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EVALUATING THE POLICIES THAT LEAD TO SUBSTANTIAL
TUITION VARIATION AT PUBLIC LAND-GRANT UNIVERSITIES

EVALUATING THE POLICIES THAT LEAD TO SUBSTANTIAL
TUITION VARIATION AT PUBLIC LAND-GRANT UNIVERSITIES

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy in Public Policy

By

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May 2009
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ABSTRACT

Since the 1980's, the tuition at public colleges and universities has increased at a rate far beyond that of normal inflation. During this period, many public institutions have increased their tuitions exponentially, while others have chosen or been able to retain stable and relatively inexpensive tuition rates. The aim of this study was to examine what policies and external trends are responsible for public institutions having such wide variation in their tuition costs. Therefore, this study isolated one type of public institution, which was land-grant universities, that have a mission and tradition of providing affordable educations to examine the causes of this wide level of tuition variation.

Data for this study were collected by utilizing a mixed methods approach that focused on the characteristics of specific institutions. A quantitative examination was conducted to evaluate the effects of certain external aspects of tuition setting. Also, a qualitative policy and content analysis was conducted to evaluate the causes, both policy and otherwise, for the variation at both the institutional and state level. Combined, the findings of this study indicated some significant, and some less than significant, factors that were directly linked to tuition setting and the tuition variation.

Essentially, the research indicated that the tuition variation was the result of a variety of issues. The content and policy analysis of institutions with exceptionally high tuition rates revealed that their respective state legislatures and state coordinating boards had very little control over the tuition setting process. Conversely, universities with relatively low tuition rates had very little autonomy over tuition setting. Thus, institutional autonomy over tuition setting seems to be a major contributing factor to the wide range of tuition costs across the nation.

The quantitative analysis was utilized to examine the effects of external aspects on the tuition rates of each state. The composition of each universities respective state's legislature, the quality of the institution as measured by *U.S. News and World Report* (USNWR), the geographic location of the university, and the percentage of each states budget dedicated to higher education were a few of the variables that were examined. Essentially, the research indicated that while some of the variables were either predictive or correlated, many were not. For instance, geographic location is a significant predictor of college costs as is the percentage of a state budget dedicated to higher education. Further, the partisan makeup, level of professionalism, or the amount of appropriations committed to higher education in each institution's respective state legislature was not predictive nor was institutional quality as measured by *USNWR*. Finally, the study demonstrated a frail and only marginally significant correlational linkage between college quality and costs.

This study successfully indicated that state policies regarding institutional autonomy have a significant affect on college tuition rates. Essentially, the more autonomy and discretion that an institution had, the more likely it was to have significantly higher tuition costs. Further, the less tuition setting autonomy and discretion an institution had, the more likely it was to have lower tuition costs. Additionally, college tuition could be significantly predicted by both geographic location and the percentage of a state's budget dedicated to higher education. Finally, this study more-or-less discounted the conventional logic that price was positively correlated with quality as this study demonstrated a very frail and only marginally valid correlation between quality and tuition costs.

This dissertation is approved for
recommendation to the
Graduate Council

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One does not write a doctoral dissertation without a lot of help, especially when that person is me. I have so many people who have helped me get to the point where I am today that I would need much more time and paper to acknowledge them all. First of all, I certainly have to thank the Lord for blessing me with at least an average level of intelligence and drive that I needed to get this project done. Although I have done much to betray His expectations, He has remained true and most gracious.

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DEDICATION

To my wife, soul-mate, and best friend Prairie Leigh Burgess, who put her dreams on hold so that I might achieve mine.

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CHAPTER I

INTRODUCTION

Context of the Problem

According to the College Board (2006), public college and university tuition costs throughout the United States have increased by 35% since 2001, which was more than twice the rate of normal inflation. While most policy makers, colleges, and universities continually justified these increases as necessary in the situation of scarcity and decreased resources, the tuition setting protocols of different states have produced different results and outcomes. While some states tuition costs have increased exponentially, many states have opted to retain relatively stable tuition options for their resident students.

In the United States, the financing of public higher education has largely remained the function of state and local governments. While the public higher education systems of each state presumably seek to serve the same purpose of providing a subsidized, advanced education to its citizenry, each state has unique and sometimes vastly different approaches for administering and financing higher education (Hovey, 1999). Nowhere is this differentiation more evident than the tuition rates of various public colleges and universities. For example, in 2007 the annual average in-state tuition in Vermont public colleges and universities was \$8,771, while in Nevada the annual average in-state tuition was less than \$2,500. The national mean for annual public in-state tuition was \$5,223, with a median annual tuition around \$4,500 (The US Department of Education, National Bureau of Educational Statistics, 2007).

Generally, public colleges and universities have had significantly lower tuition rates than those of private institutions. This was in large part due to the public financing

and subsidizing of institutional costs, instructional and otherwise, by each state. On average, a state contributes approximately half, to two-thirds of a typical Full-Time Equivalent's (FTE) student's costs while attending a public college or university (Boatman & L'Orange, 2007). This was presumably done in order to promote access to higher education by most levels of the socio-economic strata, thereby enhancing a state's citizenry both economically and otherwise. While the subsidizing of public higher education demonstrates a mandate to educational access, the nation's land-grant institutions have been charged to take that mandate even further (Lucas, 1994).

It might be thought that public land-grant institutions, with their historically egalitarian mandates, might somehow seek to promote access through providing comparatively affordable tuition rates, although this was clearly not always the case (Bouge & Aper, 2000; Lucas, 1998). In looking at land-grant institutions, a great deal of variation becomes evident with Cornell University (the only non-public land-grant university) having the highest annual tuition at just over \$30,000 in 2007, and the University of Nevada-Reno having the lowest at an annual cost of \$2,982 in that same year. In 2006, the highest tuition at a public land-grant institution was the University of Vermont at \$10,226 which is 342% higher than at the University of Nevada-Reno (The College Board, 2006). When taken into consideration that the 2006 cost of living in metropolitan areas in Vermont are only 4.9% higher than those in Nevada, the difference becomes even more evident (US Census Bureau Data, 2007).

The aim of this study was to evaluate what the current state of, and the policy causes for, the substantial variation in the tuition rates of America's land-grant universities. This aim was pursued with the objective of trying to identify consistent and

revealing policies, practices, and circumstances related to the high level of variation that existed between the tuition rates of land-grant institutions. Further, in light of the global inflation of tuition rates, it was hoped that this study would isolate the basis for these increases and eventually propose some best-practice solutions for institutions and states to possibly emulate.

Statement of Purpose

The purpose for conducting this study was to evaluate the causes for the substantial variation in the tuition rates at America's land-grant universities. While extensive research exists regarding the environment surrounding public post-secondary tuition and access policies, there has been little conclusive research connecting specific policies and circumstances to tuition rate variation. Therefore, this mixed-methods study sought to identify the consistent policies and external factors were significantly correlated to tuition costs at land-grant universities.

Statement of the Research Questions

This study satisfied the following research questions:

- (1) Among public land-grant universities with relatively high tuition costs, what are the consistent and defining institutional and public policies?
- (2) Among public land-grant universities with relatively low tuition costs, what are the consistent and defining institutional and public policies?
- (3) To what extent were the levels of discretion correlated with the tuition costs at public land-grant universities?

- (4) To what extent were external & non-institutional factors correlated with a public land-grant university's tuition prices?
- (5) To what extent is there a correlation between tuition costs at ranked public land-grant universities and their *U.S. News and World Report* rankings?
- (6) What are the consistent trends, policies, and circumstances, that cause the high level of variation in the tuition rates of America's 49 public land-grant universities?

Limitations and Delimitations

For reasons of focus, conciseness, and practicality, the study contained the following delimitations:

1. The study was limited to the 49 public land-grant universities that were created under the auspices of Morrill Land-Grant act of 1862. This was done in order to isolate a manageable control group that had a clear and documented mandate to provide an accessible and affordable educational product. Therefore, by limiting the sample to a small group of institutions, the findings had limited external validity with regards to other types of institutions.
2. Although costs other than tuition pose barriers to attendance such as fees, books and supplies, and residential living expenses, tuition was the only measure used in this study to measure potential cost barriers to attendance. These factors were excluded because both their application and policy mandates were too diverse and dissimilar to be manageable. Therefore, the study did not account for other non-tuition costs which might also have presented barriers to attendance and retention.

3. Although some states had varying levels of financial aid to combat inflated tuition costs, the structure and overall effects of state-level financial aid was significantly inconsistent, nebulous, and had varying affects. Therefore, costs were not adjusted according to the level of state financial aide.

4. The data employed for this study was based on 2007-2008 tuition rates and was limited to tuition rates from that period of time. This period was selected for the sake of expediency and to provide a static independent variable base-point. Therefore, the study did not take into account or track tuition rates prior to, or beyond the one-year window of tuition rates.

5. The tuition cost data were based on the 2007-2008 tuition rates while policy and other data were based on years prior too the 2007-2008 year. Though some data were acquired from various years and periods, all efforts were employed to ensure that the data that were utilized were the most up-to-date and current regarding the respective topics. Therefore, the study did not account for potential shifts in the independent variables that may have occurred previously or prior to the study.

Assumptions

The underlying assumption of this study was that there were significant patterns, policies, and other related external factors that are consistent with land-grant institutions that maintain either relatively low or high tuition rates. This was based on the assumption that tuition pricing is related to cost and, that tuition pricing is related to a rational approach by governing apparatuses. These assumptions are consistent with those of Leslie and Brinkman (1987) and Heller (1997).

Furthermore, it was assumed that the data that was collected for this study possesses the requisite level of integrity required for dissertation research. This was insured through peer review, professional oversight, and methodological reliability. Further, all efforts were undertaken to insure both internal and external validity.

Definitions

To promote general comprehension, key terms for the research were operationally defined.

Access: In this context, this concept was related to the level of impediment presented by price at a post-secondary institution (St. John, 2003).

Autonomy: James (1965) described autonomy with relation to higher education as, “the freedom of universities to select faculty, staff, and students; develop curricula and research programs; and allocate resources internally” (p. vii).

Cost of Attendance: This is an institution’s tuition costs. This is the charge for attendance at an institution not including non-tuition fees, residential expenses, or books and supplies.

Commercial Rankings: These are institutional standings that are conducted by non-academic, for-profit entities. In the context of this study commercial rankings consist of the annual rankings that were conducted by *U.S. News and World Report*.

Discretion: A measure of autonomy granted to a post-secondary institution or institutional governing board (Kelman, 1990).

Full-Time Equivalent (FTE): This refers to a student who is enrolled in 30 semester hours or more per year in a post-secondary institution. For the sake of this study, every FTE consisted of 30 credit hours per year. (The College Board, 2006).

Human Capital: Refers to the value and effects of education and other personal or social enhancements on labor productivity and income growth (Brimley & Garfield, 2005).

Inelasticity: An economic measure of price response where supply only minimally affects demand (Carbaugh, 2006).

Land-Grant Universities: Post-secondary institutions that were created and partially funded according to the auspices of the Morrill Land-Grant Act of 1862. These institutions were funded and created from revenue created from the sale, leasing, or development of lands set aside to fund the creation and sustainability of selected public universities (Lucas, 1994).

Socio-Economic Status (SES): A measure of a household or individual income, education level, occupation, and community status (Gould, 2002).

Significance of the Study

According to St. John and Starkey (1996), cost is the most significant barrier to attendance and persistence for students pursuing a higher education. Therefore, as costs continued to rapidly escalate at American public colleges and universities, it has been postulated that access will continue to erode as higher education pursued more independent and market based frameworks (Rhoades and Slaughter, 1997). In this environment of decreasing cost access, the significance of the study was informed by the

potential detriment to both individuals, higher education institutions, and the American social order (Pascarella & Terenzini, 1991).

Clearly, the potential for harm to individuals was based on the assumption that higher educational attainment is a personal good. According to Pascarella and Terenzini (1991), and Leslie and Brinkman (1988b), the typical college graduate earned in excess of \$1,000,000 per lifetime more than their counterparts with only a high-school education. Additionally, college educated individuals were less likely to be incarcerated, absent parents, or be less efficiently productive. This was in addition to the increased likelihood that a college educated individual will be an engaged citizen, raise children who will also attain higher education, and generally personify American middle-class values.

The potential for harm to institutions of higher education is also substantial. Many American higher education institutions, especially land-grant institutions, were created with the mandate of promoting economic and demographic diversity (Lucas, 1994). According to Rhoades and Slaughter (1997), higher education has been abandoning this concept through raising tuitions while concurrently shifting financial aid away from needs-based criteria to more merit based conditions. Therefore, the potential for American higher education institutions to become less racially, ethnically, and economically diverse posed a significant threat to the espoused values and mandate of many public institutions.

Perhaps most significant was the prospective harm that rapidly escalating tuition costs could have on the greater American social order. According to Fry, Turner, and Carnevale (1999), higher education was one of the most significant vehicles for social

mobility in the United States. As cost access continues to erode, the potential for a significant shift in the American social doctrine and progression is eminent. Since the economic and social structures of the United States are dependent on the qualified workforce and the sizeable middle class that accessible higher education sustains, the demise of the current mandate could be detrimental.

Therefore, in light of the aforementioned consequences, this study provided a working framework for evaluating public higher education institution's cost structures. This was significant because little research regarding the topic has been performed and thus, this study can serve to initiate further research and its application to other types of institutions.

Another significant aspect of the study was its potential for providing a best practices framework for policymakers and other relevant stakeholders to utilize. Thus, while the paper did not design or originate new policy solutions for relatively high tuition rates, it will provide descriptive and illuminating information about institutions and policies that have led to relatively low tuition rates. Therefore, the significance of this study is its implicit, yet passive espousing of relatively low tuition cost strategies.

Finally, the significance of this study was also valid because there is an absence of research on the overall causes, both political and otherwise, of the wide range of tuition variation. Studies such as Rusk and Leslie (1978), and Koshal and Koshal (1998), effectively isolated a few of the significant variables related to tuition costs, but there were few studies linking specific policies to tuition rates. Furthermore, there are no studies that sought to expand on various external factors such as demographic, social, and philosophical trends in tandem with policy considerations. Therefore, the significance of

this study rests with its contribution to the universe of knowledge regarding tuition costs and access.

CHAPTER II

REVIEW OF RELATED LITERATURE

The aim of this chapter was to provide an overview of the extensive literature and research that has been related to the topic of higher education tuition. Essentially, this literature review has been compartmentalized into five primary sections, each with various secondary sections. The five primary sections reflect an extensive review of the research concerning the following concepts: access, tuition setting, governance, institutional rankings, and appropriations. These sections were guided by the major concepts of each of the six research questions related to the study and served to provide a foundational venue for this dissertation's aims.

Literature related to tuition, its determinates, and its effects are well represented in the academic universe. Since many of the concepts overlap with economic and finance principles that were established in the early 20th century, much of the lineage of this research is sufficiently established and considered conventional knowledge.

Approach to Literature Review

The review of literature for the study began with a search of ProQuest Dissertations and Thesis' (Digital Dissertations) in order to locate previous dissertation research on the topic of tuition setting and tuition policy. The handful of dissertations regarding tuition policy yielded a sufficient background of literature on the topic of tuition policy and other related topics. While the concepts and content of these dissertations were minimally consulted, their reference pages were utilized extensively.

After dividing the literature review into its five constituent areas of access, tuition setting, appropriations, governance, and rankings, searches were guided by the quest for two aspects from each topic's line of research. These areas were selected due to their salience to this dissertation's five research questions.

The first aspect was a quest for founding or pioneering literature regarding each respective topic. The second aspect was built from the first aspect and attempted to build a logical and chronological progression of the research that had developed since the early pioneering studies. It is important to note that while the second aspect was assembled logically and chronologically, each section emphasized research conducted since 1998.

In addition to looking at the referenced sources of dissertations, various electronic databases like JSTOR, ProQuest, WorldCat, and Google Scholar were used to locate previous research from various journals. Journal articles, manuscripts, and other related content were often selected for this review of literature based on three criteria beyond salience to the topic area. The three search and review criteria were: the direct linkage of a title with a respective concept, the number of times the article has been cited, and linkages or updates to previously utilized research. The yield of the search criteria was scrutinized and was either consulted for sources, used as relevant research content for the review of literature, or completely disregarded. Through this method of reduction, 81 of approximately 120 possible sources were selected for inclusion in the review of literature.

Section I: Education and Accessibility: The Economics of Higher Education

The Economics of Access: Price Response in Higher Education

There is a plethora of literature regarding the cost accessibility of higher education in the United States. While the inverse relationship between lower tuition and accessibility can

be traced to the philosophical groundwork surrounding the Morrill Act of 1862, substantial research on the topic began to be undertaken in the 1970's (Heller, 1999). Nerlove (1972) was one of the first to broach the topic with his analysis of the economics of higher education tuition pricing. His study explained the economic framework surrounding higher education in the 1970's, which was when modern market forces in higher education began to manifest themselves. According to Nerlove, higher education was an inelastic economic good, but only within the framework that it currently existed and only on a collective basis.

Thus, people seemed to pursue higher education irrespective of the price structures of the 1970's, but did exercise preference within the realm of higher education by often seeking to match the type of institution that they attended with their financial means. In other words, their means may not have adversely affected their ability to attend post-secondary institutions, but it certainly played a part in which one they attended. According to his research, this made higher education inelastic only insofar as it was evaluated collectively and not by constituent type.

While Nerlove's (1972) study seemed to evaluate the macroeconomic aspects of college tuition pricing, Leslie and Brinkman (1987) offered a more microeconomic approach to the subject. Using meta-analysis, they chose to focus more on the individual aspects of price response instead of the collective aspects. What they found reinforced Nerlove's (1972) contention that college attendance was in-fact inelastic in a collective sense, and that it was elastic when dealing with personal preference. Leslie and Brinkman (1987) took the concept further by focusing on the personal or microeconomic levels of that preference.

They found that there was a strong negative correlation between tuition prices and probability of enrollment when certain types of demographic aspects were considered, chief among them being the economic status of the prospective student. Therefore, according to their study, the demand curve for wealthy students was far more steeply sloped than that of poor students, which clearly demonstrated a relationship between cost and preference and brought into question the assertions of the inelasticity of higher education.

Brinkman (1981) conducted a study to evaluate the factors that contributed to instructional costs at major research universities in order to establish whether instructional expenditures per Full Time Equivalent (FTE) student were at all proportional to outputs. His rationale was that FTE per-student instructional expenditures were used as a comparative measure of quality for most institutions. Thus, higher FTE per-student instructional expenditures were widely considered to be related to the perception of better institutional quality.

Cost in his study referred to the amount of money that was allocated for research and instruction per full-time student. Of the 27 institutions used in this study, the FTE per-student instructional expenditures ranged from \$1,619 to \$12,171. His regression model used multiple variables to measure what aspects went into each institution's FTE per-student instructional expenditures, as well as control for variance that was due to external factors such as cost of living and demographic considerations. All of these were collected in order to identify what caused the significant variation in costs and their subsequent effects on institutional outputs.

According to Brinkman (1981), most variation in full-time student enrollment could be linked to “institutional differences in instructional output” (p. 275). He contended that when all variations were accounted for, there was no significant or proportional connection between per-student instructional expenditures and institutional outputs. This held true for both the public and private institutions used in the study. He held that this could be due to a variety of factors, though it was most likely due to “the way these institutions provide institutional services” (p. 275), which meant that each institution distributed and appropriated per-student funds differently. He concluded that FTE per-student instructional expenditures were poor measures of institutional quality as they were suspect and not wholly reliable.

De Groot, McMahon, and Volkwein (1991) wrote a widely cited article that examined the cost structure economics of research institutions. Their study focused on doctoral granting research institutions that they treated as multi-product firms. They based their methodology on the cost-function measurement framework that was established by James and Rose-Ackerman (1986) in which a trans-log specification formula was used to determine economic framework of non-profit organizations. De Groot, McMahon, and Volkwein’s model looked specifically at undergraduate full-time equivalent enrollment, graduate FTE enrollment, and research publications as output measures.

De Groot, McMahon, and Volkwein (1991) found that the cost structure of research institutions were similar, although their level of output varied widely. They found that research universities could be considered both economies of scale as well as economies of scope. This referred to the ability to have significant purchasing and

spending leverage of large enterprises (economies of scale), and the perceived and actualized use of these institutions for multiple uses and products (economies of scope). They also found that both private and public institutions behaved similarly and that government finance, regulations or oversight did little to separate public institutions outputs from those of private institutions.

Heller (1997) updated the work of Leslie and Brinkman (1987) by taking their findings and applying them to the economic trends of the late-1990's. He found that their contentions still held true and were further reinforced in the environment of rapidly increasing tuitions in America's public colleges and universities. Thus, using the various inputs and updates to their meta-analysis, combined with additional studies that had been conducted since then, he found even more elasticity in higher education. He concluded that as costs increased, the probability of enrollment decreased. Therefore according to Heller, cost had become even more prohibitive since the 1980's.

Heller (1999) went on to conduct a study independent of Leslie and Brinkman's (1987) constructs which sought to examine tuition response by prospective students in the state of Washington. Using more than a decade of college admissions and demographic data, Heller was able to evaluate not only the effects of tuition increases on students, but also relative to other types of institutions. By controlling for various events including economic downturns and demographic tendencies, he found that overall student enrollment in higher education institution's was significantly affected by price.

He contended that one way to control for the many variables was to evaluate community college enrollment, since it is typically the most affordable alternative for the attainment of higher education. Another reason was because community colleges have

traditionally been more responsive to the pricing policies of four-year institutions than four-year institutions are to community colleges. He justified this with a thorough explanation of consumer response data between the three different types of public institutions that he evaluated. He concluded that a \$1,000 increase in tuition at a community college resulted in a reduction of college attendance that ranged from 2% to 14% depending of the demographic properties of the respective student. This finding seemed to reinforce the contention that higher education has become an elastic rather than inelastic service good.

This relationship was further examined by Kane (1999) who evaluated the many ways that students paid for higher education in the United States. He evaluated the various market structures and the various alternatives for a student to pay for higher education and their affects on enrollment. He concluded with the contention that increases in college tuition in the previous two decades has effected enrollment rates by approximately 4 %.

Burd (2003) went on to reinforce that there was a clear and definite relationship between income and college attendance. He held that while 85 % of high school graduates from families earning more than \$75,000 go to college, only 53 % from families earning less than \$25,000 do so. He also set out to discount what he considered the myth that financial aid serves to completely equalize opportunity, noting that low income families still faced an average need of \$3,800 annually.

Paulsen and St. John (2003) constructed what they called the *Financial Nexus Model* with the aim of evaluating the sequence of student choices that hinge on two outcomes: school choice and persistence. Their model marginally predicted which type of

college or university a person would attend as well as the likelihood of completing a degree during a traditional timeframe. They found that lower socio-economic status (SES hereafter) students were more likely to seek post-secondary education that was the most affordable and were much more likely to lack persistence with regard to degree completion. They attributed this to a variety of economic and social variables, although they maintained that coming from a low income household was the strongest indicator.

They also identified SES based enrollment patterns that were structured on a student's perceptions regarding the costs of college. They found that middle and upper SES students were ultimately more successful in college because they chose colleges based on their abilities to fully finance their education or secure aid. Lower SES students seemed less likely to consider cost, presumably since most of it was likely to be inaccessible regardless. What Paulsen and St. John (2003) found to be most detrimental to the persistence of lower SES students were expenses outside the costs of tuition such as food and housing. They also found a negative effect on persistence on lower SES students who received loans or work- study financial aid. They concluded that data indicate the high tuition/high aid model of higher education was ineffective for promoting access.

Higher Education Pricing: Market Structures, Student aid, and Academic Capitalism

Newman (2004) conducted a study to identify current trends in enrollment and took into account the various demographics and other characteristics that were common upon the entering freshmen at various types of universities. He attempted to identify whether or not existing trends had shifted or improved with regard to access and social stratification.

His findings concluded that while the higher education system had made great strides in overcoming the gender gap that existed in previous decades, access to higher education at certain types of institutions had become more, and not less, socially stratified and less diverse. He concluded that while this was likely the result of many factors, the main two reasons were the increased costs of attending college and the shift away from need based institutional aid to merit based aid. He contended that this could have dangerous implications as those who most needed tuition assistance for higher education, especially in an environment of rapidly increasing prices, were not receiving it at sustainable rates.

St. John and Starkey (1996) conducted a study to evaluate the values of educational aid on students after their enrollment by looking at the net costs of their entire education, rather than initial costs as a barrier to enrollment. They specifically sought to evaluate the effects of cost on enrollment, not on the first time enrollee, but rather on the student's persistence at that respective institution. They conducted this study by using the data from the National Postsecondary Education Student Survey (NPESS) and compared it to different net pricing approaches such as high aid/high tuition, low aid/low tuition, and low aid/high tuition.

They found that the net price of a post-secondary education made college and university attendance even more inaccessible in that it affected persistence. They maintained that high net tuition had a significant negative effect on persistence at all levels, not just those from lower SES backgrounds. As a corollary they found that high tuition had a prolonging effect on degree completion, meaning that higher net prices can equate to more attrition and longer degree completions terms. They concluded that higher

education needs to find a market equilibrium where subsidies and tuition costs are set at an optimal level that improves both access and efficacy.

Slaughter and Leslie (1997) were the first to coin the phrase “academic capitalism” (p. 8) in order to conceptualize the shift in higher education toward a more market driven model. While academic capitalism deals with a host of issues, it has a significant relationship to student pricing.

According to Rhodes and Slaughter (1997) the higher education market experienced a fundamental shift from demand-side economics to supply-side economics in the 1970’s. This shift fully manifested itself through the 1980’s and 1990’s. They found that this shift correlated with the decrease in direct subsidies to public institutions, which they argued had been reduced from an average of 50 % in 1973, to around 33 % in the 1990’s. Another response to this decrease has been substantial increases in tuition and proportional increases in direct student aid.

Thus, institutions became competitive not only for other sources of revenue, but also for students most able to pay the price of their increasingly expensive product. They summed up this sentiment by writing that, “faculty and students are increasingly viewed in terms of their ability to generate revenue and commercial value” (Rhodes & Slaughter 1997, p. 33). They warned that this scenario was the result of “disdain for the less-well off and [by] blaming victims for being unproductive, inverting them victimizers and causes of their own and other social-economic problems” (Rhodes & Slaughter 1997, p. 33).

McPherson, Schapiro, and Owen (1989) conducted a study that evaluated the causes of tuition increases and the effects of decreasing student grants to meet those

increases. Their research was notable in that they integrated student aid, tuition, and government financing of higher education in one study.

They found that as a state's share of higher education funding continued to decrease, tuitions responded by a higher than proportional increase. In this environment one might expect the federal government to respond by increasing the availability of grant-based student aid, but, the federal government responded by implementing a slow proportional decrease in grant-based funding, choosing instead to direct funds more toward loans. They demonstrated that while federal funds have continued to decrease, institutions have shown a large-scale trend toward merit aid for college instead of means-tested aid, meaning that those who are least likely to afford college will also be the ones least likely to receive institutional aid for their post-secondary education. They concluded that this was a dangerous situation because it endangered some of the principles of social mobility, as those who could least afford college might be shut while as those who needed the aid least are able to monopolize the available resources.

Dill (2003) conducted a comparative study looking at the entrenched market-driven system in the United States and the developing market-driven system in the European Union (EU). He evaluated why the market system in the US has been deemed successful and was starting to be replicated in Europe in various degrees and aspects. He also sought to identify some of the less foreseen pitfalls of such a transition by evaluating the results of the market driven system in the US.

Using statistical and policy data from both the US and the EU, he found that the EU was transforming its current system to a market driven model similar to that of the US. As a result, the EU has taken substantial measures to reduce inefficiencies and insure

that higher education remains competitive with their trans-Atlantic counterparts. He also found that though it has always existed in Europe to some degree, there was a continued and reinforced reluctance to base student aid on merit rather than need. He concluded by writing that while market-based reform can have beneficial effects on European Higher Education, it would behoove them to consider what he saw as the side effects and shortcomings present in the US System.

Geiger (2007) conducted an analysis that sought to isolate market trends in public research universities. He contended that public research universities had become significantly more “elite”, which he defined as a situation where, “students with top academic qualifications are more often recruited from the national market, and on balance, [were] of higher socio-economic status” (p.21). In his qualitative research, he evaluated various public universities in order to find whether or not they were becoming more elite by raising their tuitions, increasing their out of state applicants, and increasing their standards.

Geiger found that most public research universities were becoming more market based, which he contended was also making them more “elite” in their scope. He found that all but few of the institutions in his study were actively recruiting and enrolling out of state students, significantly raising their tuitions, and in general increasing the number of students with elite academic credentials. Interestingly, he found that the only major research institutions in his study that were not adopting wholesale market ideologies were institutions that were restricted by state mandates from doing so. He concluded by warning that while a market based situation may seem like a desirable situation, it could

be potentially detrimental to the American social order as institutions betray their traditional public service missions and mandates.

Economic Outputs of Access: Human Capital, economic development and social benefits

Though it is difficult to pinpoint when or where the idea of human capital developed, it was probably best articulated by Schultz (1961). Though people may have often rationalized the idea of human capital, the Nobel Lauriat author was one of the first to clearly articulate and explain the concept. Almost all literature regarding human capital can be traced to his seminal work.

Schultz (1961) laid out the now widely known model where not all labor is equal, rather the value and attributes of employees can be enhanced by investing in the individual and the economy collectively. From this prospective, individuals, businesses, and the government invest in education as a way of improving their marketability and worth, which collectively has societal implications.

Bowen (1977) dissected human capital even further by evaluating the different types of value that a completed higher education might have on individuals and society. He held that higher education essentially produced two different types of outputs, individual goods and social goods. According to him the purely economic goods to the individual were due to that person's increased earning capacity and quality of life measurements. He also touched on the increased social values that resulted from higher education by demonstrating that college educated individuals were statistically more likely to be better citizens, consumers, less resource dependent, and more likely to perpetuate similar values with their offspring.

The concept laid out by Bowen (1977) was further articulated and examined by Leslie and Brinkman (1988b). By conducting a meta-analysis of previous work, they sought to evaluate the approximate economic costs and values that individuals and society both expend and draw from higher education. They provided a purely economic explanation of higher education outputs, while also evaluating these economic principles from a public policy prospective.

Leslie and Brinkman (1988b) first focused on the individual aspects of higher education which they referred to as private investments. Using data and cost figures from 1983, they found an approximate \$6,000 annual earning differential that favored college educated men over non-college educated men, although they attributed 21% of these increased earnings to inherent (non-college) differences in the two groups. Additionally, they found similar gaps in lifetime earnings as well as an increased earning scale for professional and master's degrees.

Second, they focused on the social value of higher education. They held that there was a 11.6 -12.1 % rate of return to society through undergraduate higher education. They also found (using 1988 figures) that there had been an estimated 15-20% increase in national income growth, with an additional 20-40 % being derived from improvements in knowledge and its applications. Finally, they found that the economic benefits of colleges on the communities in which they resided resulted in \$1.50-\$1.60 return per dollar of the college's operating budget and the creation of 59 jobs per each \$1 million of the college's budget.

Pascarella and Terenzini (1991) authored a book which sought to encapsulate all of the social and individual outputs of higher education. In their review, they evaluated

higher education from an outcome perspective in order to evaluate the variety of benefits including individual, social, and economic that resulted from the attainment of a college degree. They conducted their analysis through the evaluation of other studies, meta-analysis, and conducting their own focused research.

They found was that college graduates demonstrated improvements, both individually and publicly, in 10 areas over their non-college educated peers. They synthesized their findings by writing,

the evidence indicates that the college years are a time of student change on a broad front... Students not only make statistically significant gains in factual knowledge and in a range of general cognitive and intellectual skills, they also change on a broad array of value, attitudinal, psychological social and moral dimensions (p. 557).

Therefore, according to their assessment, a college education contributed substantially to the individual and society both economically and civically.

Astin and Oseguera (2004) conducted a study that evaluated how well equity and access were promoted at top ranked universities in the US. Additionally, they sought to quantifiably explain why certain demographic groups were underrepresented in top colleges and universities. They utilized data from the Cooperative Institutional Research Program's (CIRP) entering freshman survey. The survey was administered to entering freshmen at a wide range of institutions throughout the US and asked a variety of demographic and value based questions. For this study, the socioeconomic and household educational attainment were primary variables.

The demographic trends were then correlated with the selectivity of a respective institution as measured by the mean Scholastic Aptitude Test (SAT) scores of entering freshmen at each institution. They found that over the previous three decades, there had

been a trend toward inequity in America's most selective colleges and universities and that there was a strong negative relationship between prestige and the presence of lower SES freshmen. They concluded that, "despite remedial efforts such as student financial aid, affirmative action, and outreach programs, American higher education was more socio-economically stratified today than in any time during the past three decades" (p.338). They attributed this trend, at least partially, to the increasing competitiveness among students who sought admission to America's most selective institutions.

The Access Mission of Public and Land-Grant Institutions

Lucas (1994) offered a depiction of the development of land-grant colleges during the latter third of the 19th century. He contended that while the development of public colleges and universities took place prior to the Morrill Act of 1862 and the Industrial Revolution, a significant shift did not occur in higher education until after the end of the Reconstruction Era and the actualization of land-grant institutions.

He attributed the shift to a variety of factors, but pointed to the development of land-grant and municipal colleges and universities as one of the foremost features. His description of land-grant institutions provided a clear indication of their mission with regard to access. According to his work, land-grant universities "came to represent the fullest expression possible of Jacksonian egalitarian and democratic ideals applied to higher education" (p.152).

Bouge and Aper (2000) echoed this concept in their exploration of the heritage of higher education. They held that land-grant institutions represented a substantial shift in the philosophy of higher education from a largely elitist and religious based enterprise to an egalitarian and secular one. They argued that the land-grant movement, "heralded a

transformation in access policy from the elite to the laboring man, in the curriculum from the liberal to the practical, and in the purpose of knowledge for it's own end to knowledge for applied ends" (p. 20).

Key (1996) sought to establish the historical context of land- grant universities. He traced the development of the Morrill Act of 1862, and gave an in-depth focus on the legislative intent of the act. He then traced the legislation's implementation through the rest of the 19th century in an effort to demonstrate the actualization and slow start of the now common-place universities.

The central focus of his research was that land-grant universities were not created independent of economic considerations. He found that the creation of the land-grant university centered on two principles. One principle was the development of a more equitable and Jeffersonian method of dispersing public lands that promoted economic growth through the agricultural labor class rather than solely through the industrial elites.

The second and perhaps more germane aspect that went into the creation of land-grant institutions was the provision of a type of higher education that was responsive to the agricultural labor class. Thus, the eventual full realization of the land-grant institution represented a significant paradigm shift in American higher education with the keystone of this shift being the provision of universally accessible higher education to a grossly underserved population.

Cohen (1998) arrived at a similar conclusion by tracing the history and development of American higher education. He held that the actualization of the Morrill Act of 1862 and the rise of the industrial age ushered in the "Transformation Era" (p. 101) in higher education. In this Transformation Era, higher education became more

egalitarian and accessible as the number of college students increased from 63,000 prior to the Civil War, to 1.5 million by 1870. Even more substantial increases were demonstrated when looking at graduate degree attainment and the number of terminally educated college faculty.

Additionally, the concept of nearly universal access and attainment of college degrees was the fundamental component of this transformational era. Commoners and members of all social classes suddenly had much more access to higher education than at any other time in history. Thereafter, higher education collectively began to experience a shift from a tool of elitist progression to a tool of accessible social mobility for all classes.

Conclusion

Considering that restrictive access to higher education is an issue of primary importance and will likely continue, it is essential that studies evaluating the economics of higher education and its subsequent effects on access continue to be conducted. While the literature has clearly demonstrated the negative relationship between cost and access, there are many areas that still are in need of clarity, updates, and review. Therefore, the negative relationship between cost and access seems to demonstrate a need for further awareness by institutions and policy makers regarding the potential consequences of further development of the respective problem.

Section II: Tuition Setting in Higher Education

Input economics in higher education

Research regarding tuition setting in the United States can trace its beginnings to Eckstien (1960). Rather than advocate for lower tuitions, he was actually investigated the “pro’s and con’s of raising tuitions and fees” (p. 61). His study looked at the typical tuition structures in various states and institutions and sought to demonstrate the lack of market structure in the highly subsidized realm of higher education. He concluded by stating a need for increased revenue for higher education and even made the case “for higher student charges” (p. 72) as a method of increasing revenues. As tuitions began to rise in the 1970’s, the tone of those studying the tuition setting certainly changed.

Perhaps one of the more essential studies regarding tuition setting was conducted by Rusk and Leslie (1978). With their study, they set out to identify the patterns and causes of tuition increases in order to understand variations between different institutions. They found that there were a number of factors that went into tuition setting, some of which were based on economics, while others were based on political considerations and geography. Using the variables that they extrapolated from other studies, they accounted for 89% of the variation in tuition charges.

According to the authors, their findings “should be interpreted more as the context or conditions within which prices are set literally as the delineation of causes of tuition levels or tuition increases” (p. 544) In other words they held that they could account for the settings surrounding tuition setting, but could not necessarily explain why it occurred.

One thing that they found was that the tuition prices at public universities were highly correlated with many non-economic variables. Non-economic variables such as geography, philosophical context, history, the presence of state aid programs, the level of state appropriations to higher education, and other various economic variables all seemed to affect tuition prices. According to their study, someone could presumably collect certain variables and attributes about a respective university and could effectively predict an institution's tuition rate with a reasonable amount of accuracy.

Another finding of Rusk and Leslie (1978) was that tuition prices tend to mostly be the result of evolutionary rather than planning processes. This is to say that tuition advanced not in a planned process, or through open political discourse, rather it seemed to creep up in an incremental and impulsive fashion. Using this information they stated that it,

gives rise to the suspicion that this important public policy issue often has been decided on a herd instinct [with the basis being] the setting of tuition prices in conformance with prevailing and largely unexamined regional values and norms (Rusk & Leslie 1978, 544).

Rothschild and White (1995) analyzed the economic inputs that went into higher education pricing by looking purely at students as inputs, rather than looking holistically at all sources. They therefore treated higher education in pure economic terms where students were inputs and diplomas or human capital were the outputs. In these terms, they compared the pricing of higher education to other aspects of public sector pricing such as healthcare or legal services. After laying out the foundation of their economic comparisons, they sought to find out whether higher education behaves similarly to other aspects of the public sector.

In their research, they concluded that higher education was in fact different for a variety of reasons, chief among them was that students were not charged for a finished product, they are typically charged incrementally on a credit hour basis and not for the entire cost for their post-secondary education. What they found as the biggest difference was the fact that the cost of the education was dependent on the influence of the other consumers. This means that costs are often dependent on the successes, or at least the perceived successes, of other inputs. They concluded by saying that their model was imperfect and that it failed to capture all aspects that go into pricing, but it did establish a decent preliminary model.

Winston (1999) conducted a study that sought to evaluate to which level higher education could be encapsulated by traditional business modeling. He contended that traditional approaches tended to call for a business model to be applied to the principles of higher education and therefore, various policy decisions were based on higher education being conceptualized as an economic equivalent of a business (Hannsmann, 1980, Salop & White, 1991). The methodology used in this study was what he called the long-run equilibrium model which comparatively determined the price-to-cost ratios of various types of institutions.

What he found was that higher education institutions, though they had many characteristics that were similar to business models, were dissimilar enough to call into question previous assertions that they behaved in a similar fashion. Furthermore, he contended that most previous higher education economic models failed to encapsulate the concept of inequality of both the inputs (students) and outputs (graduates) that each university produced, which he felt was an essential element in any economic equilibrium

model. Therefore, he found that only for-profit institutions such as DeVry and the University of Phoenix behaved in a manner that significantly resembled a business. Conversely, private colleges with higher quality inputs and outputs were the next most similar to other business' at 89%, while competitive public universities were the least business-like at 6.7% resemblance. Thus, according to his findings the perceived standards of institutional quality of an institution was negatively correlated with its level similarity to a business.

Koshal and Koshal (1998) conducted a study to evaluate the determinates of tuition at public universities. Consistent with prior studies (Rosen, 1974; Jackson & Weathersby, 1975; Abowd, 1981) they used their hedonic model to determine how tuition rates respond appropriation and economic stimuli. They contended that their model was more effective because previous studies had failed to isolate university type as an essential variable. They justified the need to separate the various types of institutions in their model because they found that each institution was likely to respond differently to various externalities and are in need of variegation.

They found that while tuition rates at all levels of institutions responded to external factors such as state budgetary constrictions and economic downturns, they did not all behave the same way. Additionally, they found that tuition at comprehensive universities tended to be the least responsive and community colleges and public research universities tended to be the most responsive. They contended that the reason for the lessened effect on comprehensive universities was actually a delayed effect, due in part to the fact that comprehensive universities typically increased enrollment during economic

downturns. This increased enrollment mitigated the effects of lessened appropriations and thus, insulated them from budgetary effects and corresponding tuition increases.

They postulated that community colleges seemed more responsive to budgetary and economic downturns because they were in many situations directly dependent on local tax revenues. Research universities were also significantly affected because they typically had many non-instructional funding needs that are independent from tuition costs. They concluded by pointing out that their results should be interpreted carefully because it was likely that comprehensive universities are not more immune from economic downturns, rather their tuition driven funding may only delay the occurrence of shortfalls.

Turner, Babu, and Shimada (2000) conducted a study to evaluate whether tuition setting more closely resembled a market model or a public service model. In other words, they were looking at whether or not higher education tuition setting behaved like a non-profit public or a for-profit business. They conceptualized higher education as either, “a commodity to be purchased for consumption, or as an investment for public benefit” (p. 407). They operationalized their study by evaluating a wide range of institutions of varying size, prestige and global geography.

They found that higher education in the United States was at first glance in-line with a market model, meaning that when all institutions (public and private) are taken into account, increased prestige was correlated with higher costs. They held that the presence of financial aid and the wide range of scholarships made tuition behave more as a public sector good. They concluded by saying that higher education was too nebulous to classify as either a public or private model, but that there are trends that attach it to

each, chiefly the relationship typically associated with prestige and price and the gross subsidizing of education through financial aid.

Malchow-Moller and Skaksen (2003) conducted a comparative analysis of tuition strategies relative to taxation methods from a global perspective in order to evaluate which method facilitated maximum market equilibrium. Drawing from different global perspectives, including the US (low taxation/moderate subsidies), the U.K. (moderate taxation/high subsidies subsidized), and the Scandinavian countries (high taxation/fully subsidized), the analysis sought to identify the model that produced optimal equilibrium of cost and subsidies while still encouraging the consumption of higher education as a production output. They incorporated econometric “derivation of comparative statistics” (p. 3) to conduct their analysis in order to construct an equilibrium model.

The findings of their analysis were multifaceted as they identified which models best resembled market equilibrium. In their system, little or no tuition coupled with low taxation was the optimal situation, but such a scenario was relegated as a proxy since it was non-existent. Within the framework of existing systems, they found that the low taxation/moderate subsidies seemed to best facilitate consumption. According to their analysis, high personal taxation tends to effect consumption because of the decreased incentive of personal earnings due to high taxation. Thus, they concluded that in the case of higher education, when moderate tuitions were facilitated by moderate subsidies, individuals were more responsive to the economic benefits of a higher education because of the prospect of wealth accumulation and maintenance.

Tuition Setting Policy

Gold (1990) evaluated the use of tuition formulas in the setting of tuition in Minnesota and Massachusetts, which were two states in the 1990's who had recently implemented tuition formulas to set their tuition rates. In addition to providing an intensive look at both of these states, they conducted an overview of the processes used in other states that had already implemented a formula funding. He explained that tuition formulas worked by assigning a per-student appropriation to a college or university for instructional costs that were proportional to their enrollment.

He held that there are three different types of tuition formulas that were used in the 16 states that used formulas to set tuition rates. Thirteen institutions used percent-of-cost formulas to set their tuition, which was where tuitions were automatically tied to the states appropriation to that university, which assured legislative control over tuition rates. One state, Kentucky, used a means-tested program that utilized state per-capita income as well as comparative benchmarks based on comparable and proximate states. The two remaining states used a formula that was only tied to tuition increases but not the setting of already set tuition rates. The author pointed out that there were other states that used types of formulas, but their reliance on formulas was limited which discounted them from his study.

Gold's findings were that while formula funding brought a sense of predictability to tuition setting, it appeared that the most common type of formula, percent-of-cost, did not lead to higher than average tuition increases over time or result in a decrease in access. Additionally, it appeared that percent-of-cost formulas did not create a more stable political environment in which the state can provide a funding, thus facilitating a

stable tuition setting environment. He concluded by saying that states who truly wanted to promote access should base their tuitions on measures of affordability rather than purely budgetary concerns.

Stampen and Layzell (2001) conducted a study evaluating various tuition strategies used to make higher education accessible to lower SES students. The study approached the topic by explaining the prevailing methods for improving access used by various states and institutions which were, low tuition/low aid, high tuition/high aid, tax savings incentives, cost-of-quality-based tuition and aid. Low tuition/low aid and high tuition/high aid were the prevailing strategies that employed a responsive, reciprocal relationship between tuition levels and state and institutional aid.

The two less used strategies were the tax and savings incentives at the state level and the cost-of-quality-based tuition and aid strategies. The tax savings incentives were basically where tuition and tax incentives were not coupled, but students from lower SES backgrounds were compensated for tuition costs with tax deductions or even credits. The cost-of-quality-based tuition and aid strategies was explained as a system where, “institutions qualify for tuition subsidies and participation in federal student aid programs in part because their students are making good academic progress” (p. 38). This system, which was based on an outcomes approach, has yet to be implemented on a widespread basis but has been used on a test basis at some institutions that were not named in the study.

The aim of the study was to evaluate the effectiveness of each of these aid schemes by looking at four different criteria: quality, access, accountability, and feasibility. Quality was measured by evaluating a ratio of how many services, both

academic and non-academic, relative to the costs of attendance. The measurement for access was evaluated by looking at the proportion of students from lower SES households. Accountability was measured by looking at state policies that encouraged oversight over the disbursement of aid and tuition policies. Feasibility was determined by looking at the costs and practicality of implementation.

The study found was that while all of the student tuition methods had some level of utility, some were superior to others. The low tuition/low aid alternative yielded moderate results with the quality and accountability aspects being evaluated as mixed, access being deemed positive, and feasibility being deemed negative. The high tuition/high aid alternative received mixed results with accountability and feasibility being deemed as negatively affected. Tax and savings incentives garnered a mixed rating on quality and feasibility while rendering negative results in the areas of access and accountability. Finally, cost-of-quality-based tuition was deemed to be positive in all regards because of its ability to promote efficient allocation, access and responsiveness. McMillen, Singell, and Waddell (2005) examined the effects on tuition pricing due to proximity of competing institutions. They evaluated tuition from the perspective of list price, which was the official price of attendance, rather than net price which was the amount charged after financial aid was accounted for. In order to conduct their study, they used spatial econometrics, which is a regression analysis that combines geographic information with institutional data.

They found in their study was that there was little or no effect from price competition between national universities that were in close proximity. They did find some competitive pressure from comprehensive universities, but they attributed most of

this to other externalities such as selectivity. The only group of schools, including private, that demonstrated price responsiveness due to proximity, were comprehensive universities that were in close proximity to other comprehensive universities.

Bastedo (2006) conducted case study research in the state of Massachusetts after it had implemented a statewide tuition cut at all its public higher education institutions. The aim of the study was to evaluate the effects of the mandated tuition decreases on state colleges and universities. In order to actualize the study, Bastedo used legislative and trustee testimony, interviews with administrators, and various enrollment data. This was done in order to demonstrate how institutions responded to tuition cuts.

He contended that, “although we should strive for increased financial efficiency, institutions cannot adapt in perpetuity; eventually, core services will have to be cut and quality will decline” (p. 46). He found that colleges and universities in Massachusetts and even nationwide, were being “pinched at both ends” (p. 46) as state appropriations declined as many states simultaneously mandated caps on tuition. This led to a scenario where schools either had to seek increased external funding or increase efficiency. He surmised that while access had increased through the tuition cuts, as well as other streamlined transferring mechanisms, the current level of services would eventually become unsustainable if the situation persisted.

Marcucci and Johnstone (2007) wrote an article evaluating tuition and fee increases from a global perspective. Their study sought to evaluate the funding and pricing policies at universities in the United States and around the world. By evaluating a time series of data they were able demonstrate that two trends were occurring internationally, as well as domestically. One trend was that almost all governments

around the world were reducing their expenditures for higher education, and second, they found that the costs were being passed on to students through rapid tuition increases.

Fethke (2006) conducted a study that sought to establish the level of disconnect between state appropriations and tuition setting. He conducted his analysis by evaluating the tuition costs of in-state residents and comparing them with the tuition costs of out of state residents. In his model, he used non-resident tuition as the established gross cost of education per-person, which was, according to him, a worthy concept as it has been applied previously by other seemingly reputable studies (Goldin & Katz, 1998; Groen, 2004). Therefore, using non-resident tuition rates as a constant variable, he established variation in resident tuition as an indication of the level of subsidy granted to resident students.

An additional aspect of his model was the evaluation of resident tuition from the perspective of different funding mechanisms used in various states. Specifically, he evaluated formula funding for setting tuitions and subsidies, legislative determination of subsidies, institutional setting of tuition, and a governing board determining tuition. His findings indicated that subsidies and tuition costs were only partially linked. Tuition increases were therefore the result of three possible circumstances, direct increases in the cost of education, increased willingness of students to pay for that education, or an overall and substantial decrease in state appropriations. Therefore, it was his conclusion that state appropriations, regardless of legislative and funding arrangements, are not typically a sufficient predictor of college tuition rates and thus, should not be treated as such.

Conclusion

While the findings of past research varies regarding the philosophical and practical aspects that contribute to tuition setting, some consistent themes have manifest themselves. For instance, it has been demonstrated that tuition setting occurs independently from some concerns like a state's wealth or tax rate, and it was more closely linked to items like an institution's geographic or demographic situation. Though more evaluation is warranted, there seems to be some linkage between tuition costs and the amount of institutional requirements or mandates from the state to promote access. Tuition setting rarely occurs in a vacuum and it seems appropriate and necessary to identify those policies that best facilitate maximum access while continuing to enhance institutional quality.

Section III: Appropriations for Public Higher Education

Appropriations and Tuition

The widely cited study conducted by Leslie and Ramey (1986) served to provide the first modern framework for evaluating appropriations. Through their study they sought to evaluate the level of connection between appropriations and enrollment. Their study was based on the concept that institutions associate higher enrollments with higher appropriations. They found that most institutions operated on the premise that increased enrollment resulted in higher appropriations and increased financial gain on a per-student basis. Through their study, which employed economic time-series and budgetary data from various institutions, they sought to demonstrate the strength of the relationship between appropriations and enrollment.

According to their results, there was a negative relationship between enrollments and appropriations when evaluated from a per-student basis. Thus, raising enrollments may result in increased gross appropriations for the institution, but ultimately results in decreased per-student appropriations. Therefore, they warned that institutions should be cautious about the traditional association between enrollment and funding.

Koshal and Koshal (2000) conducted a study that sought to establish the strength of the relationship between state appropriations and the tuition rates charged at public colleges and universities. They conducted their analysis by looking at the financial trends of legislatures and public institutions of 47 states. They used a *Simultaneous Equation Model*, a type of multiple regression analysis, to demonstrate the level of causality between the two variables of appropriations and tuition.

They stated at the beginning of their article that they expected to find a strong positive correlation to appropriations and tuitions, though the findings of their study strongly indicated the opposite result. They based their initial assumption on the findings of previous, though limited, research that sought to connect the two (McPherson, Shapiro, & Winston, 1989; Marcus, 1987; Trow, 1989; Nicholson-Crotty & Meier, 2003). According to their findings, the correlation between appropriations and tuition actually yielded a significantly negative correlation ($r = -.714$, $p: <0.10$). They explained that the negative correlation and other indicators actually demonstrated a two-way interaction between appropriations and tuition. This indicated that tuition and appropriations were locked in a type of symbiotic relationship. They concluded by stating that much of the rapid tuition inflation since the 1980's has been the result of this symbiosis and the prevailing regional attitudes towards educational costs and access.

Weerts and Ronca (2006) conducted a similar analysis of the symbiosis between tuition and appropriations, although they limited their study to universities that were designated as Research I institutions. Much like Koshal and Koshal (2000), they sought to establish what, if any, consistent traits a state may have that might be useful in predicting the level of a state's appropriations. Additionally, Weerts and Ronca (2006) used considerably more variables in their multiple regression model as well as employing a mixed methods approach that utilized follow-up interviews with institutional administrators. They operationalized their study by using a multiple regression analysis to explain the extent that a state's various demographic, political, and economic factors were correlated to a state's appropriations to public research institutions.

Weerts and Ronca's (2006) findings were consistent with those of Koshal and Koshal (2000). Their study differed in that they applied Koshal and Koshal's methodology to all types of public institutions. Thus, they concluded that a state's culture and its geographic region are seemingly the most accurate predictors of the level of appropriations for a respective state's research institutions. Also, consistent with Koshal and Koshal (2000) was the finding that tuition and appropriations were negatively correlated and involved in a two-way relationship with neither variable assuming the role of an independent variable. They concluded that according to their findings, appropriations are not generally indicative of tuition at research institutions, rather, the only significant predictor was geographic and political environment.

Macro-Budgetary Appropriations to Higher Education

Wildavsky (1986) conducted the seminal and widely cited work on public budgeting and appropriations. In his work, he described the erosion of incremental budgeting through the 1980's due to resources becoming increasingly scarce, claiming that up until that time, public budgeting was generally a simple act of adding to a pre-set base. Therefore, in the environment of competing entitlement and corrections interests, he maintained that the resultant scarcity significantly transformed the appropriations landscape. He contended that the concept of incrementalism had given way to a much more political and competitive environment.

As a result of this shift, Wildavsky (1986) held that budgetary concerns at the state level had become far less about economic necessity and far more about politics. Therefore, he maintained that state agencies, public higher education, and other publicly funded entities, became increasingly dependent on policy entrepreneurship and political

skills in order to advance their budgetary needs if they were to remain competitive with competing interests. Thus, according to his assessment, it was in this competitive environment that the concept of perceived need was replaced by the political capital of a respective state agency.

Layzell and Lyddon (1990) conducted an analysis of the state budgetary practices with relation to higher education appropriations. Their concept of appropriations was consistent with the widely accepted and cited research by Wildavsky (1988) on public budgeting. According to their study, they listed the political, demographic, historical and political environment of a state as the four critical areas for determining levels of, and continued reliance on, state appropriations for higher education institutions. Within those areas they listed various sub-areas that further defined the critical elements necessary for higher education funding. Thus, they advanced the idea that higher education appropriations were far more reliant on various external factors like interest group involvement, than was generally recognized.

Humphreys and Southern (2000) conducted a study that sought to establish the strength of the linkage between the business cycle and state appropriations at all levels of higher education. Their model was consistent with that of Betts and McFarland (1995) who tested the same kind of responsiveness in community colleges. In order to measure these effects, they developed an econometric multiple regression model to measure the level of congruence.

According to their findings, shifts in the business cycle had a significant effect on state government appropriations for higher education. On average, they associated a 1% decline in real per-capita consumer spending resulted in a 1.39 % decrease in state

appropriations to higher education. This, coupled with increased enrollment that has generally associated with economic downturns, pinched public higher education institutions substantially. Additionally, they found that when the model developed by Betts and McFarland (1995) was applied to all public higher education institutions the effects were reduced, but only slightly.

Kane, Orszag, and Gunter (2003) conducted an analysis of state appropriations for higher education. They conducted their evaluation by focusing on three areas that they saw as related to decreased appropriations for higher education, which were, the business cycle, federal matching grant programs like Medicaid, and apparent philosophical shifts in higher education and state legislatures.

They began their analysis by evaluating the trends of higher education appropriations by looking at shifts and changes from the 1970's to the 1990's. They found that the average state appropriation for higher education had fallen from 46.5% in 1977 to 35.9% in 1997. At the same time they found that average resident tuition had increased by nearly \$1,800, with only \$900 of that increase being attributable to inflation. They also found a decrease in appropriations for higher education relative to personal income or roughly \$8.53 per \$1,000 in personal income was dedicated to higher education in 1977, by 1997 that amount had declined to \$7.07 per \$1,000.

They attributed the decrease in appropriations to a variety of factors, with the rising of matching grants like Medicaid and the rising costs of corrections being chief among them. They found that there was an inverse relationship between higher funding for Medicaid and corrections and funding for higher education as states responded to scarce resources by cutting their funding for higher education. Thus, as other sectors of

state appropriations were increasing or maintaining their funding levels, higher education appropriations appeared to be more expendable.

They also found that another cause of decreased appropriations for higher education was the disproportional effects of downturns in the business cycle. They noted that while most budgetary areas were likely to experience decreased appropriations when state revenues are reduced because of slower economy, higher education appropriations tended to experience higher than average reductions. They concluded their findings by discussing the fundamental shifts in the funding philosophy of legislatures to treat higher education as a more expendable appropriation in the context of more pressing social needs like K-12 education, social welfare programs, and corrections.

Archibald and Feldman (2006) conducted a study to evaluate the relationship between the taxation and appropriation trends of the 1970's, 1980's and 1990's, referred to as the "Tax Revolt Era," and the funding of higher education during that same period. In order to operationalize their study, they conducted a *Cross-Sectional Time Series Regression Analysis* of state budgets that correlated various budgetary phenomena with state appropriations per \$1,000 of personal income of a state's residents. They conducted their analysis with the hope of demonstrating a relationship between the various historical and political aspects of the "Tax Revolt" and decreased appropriations for higher education.

According to their study, Archibald and Feldman (2006) demonstrated that two aspects of the Tax Revolt produced a "significantly adverse effect on state appropriations for higher education" (p. 641). They found that Tax-Expenditure Limitations

($r = 0.88$, $p : < .10$), and Super-Majority Requirements ($r = 0.49$, $p: < .10$) yielded the most significant correlations. Tax-Expenditure Limitations referred to application of outside indices such as inflation, growth, and the consumer-price index to budgetary spending and appropriations. Super Majority requirements referred to the passage of requirements in many states that necessitated a 2/3 approval by legislators to increase tax rates. Therefore, they concluded that while many factors contributed to the decrease in appropriations to higher education, these two aspects had the greatest effect. They contended that previous findings that linked funding increases in social welfare programs and corrections exclusively, often failed to realize the importance of these fundamental shifts in taxation and spending.

Micro-Budgetary Appropriations to Higher Education

Mortenson (1994) conducted an analysis to demonstrate the shifting state of higher education away from public subsidies. In order to conduct his study, he utilized a meta-analysis of existing research with the aim of demonstrating what he perceived as “shifting financial responsibility from government to students” (p. 3). According to his meta-analysis, he found that states were, to varying degrees, lowering their relative appropriations to higher education while at the same time public colleges and universities were raising tuition to presumably account for the lessened appropriations. Additionally, he found that this decrease in funding was largely irrespective of economic or budgetary conditions that were experienced in the 1970-1994 period. He concluded by stating that if the United States remained on the same course with regard to its higher education funding, it was likely that higher education will become less accessible, especially to those who would benefit from its services most.

Additionally, Mortenson (1994) sought to evaluate the effects of realignment in state appropriations for higher education since the 1970's. According to his assessment, from 1970 -1992 the average increase in the percentage of GDP expenditures devoted to higher education was only slight (0.2%), while overall enrollment increased at a much higher rate (35.6%). In that same period, the percentage of state expenditures devoted to higher education peaked in 1982 (8.15%) and fell into the 1990's (6.58% in 1992). When various states were examined during this period, some states were more successful in maintaining funding levels for higher education as demonstrated with declines of less than 10%, while other states have experienced percentage losses greater than 50%.

McKeown-Moak (2000) contradicted the findings of Mortenson (1994) by showing an overall increase in higher education appropriations. While her contradiction was in large part due to the period of economic prosperity being experienced while conducting her study, she contended that increased appropriations had not necessarily translated into decreased, or even static, tuition rates through the same period. She further contradicted Mortenson's (1994) assertion that appropriations would continue to decline irrespective of the economic or budgetary situations in each state. Rather, she demonstrated that during the two-year period of 1997-1999, all but one of the states increased their appropriations for higher education at proportionally higher rates than other state funding obligations.

This disparity between the two authors can be largely attributed to the different time periods that each conducted their respective analysis. More importantly, both studies demonstrated the relative instability associated with higher education appropriations by the states. In light of budget and economic developments since the 1990's, neither

Mortenson (1994), nor McKeown-Moak (2000) have developed or offered useful predictive frameworks for evaluating appropriations to higher education.

Hossler, Lund, Ramin, Westfall, and Irish (1997) conducted a study evaluating the dynamics of state appropriations for higher education. Their study had two main objectives with the first being to evaluate the extent of influence that demographic, resource, political values, and policy making characteristics consistently have had on a state's higher education appropriations. The other objective was to identify the level of coordination between state appropriations and state level financial aid, asking if states responded to inflated tuition by systematically raising the level of student financial aid in order to promote access. In order to conduct their study, they utilized a mixed methods approach which utilized a *Dependent t- test*, survey responses, and follow up interviews with relevant administrators.

Hossler, Lund, Ramin, Westfall, and Irish (1997) found that demographic, resource, political values, and policy making characteristics were significantly related to a state legislatures tuition setting philosophies. Additionally, they found that other budgetary requirements such as Medicare and social welfare programs showed little, or no relationship when correlated with the appropriations to institutions and financial aid programs. This concept was reinforced through the responses to their surveys and interviews. They found a non-significant level of consistency between a state's tuition policy and its per-student financial aid distribution. Thus, there seemed to be little consistency or validity with the concept of proportionately linking student financial aid appropriations with the level of a state's tuition costs. They concluded that this second trend was somewhat disturbing in that it seemed to counter the concept of accessibility.

Drawing on the assumptions of Hossler, Lund, Ramin, Westfall, and Irish (1997), St. John, Hu, and Weber (2000) conducted a study of Indiana, which was identified as a state that responded to increased costs with proportional increases in student aid. In this study, they sought to identify whether or not the market model of appropriating aid to students rather than subsidizing universities directly had any effects on the persistence of students. They conducted their study by using student data in Indiana, as well as conducting regressions on demographic and academic traits.

The results of their study indicated that the Indiana model of distributing higher education appropriations through student aid rather than directly to the universities had yielded positive results, but that those gains may have been eroding due to the decline in total grants awarded. They found that the students who received the grants displayed a higher tendency to persist than their non-aided counterparts, but it demonstrated no increased tendency for those who persisted to behave any differently than other students. Thus, they concluded that while Indiana should be applauded for their efforts to try to improve access through increased aid, it still came down to the overall appropriation (either directly to the institution or through aid) devoted to higher education in that state.

Robst (1999) conducted an analysis looking at the relationship between appropriations for higher education and the level of efficiency as measured by the *Frontier Cost Function Analysis*. He argued that this method varied from previous measures of efficiency in that it treated each economic unit with respect to the multi-level costs associated with that respective institution or system. Traditionally, efficiency had been measured by evaluating per-student costs which Robst argued as flawed, because it failed to account for the various types and outputs of different institutions.

Robst (1999) found a positive relationship between state appropriations to higher education and the efficiency of the institution or system. Thus, the more efficient an institution or university system, the higher the appropriations were for that respective institution or system. Appropriations were measured according to the annual percentage of educational expenditures devoted to a respective institution of system. He concluded that this was likely due to the generally perceived notion that higher education was largely inefficient and therefore, when it was perceived or demonstrated that it was not, it becomes much more politically feasible to increase appropriations.

Conclusion

The research regarding the connection between appropriations and tuitions rates is inconclusive and scattered. Regardless research has indicated that appropriations to higher education institutions have proportionally declined due to increased demands of social welfare and correctional programs. Therefore, institutions have responded in varying fashions including increasing tuitions to replace those declining appropriations. While it is clear that this is occurring, less of a consensus has developed about whether this is the optimal or most beneficial response for dealing with this respective situation.

Section IV: Higher Education Rankings

Webster (1992) conducted a study looking at the origin of commercial rankings and proposed a hypothesis as to why they are so prevalent and powerful. He described the rankings issues of periodicals like *Money* and *U.S. News and World Report* (hereafter referred to as *USNWR*) as the “swimsuit issue” (p. 1) of each magazine. This was largely because the sales from these special issues far outsell the typical circulation of their customary periodical content. Using a qualitative methodology, Webster traced the rapid development of modern commercial rankings and includes an explanation as to why they have encountered such standing and success.

He found that the reason that modern commercial rankings have become so successful is because there was a significant void of information prior to their widespread dissemination and development. Although many elite institutions had been ranked for over 100 years, the early rankings were in less publicized forums and generally considered to be academic. Even more causal of the development was the fact that a circumstance of imperfect data existed in higher education where positive rhetoric sought to magnify, conceal, and misrepresent the attributes of each college or university. Thus, in response to the complaints of academia, he contended that colleges have largely brought this situation on themselves because of their previous failure to provide credible data and information about their campuses. He concluded by stating that though the rankings are somewhat imperfect, they have the potential to improve higher education by making objective information more easily accessible. He argued that this would hopefully make students more discriminating consumers and higher education more competitive.

Walpole (1998) conducted case study research of two academic departments at a major research university. The study sought to evaluate the impact of the *USNWR* rankings on departmental funding and resources. Both of the departments were credible subjects in that they existed prior to *USNWR* rankings and they had recently been demoted relative to their peer programs from around the country.

The study found that rankings in *USNWR* affected the funding and resources of the academic departments at this respective institution. This meant that when their rankings fell relative to their peer programs, their funding, resources, and recruiting power also decreased. Thus, at the respective institution employed for the study, a decrease in standing in commercial rankings meant a decrease in resources and applicant quality.

Manchung (1998) conducted a descriptive analysis that sought to explain the commercial rankings methodology as well as the resultant political maneuvering of institutions. The study focused specifically on the *USNWR* rankings because she claimed that they had become the unequivocal leader in the rankings field. For her study, she employed a mixed methods approach in order to demonstrate trends within the rankings over the previous five years, as well as interviews with specific personnel from higher education and *USNWR* and document analysis of rankings related material.

She found what she referred to as “credible instability” (p. 6), which was slight mythological shifts in ranking criteria from year to year that leads to slight ranking alterations. She attributed this annual shift in criteria to *USNWR*’s desire to demonstrate college quality as a dynamic variable. Under the system that she described, small changes in the ranking criteria affected an institution’s ranking much more than their own internal

and incremental changes. While critical of the shifting criteria, she did qualify rankings like *USNWR* as mostly credible in that they are based largely on objective variables that were applied in a uniform fashion. She concluded by stating that since rankings seemed to be entrenched in the culture of higher education, colleges and universities would be better served by trying to appease and reform the rankings rather than simply ignoring them.

McDonough, Antonio, Walpole, and Perez (1998) examined who uses rankings and what type of freshmen find the rankings useful. In addition, their study sought to examine whether or not college rankings were in any way improving access to higher education by those from lower income households. For the study, the authors chose to use a multiple regression analysis that evaluated responses to the Cooperative Institutional Research Program (CRIP) freshman survey, which solicited demographic information as well as questions about how the participant chose their respective institution. More specifically, Question 15 of the survey inquired about what influenced the respondent's choice of respective college or university.

The study identified that only about 40 % of the freshmen in the study actually used commercial rankings to make their college choice. Further, the students who were using them tended to be from higher income households and households where the parents had already attained a college education. They concluded that college rankings, "may not be indicative of democratization, but rather of privatization" (p. 530). Thus, rankings seemed to reinforce a traditional elitist manifestation of American higher education.

Monks and Ehrenberg (1999) conducted a study that sought to evaluate the impact that rankings had on enrollment trends and aid adjusted tuition levels by evaluating the effects of undergraduate programs that moved in and out of the *USNWR*'s top 25 because of changing methodology. They conducted their study by collecting the data from 16 universities and 13 liberal arts institutions that were consistently ranked in the top 50 schools in *USNWR* but were inconsistent in their attainment of top 25 status.

They found that rank did affect the quality of applicant that was admitted to that respective school, but that tuition was not responsive to rank fluctuation. Their findings demonstrated that the lower the ranking fell from year-to-year, there was a reduction in the quality of the applicant pool as measured by SAT scores. Monks and Ehrenberg (1999) concluded that applicant quality was positively correlated with rankings, but there was no relationship between rankings and tuition.

Ehrenberg (2003) conducted a study evaluating whether *USNWR* rankings either punished or rewarded institutions for cooperative and collective ventures with other institutions. He conducted this analysis by dissecting the *USNWR* methodology and applying the numerical weights to institutions and programs that demonstrated high levels of cooperation and collaboration with other institutions, as well as those who had low levels of collaboration. He found the *USNWR* rankings neither penalized or rewarded programs with high levels of collaboration, though he advocated that it should.

Pike (2004) conducted a study evaluating how well the commercial rankings of *USNWR* corresponded with the ratings of the National Survey of Student Engagement (NSSE). He contended at the introduction of his study that commercial rankings have failed to measure actual learning outcomes because, their ever shifting ranking criteria

was seen as a flawed mechanism for measuring institutional quality. Utilizing a regression analysis, he dissected and compared the criteria of the NSSE survey and the 2003 *USNWR* rankings.

Pike's (2004) research revealed that there are statistically significant differences between the ratings given by *USNWR* and the NSSE ratings. Additionally, when evaluating the five benchmarks of the NSSE ratings, he found significant differences in mean scores in four of the five criteria. He demonstrated significant variation up to 13 % when comparing the effectiveness of these assessments, concluding that commercial rankings are "shortchanging their students by focusing their efforts on institutional characteristics that are largely irrelevant to a high-quality education" (p. 206).

Clarke (2006) conducted a study that evaluated the effects of commercial rankings on students rather than the typical appraisal of institutions or ranking methodology. Her study focused on three areas: student access, choice, and opportunity. She conducted a meta-analysis in order to operationalize her study, as well as, conducting a thorough review of existing literature.

She found that commercial rankings did impact student access, choice, and opportunity in a fashion that disproportionately assists some groups and hinders others. In particular, she found that rankings tended to help those students who were high achieving and from high-income households, and disadvantage minority students and those from low-income homes. She concluded that these findings "highlight the need for rankings that reward schools for their relative success in educating students as opposed to their relative ability in recruiting already high achieving ones" (p. 14).

Thompson (2000) conducted research to evaluate what factors were actually incorporated into the *USNWR*. He used existing journalistic research and interviews with the current and former staff from *USNWR*. Additionally, he conducted an analysis of all editions of the *USNWR* rankings editions since their inception in 1986 in order to track methodological shifts and modifications.

Following his analysis and interviews, he developed several conclusions regarding the integrity of *USNWR* methodology. According to his interviews with previous *USNWR* staff, he determined that instead of basing the rankings according to pre-determined scientific criteria, the measurements were designed according to the perceived strengths of certain traditional institutions. Most notably, the bias favored institutions that were considered Ivy League. His interviews demonstrated that the methodology was often reworked and modified until these select institutions came out ranked highly on top. As a result, though some institutions might even exceed the traditionally elite schools in a truly scientific measurement rubric, they were often handicapped by the bias and perception of the staff at *USNWR*.

A second finding that Thompson (2000) located was the inability of *USNWR* to account for certain disparities, inaccuracies, and deliberate deception from many of the institutions. For instance, he found that the publication rewarded items like alumni giving percentage (percent of alumni who gave any money to the institution), but paid no attention to the amount or scope of alumni support. Additionally, the publication failed to recognize or account for the many mendacious situations where institutions blatantly altered their data to improve their standing. He concluded that though the rankings certainly need to apply a more rigorous and ethical scientific methodology and data

collection to their rankings, they have provided a valuable service to prospective students and have ultimately improved the higher education landscape.

Dill and Soo (2005) conducted a comparative analysis of the higher education rankings in Germany, Japan, Poland, Russia, the United Kingdom, and the United States. The aim of the study was to compare the rankings of the most widely accepted ranking tools for each country by comparing the statistical tables of each publication. The study compared each ranking protocol according to validity, comprehensiveness, comprehensibility, relevance, and functionality. The results and rankings from these tables were compared and contrasted according to available data that was collected independent of each publication's data collection with each criteria being weighted the same rather than variably.

They found wide variation between the respective league tables. They contended that many league tables such as *USNWR*, *The Times Good University Guide* (UK), and *Maclean's* (Canada) were highly deficient in almost all areas. Conversely, they found the *Guardian University Guide* (UK) and the *Good Universities Guide* (Australia) to be the most effective and useful rankings. They did acknowledge that although a large portion of the ratings for each guide were based on their professional judgment rather than a completely reliable methodology, they stated that their criterion was consistent with previous studies and should be considered valid, albeit cautiously.

Conclusion

While the importance of commercial rankings in higher education is a relatively recent development, according to the literature they have abruptly become a driving force behind institutional advancement. Though most research seems slow to completely decry

the effects of these rankings on institutions, many seem to indicate trepidation regarding some of the corollary effects, most notably the effects of rankings on access and equality. Therefore, it has become incumbent for researchers to continue to search for these effects, both positive and negative, and make them available to academe, the media, and policy makers.

Section V: External College and University Governance

External Governance

Marcus (1997) conducted a study looking at both the external and internal factors that compel changes in external governance. A corollary of the study was to evaluate the effects of external control structures on the governance arrangements of neighboring states. The study was conducted by using interviews and an extensive policy analysis of each state's existing and proposed higher education governance legislation from 1989 - 1994. The aim of the study was to develop a type of predictive model where the higher education policies of a particular state could be better forecasted and predicted.

He found that there were a number of consistent and significantly predictive aspects related to the external governance of higher education. Additionally, he found that states were significantly affected by the policies of neighboring states, meaning that geography was a strong indicator of external governance conduct. Through his evaluation, he contended that the type of governance structure used in a respective state was useful in the prediction of which higher education policies were formulated and implemented. Additionally, he found that states were more likely to have relatively progressive or dynamic higher education systems if they were surrounded by states that had similar philosophies and centralized higher education governance structures. Conversely, states were less likely to be relatively progressive or dynamic if their governance structure was decentralized and they were surrounded by states with similar philosophical approaches.

Martinez (1999) conducted a study to evaluate the perception of governing boards by legislators. His justification for the study was to evaluate the effects that such

perceptions have on governing board members and institutional governance. He conducted his study by interviewing state governing board members from nine different states, as well as, the key legislators who resided in the state of each respective board.

The results of Martinez's (1999) study were that governing boards were increasingly frustrated with their conflicting roles as both "institutional advocates" and "guardians of public trust" (p. 247). Additionally, only one-third of the legislators who were interviewed were pleased with their respective governing board's ability to balance the two aforementioned roles. They contended that instead of balancing the two roles, over time the governing board members almost always assumed the role of institutional advocate. Martinez concluded his study by stating that the current form of selecting board members has led to ambiguity and mission erosion as board members fail to fully and effectively meet their obligations to both their institutions and the public.

Gittell and Kleinman (2000) conducted a comparative study that evaluated the higher education systems in three states: Texas, California, and North Carolina. They sought to evaluate how each state government approached higher education and what historical contexts determined their structures, attributes, and flaws. By conducting this study they were able to conceptualize a basic model of external governance in higher education which contained three different designations: progressive plutocracy, direct democracy, and individual/decentralized.

The progressive plutocracy, which North Carolina was used as an illustration, was a system where elites wielded considerable control over higher education and often used it to satisfy the needs of business interests. Gittell and Kleinman (2000) contended that the strength of powerful governors has at times kept business, commercial, and elite

interests at bay, but typically the external governance of North Carolina's higher education was a function of political and social elites. Thus, in this setting the needs of higher education's pluralist stakeholders were often superseded by the needs of business interests and policy elites.

The opposite was found in California where the higher education system was defined as a direct democracy model of external governance. What defined this type of power arrangement was the empowerment of those who were directly associated with the institutions, such as faculty and administrators. Gittell and Kleinman (2000) contended that in this model, the state executive branch and legislature were prevented by propositions and past legislation from making significant changes, updates, or modifications to the higher education systems and structure. While restrictive and pluralist in nature, this type of system was volatile and often unstable because of the lack of centralized authority and restrictions on innovation.

The third system they evaluated was the individualized and decentralized system they found to be present in Texas. In this system, power was both dispersed and centralized. They found that it was dispersed in that the legislature took an active role in higher education appropriations and some policy decisions, chiefly for the cause of bringing higher education pork barrel projects back to their districts. Also, it was centralized because of the coordinating and appropriation powers of certain statewide officials such as the Lieutenant Governor. Gittell and Kleinman (2000) contended that the weakness of this system was the lack of uniformity and the redundancies that often resulted in a dispersed system.

Discretion/Autonomy

Perhaps the earliest study done specifically on the governmental autonomy of higher education was James (1965). He defined autonomy as,

the freedom of universities to select faculty, staff and students; develop curricula and research programs; and allocate resources internally, including space and equipment, capital funds and recurrent operating revenues (p. vii).

According to Sabloff (1997), it was under this definitional assumption that most presumptions of decreased university autonomy have been based.

Morgan (1983) conducted a study evaluating price autonomy in the health care sector with tuition setting autonomy in higher education. According to his argument, both higher education and healthcare were highly subsidized because of the concept of universal access, and both experienced sharp cost increases in the 1980's. He therefore hypothesized that both were the result of increased autonomy and decreased oversight. Additionally, the study sought to explore various strategies for cost containment used in the healthcare sector and evaluated their hypothetical application in higher education.

Morgan (1983) found that the healthcare sector and higher education were similar and dissimilar in their cost structures. Thus, in some instances they behaved similarly, while in others they did not. As far as differences, the fact that they have varying levels of necessity, as one was seen as non-expendable entity and completely inelastic (healthcare), while the other was only moderately inelastic and more expendable (higher education), accounted for large differences between the two. Despite these fundamental dissimilarities, he contended that in many ways they were more alike than different. What he found most similar about the two entities was the presence of supply-side subsidies which fund a large part of both enterprises.

He also found that policy makers had responded similarly in regard to the issue of cost containment and the allotment of autonomy. He found that this similarity was particularly comparable with regard to access. He held that with both issues, policy-makers had often relied on market forces to correct problems, but this has proven to be only marginally effective. Also, he found that policies have begun to propose cost controls in both situations, a seemingly unattractive scenario in the American capitalistic system. Furthermore, he evaluated the presumed cost saving measures of coordination and centralization to reduce redundancy and duplication. Through his research he found that this was only marginally effective in limiting the costs for higher education or health care. He concluded that while both entities have similar and dissimilar traits, the issue of cost containment will likely be different for each.

Volkwein (1986) conducted a study that evaluated the effects of decreased autonomy and increased oversight of higher education institutions. His quantitative study focused on a variety of factors used to develop a conceptual scale for measuring the amount of autonomy given to flagship universities in each state. The information was gathered through questionnaires to 49 state universities with the questions soliciting responses regarding institutional autonomy. The two measures of autonomy were separated into two categories, financial autonomy and academic autonomy.

The study rendered a model that ranked the autonomy of each state, with Maine and Vermont having the most financial autonomy, and Kansas and Maryland having the least financial autonomy. As far as academic autonomy was concerned, eight geographically dispersed states granted high levels of autonomy while Louisiana and Oklahoma appeared to be the least autonomous. He concluded that while academic

autonomy demonstrated less significant trends, geography and a state's relative wealth served as a more useful predictor of autonomy.

Fisher (1988) conducted a study that sought to evaluate whether there was an increasing erosion of autonomy at higher education institutions. In order to operationalize the study, she focused on state legislatures rather than respective institutions. After randomly selecting four states, she conducted an evaluation of the political history of each of the selected states and sought to establish patterns that might indicate trends related to the erosion of autonomy. This was done by taking the selected states and then evaluating the over 1600 policies that were passed by their respective state legislatures. Each state's policies were evaluated and coded according to their respective aim of either increasing or decreasing the autonomy of a respective institution.

Results indicated that from a historical policy prospective, colleges and universities were not experiencing decreased autonomy. Fisher (1988) claimed that, "state legislatures and other state government bodies have always been involved in, and to some extent, have always intruded upon the affairs of higher education" (p. 159). She concluded that there was no indication of encroachment by legislatures on the autonomy of higher education institutions. She did contend that reduced autonomy could, and probably would result if institutions deviated too far from the desires or needs of state policy makers.

Volkwien and Malik (1997) conducted an extensive evaluation of university autonomy which sought to counter the contention of Fisher (1988). They hypothesized that the increased legislation of the 1980's and 1990's had resulted in significant reductions of autonomy at higher education institutions. As a result, they contended that

higher education institutions had become subject to a whole myriad of regulation and oversight by the state and federal governments since the mid-1980's. They maintained that higher education institutions were losing, and not advancing, their status as semi-autonomous entities. As a result, they were succumbing to reduced autonomy and were more closely resembling state agencies.

Volkwien and Malik (1997) sought to support their hypothesis regarding the loss of autonomy by conducting a meta-analysis of existing datasets and studies regarding the topic. As many of the studies were conducted in different contexts and time periods, they updated much of the data using the format and methods of previous authors, most notably the work of Volkwien (1986). In addition to the meta-analysis, interviews and surveys were used to support the conclusions of the study.

After conducting the meta-analysis, they developed five conclusions regarding the autonomy of research universities, with two being highly germane to the subject of institutional autonomy. They countered their own hypothesis by demonstrating that generally, previous data had actually demonstrated an increase in the amount of autonomy granted to research universities in the previous two decades. They found that there were no consistent predictors or explanations of this trend in the data except a slight tendency of large states to grant less autonomy. They also found that there were no unifying characteristics such as age, geography, quality, complexity, or mission that were useful in predicting which school might expect increased or decreased autonomy. They concluded that this indicated that statistical predictors of autonomy at the institutional or legislative level were either non-existent or beyond the scope of previous studies.

Sabloff (1997) conducted a study supporting the contention that autonomy was incrementally eroding at public colleges and universities. She conducted her study by using a mixed methods approach that utilized both a multiple regression analysis of the relevant factors in all 50 states and followed that with case study research at an institution in Pennsylvania. In addition to her study, the author conducted a thorough literature review that brought together relevant elements and variables for conducting the study. Based on the literature and the confirmation that she received by both her regression analysis and case study, Sabloff (1997) found that there were four factors that led to decreased autonomy in higher education. All four factors were related to the political concept of professionalization. Professionalization is the trend in governance where state legislatures are “exhibiting the characteristics of Congress” (p.142). It is characterized by longer and more frequent legislative sessions, more professional and highly educated legislators, decreased influence of political parties and central government figures, and the increase in professional staffs.

She contended that increases in regulation and the subsequent decreases in autonomy have sprung from the perceived need for oversight that has resulted from professionalization. This was consistent with the national political trend that has focused on oversight, accountability and performance measures. She concluded by stating that despite perceptions to the contrary, university autonomy was continuing to erode for a variety of reasons, most notably professionalization.

McLendon (2003) wrote an article evaluating the concepts and strategies that had resulted in the decentralized control of public colleges and universities throughout the United States. He explained that while some states had sought to incorporate more

control over state higher education institutions and systems, 16 states had enacted decentralizing legislation since 1981. Therefore, the aim of his study was to evaluate why decentralization occurred in 3 of the 16 states that had recently decentralized their higher education systems.

The study used a comparative case study methodology in order to evaluate the three different states that had restructured their higher education systems. McClendon (2003) selected Arkansas as an example because of its 1997 system-wide restructuring, Hawaii for its 1998 university restructuring, and Illinois for its extensive decentralization efforts in 1995. His hypothesis was that these efforts at decentralization were due to successful utilization of “policy windows” (p. 2) by college and university officials who sought to reverse the Vietnam era trends towards centralization and decreased autonomy. At the conclusion of his interviews with appropriate policy makers, bureaucrats, and university officials, he developed his conclusion.

McClendon (2003) found that in the three states where he conducted his comparative case study, each were facilitating greater autonomy through methods that were consistent with prevailing public policy and agenda setting models. In particular, he was able to demonstrate significant congruency with the policy models of Kingdon (1984) and Baumgartner and Jones (1993). According to his assessment, higher education, especially college and university officials, utilized Kingdon’s concept of policy windows to insure passage of decentralization legislation. Policy windows are defined as brief opportunities that present themselves through the course of policy making that are most conducive to a respective policy’s passage. In the instance of the states and the autonomy granted to their colleges and universities, these policy windows

were the result of statewide budgetary and economic shortfalls. Therefore, he concluded that state budgetary stress has presented, and will likely continue to present, opportunities for institutions to seek increased autonomy and decentralization.

Conclusion

While there is little research connecting a governance structure or framework with tuition setting, institutional and system autonomy is a highly relevant and germane concept for this respective research. This is because the study sought to identify and correlate the effects of governance autonomy and tuition setting. Further, the literature suggested that the amount of autonomy granted to an institution to set its own tuition rates was positively correlated with its tendency to do so, and thus, results in higher tuitions.

Omissions and Justifications

While this review of literature was written to be an inclusive and encompassing overview of the subjects that it broached, there are many areas which were either not covered, not fully covered, or collectively produced inconsistent results. Therefore, this section will seek to explain the status of the cited literature as well as how it pertained to this respective study.

The first section of the literature review was an evaluation of literature as it pertained to higher education access and its associated economics. Perhaps the most germane aspect of this section is that it logically established a strong link between costs and the ability of students to attain (Nerlove, 1972; Leslie & Brinkman, 1987; Heller, 1997; Heller, 1999; Kane, 1999; Burd, 2003) or persist in higher education (Paulsen & St. John, 2003; St. John & Starkey, 1996). Absent from the literature are two relevant concepts. One was updated enrollment and tuition setting data. This was likely due to the unstable and dynamic nature of tuition setting and college enrollment trends in which the data collected by these studies could have experienced. The second absent aspect is that only Brinkman (1981) sought to isolate a specific type of university for the sake of analysis. Therefore, a gap in the literature existed due to the lack of application to updated data sets and to specific type of institutions.

The second section of the literature review focused on tuition setting and its relation to public colleges and universities. Perhaps the most germane aspect of this section was the establishment of certain variables that have been useful in determining what structures are present in states that have high or low tuitions. According to Koshal and Koshal (1998), geography was one of the only significant predictors of what an

institution's tuition is going to be, and according to Rusk and Leslie (1978) tuition increases often result from a variety of economic and social factors. Perhaps what was absent from previous research, and was therefore incumbent in the goals of this study, was a defining consensus about what factors cause variations in tuition rates as well as an in-depth evaluation of both extremities. Therefore, relative to the topic of tuition setting, this study sought to provide an examination of both various factors related to tuition setting as well as an in-depth evaluation of cases that exemplify high and low tuition rates.

The third section of this literature review was an evaluation of existing literature regarding the political appropriations process as it related to public higher education. According to Layzell and Lyddon (1990), Koshal and Koshal (2000), Weerts and Ronca (2006), and McKeown and Moak (2000), there was a strong negative correlation between tuition rates and the level of appropriations grants to an institution. This claim was refuted by Mortenson (1994) and Fethke (2006), who claimed that no significant relationship existed between appropriations and tuition rates and that they thus existed independently from one another. Again, this provided a great justification for this study as one of its goals was the close evaluation of states with high and low tuition rates at their public land-grant universities. Perhaps this study can further enforce or refute the claims of either of these schools of thought.

The fourth section of the literature review focused on commercial rankings in higher education and their subsequent affects. According to Walpole (1998), commercial rankings had substantially altered higher education in many areas including funding. Additionally, the literature focused on the effects and causes of shifting ranking criteria

which Manchung (1998) described as “credible instability” (p. 6). Perhaps what is absent from the literature and this study seeks to rectify is the establishment of a connection between rankings and institutional tuition costs.

The fifth and final section focused on literature pertaining to the governance of higher education and its relation to the appropriation and tuition setting process. According to Volkwein (1996), Sabloff (1997), and Volkwein and Malik (1997), institutional autonomy was eroding as state legislatures continued to usurp the power of institutions to manage their own affairs, including policies related to tuition. Interestingly, Fisher (1988) and McClendon (2003) countered this contention and argued that institutional autonomy was actually in a state of augmentation as institutions sought more diverse funding sources and state legislatures become a more professionalized. What was absent from the literature and will be addressed in this study is the establishment of a relationship between institutional autonomy and tuition setting.

Summation of Review of Literature

While comparative research exists regarding tuition policies in various states, there has been little research that offers an encompassing or comprehensive cause of this variation. Therefore, the research and data consulted for this review of literature were based on the five related topics of access, tuition setting, appropriations, governance and rankings. As mentioned previously, these areas were selected in order to satisfy the five corollary research questions of this respective study. Thus, while each individual subject area may have a limited association with the study’s aim, the combined utility of all five sections is sufficient to provide a background of relevant literature regarding tuition

policy variation. A description of each section of the review of literature is provided below.

An Overview of Access Literature

This section was an evaluation of the germane research on access in higher education with a particular emphasis on the effects of cost on access. Relying on the widely cited literature of Leslie and Brinkman (1987), Burd (2003), and Paulsen and St. John (2003), this section demonstrated that a negative relationship existed between the costs of attendance in higher education institutions and the annual household income of prospective students. Further, subsequent research like that of Heller (1999) and St. John and Starkey (1996) isolated cost as a major cause of this negative relationship, as well as significantly lower rates of persistence and longer degree attainment periods.

Nerlove (1972) and Brinkman (1981) sought to encapsulate the economics of higher education, and both concluded that higher education behaves inelastically as an entire enterprise, but elastically in the competitive environment of individual institutional choice. Research from Schultz (1961) and Bowen (1977) was cited in order to demonstrate the macro-economic benefits of a post-secondary educational attainment, while Leslie and Brinkman (1988) and Pascarella and Terenzini (1991) focused on the micro-economic benefits to individuals. Austin and Oseguera (2004) demonstrated the inequity and social stratification at highly ranked higher education institutions.

This section concluded by demonstrating through the work of Lucas (1994), Bouge and Aper (2000), Key (1996), and Cohen (1998) that access and egalitarian equity is a fundamental mission of land-grant institutions. For the most part, this section

demonstrated the erosion of access and equity at higher education institutions, what possible effects this erosion could possibly have, and how it has become counter to the founding goals of the land-grant institutions that were the crux of this respective study.

An Overview of Tuition Setting Literature

This section was an overview of the related literature regarding the tuition setting process from both an institutional and collective vantage. This section started by evaluating the inputs and factors that have been demonstrated to be positive tuition drivers with Eckstein (1960) being used to show the basis for initial works on the topic. Rusk and Leslie (1978) and Koshal and Koshal (1998) demonstrated the variety of factors, most of which were more geo-political than economic, that contributed to tuition setting in various states.

Rothschild and White (1995), Winston (1999), and Turner, Babu and Shimada (2000) all evaluated the economics of tuition setting by trying to encapsulate it into an established economic model. While aspects of tuition setting did resemble market forces, none of the three studies were able to fully fit tuition setting into one respective economic model. Malchow-Moller and Skaksen (2003) and Stampen and Layzell (2001) evaluated the tuition strategies used in various states with the aim of demonstrating which strategy most resembled a market equilibrium where inputs and outputs were best equalized. While their assumptions were inconclusive, they did demonstrate which states had the most effective tuition and student aid programs to best facilitate access.

Gold (1990) and Fethke (2006) evaluated the effectiveness of formula funding as a means of promoting tuition setting stability and access. They both concluded that while

formula funding had a slight stabilizing effect on tuitions, it did little to actually promote access or socio-economic diversity at public colleges and universities. Additionally, Fethke (2006) demonstrated a limited and complex connection between a state's appropriation to a respective institution and that institution's tuition rate.

This section concluded with the research of Bastedo (2006) who demonstrated the institutional ineffectiveness that arose from state mandated tuition cuts, and Marcucci and Johnstone (2007) who found a global adoption of market principles in higher education. This section demonstrated that there have been few truly effective appropriation or tuition setting policies in use for promoting access or socio-economic diversity on college and university campuses. Further, the research demonstrated that the conventional logic that links appropriations and tuition may be incorrect, while the more nebulous concept of geo-political culture of a state may be more highly correlated.

An Overview of Appropriations Literature

This section sought to demonstrate the intricacies of the higher education appropriations process and the linkage between appropriations and cost access at land-grant institutions. Layzell and Lyddon (1990), Koshal and Koshal (2000), Weerts and Ronca (2006), and McKeown and Moak (2000) countered the findings of Mortenson (1994), and Fethke (2006) and concluded that appropriations and tuition setting actually defy conventional logic and are positively correlated with tuition rates. Their findings indicated that tuitions increased parallel to appropriations. Their findings seemed to reinforce the findings of Koshal and Koshal (1998) which showed that tuition rates were a function of political culture rather than a response to a state's overall economic status. This contention was further reinforced by the findings of Wildavski (1986) who

demonstrated the connection of budgetary appropriations to political considerations rather than perceived needs of respective state agencies.

Humphreys and Southern (2003) and Kane, Orszag, and Gunter (2003) sought to demonstrate a connection between higher education appropriations and external economic factors, such as the business cycle and increased governmental activity in the area of social welfare and corrections. They found a significant negative correlation between the business cycle and increased governmental appropriations for social welfare and corrections. Thus, public higher education funding has significantly declined in response to state budgetary considerations. Archibald and Feldman (2006) also demonstrated a negative correlation between tax rates and appropriations for higher education.

Hossler, Lund, Ramin, Westfall, and Irish (1997) evaluated the relationship between the appropriations for state level financial aid and reduced state appropriations for higher education. They found no significant relationship between the two, meaning that states were therefore responding with an overall decline in appropriations for both higher education and financial aid. St. John and Hu (2000) found that even when financial aid is linked to state appropriations, as was done in Indiana, the increased aid was largely ineffective at promoting increased socio-economic diversity or access at public institutions. Finally, Robst (1999) found that the perceptions of legislators and the public regarding the inefficiency of public higher education institutions was positively correlated with appropriations to an institution or university system.

An Overview of Rankings Literature

This section evaluated the use of and the subsequent effects of commercial rankings on higher education. Webster (1992) researched the causes for the increase in the credibility of commercial rankings. He contended that commercial rankings have advanced exponentially because they addressed an informational void and loose standards of accountability that previously existed in higher education. Walpole (1998) conducted a study that found a significant positive correlation between a respective academic department's *USNWR* ranking and its level of funding.

Manchung (1998), Pike (2004), Thompson (2000), and Dill and Soo (2005) all conducted studies to demonstrate flaws in the methodology employed by *USNWR*. They all concluded that the *USNWR* rankings were inherently flawed because of integrated biases that were built into the rankings. While these authors were critical of the *USNWR* rankings methodology, they all concluded that it may be the best available objective and holistic measurement of institutions which Manchung (1998) labeled as the much cited concept of "credible instability" (p. 6).

Monks and Ehrenberg (1999) and Clarke (2006) both conducted studies that sought to demonstrate the effects of higher education rankings on higher education institutions and students. Both studies found adverse effects on both institutions and students as a result of *USNWR* rankings. Monks and Ehrenberg (1999) found a positive correlation between rankings and applicant quality as measured by mean SAT scores of applicants, which has resulted in further decreased applicant quality for many institutions. Clarke (2006) found that the rankings have had detrimental effects on access, choice, and

opportunity for minority and lower SES students, and has effectively served in homogenizing higher education rather than the desired diversification.

McDonough, Antonio, Walpole and Perez (1998) countered the findings of Monks and Ehrenberg (1999), and Clarke (2006) by contending that rankings are not generally a significant factor in college choice. They found that only about 40% of entering freshmen actually employed rankings, at least marginally, to select their respective college. While they found a less than perceived use of rankings, they did concede that rankings were more often used by students from higher SES households than those from minority or poor households.

In conclusion, this section effectively demonstrated that while rankings have many methodological and normative flaws, many researchers maintain that they are still valuable for measuring and improving higher education. Further, even though most of the authors took a critical stance towards rankings, none seemed inclined to advocate for their complete removal from the higher education landscape, nor did any promote such a removal in the foreseeable future.

An Overview of Governance Literature

This section sought to evaluate the governance of higher education in order to demonstrate the scholarly credentials regarding both external governance and institutional autonomy. Marcus (1997) isolated the most predictive factors for determining how a respective state legislature will address or decide on higher education policies. He found that there were few significant predictors of policy performance except for geographic proximity to other states who had instituted similar legislation.

Martinez (1999) found a continued divergence between higher education institutions and legislators who had suspect perceptions of each other's goals.

Gittel and Kleinman (2000) developed a model for classifying state governance systems which was dependent on the influence and measures that state legislatures took towards higher education in each respective state. They found that there were essentially three primary types of governance situations throughout the US. They contended that some state legislatures have little involvement in higher education, and as a result, too much control was ceded to constitutional governing boards, faculty and administrators (California was their example for this scenario). Other states have had too much involvement from interest groups and not enough legislator or constitutional governing board control (North Carolina was the example), and finally some states have had a workable balance between legislative involvement and constitutional governance structures (Texas was the example).

Another aspect of this section was to review previous research regarding discretion and institutional autonomy in higher education. The definition of James (1965) was used to define what these constructs were and how they were applied to higher education. There seemed to be little consensus regarding whether or not autonomy in higher education was eroding or increasing. Authors like Volkwein (1996), Sabloff (1997), and Volkwein and Malik (1997) contended that institutional autonomy has been significantly eroding since the 1980's. Conversely, Fisher (1988) and McClendon (2003) both contended that assertions of decreased autonomy have been erroneous because they are correlating increased legislation with decreased autonomy. Thus, they contended that though legislative objectives for higher education have been increasingly clarified

through legislation, it has actually resulted in increased autonomy for higher education institutions nationwide.

Morgan (1983) conducted a comparative analysis of the highly subsidized realms of higher education and healthcare. He found that legislative attempts at cost containment have only been marginally effective at best and that each is dissimilar enough from the other to warrant substantially different approaches in an attempt to limit cost inflation.

In conclusion, this section demonstrated that the approach that states employ for regulating higher education varies widely. Further, their conduct is often irrational and difficult to predict. Despite this irrationality, geographic proximity has been demonstrated to be the most predictive framework. The lack of a consensus regarding the increase or decrease of institutional autonomy seems to have proven problematic for researchers. Thus, with the lack of consensus regarding the issues, this study's methodological approach should hopefully demonstrate which one of these variables is correlated to tuition setting.

CHAPTER III

METHODS

The purpose for conducting this study was to evaluate the causes for the substantial variation in the tuition costs at institutions of higher education. Specifically, this study focused on the causes of variation between the tuition setting of the 49 public land-grant universities created under the auspices of the Morrill Land-Grant Act of 1862.

Sample

The participants of this study were the 49 public land-grant institutions that were created under the auspices of the Morrill Land-Grant Act of 1862. While there were other institutions that were created by amendments and the subsequent related legislation to the Morrill Land-Grant Act of 1862, for the sake of consistency, homogeneity, and institutional semblance, only the institutions that were created by the 1862 legislation were selected. For this same reason, only the institutions that resided within the contiguous United States and the states of Alaska and Hawaii were used in the study. The institutions selected for this study are listed in Appendix A.

According to Ary, Jacobs, Razavieh, and Sorenson (2006), “extremely large samples” (p. 380) are not needed for correlational research when there is a defined subgroup. Furthermore, they contended that it is acceptable to assume a relationship exists if it is reflected within a sample size between 50 and 100. This contention was reinforced by Berman (2002), who concluded that “many researchers prefer to test their null hypothesis on sample sizes of fifty to a few hundred” (p. 60). According to Brumfield

(2007), both of these sources indicated that extremely large samples can sometimes dilute statistical significance.

Although the sample size of the study was sufficient to indicate significance, the study's statistical external validity is only applicable to other land-grant institutions due to the study's specialized sample group. Despite this justified reservation regarding external validity, since each of the study's sample institutions were publicly funded and governed by state governing constructs, some parallel generalizations could be employed for the purpose of explaining why high levels of tuition variation exist between many public institutions throughout the United States.

Once the data were collected and each institution's tuition costs were assembled into a ranked distribution, the five institutions that ranked above the 90th percentile and the five that were below the 10th percentile of adjusted tuition prices were selected for in-depth scrutiny. Institutions who achieved outlier status due to their excessively high costs of living were excluded due to the need for consistency and uniformity of variables. Once these institutions and their states were isolated, a qualitative content analysis and a policy analysis was conducted with the aim of identifying the similarities between institutional and state policies of other institutions in that respective grouping. It was anticipated that this policy analysis would demonstrate consistent trends between institutions and their respective state policies as they related to tuition setting.

Each sample institution and its related state government data was acquired through publicly accessible data sources such as institutional catalogues, the world-wide web, and other reliable publications. Additionally, independent variables such as demographics and other aspects not directly related to public policy were acquired

through the US Census Bureau State Data website. While a limitation existed regarding varying dates for diverse independent variables, all reasonable efforts were employed to insure that the data were the most recent and current.

Design

This mixed methods study employed four methodological tools, a qualitative content analysis, a quantitative multiple regression analysis, a quantitative *Pearson's Product Moment Correlation* (Pearson's r), and a policy analysis. These methodological tools were selected because of their ability to best satisfy the research questions that established the framework for this study. According to Mayring (2000), quantitative content analysis is defined as

an approach of empirical, methodological controlled analysis of texts within their context of communication, following content analytical rules and step by step models, without rash quantification (p. 2).

Content analysis employs two different types of application which are Inductive Category Development and Deductive Category Application. Since the research questions served as this study's framework, the Deductive Category Application was employed.

According to Krippendorff (1980), the deductive category application, "works with prior formulated, theoretical derived aspects of analysis, bringing them in connection with the text" (p. 36). Since this study was informed by the framework that was established by the study's research questions, the questions themselves served as the "prior formulated, theoretical derived aspects of analysis," (p. 36) which will serve to guide the pursuit of germane data and content.

According to Nagel and Neff (1979), descriptive policy analysis “attempts to explain policies and their development” (p. 27). This was accomplished through the use of both qualitative and quantitative methods. For the study, mostly qualitative analysis was employed to evaluate both state and institutional levels of discretion and general policy arrangements of each respective state or institution.

A multiple regression analysis was employed in order to demonstrate the significance of the relationship between selected independent variables and tuition costs. According to Glass and Hopkins (1996), a standard multiple regression analysis should be employed for “predicting Y (Dependent Variable) from two or more independent variables” (p. 170-171). While the dependent variable for this study, which was the adjusted tuition costs of each public land-grant institution, the independent variables differed according to the purpose of each respective research question. Further, since Research Questions Two, Three, and Six had several independent variables, a multiple regression analysis was employed.

A *Pearson's r* was used to satisfy Research Question five. According to Glass and Hopkins (1996), the *Pearson's r* “quantifies the magnitude and direction of a linear relationship between two variables” (p. 106). While the dependent variables for the study, which were the Cost of Living Adjustment (COLA) corrected tuition costs of each of the land-grant institution, were consistent with all of the research questions, the independent variable was a composite average of each institutions *USNWR* tier placement since 2004. These institutions and their respective composite scores can be seen in Appendix F.

Collection of Data

The data for the study was secured through multiple sources and criteria. As the study was informed by the research questions, each set of data required different collection criteria.

Research Question 1: Among public land-grant institutions with relatively high tuition costs, what were the consistent and defining institutional and public policies? The data to answer the research question was based on data that were collected through both a qualitative content analysis and policy analysis. For the content analysis, data were extrapolated from state and institutional documentation regarding tuition rates and procedures. The policy analysis focused on various state and institutional policies of selected institution's tuition setting protocols and levels governmental control.

Research Question 2: Among public land-grant institutions with relatively low tuition costs, what were the consistent and defining institutional and public policies? In order to answer the research question, data were collected and analyzed using both a qualitative content analysis and policy analysis. For the content analysis, data were extrapolated from state and institutional documentation regarding tuition rates and procedures. The policy analysis focused on various state and institutional policies of selected institutions with regards to tuition setting and governmental control.

Research Question 3: To what extent were the levels of discretion correlated with the tuition costs at public land-grant institutions? The data to answer this research question were collected using both a content and policy analysis. By combining the findings of Research questions 1 and 2, the question sought to reveal whether or not any

consistent trends and variation exist between land-grant universities with relatively high tuition and those with relatively low tuitions.

Research Question 4: To what extent were external and non-institutional factors correlated with a public land-grant institution's tuition prices? In order to answer this research question, data were collected and analyzed through a multiple regression analysis. The continuous variables to satisfy the question served as the independent variables for the study while the adjusted tuition rates served as the dependent variables. The description of these data can be found in Appendixes E and G.

Research Question 5: To what extent was there a correlation between tuition costs at ranked public land-grant institutions and *U.S. News and World Report* rankings? In order to answer the question, a *Pearson's r* was used to determine the level of the relationship between *U.S. News and World Report Rankings* and tuition rates. The independent variable for this question was the mean score of tier placement of each public land-grant institution from 2003-2008. Therefore, since some institution's tier status changed from year to year, the mean score sought to give more longitudinally accurate depiction of institutional quality. A period of four years was selected in order to compensate for what Manchung (1998) referred to as "credible instability," (p. 6) which was the result of slight alterations in the rankings criteria of issue of *USNWR*. The dependent variables for the correlation were the COLA corrected tuition rates.

Research Question 6: What were the consistent trends, policies, and circumstances, that caused the high level of variation in the tuition rates of America's 49 public land-grant universities? Since research question six served as the primary research

question and preceding questions served to satisfy it, this question will be answered by examining the answers to the previous five questions.

Explanation of Quantitative Variables

Essentially, ten variables were employed as independent variables for use in the Regression analysis. These variables, listed in Appendix E, were derived from one of two criteria. One criteria for variable selection was the use of a particular variable in a previous study. These variables were selected because they rendered significance in previous studies with closely related topics and outcomes. The second criteria for variable selection was through a bi-variate correlation analysis (*Pearson's r*) of many variables in order to isolate which variables demonstrated stand alone significance. Following the use of this bi-variate analysis, the number of variables of further reduced through the selection correlation values that were the result of perceived causal hypothesis'. These variables and their subsequent justifications are listed in Appendix E and justified and linked to previous literature in Appendix G.

Data Analysis

Since the research for this study was informed by the research questions, they served as the main framework for this study. Therefore, this study's analysis of data was satisfied by the elucidation of the following questions and their subsequent methodological resolution.

Research Question 1: Among public land-grant institutions with relatively high tuition costs, what were the consistent and defining institutional and public policies? In

order to answer this question, both a qualitative content analysis and policy analysis were employed. The first step in answering this question was to establish a COLA corrected tuition price distribution in order to identify which institutions and states retained tuition rates that exceeded the 90th percentile (top 10 %). The tuition rates were acquired through the per-credit hour tuition rates published on each institution's internet website and calculated according to each institution's tuition cost formula to represent an annual FTE enrollment of 30 hours. Each institution's per-dollar tuition was made constant and equivalent through a COLA correction and treating each prospective student's enrollment and subsequent tuition costs at an annual rate of 30 hours. A distribution of these costs can be seen in Appendixes B and C.

After the land-grant institutions that exceeded the 90th percentile of the tuition rate distribution were isolated, a qualitative content and policy analysis was conducted on each institution and its subsequent state. To conduct this analysis, each of the five institutions in the 90th percentile and their respective states, were individually scrutinized through a content analysis of each university's published tuition setting protocol and each state's legislative and legal records. Each institution's tuition setting protocol were acquired through a content and document analysis of the public documents that are available through each institution's website. Each respective state's data was acquired through a policy analysis of each state's official 2007 Legislative Reports and legislative records. These materials were available at the law library of the University of Arkansas, the internet, and through inter-library loan. Each state's higher education governing agency's website was also consulted in order to fill any knowledge disparity or for the sake of triangulation and confirmation.

Essentially, both the content and policy analysis was conducted in order to isolate variables that indicated what types of protocol were involved in each institution and state's tuition setting. Thus, each institution and state's protocol was extracted and then compared through content analysis for synonymous constructs or protocols. It was assumed that through this qualitative methodology, consistent trends and policies were revealed that indicated a significant and defining strain of policies that were attributed to land-grant institutions with relatively high tuitions.

Research Question 2: Among public land-grant institutions with relatively low tuition costs, what were the consistent and defining institutional and public policies? In order to answer the question, the exact same methods described to satisfy Research Question 1 were used for the institutions that resided below the 10th percentile in the COLA corrected tuition cost distribution. Thus, the previously described protocol was applied to the five land-grant institutions that demonstrated low tuition rates with the purpose of identifying what consistent trends, policies, and protocols contribute to their relatively inexpensive tuition costs.

Research Question 3: To what extent were the levels of discretion correlated with the tuition costs at public land-grant institutions? In order to satisfy this question, a qualitative policy analysis was employed. After consulting the COLA corrected tuition cost distribution to find institutions that reside above the 90th percentile or below the 10th percentile of tuition costs, each selected institution, and its respective state were scrutinized in order to determine the level of institutional discretion for determining their respective tuition rates.

This analysis was conducted by evaluating the level of tuition setting authority granted to each institution. This level was determined through a content analysis of each institution's publicly accessible website, each respective state's higher education governing board's website, other related documentation, and each state's 2007 reports and legal records. This data was acquired in a manner that is consistent with the methods employed to satisfy Research Questions 1 and 2.

Research Question 4: To what extent were external and non-institutional factors correlated with a public land-grant institution's tuition prices? In order to satisfy this question, a quantitative multiple regression analysis was employed. The COLA corrected tuition costs of each of the 49 public land-grant institutions served as the dependent variable, while various demographic and geographical data from the state that each institution resides served as the independent variable. Both the demographic and geographical data was extracted from the US Census Bureau's state data website. The various independent variables employed to satisfy this research question and its respective multiple regression analysis can be seen in Appendix E.

The respective geographical and demographic data of every US state with the exception of New York (independent variables) was extracted from the US Census Bureau state data website. This data was then correlated through a multiple regression analysis with the tuition rates of each of the 49 institutions (dependent variable) in order to isolate the significance of each individual state's demographic or geographical trends in a situation of *ceteris paribus*. This was done in order to demonstrate any link between geographic and demographic distinctions with tuition costs. The demographic and geographic data criteria were presented in both Appendixes E and G. After conducting

the multiple regression analysis, the resultant variables were analyzed using the Statistical Package for the Social Sciences (SPSS) version 16.0 software to determine their level of significance.

Research Question 5: To what extent was there a correlation between tuition costs at ranked public land-grant institutions and their respective *U.S. News and World Report* rankings? In order to answer the question, a quantitative *Pearson's r* was employed to determine the level of significance in the relationship between each respective public land-grant university's *USNWR* ranking. Since the *USNWR* does provide a composite score for institutions ranked below the second tier, it was necessary to quantify each institution by its respective tier placement. Additionally, as previously described, the tier of each respective institution reflected an average score of each institution's tier placement from the years of 2003 through 2008. Each institution's composite score has been listed in Appendix E.

Since the respective tiers were ranked in the fourth tier, implying less quality and the first tier implying the highest quality, the values of each ranking were inverted so that variables had parallel positive values. The inversion formula for this respective problem was follows: $\sqrt{(\text{Tier}-5)^2}$. Through the use of SPSS version 16.0 software, the resultant coefficient was analyzed for significance thus, identifying whether or not cost is a significant predictor of institutional quality.

Research Question 6: What were the consistent trends, policies, and circumstances that cause the high level of variation in the tuition rates of America's 49 public land-grant universities? In order to satisfy this question, which served as the primary research directive for the entire study, qualitative, quantitative, and policy

analysis methods were employed. The question was answered according to the specific methods utilized in research questions. Collectively, they provided the data for an inclusive rationale as to why high levels of variation existed.

Summary of Chapter Three

This chapter provided a through description of the methods that were utilized for the study. The purpose for these methodological apparatuses and processes was to identify the consistent trends, policies, and circumstances that caused the high level of variation in the tuition rates of America's 49 public land-grant universities. This was accomplished through the use of a mixed methods approach which collectively identified the causes for tuition variation.

In order to analyze the data, a qualitative content analysis, a quantitative multiple regression analysis, a quantitative *Pearson's r*, and policy analysis were employed to ascertain the causes of the high levels of tuition variation. Combined, it was anticipated that the analysis of these data would produce a clear indication as to why high levels of tuition variation exist among public land-grant institutions.

CHAPTER IV

DATA PRESENTATION AND ANALYSIS

The aim of this study is to try to isolate the various causes of the vast tuition variation among America's public land-grant universities. The aim of the study was justified and significant when considering the rapidly escalating costs of attendance at most public colleges and universities. Previous researchers have indicated that there is a clear link between tuition costs and the attainment of college degrees. Although a consensus may have developed regarding this linkage, there has been an absence of consensus as to the reasons why tuition has rapidly increased faster at some institutions than others. Therefore, the significance of the study and its findings were manifest in its results which identify a few of these causes.

This chapter will identify the results and findings of the research that was conducted for the study. These findings illuminated the importance that state level policy making, especially in the area of institutional discretion, has on institutional tuition costs. Further, the results reinforced the findings of previous research while providing insight into an additional variable that has yet to be isolated by previous studies. Finally, it provided insight into the states and institutions that have both a commitment to cost access and affordability, as well as those states and institutions that seemed to have abandoned that principle.

Summary of Study

The aim of the study was to establish the causes, both policy and otherwise, for the substantial variation that exists in the tuition of the nation's public land-grant

universities. This study relied on a framework established by the research questions and found some significant, and some less significant, results to indicate why this variation exists. In order to understand the causes associated with this variation, it was imperative to gain an understanding of the context in which this variation exists.

There has already been substantial research done regarding the effects of tuition cost on students, universities, and communities. Like most well researched topics, there has been a substantial amount of variance regarding the conclusions of each of these studies, although this is not to indicate that a clear consensus has not developed around many of these concepts. For instance, there is a rational consensus that cost of attendance at a university and the ability of the student to enroll or persist in higher education is negatively correlated (Leslie & Brinkman, 1987; Burd, 2003; Paulsen & St. John, 2003; Heller, 1999; St. John & Starkey, 1996). A large segment of researchers have indicated that tuition pricing in the developing era of market-based higher education is beginning to resemble market structures rather than public ones. Another issue of near consensus is that higher education is currently undergoing a transformation from a purely public function to one that resembles a market-driven model (Nerlove, 1972; Brinkman, 1981; Leslie & Brinkman, 1988; Pascarella & Terenzini, 1991; Oseguera, 2004). An additional area of scholarly consensus that is related to the study is that the founding principles of land-grant universities certainly include a principle of access and egalitarian principles (Lucas, 1994; Bouge & Aper, 2000; Key, 1996; Cohen, 1998)

Although a consensus has not developed regarding whether or not commercial rankings have had a positive or negative effect on higher education, there is certainly a consensus among researchers that the effect has been drastic (Manchung, 1998; Pike,

2004; Thompson, 2000; Dill & Soo, 2005). Additionally, while much research has been conducted regarding fluctuations in the autonomy of higher education institutions throughout the United States (Volkwein, 1996; Sabloff, 1997; Volkwein & Malik, 1997; Fisher, 1988; McClendon, 2003), no consensus has developed regarding whether or not that autonomy has been increasing or decreasing. Finally, although there is no consensus as to whether or not state appropriations to higher education are directly correlated to tuition costs at public universities, a consensus has developed regarding the fact that appropriations to higher education are decreasing relative to other state government functions such as corrections and K-12 education (Layzell & Lyddon, 1990; Koshal & Koshal, 2000; Weerts & Ronca, 2006; McKeown & Moak, 2000; Mortenson, 1994; Fethke, 2006).

As this study was structured around five secondary and one encompassing research question, the methodology of the study was adapted to the needs of each corresponding question. Research questions one and two sought to identify the consistent traits present in states and their corresponding land-grant universities that had relatively high and low tuition rates respectively. Both of these questions were satisfied through the use of a qualitative content analysis with the hope that consistent trends could be identified at each end of the tuition cost spectrum.

Question three sought to ascertain the combined findings of research questions one and two in order to provide an overall vantage of the causes of tuition variation between public land-grant universities. Question four sought to identify what, if any, were the possible external (not directly controlled by the universities) causes of the tuition rates of each state's public land-grant universities. The variables that were

evaluated in the multiple regression analysis were geography, state appropriations, the partisan make-up of each state's legislature, the level of professionalism of each state's legislature, and each institution's *U.S. News and World Report* composite rankings.

Question five sought to identify to what degree institutional quality, as measured by the *U.S. News and World Report* rankings, was correlated to the tuition costs of a land-grant institution. This was accomplished using a Pearson's Product Moment Correlation (*Pearson's r*) to identify what the level of significance between these institution's composite rankings over four years and each institution's cost of attendance. This was done to either confirm or defy the conventional logic that cost and quality (in this instance) are significantly correlated. Finally, question six served as the primary research question that sought to tie all of the aforementioned questions into one encompassing theme to explain the causes of this wide disparity in tuition.

In this chapter, some the causes of much of this variation will be revealed while some others will be eliminated. As the tuition at public colleges and universities will likely continue to rise at a rate more rapidly than that of inflation, it is hoped that this study's contribution to the already existing literature regarding cost access in public higher educational attainment will be realized.

Content and Policy Analysis Results

After arranging each institution according to their cost of living adjustment (COLA) corrected tuition costs, the institutions that were in both the top and bottom 10 % of tuition costs were selected for content and policy analysis. These institutions as well as a distribution of each institution's COLA corrected tuition rates can be seen in

Appendix C. The content analysis relied on evaluating both the institutional policies and each institution's respective state lawmaking body in order to ascertain consistencies. The states and respective public land-grant universities that resided in the top 10% of COLA (e.g. the most expensive) corrected tuition costs were Pennsylvania and Pennsylvania State University; Connecticut and the University of Connecticut; Illinois and the University of Illinois at Champaign-Urbana; Ohio and The Ohio State University; and South Carolina and Clemson University. The states and respective public land-grant universities that resided in the bottom 10% of COLA (the least expensive) corrected tuition costs were Nevada and the University of Nevada-Reno; Louisiana and Louisiana State University, Oregon and Oregon State University, Florida and the University of Florida; and California and California Polytechnic State University. Hawaii and the University of Hawaii; Alaska and the University of Alaska-Fairbanks; and Wyoming and the University of Wyoming were excluded as outliers because of the exceedingly high cost of living in Alaska and Hawaii and the existence of only one university in the entire state of Wyoming which made its governance structure too distinctive for generalization.

After identifying the most and least expensive public land-grant institutions, the objective of the content analysis was to identify what consistent trends and attributes existed at the institutions and the respective state in which they resided in. This analysis was initiated by evaluating documentation regarding nation-wide tuition setting, most notably the Boatman and L'Orange's (2007) *State Higher Education Executive Officers (SHEEO) 2005-06 Annual Report on Tuitions and Fees of Public Universities*. This report, which evaluated every state and the tuition setting protocols of each state's entire public higher education apparatus collectively, offered an indication that the relationship

between institutional autonomy and tuition rates was significant. Since this report approached land-grant institutions as part of each state's collective higher education enterprise, each of the institutions and their respective state governments selected for the content and policy analysis warranted in-depth examination beyond the aforementioned study.

The content analysis revealed a seemingly strong indication of the difference between public land-grant universities with relatively high tuitions and those that were relatively low. Perhaps the most glaring difference between a high tuition and a low tuition university was the amount of autonomy over tuition setting that each institution was granted. The states with public land-grant universities that were in the top 90th percentile granted a high level of autonomy to their respective institutions over matters like tuition setting. Conversely, four out of five states with public land-grant universities that were in the bottom 10th percentile of COLA corrected tuitions granted relatively little autonomy over matters of tuition setting.

In addition to finding predictive variables through the multiple regression analysis, a Product Moment Correlation (Pearson's r) was used to assess the relationship between tuition and institutional quality as measured by the *U.S. News and World Report*. Using every public land-grant university's *U.S. News and World Report* composite score as the independent variable and each institution's COLA corrected tuition as the dependent variable, the resultant (albeit frail) coefficient of .157 ($\rho = .157, r^2 = .23$) resulted.

Regression Analysis and Correlation Results

Another aspect of the study was to identify whether or not there were any predictive variables that could be useful in determining a land-grant institution's tuition costs. This was accomplished by using a regression analysis to discern whether or not legislative appropriations, the partisan composition, the level of professionalism in each state's legislature, the geographical location of an institution, or the quality of a university as measured by the *U.S. News and World Report* was in any way predictive of tuition costs.

Data Analysis

While it was obvious that tuition setting does not occur in a vacuum, there has been very little substantial research to indicate what policies and situations result in public university tuition being relatively high in one state and relatively low in another. Through this study, it was shown that there are certain consistent policies related to the relatively high or low tuition of respective states. Further, the study identified certain non-policy and demographic aspects that also contributed to the wide variation in tuition. As the study was guided by its six research questions, the findings from the research will be broken down according to those respective questions.

Research Question 1: Among public land-grant universities with relatively high tuition costs, what were the consistent and defining institutional and public policies?

In order to satisfy this question, a qualitative content analysis was used to evaluate state and institutional policies of public land-grant institutions that were in the 90th percentile of COLA corrected tuition costs. The states of Connecticut, Illinois, Ohio,

Pennsylvania, and South Carolina all had their public land-grant universities with tuitions above the 90th percentile. Additionally, a quantitative multiple regression analysis was conducted to examine some non-institutional characteristics of the states that these high cost institutions resided.

The qualitative content analysis was used to satisfy both research questions one and two yielded some compelling findings. Each state's land-grant institution with a tuition at or above the 90th percentile had somewhat consistent tuition setting protocols and policies. The consistent policy in all but one of the states in the 90th percentile, granted full tuition setting discretion to each institution's board of trustees. These findings were consistent Boatman and L'Orange's (2007) SHEEO report on tuition policies. Therefore, it is a logical assumption that the high level of discretion granted to relatively high cost public land-grant institutions is at least partially the result of institutional autonomy with regards to tuition setting. This will become even more evident when the reduced autonomy of institutions who are in the bottom 10th percentile of cost are evaluated.

Pennsylvania State University had the highest COLA adjusted annual tuition cost (\$12,075 in 2007-08) of any public land-grant university in the United States (Pennsylvania State University, Office of Financial Aid website). Pennsylvania's higher education structure allowed tuition and fees for all public universities to be regulated by the Pennsylvania Board of Governors and the Pennsylvania Commonwealth State System of Higher Education, except for its flagship land-grant institution which is Pennsylvania State University at University Park (Commonwealth of Pennsylvania State System of Higher Education, Policy 1999-02-A). Pennsylvania State University is treated as a

mostly autonomous corporate entity within the state, with the institution's Board of Trustee's having almost complete autonomy to set tuition rates (Pennsylvania State University Board of Trustees website). According to the *Pennsylvania Annotated Statutes*, the Pennsylvania State University Board of Trustees is empowered to, "review and approve charges for room and board and other fees except student activity fees" (*Purdon's Pennsylvania Statutes*, 2007, P.S. § 20-2008-A7). Therefore, since there is little or no legislative oversight or governmental control of the Pennsylvania State University Board of Trustee's, especially in the realm of tuition setting, there is no effective limitation or oversight of tuition setting.

The University of Connecticut had the second highest COLA corrected annual tuition cost (\$9,879 in 2007-08) of any public land-grant university in the United States (University of Connecticut Office of Orientation Services website). In Connecticut, tuition setting is the function of each respective university system with the University of Connecticut Board of Trustees having autonomy to set the tuition rates for each institution in the University of Connecticut system, including the flagship and land-grant campus at Storrs. The only authority granted to the higher education Board of Governors, which is a statewide coordinating board, is to recommend a "minimum proportion of educational costs which shall be supported by tuition and fees" (*Connecticut General Statutes Annotated*, 2007, §10a-15). Therefore, the Board of Governors has the authority to recommend a minimum ratio of appropriations to supplement tuition and other institutional revenue, but they have no statutory authority to limit tuition costs in either of Connecticut's two university systems. In Connecticut, both the University of Connecticut and the Connecticut State System have authority to "fix fees for tuition and shall fix fees

for such other purposes as the board deems necessary” (*Connecticut General Statutes Annotated*, 2007, Ch. 165 §10a-99).

Clemson University in South Carolina had the third highest COLA corrected annual tuition cost (\$9,774 in 2007-08) of any public land-grant university in the United States (Clemson University Office of Student Financial Aid website). Like Pennsylvania and Connecticut, tuition setting authority in South Carolina is delegated to a governing board. Unlike the Pennsylvania State University and the University of Connecticut, Clemson is not a member of a university system and has its own Board of Trustees (South Carolina Commission on Higher Education website). According to South Carolina Statutory Code, the Clemson Board of Trustees has the “power to fix tuition fees and other charges for students attending the college” (*Code of Laws of South Carolina Annotated*, 2008, 25A§59-130-30:8). This provides the Clemson University’s single institution Board of Trustees complete tuition setting authority over the tuition rates charged at that institution.

The University of Illinois had the fourth highest COLA corrected annual tuition cost (\$9,565 in 2007-08) of any public land-grant university in the United States (University of Illinois- Urbana-Champaign Office of Student Financial Aid website). Much like Pennsylvania State University, the three campus University of Illinois System has considerable autonomy from the state legislature and is by statute, “a corporation [that is] separate and distinct from the state and as a corporate public entity” (*West’s Smith-Hurd Illinois Compiled Statutes Annotated*, 2007, 110 ILCS 305§1). The state of Illinois grants the System’s Board of Trustees complete power “to fix the rates for

tuition” as well as most other aspects of governance and operations (*West’s Smith-Hurd Illinois Compiled Statutes Annotated*, 2007, 110 ILCS 305§7).

The Ohio State University has the fifth highest COLA corrected annual tuition costs (\$9,357 in 2007-08) of any public land-grant university in the United States (The Ohio State University Office of Student Financial Aid website). Of the institutions in the 90th percentile, The Ohio State University System has the least amount of autonomy. Although according to Ohio Statutory law, each institution’s Board of Trustees has authority over all “fees, deposits, charges, receipts, and income” (*Page’s Ohio Revised Code Annotated*, 2005, Title 33 §3345.05-A), The Ohio State University does not enjoy the status of being an autonomous corporation and is therefore subject to many more state regulations than the previously discussed institutions (The Ohio State University Office of News and Information website). Perhaps it is due to these controls, both budgetary and statutory, that the Ohio Board of Regents (the state’s higher education coordinating board) was able to implement a two-year tuition freeze in 2003 (The Ohio State University Economic Access Initiative website).

The results of the quantitative multiple regression analysis also indicated some variables that are predictive of tuition costs and are indicative of the high level of tuition variation throughout the United States. These findings relate to research question four and will be discussed when that research question is addressed.

Table 1

Content Analysis Results Matrix

Institution	Tuition (Rank)	Tuition Setting Authority	Level of State Control ¹
Penn. State Univ.	\$12,075 (1 st)	Penn. State Univ. Board of Trustees	Very Low
Univ. of Conn.	\$9,879 (2 nd)	Univ. of Conn. Board of Trustees	Very Low
Clemson Univ.	\$9,774 (3 rd)	Clemson Univ. Board of Trustees	Very Low
Univ. Of Illinois	\$9,565 (4 th)	Univ. of Illinois System Board of Trustees	Very Low
Ohio State Univ.	\$9,357 (5 th)	Ohio State Univ. Board of Trustees & the Ohio Board of Regents (Coordinating Board)	Medium

¹ Level of control is consistent with the findings of Boatman and L'Orange (2007).

Research Question 2: Among public land-grant universities with relatively low tuition costs, what were the consistent and defining institutional and public policies?

Like the land-grant institutions and states in the top 90th percentile of tuition costs, designated public land-grant institutions and states in the lower 10th percentile of tuition costs also demonstrated consistency in their tuition setting protocols and policies. These states and their respective public land-grant universities were: Nevada and the University of Nevada-Reno; Louisiana and Louisiana State University, Oregon and Oregon State University, Florida and the University of Florida; and California and California Polytechnic State University. Even though Hawaii, Alaska, and Wyoming belonged in

the bottom 10th percentile, the excessive cost-of-living in Alaska and Hawaii and the fact that Wyoming only has one University in the entire state designated them as outliers and excluded from the distribution.

The consistent policy was that all of the institutions in the bottom 10th percentile had strict statutory limitations on tuition rates and costs. Therefore, it was a logical assumption that the reduced level of autonomy at low cost public land-grant institutions was at least partially the cause of these institution's more affordable tuition.

The University of Nevada-Reno had the fifth most accessible COLA corrected annual tuition cost (\$3,234 in 2007-08) of the selected public land-grant universities in the United States (University of Nevada-Reno Controllers Office website). In Nevada, tuition setting was a function of the Nevada System of Higher Education, which is governed by an elected Board of Regents (Nevada System of Higher Education website). According to Nevada statute, "The [Nevada State] Board of Regents may fix a tuition charge for students at all campuses of the system" (*Nevada Revised Statutes*, 2008, 24§396.540-2).

Louisiana State University in Baton Rouge had the fourth most accessible COLA corrected annual tuition cost (\$3,175 in 2007-08) of the selected public land-grant universities in the United States (Louisiana State University Office of Undergraduate Admissions and Student Aid website). In Louisiana, the state Constitution delegates tuition setting authority to the Louisiana State Legislature. The Legislature has responded by not only capping tuition increases on a recurring bi-annual basis, but has established reduced tuition rates for students from households earning less than \$50,000 annually. The Louisiana State University and Agricultural and Mechanical College Board of

Supervisors does have the prerogative to change tuition rates, but increases have been limited by legislatively mandated caps (Boatman & L'Orange, 2007). Specifically, Louisiana Law has established caps on the, “amount of tuition charged per student” during each biannual legislative session (*West's Louisiana Statutes Annotated*, 2005, 17§3351-2.1a).

Oregon State University had the third most accessible COLA corrected annual tuition cost (\$2,547 in 2007-08) of the selected public land-grant universities in the United States (Oregon State University Office of Admissions website). In Oregon, all public university tuition is determined by the twelve member State Board of Higher Education. According to Oregon statute, the board has the statutory authority to, “Prescribe fees for enrollment into institutions. Such enrollment fees shall include tuition for education and general services” (*Oregon Revised Statutes*, 2005, 8§351.070-c). This arrangement is somewhat unique in that the Board not only serves the governing role of all Oregon public institutions, but it also serves as the governing body of the Oregon University System which serves a role resembling a coordinating board (Oregon State Board of Higher Education website).

The University of Florida in Gainesville had the second most accessible COLA corrected annual tuition cost (\$2,014 in 2007-08) of the selected public land-grant universities in the United States (University of Florida Office of Student Financial Affairs website). According to Boatman and L'Orange (2007), all of Florida's public universities tuitions have been capped by legislative statute which is adjusted annually in the General Appropriations Act that is enacted in the state's bi-annual budget. According to Florida statute, tuition and fees are to be “established in law or in the [Florida] General

Appropriations Act” (*West’s Florida Statutes Annotated*, 2006, 24D§1009.24-3)

Therefore, like in Louisiana and California, the state legislature establishes a cap that tuition rates cannot exceed, which results in low tuition costs.

Finally, the California Polytechnic State University in St. Louis Obispo had the most accessible COLA corrected annual tuition cost (\$1,883 in 2007-08) of selected public land-grant universities in the United States (California Polytechnic State University Office of Financial Aid website). California is unique because it is the only state with two land-grant institutions that were created under the auspices of the Morrill Land-Grant Act of 1862. The other state institution is the University of California in Berkley, which also has relatively inexpensive tuition but is just outside the bottom 10% distribution. The relatively low tuition in California is due to the passage in 1991 Donahoe Higher Education Act by the California State Legislature which stated that if a system “Board of Trustees raises system-wide mandatory fees beyond a budgeted level, a portion of the additional fee revenues shall be used to provide financial aid” (*West’s Annotated California Codes*, 2006, 4-Div.-Ch. 3.5-66150§2). Additionally, the act mandated an automatic rollback of tuition rates in the state and imposed strict legislative oversight and control over many aspects of public higher education including tuition rates (University of California System website). Thus, just like Florida and Louisiana, maximum tuition rates and caps were determined by the legislature and not institutions or boards.

The results of the quantitative multiple regression analysis also indicated some variables that are predictive of tuition costs and are indicative of the high level of tuition variation throughout the United States. As previously indicated in the explanation of the

previous research question, these findings will be discussed when research question four is addressed.

Table 2

Content Analysis Results Matrix (With Alaska, Hawaii, & Wyoming Excluded)

Institution	Tuition (Rank*)	Tuition Setting Authority	Level of State Control ¹
Univ. of NV-Reno	\$3,234 (43 rd)	Nevada System of Higher Education Board of Regents	High
Louisiana St. Univ.	\$3175 (44 th)	LSU Board of Supervisors w/ caps set by Louisiana State Legislature.	Very High
Oregon St. Univ.	\$2,547(47 th)	The Oregon State Board of Higher Education	Very High
Univ. of Florida	\$2,014(49 th)	Florida Board of Governors w/ caps set by the Florida St. Legislature	Very High
Cal. Polytechnic U.	\$1,883 (50 th)	California State Legislature	Very High

*Rankings start with the 42nd ranked institution due to the exclusion of the University of Hawaii (48th), the University of Wyoming (46th), and the Univ. of Alaska (45th).

¹ Level of control is consistent with the findings of Boatman and L'Orange (2007).

Research Question 3: To what extent are the levels of discretion correlated with the tuition costs at public land-grant universities?

This research question was constructed on the findings of Research Questions 1 and 2. The qualitative content analysis of the states and their land-grant universities

yielded significant content related to the amount of autonomy and discretion granted to institutions to establish their own tuition rates. Thus, the question was satisfied by combining the findings from Research Questions 1 and 2. The findings indicated that public-land-grant institutions that had tuitions that exceed the top 90th percentile (Pennsylvania State University, the University of Connecticut, Clemson University, the University of Illinois, and The Ohio State University) all have a corresponding high level of autonomy in establishing their respective tuition rates.

Further, the selected institutions (Alaska, Hawaii, and Wyoming were excluded because of outlier traits) in the bottom 10th percentile (University of Nevada-Reno, Louisiana State University, Oregon State University, the University of Florida, and California Polytechnic State University) all had a low level of discretion or autonomy in determining tuition rates. Additionally, three of the institutions were capped by legislative statute, the two others being determined by a type of coordinating board that was politically and completely detached from each respective university.

Research Question 4: To what extent were external and non-institutional factors correlated with a public land-grant university's tuition prices?

This question was satisfied through the use of a quantitative multiple regression analysis. Appendix E shows the dependent and independent variables used in the multiple regression analysis. The regression analysis identified that two aspects of external variables had a significant effect on tuition rates. Table 3 shows the matrix of results from the multiple regression analysis.

Table 3

Regression Analysis of Dependent Variables that were Hypothesized to be Correlated to Tuition Costs

N = 49

Dependent Variable: COLA corrected tuition costs of each public land-grant university in the United States.

Independent Variables	B	Std. Error	Beta	<i>t</i>	Sig.
HIEDSUP% (Percent of state appropriations devoted to higher education)	(\$)-.495	.520	-.413	-.953	.347
PERSTUDAPP (State Per-Student Appropriation to higher education)	(\$)-.387	.185	-.333	-2.095	.043
DEMSTATE (State legislature had Democratic majority in 2007)	(\$)-127.476	278.404	-.066	-.458	.650
NCLSPROL (National Conference of State Legislatures rating for each state legislature's level of professionalism)	(\$)240.708	434.345	.112	.554	.583
SOUTH (The land-grant institution is located in the southern geographic region of the United States)	(\$)180.645	879.058	.035	.205	.838
MIDWEST (The land-grant institution is located in the mid-western geographic region of the United States)	(\$)1435.23	947.228	.277	1.515	.138
NORTHEAST (The land-grant institution is located in the northeast geographic region of the United States)	(\$)2846.16	1078.275	.520	2.640	.012
USNWR (Each institution's <i>U.S. News and World Report</i> composite tier ranking from 2004-2008)	(\$)586.912	640.296	-.179	-.917	.365
Excluded Baseline Variable:					
Dependent Var.	Beta	<i>t</i>	Sig.	Part. Corr.	Collinearity Tol.
WEST (The land-grant institution is located in Western geographic region of the United States)	(\$)81.546	-.358	.722	.059	2.66

Thus, according to the multiple regression analysis, only variables related to geography and state per-student appropriations were demonstrated to be predictors at the .10 level of significance. Both an institution's *USNWR* ranking and each state's budgetary percentage devoted to higher education approached significance, but neither were strong enough predictors in this regression to overcome the requisite .10 level of significance.

The regression analysis established that students from the Western United States can somewhat reasonably expect (or predict) to pay \$2,946 more per year in tuition at a public land-grant institution in the Northeastern United States and \$.38 less tuition for each dollar in state appropriations for higher education on a per-student basis. These findings related to geography are consistent with previous studies on the topic, while the per-student appropriation findings seem to be new-found and not previously examined in this manner.

Research Question 5: To what extent is there a correlation between tuition costs at ranked public land-grant universities and their U.S. News and World Report rankings?

This question was satisfied through the use of a Pearson's Product Moment Correlation (*Pearson's r*) and sought to identify the level of relationship between tuition costs and quality as measured by the *U.S. News and World Report*. In order to account for instability in the ranking criteria, a composite mean of each public land-grant university's *USNWR* rankings from 2004-2008 was used as an independent variable. The calculation variables for the composite means have been listed in Appendix F. Each public land-grant university's 2007-08 COLA corrected tuition rates served as the dependent variables.

Table 4 shows the level of correlation found in the analysis.

Table 4

Pearson's Product Moment Correlation (Pearson's *r*) Analysis of the Relationship between Land-Grant University Tuitions and Quality as Measured by *USNWR*.

N= 49

	<i>USNWR</i> Composite Tier Ranking	COLA Corr. Tuition
Mean:	2.36	5787.43
Variance:	0.50	\$2,852,888.49
Standard Deviation:	.708	1689.05
$\rho = .154$		
$r^2 = .023$		

Independent Variable: *USNWR* composite tier ranking

Dependent Variable: COLA corrected tuition costs of each public land-grant university in the United States.

With a correlation of .154, ($\rho = .154$; $r^2 = .023$) a slight relationship exists, although its significance is suspect, and with an r^2 of .023, it seems that only about one-fifth of all cases can be explained by this correlation which further undermines the significance and validity of the correlation. While the results fail to show a strong relationship between the variables, the lack of great significance does partially serve to discount the common assertion that higher tuitions equate to higher institutional quality. Anecdotally, when evaluating the institutions that are in the bottom quarter of the tuition price distribution, it becomes evident that tuition and institutional quality by this measure were not very strongly related, as many highly regarded institutions also had relatively affordable tuition rates.

Research Question 6: What are the consistent trends, policies, and circumstances that cause the high level of variation in the tuition rates of America's 49 public land-grant universities?

Since research question six served as the primary research question to guide this entire study, its results are present in the findings of the previous five research questions. Essentially, using the aforementioned research methods, it was revealed that levels of institutional autonomy are correlated with the tuition rates of a public land-grant university, geography and state per-student appropriations are significant predictors of tuition costs, and institutional quality is in fact related to cost, although not at a level that are notably significant. Collectively, these findings answer research question six and encapsulate the entire study's findings.

Summary of Chapter 4

This chapter presented the findings and data that were collected through this study's research. As the study's six research questions provided the structure and foundation for the study, the results listed in this chapter served to satisfy those questions. This chapter has provided data that tuition setting is the result of many independent aspects. For one, tuition rates at public land-grant universities seems to be related to the amount of autonomy that a university possesses for setting its own tuition rates. Universities with a great deal of autonomy have high tuitions, while universities with low tuitions tend to have little autonomy in setting their tuitions. Also, a university's geographic locale and its respective state's per-student appropriations are significant predictors of what a land-grant institution's tuition costs might be, while factors such as

the percentage of a state budget devoted to higher education, an institution's quality, or the professionalism or partisan makeup of a state's legislature are statistically not significant. Finally, a Pearson's Product Moment Correlation (*Pearson's r*) identified that while institutional quality (as measured by *U.S. News and World Report*) and tuition costs were correlated, their relationship was statistically marginal and feeble.

CHAPTER V

CONCLUSIONS AND RECCOMENDATIONS

As tuition at public colleges and universities continues to rapidly increase, it is incumbent that the causes for the rise and the subsequent effects continue to be evaluated. As this and other studies have indicated, not every state and institution has responded similarly to the current trend by rapidly escalating their tuitions. While many states and public institutions have increased tuitions to levels that could not have been fathomed in previous decades, some states and public institutions have somehow maintained relatively modest and stable tuition rates compared to the rest of the nation. The aim of this study was to examine what the causes were for that variation by looking at the defined subgroup of public land-grant universities.

Summary of Study

The aim of this study was to evaluate what the causes for the high level of tuition variation that exists between America's public land-grant universities. Many different aspects were explored in order to provide a clear and valid explanation as to why this variation exists. The study was conducted with the hope that the resultant information may help students, administrators, and policy-makers make informed and responsible decisions about their respective tuition setting, budgetary, and higher education policy protocols.

Both qualitative and quantitative methods were employed to satisfy the study's one primary, and five secondary research questions. Research questions one, two, and three relied on a quantitative policy analysis of select states' tuition setting statutes, as well as, a content analysis of select institutions tuition setting protocols. Research

question four utilized a quantitative multiple regression analysis to identify whether or not external trends such as geography, institutional quality, or state financial support for higher education were significant predictors of public land-grant university tuition costs. To satisfy question five, a quantitative *Pearson's Product Moment Correlation* was utilized to examine the relationship between an institution's quality (as measured by the *U.S. News and World Report*) and its tuition costs. Finally, question six which served as the primary research question of the entire study, sought to utilize the findings of the previous five research questions into one overarching and concluding concept.

The findings related to research question one revealed a policy trend in the five states with the highest tuitions at their public land-grant universities. Essentially, the policy and content analysis of each of these states and their public land-grant universities revealed that four out of the five had relatively high levels of autonomy when it came to setting and establishing institutional tuition costs. This high level of autonomy was evident in that four of the selected universities and their institutional governing boards were granted complete and virtually unchecked control over the institution's tuition costs. Therefore, in this instance it seems that some logical association exists between high-levels of institutional autonomy and high tuitions.

The findings related to research question two revealed a policy trend in five of the selected states with the lowest tuitions at their public land-grant universities. Essentially, the policy and content analysis of each of these states and their public land-grant universities revealed that all five selected universities had relatively low levels of autonomy when it came to setting and establishing institutional tuition costs. This relatively low level of autonomy was evident as each of the five selected institutions had

tuition rates that were capped by state statutes or situations where state coordinating boards established university tuition rates. Therefore, in this instance it seems that some logical association exists between low levels of institutional autonomy and low tuition rates.

Research question three was logically satisfied through the findings associated with research questions two and three. It appears evident that, at least at the margins, tuition rates were related to institutional autonomy and discretion. The more discretion or autonomy an institution had over tuition setting, the higher its tuition rate seemed to be, whereas public land-grant universities with relatively low tuition rates seemed to have very little autonomy or discretion in deciding what their tuition costs would be.

Research question four revealed that some external trends were significantly related to tuition costs while others were deemed to be insignificant. Consistent with the findings of other studies, the multiple regression analysis revealed that geography was a significant predictor of tuition costs. Additionally, it was found that a percentage of each state's budget devoted to higher education was also a significant predictor of tuition rates at public land-grant universities. Interestingly, the partisan makeup of a state's legislature, the percentage of a state's budget devoted to higher education, the professionalism of a state legislature, and a university's *U.S. News and World Report* (*USNWR*) ranking were insignificant predictors of institutional tuition costs.

Research question five revealed that only a slightly significant correlation exists between institutional quality as measured by *USNWR* and tuition costs. This counters the conventional perception that cost barriers to attendance in higher education were somehow positively correlated to institutional quality. Therefore, there were certainly public land-grant universities of very high quality with relatively low tuition costs, while

there were also public land-grant universities of less relative quality with exceptionally high tuition costs.

Research question six, which encompassed the findings of all five of the previous questions, revealed that tuition setting and policy were closely intertwined. Institutional autonomy over tuition setting, the geographic region of an institution, and a states per student appropriations were significantly related to an institution's tuition costs. Conversely, it was also found that a public land-grant university's tuition was less significantly affected by the institution's quality, the partisan makeup or professionalism of their respective state legislature, or the amount of a state's budget devoted to higher education.

Conclusions

1. It is a valid explanation that public land-grant universities with relatively high tuition rates (in this instance, those that exceed the 90th percentile) also have considerably high levels of discretion in determining their own tuition rates. Thus, this indicated that high tuition costs at public land-grant universities were the result of institutional tuition setting and the level of statutory authority granted to those institutions to set those rates.
2. It is also a valid explanation that the selected public land-grant universities with relatively low tuition rates (in this instance, those that reside in the bottom 10% of tuition costs after outliers were removed) also had relatively low levels of autonomy. Thus, this indicated that high tuition costs at public land-grant

universities were the result of statutory limitations on the authority of institutional governing boards to set their own tuitions.

3. Statutory restrictions on tuition setting and costs can result in lower tuitions, while the absence of these restrictions can lead to inflated tuitions.
4. When viewed as a regional unit, students who attended public land-grant universities in the northeastern United States could expect to pay approximately \$2,800 more than students enrolled in the same type of institutions in the western United States.
5. When viewed as a regional unit, students who attended public land-grant universities in the northeastern United States could expect to pay approximately \$1,400 more in annual tuition than students enrolled in the same type of institutions the mid-western United States.
6. When viewed as a regional unit, students who attended public land-grant universities in the northeastern United States could expect to pay approximately \$200 more in annual tuition than students enrolled in the southern region of the United States.
7. Consistent with the findings of other studies as well as this study's multiple regression analysis it could be postulated that geography continued to be a significant predictor of how much a public land-grant university's tuition costs might be.
8. Among the all of nation's public land-grant universities, a states per student appropriation accounted for .38 cents of every dollar spent on tuition at a public

land-grant university. Therefore, tuition was significantly affected by the percentage of a state budget devoted to higher education.

9. Nationally, the states that had public land-grant universities with low tuition rates have to maintain higher funding levels (up to .38 cents more for every dollar) to subsidize those institutions.
10. The professionalism of a respective state's legislature was not a significant predictor of a public land-grant institution's tuition costs.
11. The partisan composition of a respective state's legislature was not a significant predictor of a public land-grant institutions tuition costs.
12. The percent of a state's budget devoted to higher education was not a significant predictor of a public land-grant institution's tuition costs.
13. A public land-grant university's quality, as measured by the *USNWR*, was not a significant predictor of an institution's tuition costs.
14. Since there was only a slight correlation ($\rho = .154$; $r^2 = .023$) between tuition costs and quality as measured by *USNWR* rankings of public land-grant universities, it could reasonably be postulated that the market based contention that tuition costs are associated with quality is only marginally applicable to public higher education.

Recommendations for Further Research

The highest expectation for this study was to provide a generalized overview of tuition setting at America's public land-grant universities. While it is hoped that the findings of this study will be generalized on a limited basis to the tuition setting protocols

of other states and other types of public colleges and universities, the external validity for such a generalization may not be sufficient. Therefore, it is hoped that future research will continue to expand and encompass other types of public institutions and state policies.

Furthermore, it is also hoped further research will be conducted in order to evaluate the causes, both policy and otherwise, for the wide disparity in tuition rates that result from geographic location. Whether this was the result cultural differences or competition from institutions within the same proximity, these are two aspects that should be further evaluated.

Perhaps one of the greatest limitations of this study, and therefore something that should be further evaluated, were the causes of variation in the total cost of attendance at an institution of higher learning. While tuition was a worthy measure, it was only one aspect of the total cost of attendance. Future research and studies that are less concerned with the political and policy causes of tuition rates should also seek to further evaluate the social and personal effects of the total costs associated with a college degree.

In conclusion, this study only provided some insight into what goes into, and the reasons for, the high levels of tuition variation at public land-grant institutions. As with most research, this study only served as a snapshot of two rapidly evolving vectors of the tuition setting equation. Therefore, it is incumbent that future research continues to ask questions about the costs and barriers to higher educational attainment.

Recommendations for Practice

As this study has indicated a linkage between policy decisions dealing with institutional autonomy and state level funding, it seems incumbent on both universities and policy makers to formulate solutions to slow the rapid inflation of tuition costs. The findings of this study seem to indicate that there were two possible solutions that have been somewhat successfully utilized in a few states (See Boatman & L'Orange, 2007).

The first possible solution is that state legislatures consider the use of tuition caps or non-institutional controlled tuition setting protocols. This could potentially provide a buffer between the seemingly knee-jerk reaction to budgetary shortfalls in higher education that cause tuition inflation and also provide a more politically and popularly responsive venue for deciding tuition rates. The second possible solution is that state legislatures adopt more stable budgetary mechanisms for funding higher education. This would hopefully provide a less volatile budgetary environment where tuition increases have become increasingly necessary.

In states that have employed tuition caps to keep tuition rates low, their respective state legislatures have had little choice but to respond by funding these institutions adequately. I hypothesize that this results in a type of equilibrium where state legislatures or governing boards seek to balance the budgetary needs of institutions while simultaneously being politically pressured to maintain access. Thus, public higher education institutions will inevitably have to make sacrifices and resort to greater efficiency during times of economic turmoil while retaining access through multiple levels of reasonable accountability and oversight.

Discussion

In 2003, I became intimately involved with tuition setting while working for the Texas House of Representatives. The issue that spurred this involvement was called “tuition deregulation” which was basically the abandonment of the Texas’ previous tuition setting paradigm of legislatively capped tuition. During the debate, many institutions made great promises to keep tuition accessible and affordable while simultaneously increasing their institutional financial aid. Eventually, what occurred was that the state allowed most of the state’s largest universities to set their own tuition rates with little or no oversight from the legislature. It should go without saying that the universities responded by rapidly increasing their tuition rates, some as high as double their pre-deregulation rates.

Many argue that caps and price freezes result in shortages and reduction of services, which is certainly true when discussing completely free-market entities. Some of the literature from this study clearly indicated that higher education does not exist in a pure market economic system and therefore, does not respond in a completely market based fashion (Wildavsky, 1988; Rhodes, & Slaughter, 1997; St. John & Starkey, 1996; Rusk & Leslie, 1978; McPherson, Schapiro & Winston, 1989). If this were the case, how would many institutions like the University California at Berkley or the University of Florida maintain highly regarded institutions while simultaneously preserving their very inexpensive tuitions.

Like most governmental bureaucracies, of which public higher education certainly qualifies, the tendency in higher education is to respond to economic downturns and budget cuts with pleas for more funding and fees. As a result, many of these institutions

have become beholden to their bloated budgets so much that they have forgotten the true mission and aims that they started from. Instead of opting for greater efficiency, maintaining access, and staying true to their original mission and uniqueness, they seek to abandon those once cherished principles in order to become more like every other institution and ultimately less affordable.

It seems almost certain that tuition costs will continue to escalate rapidly in the market-based environment of the 21st century. While this does not seem to overly trouble administrators, policy makers, or even most parents and students, I think it would be remiss to assume that these increases will not soon have some sort of detrimental impact on higher education. That impact could potentially be negative as fewer and fewer students from the lower and middle classes find a college education an affordable or unobtainable option.

Chapter Summary

Chapter five concluded the study by summarizing the results of the six research questions and providing analysis and recommendations. Fourteen conclusions were reached that seemingly explain some of the causes of the wide variation in tuition costs at America's public land-grant universities. Most of the findings of this study indicated that tuition is clearly affected by some state level and institutional policies, most specifically institutional tuition setting discretion and autonomy and state budgetary priorities. Further, some external aspects like geography were also significantly predictive of tuition costs.

This study also demonstrated that there were certain aspects that were not significant when trying to explain the causes of tuition variation. For instance, this study

found that the percentage of a state's budget dedicated to higher education, the quality of the institution, the professionalism of a state legislature, or its partisan makeup were all insignificant predictors of what tuition costs might be at a respective institution. Further, while the study did identify a frail correlation between a land-grant institution's tuition and the quality, the statistical significance and external validity were minimal and suspect. This chapter also made recommendations for further research, as well as recommendations for practice that applies to the study's purposes. This chapter concluded with a warning about the dangers of ever escalating tuitions on higher education and lower and middle class Americans.

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APPENDIX A

LIST OF PUBLIC MORRILL LAND-GRANT ACT OF 1862 UNIVERSITIES

Table 5

U.S. Public Land Grant Universities

Institution

Auburn University (Alabama)

California Polytechnic State University

Clemson University (South Carolina)

Colorado State University

Iowa State University

Kansas State University

Louisiana State University

Michigan State University

Mississippi State University

Montana State University

New Mexico State University

North Carolina State University

North Dakota State University

Oklahoma State University

Oregon State University

Pennsylvania State University

Purdue University

Rutgers, The State University of New Jersey

South Dakota State University

Table 5 (Continued)

U.S. Public Land Grant Universities

Institution

Texas A&M University

The Ohio State University

University of Delaware

University of Alaska

University of Arizona

University of Arkansas

University of California-Berkley

University of Connecticut

University of Florida

University of Georgia

University of Hawaii

University of Idaho

University of Illinois, Urbana-Champaign

University of Kentucky

University of Maine

University of Maryland

University of Massachusetts

University of Minnesota

Table 5 (Continued)

U.S. Public Land Grant Universities

Institution

University of Missouri

University of Nebraska

University of Nevada-Reno

University of New Hampshire

University of Rhode Island

University of Tennessee

University of Vermont

University of Wisconsin- Madison

University of Wyoming

Utah State University

Virginia Polytechnic Institute & State University

Washington State University

West Virginia University

APPENDIX B

NON-COLA ADJUSTED TUITION RATES OF SELECTED UNIVERSITIES

Table 6

2008 Non-COLA Corrected Tuition Costs

Institution	Tuition Formula	Non-COLA Tuition
Auburn University (Alabama)	$30 * \$241 =$	\$7230.
California Polytechnic State Univ.	$2 * \$1585 =$	\$3107.
Clemson University (South Carolina)	$2 * \$4672 =$	\$9344.
Colorado State University	$(\$291 * 16) + (\$493 * 2) +$ $(\$89 * 12) =$	\$6710.
Iowa State University	$2 * \$2762 =$	\$5562.
Kansas State University	$30 * \$187. =$	\$5610.
Louisiana State University	$30 * \$1496 =$	\$2992.
Michigan State University	$30 * \$277.50 =$	\$8325.
Mississippi State University	$2 * \$2466$	\$4932.
Montana State University	$2 * \$2893 =$	\$5786.
New Mexico State University	$2 * \$2115.$	\$4230.
North Carolina State University	$2 * \$1880. =$	\$3760.
North Dakota State University	$2 * \$2632 =$	\$5264.
Oklahoma State University	$30 * \$199.50 =$	\$3585.
Oregon State University	$2 * \$1488. =$	\$2976.
Pennsylvania State University	$2 * \$6142 =$	\$12284.
Purdue University	$30 * \$168.95 =$	\$5069.

Table 6 (Continued)

2008 Non-COLA Corrected Tuition Costs

Institution	Tuition Formula	Non-COLA Tuition
Rutgers, The State Univ. of New Jersey	2 * 4270 =	\$8540.
South Dakota State University	30 * \$169.05 =	\$5072.
Texas A&M University	2 * \$2439 =	\$4878.
The Ohio State University	3 * \$2892=	\$8676.
University of Delaware	30 * \$306 =	\$9180.
University of Alaska	30 * \$134. =	\$4020.
University of Arizona	2 * \$2637. =	\$5274.
University of Arkansas	2 * \$2505. =	\$5010.
University of California- Berkley	2 * \$3131 =	\$6262.
University of Connecticut	2 * \$7200 =	\$14400.
University of Florida	2 * \$1061 =	\$2122.
University of Georgia	2 * \$2428.	\$4856.
University of Hawaii	2 * \$2976. =	\$5952.
University of Idaho	2 * \$2205.	\$4410.
Univ. of Illinois-Urbana-Champaign	2 * \$4621. =	\$9242.
University of Kentucky	2 * \$1934 =	\$3868
University of Maine	30 * \$239. =	\$7170.
University of Maryland	2 * (\$3984.- \$100.80)	\$7766.

Table 6 (Continued)

2008 Non-COLA Corrected Tuition Costs

Institution	Tuition Formula	Non-COLA Tuition
University of Massachusetts	$2 * \$ 3556* =$	\$7112.
University of Minnesota	$2 * \$3975. =$	\$7950.
University of Missouri	$30 * \$235.90 =$	\$7077.
University of Nebraska	$30 * \$169.50 =$	\$5085.
University of Nevada-Reno	$30 * \$120.75 =$	\$3622.
University of New Hampshire	$2 * \$4710 =$	\$9420.
University of Rhode Island	$2 * \$3220. =$	\$6440.
University of Tennessee	$2 * \$2560 + 60 =$	\$5180.
University of Vermont	$2 * \$5524 =$	\$11040.
University of Wisconsin- Madison	$2 * \$3594 =$	\$7188.
University of Wyoming	$30 * \$92=$	\$2760.
Utah State University	$2 * \$2222.41 =$	\$4445.
Virginia Polytechnic Inst. & State Univ.	$2 * \$3166 =$	\$6332.
Washington State University	$2 * \$3360 =$	\$6720.
West Virginia University	$30 * \$230 =$	\$6900.

APPENDIX C
COLA CORRECTED TUITIONS

Table 7

COLA Corrected Tuitions

State	2008 COLA Correction ($\chi = 100$)	COLA Variance	Land-Grant Institution	COLA Corrected Tuition
Alaska	127.7	27.7	Univ. of Alaska-Fairbanks	\$2906.
Alabama	91.8	-8.2	Auburn Univ.	\$7823.
Arkansas	91.6	-8.4	Univ. of Arkansas	\$5431.
Arizona	104	4.0	Univ. of Arizona	\$5063.
California	139.4	39.4	California Polytechnic State Univ.	\$1883
California	139.4	39.4	Univ. of California-Berkley	\$3795.
Colorado	103	3.0	Colorado State Univ.	\$6509.
Connecticut	131.4	31.4	Univ. of Connecticut	\$9878.
Delaware	103.1	3.1	Univ. of Delaware	\$8895.
Florida	105.1	5.1	Univ. of Florida	\$2014.
Georgia	92.9	-7.9	Univ. of Georgia	\$5240.
Hawaii	165.3	65.3	Univ. of Hawaii	\$2065.
Iowa	92.8	-7.2	Iowa State. Univ.	\$5962.
Idaho	91.2	-8.8	Univ. of Idaho	\$4798.
Illinois	96.5	-3.5	Univ. Of Illinois-	\$9565.

Table 7 (Continued)

COLA Corrected Tuitions

State	2008 COLA Correction ($\chi = 100$)	COLA Variance	Land-Grant Institution	COLA Corrected Tuition
Indiana	93.8	-6.2	Purdue Univ.	\$5383.
Kansas	90.4	-9.6	Kansas State Univ.	\$6149.
Kentucky	92.0	-8.0	Univ. of Kentucky	\$4177.
Louisiana	93.9	-6.1	Louisiana State Univ.	\$3175.
Massachusetts	122.9	22.9	U. of Massachusetts	\$5483.
Maryland	128	28.0	Univ. of Maryland	\$5592.
Maine	115.7	15.7	Univ. of Maine	\$6044.
Michigan	96.3	-3.7	Michigan State Univ.	\$8633.
Minnesota	103.7	3.7	Univ. of Minnesota	\$7656.
Missouri	90.0	-10.0	Univ. of Missouri	\$7785.
Mississippi	92.1	-7.9	Mississippi State Univ.	\$5322.
Montana	103.9	3.9	Montana State Univ.	\$5560.
North Carolina	97.6	-3.3	North Carolina State Univ.	\$3884.
North Dakota	94.2	-5.8	North Dakota State Univ.	\$5569.
Nebraska	89.5	-10.5	Univ. of Nebraska	\$5619.

Table 7 (Continued)

COLA Corrected Tuitions

State	2008 COLA Correction ($\chi = 100$)	COLA Variance	Land-Grant Institution	COLA Corrected Tuition
N. Hampshire	116.5	16.5	Univ. of New Hampshire	\$7866.
New Jersey	127.5	28.5	Rutgers Univ.	\$6106.
N. Mexico	100.9	0.9	N. Mexico State University	\$4192.
Nevada	110.7	10.7	Univ. of Nevada-Reno	\$3234.
Ohio	93.3	-6.7	The Ohio State Univ.	\$9257.
Oklahoma	87.9	-12.1	Oklahoma State Univ.	\$4019.
Oregon	114.4	14.4	Oregon State Univ.	\$2547.
Pennsylvania	101.7	1.7	Pennsylvania State Univ.	\$12075.
Rhode Island	122.5	22.5	Univ. of Rhode Island	\$4991.
South Carolina	95.4	-4.6	Clemson Univ.	\$9774.
South Dakota	91.4	-8.6	South Dakota State Univ.	\$5058.
Tennessee	88.7	-11.3	Univ. of Tennessee	\$5765.
Texas	89.5	-10.5	Texas A&M Univ.	\$5390.
Vermont	120.1	20.1	Univ. of Vermont	\$8821.
Wyoming	101.5	1.5	Univ. of Wyoming	\$2719.

Table 7 (Continued)

COLA Corrected Tuitions

State	2008 COLA Correction ($\chi = 100$)	COLA Variance	Land-Grant Institution	COLA Corrected Tuition
Wisconsin	96.2	-3.8	Univ. of Wisconsin-	\$7461.
Utah	93.6	-6.4	Utah State Univ.	\$4729.
Washington	103.1	3.1	Washington St. Univ.	\$6412.
Virginia	101.8	1.8	Virginia Tech Univ.	\$6218.
West Virginia	94.0	6.0	West Virginia Univ.	\$7314.

APPENDIX D

LIST OF SELECTED INSTITUTIONS FOR CONTENT AND POLICY ANALYSIS

Table 8

Institutions Selected for Content and Policy Analysis¹

Institution	Tuition Corrected Tuition	COLA Corrected Tuition Rank (1>49)
Pennsylvania State Univ.	\$12,075	1
Univ. of Connecticut	\$9,879	2
Clemson University	\$9,774	3
Univ. of Illinois	\$9,565	4
The Ohio State Univ.	\$9,357	5
Univ. of Nevada-Reno	\$3,234	43
Louisiana State Univ.	\$3175	44
Oregon State Univ.	\$2,547	47
Univ. of Florida	\$2,014	49
California Polytechnic Univ.	\$1,883	50

¹ Rankings for institutions in the bottom 10th Percentile of tuition costs start with the 42nd ranked institution due to the exclusion of the University of Hawaii (48th), the University of Wyoming (46th), and the Univ. of Alaska (45th). These institutions were excluded because of their status as outliers.

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APPENDIX E
LIST OF DEPENDENT VARIABLES

Table 9

Variables Used in Multiple Regression Analysis

X-Axis (Dependent Variable) [Variable Symbol]

2007-2008 COLA corrected tuition costs at the 49 public land-grant institutions created under the auspices of the 1962 Morrill Land-Grant Act.

Y-Axis (Independent Variable) [Variable Symbol]

Percent of State Budget Dedicated to Higher Education [HIEDSUP%]

State Per-Student Appropriation [PERSTUDAPP]

State Median Age [STMEDAGE]

State Legislature Political Affiliation [DEMSTATE]

Level of Professionalism of State Legislature [NCSLPROL]

Institution Located in the Western United States [excluded base variable]

Institution Located in the Southern United States [SOUTH]

Institution Located in the North Eastern United States [NE]

Institution Located in the Mid-Western United States [MW]

U.S. News and World Report Composite Tier Rankings [USNWR]

APPENDIX F

US NEWS AND WORLD REPORT (USNWR) COMPOSITE TIER RANKINGS

Table 10

USNWR Composite Tier Rankings

A ranking of (1) indicates the institution was ranked in the top 50 national universities in that respective year, a ranking of (2) indicates that the university was ranked 50-100 in that respective year, a ranking of (2.5) equates to that institution being ranked 100-135 in that respective year, a ranking of (3) indicates that the University was ranked in the 3rd tier for that respective year, and a ranking of (4) indicates that the institution was ranked in the 4th tier for that respective year.

Institution	2008 Tier	2007 Tier	2006 Tier	2005 Tier	Mean Tier Score
Auburn University (Alabama)	2	2	2	2	2
California Polytechnic State University ¹	N/A	N/A	N/A	N/A	N/A
Clemson University (South Carolina)	2	2	2	2	2
Colorado State University	2.5	2.5	2.5	2.5	2.5
Iowa State University	2	2	2	2	2
Kansas State University	2.5	2.5	3	3	2.75
Louisiana State University	3	3	3	3	3
Michigan State University	2	2	2	2	2
Mississippi State University	3	3	3	3	3
Montana State University	3	4	3	4	3.5
New Mexico State University	3	4	3	3	3.25
North Carolina State University	2	2	2	2	2

¹ Since California Polytechnic State University is not ranked as a National University like every other institution listed, its tier ranking has been excluded.

Table 10 (Continued)

USNWR Composite Tier Rankings

Institution	2008 Tier	2007 Tier	2006 Tier	2005 Tier	Mean Tier Score
Oklahoma State University	3	3	3	3	3
Oregon State University	3	3	3	3	3
Pennsylvania State University	1	1	1	1	1
Purdue University (Indiana)	2	2	2	2	2
Rutgers, The State Univ. of New Jersey	2	2	2	2	2
South Dakota State University	4	3	3	3	3.25
Texas A&M University	2	2	2	2	2
The Ohio State University	2	2	2	2	2
University of Delaware	2	2	2	2	2
University of Alaska	4	4	4	4	4
University of Arizona	2	2	2	2	2
University of Arkansas	2.5	3	3	2.5	2.75
University of California-Berkley	1	1	1	1	1
University of Connecticut	2	2	2	2	2
University of Florida	1	1	1	1	1
University of Georgia	2	2	2	2	2
University of Hawaii	3	3	3	3	3

Table 10 (Continued)

USNWR Composite Tier Rankings

Institution	2008 Tier	2007 Tier	2006 Tier	2005 Tier	Mean Tier Score
University of Idaho	3	3	3	3	3
University of Illinois, Urbana-Champaign	1	1	1	1	1
University of Kentucky	2.5	2.5	2.5	2.5	2.5
University of Maine	3	3	3	3	3
University of Maryland	2	2	2	2	2
University of Massachusetts	2	2	2.5	2	2.125
University of Minnesota	2	2	2	2	2
University of Missouri	2	2	2	2	2
University of Nebraska	2	2	2	2	2
University of Nevada-Reno	N/A	3	3	3	3
University of New Hampshire	2.5	2.5	2	2	2.5
University of Rhode Island	3	3	3	3	3
University of Tennessee	2	2	2	2	2
University of Vermont	2	2	2	2	2
University of Wisconsin- Madison	1	1	1	1	1
University of Wyoming	3	3	3	3	3
Utah State University	3	3	3	3	3

Table 10 (Continued)

USNWR Composite Tier Rankings

Institution	2008 Tier	2007 Tier	2006 Tier	2005 Tier	Mean Tier Score
Virginia Tech University	2	2	2	2	2
Washington State University	2.5	2.5	2.5	2.5	2.5
West Virginia University	3	3	3	3	3

APPENDIX G
LINKAGE AND JUSTIFICATION OF VARIABLES
USED IN REGRESSION ANALYSIS

Table 11

Regression Analysis Variable Justifications

Variable [Label]	Previous Usage of Variable	Justification For Use
Percent of State Budget Dedicated to Higher Education. [HIEDSUP%]	Koshal & Koshal (2000); McPherson, Shapiro, & Winston (1989); Marcus (1987); Trow (1989); Nicholson-Crotty, & Meier (2003), Weerts & Ronca (2006).	The scholarship was split on the strength of the relationship between state appropriations and tuition, all cited authors in this study acknowledged at least marginal linkages to tuition cost.
State Per-Student Institutional Appropriation [PERSTUDAPP]	Hossler, Lund, Ramin, Westfall, & Irish (1997); St. John, Hu, & Weber (2000); Fethke (2006).	While two cited studies employed the use of per- student appropriations, neither directly sought direct linkages between those variables and tuition costs. Therefore the use of this variable will serve to demonstrate to what extent a linkage exists.
State Median Age [STMEDAGE]	Variable Not Previously Used	While no studies have used a state's median or mean age as a predictor of institutional tuition, it is worthy of examination to see if the two are linked.

Table 11 (Continued)

Regression Analysis Variable Justifications

Variable [Label]	Previous Usage of Variable	Justification For Use
State Legislature Political Affiliation [DEMSTATE]	Weerts & Ronca (2006), Payne (2003)	According to these authors, political affiliation is related to the level of appropriations for some state government agencies, although neither demonstrated significance in evaluating appropriations to higher education. Unlike Weerts & Ronca (2006), this study applies the variable exclusively to land-grant institutions
Level of Professionalism of State Legislature [NCSLPROL]	Sabloff (1997); Morgan (1983).	Neither of these authors associated increased professionalism of state legislatures with tuition, they did hold that institutional autonomy, and thus the ability of an institution to set their own tuition rates, has been affected by increased legislative professionalism

Table 11 (Continued)

Regression Analysis Variable Justifications

Variable [Label]	Previous Usage of Variable	Justification For Use
<p>Institutional Geographic Location in the United States Western US [West*] Southern US [South] Northeastern US [NE] Midwestern US [MW] *[WEST] serves as the excluded base variable.</p>	<p>Rusk & Leslie (1978); Koshal & Koshal (1998); Malchow-Moller & Skaksen (2003).</p>	<p>According to these authors, geography was the only significant variable in their previous regression analysis' that yielded any level significance. Therefore, since geography is the only consistently demonstrated predictor of a public institution's tuition as demonstrated in these studies, it should be applied to public land-grant universities exclusively in order to explore consistency and exclusivity.</p>
<p><i>U.S. News and World Report</i> Composite Tier Ranking [USNWR]</p>	<p>Manchung (1998); Pike (2004); Thompson (2000); Dill & Soo (2005); Monks & Ehrenberg (1999); Clark (2006).</p>	<p>While no studies used rankings as a predictor of tuition, they all used rankings as a dependent variable in their regression analysis'. Through mimicking their methodology the same method was employed to evaluate the predictive value of rankings as related to tuition rates.</p>

