and institutional financial aid offices, use income level as one of many measures to calculate socioeconomic status. This allows programs to provide aid and services to families that live just above the federal poverty line, but are still affected by conditions, such as geographic location, that may impede their ability to advance economically. Socioeconomic status is defined as a combination of educational, income, and occupational factors that “conceptualize the social class standing of an individual or group” (American Psychological Association, 2011, para. 1). Because of the educational focus of my study and its emphasis on policy and institutional effects on low-income matriculation, I will refer to low-income students as low-socioeconomic status (LSES) students. Using LSES terminology allows for reference to a larger population that is not restricted to the lowest levels of family income, yet also considers additional economic, social, and systemic factors that impact these students and their families.

LSES Students and College Going

Over the past several decades, college-going has been amplified from an opportunity to a necessity for LSES students as they hope to break the cycle of poverty and pursue a quality of life that includes home ownership and educational attainment for their own children (Haveman & Smeeding, 2006; Kinzie et al., 2004). According to Baum, Ma, and Payea (2010) individuals with a bachelor’s degree make over \$20,000 more a year than their high school diploma counterparts, thus adding to increased local, state, and federal tax revenues. Exact earnings fluctuate based on highest level of education completed, occupation, and position of authority (Carnevale, Rose, & Cheah,

2011). The benefits for society extend beyond just the infusion of tax dollars from higher income workers, college degree holders are also more likely to hold private health insurance, make healthier lifestyle choices, volunteer in their community, and actively participate in their children's education (Baum et al., 2010). For LSES students in North Carolina, where high school graduation rates for this group of students have been historically low, the difference between completing high school or a bachelor's degree could be \$1 million in earnings over a lifetime (Carnevale, Rose, & Cheah, 2011).

Although some ideological and political groups contend that higher education is accessible to all students who work hard to reach scholastic milestones (Berg, 2010), a significant body of work points to educational inequities within public primary, secondary, and higher education systems that challenge meritocratic access routes (Astin & Oseguera, 2004; Carey, 2002; Conger et al., 2007; Gerald & Haycock, 2006; Hurtado, Inkelas, Briggs, & Rhee, 1997; McKinsey & Company, 2009; Venezia & Kirst, 2005; Venezia, Kirst, & Antonio, 2003; Wyner, Bridgeland, & DiIulio, 2007). These academic inequities regarding college access call into question the impact of major educational national reform efforts such as Goals 2000, No Child Left Behind, the America COMPETES Act, and Race to the Top. The intentions of these federal policy initiatives have been to increase secondary graduation rates, produce students that can easily transition either directly to the workforce or postsecondary education, improve school accountability, and close the academic achievement gap between low and upper-income students. In North Carolina, high school graduation rates overall have increased, leading to enrollment growth within the UNC system and private universities, but national trends suggest that LSES students rates trail their upper-income peers by as

much as 30% (Diplomas Count, 2011). What remains unclear is where LSES students attend college in North Carolina and what policy and institutional factors drive those choices.

Challenges to LSES Postsecondary Access

Understanding the challenges that face LSES student enrollment in higher education has become a national priority due to the increase of LSES students within the nation's K-12 public schools. By 2009, nearly half of the 3.2 million high school graduates came from families or households earning less than \$50,000 a year or lower (Hess, 2007). Between 1989 and 2006 the number of K-12 students receiving free or reduced lunch increased to just over 45%, during that same time the number of children living above the poverty line has increased from 32% to 46% (Mortenson, 2008). Even though the LSES student population has increased, their enrollment in higher education has decreased overall. The Advisory Committee on Student Financial Assistance (2010) reported that between 2000 and 2010 as many as 2.4 million academically qualified low and moderate-income students would not pursue higher education. Further, the Advisory Committee (2010) stated "between 1992 and 2004, initial enrollment rates of academically qualified low and moderate-income high school graduates in four-year colleges shifted downward: from 54% to 40%, and from 59% to 53%, respectively" (p. IV). Therefore it is critical to better understand the variables that help support those LSES students that do enroll in postsecondary education, especially four-year universities.

Many argue that complexity of the college-going process has worked to alienate LSES students, particularly racial minorities, in ways that replicate the inequities that

existed prior to the social movements of the 1960's (Bowen & Bok, 1998; Bowen, Kurtzwell, & Tobin, 2005; Kinzie et al., 2004). Many upper-income families begin planning for college when a child is in infancy, enrolling children early in pre-kindergarten programs and later in the best primary and secondary programs available (Walpole, 2003). These educational aspirations are further encouraged by educational activities outside of formal schools settings. Concerning parental education, students are more likely to go to college and complete a college degree if their parents already hold a bachelor's degree (Choy, 2001). However, the culture of educational success is not exclusive to the wealthy. LSES students who have a supportive family environment, in which family members emphasize academic achievement, good conduct, and participate in school activities, are more likely to finish high school, and apply for and complete college (McCarron & Inkelas, 2006). Family support is even more crucial when children are considered "first-generation" college students, meaning that they are the first generation in their family to attend college. First-generation students from LSES families are far more likely than their upper-income peers to have parents that insist that they attend school close to home, and their concerns and negative feelings toward college-going often upstage their student's wishes pursue college aspirations (Lopez-Turley, 2006). Even though it is possible for LSES students to matriculate to college with just the positive support of family, Cabrera and LaNasa (2001) argued that family factors such as income, education of the parent(s), and parental attitude to education, cannot be examined alone without including other school and community based factors.

Navigating and succeeding in public primary and secondary schools continues to be a challenge for LSES students and families. Kahlenberg (2001) found that schools in

majority low-income communities were more likely to dampen LSES student college aspirations. The link between schools and impoverished communities is important, because the environment outside of the classroom and home can be just as important in influencing academic achievement. Low-income communities are less likely to feature businesses and public cultural centers that support educational aspirations such as art museums, booksellers, newsstands, specialty food stores, and electronic retailers that expose children both to new concepts and items, and the diversity of people who frequent and work at such establishments (Putnam, 2000). Schools in low-income neighborhoods are often in an ill state of repair and stand in stark contrast to the new facilities and advanced technology experienced by upper-income students living in communities with stronger tax bases and community participation in educational oversight (Kozol, 1992; Macleod, 1987).

Within the classroom environment, LSES students have fewer educational options than their upper-income peers and are often placed in situations where their ability to achieve is stymied. LSES students are more likely to be placed in vocational and technical career tracks that reduce their access to advanced course work, arts programs, and eventually college (Oakes, 1985). Teachers that work in schools with large LSES populations have lower expectations for their students, which results in deflated academic goals and placing LSES students in courses that are perceived as easier (Gandara & Bial, 2001). Placement in advanced academic courses, particularly math, is a significant factor in whether students enroll in any form of higher education. The National Science Board (2011) found that only 9% of students who were enrolled in a standard high school math course (basic functions and below) during 9th grade would go

on to four-year institution. Beyond general low expectations and under-enrolling LSES students in less challenging vocational courses, school staff choose to spend more time with upper-income students, who they perceive could be more successful moving forward (Tierney & Colyar, 2006).

In North Carolina, the statewide high school completion rate has just reached over 70%. Although acknowledged as a statewide success, the statistic indicates that large numbers of students, most likely LSES, are still not graduating high school. Like Oakes (1985) findings, where a majority of minority and low-income students were placed in vocational classrooms and students had less access to secondary programs focused on college-going, the gap between high school graduation and LSES postsecondary matriculation in North Carolina has been accentuated by curriculum tracking. Unlike other states, where tracking is an informal process adopted at the division or school level, the North Carolina Board of Education developed formal curriculum tracks at the state level. Other studies (Kelly, 2007; Mickelson & Everett, 2008; Wantanabe, 2008) of North Carolina secondary schools have found evidence that these curriculum tracks disproportionately placed LSES students in career and technical tracks, misaligning them for enrollment in the UNC System.

The expectation that LSES students would be able to comprehend and participate in the college-going and choice process like their upper-income peers is unreasonable. LSES students entertain the idea of college later in their high school career and are usually ill unprepared to handle the complexity of the college-going process in a compressed period of time, compared to their upper-income peers who are predisposed towards college-going prior to high school. Yet, the popular misconception of LSES

students and their academic success is that they do not work hard enough on their studies to succeed predominates (Haberman, 1991). This brief description of the social and systemic challenges that face LSES student access showcases that LSES students who enroll in North Carolina public and private, non-profit, four-year institutions have overcome significant obstacles to do so. Furthermore, LSES students who enroll at UNC System institutions, demonstrate that they had the ability and resources to obtain a high-level of academic preparation in North Carolina high schools despite the tendency to place them in the non-college going tracks.

LSES Students and College Enrollment Patterns

Popular perception suggests that wealthier students attend private institutions and low to moderate-income families take advantage of lower tuition rates at public two and four-year universities. During the recent economic downturn, much of the attention of the media and educational researchers has been focused on LSES enrollment trends at community colleges, transfer opportunities to four-year institutions, and continued federal investigations of proprietary institutions. Private institutions are rarely discussed as a viable option as part of the college access “pipeline.” However, recent studies suggest that private, nonprofit, four-year institutions are playing an important role in LSES student enrollment (Berg, 2010; Perna & Titus, 2004).

An analysis of 1992 National Education Longitudinal Study (NELS) cohort data revealed that high-income students (35%) had higher rates of enrollment at public four-year institutions than LSES students (15%) (Perna & Titus, 2004). The wealthy/low-income enrollment pattern continued at four-year, nonprofit, in-state private institutions (12% to 5% LSES), and students matriculating to out-of- state privates (31% to 5%

LSES) (Perna & Titus, 2004). As of the 2007-2008 academic year, LSES (from families earning less than \$40,000) student enrollment in various types of institutions of higher education included: 39% of students enrolled at community colleges; 32% at public four-year institutions, 12% at private, nonprofit, four-year institutions, 8% at proprietary institutions, and 9% of student enrolled in other types of institutions (Baum et al., 2010). Only 17% of high-income students from families making over \$120,000 enrolled at community colleges compared to 45% at public four-years, 26% at private four-year institutions, and 1% at proprietaries (Baum et al., 2010). Nationally, upper-income students enroll at public institutions is increasing, while the enrollment gap between upper-income LSES students at private institutions is closing.

North Carolina, however, does not mirror the national portrait for LSES student enrollment noted above as the percentage of LSES students at both public and private four-year institutions is identical. During the 2008-2009 academic year the average Pell recipient enrollment (a proxy for LSES students) across both the public and private four-year sectors in the state hovered around 35% (35.7%/34.5% respectively) (IPEDS, 2011). The community college data available does not allow for a comparative analysis, since IPEDS data collection at the two-year level differs from 4-year institutions, particularly regarding financial aid. What is unknown, is why LSES students enroll at private institutions that are considered by many LSES families to be cost prohibitive, compared to much more inexpensive public alternatives. In North Carolina, policies created by the UNC Board of Governors, such as universal minimum admission standards, may impact the institutional choices that LSES students have, making private institutions in the state the only four-year postsecondary option for LSES students.

Although North Carolina higher education policies may limit LSES student enrollment at public institutions due to admission criteria, they many also act to encourage enrollment at private institutions. Berg (2010) found that nationally, low and mid-selectivity private universities (excluding the most selective which enrolled only 10% of total LSES applicant population) have a larger percentage of LSES applicants than public universities. Perna and Titus (2004) also found that LSES student enrollment at in-state private institutions correlated with increased amounts of state need-based financial aid. These findings were confirmed by Thompson and Zumeta (2010) who found increased state subsidies resulted in higher LSES student enrollment at private institutions. As mentioned above, depending on the year, North Carolina General Assembly provides up to \$5,000 in grant aid, each year, to LSES residents attending in-state private universities. This amount helps to dramatically reduce both the amount of institutional aid dollars private universities have to extend to students and the amount of loans students must incur to meet unmet institutional and federal aid. Thus, the North Carolina General Assembly may be providing financial incentives to private institutions to enroll LSES students who would not be able to enroll in public institutions due to UNC System policies.

A “Mixed” State System for LSES Enrollment

North Carolina’s unique culture of generous financial support for higher education, a product of values regarding postsecondary education that extend back to the colonial era, and policies developed to promote and protect affordability and accessibility may be responsible for creating what Kerr (1990) defined as a “mixed system” of public-private education in the state. State policies, such as universal admissions requirements

at state institutions and state grants for LSES students attending private institutions, could be shifting LSES enrollment to the North Carolina's private institutions, which do not enjoy the same constitutional protection concerning public subsidies as state institutions. While the General Assembly has provided financial support for private institutions to ensure their continued operation in the state, no formal plan exists to illustrate how the public and private systems should cooperate to maximize higher education capacity and resources, particularly regarding accessibility for LSES students. Furthermore, the mixed system could be influencing the behavior of individual institutions in each sector. By using private institutions to expand enrollment capacity, North Carolina public postsecondary polices may create opportunities for wealthier state universities to disenroll LSES students, allowing for greater institutional autonomy within the marketplace. Increased LSES enrollments at poorer private colleges increase the private institutions' dependence on state aid and makes the tuition driven private institutions conduct themselves more akin to "quasi-public" institutions. Conversely, public institutions with decreasing LSES enrollment and with access to larger endowment funds may be able to function as "quasi-private" institutions, escaping state oversight through incremental changes to student aid.

Because a mixed system is not explicitly called for by the General Assembly, the intention of state postsecondary may be countermanded by institutional actions in both sectors. Curs and Dar (2010b) argued that student aid policy must be better managed by state governments, and if not, individual institutional decisions can create "unintended consequences" concerning long-term educational goals (p. 15). The ultimate consequences of such a mixed system, is that if state support is withdrawn from private

institutions, it could lead to serious repercussions for not only the private institutions that have become dependent on state aid dollars as a significant source of revenue, but also for LSES student access to higher education in North Carolina.

Purpose and Research Questions

Using the number of Pell Grant recipients as a proxy of LSES student enrollment, as of the 2008/2009 academic year shows the average total LSES student enrollment at both North Carolina's public and private four-year, nonprofit, institutions around 35% (IPEDS, 2011). These even percentages appear to belie national trends in LSES enrollment, however, these averages do not account for institutional enrollment, finances, selectivity, level of state support, and a range of other factors that can influence LSES enrollment at individual institutions. Further analysis will be useful to gain insight into the effects of North Carolina postsecondary policies and institutional characteristics that influence LSES enrollment at public and private four-year institutions. The purpose of this study is to examine the effect of state policies, through institutional characteristics at North Carolina four-year public and private colleges and universities on LSES student enrollment over time and seeks to answer the following questions:

1. From a longitudinal perspective, 2002-2009, are there differences in LSES student enrollment at North Carolina public and private, nonprofit, four-year institutions?
2. What is the effect of North Carolina state financial aid on LSES student enrollment at public and private institutions in the state over time?
3. What institutional variables contribute to LSES student enrollment at private or public institutions in North Carolina and do these variables change over time?

Ultimately, these research questions serve to test the following null hypothesis:

H_0 : The effect of North Carolina higher education policies has not resulted in a shift in LSES student enrollment from the public university system to the state's private four-year institutions.

Significance of Study

Findings of this study have the potential to have an immediate impact on public discourse and policy regarding LSES student higher education access and affordability in North Carolina. If the null hypothesis is rejected, North Carolina postsecondary policies could be enabling a shift in LSES student enrollment to the state's private institutions whose subsidies do not have the same constitutional protection as public institutions. Also, findings could call into question the efficiency of General Assembly and UNC System policies concerning the high levels of funding for both public and private institutions. Findings of enrollment patterns in North Carolina based on SES, may encourage researchers to further examine LSES enrollment in states with similar funding models through a more focused historical and political lens. Researchers will benefit from the theoretical framework and method of analysis employed for this study to facilitate and inform studies of other individual states.

Study Design

Chapter 2 of the study focuses on the literature and theoretical framework of the analysis. The literature review included topics on the history of postsecondary education in North Carolina, significant state policies regarding postsecondary education, and examines institutional actions and characteristics that help to define the variables that were examined in the analysis. Chapter 3 explains the study's methodology. In brief,

this quantitative study used data from a secondary source (Integrated Postsecondary Education Data System [IPEDS]) to analyze institutional characteristics (independent variables) and their contribution(s) to LSES student enrollment at both public and private, nonprofit, four-year institutions in North Carolina (dependent variable) from 2002 to 2009. These years were selected because the IPEDS variables included in the analysis were only available from the 2002-2003 to 2008-2009 academic year. The analysis of this data included a series of multiple regressions that used a series of three, one year, increments of institutional data to answer specific research questions. Chapter 4 discusses the findings of the analysis and chapter 5 discusses the implications of the findings and suggestions for future research.

Definitions

The following definitions may assist the reader in understanding specific concepts, organizations, phrases, and terms used within the study:

- *College-going process*. Refers to holistic impact of curricular and co-curricular experiences that a student is exposed to throughout his or her life that culminate in matriculating to postsecondary education (Cabrera & La Nasa, 2001).
- *College choice process*. Refers to the specific mechanics related to how individual students apply to and ultimately chose a postsecondary institution to attend (Hossler & Gallagher, 1987; Jackson, 1982).
- *General Assembly*. North Carolina's state legislative body.
- *LSES (low-socioeconomic status) student(s)*. Students who are affected by a number of social and economic variables that limit their opportunities for advancement in society.

LSES students and their families live at or near the poverty line as determined by the federal government.

- *Low-income students.* A student population that is determined by only using predetermined federal poverty guidelines, that can vary based on further guidelines at the state and local level.
- *Need based financial aid.* Federal, state, and institutional aid that is allocated based on a student's financial status.
- *Non-need based financial aid.* Federal, state, and institutional aid that is allocated to students on any number of factors, but is not directly related to a student's financial status.
- *Nonprofit institution.* The institution does not use profits from tuition or other revenue sources to pay a dividend to investors or employees. Nonprofit status is administered by the Internal Revenue Service as part of the U.S. tax code.
- *North Carolina Independent Colleges and Universities (NCICU).* Is a nonprofit organization that supports, represents, and advocates on behalf of 36 private, nonprofit colleges located in North Carolina.
- *North Carolina State Educational Assistance Authority (NCSEAA).* State organization established in 1965 by the General Assembly to improve college access within the state.
- *Private institution.* For the purposes of this study, private institutions are defined as four-year, nonprofit, independent institutions.
- *Tuition driven institution.* A public or private institution that is dependent on tuition revenues for a majority of its operating expenses (Ehrenberg, 2006).

- *UNC System.* The University of North Carolina consists of 16 public institutions that are supervised by the UNC Board of Governors that has been granted authority by the General Assembly to appoint institutional leadership, set tuition, and manage total institutional enrollment.

Limitations

The analysis in this research provides a comparative study of two specific sectors of postsecondary institutions within North Carolina. Thus, the results are not generalizable to institutions in other states. However, the theoretical model and method used for analysis may serve as a template for other researchers to examine the effects of state history, culture, and postsecondary policies on LSES student enrollment in other states.

The use of IPEDS data has several limitations. The foremost limitation concerning this study is that data for a specific variable may not have been collected longitudinally, limiting the time span of analysis (Schuh, 2002). Other limitations regarding IPEDS data include variable definitions that are too broad in scope, inconsistencies in institutional reporting, and the need for and knowledge of statistical software to analyze data (Schuh, 2002).

Delimitations

Community colleges and proprietary institutions were excluded from the analysis. Community colleges were not included because a majority of traditional aged college students at two-year community colleges are not enrolled full-time, nor do they apply or have access to similar types of student financial aid (Advisory Committee on Student Financial Assistance, 2008). Proprietary institutions were not included because of several

limitations, namely the availability of accurate cohort data and the extreme nature of institutional selectivity.

Lastly, the study focused on LSES students who have already experienced both the college-going and college-choice processes. Although there are student demographic variables, there are no IPEDS variables that allowed for analyzing and/or interpreting the entire college-going process. Other National Center for Education Statistics (NCES) sample surveys, such as the National Education Longitudinal Study (NELS), National Postsecondary Student Aid Study (NPSAS), and High School Longitudinal Study (HSLs) allow for such examination, but not in a defined geographic area. IPEDS is the only, uniform, postsecondary data set that allowed for private and public institutional analysis at the state level.

Summary

The purpose of this study was to examine the effect of state policies, through institutional characteristics at North Carolina four-year public and private colleges and universities on LSES student enrollment over time. It is important to understand enrollment patterns of LSES students, in particular their attendance at private universities, because higher education serves as a means to close the income gap for LSES students and provides for educated citizenry that benefits democratic society. If North Carolina has created a mixed system of postsecondary four-year institutions by using private colleges and universities to educate a large population of resident LSES students, there is no way to predict how higher education stakeholders would react if they became aware of this situation. What is clear is that not all stakeholders support the state funding for private institutions. In April of 2011, the Pope Center for Higher Education

Policy, a nonprofit higher education “watchdog” group in North Carolina, released a proposal calling for the elimination of all state funding for private institutions (Schalin, 2011). If such a movement gains traction, it could result in the loss of \$100 million in aid that assists LSES student who attend private institutions. The absence of state aid would be disastrous for tuition driven private institutions, many of which would face closure due to the loss of this grant revenue. The ripple effects on enrollment capacity would also challenge an already strained community college system and the public universities that have traditionally served LSES populations. If North Carolina citizens and policymakers are not better informed about LSES student enrollment trends in the state, particularly the role of the private institutions, popular perceptions of private education could result in legislation that negatively impacts LSES access to higher education. It is critical to understand better the variables impacting LSES student enrollment patterns and shifts in enrollment between the public and private sectors of higher education in North Carolina in order to make informed policy decisions.

Andy: How much?

Helen: Around \$15,000 for the four year course.

Andy: \$15,000! Well that is impossible, how many parents can afford that kind of money?

Helen: Well that is what it costs at many of the private colleges, of course it varies a little.

Andy: I had no idea it was that much!

Helen: Well of course that includes everything Andy.

Andy: You said private colleges, how about one of the state colleges the University of North Carolina at Chapel Hill?

Helen: Well that would be a lot less expensive, about half, there is practically no tuition.

-The Andy Griffith Show. Original air date November 20, 1967.

Chapter 2: Literature Review

The purpose of this study was to examine the effect of state policies, through institutional characteristics at North Carolina four-year public and private colleges and universities on LSES student enrollment over time. Although public universities enroll more LSES students, national trends suggest that LSES enrollment percentages are growing at private universities and declining at public institutions (Baum, et al., 2010; Berg, 2010; Perna & Titus, 2004). If North Carolina public and private four-year institutions are not mimicking national LSES enrollment trends, it could be a result of the state creating policies, intentional or unintentional, to divert LSES students away from public institutions to private institutions. North Carolina's citizenry pride themselves about their state's public system of universities. However, it is unclear if the same type of espoused public support exists for the private institutions, which also receive generous support from the state. Many of the policies that have led to the current state of higher education in North Carolina have been the result of hundreds of years of accumulated history and culture. This study has sought to connect that history and culture with modern day policies, and their influence on LSES enrollment at public and private four-year institutions throughout the state.

The literature review is organized into three sections, which are drawn from a modified model of *contours of governance* (Figure 1) developed by Venezia, Callan, Finney, Kirst, and Usdan (2005). The Venezia et al. (2005) framework provides a model to evaluate state policies and their implementation through a theatrical lens that encourages the inclusion of state history and culture. The Venezia et al. (2005) framework allows for a richer understanding of state policies, particularly, how history and culture influence, develop, and support state higher education policies. Past evaluations of North Carolina's significant level of public funding and support for postsecondary education (Gittell & Kleiman, 2000; Hearn, Griswold, & Marine, 1996) have been limited to only political culture or state spending trends since the 1970's, and were limited or unable to explain the unique higher education orientation of the state.

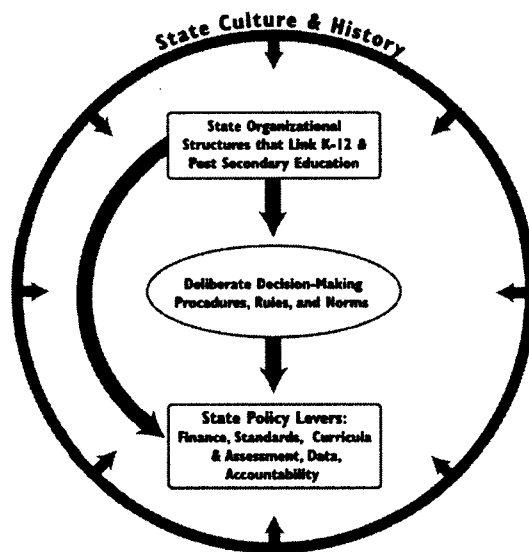


Figure 1. Venezia, Callan, Finney, Kirst, and Usdan's (2005) Contours of Governance model (p. 4).

Venezia et al.'s (2005) contours of governance model (Figure 1) was developed from a study of P-20 education policies in four states (Florida, Georgia, Oregon, New

York). Their work built on a series of studies developed by the Stanford University's Bridge Project that examined the relationship between K-12 and postsecondary education, particularly the relationship's effect on LSES academic success and college access. Venezia et al. (2005) asserted that state history and culture "influence all facets of state governance" (p. 4), which includes institutional admission and financial aid policies. Even the most modest education policy reform cannot have long-term effects unless it receives continued reinforcement by the state legislature over a number of consecutive sessions. History influences the organization and operation of a state by establishing cultural norms and rules that affect the ways in which policies can be developed and administered (Venezia et al., 2005). A new or reauthorized state policy is often a byproduct of a precedent established decades or hundreds of years in the past.

For the purposes of this study, Venezia et al.'s (2005) model was modified to exclude the emphasis on the linkage between state K-12 and postsecondary educational structures. One of the major considerations for adapting the model versus using the original model for this quantitative study was the limited amount of data linking LSES student K-12 matriculation to postsecondary education in North Carolina. As discussed in chapter one, the IPEDS dataset is the only NCES dataset that allows for evaluation of state analysis of LSES enrollment patterns at the institutional level. However, the majority of IPEDS data is limited to the time of student enrollment at a postsecondary institution. Another consideration for adapting the model was the focus of the study on postsecondary policies and policy implementation at the state four-year non-profit institutions. North Carolina is a state with weak ties between K-12 and postsecondary

education, and evaluating each level of education separately is more reasonable than attempting to imply connections using the available data.

A modified model (Figure 2) created for this research retains the outer influencing section (circle) of *history and culture*, but concentrates the inner section of the contours of governance model, combining elements such as organizational structure, rules, and finance, into *state policy levers*. This adapted policy section for the model focuses on the development of relevant postsecondary policies affecting public and private four-year institutions. The modified model also includes a new section, *institutional behaviors*, since a majority of state higher education policies are administered at the level of individual public and private institutions. Although North Carolina public universities adhere to UNC System policies concerning overall enrollment, tuition levels, and the number of out-of-state students they can admit, these institutions still have the autonomy to create admissions policies, raise funds, and establish curricular and co-curricular programs. Private, nonprofit, institutions in the state have far more autonomy concerning their enrollment and tuition policies than the publics. However, privates, especially those with small endowments, are also heavily influenced by the grant aid provided by the North Carolina General Assembly. This study differs from Venezia et al.'s (2005) work in that it examines not only the origins of state higher education policy concerning access and affordability for LSES, but also the policy implications at the institutional level.

This literature review covers the modified theoretical framework in three major sections. The first section, *history and postsecondary culture in North Carolina*, discusses historical events that have contributed to a culture of popular public support

higher education in the state. The second section, *North Carolina postsecondary policy levers* focuses on state-level policies that have been adopted and enabled by popular and political support. Finally, at the heart of the framework, the third section, *North Carolina institutional behaviors*, discusses how those policies are implemented at the institutional level and what institutional forces work to fulfill or impede state policies that encourage, if not mandate, LSES student enrollment.

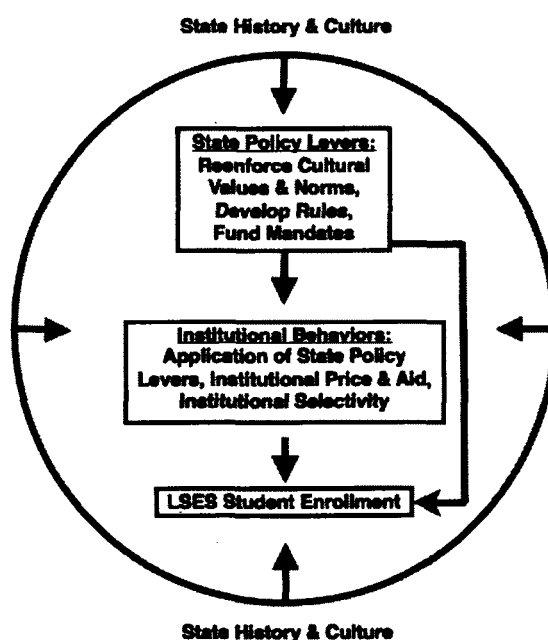


Figure 2. *Modified Contours of Governance Model*

History and Postsecondary Education Culture in North Carolina

North Carolina's unique educational culture is a product of a rich history that intertwines class conflict, democratic values, immigration, religion, revolution, and the unique economic constraints overtime. On December 11, 1789 the General Assembly passed legislation creating the University of North Carolina (now the University of North Carolina at Chapel Hill), the new nation's first public university (Snider, 1992). The

university would not open until winter of 1795, when a sufficient endowment had been raised by the trustees to construct the first buildings and pay the salaries of the faculty (Snider, 1992). This section reviewing the history of postsecondary education in North Carolina discusses the founding and development of both public and private universities in the state, as well as important historical events in the state that have contributed to the current higher education policies.

Early Private Colleges

The second institution to open in North Carolina was Davidson College, a private college founded by the Presbyterian Church in 1834 (Powell, 1964). In 1838, two other private colleges were established: Wake Forest University (Baptist) and the Greensboro Female College (Methodist) (Powell, 1964). Prior to 1900, 40 postsecondary institutions had been chartered by the General Assembly (Powell, 1964, 1989). The great majority of these early institutions were founded with denominational or private funds, Powell noted “the state made loans of \$10,000 to two private colleges - Wake Forest in 1841 and Trinity College (now Duke University) in 1859 - no further attempt was made to provide higher education at public expense until 1877,” with the establishment of State Colored School at Fayetteville (now Fayetteville State University) (Powell, 1964, p. 8).

Development of the Public University System

In 1931, the General Assembly created the University of North Carolina System (UNC System), a central administrative unit that would oversee the University of North Carolina (Chapel Hill), the North Carolina College for Women (University of North Carolina at Greensboro), and the North Carolina College of Agriculture and Engineering (North Carolina State University) (Powell, 1964). Later in 1955, the General Assembly

established the Board of Higher Education “to plan and promote the development of sound and vigorous, progressive, and coordinated system of higher education in North Carolina” (North Carolina Statute, c. 1372, a. 1, s. 1). By 1969, the Assembly had expanded the system, creating nine regional public universities and two additional branch colleges, in addition to UNC-Chapel Hill and NC State University (Powell, 1964). In 1977, the Assembly created the State Board of Community Colleges to supervise the rapidly expanding system of two-year institutions, which now number 58 (North Carolina Community Colleges, 2011). Today, the UNC System consists of 16 public 4-year universities.

In contrast to the state’s K-12 system, which swiftly adopted federal Civil Rights mandates, the UNC system did not adopt a desegregation policy until 1981, when it reached a settlement in federal court to increase African American enrollment at predominately white institutions to 10.6% by 1988 if the system was allowed to increase white enrollment at historically black institutions by 15% (Minor, 2008). After the settlement, African American enrollment only increased 2% between 1984 and 2004 at UNC-Chapel Hill and NC State, the most selective public institutions in the state, and the 1988 goal to increase African American enrollment at white public institutions was never met (Minor, 2008). Less-selective regional universities would see the most significant growth of African Americans during the same period (Minor, 2008). The inability of the UNC System to enforce the African American enrollment and recruitment goals in the 1980’s demonstrates how individual UNC institutions could circumvent policy regarding minority student enrollment (Fowler, 2009). Many minority students are also LSES, thus these institutional policies also impact the population of focus for this research. In the

case of desegregation, UNC-Chapel Hill and NC State functioned, according to Gillen and Vedder (2008), as “gated communities” (p. 6).

Public Support for Private Institutions

By 1970, it was clear that the development and expansion of the UNC System was having a dramatic effect on private colleges throughout the state. Inflation, combined with the low-tuition at the public institutions, was adversely impacting the states’ private junior colleges and four-year universities. As early as 1963, Governor Terry Sanford suggested that state assistance be offered to state residents who wanted to attend private institutions (NCpedia, 2011, para. 2). This initiative led to the founding of the North Carolina Association of Independent Colleges and Universities (now the North Carolina Independent Colleges and Universities [NCICU]) in 1968 that would eventually conduct research and lobby on behalf of the state’s private institutions (NCpedia, 2011, para. 3). The creation of this organization reflected the shift of many private institutions of this period that sought to garner public financial support by relabeling themselves as “independent” as opposed to “private” (Breneman & Finn, Jr., 1978, p. 5). Action was not taken on Sanford’s recommendation until 1971, when the General Assembly created the State Contractual Scholarship Grant to provide public funding to needy resident students attending in-state private colleges (NCSEAA, 2011).

Three Episodes in North Carolina Higher Education History

Beyond the linear development of public and private colleges and universities, three episodes stand out as critical moments in North Carolina education history that set the stage for the current cultural and political context of the theoretical framework. First, the development of the state’s early primary schools and colleges during the 1700’s was

an amalgamation of an established religious sect that valued education and a significant population of Scotch-Irish immigrants that embraced it. Second, during Reconstruction, an agricultural populist movement took control over North Carolina politics and focused its attention directly on higher education and college access for the poor. Third, with the decline of North Carolina's major manufacturing industries during the 1970's, state leaders looked to establish new economic opportunities, while keeping talented students within the state.

Presbyterians and the Scotch-Irish Immigration.

Even as a maturing British colony, the development of a formal education system in North Carolina lagged behind its New England counterparts. "There was no marked educational advancement manifested until the arrival of the Scotch-Irish" (Smith, 1888, p. 22). Between 1736 and 1776 tens of thousands of Scotch-Irish settlers immigrated to North Carolina, helping to increase the colony's population from 36,000 to 250,000 (Higginbotham, 1984). Arriving from Europe and leaving other colonies to escape the power of other religious sects, the Scotch-Irish quickly established their own churches. Beyond their theology, the Presbyterians valued a democratic structure within the hierarchy of the church, which was empowered and monitored through the education of its members. Therefore, ministers were also schoolmasters, focusing on the classical curriculum of the trivium and quadrivium. "As soon as a neighborhood was settled, preparations were made for the preaching of the Gospel by a regular stated pastor, and wherever a pastor was located, in that congregation there was a classical school" (Foote, 1846, p. 513). The population shift and the educational impact of the Presbyterians led Smith (1888) to conclude "during the second half of the eighteenth century the history of

education in (North Carolina) is inseparably connected with that of this denomination” (p. 23). Because of its close association with the church, education was valued in the community. As the influence of the Presbyterian Church grew across North Carolina, so did education. I would argue that the influence of the Presbyterian Church had two effects on the future of public K-12 and higher education in the state. The first is that it created a demand for higher education within the boundaries of the state. The second, with the church providing education to a significant segment of the population, there was no early demand for public primary and secondary education.

Graduates of the College of New Jersey (now Princeton University) began moving to North Carolina as Presbyterian missionaries during the 1750's. These men would occupy prominent positions in their communities, as well as colony/early state offices, and had a significant influence in not only the promotion of representative democracy prior to and after the Revolution, but also in writing the state's first education laws. “Presbyterian preacher-schoolmasters and layman provided the thrust of instilling the aim of education in North Carolina's first constitution” (Snider, 1992, p. 23). Two graduates in particular, Samuel McCorkle (class of 1772) and William Richard Davie (class of 1776) would work to establish the University of North Carolina in the 1780's. An attempt had been made to establish a public college 1754, but the bill failed to pass the General Assembly because its curriculum would be administered by Anglicans (Snider, 1992). At the dawn of North Carolina's statehood, Davie used education to unify political and geographic factions and the new public university (UNC) was a symbol of that cooperation (Snider, 1992). The institution would be heavily influenced by Presbyterians, but would not be formally connected to the church. By seeking to

establish a public institution, organizers could avoid religious entanglements during the legislative process and fund raising drives.

The influence of Princeton on postsecondary education in North Carolina declined after the founding of Davidson College in 1837, allowing a larger population of Presbyterians to remain in the state for their higher education (Powell, 1964; Smith, 1888). A century after the initial Scotch-Irish migration to North Carolina, higher education had taken hold through the establishment of the first public university and a small number of denominational private institutions. Beyond the physical institutions, the most significant contribution of the Presbyterian's was the espoused value for education held by the populous of the state, which would continue to manifest itself within local communities, popular politics, and ultimately had multiple ratifications on the state's constitution.

The Populist Movement of the Late 19th Century.

According to Gelber (2011), North Carolina represents one of the most successful examples of the Populist movement of the late nineteenth century concerning higher education. In the 1880's, North Carolina's legislature was overtaken by members of the Farmer's Alliance. Gaining power through the 1880's and early 1890's, the Alliance introduced agriculture reform bills and later focused on higher education. In 1887, the Alliance, who were in the minority, convinced a majority of the legislature to shift the state's Morrill land grant funding away from the University of North Carolina (now UNC Chapel Hill) to the newly created North Carolina College of Agriculture and Mechanics (North Carolina State University) (Gelber, 2011). By 1888, the Alliance had 42,000 members in over a thousand chapters across the state (Ayers, 1992). That same year the

Alliance took formal control over the legislature, threatening the Democrat and Republican establishments in the state (Lefler, 1934).

The Alliance wanted increasing numbers of poor, rural, students to have access to postsecondary education and felt that public and private institutions in the state were only serving a small population of culturally elite students. Alliance leader Leonidas L. Polk wanted to develop institutions that would expose students to a liberal arts curriculum and practical training. By 1890, the Alliance had grown to over 90,000 members in over 2,100 state chapters (Ayers, 1992). In 1891, the General Assembly approved the first State Normal and Industrial School for women (University of North Carolina at Greensboro), and the Normal School for Blacks (Elizabeth City State University) (Powell, 1989). Rather than integrate African Americans into the North Carolina College of Agriculture and Mechanics, Polk thought it best to use the Morrill Act funding of 1890 to create a separate institution, the Agricultural and Mechanical College for the Colored Race (North Carolina A&T University) (Gelber, 2011). The legacy of these origins is evident today in North Carolina in minority enrollments being heavily concentrated at historically black college and universities and less-selective private and public institutions in the state.

In 1894, the Farmer's Alliance became the Populist Party. The Populists joined forces with the state Republicans forming a combined group recognized as the Fusionists (Gelber, 2011). They continued their political domination of the North Carolina legislature throughout the decade appointing university trustees and lowering admission standards at the public institutions. In 1899, the Fusionist control of the legislature ended and admissions requirements at public institutions were bolstered.

The majority of class motivated educational reforms envisioned by Polk and the Farmer's Alliance never came to fruition. With little or no tax revenue to fund primary and secondary rural education, large-scale matriculation of the poor to public universities could not take place. Although college students remained segregated by gender and race, the popular movement resulted in the creation of a number of educational institutions that benefited women and African Americans.

Public/Private Partnerships and the Creation of Research Triangle Park.

After the conclusion of World War II, both public and private institutions in the state had struggled to keep up with enrollment demand with the wave of returning veterans, now armed with GI Bill funds. Through the 1950's and 1960's, enrollment doubled again due to economic growth and civil rights and education legislation at the federal level (Gelber, 2007). Although the enrollment growth supported institutions of higher education, because of the declining North Carolina economy, many graduates were leaving the state for urban and industrial centers in the North and West. This posed a challenge to stakeholders in both North Carolina's economy and higher education system. How long would the public condone heavily subsidizing a university education for students who were leaving the state once they completed their degrees?

In the mid-1900s, North Carolina's primary industries included: furniture, textiles, and tobacco; all of these operations had been declining since the end of the World War II, resulting in a reduction of both wages and jobs that did not require a college level education (Link & Scott, 2003). Leaders in the state recognized that the collapse of these economic staples would create a vacuum that would need to be filled by other industries. In order to lure diverse industries to North Carolina, the state would

have to guarantee a skilled, well educated, workforce that at the time was leaving the state in droves.

Concerned about the state's economic future, Romeo Guest, a building contractor, Robert Hanes, President of Wachovia Bank, and Drandon Hodges, state treasurer, along with Howard Odom and George Simpson, sociologists at UNC-Chapel Hill held a series of meetings that began in 1954-1955 to discuss the creation of an industrial research park in the Raleigh-Durham area (Link & Scott, 2003; Powell, 1989). Early on in the planning, it was decided that the proximity of the complex to Duke University, North Carolina State University, and UNC-Chapel Hill would be key. The group sought and received the support of the presidents of those institutions. Faculty from all local institutions were involved in the planning process for the conceived research park and began developing research projects that would draw "high tech" businesses to the region (Powell, 1989, pp. 530-531). By 1958, the effort had won the support of the governor and commission, made-up of members from the public and private sectors. A foundation was established that began buying land in the Raleigh-Durham area, eventually accumulating 5,600 acres (Powell, 1989).

Although most leaders in the state believed in the project, there was cautious optimism concerning its success. There was no model for developing an industrial research park of this magnitude. The closest comparisons, in Boston, Massachusetts and Stanford, California, "just happened" and were never planned (Link & Scott, 2003, p. 3). The Chemstrand Corporation became the first large-scale occupant of Research Triangle Park (RTP) in May of 1959 (Link & Scott, 2003). Development for RTP was slow until 1965, when the federal government announced that a \$70 million new National

Environmental Health Sciences Center would be built there (Link & Scott, 2003). The growth of RTP and its supporting universities continued through the 1970's and 1980's. Today, the RTP campus has over 130 organizations and 40,000 employees (Link & Scott, 2003). Fifty-one percent of all businesses in the region are considered "high tech," as opposed to only 15% when RTP opened (Schlottmann, 2010). The triumph of RTP not only symbolized the cooperative relationship between the state and private industry, but also underscored that the state's economic future depended on the success of its public and private postsecondary institutions.

History in Perspective - A Summary.

Presbyterians had a significant impact on the foundations of higher education in North Carolina. Their influence on public higher education as a public good led to the establishment of the first public university in the United States. The culture of public education was reinforced and bolstered by the Farmer's Alliance/Populist in the late 19th century, which promoted equal access to the public institutions by the poor. The movement reinforced public ownership of higher education by the entire citizenry, not the cultural elite. By the conclusion of the 1960's, North Carolina's public and private institutions had proven to be economic assets, aiding the state's transition from the old agricultural and industrial based economy to a new technology based economy. I contend that these three historical moments heavily influenced North Carolina's culture regarding the popular and political support of public and private higher education in the state. These historical incidents resulted in the development of three cultural values: the reinforcement of democratic values through promoting higher education as a public good;

that higher education should be available to all citizens of the state, regardless of SES status, and that higher education promotes economic growth and prosperity.

In addition to these cultural values, primary, secondary, and postsecondary education in North Carolina has been rife with episodes of inequity from its colonial origins to the development of its modern educational infrastructure. While the historical events highlighted above address positive elements that have led to the public support for both public and private higher education in North Carolina, the state's citizens, institutions, policymakers, and students remain effected by a legacy economic and racial inequality. *Esse Quam Videri*: to be rather than to seem, is the state motto of North Carolina. This study serves to challenge that motto by examining the state's higher education legacy through better understanding how the confluence of history, culture, policy, and institutional behaviors impact LSES student enrollment at public and private four-year institutions in the state.

Throughout these important moments in North Carolina postsecondary history, both public and private institutions of higher education continued to be established and expanded. During the twentieth century, the public institutions evolved into the UNC System and the state's private institutions formed the North Carolina Independent Colleges and Universities. The later organization developed a cooperative that could more easily seek out public support for their institutions. Table 1 provides a visual representation of historical events that impacted higher education in North Carolina.

Table 1

Significant Historical Episodes in North Carolina Postsecondary History from 1729-1981, Highlighting State Intervention.

1729		King George III makes North Carolina a formal British colony
1736-1776		
April 12, 1776	North Carolina declares independence from Britain and joins the American Revolution	<i>Presbyterians and the Scotch-Irish immigration. The establishment and growth of Presbyterian communities. Democratic and postsecondary influences of Presbyterians impact the development of North Carolina government and higher education.</i>
December 18, 1776	North Carolina state constitution is ratified, providing for the creation of "one of more universities" (Article 41)	
December 11, 1789	North Carolina General Assembly allows for the establishment of the University of North Carolina	
January 15, 1795		University of North Carolina opens for enrollment, becoming the first public university in the United States
1837		Davidson College opens, becoming the first private college in the state
1841	The General Assembly loans Wake Forest College \$10,000	
1859	The General Assembly loans Trinity College (Duke) \$10,000	

Table 1 con't

Significant Historical Episodes in North Carolina Postsecondary History from 1729-1981, Highlighting State Intervention.

1877	The General Assembly establishes State Colored School at Fayetteville	
1880-1900		
1887	The General Assembly takes away Morrill Land Grant funding from the University of North Carolina (Chapel-Hill) and creates the North Carolina School for Agriculture and Mechanics	<i>The Populist movement in North Carolina. The Farmer's Alliance/Populists gain increasing control of the General Assembly through the 1880's, taking full control in 1894. The Populist focused heavily on expanding access to higher education, especially to the rural poor.</i>
1890	The General Assembly establishes the Agricultural and Mechanical College for the Colored Race (North Carolina (A&T)	
1891	The General Assembly establishes the first normal school for women (UNC-Greensboro) and the Normal School for Blacks (Elizabeth City State University)	
1931	The General Assembly creates the University of North Carolina, to consolidate the three state universities under one centralized authority	

Table 1 con't

Significant Historical Episodes in North Carolina Postsecondary History from 1729-1981, Highlighting State Intervention.

1955-1980		<i>Public/Private Partnerships and the Creation of Research Triangle Park. Initial planning for RTP begins in 1955, with the cooperation of businessmen, state officials, and university leaders. Land is purchased in the Durham area in 1958 and the first tenant of the park opens 1959.</i>
1955	The General Assembly establishes the Board of Higher Education to oversee higher education in the state	
1963	Governor Sanford advocates for state financial assistance of private colleges	
1968		The North Carolina Association of Independent Colleges and Universities is formed
1969	The General Assembly approves the expansion of the UNC System to nine regional universities and two branch colleges	
1971	The General Assembly creates the State Contractual Scholarship Grant for students attending private colleges with financial need	RTP development continues, with the opening of the National Environmental Health Sciences Center in 1965. By 2003, over 130 organizations had opened in RTP, employing over 40,000 people.
1977	The General Assembly established the State Board of Community Colleges	
1981	North Carolina becomes the last state to adopt a formal postsecondary desegregation policy	

The next section discusses postsecondary policies that build upon the historical and cultural context of public and private higher education in North Carolina. These policies continue and strengthen the historical emphasis placed on the value of higher education by the state's residents concerning access and affordability of postsecondary education.

North Carolina Postsecondary Education Policy Levers

The history surrounding the development of higher education in North Carolina is apparent in modern policies that are popularly supported by the electorate and the legislature. Higher education, more so than K-12 education, has played a prominent role in state politics, cementing itself as a funding priority and a critical issue during election campaigns. This section reviews the state's postsecondary political culture, context, key laws and policies, and their implications.

The Intersection of Culture and Politics in North Carolina

North Carolina's social and political culture has developed over three centuries, leading to the creation of three postsecondary cultural values that I will summarize as: the public good of state supported higher education, support of higher education access, and support of higher education as a means to economic prosperity. Recall, Hearn, Griswold, and Marine (1996) advocated for specific evidence in seeking an explanation regarding the influence on LSES enrollment in states with historically low-tuition prices; I argue that these cultural values are in fact evidence to support the long-standing policy to keep tuition levels low. I will explain how these culture values manifest themselves in state postsecondary policies.

Newman (2000) observes that culture is one of the “most ubiquitous pervasive elements in society” and further defines culture as consisting of “language, values, beliefs, rules, behaviors, and physical artifacts of a society” (p. 31). Newman goes on to state that “two key aspects of culture thoroughly implicated in institutional, organizational, group, and individual behavior: values and norms” (p. 31). In connecting culture with state politics, Wirt, Mitchell, and Marshall (1988) found that different cultures make “value-laden policy choices” based on four elements: choice; efficiency, equity, and quality (pp. 272-274). *Choice*, results in substantive options that citizens of a state can choose from. Choice is a “the underlying key political value of democracy” and allows citizens to exert power over state authority, through elections, legislative mandates, or policy changes (Wirt et al., 1988, p. 273). *Efficiency* is a complex value that attempts to meet popular standards and goals by maximizing economic inputs and outputs and creating systems of accountability (Wirt et al., 1988). *Equity* refers to “the use of public resources to redistribute public resources to satisfy disparities in human need” (Wirt et al., 1988, p. 273). *Quality* refers to providing “the best” resources that will help prepare a citizen for the world’s challenges” (Wirt et al., 1988, p. 274). Wirt et al. (1988) concluded that choice values often work in opposition to equity, efficiency, and quality values, whereas efficiency and equity are reinforcing values. This logic corresponds with critics of the UNC System who feel the system is inefficient concerning the high-level of public funding for higher education and the social and economic outputs that result (Gillen & Vedder, 2008; Schalin, 2011). The historical strength of *choice* related values in North Carolina, such as the public good of state supported higher education and

support of access to higher education, are at the core of many of the state's postsecondary policies

North Carolina Political Culture in Context

Fowler (2004) categorized North Carolina's political culture as *traditionalist*, which is the dominant political culture in the southern states (p. 95). Characteristically, traditionalist cultures want to regulate markets, maintain an elite cultural and economic class, and create and maintain social relationships that can be used to establish a political base(s) (Fowler, 2004). Although North Carolina is categorized as a traditionalist political culture, it is one that also believes in the public good. North Carolina ranked high in a national comparison of public policy priorities based on legislative allocations, especially services such as education, public safety, and transportation that benefit a large cross-section of the population (Jacoby & Schneider, 2001). Erikson, McIver, and Wright Jr. (1987) found a negative relationship between state culture and political party identification, and a positive relationship between culture and ideology (p. 802).

The work of Gittell and Kleiman (2000) is one of the only studies focusing on contextualizing higher education policies in North Carolina. Their study compared the policy and culture of higher education in California, North Carolina, and Texas (Gittell & Kleiman, 2000). They argue that North Carolina's centralized system of higher education represented a state governed by elites, and that North Carolina's politics are driven by public sector interests (Gittell & Kleiman, 2000). They also found that North Carolina's General Assembly is sharply divided, not between Democrats and Republicans, but modernist, who represent the financial and technological business sectors, and traditionalists, who represent the agricultural and manufacturing sectors (Gittell &

Kleiman, 2000). Concerning access to higher education, Gittell and Kleiman (2000) discuss the issues surrounding the university system's reluctance to establish a desegregation policy and the development of transfer agreements between the community college system and the UNC System. One of their most important contributions to understanding the mechanics of state politics concerning higher education was their emphasis on the influential role that William Friday played as the first president of the UNC System (Gittell & Kleiman, 2000). Friday served as president of the university system from 1956 to 1986, he was responsible for "expanding the system from 3 to 16 schools" while maintaining a powerful grip on the system by controlling institutional budgets and not allowing campuses to "lobby independently" (Gittell & Kleiman, 2000, p. 1069). Concerning private institutions in North Carolina, Gittell and Kleiman (2000) noted that in both North Carolina and Texas, "most of the private colleges are small, enrolling no more than 1,000 students each. The schools are often religious and focus primarily on teacher training" (p. 1073). Gittell and Kleiman's (2000) discussion of private institutions, especially in North Carolina, undervalued their impact in the state, not only in the total number of in-state students that the private institutions enroll, but also the commitment of state resources to the sector.

The scope of Gittell and Kleiman's (2000) study is limited due to its comparative nature, shifting emphasis on different states from one subject area to another. One of the critical limitations of Gittell and Kleiman's (2000) work is that they only focused on recent history and politics, from the 1970's forward. Their commentary on the nature of corporate political divisiveness of the General Assembly was based on a limited number of sources and does not correspond with other evaluations of the Assembly and its

politics (Erikson, McIver, & Wright Jr., 1987, 1993). Most importantly, their treatment of private colleges did not take into account that almost 20% of state student subsidies went to private institutions (NCICU, 2011). Although Gittell and Klieman (2000) offered an important contribution to modern North Carolina political culture, their conclusions and scope of focus are limited by the comparative nature of the study. By focusing solely on North Carolina this study has avoided similar cultural, historical, and political limitations.

North Carolina clashes with the traditionalist political culture model often found in the south (Fowler, 2009) due to their support of the public good of education. Throughout the 1970's, 80's, and 90's North Carolinians elected conservative Republicans like Jesse Helms, to the United States Senate, while simultaneously electing a string of Democratic governors. Although North Carolina may be perceived as a conservative southern state, where there is little investment in social programs, value in a shared social and political culture and the public good often trump traditional party politics that dominate other states. Even though political parties may disagree on the best ways to fund higher education, it is not a debate of the same type that is the focus in other states regarding levels of involvement in higher education. The idea of granting independence or additional self-governance, to institutions such as UNC-Chapel Hill and NC State, would be greeted with significant opposition by both parties. The North Carolina General Assembly was found to be one of the least politicized state legislatures in the nation (Erikson et al., 1993). North Carolina's higher education policies act to reinforce the political culture that places value on the public good of state support for

higher education and the support of access to higher education, values that have direct ties with the founding of the state and the University of North Carolina.

Key Higher Education Legislation

The economic success of RTP and continued expansion of the UNC and the state community college system brought about popular state education policies during the 1970's. The most notable of these was the ratification of the *North Carolina Constitution of 1971*. In 1967, Governor Dan K. Moore called for a commission to study the state's constitution. The constitution had not been revised since North Carolina's readmission into the Union in 1869. Many of the laws and amendments were dated or had been nullified by federal law, particularly those involving Jim Crow policies (Powell, 1989). Higher education had been part of the state's first constitution in 1776 due to the Presbyterian influence, stating "all useful learning shall be duly encouraged and promoted in one or more universities" (Section 41). In the 1971 constitution, the language shifted dramatically, implicitly calling for "public institutions of higher education, as far as practicable, be extended to the people of the State free of expense" (Article IX, Section 9, para. 1).

There is no clear evidence of why the 1971 constitutional article (IX) on higher education used the word "free." However, it does stand to reason that the higher education language was not only economically motivated by the present-day success of RTP, but also rooted in a historical foundation of broad popular and political support through the state's early emphasis on public higher education during its statehood and the Populist movement of the late 19th century. Shortly after the ratification of the new constitution, the General Assembly also reached out to the state's private institutions. In

1971, the Assembly created the need based State Contractual Scholarship Fund (SCSF) to assist LSES in-state students attending nonprofit North Carolina private institutions (NCSEAA, 2011). The fund was administered by the North Carolina State Educational Assistance Authority (NCSEAA), created by the Assembly in 1965 to improve college access in the state (CFNC, 2011, para. 3). Following in 1975, the Assembly passed the North Carolina Legislative Tuition Grant (NCLTG) that allowed in-state students attending a nonprofit private institution in North Carolina to receive a subsidy grant, regardless of need. The creation of the NCLTG contradicted funding trends in other states, where expenditures on public universities and projected declines in enrollment through the 1980's made many private colleges and universities concerned about their survival (Breneman & Finn, Jr., 1978).

In recent history, two additional popular mandates for postsecondary education occurred in North Carolina. The first was in 2000, when voters approved 3.1 billion dollars in construction bonds for public universities (McClendon & Eddings, 2002). The bond campaign was led by UNC system president Molly Broad whose goal at the time was to have the UNC system "become more central to the lifeblood of the state" (Selingo, 2003, p. A22). Next, in 2005, the General Assembly passed the North Carolina Lottery Act. The act created the North Carolina Lottery Scholarship (NCLS), providing up to \$2,500, per year, to needy students (North Carolina Council for Independent College, 2011). As of 2011, the various grants and scholarships created by the North Carolina General Assembly can result in up to \$5,000 a year in financial aid for a qualifying LSES student, beyond state tuition subsidies. This amount acts to cushion the higher price of private college. For middle and upper-income families, on the one hand, the NCLTG

acts an economic incentive to enroll. On the other hand, the NCLTG, NCLS, and SCSF aid allows LSES families, who would normally reject private education because of its costs, to consider private enrollment as a viable option.

Key Higher Education Policies

In March of 1986, the UNC System Board of Governors set a universal limit of 18% on the number of out-of-state students (including international students and scholar athletes) that could be admitted to a UNC institution (Morphis, 2002). Rising postsecondary costs elsewhere in the country made UNC system institutions a bargain by comparison, even given the higher tuition set for out-of-state students. Fearing General Assembly intervention when out-of-state enrollment exceeded 15% at five of the system's universities in 1985, William Friday, the President of the UNC System, called for the 18% cap (Morphis, 2002). As of 1994, public institutions that exceeded the 18% limit for two consecutive years would be subject to budget reduction penalties, \$7,000 per instance (Morphis, 2002; The UNC Policy Manual, 2007). Although the fine may seem menial, the negative attention that institutions receive when fined may be more harmful, resulting in angry calls to institutions and legislatures. In 2011, UNC-Chapel Hill was fined by the UNC System for exceeding the "18% rule" for two consecutive years, amounting to \$158,000 budget cut (Martinez, 2011).

In many ways, the 18% rule reflects the Populist ideals of the 1890's related to higher education access. John Sanders, former Vice President of the UNC System discusses popular opinion of the policy:

While a member of the Chapel Hill faculty would start with the question, "Why do we have any out-of-state limitation?" the typical taxpayer and the typical

legislator would start with the question, "Why do we have any out-of-state students at all?" ...If we're putting several thousand dollars a year into the education of each student, including some thousands in the education out of state students, then that's a benefit that maybe ought to be restricted to home folks so long as there is enough demand for it. (as cited in Morphis, 2002, p. 4)

Another former member of the UNC Board Governors stated "The feeling is, if you allow out-of-state students to come to school at UNC, you're really depriving the in-state student of being able to go to an in-state school" (Morphis, 2002, p. 3). In recent years, leaders of the state's two flagship universities UNC-Chapel Hill and NC State have argued that the cap should be lifted for their institutions, positing that the state's postsecondary access mission can be carried on by the remaining 14 institutions. Yet, their campaign has meet resistance by state legislators who have advocated that the 18% cap be made state law (North Carolina House Bill 1527, 2003; North Carolina House Bill 256, 2009). The UNC flagship institutions would prefer to enroll greater numbers of out-of-state students to compete for greater national prestige, but have little room for argument in the need to enroll additional out-of-state students to make-up for lost or potential revenue, public institutions in North Carolina received state funding that resulted in a 2008-2009 subsidies that exceeded the national average by 31% (IPEDS, 2011).

Three years after establishing the 18% rule for public institutions, the UNC System developed another policy that would affect higher and secondary education in the state. In 1986 the University of North Carolina Board of Governors established uniform minimum admissions standards for all 16 public universities; the policy went into effect

for the incoming fall cohort of 1990 (The University of North Carolina, 2011). The first set of requirements focused on total high school units in English, science, and mathematics, specifically requiring students to complete Algebra II prior to admission, a major barrier for many LSES students. In 2004, two years of a second language became a requirement, followed in 2006 by a fourth unit in mathematics, such as trigonometry, pre-calculus, or statistics (The University of North Carolina, 2011). Students were required to submit standardized test scores for the first-time by the UNC System in 2006, but admissions minimums were not set until 2009 when students needed a minimum score of 700 (Critical Reading + Math) on the Scholastic Achievement Test (SAT) or a score of 15 on the American College Testing - ACT (UNC Board of Governors, 2011). By the fall of 2013, students entering the system will be required to score a minimum of 800 on the SAT or 17 on the ACT (The University of North Carolina, 2011). Although these scores may seem relatively low, the mechanics of preparing, registering, and paying for the SAT can be a major hurdle for LSES students and their families (Hahn & Price, 2008).

With the establishment of uniform minimum admissions standards by the UNC Board of Governors, the North Carolina State Board of Education, which oversees K-12 education, aligned its curriculum and revised its requirements for high school graduation. These revisions included the creation of three courses of study (tracks) for entering 9th graders, only one of which (*College/University Prep*) meets the minimum requirements of the UNC System (The University of North Carolina, 2011). From 2000 to 2009, these tracks were designated as *Career Prep*, *College Tech Prep*, and *College/University Prep* (North Carolina Standard Course of Study: K-12, 2010). Students who were assigned to

the *College Tech Prep* track could take three additional courses, as electives, in language and mathematics to enroll in the UNC system. In 2009, the North Carolina State Board of Education collapsed the three tracks into one, designated the *Future-Ready Core* (North Carolina Standard Course of Study: K-12, 2010). However, the new combined curriculum does not require a second language or the advanced mathematics courses required by the UNC System. Although, in name, the new curriculum track seems like a shift from the old three track curriculum system (Career Prep, College Tech Prep, and College/University Prep), the basic mechanics remain and ultimately result in the same academic barriers for LSES students. For instance, four units of math are now required for students beginning high school as of 2009, however, algebra I, algebra II, and geometry can be substituted with intermediate, general, level math courses. The challenging, upper-level, course work required by the UNC System remains optional.

Policy Implications

In summarizing the higher education policy levers in North Carolina, three major implications emerge regarding LSES students and the state's public and private four-year institutions: affordability, right of access, and the blending of the public and private institutions. These implications are aligned with the North Carolina postsecondary values of the public good of state support for higher education, support for access to higher education, and economic prosperity.

Affordability.

In 2009, North Carolina ranked 4th in higher education spending per capita, well above the national average (\$410, U.S. average \$277) (Rodewald, 2009). The establishment of the 18% out-of-state enrollment rule demonstrated the will of the UNC

Board of Governors to protect that level of public funding in 1980's. Since then, the state's dedication to affordability has been maintained and has become rooted as a public expectation, if not an entitlement. Affordability extends to private universities in North Carolina as well. Public support for the state's private institutions in the 1970's resulted in lower tuition costs for in-state students to private universities, saving some of these institutions from closure. State rationale for supporting the privates originally centered on saving many of the institutions from closure, but now the sector is critical to four-year institutional capacity in the state, especially regarding the LSES population in the state. It is unclear if assisting private institutions during the 1970's was seen as a logistical advantage, in any form, for the state.

Right of Access.

Low tuition and the capping of out-of-state enrollment in North Carolina created an environment in which attending a public university is an attainable goal for many in-state students. However, the minimum admission standards imposed across the UNC System creates a major impasse that may be difficult for LSES students to overcome due to the current structure within North Carolina secondary education that results in many LSES not meeting admission requirements. The curriculum tracks at the secondary level, created to coordinate with the UNC System standards result in fewer LSES students having the option to matriculate in one of the state public institutions. Mickelson and Everett (2008) found that the North Carolina curriculum tracks worked to widen the academic achievement gap between LSES students and their upper income peers, and that practice was at odds with state initiatives focused on accountability and student success. Additionally, LSES students in North Carolina high schools were often

encouraged to “choose” the less academically rigorous tracks, limiting their ability to enroll high-level math courses (Kelly, 2007) and ultimately making them ineligible for admission to a public institution in the UNC System. In an 2008 ethnographic study of North Carolina high school classrooms, Watanabe (2008) discovered that curricular tracks were amplified by high stakes testing, allowing administrators and teachers to focus test preparation resources on LSES students, while upper-income students were “engaged in more substantive work” (p. 528). The outcome was that emphasis was placed on standardized test results reflecting the teachers, administrators, and the schools, not on efforts to push individual students to aspire academically (Watanabe, 2008).

The Blending of Private and Public Institutions in North Carolina.

This review highlights how North Carolina has entered into a special relationship with its private, nonprofit, institutions. The significant state financial support for private (independent) colleges, through grant based aid, compounded with UNC System policies have created a stewardship of non-elite private institutions by the state of North Carolina, where by intention or not, that transcends mere regulatory oversight. Indeed, the loss of the funding associated with NCSF and NCLTG could be disastrous for private institutions, who have now constructed their financial models around receiving state aid. Tuition-driven private institutions immediately incorporate this state revenue in their operating costs and balance sheets. Kerr (1990) wrote that there are advantages to such a “mixed system” of public-private higher education, which include institutional diversity, institutional focus on surrounding communities, and most importantly, “quick adaptation to labor market demands” (p. 16). Challenges to the model include the erratic influence of student opinion, alumni influence, and denominational support, and the delineation of

the academic mission of the institution (Kerr, 1990). I argue that such a mixed system exists within North Carolina, and that higher education policy in North Carolina is in a state of flux to meet the demands of its constituents (families, alumni, industry, and institutions themselves) as well as the realities of a nationwide economic recession.

Policy Summary.

The mixed system of public support for higher education allows the UNC System to set high academic standards for all 16 public universities. Students who do not meet these standards and want a four-year college education have the option to attend a community college and transfer to a four-year public university or attend one of the less selective private institutions that does not have similar admission requirements. With each in-state student enrolled, private institutions can receive up to \$5,000 in state aid (this includes \$1,500 dollars for LSES students). If a private institution enrolled 500 in-state LSES students it would earn over \$2,500,000 in revenue each year. Of note, however, the total amount of state support does not cover the total cost of attendance. The gap between state aid and the higher price of a private is often covered by institutional aid and loans. During the 2007-2008 academic year students at private North Carolina institutions received an average (per capita) of \$6,239 dollars in institutional aid, compared to an average of \$712 at publics (IPEDS, 2011). In that same year, students attending North Carolina private institutions took out \$3,006 in loans, compared to \$1,389 in loans to attend a public university (IPEDS, 2011). Total average grant aid at privates totaled \$8,530 and \$2,363 at publics, demonstrating the impact of the state grants (IPEDS, 2011). For the population of LSES students attending private institutions within the state, the opportunity costs of accruing additional debt outweighed

not enrolling at all, despite the significant difference in average in-state tuition price between public and private sectors, \$3,125 and \$21,891 (IPEDS, 2011). These figures are based on sector averages, institutional aid and loans shift by institution. Still, the comparison offers an important perspective on the role of public support at private institutions in North Carolina.

Although many of the laws enacted by the General Assembly were intended to create access to and affordability of public universities and safeguard the operation of the privates, the legacy of the mixed system may be that less-selective private institutions may have become the default point of access for many LSES North Carolina residents. The purpose of this study is to examine the effect of state policies, through institutional characteristics at North Carolina four-year public and private colleges and universities on LSES student enrollment over time.

North Carolina Institutional Behaviors

Institutional behaviors are at the “heart” of the theoretical framework. The previous sections of the literature review discussed how North Carolina history and culture contributed to the development of modern-day state postsecondary policies that were created to ensure access and affordability of higher education to its citizenry. This section focuses on how state policies are implemented at the institutional level. Furthermore, this section “sets the stage” for the analysis of the hypothesis and the research questions by describing areas within institutional and state control that can be measured and placed under scrutiny.

This study used data from the National Center for Education Statistics for its analysis. Using national datasets to better understand LSES enrollment patterns within a

given state limits researchers to one source, the Integrated Postsecondary Education Data System (IPEDS). Researchers have other options to collect institutional and state level data. However, collecting data from individual institutions and state agencies increases the opportunity for error. Since individual private and public institutions in North Carolina are required to report data directly to the NCES, it makes logical sense to use IPEDS as the primary source for the dataset. Public and private postsecondary institutions receiving federal funds are required to submit information such as institutional finances, faculty and staff salaries, financial aid allocations, student enrollment and retention data several times a year. These data are very helpful in understanding how individual institutions within a state, like North Carolina, enroll and finance the education of LSES students.

However, the majority of IPEDS data that focuses on student demographic data do so only at the point of enrollment. Therefore, using IPEDS limits this study to variables collected at the point of enrollment at the various institutions in North Carolina. Other National Center for Education Statistics (NCES) sample surveys, such as the National Education Longitudinal Study (NELS), National Postsecondary Student Aid Study (NPSAS), and High School Longitudinal Study (HSLs) follow individual students throughout their secondary and postsecondary educational timeline, allowing for researchers to examine factors such as secondary grades, course of study, co-curricular involvement, and parental support. Yet, these national sample surveys are on the aggregate and do not allow researchers to track student data linking secondary and postsecondary matriculation in any one state or any one institution.

The IPEDS dataset allowed for institutional variables to be easily accessed from one resource. This section discusses the relationship between LSES student enrollment (the dependent variable of the analysis) and institutional behaviors (the independent variables of the analysis). Although this study only analyzed LSES students at the point of enrollment, it is important to discuss the challenges that LSES students and their families face concerning access to higher education. The majority of this section discusses institutional behaviors, characteristics that contribute to LSES student enrollment, and how they are influenced by North Carolina postsecondary policies.

Policy Implementation at the Institutional Level

North Carolina postsecondary policies are administered at the institutional level. It is not until a student has applied to and been admitted to a college that he or she receives state aid. Once an admission offer is made, students must decide which college to attend, weighing a number of factors such as the total cost of attendance, how much they will have to pay out-of-pocket, institutional characteristics, program connections to the job market, etc. The financial aid package that an institution offers can be an important driver in that decision-making process, becoming increasingly important depending on a family's income level. Due to the proprietary nature of recruitment strategies, it is unclear what admission and recruitment strategies public and private institutions undertake in North Carolina and how these strategies result in student institutional choice. Institutions spend significant amounts of money each year on third party agencies and consultants to develop individualized branding and recruitment strategies that are designed to attract the optimal student (Stevens, 2007). Therefore, these plans are often closely guarded. However, research has demonstrated that students' perception

of costs, the type of financial aid that is offered, and level of institutional selectivity have a powerful impact on LSES student enrollment (Ehrenberg, 2006; Gladieux & Swail, 1999; Haverman & Smeeding, 2006; Stampen & Layzell, 1997).

Institutional Price and Perceived Costs.

The quotes from *The Andy Griffith Show* episode that served as an introduction to chapter 2 are as relevant today in North Carolina as they were in the 1960's. The perceived cost of higher education continues to be a barrier to higher education for students and their families who do not believe that college is affordable. Institutional price and perceived costs of higher education represent an important point of convergence, where LSES students and their families begin to align with institutional characteristics and state policy implementation. Even though research shows that financial aid is not the lone motivator for college enrollment, others have found low tuition and grant aid were tipping points for LSES student enrollment decisions (Gladieux & Swail, 1999; Stampen & Layzell, 1997). During the 1970's, the average tuition in real dollars at public and private institutions across the nation dropped due to the recession and accompanying inflation (Heller, 1997). During the 1980's, private school tuition rose sharply as inflation declined and public subsidies controlled for increases at state institutions; it would later stabilize in the 1990's (Heller, 1997). Without significant government subsidies, private tuition increased at a higher rate than at public institutions. For many small private institutions, without large endowments, large portions of tuition revenue went directly to operating expenses such as faculty and staff salaries, physical plant, and institutional grants and scholarships. In order to stay competitive or relative within a given region, tuition dependent privates had to raise funds via tuition in order to

build new facilities and recruit students, whereas public institutions received direct and indirect funds from the state that did not have to be recovered from tuition. Although public tuition began to rise again in the 1990's, there was a significant price difference between public and private institutions nationwide (Heller, 1997). During this same period federal grant aid began to decline, shifting more of the burden of higher costs on to students and their families who paid out-of-pocket or through student and parent loans (Johnstone, 2001).

In summarizing studies of postsecondary pricing and aid Bowen, Chingos, and McPherson (2009) found that tuition costs and the ways that institutions go about delivering financial aid to students have a significant impact on student matriculation and persistence. LSES students are sensitive to high tuition prices (Heller, 1997; Leslie & Brinkman, 1987; St. John, 1990). Incremental changes, even at the \$100 level, can lead to significant declines in LSES enrollment (Heller, 1997; Leslie & Brinkman, 1987; St. John, 1990). With the average private tuition \$13,000 higher than public college tuition, the published costs of private institutions initially deters LSES students (Ehrenberg, 2006).

Perceived costs of higher education directly affect the types of institutions in which LSES students enroll (Heller, 1997; Leslie & Brinkman, 1987; St. John, 1990). Berkner and Chavez (1997) found that family income and parental education impact national LSES enrollment in private institutions, however, if LSES students meet minimum admissions requirements, there was no significant difference in whether they enrolled in a public or private institution. This pattern suggests family concerns over costs can be overcome by academic preparation and college-going assistance. It is clear

that postsecondary policies by the UNC System and subsequent policies created by North Carolina Board of Education affect academic preparation because of the curriculum tracking that has, and may continue, to occur in the K-12 setting. This tracking influences the ability of LSES students to reach required state minimums.

What is unclear is if any efforts are made at the secondary level to direct LSES students that fall below these standards to private colleges in the state, in particular by educating parents and students about the availability of state funds that can dramatically lower the cost of a private postsecondary education. For these underprepared students, it is unlikely they are receiving this information. Venezia and Kirst (2005) found that a majority of high school students believed college counseling through their guidance office was only for students enrolled in honors classes, and college-going information could only be obtained by that designated staff member in the school. Students enrolled outside of the highest academic track in their high school believed that they would have to be “stellar athletes or students to receive any financial aid,” and meeting the minimum academic standards for high school graduation would help “prepare them for college” (Venezia & Kirst, 2005, p. 300). If a LSES family believes that their only affordable option for a four-year college education is through a state university, and their student does not qualify, it may mean the end of matriculation discussions in that family.

Perceived costs represent the first major hurdle that many LSES students and their parents interact during the college-going process. Although state support is available for LSES students, cultural and systemic forces make access to that information difficult. The same high school curriculum tracking that affects LSES students meeting UNC

System minimum requirements also affects students' perceptions of who has access to college-going assistance and information.

State Financial Aid.

Since the 1970's, federal need based aid, such as the Pell grant program, declined in nominal dollars and has not kept pace with the rising costs at public and private colleges and universities. Exacerbating this situation are declines in wages of LSES families (Heller, 1999; McSwain, 2008). The decline in grant aid has shifted the financial burden of paying for college onto students and families in the form of private loans, and required colleges to provide additional institutional aid (Paulson & St. John, 2002).

Student enrollment patterns in public and private institutions can affect how a state allocates aid. If a large segment of students are enrolling in high-priced private institutions, state legislators may advocate for need-based aid to help LSES students, but not merit-based aid to help upper-income students (Doyle, 2010a). Indeed, North Carolina offers two tuition subsidies (NCLTG and the NCLS) targeting LSES for private school attendance, that are not related to academic merit, but simply to matriculation within the state, and one need-based grant (SCSF) for in-state students attending private colleges.

Doyle (2010a) found that non-need based merit aid had increased incrementally over a period of time and was not a result of a dramatic shift in state policies. In 1980, need-based state financial aid accounted for 90% of all state support. The introduction of state non-need based merit aid programs in 1984 resulted in a slight decline by 2005 in state funding to support need based aid to 80% (Doyle, 2010b). Because LSES students

are so dependent on financial aid to attend college, even this slight aversion of funding away from need and toward merit impacted college going decisions by these students (College Board, 2011c). Again, even small incremental changes at the \$100 level, can impact a LSES student or family's decision to begin the college-going process (Heller, 1997; Leslie & Brinkman, 1987; St. John, 1990). Need based aid is still available and has not declined to a level that has tipped the scale of popular and/or political concern, even with a dramatic increase of 5 million Pell recipients from 2000 to 2012 (College Board, 2011c). What is clear, however, is the shift in need based dollars to students without need. Need based aid is not growing at the same rate as non-need based merit aid which increased 47%, and 212%, respectively, from 1995 to 2004 (Heller, 2006). As those non-need aid dollars become entitlements for middle and upper-income students, it is not clear if states will ever revert this funding back to students with need.

North Carolina state aid has defied national trends outlined above as the state has reduced in-state non-need based merit aid and increased need based aid (Doyle, 2010b). This could reflect enrollment trends at private and public institutions in the state. Both LSES and upper-income students qualify for the NCLTG. If non-need based aid is decreasing in North Carolina, it could result in fewer upper-income students attending private universities. Instead, these non-need students are being attracted to more selective public institutions with lower tuition and grant aid fueled by in-direct state subsidies and endowment funds. Doyle's (2010a) findings correspond with Curs and Dar (2011) who found that as states increased merit based aid, tuition prices at both public and private universities decreased. Although North Carolina residents complain about current public university tuition increases, the cost for higher education in the state

remains among the lowest in the nation. Thus, even though tuition has increased at North Carolina public institutions, non-need based grant aid and additional state fund help to offset the difference, in effect aligning with the pattern noted by Curs and Dar (2011). Since the mid-1990's, states have followed Georgia in establishing lottery funded non-need based merit aid programs as the cornerstone of their postsecondary aid policy. North Carolina's funding structure preceded these programs by two decades, but is funded by the state versus any special revenue source. The result is low tuition at public universities and grants that follow in-state students to private institutions.

Arguably, access to the UNC System and its low costs are linked to academic merit through curricular tracking within the state's high schools. The universal minimum requirements for admission created by the UNC Board of Governors during the period of time for this study (2002-2009) create an academic barrier that many LSES students cannot overcome due to curricular tracking that occurred in North Carolina high schools at the time in question. It is important to note that the secondary academic achievement gap is not unique to North Carolina. Caberra and La Nasa (2001) discovered that national minimum college qualifications were being reached by only 29% of all LSES students compared to 80% of their high-income peers. If this held true in North Carolina, the remaining 61% of all LSES students in Cabrerria and La Nasa's (2001) cohort who wanted to pursue higher education would be limited to four-year, nonprofit, private institutions, community college, and proprietary institutions. For private institutions in North Carolina, the higher price tag, results in deterring LSES students from applying and those who do enroll will take out an average of \$1,400 more in loans than their public institution peers (IPEDS, 2011). North Carolina's postsecondary policies could be

forcing LSES students to incur higher out-of-pocket expenses for a four-year college education at privates, as opposed to higher-income students who receive a higher rate of subsidy and pay less at public institutions.

Institutional Financial Aid.

Exceeding federal and state support, institutional grants have become the largest funding source for student aid (Doyle, 2010b). But, this does not hold true for the 36 private institutions in North Carolina, where institutional aid trails federal financial aid, such as the Pell grant, by 15.3% (NCICU, 2010). Such a difference could be due to federal research dollars at larger public and private institutions. State support for North Carolina private institutions during 2008-2009 year was \$117 million, as opposed to \$391 million in institutional aid (NCICU, 2010). The power of institutional aid is one the driving forces behind this study's hypothesis; namely, can public and private institutions act independently in ways that subvert public policies that have been designed to promote college access among LSES families? Public institutions could be using institutional aid to attract highly qualified students, resulting in smaller populations of LSES students on-campus. Private institutions could be increasing tuition to compensate for increasing LSES student enrollment, in order to create more institutional aid dollars that could be used to either assist LSES students or recruit highly qualified students. In either case, high levels of state aid, whether through direct subsidies or grants, contributes to the increased ability of publics and privates to use institutional tuition and endowment dollars to meet institutional goals. The power of these funds varies by institution, yet, public institutions in North Carolina have a decided advantage, in that their high-levels of direct

state appropriations allow them to have more options with tuition and endowment revenue than tuition-driven privates.

The aid package that an institution assembles (combined federal, state, and institutional aid) can have dramatic outcomes on enrollment. For LSES students, receiving enough institutional grant aid to cover perceived expenses can be the difference in matriculating to college overall (Berkner & Chavev, 1997). For highly sought after upper-income students, institutional grant aid could mean the difference in choosing one institution over its competitor(s) (Ehrenberg, 2000). If the desired effect of legislation adopted by the North Carolina General Assembly (Article IX, creation of NCSEAA, in-state private institutional grants) and the policies developed by the UNC Board of Governors (18% rule) is to sustain and protect postsecondary access and affordability, it is critical to understanding how institutional aid is being used to either support, counteract, or take advantage of those efforts.

As overall public subsidies have declined, dependence on the growth of endowments at public institutions has increased (Ehrenberg, 2006; Haverman & Smeeding, 2006). In a national study, Kerr (1990) found that as much as 30% of institutional grant aid from public universities were funds from endowments, he concluded that these monies should be considered as private funding, not public aid. In all, Kerr (1990) found that private money, and public money treated as private money, accounted for 51% of all public institution revenues, in contrast to private institutions where 98% or revenues were treated as private money. While Kerr's (1990) findings confirm suspicions of the potential spending power of UNC System institutions, the 98% of funds treated as private revenue contrasts with the amount of state aid many private

institutions receive in North Carolina. North Carolina postsecondary policies allow highly subsidized public institutions to treat more dollars that are gained through tuition increases and fundraising as private dollars. In a state, where out-of-state student enrollment is capped at 18%, these additional monies at publics create more leveraging opportunities within a marketplace where many students chose to remain in-state for college. For tuition-driven privates, in-direct state grants actually act as public subsidies, helping to restrain tuition costs and allowing for less institutional autonomy within the marketplace. Kerr's (1990) work was based on national averages of funding sources across institutional sectors. I contend that when those averages are broken down within institutional sectors within North Carolina, it will expose a range of variability among public and private funding sources. More specifically, it will point to extremely wealthy public and private institutions inflating the averages across both sectors.

How institutions raise money for and manage their endowment can have an impact on their ability to spend additional institutional dollars on need based or non-need based financial aid. Private institutions have always had independent control of their spending and endowments. In North Carolina, the endowment and trusts funds of the UNC System are controlled by the UNC Board of Governors and the chancellors of each public university are given the authority to manage "special" funds collected and administered by that institution (North Carolina General Statutes, 116-32.2). In comparing public institution enrollment and institutional aid, during the 2008-2009 academic year, students in the freshmen cohort at NC State (N = 4,792) received an average \$4,459 in institutional aid, whereas students at East Carolina University (N = 4,522) received an average \$3,425 in institutional aid, a 28% difference in allocation for

only a 5.8% difference in population (IPEDS, 2011). Table 2 offers a comparison of enrollment and institutional aid at public and private institutions.

Table 2

Comparison of Institutional Aid at North Carolina Public and Private Institutions with Similar Freshmen Enrollment During the 2008-2009 Academic Year

Public Institutions			
	NC State University	East Carolina University	Difference
Freshmen Enrollment	4,792	4,522	5.8%
Total Institutional aid Awarded to Freshmen	\$4,459	\$3,425	26.2%
Private Institutions			
	Wake Forest University	Elon University	Difference
Freshmen Enrollment	1199	1291	7.8%
Total Institutional aid Awarded to Freshmen	\$21,848	\$7,556	97.2%

Note. Data compiled from IPEDS (2011)

Considering institutional aid award and the percentage of Pell recipients in that same academic year, students in the freshmen cohort at UNC-Chapel Hill received an average of \$6,729 (the maximum of the range) each in institutional aid, whereas students at Fayetteville State University received \$734 (the minimum of the range) each, a 160%

difference (IPEDS, 2011). UNC-Chapel Hill's endowment at the beginning of the 2008-2009 academic year was \$2.3 billion, compared to Fayetteville State's \$12.5 million (IPEDS, 2011). UNC-Chapel Hill's 2008-2009 freshmen cohort was made up of only 13% of students receiving Pell grants (a proxy for LSES), compared to Fayetteville State's freshmen cohort of 70% Pell recipients (IPEDS, 2011). UNC System institutions with larger endowments (UNC-Chapel Hill, NC State) can use endowment revenue to increase institutional aid and compete for the most highly academically qualified students.

Private institutions follow the same patterns regarding endowment assets and institutional aid. Regarding enrollment and institutional aid, in 2008-2009 students in the freshmen cohort at Wake Forest University (N = 1199) received an average of \$21,848 institutional aid, compared to the freshmen cohort at Elon University (N = 1291) that received an average of \$7,556 in aid, a 97% difference, with only a 7.8% difference in population (IPEDS, 2011). In comparing the amount of institutional aid award and the percentage of Pell recipients in the freshmen cohort, students at Duke University received an average of \$29,712 (the maximum of the range) each in institutional aid, whereas students at Livingstone College received an average of \$2,701 (the minimum of the range) each in institutional aid, a 166% difference (IPEDS, 2011). Duke University's endowment at the beginning of 2008-2009 academic year was \$6.1 billion dollars, in contrast to Livingstone College's endowment of \$1.3 million (IPEDS, 2011). Pell grant recipients only made up 9% of Duke's freshmen cohort, compared to 71% of Pell recipients enrolling at Livingstone (IPEDS, 2011). There is a clear relationship in institutional wealth, whether public or private, and institutional grant aid. As institutional

grant aid increases, the number of Pell recipients (LSES students) decreases. This comparison also demonstrates that the largest amounts of institutional aid at the wealthiest public (UNC-Chapel Hill, \$6,729) and private (Duke, \$29,712) institutions is awarded to students without need. Table 3 offers a comparison the maximum and minimum of the range of Pell recipients, endowment, and an average institutional aid received per student at public and private institutions.

Table 3

Comparison of Maximum and Minimum Range of Pell Recipients, Average Institutional Aid Award, and Total Endowment Assets During the 2008-2009 Academic Year.

Public Institutions			
	UNC-Chapel Hill	Fayetteville State	Difference
Percentage of Pell Recipients in Freshman Class	13%	70%	137%
Average Institutional Aid Award	\$6,729	\$734	160%
Total Endowment	\$2,300,000,000	\$12,500,000	198%
Private Institutions			
	Duke University	Livingstone College	Difference
Percentage of Pell Recipients in Freshman Class	9%	71%	155%
Average Institutional Aid Award	\$29,712	\$2,701	166%
Total Endowment	6,100,000,000	\$1,300,000	200%

Note. Data compiled from IPEDS (2011)

Paulson (1990) helped to define the current context of the higher education marketplace, where student choice drives enrollment strategies of individual colleges and universities. The ways in which colleges and universities use institutional aid allows one to examine the interaction of public policy and institutional autonomy. Here, public policy refers to postsecondary legislation passed in the General Assembly and policies developed by the UNC Board of Governors.

The UNC System institutions receive a higher level of state subsidy, plus additional financial aid dollars for LSES students from the state and federal government. System institutions must follow strict guidelines relating to total enrollment, tuition, and program offerings. Private institutions in North Carolina receive no automatic state subsidy, but have far more authority to regulate their own tuition, enrollment, and programs. However, tuition driven private institutions in North Carolina, with high levels of LSES students and state aid, may be quasi governed by the state, with state grants influencing institutions behavior concerning tuition cost and enrollment.

Even with the high level of state support for public universities, by enrolling in-state students, and in-state students with need, North Carolina private institutions receive additional monies to subsidize their higher tuition costs. The policy incentives to enroll LSES, in-state, students may impact the decision-making of privates, especially those without large endowments. The amount of state grant funding available to private universities when enrolling a LSES student may compensate for the students' lack of ability to pay the published tuition rate, but would result in the private having to subsidize the student with additional institutional aid to cover total costs. If the same institution enrolled a high-income student, state grant aid would be less, but the institution may use

additional institutional aid dollars to entice the student to enroll. This of course, depends on the amount of institutional aid that can be awarded at a private institution for any given year. For private colleges, institutional aid is both a tool to sustain students, through covering the LSES student aid gap between federal, state, and other grants and student out-of-pocket expenses (loans), and a way to incentivize highly qualified students to enroll. For public universities in North Carolina, institutional aid works in similar ways, except state institutional subsidies allow for UNC System universities to leverage similar effects with less institutional aid. If state grant aid is not sufficient at privates, and institutional aid dollars are not regulated at UNC System institutions, state policy levers may have created a mixed system in North Carolina that gives UNC System universities greater leverage in recruiting upper-income, highly qualified students, while simultaneously shifting LSES students to in-state private institutions. I argue that in North Carolina that a number of public and private institutions may be able to use both public and private aid dollars to dis-enroll LSES students. The causation of why institutions would be motivated to turn away from LSES students is discussed in the next section on selectivity.

Institutional Selectivity.

This study presupposes that students have completed the college-going process, through which they have developed or have been introduced to the mentorship and skills necessary for matriculation to a four-year institution. During high school, students are engaged in the “choice” process (Hossler & Gallagher, 1987; Jackson, 1982), making a series of critical decisions regarding what particular institution they will attend. Postsecondary institutions interact with students during the college-choice process

through college fairs, direct recruitment, and varied application processes. Waves of students have inundated public and private institutions since the end of World War II. Yet, demographic changes led to predicted declines in enrollment in the 1980s. As a result, institutions had to develop enrollment strategies that would allow them to survive in a competitive marketplace where students had more postsecondary options.

The choice philosophy was supported by Paulson (1990) who concluded that new enrollment management policies at the institutional level helped colleges avoid the disastrous national postsecondary enrollment decline that was expected in the 1980's. Public and private institutions would have to compete with one another over a shrinking number of students for enrollment. There was not only pressure to admit students to sustain an institution, but also pressure to recruit students who would contribute to an institution's success moving forward. Intentional institutional efforts to recruit minority and historically underrepresented students would not begin until the late 1980's (Bowen & Bok, 1998). The enrollment decline that institutions feared never materialized, but in the lead-up to the forecasted life or death enrollment struggle, institutions developed and began implementation of plans to reinforce their institution's position in the marketplace. The competition for enrollment now focuses on recruiting the most highly-qualified students available in an attempt to increase institutional, prestige, quality, and revenues. Winston (2000) called this competition an "arms race in higher education" where elites and aspirational institutions spend massive amounts of money to compete for a small population of students (p. 15). How this arms race manifests itself in North Carolina is critical to understanding the impact of state policy and LSES enrollment.

Institutional selectivity is directly linked to institutional endowment, price, and aid (Ehrenberg, 2006; Haverman & Smeeding, 2006; Winston, 2000). Because of increased market competition for students, institutional funds have shifted to non-need based financial aid and focused on recruiting middle and upper-income students (Heller, 2002). Ehrenberg (2002) chronicled Cornell's efforts to improve the quality of the institution and the students that it enrolled. Cornell used increased amounts of institutional aid from endowment revenues to recruit high achieving/upper-income academic students, who might have not enrolled in the institution had it not been for the additional grant aid (Ehrenberg, 2002). Ultimately, by changing its aid and enrollment strategies, Cornell was able to raise the institutional prestige of the university by increasing its position in popular collegiate rankings such as *U.S. News and World Report* and *The Princeton Review*, to attract better faculty, and increase overall revenues through increased tuition costs and alumni giving (Ehrenberg, 2002).

It is important to note that Cornell is a unique institution that is partially public, partially private. This mix sectors created both advantages and challenges during its aspiration transition. Cornell's effort to be more selective illustrates the power of endowment revenue. It should stand to reason that Cornell's gain was another institution's loss, in that its increased use of institutional aid attracted a student that might have paid more tuition somewhere else. When an institution like Cornell increases its selectivity, it impacts the ecology of other public and private colleges that are affected by it, in the form of accommodating the less desirable students of the more selective institution. These ripple effects are especially palpable at less-selective private

institutions that need the revenue of upper-income students that can pay full partial tuition to subsidize the costs of LSES students.

North Carolina is not immune to the effects of institutional aspirations based on increasing selectivity and quality. During the 1990's, Keller (2004) documented the aspiration and transition of one of North Carolina's private liberal art colleges, Elon University. Elon wanted to break from its traditional denominational support and recruitment of regional students, and become a highly-selective national liberal arts university by recruiting more affluent students. In what Keller (2004) described as a "quasi-miracle," Elon increased enrollment by 100 students a year beginning in the early 1990's, creating revenues that would usually be generated by the equivalent of a \$25 million endowment (pp. 76-78). Along with increased enrollment, Elon limited tuition discounting and increased its tuition costs to reflect its new prestige (Keller, 2002). Like Cornell, Elon succeed in increasing its institutional selectivity and revenues, resulting in a larger endowment and increased power to attract the best students in the region (Keller, 2002). The effect of Elon's transition on North Carolina's higher education ecology is that LSES students were dis-enrolled. Between 2000 and 2002 Elon reduced its federal grant recipients from 16% to 7%, consistently enrolling fewer, per capita, LSES students than Duke and Wake Forest over the decade (IPEDS, 2012).

Only a small number of private institutions in North Carolina (Davidson, Duke, and Wake Forest) have large endowments that enable them to cover the federal and state revenues that they would lose if they were to no longer participate in LSES financial aid programs. The other group of 32 North Carolina private institutions are dependent on tuition revenues for much of their operating expenses. For example, even though Elon

became more selective during the 2000's, as of 2004, tuition and fees accounted for over 77% of its core revenues, compared to Duke (13%) and Wake Forest (14%) (Gillen & Vedder, 2008). Tuition-driven institutions are dependent on the tuition and aid income of each incoming cohort of entering freshmen to cover the yearly operating costs of the institution. Less-selective private institutions can only hope to attract students who can pay a portion of their tuition without institutional assistance, allowing those funds to be recycled to cover the costs of attendance for needier students (Breneman, 1994; Ehrenberg, 2002).

Although less-selective public universities, enrolling high numbers of LSES students, can depend on state support to cover operating costs, they are not immune from developing institutional aspirations to increase selectivity. Toma (2006) found that less-selective institutions in Georgia used a mixture of similar strategies to recruit high achieving students. Toma (2006) employed Dimaggio and Powell's (1983, 1991) theories of coercive, memetic, and normative isomorphism to explain actions postsecondary institutions undertake relative to the higher education marketplace. Toma (2006) concluded that although institutions work diligently to differentiate themselves from their competitors, actions by all institutions in the sector ultimately make them "more similar to competitors or aspirational institutions" (p. 30).

I argue that Cornell and Elon represent an initial "unorthodox" wave of institutions that were generationally innovative regarding bold institutional moves in the marketplace. Although Cornell's success is not in dispute, it still remains unclear if Elon will fully transition from its enrollment-tuition dependent growth model. Despite this uncertainty, once other institutions become aware of their success, years after the

unorthodox institutions initiated their prestige programs, others raced to model their programs after them. As Toma (2006) suggested, these efforts were mutually unproductive and never resulted in a competitive advantage in the marketplace. Dill (2006) concurred, “rather than this increased competition assuring the public interest in the production of human capital, there is emerging evidence of a market failure in which the increased competition undermines student learning in higher education” (p. 6). What is very clear is that institutions are not fighting to position themselves to increase their LSES student enrollment. Today, both public and private institutions are more likely to approach a LSES student as a distressed asset, than as an opportunity to serve the public good. By setting higher aspirational goals regarding prestige and quality, institutions are stating their intentions to leave LSES students behind.

Institutional Behaviors Conclusions.

Tuition price and state and institutional financial aid play key roles in LSES student enrollment. Institutional financial aid is used to both encourage and provide LSES student access, and to recruit highly sought after students. Public institutions in North Carolina are controlled by the UNC System and have little autonomy regarding state policies. However, endowment revenue at a small number of public universities may allow for incremental changes to an institution’s prestige and selectivity overtime as endowment funds are able to help recruit high-ability students. The majority of private institutions in North Carolina are dependent on tuition revenue and state grant aid. Like public institutions, endowment income, allows a small number of private institutions to supplement aid packages to pursue high achieving, upper-income students from within the state and across the nation. Here, private institutions have an advantage in that there

is no limit to the number of out-of-state students they can recruit, however, that advantage can be limited based on the strength of institutional finances and reputation. The power of institutional endowments pose a challenge to public policies created in North Carolina to ensure access and affordability because they may allow institutions to usurp state higher education goals. The aspirations of institutions cannot be discounted as well. Although this study is not designed to understand the individual plans of institutions in North Carolina, demographic shifts of students within private and public institutions may illustrate institutional trends regarding selectivity.

Summary

As stated in chapter one, Hearn et al. (1996) noted that tuition in North Carolina resists national in-state tuition increase trends, but challenge that those interested in the causation of factors that discourage such tuition increases “across the entire spectrum of states, are left with little evidence” (p. 243). A modified version of Venezia et al’s (2005) contours of governance model highlights the influence of history and culture on the formation of policies that should act to drive state policy at both public and private institutions, resulting in optimal enrollment opportunities for LSES students. This literature review uses this framework to explain the roots of popular public support for higher education in North Carolina that has not only resisted significant increase to public tuition, but also helps explain the state’s unusual level of financial support for its private institutions. The framework has served to explain North Carolina’s unique history and culture that has resulted in growth of public and private higher education in North Carolina. Postsecondary education in the state has been reinforced by a series of popular

policies and legislative mandates concerning access and affordability. In summation, I will briefly discuss each of the three main sections of the framework:

1. *History and Postsecondary Culture in North Carolina.* The roots of postsecondary education were embedded during the colonial period when Presbyterian missionaries, supported by an influx of Scotch-Irish immigrants, founded communities across the state that supported education and democratic values. A generation later during statehood, the founding of the University of North Carolina in 1789, the first public university in the nation, would be used as political vehicle to unify feuding factions in the General Assembly. A century later, during the 1880's, a farmer's cooperative would gain political power throughout the state and eventually grow into a political party that would impact the legislation for two decades. After gaining support for agricultural and tax reforms, the Populist turned their attention toward higher education. The Populist strove to make access to higher education more equitable for the rural poor of the state, and succeeded in creating an agricultural institute and lowering admissions standards at the University of North Carolina. Later in the 1950's, during the decline of North Carolina's economy, business and government leaders, along with the cooperation of public and private universities, developed Research Triangle Park. RTP was a gamble that paid-off economically for both the state and its public and private institutions, in the form of popular and political support for postsecondary policies during the recession of the 1970's through today. These events contributed to culture of postsecondary support in North Carolina that values the public good of

state supported higher education, support for access to higher education first as a public good, and economic prosperity.

2. North Carolina Higher Education Policy Levers. In 1931, the General Assembly consolidated the existing public institutions into a centrally administered system, the University of North Carolina. Today, the UNC System consists of 16 universities with a strong centralized governance system. Many of the policies that affect North Carolina students today began in the 1970's with the ratification of the 1971 state constitution, which called for higher education to be free or a reasonable expense. Additional legislation created grants for students attending the state's 36 private institutions. During the 1980's, the UNC Board of Governors created a series of policies that would have a significant impact on LSES enrollment. The 18% rule, which limited out-of-state enrollment across the UNC System, encouraged the state's best students to remain in-state, while at the same time limited the ability of institutions to use out-of-state students as an additional revenue source. The adoption of minimum admissions requirements across the UNC System immediately resulted in the creation of secondary school curriculum tracking standards by the North Carolina Board of Education. Historic secondary curriculum tracking in North Carolina has resulted in a disproportionate number of LSES students being unable to meet the UNC System minimums, forcing them to other postsecondary options. Efforts to protect postsecondary access and affordability by both the North Carolina General Assembly and the UNC System has resulted in creation of a mixed system, where many tuition driven private

institutions have become dependent on state aid dollars that accompany large numbers of LSES students.

3. North Carolina Institutional Behaviors. For LSES students, price and financial aid are critical factors regarding postsecondary matriculation. For students that do not meet the UNC System minimum admissions standards, and consequently do not have access to the famed low-tuition of UNC institutions, the efforts made by the state's private institutions to recruit and provide adequate financial aid are essential to LSES student access to a four-year university education in North Carolina. Institutional aspirations within the higher education marketplace play a large role in the recruitment and admission of LSES students. Many of the wealthiest public and private institutions in the state have the smallest percentages of LSES students. The mixed, public and private, system that has developed in North Carolina has also resulted in a blurring of public and private funding sources. The power of institutional aid dollars, fueled by endowment revenues, impacts how institutions can compete with one another for the most highly qualified students. How institutions leverage state subsidies and grants, along with other third party funding sources, can determine whether or not an institution can elevate its level of prestige within the market place. Although the wealthiest private institutions can operate without state assistance, the General Assembly and the UNC System retains a great deal of leverage with the wealthiest public institutions. Yet, the power and the legislative intent of the General Assembly may be threatened by the strategic, incremental, use of public and private funds at public institutions to exclude LSES students. The individual actions of public institutions could be intentionally

overlooked, due of the mixed system within the state, and the ability and funding for LSES students to attend private institutions.

State history affects state culture, state culture defines values that go on to influence the development of policies and ultimately, the postsecondary policies in North Carolina are implemented at the institutional level. This theoretical framework provided a tool for analysis regarding effects of these policies on individual institutions and their relationship with LSES student access.

Chapter Three: Methodology

The purpose of this study was to examine the effect of state policies, through institutional characteristics at North Carolina four-year public and private colleges and universities, on LSES student enrollment over time. Although public universities enroll more LSES students, national trends suggest that LSES enrollment percentages are growing at private universities and declining at public institutions (Baum, et al., 2010; Berg, 2010; Perna & Titus, 2004). If North Carolina public and private four-year institutions are following national LSES enrollment trends, it could be a result of the state creating policies, intentional or unintentional, to divert LSES students away from public institutions to private institutions. This study has endeavored to connect that history and culture with modern day policies, and their influence on LSES enrollment at public and private four-year institutions throughout the state.

Research Questions

This study has sought to examine the effect of state policies, through institutional characteristics at North Carolina four-year public and private colleges and universities on LSES student enrollment over time. This research sought to answer the following null hypothesis (H_0): The effect of North Carolina higher education policies has not resulted in a shift in LSES student enrollment from the public university system to the state's private four-year institutions from 2002-2009. The following research questions serve to test the null hypothesis:

1. Is there a difference in LSES student enrollment at North Carolina public and private, nonprofit, four-year institutions?

This question tests the null hypothesis (H_0) by asking if there is an observable difference in LSES enrollment between and within sectors over time. If the null hypothesis is rejected, North Carolina is following national LSES enrollment patterns. If the null hypothesis is accepted it could mean the existence of a publicly supported mixed system in the state.

2. What is the effect of North Carolina state financial aid on LSES student enrollment at public and private institutions in the state?

This question tests the null hypothesis (H_0) by asking if there is a significant relationship between state financial aid (state policy) and LSES enrollment. If the null hypothesis is rejected, it means that state policy interventions effect LSES enrollment in the state. If the null hypothesis is accepted, the results will question the efficiency of policies established by the North Carolina General Assembly and the UNC System to promote access and affordability.

3. What institutional variables contribute to LSES student enrollment at private or public institutions in North Carolina and do these variables change over time?

This question tests the null hypothesis (H_0) by asking if there is a significant relationship between institutional characteristics that fall outside the purview of state policy and LSES enrollment. If the null hypothesis is rejected, state policies can regulate LSES enrollment, controlling for institutional behaviors, particularly at UNC System institutions. If the null hypothesis is accepted, individual institutions can usurp state policy intentions by using state aid dollars to dis-enroll LSES students.

Selection of Quantitative Methodology

Quantitative methodology allows for the examination of natural and social phenomenon through the examination of data (Creswell, 2009). Statistical methods examine how individual or a combination of variables from a given set of data contributes to a particular phenomenon (Kiess & Green, 2010). This study examined relationships between LSES student enrollment and multiple institutional level variables related to state policies and institutional characteristics. Many of the research studies discussed in Chapter 1 and Chapter 2 also employed quantitative methods to examine phenomena related to the development of state policies, factors impacting LSES student matriculation, and institutional characteristics related to marketplace goals. Based on those past lines of inquiry, it is logical to have conducted quantitative analysis.

Study Population and Sample

This study focused on LSES undergraduate enrollment at public and private, nonprofit, four-year institutions operating in the state of North Carolina. The following steps were taken to identify the population sample of this analysis:

1. Institutions were identified through use of the IPEDS Data Center online tool. The online tool allowed for institutions to be limited first by “state or other jurisdiction” (IPEDS, 2011). Here, North Carolina was chosen as the state. Then, institutions were chosen by “sector.” Here, “Public, 4-year and above” and “Private, not-for-profit, 4-year and above” institutions were chosen. The state and sector search resulted in 60 institutions being identified. By sector, the results of the search produced 16 public, nonprofit, four-year institutions, all of which are members of the UNC System, and 44

private, non-profit, four-year institutions. Of the 44 private universities, 36 make-up the membership of the NCICU.

2. A total of 9 private institutions were removed from the sample due to their exclusively vocational ($n = 1$) or religious ($n = 8$) nature. Students pursuing vocational and religious degrees did not qualify for state grant aid during the cohort years analyzed. IPEDS data reported as part of the 2008-2009 academic year was used to eliminate institutions. Small, private, "bible colleges" and seminaries ($n = 8$), most of whom enrolled under 100 students and were non-members of the NCICU were eliminated. The Cabarrus College of Health Sciences, an NCICU member, was eliminated based on its vocational nature, small freshmen cohort (≤ 200), and limited bachelor degree offerings ($n = 5$).
3. The primary focus of this study was to examine the effect of state policies, through institutional characteristics at North Carolina four-year public and private colleges and universities, on LSES student enrollment. Community colleges and proprietary institutions were excluded from the analysis. Community colleges were not included because range of factors, including student enrollment and selectivity. A majority of traditional aged, first-time, students at two-year colleges are not enrolled full-time, nor do they apply for or have access to similar types of student financial aid as students attending four-year institutions (Advisory Committee on Student Financial Assistance, 2010). Proprietary institutions were not included because of several limitations, namely the availability of accurate cohort data and the extreme nature of institutional selectivity. In the future, student-level data systems would allow for consistent analysis of the same populations of students over all levels and sectors.

After institutions were eliminated from the original group, a sample of 49 institutions remained for the analysis with a mix of public ($n = 16$) and private ($n = 33$) universities in the population.

Data Sources

The data used for both the selection of the sample population and the variables that underwent analysis were taken from the Integrated Postsecondary Education Data System (IPEDS). Institutional variables used in this study were downloaded via the internet using the IPEDS Data Center tools. IPEDS is administered by the National Center for Education Statistics (NCES), a division of the U.S. Department of Education. Any institution that receives federal funds, including the disbursement of federal financial aid, is required by federal law to submit requested data to the NCES on a semi-annual basis.

Limitations of the Data

IPEDS data were chosen for the analysis because IPEDS is the only postsecondary data system administered by the federal government that allows for analysis at the state level. Although postsecondary data systems exist at the state level, these systems often focus only on public institutions and then replicate data submitted to IPEDS through online interfaces where data may then be redefined. At the state level, data are often separated by level and sector, making data collection and assimilation difficult, leading to chance of increased errors by the researcher in entering or mislabeling data. Data are also available from individual institutions. However, institutional records also overlap with data submitted to IPEDS and the availability of

online data is inconsistent from institution-to-institution based on human and financial resources. IPEDS allows for reported data with consistently defined variables across levels and sectors to be gathered from one source, thus, reducing the opportunity for error.

Although IPEDS exists as a reliable source for institutional variables to be gathered for research purposes, there are several limitations that were considered. First, the person(s) responsible for submitting federally required data differs from campus-to-campus (Schuh, 2002). For instance, at one institution, the registrar is responsible for gathering and submitting data, while at another, a team of institutional research staff members are responsible for compliance. While the person(s) responsible for data collection varies, IPEDS attempts to control for reporting errors by only allowing one individual, the IPEDS “key holder” to submit data to the system (IPEDS, 2011). Second, variables defined by IPEDS can be too broad and may not allow researchers interested in particular institutional departments, expenditures, and programs to study such phenomenon (Schuh, 2002). Third, IPEDS does not allow for users to engage in complex analysis and comparisons of variables without downloading the data and using sophisticated software such as the Statistical Package for the Social Sciences (SPSS) to analyze the data (Schuh, 2002). Fourth, IPEDS data can vary longitudinally, based on a number of factors, but mainly the influence of current legislation and policies at the federal level, that result in the addition or deletion of items on the annual questionnaire (Barbett, Lawlwy, & Plotczyk, 2011). Therefore, IPEDS users interested in examining phenomena overtime must use proxy variables in conjunction with variables that directly address their questions. In these cases, IPEDS users should consult the IPEDS Data

Dictionary to confirm how variables are defined and seek the assistance of NCES staff members who are expert in the collection and use of IPEDS data (Barbett, Lawlwy, & Plotczyk, 2011). Fifth, finding and utilizing the correct IPEDS variables can be difficult to the untrained user (Schuh, 2002). Again, when gathering data prior to analysis, IPEDS users should consult the Data Dictionary to understand the precise definition of the variable, when and how often it has been collected, and if the variable in question is a composite of other contributing variables (Data Policy Institute, 2011). Finally, before NCES datasets are publicly released, certain variables that could be used to identify individual students are altered in a process called perturbation. Although perturbed data does not represent the “true” figure reported by the institution, it has been recalculated in such a way as not to adversely affect further analysis. Regarding this study, it should be noted that all IPEDS variables concerning financial aid were altered by NCES through the perturbation process.

Description of the Variables

All the variables analyzed in this study were taken from the IPEDS dataset, and are described in detail in Table 5. At the time of this study, the IPEDS variables for the analysis were only available from 2002-2003 to the 2008-2009 academic year. All three research questions examine variables during this seven year time span, focusing specifically on the first-time, full-time, freshmen cohorts during the 2002-2003, 2005-2006, and 2008-2009 academic years. The three interval years were chosen to represent the beginning, interim, and end of the seven year data range available. All variables used in analysis, unless specified as an institutional characteristic, refer to the entering first-time, full-time, freshmen cohort at each institution. See Table 4.

Table 4

Description of the Variables

Variable (Question)	Source/Definition/Calculation
Year (1,2,3)	IPEDS: 2002-2003, 2005-2006, 2008-2009
Institution	IPEDS: Institutional Name & Unit ID
Institutional Sector (1,2,3)	IPEDS: Public and/or Private, Nonprofit, Four-year Institutions
Total Number of Students Receiving Pell Grants/Federal Grant Aid (1,2,3)	IPEDS: Variable available for the 2008-2009 academic year. For the academic years 2002-2003 and 2005-2006 the variable "Total Number of Students Receiving Federal Grant Aid" was used as a proxy. Federal grant aid is defined as grants provided by federal agencies such as the U.S. Department of Education, including Title IV Pell Grants and Supplemental Educational Opportunity Grants (SEOG). (perturbed)
Total Number of Students in Freshmen Cohort (2,3)	IPEDS: A student attending any institution for the first time at the undergraduate level. Includes students enrolled in academic or occupational programs. Also includes students enrolled in the fall term who attended college for the first time in the prior summer term, and students who entered with advanced standing (college credits earned before graduation from high school).
Total Number of In-state Students (2)	IPEDS: First-time, full-time, students whose residence was in North Carolina at the time of enrollment.
Total Number of Out-of-state Students (2)	IPEDS: First-time, full-time, students whose residence was outside of North Carolina at the time of enrollment.
Total Price for In-state Students Living On-campus (2)	IPEDS: Includes in-district tuition and fees, books and supplies, on-campus room and board, and other on campus expenses.
Total Price for Out-of-state Students Living On-campus (2)	IPEDS: Includes out-of-state tuition and fees, books and supplies, on campus room and board, and other on campus expenses.

Table 4 con't

Description of the Variables

State Appropriations (2)	IPEDS: Amounts received by the institution through acts of a state legislative body, except grants and contracts and capital appropriations.
Total Number of Students Receiving State/Local Grant Aid (2)	IPEDS: State and local monies awarded to the institution under state and local student aid programs (perturbed)
Total Number of Students Receiving Institutional Grant Aid (2)	IPEDS: Scholarships and fellowships granted and funded by the institution and/or individual departments within the institution, (i.e., instruction, research, public service) that may contribute indirectly to the enhancement of these programs. Includes scholarships targeted to certain individuals (e.g., based on state of residence, major field of study, athletic team participation) for which the institution designates the recipient. (perturbed)
Total Number of Students Receiving Student Loans (2)	IPEDS: Any monies that must be repaid to the lending institution for which the student is the designated borrower. Includes all Title IV subsidized and unsubsidized loans and all institutionally- and privately-sponsored loans. Does not include PLUS and other loans made directly to parents. (perturbed)
Total Number of Applicants (3)	IPEDS: Applicant is defined as an individual who has fulfilled the institution's requirements to be considered for admission (including payment or waiving of the application fee, if any) and who has been notified of one of the following actions: admission, non-admission, placement on waiting list, or application withdrawn (by applicant or institution).
Total Number of Admissions (3)	IPEDS: Applicants that have been granted an official offer to enroll in a college or university.
Total Applicant Yield (3)	IPEDS: Variable available for 2008-2009 academic year. Calculated: Variable calculated for the 2002-2003 and 2005-2006 academic years. (total number of applicants ÷ total number of admissions)

Table 4 con't

<u>Description of the Variables</u>	
Total Number of Students Enrolled (3)	IPEDS: All full-time, first-time, students, including early decision and early action enrollees.
Total Number of Students Submitting SAT Scores (3)	IPEDS: Institutions are only required to submit data to NCES if SAT test scores are required for admission and 60 percent or more of the enrolled students submitted scores.
SAT Math 25th Percentile Score (3)	IPEDS: Institutions are only required to submit data to NCES if SAT test scores are required for admission and 60 percent or more of the enrolled students submitted scores, including test scores at the 25th and 75th percentiles.
SAT Math 75th Percentile Score (3)	IPEDS: Institutions are only required to submit data to NCES if SAT test scores are required for admission and 60 percent or more of the enrolled students submitted scores, including test scores at the 25th and 75th percentiles.
Institutional Endowment Value (3)	IPEDS: Value of endowment assets at the beginning of the fiscal year. Endowment assets consist of gross investments of endowment funds, term endowment funds, and funds functioning as endowment for the institution and any of its foundations and other affiliated organizations.
Contributions from Affiliated Organizations (3)	IPEDS: Gifts, including contributions from affiliated organizations are revenues from private donors for which no legal consideration is provided. It includes all gifts or contributions to the institution except those classified as additions to permanent endowments or capital grants and gifts.

Table 4 con't

Description of the Variables

Revenue from Tuition and Fees (3)	IPEDS: Tuition and fees are revenues from all tuition and fees assessed against students (net of refunds and discounts & allowances) for educational purposes. If tuition or fees are remitted to the state as an offset to the state appropriation, the total of such tuition or fees should be deducted from the total state appropriation and added to the total for tuition and fees. If an all-inclusive charge is made for tuition, board, room, and other services, a reasonable distribution is made between revenues for tuition and fees and revenues for auxiliary enterprises. Tuition and fees excludes charges for room, board, and other services rendered by auxiliary enterprises.
Average Amount of Institutional Grant Aid Received (3)	IPEDS: Average amount of institutional grants (scholarships/fellowships) received by full-time, first-time degree/certificate-seeking undergraduate students. (perturbed)

Note: Adapted from IPEDS (2011)

Question 1 considered only one variable, the number of entering students receiving the Pell grant. Question 2 considered ten variables: the number of students receiving the Pell grant (dependent), and the total number of students in cohort, total number of out-of-state students in cohort, total price for in-state students living on-campus, total price for out-of-state student living on-campus, state appropriations, number of students receiving state/local grant aid, total number of students receiving institutional grant aid, total number of students receiving student loans, and institutional sector (independent). Question 3 considered 13 variables: the number of students receiving the Pell grant (dependent), total number of applicants, total number of admissions, total applicant yield, total number of students enrolled, number of students

submitting SAT scores, institution's SAT 25th percentile math score, institution's SAT 75th percentile math score, revenue from tuition and fees, value of institution's endowment at the beginning of the fiscal year, total institutional revenues and investment return, contributions to the institution from affiliated entities, total amount of institutional grant aid awarded to freshmen students, and institutional sector (independent).

There were two alterations of the data made prior to the analysis that resulted in variables being either created or substituted. First, one variable was calculated for the analysis, "Admissions yield – total." The admissions yield variable was available only for the 2008-2009 academic year. For the other two academic years considered in the analysis, 2002-2003 and 2005-2006, the yield variable was calculated by dividing the total number of accepted students by the total number of applicants at each institution. Second, a similar issue arose regarding the dependent variable, total number of first-time, full-time, students in the fall cohort receiving Pell grants, for the 2002-2003 and 2005-2006 academic years. In this case, the variable, total number of first-time, full-time, students in the fall cohort receiving any federal grants was substituted for all three cohort years. In comparing the Pell and federal grant variables during the 2008-2009 academic year, there was only a 1% to 4% difference between the two variables. Therefore, total number of students receiving federal grant aid was used as a proxy variable for total number of Pell grant recipients.

Methods of Analysis

Only one statistical procedure was applied during the analysis phase of the study. Descriptive statistics were applied to Question 1. For questions 2 and 3, multiple regressions were conducted.

Method Applied to Question 1

Question 1 sought to determine if North Carolina's public and private, nonprofit, four-year institutions are following national trends regarding LSES student enrollment within and across sectors overtime. Question 1 utilized descriptive statistics focused primarily on the number/percentage of students receiving Pell/federal grants during the academic years 2002-2003, 2005-2006, and 2008-2009. Other basic institutional characteristics from the IPEDS dataset such as award levels, total enrollment, and total number of faculty and staff members were also reported as descriptive statistics in order to provide institutional and sector context for LSES student enrollment.

Method Applied to Question 2

Question 2 asked if there was a significant relationship between state financial aid (independent) and LSES student enrollment (dependent) between and within each sector. Additional independent variables regarding student enrollment and financial aid were added to test the magnitude of the relationship. With more than two independent variables being tested, a multiple regression analysis was most appropriate (Grimm & Yarnold, 2009). Multiple regression analysis is a "procedure based on least squares criterion that determines the linear relationships between a set of predictors and a single criterion and determines the best combination of the set of predictors for predicting the single criterion" (Grimm & Yarnold, 2009, p. 60). The regression equation for question 2 was:

$$Y_1 = \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_9 X_{9i}$$

Y_1 represented the dependent variable, β represented the regression coefficients, and X represented the independent variables for Question 2 discussed above. The model was

analyzed using SPSS (Version 18.0). The model was repeated for each academic year analyzed (2002-2003, 2005-2006, and 2008-2009). After the three sets of regressions were completed, coefficients from each academic year were compared in order to determine if there were significant differences overtime.

Method Applied to Question 3

Question 3 asked if there was significant relationship between institutional characteristics that fall outside the purview of state policy (independent) and LSES student enrollment (dependent). Again, with more than two independent variables being tested, a multiple regression analysis was called for. The regression equation for question 3 was:

$$Y_1 = \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_{13} X_{13i}$$

Y_1 represented the dependent variable, β represented the regression coefficients, and X represented the independent variables for Question 3 discussed above. The model was analyzed using SPSS (Version 18.0). The model was repeated for each academic year analyzed (2002-2003, 2005-2006, and 2008-2009). After the three sets of regressions were completed, coefficients from each academic year were compared in order to determine if there were significant differences overtime.

Summary

The purpose of this study was to examine LSES student enrollment trends at public and private, nonprofit, four-year postsecondary institutions in North Carolina. Three research questions were posed and descriptive statistics and multiple regression analysis were used to analyze IPEDS data at the institutional level. Although IPEDS data has several limiting characteristics, the ease and speed in which the uniform dataset can

be accessed have helped to promote its reliability and use within the research community (Schuh, 2002). Once the data were collected and assembled, I utilized descriptive statistics, as well as a series of multiple regressions to determine if there were significant differences and contributing institutional and policy factors regarding LSES enrollment overtime.

Chapter Four: Data Analysis and Results

The purpose of this study was to examine the effect of state policies, through institutional characteristics at North Carolina four-year public and private colleges and universities on LSES student enrollment over time. The analysis sought to answer the following null hypothesis (H_0): the effect of North Carolina higher education policies has not resulted in a shift in LSES student enrollment from the public university system to the state's private four-year institutions from 2002-2009. Chapter 4 discusses modifications made to the final dataset and the results of the analysis regarding the three research questions presented in chapter three.

Modification of the Sample

During the initial phases of data collection, issues arose that required modifications of the final dataset. These modifications included the exclusion of institutions from the analysis, as well as replacement of missing data regarding specific variables that occurred within specific cohort years. The sample began with 49 institutions, including 16 public institutions and 33 private, nonprofit, colleges. No institutions were excluded from analysis in questions 1 and 2. However, in question 3, two institutions (Mount Olive College and St. Andrews Presbyterian College) were removed from the sample because 50% ($n = 6$) of the variables were "blank" or not reported to IPEDS.

Missing data was replaced by using institutional (case) level data available from IPEDS by calculating a new figure using data from contiguous years, or by substituting data from an adjacent year. The data was regarded as missing if the institution reported "0" or intentionally did not report any information; in such a case IPEDS reports the

institution reported “0” or intentionally did not report any information; in such a case IPEDS reports the variable data as “blank.” When eliminating the two institutions from the question 3 analysis, missing data accounted for only 0.08% of the total dataset.

Concerning question 2 missing data, the variable out-of-state tuition within the 2002-2003 cohort ($n = 3$), were replaced by calculating the average dollar amounts reported in 2001/02 and 2003-2004 cohorts by those same institutions. Missing data for the calculated variable “out-of-state student enrollment” within the 2005-2006 cohort ($n = 11$) were computed using the average institutional out-of-state enrollment reported in 2002-2003 and 2008-2009.

Concerning question 3 missing data, the variable total endowment during the 2002-2003 cohort ($n = 3$), were replaced by endowment amounts reported by those institutions in 2003-2004. Missing data, for the variables SAT math scores at the 25th and 75th percentiles during the 2002-2003 cohort ($n = 7$) were replaced by using the scores reported in 2003-2004, or by using the lowest scores on record in IPEDS. These institutions were observed to have a low level of student selectivity and the lower SAT scores were in keeping with reported scores later in the decade.

Description of the Sample

The 49 four-year public and private institutions operating in North Carolina varied dramatically between and within each sector. As indicated in chapter two, there are significant differences in financial aid, institutional wealth, and LSES enrollment within the UNC system of institutions. Table 5 illustrates the variability in institutional characteristics by sector regarding the number of Pell recipients (federal grant recipients), in-state tuition price, number of applicants, freshmen enrollment, SAT math scores at the

75th percentile), and the average amount of institutional grant aid awarded to each student report to IPEDS for the 2008-2009 academic year.

Table 5

Descriptive Statistics for the Sample, Separated by Sector, for the 2008/09 Academic Year Cohort

	Public Sector				
	Median	Mean	Std. Dev.	Min.	Max.
Fed. Grant Recipients	566	556.5	288.6	43	928
In-state Tuition Price(\$)	14,844	14,609.2	1,549.2	9,822	16,193
Number of Applicants	5,195	7,366.6	5,835.6	682	20,090
Freshmen Enrollment	1,409.5	1,965.2	1,411.4	186	4,901
SAT Math 75th Percentile	565	563	72.6	460	700
Average Inst. Grant Aid(\$)	2,276	2,814.4	1,654.4	734	6,729
	Private Sector				
	Median	Mean	Std. Dev.	Min.	Max.
Fed. Grant Recipients	107	147	109.8	42	456
In-state Tuition Price(\$)	32,804	33,004	6,471.1	21,115	50,925
Number of Applicants	2,175	3,216.7	3,418.4	423	17,748
Freshmen Enrollment	328	452.8	357.3	122	1,700
SAT Math 75th Percentile	570	564.6	84.3	420	790
Average Inst. Grant Aid(\$)	9,918	10,368	5,631.3	2,700	29,712

These data illustrate the variability within each sector and within the entire sample. Federal grant recipients (Pell proxy), the dependent variable for questions 2 and 3, ranged from 42 to 928 within the entire sample, 43 to 928 within the public sector, and 42 to 456 within the private sector. The majority of independent variables highlighted in Table 4 follow the same pattern, with the most notable differences concerning that variables average institutional grant aid, number of applicants, and in-state tuition price. For example, average institutional grant aid varied by 190% within the entire sample

(min. \$734 - max. \$29,712), 160% within the public sector (min. \$734 - max. \$6,729), and 167% within the private sector (min. \$2,700 - max. \$29,712).

Figure 3 shows the relationship between federal grant recipients and total freshmen enrollment.

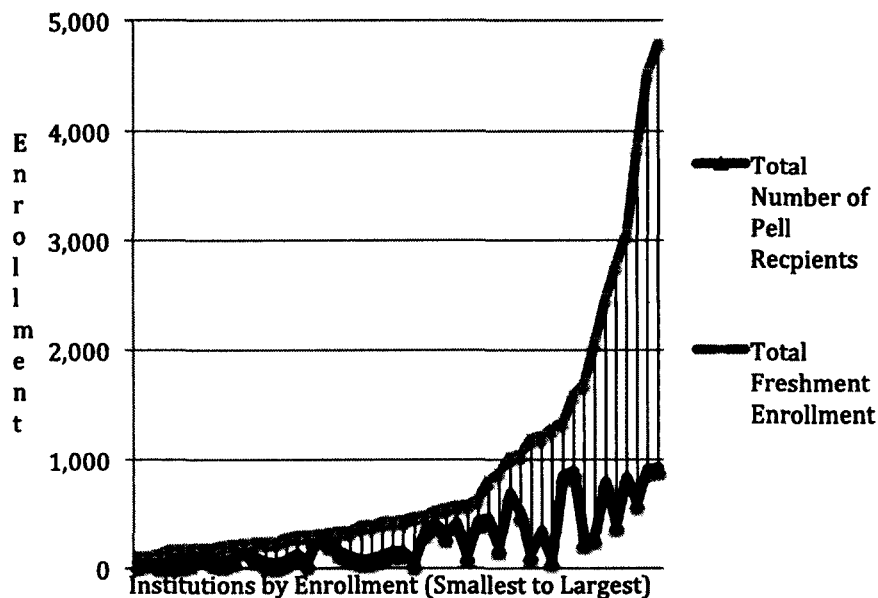


Figure 3. Comparison of Total Federal Grant Recipients and the Total Incoming Freshmen Cohort Across the Entire Sample during the 2008-2009 Academic Year.

As indicated in Figure 3, federal grant recipients enrollment is closely tied to institutions with smaller enrollments. The maximum federal grant recipient enrollment at any institution was 928, however, recipients do not increase per capita with total freshmen enrollment, particularly at large public institutions. Figures 4 and 5 show the relationship in-state tuition and the average institutional grant award, financial aid strictly from the institution, within the public and private sectors.

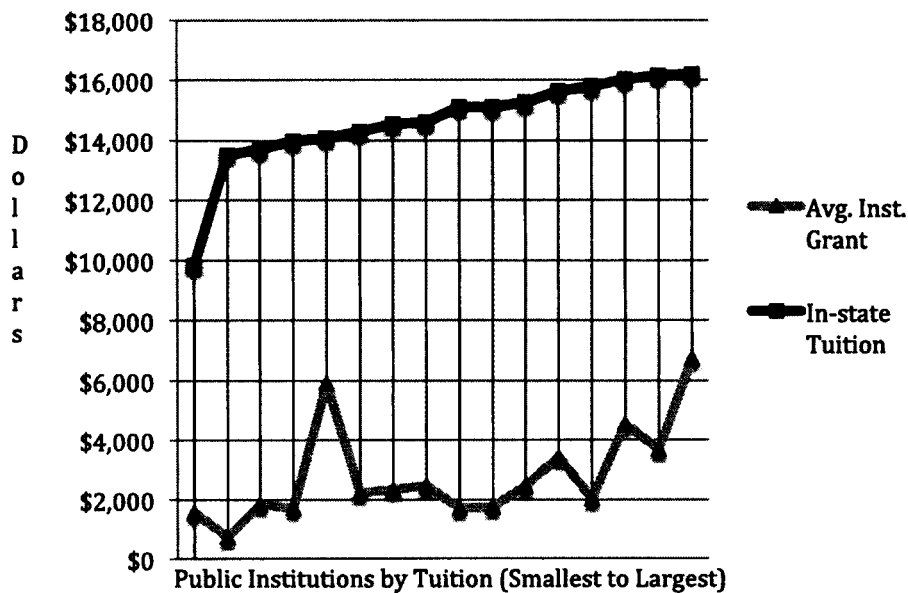


Figure 4. Comparison of In-state Tuition and the Average Institutional Grant Award within the Public Sector (n = 16) during the 2008-2009 Academic Year.

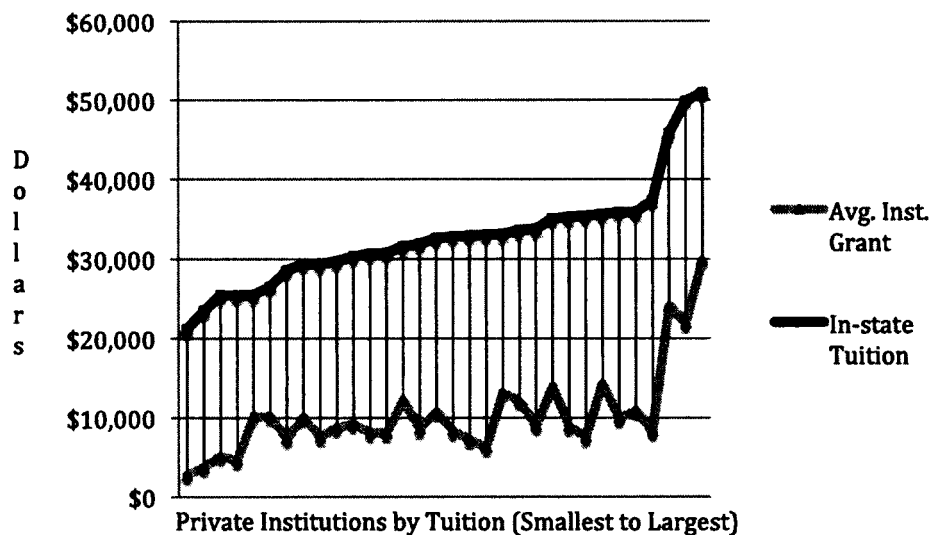


Figure 5. Comparison of In-state Tuition, and the Average Institutional Grant Award within the Private Sector (n = 33) during the 2008-2009 Academic Year.

The relationship between tuition and institutional aid differs between sectors.

Institutional aid does not always correspond to increased tuition costs at public institutions, whereas institutional aid at private institutions more closely mirrors increases in tuition within that sector. Although the cost of private institutions (median = \$32,804)

was 75% more compared to public institutions (median = \$14,844), institutional aid at privates (median = \$9,918) was 125% higher than publics (median = \$2,276). The difference in tuition price and institutional aid also highlights the monetary gap that must be met by direct payments, federal and state aid, and loans by students.

Description of Calculated Variables

All variables used during the analysis were obtained through IPEDS. In two instances IPEDS data were used to calculate new variables for the analysis. This section discusses how the two variables, total applicant yield and total number of out-of-state students were calculated.

As discussed in chapter two, the calculation of the variable for total applicant yield was anticipated. Yield was calculated by dividing the variable of total number of applicants by the variable total number of admissions. Both total number of applicants and admissions (students who were offered and accepted enrollment) were IPEDS variables that were also used separately in the analysis. The new yield variable was calculated for each institution, for each cohort year (2002-2003, 2005-2006, 2008-2009).

The calculation of the variable out-of-state students was not anticipated. In this case, IPEDS does not offer a raw number on total out-of-state students for each institution. The user must create the variable output using IPEDS data by selecting enrollment data for each institution by selecting individual states, US territories, and students categorized as attending from outside the United States (international students). To calculate the variable, all states, territories, and international students were chosen, for the exception of the state of North Carolina, for each institution within the sample. The totals of all students reported by each state, territory, and international students were then

transferred to database software (Excel) and summed for each institution and cohort year, with the output reported as the variable total out-of-state students.

Results by Research Questions

Question 1 sought to determine if North Carolina's public and private, nonprofit, four-year institutions were following national trends regarding LSES student enrollment within and across sectors overtime. Question 2 asked if there was a significant relationship between state financial aid and LSES student enrollment between and within each sector. Finally, question 3 asked if there was significant relationship between institutional characteristics that fall outside the purview of state policy and LSES student enrollment. This section will address the analysis results of each question.

Question 1

Question 1 asked if North Carolina's public and private, nonprofit, four-year institutions were following national trends regarding LSES student enrollment over time. This question tests the null hypothesis (H_0) by asking if there is an observable difference in LSES enrollment between and within sectors over time. Question 1 utilized descriptive statistics focused primarily on the number/percentage of students receiving Pell/federal grants during the academic years 2002-2003, 2005-2006, and 2008-2009. Because the variables for the number and percentage of students receiving Pell were only available for the 2008-2009 cohort year, the variable total number of students receiving federal grant aid was used as a proxy for Pell recipients for all three of cohort years (2002-2003, 2005-2006, 2008-2009) to ensure consistency of the data. In evaluating 2008-2009 cohort data there were insignificant differences between Pell and federal grant recipients for a majority of institutions within the sample. Table 6 highlights institutions

whose 2008-2009 reported percentages for Pell and federal grant recipients varied by more than 3%, along with comparisons of available federal grant data in 2002-2003 and 2005-2006).

Table 6

Institutions Whose 2008-2009 Pell and Federal Grants Varied by More Than 3% in the 2008-2009 Academic Year.

Institution	Federal Grant 2002-2003	Federal Grant 2005-2006	Federal Grant 2008-2009	Pell Grant 2008-2009
Campbell University*	30%	28%	57%	30%
Chowan University*	42%	53%	86%	55%
Davidson College	5%	6%	11%	7%
Duke University	10%	16%	15%	9%
Pfeiffer University	32%	34%	39%	36%
Salem College*	34%	41%	72%	36%

Note: *Indicates a significant difference. Federal grant comparison cohort years included.

All of the institutions that varied by more than 3% were private institutions. Campbell University, Chowan University, and Salem College showed the greatest differences between the reported percentages of Pell and federal grant recipients in the freshmen cohort. It is unclear if the higher percentage of federal grant recipients at these institutions is a product of reporting error, or that these institutions were active in special programs during the 2008-2009 cohort year that would have resulted in the enrollment of students who would have qualified for federal grants beyond Pell. It was decided to proceed using the federal grant variables since these significant differences occurred with only three institutions within the sample.

Once concerns regarding the use of federal grant recipients as a proxy for Pell grant recipients was addressed, federal grant recipient data from each sector and cohort year were compiled. The data was then scrutinized to determine if there were any observable differences between the sectors over time. Table 7 shows the number and percentages of students receiving federal grants across and within each sector and cohort year.

Table 7

The Number and Percentage of Students Receiving Federal Grants from 2002-2009.

	Public & Private		
	2002-2003	2005-2006	2008-2009
Total Number of Federal Grant Recipients	11,494	12,554	13,959
Total Freshmen Cohort	39,687	43,500	46,580
Percentage of Pell Recipients within the Freshmen Cohort	29%	29%	30%
	Public		
	2002-2003	2005-2006	2008-2009
Total Number of Federal Grant Recipients	7,482	8,510	9,059
Total Freshmen Cohort	26,501	30,120	31,770
Percentage of Pell Recipients within the Freshmen Cohort	28%	28%	29%

Table 7 con't

The Number and Percentage of Students Receiving Federal Grants from 2002-2009.

	Private		
	2002-2003	2005-2006	2008-2009
Total Number of Federal Grant Recipients	4,012	4,044	4,900
Total Freshmen Cohort	13,186	13,380	14,810
Percentage of Pell Recipients within the Freshmen Cohort	30%	30%	33%

When considering median freshmen enrollment across both sectors, Federal Grant recipients accounted for 1/3 of the entering cohort. Private institutions, per capita, enrolled an average of 2% more federal grant recipients than public institutions. Public institutions (n = 16) consistently enrolled 60% more federal grant students than private institutions (n = 34) from 2002-2009. Thus, the population volume of LSES students is far higher at public institution, however, as an issue of scale, private institutions enroll more LSES students per capita. In Appendix A, Table A1 lists the total full-time, first-time, freshmen enrollment and number and percentage federal grant recipients.

Public and private sector enrollment mirrored one another during the 2002-2003 and 2003-2004 cohort years, despite significant enrollment increases within the UNC System. The greatest difference between the two sectors occurs during the 2008-2009 cohort year, where private institutions enrolled 4% more federal grant recipients than public institutions. As addressed earlier, the higher number of federal grant recipients in 2008-2009 could be due to increased numbers of grant students within a small number of private institutions. Although there was a 13% difference between the two sectors, it is

more likely that the private percentage of federal grant recipients during 2008-2009 would be in keeping with the pattern with the previous cohort years of 2002-2003 and 2005-2006.

When considering elevated federal grant recipients at private institutions in 2008-2009, private institutions maintain a slight, per capita, advantage in LSES enrollment, but not strong enough to suggest that LSES enrollment trended away from public institutions between 2002 and 2009 in North Carolina. Regarding question 1, the null hypothesis is accepted; North Carolina is not following national trends regarding LSES enrollment shifts from public to private four-year institutions.

Question 2

Question 2 tested the null hypothesis (H_0) by asking if there is a significant relationship between state financial aid (state policy) and LSES enrollment. Additional independent variables regarding student enrollment and financial aid were added to test the magnitude of the relationship. A multiple regression analysis was run for each of the three cohort years using the following model:

$$Y_1 = \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_9 X_{9i}$$

As reported in Table 8, the model (1) was significant for each cohort year. Regression coefficients are reported for each cohort year (2002-2003, 2005-2006, 2008-2009) in Table 9.

Table 8

Regression Results for Model 1

	Sig.	R	R ²	Adjusted R ²	SE of the Estimate	Durbin-Watson
2002-2003***	.000	.965	.931	.951	68.402	2.130
2005-2006***	.000	.968	.936	.922	75.088	2.061
2008-2009***	.000	.961	.923	.905	83.130	2.043

Note. * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$.

Table 9

Regression Coefficients for Model 1

Variable	2002-2003						Collinearity Statistics	
	Unstandardized		Standardized		Sig.	ST	VIF	
	β	SE	β	<i>t</i>				
Constant*	980.743	477.650		2.053	.047			
Sector	-417.728	243.465	-.837	-1.716	.094	.007	137.836	
Freshmen Enroll.**	-.192	.060	-.757	-3.180	.003	.031	32.750	
In-state Enroll.	.155	.077	.164	2.003	.052	.259	3.862	
Out-of- state Enroll.	.042	.028	1.286	1.516	.137	.002	416.505	
Out-of- State Price	-.047	.027	-.904	-1.710	.095	.006	161.618	
State Appro.***	1.979E-6	.000	.625	4.146	.000	.076	13.126	
State Grant	-.033	.071	-.035	-.461	.647	.304	3.288	
Inst. Grant***	-.345	.084	-.429	-4.101	.000	.158	6.345	
Loan Aid***	.904	.088	1.428	10.290	.000	.090	11.143	
2005-2006								
Constant	610.681	521.503		1.171	.249			
Sector	-197.247	263.936	-.346	-.748	.459	.007	134.426	
Freshmen Enroll.***	-.302	.057	-1.146	-5.278	.000	.034	29.704	
In-state Enroll.***	.289	.075	.275	3.845	.000	.312	3.209	
Out-of- state Enroll.	.012	.027	.359	.429	.670	.002	440.840	
Out-of- State Price	-.020	.027	-.383	-.746	.460	.006	165.845	
State Appro.**	1.363E-6	.000	.457	3.002	.005	.069	14.586	
State Grant*	.308	.125	.348	2.464	.018	.080	12.542	
Inst. Grant	.038	.052	.055	.728	.471	.277	3.615	
Loan	.564	.094	1.011	6.021	.000	.056	17.749	

Aid***

Table 9 con't

Regression Coefficients for Model 1

Variable	2005-2006							
	Unstandardized		Standardized		Sig.	Collinearity Statistics		
	β	SE	β	<i>t</i>		ST	VIF	
Constant	392.910	542.817		.724	.473			
Sector	-124.050	266.857	-.216	-.465	.645	.009	112.115	
Freshmen Enroll.***	-.368	.076	-1.532	-4.807	.000	.019	52.512	
In-state Enroll.***	.322	.090	.317	3.578	.001	.246	4.061	
Out-of- state Enroll.	.009	.026	.340	.353	.726	.002	480.097	
Out-of- State Price	-.014	.026	-.333	-.526	.602	.005	206.739	
State Appro.**	1.761E-6	.000	.677	3.176	.003	.043	23.504	
State Grant***	.581	.160	.840	3.626	.001	.036	27.722	
Inst. Grant Loan	-.083	.090	-.104	-.924	.361	.153	6.531	
Aid***	.527	.150	.901	3.510	.001	.029	34.082	

Note. * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$.

Total number of students in the freshmen cohort, state appropriations, and total number of students receiving loan aid were the only significant predictor variables within all three cohort years. Total number of in-state students in the cohort and total number of students receiving state grant aid were the only significant predictors in two of the cohort years. However, significant collinearity issues existed throughout the model. The data for each cohort year were analyzed a second time using the stepwise regression method. Stepwise regression consists of a series of concurrent analysis, during each "step" variables are added or subtracted based on the empirical relationships between the dependent and

independent variables (Grimm & Yarnold, 2009). The stepwise method helps to remove independent variables that are highly correlated. Table 10 shows that all three cohort years for the model were again significant when run using the stepwise method. The regression coefficients for the model are reported in Table 11.

Table 10

Regression Results for Model 1 Using Stepwise Method

	Sig.	R	R ₂	Adjusted R ₂	SE of the Estimate	Durbin-Watson
2002-2003***	.000	.956	.913	.905	72.332	2.115
2005-2006***	.000	.967	.935	.925	73.835	2.080
2008-2009***	.000	.934	.872	.867	98.442	2.117

Note. * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$.

Table 11

Regression Coefficients for Model 1 Using Stepwise Method

Variable	2002-2003						
	Unstandardized		Standardized		Sig.	Collinearity Statistics	
	β	SE	β	t		ST	VIF
Constant**	54.707	17.914		3.054	.004		
Loan Aid***	.895	.075	1.415	11.910	.000	.137	7.298
Inst. Grant***	-.371	.073	-.462	-5.066	.000	.232	4.307
State Appro.***	1.352E-6	.000	.427	4.191	.000	.187	5.361
Freshmen Enroll. *	-.127	.050	-.501	-2.564	.014	.051	19.729
2005-2006							
Constant ***	371.780	91.866		4.047	.000		
Loan Aid ***	.567	.091	1.018	6.217	.000	.057	17.456
Out-of-state Price**	-.008	.003	-.158	-2.704	.010	.450	2.222
Freshmen Enroll.***	-.291	.054	-1.102	-5.364	.000	.036	27.472
State Grant**	.325	.120	.368	2.701	.010	.083	12.076
In-state Enroll.***	.284	.073	.270	3.866	.000	.315	3.179
State Appro.***	1.248E-6	.000	.418	3.482	.001	.107	9.388

Sector*	-78.326	37.804	-.137	-2.072	.044	.351	2.852
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Table 11 con't

Regression Coefficients for Model 1 Using Stepwise Method

Variable	2008-2009						Collinearity Statistics	
	Unstandardized		Standardized		Sig.	ST	VIF	
	β	SE	β	t				
Constant	10.718	20.499		.523	.604			
State Grant***	.862	.087	1.246	9.903	.000	.171	5.833	
Freshmen Enroll.**	-.085	.030	-.355	-2.823	.007	.171	5.833	

Note. * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$.

As reported in Table 11, concerns regarding collinearity were reduced. With the stepwise regression, the total number of students in the freshmen cohort was the only significant predictor variable within all three cohort years. Total number of students receiving loan aid, state appropriations, and total number of students receiving state grants were significant predictors within two of the cohort years.

Regarding question 2, the null hypotheses for the model is rejected. Significant results for the model were reported for all three cohort years using both “enter” and stepwise regression methods. State policies have an affect on LSES enrollment in North Carolina. The model shows larger cohorts (institutions), consistently, had a negative effect on LSES enrollment. Financial aid in the form of state appropriations, state grants, and student loans had a positive effect on LSES enrollment in intermittent cohort years, but was not consistent throughout the model.

Question 3

Question 3 tested the null hypothesis (H_0) by asking if there is a significant relationship between institutional characteristics that fall outside the purview of state

policy and LSES enrollment. A multiple regression analysis was run for each of the three cohort years using the following model:

$$Y_1 = \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_{13} X_{13i}$$

As reported in Table 12, the model (2) was significant for each cohort year. Regression coefficients are reported for each cohort year (2002-2003, 2005-2006, 2008-2009) in

Table 13.

Table 12

Regression Results for Model 2

	Sig.	R	R ₂	Adjusted		Durbin-Watson
				R ₂	SE of the Estimate	
2002-2003***	.000	.911	.830	.765	115.056	1.794
2005-2006***	.000	.922	.850	.793	123.966	1.750
2008-2009***	.000	.937	.878	.831	112.014	1.961

Note. * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$.

Table 13

Regression Coefficients for Model 2

Variable	2002-2003						
	Unstandardized		Standardized		Sig.	Collinearity Statistics	
	β	SE	β	t		ST	VIF
Constant***	1118.461	258.449		4.328	.000		
Sector**	-176.792	75.920	-.354	-2.329	.026	.215	4.644
Applicants	-.019	.051	-.300	-.376	.709	.008	127.001
Admissions	.006	.128	.055	.050	.960	.004	237.163
Yield	-10.533	44.284	-.039	-.238	.813	.188	5.306
Freshmen Enroll.	.870	.543	3.416	1.602	.118	.001	910.526
Submitted SAT	-.630	.429	-2.413	-1.469	.151	.002	540.588
SAT Math (25)	-.935	.501	-.320	-1.865	.071	.070	5.866
SAT Math (75)	-.069	.560	-.210	-1.232	.226	.172	5.828

Table 13 con't

Regression Coefficients for Model 2

2002-2003							
Variable	Unstandardized		Standardized		Sig.	Collinearity Statistics	
	β	SE	β	<i>t</i>		ST	VIF
Tuition & Fees Rev.	1.306E-6	.000	.198	.355	.725	.016	62.558
Endowment	5.163E-7	.000	.881	1.495	.144	.014	69.516
Total Rev. & Invest.	-5.072E-7	.000	-.861	-1.766	.086	.021	47.638
Contribution	-1.238E-5	.000	-.527	-1.609	.117	.046	21.514
Avg. Inst. Grant.	.010	.011	.159	.943	.352	.176	5.674
2005-2006							
Constant***	1271.892	284.113		4.477	.000		
Sector	-143.051	94.915	-.250	-1.507	.141	.160	6.253
Applicants	-.020	.041	-.316	-.476	.637	.010	100.480
Admissions	-.114	.095	-.916	-1.209	.235	.008	130.404
Yield	60.850	80.006	.144	.761	.452	.123	8.163
Freshmen Enroll.	.629	.377	2.269	1.670	.104	.002	418.851
Submitted SAT	-.031	.376	-.108	-.082	.935	.003	389.332
SAT Math (25)**	-2.454	.799	-.687	-3.070	.004	.088	11.353
SAT Math (75)	-.022	.628	-.006	-.035	.972	.131	7.646
Tuition & Fees Rev.	1.266E-6	.000	.245	.529	.600	.021	48.606
Endow.	7.185E-8	.000	.138	.268	.790	.017	59.570
Total Rev. & Invest.	-9.980E-5	.000	-.233	-.559	.580	.025	39.334
Contrib.	-1.013E-5	.000	-.429	-1.672	.104	.067	14.955
Avg. Inst. Grant.	.013	.011	.213	1.185	.244	.136	7.371
2008-2009							
Constant***	1722.822	299.432		5.754	.000		
Sector***	-305.009	87.724	-.533	-3.478	.001	.153	6.542
Applicants	.017	.026	.295	.657	.516	.018	56.297
Admissions	-.072	.053	-.681	-1.349	.186	.014	71.148
Yield	-34.616	37.696	-.096	-.918	.365	.325	3.078

Table 13 Con't

Regression Coefficients for Model 2

Variable	2008-2009						Collinearity Statistics	
	Unstandardized		Standardized		Sig.	ST	VIF	
	β	SE	β	t				
Freshmen Enroll.	.355	.320	1.450	1.109	.275	.002	476.410	
Submitted SAT	-.107	.314	-.427	-.340	.736	.002	440.164	
SAT Math (25)	-1.371	.947	-.406	-1.447	.157	.046	21.922	
SAT Math (75)	-1.134	.949	-.332	-1.194	.241	.047	21.497	
Tuition & Fees Rev.	3.803E-6	.000	.900	1.533	.134	.010	96.057	
Endowment	-9.677E-8	.000	-.334	-1.429	.162	.066	15.227	
Total Rev. & Invest.	-7.008E-7	.000	-.433	-1.638	.111	.051	19.444	
Contrib.**	-7.801E-6	.000	-.421	-2.561	.015	.133	7.534	
Avg. Inst. Grant.**	.024	.007	.516	3.277	.022	.145	6.916	

Note. * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$.

As reported in Table 11, there were no significant predictor variables shared across all three cohort years. Sector, was the only significant variable for two of the cohort years. Average amount of institutional aid, contributions, and SAT Math scores (25th percentile) were only reported once as significant within intermittent cohort years. As with model 1, significant collinearity issues existed throughout model 2. The data for each cohort year were analyzed a second time using the stepwise regression method. Table 14 shows that all three cohort years for the model were again significant when run using the stepwise method. The regression coefficients for the model are reported in Table 15.

Table 14

Regression Results for Model 2 Using Stepwise Method

	Sig.	R	R ₂	Adjusted R ₂	SE of the Estimate	Durbin-Watson
2002-2003***	.000	.871	.758	.742	120.708	1.692
2005-2006***	.000	.907	.823	.806	119.903	1.633
2008-2009***	.000	.915	.837	.822	115.064	1.814

Note. * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$.

Table 15

Regression Coefficients for Model 2 Using Stepwise Method

2002-2003							
Variable	Unstandardized		Standardized		Sig.	Collinearity Statistics	
	β	SE	β	t		ST	VIF
Constant**	1040.308	148.759		2.187	.034		
Admissions ***	.082	.012	.697	6.726	.000	.512	1.955
SAT Math (75)***	-1.336	.271	-.407	-4.925	.000	.804	1.243
Sector**	-125.885	49.061	-.252	-2.566	.014	.568	1.762
2005-2006							
Constant***	951.671	116.909		8.140	.000		
Freshmen Enroll.***	.800	.140	2.885	5.730	.000	.016	61.517
SAT Math (25)***	-1.935	.256	-.541	-7.562	.000	.804	1.243
Contributions ***	-1.178E-5	.000	-.499	-4.196	.000	.291	3.432
Admissions ***	-.202	.056	-1.616	-3.631	.001	.021	48.054
2008-2009							
Constant***	1552.436	148.009		7.896	.000		
Freshmen Enroll.***	.185	.022	.755	8.333	.000	.461	2.169
SAT Math (75)***	-2.014	.326	-.589	-6.175	.000	.416	2.405
Sector***	-263.000	60.094	-.459	-4.376	.000	3.44	2.909
Avg. Inst. Grant**	.017	.005	.362	3.246	.002	.304	3.286

Note. * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$.

As reported in Table 15, concerns regarding collinearity were reduced. SAT math scores at the 25th and 75th percentiles were the only significant predictor variables across all three cohort years. Total number of admissions, total freshmen enrollment, and sector were significant predictor variables within two cohort years.

It is important to note that the stepwise regression method required for questions 2 and 3 is heavily dependent on the order in which predictor variables are included into the model, and that order is determined by the empirical relationship(s) with the dependent variable (Grimm & Yarnold, 2009). The stepwise regression model favors the first variable that produces the largest R^2 at each step (Grimm & Yarnold, 2009). Since only one set of stepwise regressions were conducted for each model, following the same order of predictor variables from the “enter” method, it is unclear if different predictor variable order(s) would have resulted in variations of significant predictor variables.

Regarding question 3, the null hypotheses for the model is rejected. Significant results for the model were reported for all three cohort years using both “enter” and stepwise regression methods. State policies can regulate LSES enrollment, controlling for institutional autonomy, particularly at UNC System institutions. The model shows that high SAT math scores had a negative effect on LSES enrollment. Unlike model 1, under the conditions of model 2, larger freshmen cohorts positively effected LSES enrollment. There was also a negative enrollment effect between LSES students and private institutions, indicating that LSES students were more likely to enroll publics. Institutional grant aid had a positive effect on LSES enrollment, but was only a significant predictor for one cohort year within the model.

Summary

The 49 North Carolina four-year public and private institutions that were analyzed varied significantly, especially among variables regarding enrollment, financial aid, price, and selectivity. Higher percentages of federal grant recipients were associated with institutions with smaller enrollments. Although tuition was markedly lower at public institutions, private institutions offered greater amounts of institutional aid. The significant difference in price and institutional aid, within both sectors, highlights the monetary gap that must be met by students in the form of direct payments, federal and state aid, and loans.

The variable total federal grant recipients was used as a proxy for the variable total Pell grant recipients during the analysis. Throughout the first three chapters of this study, Pell grant recipients were discussed as a proxy for LSES students. However, Pell specific variables were only available through IPEDS for the 2008/2009 academic year. Analysis showed that there was a strong relationship between the 2008/2009 data for Pell recipients and the 2008/2009 data for federal grant aid. Thus, the latter variable was used for all three cohort years as a proxy for LSES.

Missing data accounted for 0.08% of the entire dataset. Various methods were employed to replace missing data, including calculating averages between cohort years ($n = 14$) or substituting missing values for an adjacent cohort year ($n = 10$). Due to significant amounts of missing data from question 3 (model 2), two institutions were removed from that analysis.

Regarding question 1, private institutions maintained a slight, per capita, advantage in LSES enrollment, but not strong enough to suggest that a significant shift in

LSES enrollment has occurred between 2002 and 2009 in North Carolina. Therefore, the null hypothesis was accepted.

Regarding question 2, significant results for the model were reported for all three cohort years using both “enter” and stepwise regression methods. Therefore, the null hypotheses for the model was rejected. State policy interventions effect LSES enrollment in the state.

Regarding question 3, significant results for the model were reported for all three cohort years using both “enter” and stepwise regression methods. Therefore, the null hypotheses for the model was rejected. State policies can regulate LSES enrollment, controlling for institutional behaviors, particularly at UNC System institutions.

The outcomes of the analysis demonstrate the influence of North Carolina higher education policies on both public and private institutions regarding LSES enrollment from 2002-2009. Total freshmen enrollment, as a predictor, had a negative effect on LSES enrollment within model 2 (state policy) and a positive effect within model 3 (institutional behaviors). Thus, when sector was non-significant (model 2), the larger the freshman class, the fewer LSES students enrolled at the institution. When sector was significant (model 3), large freshmen classes had a positive enrollment effect at public institutions. Under model 2, variables associated with state and individual financial aid had positive predictive effects on LSES enrollment. Under model 3, SAT scores had a negative effect on LSES enrollment. Overall, the majority of institutional selectivity variables, for the exception of SAT scores, had non-significant effects on LSES enrollment; while state aid had significant positive effects on LSES enrollment.

Opie: You know Paw, I've been doing a lot of thinking about my college career, you know what college I want to go to and all that.

Andy: Aw, ya have?

Opie: And I decided I want to go to a state college, The University of North Carolina.

Andy: The University of North Carolina?

Opie: Yeah, it is a great school and it is not too far away.

Andy: Well sure it is a great school but you have to have mighty fine grades to get in there, you know above average.

Opie: I know, that is why I'm gonna start to study real hard now.

-The Andy Griffith Show, original air date November 20, 1967.

Chapter Five: Conclusions and Implications

The purpose of this study was to examine the effect of state policies, through institutional characteristics at North Carolina four-year public and private colleges and universities on LSES student enrollment over time. This study sought to connect state history and culture with modern day higher education policies, and to determine their influence on LSES student enrollment at North Carolina public and private four-year institutions. Chapter 5 discusses the findings of the study's results and the implications for North Carolina LSES students and their families, private institution leaders, state education administrators (K-12 & Postsecondary), and state policymakers. This chapter also provides a critique of the study and recommendations for further research.

Discussion of the Findings

The sample of 49 North Carolina public and private four-year institutions varied greatly in a number of characteristics. There was significant range in financial aid, institutional wealth, LSES enrollment, total freshmen enrollment, and tuition and fees within the entire sample. The results of the analysis showed that identical patterns concerning the range of cost, enrollment, and institutional wealth characteristics existed within both sectors. For example, Duke, Davidson, NC State, UNC-Chapel Hill, and

Wake Forest possessed the largest endowments in the state, yet enrolled the fewest LSES students per capita. The highest percentages of LSES students were enrolled at institutions with the smallest endowments. For public institutions such as Elizabeth City State University and Fayetteville State University, lower endowment returns were supplemented by state appropriations and additional state financial aid for in-state students. For private, tuition-driven, institutions such as Livingstone College and Shaw University, lower endowment returns were supplemented by state grant aid and infrequent non-endowment related contributions. An exception to the institutional wealth and LSES enrollment pattern was UNC-Greensboro, the state's third oldest public institution. UNC-Greensboro ranked in the top five largest public and private institution endowments in the state, yet 34% of the 2008-2009 freshmen were LSES students. This demonstrates a conscious effort on the part of university leadership to maintain institutional access for low-income students, even though its wealth would allow it to do otherwise.

Question 1

The first research question in this study sought to determine if North Carolina's public and private, nonprofit, four-year institutions were following national trends regarding LSES student enrollment within and across sectors over time. The data were scrutinized to determine if there were any observable differences between the private and public sectors between 2002-2009. Private institutions maintained a slight, per capita, advantage in LSES enrollment during this period, but not strong enough to suggest a trend in LSES enrollment away from public to private institutions had occurred between 2002 and 2009 in North Carolina. For question 1, the null hypothesis was accepted.

North Carolina did not following national trends regarding LSES enrollment from public to private four-year institutions.

As previously noted, one of the major limitations of this study was the longitudinal availability of institutional data from IPEDS, since consistent institutional and variable data were only available as of the 2002-2003 academic year. As well, an enrollment shift in LSES students from public to private institutions may have occurred in North Carolina in the 1990's instead of during the period under review. Such a shift in enrollment patterns would be in keeping with the introduction and popular adoption in North Carolina of non-need based financial aid programs in the 1980's and 1990's (Doyle, 2010b; Heller, 2006).

What may be observable in the 2000's in North Carolina is a stabilization phenomenon that not only suggests the influence of state policy on enrollment patterns, but also the existence of Kerr's (1990) mixed, public/private, system. Individual institutions, within each sector, showed only small incremental changes in LSES enrollment that mirrored sector total averages. State aid has helped to bolster revenue to both public and private institutions with the highest LSES enrollments. It is also worth noting that the impact of the "great recession" has been negligible on LSES enrollment in North Carolina. It was believed that the economic downturn would have an effect on both sectors during the decade, resulting in increased numbers of upper-income students seeking the value of public institutions. Thus, increasing numbers of LSES students would be displaced to private institutions and North Carolina's four-year LSES population would shift in parallel national findings. Increases in total enrollment, namely in the public sector, and consistent state support through appropriations and financial aid

contributed to LSES enrollment stability over the decade. However, the data suggests that smaller, non-elite, public and private institutions enroll higher percentages of LSES students. Stability between the sectors may be the product of shifts in enrollment at the institutional level, namely, larger institutions dis-enrolling or capping LSES enrollment. Although not specifically addressed by this study, longitudinal enrollment shifts at the institutional level is a course of future study. Appendix A, Table A1 lists the total full-time, first-time, freshmen enrollment and number and percentage federal grant recipients

Question 2

The second question in this study asked what the effect of North Carolina state financial aid on LSES student enrollment at public and private institutions in the state was over time. The stepwise regression model was statistically significant for all three of the cohort years in the analysis (2002-2003, 2005-2006, 2008-2009). Total freshmen enrollment (entire incoming class) was found to be significant across all three cohort years, negatively effecting LSES enrollment. The total number of students receiving loan aid (2002-2003, 2006-2006), state appropriations (2002-2003,2005-2006), and total number of students receiving state grants (2005-2006, 2008-2009) were significant, positive, predictors of LSES enrollment within two of the cohort years. For question 2, the null hypothesis for the model was rejected. State policies, manifested through appropriations and financial aid, have an effect on LSES enrollment in North Carolina.

The results of question 2 support the interpretation of question 1 concerning the stability of LSES enrollment within the state. State appropriations and state grants both had positive predictive effects on LSES enrollment. Thus, the continuous availability of state aid in the form of student grants during the 2002-2009 timeframe resulted in stable

LSES enrollments. During the height of the recession (2008-2009), state grants accounted for all of the positive predictive power of the model. This suggests that state grant aid, along with other financial incentives, drove LSES enrollment during this cohort year. Whereas in 2002-2003 the variable state grants was not a significant variable; rather, state appropriations and loan aid contributed significantly to LSES enrollment. Here, low tuition at public institutions enabled through appropriations, and the ability for families and students to cover unmet need, through loans drove LSES enrollment. Arguably, the positive effect of state appropriations in both 2002-2003 and 2005-2006 would benefit students attending public universities and therefore lead to increases in LSES enrollment. Yet, from observing the descriptive data during this same time period, there was no discernable shift of LSES students to public institutions. This lack of change in LSES enrollment underscores the stability of proportion of LSES students attending both public and private universities in North Carolina in the timeframe of 2002-2009

Institutions with large student populations negatively affected LSES enrollment (as evident in the descriptive data and figures discussed in chapter 4). Initially, the assumption was that higher enrollments of LSES students were specifically linked to large public institutions. Supporting this assumption is the example of UNC-Greensboro that shows a large public institution enrolling high numbers of LSES students. Other large public universities, however, did not follow this enrollment pattern. Pointedly, UNC-Chapel Hill and NC State are the largest public universities in North Carolina, yet only enroll 13% and 16% of LSES students respectively. Likewise, three of North Carolina's largest private institutions (Duke, Elon, and Wake Forest) enrolled the lowest

percentages of LSES students in the private sector. Thus, it is difficult to conclude that the negative predictive nature of increased institutional population on LSES students is sector specific.

The same neutral enrollment effect could be argued for the variable loan aid, which was also significant for 2002-2003 and 2005-2006. Loan aid had a positive predictive effect on LSES enrollment. One would assume that large amounts of loan aid would be associated with students attending private institutions, but as noted in chapter 1, the average loan, per year for students, only differed by \$1,400 between sectors. The amounts of student loans were higher at private institutions and even though the public institutions enrolled twice as many students, the majority of the students at the public universities also took out loans. Therefore, one can only report the positive effect of loan aid across both public and private institutions in North Carolina. The availability of loans meant that students attended college, regardless of sector. Again, the amount of variance between each individual institution and sector may affect the results in a variety of ways than cannot be explained by the model alone. Indeed, from a design perspective, the models for question 1 and 2 analyzed 49 institutions, with sector acting as an independent variable. Unless the variable sector had a significant predictive effect on LSES enrollment, the model assumed that individual institutions are part of a single population.

Question 3

The final question asked what institutional variables contributed to LSES student enrollment at private or public institutions in North Carolina and did the variables change over time. The stepwise regression model was statistically significant for all three of the cohort years in the analysis (2002-2003, 2005-2006, 2008-2009). SAT math scores at the

25th and 75th percentiles were significant across all three cohort years. Students with high SAT math scores were more likely to attend large, public, highly selective institutions, whereas students with low SAT math scores were more likely to attend small, private, less selective institutions. Total number of admissions (2002-2003, 2005-2006), total freshmen enrollment (2005-2006, 2008-2009), and sector (2002-2003, 2008-2009) were significant predictors within two cohort years. Admissions in 2002-2003 and total freshmen enrollment had a positive predictive effect on LSES enrollment, whereas admissions in 2005-2006 and sector had a negative effect on LSES enrollment. For question 3, the null hypothesis for the model was rejected. Overall, institutional behaviors, especially variables concerning institutional selectivity, had mixed effects on LSES enrollment.

Under the conditions of question 3 in which the variables relate to institutional control and enrollment selectivity, the variable sector had a significant negative predictive effect on LSES enrollment in 2002-2003 and 2008-2009. The analysis points to the private sector as having a negative relationship with LSES enrollment during these two cohort years. Again, the descriptive statistics and conclusions from question 1 demonstrate that there were no significant shifts in LSES enrollment from 2002-2009. LSES enrollment at private institutions, per capita, mirrored enrollment and growth within the UNC System. What is more likely is that the model was more sensitive to the higher total enrollment population of the public sector. Within this model LSES enrollment was positively effected by enrollment at larger institutions, which also helps to explain the negative relationship between LSES enrollment and much smaller private institutions.

It was anticipated that the endowment variable would be both significant and contribute negatively towards LSES enrollment. Surprisingly, endowment was not significant in either “enter” or stepwise regression. This suggests that endowment funds are not being used to actively recruit or displace LSES students in North Carolina. Other variables related to institutional selectivity, such as average institutional aid and total number of admissions, were non-significant or significant for only one or two cohort years within the model.

The power of SAT math scores suggests that selectivity remains an important factor for LSES enrollment for both public and private institutions within North Carolina, since higher scores are indicative of institutions with higher levels of selectivity. More importantly, the negative relationship between SAT math scores and LSES enrollment has a direct connection to state policies at the K-12 and postsecondary level. As discussed in chapter 2, universal admission standards for public universities developed by the UNC Board of Governors in the late 1980’s directly contributed to the establishment of secondary curriculum policy. Under a state mandated curriculum, students were placed in “tracks,” with only one of these curriculum tracks allowing students to gain the minimum number of credits to gain admission to any the UNC System institutions. Within the track that allowed for entry into the UNC System, four math courses are were required, including completing Algebra II as a minimum for admission. The greater the number of advanced math courses taken, the higher the expected SAT math score. Numerous studies (Kelly, 2007; Mickelson & Everett, 2008; Wantanabe, 2008) of tracking in North Carolina’s secondary schools have shown that LSES student were far less likely to be placed in the advanced/college bound track. In such instances, LSES

students were more likely to be placed in lower-level math courses and may not have been equipped with the skills to perform well on the math portion of the SAT.

The outcome of the analysis regarding SAT math scores has several implications. With federal grant recipients representing 30% of the freshmen public sector cohort, it stands to reason that a small population of LSES students are completing the advanced high school curriculum track and meeting the minimum SAT score requirements for the UNC System. However, it is unclear what the total number of UNC qualified LSES applicants is, since no state data linking course/track completion is available and the total graduating LSES population is available. Once UNC System requirements are met, selectivity then becomes a factor due to the institutional hierarchy within the system. Based on the distribution of percentages of federal grant recipients across the public sector, it is more likely that an LSES student will enroll in one of the less-selective public institutions.

For those LSES students who do not meet the UNC System requirements, private institutions become the in-state alternative to attend a four-year institution. Indisputably, many LSES students who do not qualify for public universities who continue on to postsecondary education will enter the state's community college system. However, an average of 4,500 LSES students matriculated to North Carolina private institutions each year throughout the 2000's, with UNC System enrolling an average of only 3,000 more LSES students over that same time period.

As with public institutions, selectivity among privates varies greatly within the sector. Davidson, Duke, Elon, and Wake Forest enroll small percentages of LSES students and far more out-of-state students than their private peers within the state. For

many of the remaining institutions, state grant aid becomes a critical factor in not only supporting the LSES population, but also keeping a small number of small private colleges that support that population sustainable. Enrolling high numbers of LSES students is a matter of survival based on federal and state aid dollars that accompany those students. For example, during the 2008-2009 academic year Shaw University enrolled a total of 532 students in the freshmen class, with 401 (75%) receiving federal grant aid. The incoming class received a total of \$1,796,521 in federal grants, followed by \$1,434,070 in state grants. In all, state grants accounted for 23% of Shaw's total financial aid budget.

In an unexpected turn of events, the significance of SAT math scores assists in explaining a policy phenomenon in a way that institutional wealth (endowment) could not. With SAT scores acting as a proxy for academic qualifications, there are clear connections between LSES sector enrollment and state policy. Based on the assumption that UNC admission standards can have a negative enrollment effect on under-qualified LSES students wishing to enroll at public universities, the enrollment of those same students can create financial support for private colleges. Again, only student level data, following academic progress through high school and college enrollment would allow for the confirmation of such a phenomenon. However, it is reasonable to assume that there is a population of high school graduates that do not meet the UNC System admission standards, yet can succeed academically at private institutions.

Summary

Ultimately, I argue that the results of all three research questions illustrate the power of state policy concerning LSES enrollment at both public and private institutions

in North Carolina. The results of question 1 demonstrated that LSES enrollment between sectors from 2002 and 2009 remained stable. The results of question 2 demonstrated that state appropriations and aid had a positive effect across both sectors on LSES enrollment. Finally, the results of question three demonstrated the inability of institutional autonomy and selectivity to trump state authority and policy. Variables that demonstrate institutional power such as total endowment, total revenue, and price were non-significant. The variable average institutional aid was significant for only one year, and positively contributed to LSES enrollment. Increases in enrollment capacity at state institutions and a steady flow of state support maintained LSES enrollment at similar levels within each sector. Furthermore, I would content that strict state control of public universities, regarding admissions and enrollment policies, suppressed the monetary power of many of those institutions.

Implications for Policy and Practice

This section discusses the general implications of the study concerning current K-12 and postsecondary policies and practices. In chapter 3, the modified contours of governance model, an adaptation of Venezia et al.'s (2005) contours of governance model, was introduced in order to establish a theoretical connection between state history and culture, policy, and institutional behaviors that work either in concert or against one another, eventually, impacting LSES student enrollment patterns within a given state. Throughout the literature review, I discussed the historical events that impacted postsecondary culture in North Carolina and went on to form the foundation of present day higher education policies that within the state. I also reviewed the role of individual public and private institutions and how their behaviors as organizations are often driven

by marketplace based factors, such as selectivity and national rankings. The results of the statistical analysis showed that LSES enrollment did not follow national trends concerning the LSES student population shifting from public four-year institutions to private four-year institutions. I suggest that North Carolina is immune to these trends based on strong state support for both public and private institutions. Both models for question two and three were statistically significant and demonstrated the predictive power of variables tied to state policies. Namely state appropriations and state grants.

Beyond the results of the data analysis, state history and culture remain noteworthy factors, contributing to the present policies affecting four-year, nonprofit, institutions in North Carolina. While the impact of 300 years of colonial and state history is unquantifiable, traditions in the state continue to be passed on, even to newcomers who have moved to the state in recent decades. Higher education institutions have themselves become traditions, not only as family academic legacies, but also through college athletic allegiances. Even if a resident has never attended a postsecondary education institution in North Carolina, there is most likely a familiar connection to a particular public or private institution in the state.

The ties that bind North Carolinians to higher education have resulted in significant financial, political, and social support for both public and private institutions in the state. The modified contours of governance model discussed in chapter 2 illustrate how state history, culture, and policies can impact institutional behaviors, and ultimately, LSES enrollment. The model also answers the challenge of Hearn, Griswold, and Marine (1996), in finding causation for markedly lower higher education costs in specific states. The paradox of addressing state policy causation, particularly in the holistic fashion of

this study, is that portability is mired in the uniqueness of history and culture. Each state has a distinctive character. It is unlikely that the findings of this study are applicable to other states, with the exception, that the theoretical framework could be applied to develop similar, independent, reviews of state history, culture, and policies, with specific links to other educational phenomenon.

The Equilibrium of a Controlled Marketplace

As previously discussed, Kerr's (1990) "mixed system" of higher education provides a backdrop for what I contend is a symbiotic relationship between the state (including public institutions) and private four-year institutions in North Carolina. Since the 1970's the state of North Carolina had provided de facto appropriations to private colleges through state grants that follow in-state student enrollment. Over this period of time, state aid for private institutions has easily topped \$1 billion dollars. While this amount pails in comparison to UNC System appropriations, private grants have allowed for LSES students to have additional financing to pursue a degree at private institution, allowed the state to subsidize enrollment capacity at a cheaper rate to privates than fully subsidizing enrollment at publics, and has kept private colleges from closing. There is not a specific policy that dictates a formal relationship between the state and private universities, nevertheless, when the policies of the General Assembly and the UNC System are examined as a whole, a prevalent pattern of state support for both private institutions and LSES students exists. Beyond the North Carolina Constitution of 1971 and subsequent bills supporting state grant aid to private institutions, the power granted to the UNC System to do manage the admissions and enrollment of public institutions has had a significant impact on both sectors. The level of control exerted by the UNC Board

of Governors over the 16 public institutions also speaks to the system's power to develop and maintain postsecondary policies that effect generations of North Carolina residents. For instance, policies created by the UNC Board of Governors in the 1980's such as the "18% rule" and universal admission standards are examples of the system's authority to create policies that also impact private colleges in the state, as well as secondary education.

The "18% rule" has had a profound effect on higher education in the state. But for a small number of the most selective private institutions in the state, the "18% rule" has worked to create a more insulated higher education environment, if not marketplace in North Carolina. The policy has limited the number of out-of-state students enrolling at public and private institutions, and has simultaneously encouraged residents to attend public and private colleges within North Carolina. Working together with low public tuition, state grant aid to private colleges, and immediate employment opportunities close to home, the insular nature of North Carolina higher education marketplace is a unique model within the United States.

The UNC System's minimum admission standards have also had a significant effect on a generation of North Carolina high school graduates. The standards not only limited enrollment to, low cost, public universities, but also led to changes in the secondary curriculum, limiting the number of students who could meet those same standards. In concert with the "18% rule," the minimum admission standards have assured that both public and private institutions will continue to have consistent enrollment. Public institutions have the ability to attract the students with the highest academic ability in the state. Private institutions can benefit from setting their admission

standards at, or even slightly below, state minimums in order to attract high ability students who may be deficient in one or more academic area. The success of this balance, is that there have been no major public challenges to the standards since they were established in the 1980's.

These UNC System policies, along with legislation passed by the General Assembly have created equilibrium between the public and private, nonprofit, sectors in North Carolina. I argue that the unintentional combination of state postsecondary policies, acting in parallel, explains the equilibrium between the public and private sectors in North Carolina. Furthermore, the equilibrium is sensitive. Subtle changes in higher education policy regarding grant aid, out-of-state students, or state appropriations could have dynamic consequences for both sectors concerning LSES enrollment. For instance, if out-of-state enrollment was allowed to increase at just a few UNC System institutions, it could create a chain reaction affecting the enrollment of hundreds of students within the state. An out-of-state enrollment increase at UNC-Chapel Hill and NC State could mean that in-state students would seek enrollment at some of the system's mid-selective public institutions, such as Appalachian State and East Carolina. The enrollment shift could continue on to the system's less selective institutions, and eventually lead to a population of students being displaced and possibly absorbed by the private institutions. I would argue that the population that would be most affected by such an enrollment shift would be LSES students, placing the higher costs of postsecondary education on a disproportionate number of poorer students.

Maintaining the public/private LSES student enrollment equilibrium benefits the state from a capacity perspective. According to 2010 census, North Carolina is the sixth

fastest growing state in the nation (Mackun & Wilson, 2011). As indicated in the analysis, the UNC System has also experienced incredible enrollment growth during the last decade, aided by popular bond mandates. By providing need based and non-need based grant aid to in-state students attending in-state private institutions, North Carolina created an incentive that promoted attendance at private institutions that had “empty beds” and alleviated the burden of enrollment from the stressed public system. In the future, the application of grant aid could be especially helpful if the state expected a temporary growth in enrollment. State grants for in-state privates would be a fraction of the long-term costs of having to build additional classroom buildings and residence halls, not-to-mention the range of services and added personnel that would be required for such a population increase.

The Influence of Higher Education in North Carolina

A common thread between all three questions in this study is that a small group of private institutions have the ability to not participate in state aid programs and therefore are not influenced to the same degree by state policies as those institutions that must subscribe to them. Wealthy private institutions such as Davidson, Duke, and Wake Forest have the endowment and tuition capital to “opt out” of state grant and aid programs. UNC-Chapel Hill and NC State benefit from the insular nature of the North Carolina and are able to select from the most qualified applicants in the state. Although these North Carolina flagship universities have a great deal of influence within state government and have the resources to undertake and set significant institutional tasks and goals, the public institutions are inexorably tied to the state and its control.

For a majority of public and private institutions in North Carolina, state policies and oversight have a great deal of influence on institutional behavior. Concerning public institutions, the state regulates academic programs, admission standards, price, and total enrollment at each UNC institution. Internally, each state institution controls its own admissions and financial aid process. It was at the institutional level, particularly at mid-selectivity public institutions, that shifts in LSES enrollment were expected to occur based on the research (Baum et al., 2010; Berg, 2010; Perna & Titus, 2004). Yet, between 2002 and 2009, there were only slight changes in enrollment at these institutions. Notably, LSES enrollment in North Carolina institutions of higher education actually increased during this same time period. What is unclear is if LSES levels were higher or lower in the preceding decade and how LSES enrollment was distributed between the public and private sectors prior to 2002.

Private institutions have far more flexibility regarding academic programs, enrollment, and price. Yet, with over 40 years of state grant aid accompanying in-state students, North Carolina has invested significant amounts of taxpayer dollars into private institutions throughout the state. Of the 33 private institutions in North Carolina, federal grant recipients accounted for 25% or more of total enrollment at 24 institutions. Federal grant recipients accounted for 50% or more of total enrollment at nine private institutions. Beyond LSES students, it is important to note that upper-income, in-state, students also benefited from non-need based state grants. For example, during the 2008/2009 cohort year, Elon University enrolled 84 federal grant recipients; however, 348 students of the 1,291 in the freshmen class received state aid. State grant aid was correlated with in-state enrollment; during that same academic year 71% of Elon's enrollment was out-of-state

students. The average out-of-state enrollment for the private sector was 42%, with 22 institutions at or below the average enrollment. This suggests that even more selective private institutions, not just those that are tuition-driven, benefited from enrolling in-state students and receiving state grant dollars.

As discussed in chapter 2, it was thought that endowment and non-need based institutional grant aid would have significantly negative effects on LSES enrollment at both private and public institutions. The results of the stepwise analysis for question 3 demonstrated that endowment was not a significant variable to predict LSES enrollment throughout the decade. Average institutional aid was significant for only the 2008-2009 cohort year, and had a positive predictive effect on LSES enrollment. Again, I would argue that the results of the analysis demonstrated the influence of state policy across both sectors. The state has a significant amount of control over the wealthiest of public institutions and influence the enrollment behavior of many privates based on indirect state appropriations through grant aid dollars.

Addressing Inequities

Higher education is strongly anchored to North Carolina's origins and ongoing development as a state. Events such as the influence of the Presbyterians in the 1700's, the Populist movement in the 1800's, and the creation of Research Triangle Park in the 1950's contributed to a special culture of support for both public and private institutions in the state. In the present day, tuition remains low, state appropriations are high, and billion dollar higher education referendums pass with ease.

Still, the success of the public/private equilibrium comes at a cost. The "18% rule" has acted to protect the higher education ecology, if not, marketplace of the state.

Limiting out-of-state enrollment offers additional opportunities for residents to attend low cost institutions. Indeed, the greatest benefit of a strong “cap” policy benefits LSES students, who would mostly likely be pushed out of individual state institutions if the percentage of out of state students was increased. Conversely, while the “18% rule” has worked to protect LSES enrollment, the universal admissions standards adopted shortly after capping out-of-state enrollment have had a profound effect on limiting LSES student access to the UNC System. The effect of the admission policy was amplified by the adoption of secondary curriculum tracks that limited the number of students who would have the ability to meet the UNC System’s minimum requirements. Under the tracking structure, LSES students were disproportionately placed in non-college preparation tracks.

Beyond direct UNC system policies, the UNC System has a historical legacy of racial inequality within its public institutions. The UNC System begrudgingly adopted a federally mandated desegregation policy in 1981, yet minority enrollment failed to increase at the state’s flagship institutions as agreed upon within the settlement between the federal government and the state (Minor, 2008). Instead, minority enrollment increased and remains high at the UNC System’s least selective institutions (Minor, 2008).

Policy Recommendations

Earlier in this study, I discussed North Carolina’s state motto of *Esse Quam Videri*: to be, rather than to seem. I challenged the state’s axiom of transparency because as I began this study, supposing that the state’s higher education policies disenfranchised LSES students in favor for their upper-income peers. At the conclusion of this study, I

consider North Carolina to be a state that holds a great deal of postsecondary opportunity for LSES students.

North Carolina's higher education policies effect LSES students in positive and negative ways. Yet, based on the findings of this study, I believe that the UNC System, the NCICU, and policymakers have the power to take popular support for higher education within the state and use that social capital to make positive policy changes on behalf of LSES students. There are three policy recommendations that can and should be made for the benefit of LSES students and higher education in North Carolina.

First, any future ratification of the state's constitution should include some language within the higher education amendment referring to the state's relationship with private institutions. It is difficult to argue that private institutions have not played an important role in the state's history and current prosperity. During the 2008-2009 cohort year, 35% of federal grant recipients were enrolled at private institutions, illustrating the importance of the sector's role in providing capacity for LSES students in the state. Thus, codifying the role of private institutions helps to protect both LSES students and the future of private institutions in North Carolina.

Second, both public and private institutions should exercise their influence within the state's secondary education system. Tracking has been a clear disadvantage for LSES students since its implementation in the late 1980's. As of 2009, changes have been made to the secondary curriculum in order to encourage more students to meet the UNC minimum admission standards. However, there remains enough flexibility within the new structure to allow both districts and schools to not offer additional upper level courses. It has been demonstrated that the UNC System can affect the secondary

curriculum, and that public and private institutions have come together in the past to form successful partnerships. Through coordination between the UNC System, the NCICU, and the NCSEAA a network of college preparation “bridge” programs could be implemented throughout the state. In the past, the onus for such “bridge” programs has been placed solely on community colleges and institutions that hosted federal TRIO programs that only reached a small number of LSES students. Although the four-year institutions may not be able to directly affect curriculum changes, a coordinated program of preparing LSES students and their families for the benefits, expectations, and rigors of college level work could create a popular movement that would demand access and expansion of advanced secondary courses. The state could also provide stronger financial incentives for improved transfer programs between the state’s community colleges and public and private four-year institution.

The final recommendation is a warning or reminder that the postsecondary equilibrium, or “mixed system,” is fragile. Future policies, even those developed with the best intentions of addressing historical educational inequities in the state, could have serious repercussions on the equilibrium. In contemplating major policy changes within North Carolina, administrators, institutional leaders, lawmakers, policy advocates, and voters should consider the symbiotic nature of the higher education ecology of the state. Over the past 50 years, North Carolina’s higher education policies have created a unique environment that supports both public and private institutions. LSES students have also been the beneficiaries of such an environment, especially regarding state financial assistance to attend private institutions. To this end, there needs to be open discourse among the all constituent groups about the relationship between the state and private

institutions. Such an ongoing conversation could help to avoid a legislative catastrophe, such as the Pope Center's recommendation (Schalin. 2011) to withdraw all state funds from private institutions.

A Self Critique of the Study

Data were the primary limitation of this study. IPEDS data allowed for institutional level data to be quickly compiled and analyzed. Yet, IPEDS data had several restrictions such as limited variables and limited years of variable availability. In an ideal world, a student level data system would allow a researcher to follow the progress of a single student through the primary, secondary, and postsecondary levels, and beyond. Although this can be accomplished to some extent through NCES national sample surveys, similar state specific data is not available. Such a data system would allow for a more comprehensive study including the contributions and effects of community colleges and for-profit institutions.

Another limitation was the state specific nature of the study. The analysis focused on a small population of 49 public and private institutions. There was a great deal of variance within the entire sample and within each sector. More specifically, accounting for the variance within and between sectors led to interpretations that were not as direct if sectors had been analyzed separately, or if a hierarchical schema had been applied prior to the analysis. For future research, and to test the findings of this study, the application of a hierarchical, sector specific framework should be considered.

The final critique of this study is one of the researcher himself. I was a product of North Carolina public schools and attended a private college within the state. Because of my experience as a student, I wanted to better understand the historical and political

environment in which four-year public and private institutions functioned in North Carolina and how that environment impacted LSES students. This study challenged my assumptions and knowledge about higher education in North Carolina, and my home state in many ways. I was unaware of the connections between the statehood and the founding of the nation's first public university. I assumed that the General Assembly was far more conservative. Although I was aware of curricular tracking throughout the nation, I did not know that it was mandated in North Carolina. Lastly, I thought that North Carolina would follow national trends regarding LSES enrollment, which was not the case. I attempted to eliminate my personal biases from this study by actively discussing my research and findings with academic advisors, colleagues, and higher education administrators in North Carolina.

Recommendations for Future Research

This study could have been undertaken through alternate approaches, many of which would not have required as an extensive and broad approach as through the modified contours of governance model. However, such a study of North Carolina would have resulted in similar conclusions reached by Hearn, Griswold, and Marine (1996), who could not explain the history or culture behind the policies that resulted in unique state specific results. I would encourage that holistic theoretical frameworks, such as the modified contours of governance model, be applied to other states. Doing so will allow for the development of a strong core of state specific literature and will allow for ongoing analysis as better data become available.

This study discussed the inception dates and focus of present day higher education policies in North Carolina. Yet, the stories behind these laws, organizations, and dreams

of what postsecondary education should look like in North Carolina remain largely undocumented. Since many of these policies were passed in the 1970's, the window for interviewing institutional leaders, state lawmakers, and other stakeholders involved in the policy process of that era is quickly closing. Whether historical accounts of these policies are gathered as part of an oral history project, documentary, or qualitative study, it is imperative that such work is done as soon as possible.

There are additional opportunities to continue to work with the existing data compiled for this study. As mentioned previously, analyzing the sample by individual sector or through a hierarchical design could lead to further outcomes that could confirm, accentuate, or contradict this study's findings. In addition, examining completion rates within these same North Carolina cohorts would help to shed additional light on the impact of state support, particularly the investment in private institutions. There are also opportunities to experiment with other IPEDS variables, in composite or proxy form, that may allow for analysis over longer spans of time, perhaps into the early 1990's.

Conclusions

Even as this study was being completed, the funding dynamic between the state and private institutions was changing. During the 2012-2013 North Carolina legislative session, the General Assembly passed a bill that eliminated both the NCLGT and SCSF grants, and established a new scholarship fund for in-state students attending private colleges in North Carolina. The North Carolina Need-Based Scholarship Program (NSB) will only apply to LSES students who qualify for the federal Pell grant program, or who have an expected family contribution that does not exceed federal and state guidelines (NCSEAA, 2012). Although the amount of the scholarship will be determined by the

NCSEAA each year, it is anticipated that the amount of the scholarship will be an amount similar to the two previous state grants. The new scholarship will go into effect for the incoming fall 2012 cohort. IPEDS data from that entering cohort should be available in 2015.

The NSB has implications for both the public and private four-year universities in the state. The most significant change is that the upper-income, in-state, students will no longer have access to state aid to attend a private institution in North Carolina. This change in policy could be the action that disrupts the enrollment equilibrium that currently exists in North Carolina, in that additional upper-income residents would seek admission to the UNC System. If an enrollment shift does occur, it will most likely be incremental, over an extended period of time. It could be another decade before researchers can understand the impact of this policy.

The most significant narrative about this new policy is that this was a moment where legislators could have eliminated state aid to private colleges altogether. Indeed, due to a clerical error, during that same legislative session the North Carolina Lottery Scholarship was not renewed. It is unclear if this change in policy is the beginning of a effort to remove all state aid from private institutions in North Carolina, or was simply a move by the General Assembly to concentrate financial aid where it is need the most. The fact that state aid remains for LSES students at private institutions reinforces the relationship between the state private colleges that has been discussed throughout this study.

To be rather than to seem... Since 1841, when the General Assembly first granted a loan to Wake Forest, the state has been actively involved in helping private

institutions flourish, and to some degree, survive, within its confines. As of 2009, private institutions enrolled 35% of the LSES students seeking bachelor's degrees in the state. This demonstrated the significant role that nonprofit private institutions play in the higher education access ecology of the state. In closing, I contend that North Carolina's motto acts as a perfect metaphor for the current relationship between the state and private institutions. There is a meaningful bond between the state of North Carolina and its private institutions. One of the products of that bond is a significant population of LSES students who have had the opportunity to pursue a degree at a four-year institution. Still, it is a bond that is not well understood by the people of the state, nor solidified through state law.

Appendix A

Table A1

Total Freshmen Enrollment, Total Federal Grant Recipients, and Total Percentage of Federal Grant Recipients at North Carolina Public and Private, Non-profit, Institutions in 2008/09

Public Institutions			
Institution Name	Total Freshmen Enrollment 2008/09	Total Federal Grant Recipients 2008/09	Percentage of Federal Grant Recipients
Appalachian State University	2773	408	14.7%
East Carolina University	4522	912	20.2%
Elizabeth City State University	636	430	67.6%
Fayetteville State University	579	412	71.2%
North Carolina A & T State University	1592	896	56.3%
North Carolina Central University	1026	684	66.7%
North Carolina State University at Raleigh	4792	928	19.4%
University of North Carolina at Asheville	586	120	20.5%
University of North Carolina at Chapel Hill	3852	607	15.8%
University of North Carolina at Charlotte	3060	838	27.4%
University of North Carolina at Greensboro	2472	789	31.9%
University of North Carolina at Pembroke	1057	506	47.9%
University of North Carolina School of the Arts	182	43	23.6%
University of North Carolina-Wilmington	2069	293	14.2%
Western Carolina University	1219	341	28.0%
Winston-Salem State University	1353	852	63.0%
Private Institutions			
Barton College	247	101	40.9%
Belmont Abbey College	286	74	25.9%
Bennett College for Women	192	125	65.1%
Brevard College	183	46	25.1%
Campbell University	800	456	57.0%

Table A1 con't

Total Freshmen Enrollment, Total Federal Grant Recipients, and Total Percentage of Federal Grant Recipients at North Carolina Public and Private, Non-profit, Institutions in 2008/09

Private Institutions			
Institution Name	Total Freshmen Enrollment 2008/09	Total Federal Grant Recipients 2008/09	Percentage of Federal Grant Recipients
Catawba College	247	55	22.3%
Chowan University	321	293	91.3%
Davidson College	480	55	11.5%
Duke University	1699	248	14.6%
Elon University	1291	84	6.5%
Gardner-Webb University	441	153	34.7%
Greensboro College	212	54	25.5%
Guilford College	406	88	21.7%
High Point University	882	201	22.8%
Johnson C Smith University	554	309	55.8%
Lees-McRae College	229	84	36.7%
Lenoir-Rhyne University	346	107	30.9%
Livingstone College	332	238	71.7%
Mars Hill College	299	132	44.1%
Meredith College	397	77	19.4%
Methodist University	439	156	35.5%
Montreat College	118	45	38.1%
Mount Olive College	339	155	45.7%
North Carolina Wesleyan College	233	183	78.5%
Peace College	185	71	38.4%
Pfeiffer University	194	75	38.7%
Queens University of Charlotte	307	65	21.2%
Saint Augustines College	484	342	70.7%
Salem College	118	85	72.0%
Shaw University	532	401	75.4%
St Andrews Presbyterian College	138	41	29.7%
Wake Forest University	1199	137	11.4%
Warren Wilson College	249	42	16.9%
Wingate University	431	122	28.3%

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