

The Pennsylvania State University

The Graduate School

College of Education

**POLITICS, BUDGETARY TRADE-OFFS, AND STATE FUNDING OF  
PUBLIC HIGHER EDUCATION**

A Thesis in

Higher Education

By

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Submitted in Partial Fulfillment  
of the Requirements  
for the Degree of

Doctor of Philosophy

August 2007

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## Abstract

While state support of public higher education has garnered considerable attention in scholarly literature and the popular media, no study designed to explain state support has attempted to develop a theory-driven, comprehensive conceptualization of the state political system within a larger theoretical framework that consists of state economic and demographic factors, and higher education system attributes. Furthermore, no study has adequately addressed the issue of competing state budgetary areas, or how budgetary trade-offs affect higher education funding. This study attempts to fill this gap in the literature.

This study has two goals: 1) Examine the theoretical and empirical connections between state support for public higher education (measured as both state appropriations per \$1,000 of personal income and higher education's share of state general fund expenditures), and the various political attributes of the U.S. States; and 2) Elucidate, budgetary trade-offs between higher education and other state budgetary areas.

This study presents an original framework. The Fiscal Policy Framework describes state support for higher education as a product of the attributes of the policymakers and the attributes of the decision situation. Interest group activity, mass political attributes, governmental institutions, state higher education factors, the previous year's appropriation, economic and demographic factors of the state, political culture, and other budgetary demands are all presumed to shape those attributes.

Original and secondary data on the political, economic, demographic, and higher education characteristics of the U.S. states spanning several decades were collected and cross-sectional time series analyses were conducted.

These analyses provide evidence that interest groups, mass political attributes, governmental institutions, political culture, and personal attributes of policymakers all shape how states support public higher education, and that compared to other budgetary areas, higher education is uniquely susceptible to such political forces. This study reveals the conditioning affect state higher education governance structures have on other political forces. The evidence also shows not only that elected officials make trade-offs between higher education and other budgetary areas, but also that higher education is uniquely susceptible to trade-off behavior.

The inclusion of politics in the explanatory model produces a more robust and pragmatically useful model.

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## Acknowledgments

There are numerous people who provided support and assistance through the dissertation process. Projects such as these are never the work of a sole individual. My committee deserves special recognition, especially the efforts of Donald E. Heller and Patrick T. Terenzini. They have served as mentors and friends throughout the process.

I have also been blessed with tremendous colleagues. In this regard I should mention Christian Anderson who has been a friend and collaborator since we began graduate school together in 2002. He helped me tremendously as I labored to write this dissertation.

Most importantly my family went above and beyond what could have reasonably been expected of them. My parents waited patiently and supported me as I struggled through school until I caught my stride as an undergraduate. My children also sacrificed as I locked myself in the office during marathon writing sessions. They were as excited as I was when I finally proclaimed the dissertation done. The one who gave the most was my wife Darin. She entered thousands of points of data, listened to me complain, offered advice, and most of all put up with countless hours of overtime work. We took on the challenge of graduate school as a team and that is the way we ended it.

## **Chapter 1**

### **Introduction**

Higher education provides students with the opportunity for upward mobility and personal development. In addition, higher education provides states with an educated workforce and citizenry, and economic stimulation. A major factor in determining how well higher education can achieve these objectives is the fiscal resources of the institutions. In each state, public institutions receive a substantial portion of their funding from state coffers. In fact, in 2006, states spent over \$72 billion on higher education (Grapevine, 2007). State higher education funding impacts both access and quality and is therefore an issue of real social importance. Yet, the importance of higher education in each state, expressed through quantity of appropriated funds, varies greatly in the United States. More troubling is the fact that states have been showing less of a financial commitment to higher education, a decades-long trend that has been measured in multiple ways. This phenomenon is observable to the degree that many scholars, institutional leaders, and experts are discussing the privatization of public higher education. It makes sense then that state funding for higher education has received much attention in both higher education policy literature and the mainstream media. Most often such writings have bemoaned the loss of support and argued about its implications. Despite its importance and the recent attention it has garnered, we do not yet understand all of the critical factors affecting state higher education funding.

## **Purpose of the Research and Research Questions**

The state higher education appropriations process is complex, and it is difficult to determine why one state supports higher education more than another. During times of economic stability and during economic recession, variation exists in the amount of funding states appropriate to higher education. Likewise, great differences exist within states over time. Understanding why this variation exists is an important step in the process of developing a theory of state higher education funding. This study fills a void in the literature by analyzing the political variables that have been largely omitted from studies of an inherently political process (state higher education funding), and by explaining state budgetary trade-offs involving higher education.

### **Purpose**

The higher education appropriations process does not occur within a vacuum that is immune to politics and other budgetary forces. However, as of yet the literature on state funding of higher education has largely ignored the larger political context of the state budgetary process. Little attention has been paid to such factors as governmental institutions, interest groups, competing state budgetary areas, and the political attributes of elected officials and the general public, which largely compose the governmental and political decision context within which state funding for higher education is carried out. As this study shows, these political and budgetary elements have a significant influence on state funding for higher education. The lack of attention to the political and governmental decision context is tragic, as it has limited scholars' and practitioners' abilities to understand and explain state funding of higher education fully.

While past studies of state support of higher education have done an adequate job of examining the impact of certain economic, demographic, and higher education sector variables, past efforts that have attempted to examine various political influences on state funding of higher education have conceptualized state political systems narrowly and have not accounted for the multiple ways politics may affect state support of higher education. Previous studies have frequently limited their scope to focus on the governor's party affiliation and which party controls the legislature. While a few studies have included additional measures of other political elements, most have suffered from theoretical, methodological, or data limitations. No study has attempted to develop a theory-driven, comprehensive conceptualization of the state political system that is placed within a larger theoretical framework that consists of state economic and demographic factors, and higher education system attributes. Furthermore, no study has adequately addressed the issue of competing state budgetary areas, or how budgetary trade-offs affect higher education funding, although the idea is widely discussed and accepted. This study accomplishes both of these objectives. In doing so, it intertwines various disciplinary approaches and perspectives and borrows liberally from, and builds on, work that has been done within political science, public administration and policy, economics, and higher education.

### **Research questions**

This study includes the comparative features of state political and budgetary systems in order to answer the following research question: Do the political process, state political institutions, and the political context of the states shape state funding of public

higher education? In addition, the study attempts to determine whether and to what extent those political features help explain variations in state higher education funding and state budgetary trade-offs involving higher education.

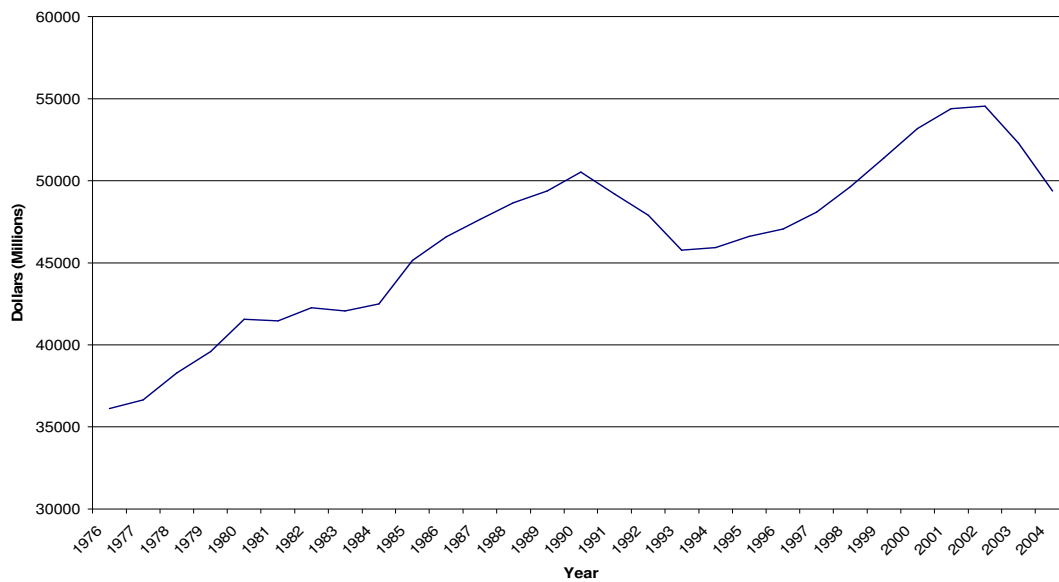
### **Context**

From a national perspective, it appears that state spending on public higher education is becoming less of a priority. Part of this perception is due to a “crowding out effect” caused by state support for Medicaid, K-12 education, and other state programs. Compounding the problem of competition for state dollars, state legislatures exercise a great deal of discretion over higher education spending. Colleges and universities are able to dip into alternative forms of revenue, such as tuition and private fundraising, which makes them attractive targets for funding cuts during economic downturns (Delaney & Doyle, 2004; Hovey, 1999; Humphreys, 2000; Rizzo, 2005).

Declining relative state support and increasing operating costs have resulted in higher institutional tuition rates. This cost, when coupled with the political popularity of merit-based student aid, which may limit the ability of public institutions to maintain accessibility. While states still spend a considerable amount of money on higher education (over \$76 billion nationally each year), that amount represents an increasingly smaller portion of the total revenue available to public institutions. While state support comprises a smaller portion, the difference is being supplemented by tuition. In 1980, tuition made up less than 20% of the total educational revenue available to institutions. In 2005, tuition made up over 36% (SHEEO, 2006).

It would be a mischaracterization to argue that actual state funding for higher education has been diminishing over the last few decades, because in real terms actual appropriations have generally increased. As Figure 1.1 shows, state appropriations have increased significantly since the late 1970s. While there have been two significant decreases—one in the early 1990s and one in early 2000s, corresponding to national recessions, and one prolonged flat period, again corresponding to a national recession—state appropriations have, on average, done slightly better than inflation within higher education. The average year-to-year percentage change in the Higher Education Cost Adjustment (HECA) from 1976 to 2004 was 4.5%. The average year-to-year percentage change in state appropriations to higher education for the same time period was 5.8%.

**Figure 1.1:** Appropriations for Higher Education (Constant U.S. Dollars)



Source: Grapevine

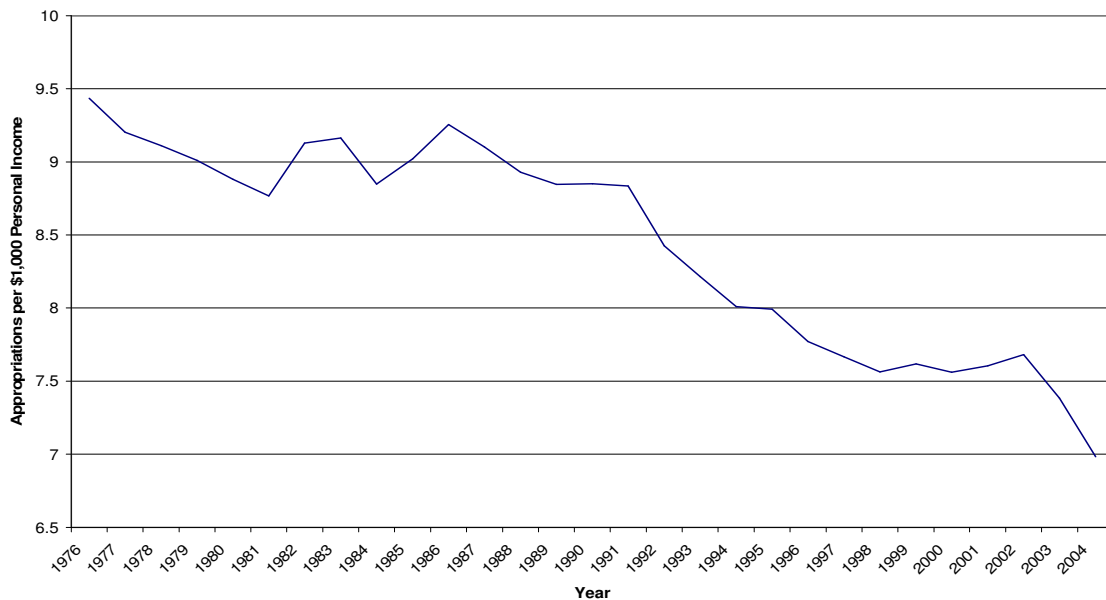
However, compared to various other expenditure areas, the overall change and the average annual increase have not been that impressive. From 1976 to 2004, appropriations increased by 36% (Grapevine, 2007). Though an extreme example, higher



education's increase pales when compared to Medicaid's 285% increase (U.S. Department of Health and Human Services, 2006). A more comparable example is made by looking at K-12's increase. From 1985 to 2004, state general fund expenditures for K-12 education increased by 98%, and over the same time period, state spending on higher education increased by only 23%. Further, total state general fund expenditures increased by 46% during that time period (National Association of State Budget Officers, 2006).

It seems, then, that states' spending priorities have shifted. As Figure 1.2 shows, despite a brief recovery in the mid- to late 1980s, state appropriations have fallen from roughly \$9.43 per \$1,000 in personal income in 1976, to about \$6.98 per \$1,000 in personal income in 2004, which amounts to a 26% decline.

**Figure 1.2:** State Appropriations for Higher Education per \$1,000 Personal Income

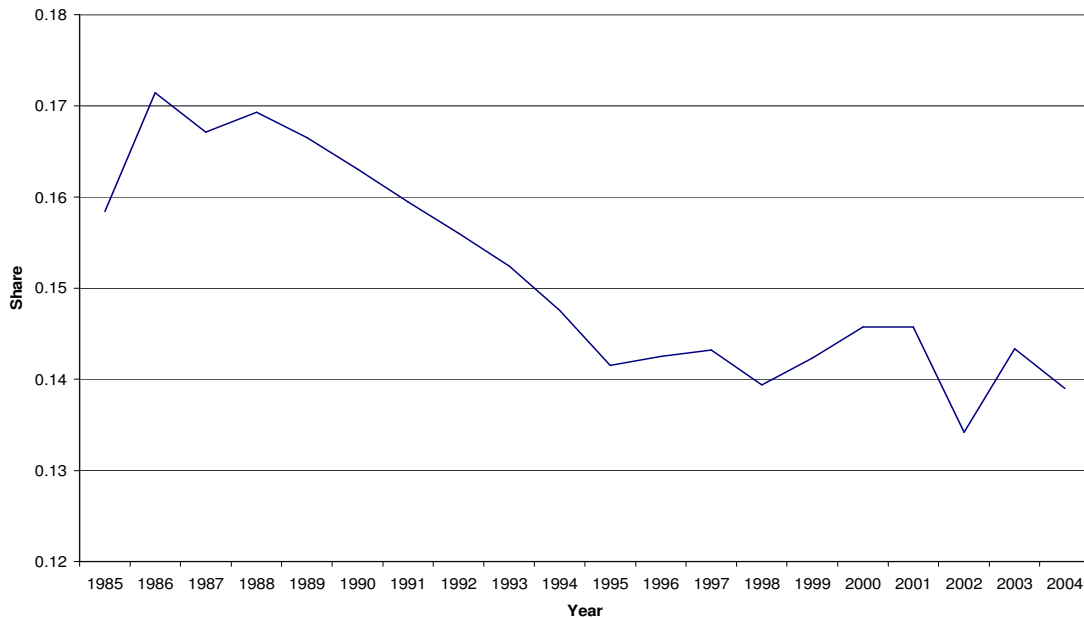


Source: Grapevine; Bureau of Economic Analysis

When looking at higher education's share of state general fund expenditures, there has been a significant decline. As Figure 1.3 shows, expenditures have declined by 12.5% from 1985 to 2005. In 1985, higher education received 15.8% of the general fund

expenditures, and by 2005, that number was only 13.8%. If 1986 is used as the base year, the decline amounts to a 19.5 % change in 19 years.

**Figure 1.3:** Higher Education's Share of State General Fund Expenditures



Source: National Association of State Budget Officers

Research shows that higher education is more responsive to the business cycle than are other state budget items. In fact, a 1% increase in the unemployment rate amounts to a \$3.80 per capita decline in state appropriations for higher education, on average. Further, a 1% change in per capita income has been associated with a 1.39% change in real state appropriations per Full-Time Equivalent student (FTE). Therefore, during economic downturns, higher education can expect less state funding (Humphreys, 2000). This effect is magnified in that higher education institutions normally experience increased enrollments during economic downturns and therefore must do more with less (Betts & McFarland, 1995).

Other areas such as K-12 and Medicaid do not seem to vary significantly with the business cycle (Delaney & Doyle, 2004; Kane, Orszag, and Gunter, 2003). In regards to K-12 education, between 1972 and 2001, its average total share of state general fund expenditures on education fell from 39.9% to 36.1% (Rizzo, 2005, p. 4). In addition, Kane, Orszag, and Gunter (2003, p. 11) found that the predicted effect of a per capita increase of \$120 in Medicaid spending between 1980 and 1998 is a reduction in higher education appropriations per capita of between \$7.20 and \$8.40.

This relative drop in funding has been more than offset by raises in tuition. Between 1981 and 1993, tuition and fee increases at public institutions exceeded the Consumer Price Index increases by an average of 5% annually (Hossler et al., 1997). The increasing cost of higher education did not end in the 1990s; over the past decade, tuition and fees at public four-year colleges have risen at an average rate of 6.9%—4.4% per year after inflation. Likewise, tuition and fees at public two-year colleges have risen at an average rate of 5.1%—2.7% per year after inflation. At public four-year institutions, there were relatively large increases in the early 1980s and again in the early 1990s. The rate of increase has, however, been higher in the early 2000s than in the preceding decades (The College Board, 2005). It is also important to notice that appropriations increased at an average rate of 1.3% after inflation, significantly less than tuition.

State appropriations now cover less of the cost of education (Brown, 2005; Dillon, 2005; Nathans, 2006; Petkofsky, 2005). In 1974, state appropriations covered 78% of the cost of schooling, but in 2000, state support only covers 43% (Rizzo, 2005, p. 3). Likewise, in 1977, state appropriations represented 46.5% of public university revenue and by 1996 that ratio had fallen to 35.9%. Recall that in 1980, tuition monies

represented less than 20% of the total educational revenue available to institutions, but in 2005 tuition made up over 36% (SHEEO, 2006).

### **Future budgetary gaps**

Most recently, though, the State Higher Education Executive Officers (2007) reported that, measured in constant dollars per FTE, state and local support rebounded in 2006 with a 5.1% increase. This is after a 5-year decline during which enrollment rose by 14.8% and state and local support per student fell by 14.2%. However, the future does not appear very bright for higher education. Based on state fiscal projections completed by Boyd (2005) for the National Center for Higher Education Management Systems, states are projected to face significant budgetary gaps within eight years. As a whole, the projected national average is a budget gap of 5.7% of revenue. Similar projections completed by Boyd reveal that every state faces at least a small gap; 29 anticipate gaps of 5% or more, with a range of 0.5% to 12.9% of revenue, the extremes represented by New Hampshire and Wyoming, respectively. (Wyoming's gap is exaggerated because so much of their revenue is derived from non-tax sources, such as oil and mineral extraction fees or other lease income, amounting to 20.6% of state and local revenue.) The three main reasons for the gap are: 1) tax revenue is unlikely to grow as quickly as the economy because future economic growth will not generate major annual surges in capital gains income, sales tax revenue will decline due to shifts in consumer buying and the difficulty of collecting taxes on Internet-related transactions, and the excise tax will not keep pace with overall economic growth; 2) spending in many states will become increasingly

dominated by Medicaid; and 3) projected cuts in federal grants to state and local governments.

The budgetary gaps are forecasted to affect higher education negatively. Boyd's (2005) report projects that higher education expenditures will grow less rapidly than total state and local spending. Higher education spending for the nation as a whole is anticipated to grow 34.4% over the eight-year period, which is considerably slower than the 41.1% growth projected for total spending. Higher education spending is projected to grow faster or equal to total spending in six states and slower than total spending in 44 states; consequently, in most states, higher education will face considerable competition for state resources from other budgetary areas and programs.

### **Impact of State Funding**

An issue fundamental to this study is why state funding for higher education is important. This section discusses some possible answers to that question.

A basic idea behind public higher education is that higher education serves both the public and private good. Because some have argued that higher education serves the public good, states have provided tax dollars to support higher education. Institutions and states have relied on this revenue to maintain the public mission of the institutions, keep tuition low, and to maintain quality.

The United States' investment in postsecondary education is vast: As indicated earlier, state governments appropriate in excess of \$72 billion annually in direct support of public colleges and universities. Likewise, the higher education enterprise confers considerable benefits upon its graduates, its home state, and society in general. Increased

salaries, greater tax revenue, lower crime and incarceration rates, more civic engagement, less money spent on health-related issues, higher voter turnout, increased worker activity, economic stimulation, job creation, greater job satisfaction, and greater general satisfaction with life, greater volunteerism, and more philanthropic activities are just some of the personal and public benefits related to higher education (Bowen, 1977; Pascarella & Terenzini, 2005; Perna, 2005). Each of the seemingly private benefits can also be seen as overall public benefits (e.g., increased salaries, greater job satisfaction, and greater general satisfaction with life). As will be discussed more thoroughly later, state appropriations have been linked to both quality in higher education and the cost of and access to higher education. Because of the significant investment made by states and the importance of higher education for both individuals and society, the study of the process by which states fund higher education is important.

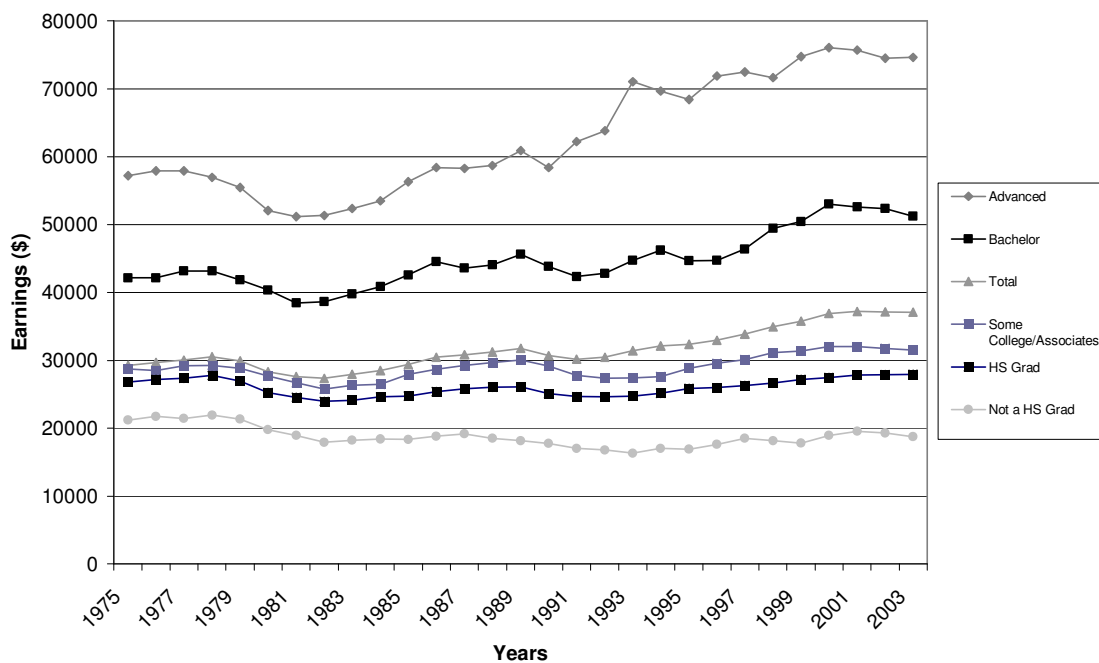
### **Higher education and economic impact**

Higher education is a major driving force behind state economies, and greater investment in higher education pays considerable dividends. Not only does higher education provide immediate returns (e.g., job creation and economic stimulation) but it also provides long term returns in the form of increased salaries and revenue in the form of tax dollars (Psacharopoulos & Patrinos, 2004; Bowen, 1977). In order to devise an economic development strategy, the state of Maine conducted a study of all 50 states in the 1990s to determine which factors most correlated with per capita income. Two combined factors related to higher education were identified to explain 57% of the variation in per capita income across all 50 states. These factors were the percentage of

adults with a four-year college degree (by itself explaining 51% of the variance) and the total research and development spending, measured as a percentage of Gross State Product or dollars per employed worker. Of the ten states with the highest research and development expenditures, seven have per capita incomes above the national average. Of the 10 states with the lowest research and development expenditures, all had below average per capita incomes.

Institutions have begun to pay economic analysis firms to conduct economic impact analyses. Inevitably, these studies reveal the huge economic impact colleges and universities have on their states and local communities. For example, Penn State University recently hired a firm to conduct such an analysis. The results indicated that Penn State generates more than \$6.1 billion in direct net economic impact in the Commonwealth of Pennsylvania. In 2003, for every dollar of appropriation received by Penn State, the university returned \$19.42 in total statewide economic impact and \$1.56 in state tax revenue. The study showed that Penn State is the single largest economic catalyst in the state of Pennsylvania. The results of these various studies differ in the size of the institution's individual impact, but not in the overall finding that colleges and universities are major economic engines for their states and local communities (Tripp Umbach, 2004).

Higher education also benefits the people who attend. Economically, the benefits are substantial; the most important predictor of personal income is one's level of education. As Figure 1.4 displays, the differences in annual earnings of workers with a college degree and those without are significant and growing. Likewise, those with a college degree are less likely to be unemployed (Lyall & Sell, 2006).

**Figure 1.4: Earnings by Educational Attainment**

Source: U.S. Census Bureau, *Current Population survey*

### Affect of state appropriations

Do state appropriations affect how well higher education educates students and serves the interests of the states? The evidence is beginning to show that levels of state appropriations do in fact impact how well and in what manner higher education does its job.

Commentators and scholars alike have argued that reduced state funding for higher education has created further impetus for institutions to act like private enterprises. Some observers argue that greater privatization may result in less public accountability, greater focus on private interests, and the abandonment of the public mission. These fears have received much attention by the press, the public, and scholars alike. Some researchers and other observers place the blame on state governments. They argue that as



state governments have reduced funding for public higher education, institutions have had to raise tuition and adopt a market-like approach to attract students, seek revenue, and stay competitive. This approach, some contend, has led institutions to, among other things, hire more part-time faculty, reduce faculty autonomy, eliminate low-yield programs, spend money on non-academic items such as climbing walls and hot tubs, and generally operate more like a business and less like a public-minded institution of higher education (Johnstone, 2000; Zemsky, Shaman, and Shapiro, 2001).

Geiger (2004) discusses the concept of student consumerism, which he argues is a result of an “arms race” for the most able students. Geiger suggests that the competition for students has bred consumerism, which he explains is the reversal of understanding students as clients who are fortunate to attend higher education in favor of viewing them as customers who must be pleased with a variety of non-educational amenities, such as upscale dormitories and mall-like shopping facilities. He asserts that this arms race has resulted in high-achieving, affluent students increasingly filling places at highly selective universities where they enjoy possible earnings advantages upon graduation, thus perpetuating the cycle. Most important for this study is Geiger’s argument that this phenomenon has been accentuated by relative reductions in state funding for public universities, which has necessitated steep tuition hikes that further limit the field to the very smart and financially affluent, and has forced public institutions to act more like private enterprises.

As noted earlier, another consequence of reduced appropriations is higher tuition. Koshal and Koshal (2000) found that if a state’s appropriation is higher by \$100 per FTE, *ceteris paribus*, tuition per FTE is lower by \$40. Likewise, they found a corresponding

increase in tuition as a result of decreased appropriations. As noted earlier, increases in tuition have generally outpaced the Consumer Price Index since the 1980s (The College Board, 2005; Hossler, et al., 1997). While the average net price<sup>1</sup> for full-time public four-year students either declined or rose slightly in inflation-adjusted dollars during the first half of the decade (1995-96 to 2005-06), a combination of rapidly rising published prices and slower growth in grant aid has caused net price increases each year since 2001-02, leading to a 17% increase (in constant dollars) (The College Board, 2005). It is also important to note that, in general, a given percentage reduction in state appropriations requires a much larger percentage increase in tuition to offset it, since state appropriations continue to represent a much larger share of public university revenue than tuition, on average.

Increased costs have been shown to have a negative effect on enrollments, other factors being equal, especially among minority students (Heller, 1999) and among low income students. For example a \$1,000 increase in tuition has been found to reduce enrollments among low income students by 7.2 percentage points (Kane, 1999). Heller recommends that increases in need-based financial aid be tied to increases in tuition to offset the cost. However, many states have been moving in the opposite direction, and instead of increasing need-based financial aid, they have been developing their merit-aid programs which have been shown to disproportionately aid middle- and higher-income students (Heller, 2002). Therefore, the state funding-tuition link has real accessibility and equity issues. The issue has become even more pertinent with recent federal cuts to student financial aid (2006 federal budget cycle) and the switch to merit-based student

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<sup>1</sup> Net price: Published tuition and fee charges minus average grant, waiver, and education tax benefits per full-time student.

aid as opposed to need-based student aid in some states. The College Board (2005) recently reported that both federal education tax benefits and the changing distribution of state and institutional grant aid have reduced the average net price for middle- and upper-income students relative to the net price for lower-income students.

In other instances institutional revenue is further restricted. In some states the state government controls tuition. In these instances, governments may reduce funding and simultaneously keep tuition at the previous year's level. Ehrenberg (2000) argues that, "In many states governors and state legislatures are firmly committed to the belief that in-state tuition should be kept low, which limits another major source of revenue for public higher education initiatives" (p. 4). Experience from the early 1990s suggests significant voter backlash to tuition increases (Callan, 2002).

### **The funding – quality link**

State funding has also been linked to quality in higher education. The studies reviewed here define and measure quality in different ways. It is beyond the scope of this study to develop a precise meaning of what quality in higher education is, however we can examine the linkages between state funding and various measures of quality established in the literature. Including 49 states over multiple years, Volkwein (1989) found, among other things, that state funding for higher education was positively linked to faculty, student, and graduate program quality *and improvement*, and with the amount of research funding institutions receive. Faculty and graduate program quality was measured using data from the graduate programs ratings obtained from the Conference Board of Associated Research Councils survey. Undergraduate student quality was

measured using data from Barron's ratings. Research funding was measured by research and development expenditures reported by the National Science Foundation. Volkwein concluded that "the ability of states to support the growth of their public research universities is crucial to academic excellence" (p. 149).

Kane and Orszag (2003) discovered further evidence of the state funding-quality link. The authors found, using both descriptive statistics and regression analysis that the relative decline in state spending per student at public universities over the previous two decades appeared to be exerting an adverse effect on the quality of those institutions. Among their more important findings, the authors discovered that relative to private institutions, faculty salaries at the public institutions had declined; student-faculty ratios and workloads had increased; incoming SAT scores had dropped significantly; the proportion of public research universities ranked in the top 25 of the U.S. News and World Report rankings had dropped dramatically since 1987; and finally, faculty at public research universities were far more likely to report that the quality of undergraduate education at their institutions had declined. Taken together, the evidence provided by Kane and Orszag appears to indicate that there is a correlation between reductions in state appropriations and reductions in quality at public higher education institutions.

Increases in state appropriations have also been found to impact increases in graduation rates. Using panel data to examine the direct link between state funding and graduation rates at four-year institutions, Zhang (2006) found that, controlling for other factors, a \$1,000 increase in state appropriations per FTE is associated with a one percentage point increase in graduation rates. Zhang went on to argue that a slow increase

or decrease in state funding would likely be associated with a fast increase in tuition, which would result in a negative impact on graduation rates. It must be remembered that graduation from college is strongly correlated to annual earnings and also to the likelihood of becoming unemployed.

As this research has shown, reductions in state appropriations for higher education are not without a variety of consequences. Greater efficiency is not one of them. Robst (2001) tested whether reducing state appropriations led to greater institutional efficiency. The motivation to analyze this question came from several state governors' arguments for reduced higher education appropriations on the basis that the reductions would encourage greater institutional efficiency. Robst's analysis did not support the governors' assertions; rather, he found that cuts in appropriations have not led to more efficient institutions, but in some instances have led to greater inefficiency.

However, the notion that quality is linked to the level of state appropriation has been challenged recently. The National Center for Higher Education Management Systems (NCHEMS, 2005) published a report that attempted to analyze whether institutional funding is linked to a variety of quality indicators. The funding variable was comprised of both state and local appropriations and tuition. The quality indicators included the number of degrees awarded, and graduation rates at public baccalaureate, master's, and public two-year institutions. An additional quality indicator was research productivity at public doctoral-granting institutions. The study employed a cross-sectional comparative analysis and found that the level of state funding was not correlated with quality.

While interesting, the results of this study should not be considered as conclusive for several reasons. First, the study was a mere snapshot of the nation for the academic year, 2002–2003. This is problematic because, as Volkwein (1989) points out, it is important to “measure changes over time. Universities are at different developmental stages with respect to their academic development, their faculty and student quality, and their external funding” (p. 142). He went on to explain that it is important to take into account states’ and institutions’ different starting points and to include “value added” measures. Volkwein was able to do this in his analysis, as were Kane and Orszag (2003), but the NCHEMS study was not. Second, because the NCHEMS study used correlation analyses, as opposed to multiple regression analysis, they are not able to control for other factors and measure the relative effective size net other factors. Volkwein’s, Kane and Orszag’s, and Zhang’s use of regression analysis is another strength of their studies. Third, if states are able to perform as well or better on the study’s measures of quality with less funding, as the NCHEMS study suggests, we would expect there to be some correlation between lower levels of funding and institutional efficiency. However, as Robst (2001) points out, there is none. Institutions with less state funding do not perform more efficiently than those with more state funding.

Because the various studies reviewed here use different measures of quality and funding and cover different points in time, they are not entirely comparable. However, because of Volkwein’s, Kane and Orszag’s, and Zhang’s more rigorous analysis and specific focus on state appropriations, and in light of Robst’s findings in regard to efficiency and funding, evidence remains to support the notion that state funding for higher education affects quality and performance. As Zhang argues, states must accept

the fact that “there is no free lunch” when it comes to educational quality. And when one remembers the huge positive impact higher education has on state economies and individuals, it seems as though it is a lunch worth paying for and an important area of inquiry.

### **Warrant**

Higher education is clearly an important state enterprise, based on the contributions it makes to state economies and the benefits it offers students. As the studies reviewed above indicate, the amount of financial support offered by state governments impacts how well higher education does its job. It is at the state government level that policy and appropriations decisions are made. Therefore it is important to understand how state governments operate and the factors that might be influencing their decision making in regard to higher education funding.

The literature on state politics and higher education suffers from a lack of attention by the scholarly community. Much of the literature that attempts to analyze the influence of state politics on higher education policy lacks theoretical underpinnings. McLendon (2003b) noted in his review of the higher education literature: “Ironically, although the American states bear primary responsibility for the governance and finance of public colleges and universities . . . , relatively little published research in recent decades has examined how state political institutions and processes have affected higher education” (p. 168). Lowry (forthcoming) reached a similar conclusion after reviewing the political science literature in regard to studies of higher education:

Scholars of state politics and policy have devoted very little attention to the public universities where so many of them work. This seems odd, as public higher education is organized at the state level, and funding and governance of public universities have been prominent subjects of debate in many states in recent years. Government appropriations have been declining as a share of public university revenues, and many states have revised or considered revising their institutions for governing public higher education . . . . Moreover, issues surrounding public universities provide many opportunities for research that can shed light on a broad range of questions of interest to political scientists (p. 2).

Among other things, Lowry indicates that the study of higher education funding can shed light on the determinants of government appropriations and budgetary trade-offs and suggests that scholars examine “what explains state and local government appropriations . . . and tradeoffs between support for universities versus other state functions” (p. 5).

This study is an attempt to help fill this glaring void in the literature by concentrating on how state politics affect higher education funding and budgetary trade-offs involving higher education.

Schneider and Jacoby (2004) argue, “‘single-policy’ studies [such as this one], are valuable precisely because they provide a great deal of detailed information about the ways that state government address particular social problems” (p. 2). In this case, the policy area is higher education and the issue is state support of higher education. This study will provide a detailed theoretical and empirical analysis of this specific area, while considering the influence of other state budgetary areas.



This study is also important because by attempting to identify relevant political forces and by assessing those forces' effects on the higher education appropriations process, it will inform the political science budgeting literature in regard to both the specific higher education budgeting process and the general state budgeting process. Further, the study will be relevant to the higher education literature on state funding of higher education through its explication of the overarching appropriations process and the specific effect of political forces within it. Understanding of state higher education funding priorities will be increased by answering the questions of why some states favor higher education above other programs and why those preferences change over time. The study will also help explain the trade-off effect between higher education and other budgetary areas that some scholars have documented as happening within states.

While past studies have shown a correlation between various economic indicators and even some demographic variables and state appropriation levels, the study of the politics of the state budgeting process for higher education provides a potentially more useful and conceptually rich avenue by which to approach the subject. State economies and demographics are fairly static. Studies that focus on such indicators provide descriptive information but little else. For those interested in understanding or influencing the process, the approach employed here may provide them with further information that may be useful.

It is difficult to imagine a process such as state budgeting for higher education not involving politics. Studying state support of higher education by focusing on the politics is very interesting. State budgeting in general is rife with politics (Barrilleaux & Berkman, 2003; Sharkansky, 1968). Budget decisions serve as manifestations of the state

governments' policy priorities (Jacoby & Schneider, 2001). Within the budgeting process, a variety of influences and interactions operate and intermingle, including interest groups, parties, branches of government, and constituent pressures. The political process involves strategy, competition, and the balancing of opposing forces. These influences and interactions vary among states and vary within each state over time. It is a dynamic process. From a scholarly standpoint, it is a prime area for the formulation of theoretical arguments and conceptual understandings.

Finally, for those involved in higher education, this study is important because understanding the political antecedents of the funding process is a necessary precursor to influencing the process. As Layzell and Lyddon (1990) explained in reference to state budgeting for higher education: "You have got to know the system to beat the system" (p. xix). For those interested in influencing state funding for higher education, it is crucial to conceive it as a process, and a political process at that. If, instead, one subscribes to the notion that state funding is merely a reflection of last year's appropriation and the current financial situation of the state (no doubt, both impact the amount appropriated, but even combined they do not tell the full story, as will be discussed in the next section), one is forced to adopt a fatalistic approach to the appropriations process and will be reluctant to become involved. However, if one recognizes the politics inherent to the process, then there may be more reason to believe that individuals or groups can impact the outcome. As McLendon, Hearn, and Mokher (2006) argue, understanding the conditions (political and otherwise) driving states toward selecting a specific funding approach "is important for practical reasons, as higher-education leaders and systems seek to find levers likely to help them preserve and grow their resources under ongoing adversity" (p. 3).

A few examples may help illustrate how the findings from this study may be applied. For instance, if it were determined that centralized state higher education governance structures are better able to garner funds for higher education because of their ability to speak with one voice, then other states without such a structure could lobby for one. Or, an easier approach may be for the institutions within the state to coordinate their efforts voluntarily in order to speak collectively. Likewise, if state lobbying by other interest groups is found to have a negative effect on appropriations to higher education, institutions may want to increase their lobbying efforts to counteract the efforts of other groups. Further, if the study finds that governors are a major factor in determining the amount appropriated to higher education, institutions and those concerned about higher education funding may want to concentrate their lobbying efforts on governors. The point is that based on one's knowledge of the political process, a political strategy can be adjusted to best meet the extant needs and conditions. Increased knowledge enables the development of a keener strategy.

The current condition of campus-state relationships makes this study even more important. As Lowry (forthcoming) points out:

at a more pragmatic level, relations between state governments and public universities are currently unsettled, to the point where privatization is on the table in some states. Scholars of state politics and policy potentially have much to contribute to this debate that may have a significant impact on the development of higher education in the United States over the next several decades (pp. 23-24).

## **Summary**

Because of the importance of state support of higher education to both higher education's ability to serve the state's interests and also to its ability to keep tuition low and provide students with a quality education, it is an area deserving of attention, especially in light of higher education's relatively precarious funding situation. As will be discussed in greater depth in the literature review chapter, further inquiry is needed to fully understand the political context within which higher education funding takes place and how that context influences what is ultimately appropriated to higher education. To this end this study strives.

## **Dissertation Overview**

Chapter Two reviews past studies that have attempted to predict and/or explain state support of higher education. Particular attention is paid to those that have included various political variables in their models. Chapter Three discusses the theoretical foundations of the research, introduces the conceptual framework, discusses the specific theoretical arguments for each component of the framework, and presents the study's hypotheses. Chapter Four discusses the research design, methods, and variables included in the study. Chapter Five reports the results of the analysis. Chapter Six briefly reviews the study, discusses the implication of the results for both theory and practice, discusses the significance of the study, and suggests directions for future research.

## Chapter 2

### Literature Review

While the previous chapter and the one that follows this one review a considerable amount of literature, this chapter reviews several important studies that have analyzed state funding for higher education from a variety of perspectives and that have at least acknowledged the politics of the process.

#### Early Studies

Lindeen and Willis (1975) sought to compare political, socioeconomic and demographic influences on support for public higher education. They measure support for higher education in several ways: first, state budgetary appropriation for higher education divided by the state's population; second, increases in state support for higher education; and third, tuition and fees paid by students and their families. The authors included most of the traditional demographic and socioeconomic variables in their analysis. In regard to the political variables, the authors included voter turnout, democratic success, government innovation, legislative conflict, gubernatorial powers, apportionment indexes, and government centralization. Using cross-sectional correlation and partial correlation analysis (48 states), the authors found that population variables performed most strongly, however not by a large margin. Voter turnout, governmental innovation, governmental centralization, legislative conflict, and their redistribution index were also related to one or more dependent variables. The authors' analysis points to areas that could benefit from further inquiry or replication, including each of the political variables they found significant. The authors did not consider interest groups and lobbying.

Likewise, they ignored the state political context, including state ideology and political culture. The measures they employed in constructing their models are dated, and furthermore, the statistical methods available to researchers have been vastly improved since the time of their study.

Robert Peterson (1976) attempted to analyze the environmental and political determinates of state higher education appropriations policies in the United States. He analyzed 20 socioeconomic, environmental, and political variables during the years 1960 and 1969, using a combination of correlation and regression analysis. His findings suggested that environmental and socioeconomic factors—such as measures of industrialization, personal income per capita, percentage of the population 25 years or older who are college educated, number and types of higher education institutions, and so forth—had a powerful impact on higher education appropriations. He also found that political factors influenced the level of funding. In particular, he discovered Sharkansky and Hofferbert's (1969) interparty competition score (index measuring the degree of competition between the two dominate parties for elected office) to be a significant and nonspurious positive predictor for both years. In addition, Schlesinger's index of governors' powers had a significant positive correlation with appropriations in both 1960 and 1969. He also found mixed results for Sharkansky and Hofferbert's legislative professionalism factor. It had a significant impact in 1960 on appropriations for senior institutions and on state junior colleges, but not in 1969 for either type of institution. The other three political variables he included—innovation in legislation, antidiscrimination legislation, and centralization of decision-making—were either not significant or spurious.

Peterson's findings are interesting and revealing. They help direct future research towards the possible political influences on state higher education funding. Yet, they are dated, and thanks to advances in technology and methodology, more rigorous analysis is now possible. Likewise, there are now different ways to measure the political variables he included in his study; in addition, he did not include several important political variables that may affect the appropriations process (e.g., state political culture, ideology, state higher education interest group activity).

### **Later Studies**

Hossler et al. (1997) used multiple approaches to study state funding for higher education. First, they used secondary data on state budgetary and tax policies, voting patterns, financial aid policies, higher education, competing state interests (Medicare and K-12 education), enrollment patterns, and socioeconomic and demographic data. Data was collected for the years 1990, 1991, and 1992. Second, they administered surveys to each state higher education executive officer (SHEEO) and each state's director of state financial aid programs. The surveys covered these topics: state appropriation and budgeting approaches, linkages between institutional appropriations, state aid appropriations, and tuition policies of public institutions, state level cost containment strategies, state policy goals, and state financial aid policies. They received a response rate of 84% among SHEEOs and 90% among the directors of state financial aid programs. Finally, they conducted in-depth telephone interviews with SHEEOs, state financial aid directors, and other policymakers and analysts in Oregon, Washington, and Indiana.

The quantitative data were analyzed using descriptive and inferential statistics, including CROSS-TABS, regression analysis, and exploratory factor analysis. Each year was regressed separately. Among other things, they found that enrollments were a significant predictor of state appropriations for all three years, as were previous levels of appropriations. Both findings are intuitive. However, they were the only variables that were found to be significant, which is counterintuitive and counter to other research on state funding for higher education. They also explored the possible connection between state aid policies, appropriations, and tuition through their interviews and found there to be dual correlation between each variable.

The study conducted by Hossler et al. is problematic. First, because they conducted three cross-sectional studies (one for each year), they had a very small  $n$  (50) for each analysis; therefore, the predictive power of each is minimal and is unlikely to produce significant coefficients, which may explain their counterintuitive results. In addition, they include far too many variables (at least 21) for such a small  $n$ . A better approach would have been to conduct a cross-sectional time-series analysis, including all three years in one model, thereby increasing the  $n$  to 150. Finally, they conceived of the political context narrowly and did not include many important political variables.

Lowry (2001) found that state government funding for 429 public universities and decisions made by state governments, are driven largely by costs and benefits to important political constituencies. He found that state funding for public universities is higher in states with high populations of minorities (such as Blacks, Hispanics, and Native Americans), and in states where public universities can more easily overcome collective action problems and lobby for themselves. Likewise, public universities that



have consolidated governing boards received more funding. Lowry also determined that funding is lower in states with many Catholics, and that funding for individual campuses depends on enrollments, the production of public and collective goods, and other qualitative attributes, as well as input costs and exogenous revenues. He found that campus' outputs impact on state government funding varies depending on the extent to which they benefit state constituencies.

A clearly important finding from Lowry's study is that state funding for public universities is driven largely by the purported costs and benefits to constituencies that are politically important to the elected officials responsible for the state budget. This discovery is crucial to this study, because it supports the notion that politics and the political context are integral to matters in state higher education funding. The former study could have been improved, however, if it had used a cross-sectional time series approach as opposed to a 2-stage least squares approach, for one particular year, because Lowry could have increased his  $n$  dramatically, and in turn, his statistical power and the number of variables included. Also, he did not account for many specific political variables aside from interest group activity. Further, when measuring interest groups, he conceptualizes them as various groups within the state, such as racial or ethnic groups, which may or may not be formally organized. As of yet, no scholar has measured the effect of actual organized interests on state higher education appropriations.

Kane, Orszag, and Gunter's (2003) cross-sectional time series analysis of all 50 states over 23 years revealed the large impact of Medicaid and the business cycle on higher education. They found a strong negative linkage between higher education appropriations and Medicaid spending. Their analysis revealed that two of the most

important factors influencing higher education funding are Medicaid spending and the health of the economy. In addition, they showed how, at times, Medicaid funding has trumped the economy's influence on appropriations.

The study included a variety of control variables but largely ignored the possible political influences. In fact, the only political variable included was whether the state was controlled by Democrats or Republicans (Democratic states were more generous towards higher education). The study's methods were strong, but it could have been improved by the inclusion of political variables. Not only would the overall study have been improved, but it would have provided sound evidence by which to determine the relative influence of political factors on state higher education appropriations.

Archibald and Feldman (2004) analyzed the effect that policies resulting from the late 1970s tax revolt had on state spending on higher education. They analyzed data from 1961–2004 for 48 states and found that the policies had an important role in determining the timing and magnitude of the decline in state tax effort for higher education. Their dependent variable was state appropriations per \$1,000 personal income. The authors used panel data and included several measures related to state politics, including state ideology and elite partisanship, and found that more liberal states have higher state appropriation efforts for higher education and received mixed results in regards to partisanship.

Rizzo (2005) conducted an exhaustive analysis of state preferences for higher education spending. He used panel data from 1977–2001 covering all 50 states, and had several dependent variables, including education's share of total state expenditures, higher education's share of the education budget, and the share of the higher education

budget that was directed to institutions rather than students. Rizzo included in his analysis mainly socioeconomic and demographic variables, but he also included a few political variables: Democratic governor, number of assembly seats, and voter participation rate. Rizzo found that income distribution had a large impact on state funding for education. The author also found that the share of higher education budgets allocated to public institutions, as opposed to students, was largely affected by changes in the relative size of the college-age cohort, increases in nonresident tuition, and by the development of merit aid programs.

In regard to higher education's share of the education budget, Rizzo found evidence to suggest that higher education's ability to generate alternative forms of revenue may have contributed to the recorded six percentage point drop in the share of the education budget. However, Rizzo explains that "collectively, observable within state changes are unable to explain the six percentage point drop in the share of the education budget to higher education since 1977" (p. 30). Therefore, there is much of the story left to explain.

With respect to the political variables Rizzo included, he found that uniparty governments prefer to fund K-12 education, and that the number of assembly seats had a small impact on higher education funding, with a fewer number of seats resulting in less funding. Likewise, Rizzo found that as voter turnout increased, the institutions' share of the higher education budgets increased.

While the former analysis is broad and inclusive, it does not fully capture the politics of state budgeting for higher education. For example, it omits the affect of interest groups and agency lobbying. Likewise, the analysis does not include the impact

the governor may have on the process aside from the consideration of his or her party affiliation. Greater attention to the politics of the process may have helped Rizzo more clearly explain the six percentage point drop in higher education's share in the education budget since 1977.

A recent study presented at the 2006 Association for the Study of Higher Education conference attempted to model the effect of several political factors on state appropriations for higher education (McLendon, Hearn, & Mokher, 2006). Using cross sectional time series analysis they found that legislative professionalism, the percentage republican in the legislature, whether the governor was republican, and if the state had term limits were all significantly related to appropriations per \$1,000 personal income. They also found that numerous demographic, economic and higher education sector variables were had statistically significant effects. This study provides new insights in the higher education appropriations process and the findings help direct this study. There are several limitations however, chief among them is that the study provides no theoretical or conceptual framework to guide the study and it is therefore difficult to understand how the components fit together, why each variable is included in the model, and how the results are to be interpreted. Further the study does not address the issue of interest groups or competing state budgetary areas.

### **Final Comments on the Literature**

Past studies highlight the impact that the increasing financial demands of other state budgetary areas have had on appropriations to higher education. They also accentuate the impact of state socioeconomic and demographic characteristics. However,

past research has only hinted at the importance of state political characteristics and has not fully explored the idea. Neither has the idea of budgetary trade-offs been fully investigated. As Lowry (forthcoming) argues, past “studies analyze state government support for public universities in isolation, without modeling the tradeoffs that must be made” (p.19). Past research has presented pieces of the puzzle and given clues to the importance of politics and political factors in determining state support of higher education. But to date, as indicated earlier, no study has presented a theoretically driven comprehensive analysis of the politics of state support of higher education. Lowry (forthcoming) summed it up when he wrote that “public universities in the United States constitute a largely unexplored subject for research by scholars of state politics and policy... the fundamental question of state and local government appropriations to universities is not well understood” (p. 23).

## Chapter 3

### Theoretical and Conceptual Framework

This paper focuses directly on the program spending patterns of state governments and specifically analyzes state support of public higher education. In so doing, appropriations and expenditures are seen as manifestation of institutional (governmental) commitments. State spending represents the relative salience that state-level public official's accord to various social and political issues—in this case, to state public higher education (Baumgartner & Jones, 1993). They represent the “governmental decision agendas” within the respective states (Kingdon, 1995). By analyzing appropriations and expenditures, researchers focus on the tangible distribution of public resources and not merely on the intentions of politicians and office holders, because adequate financing is a necessary precondition for any meaningful policy activity (Garand & Hendrick, 1991). As such, expenditures commitments are the targets of those who aim to influence government (e.g., parties and interest groups, as well as individual citizens). Furthermore, state budgeting has a profound effect on the ways that state governments ultimately address issues and ameliorate social problems. In short, policy spending represents a critical concept deserving of attention from political scientists and issue-specific policy scholars and analysts.

In line with Kingdon's (1984) and Baumgartner and Jones's (1993) means of conceptualizing state expenditures, Jacoby and Schneider (2001) define state policy priorities as “the component of governmental decision-making in which public officials allocate scarce resources, in the form of expenditures, to different program areas” (p.

545), essentially the budgetary process. Policy research has several well-developed theories to explain the policy process and policy outputs, one of which is viewing state budgeting as a manifestation of state policy priorities. Since appropriations decisions are processed through the same system and organization as other policy decisions it seems natural to assume that general policy theoretical frameworks may also be applied to state budgetary research.

Increasingly, recent research has highlighted political institutions' influence on state budgetary practices and outputs (e.g., Alt & Lowry, 1994; Barrilleaux & Berkman, 2003; Jacoby & Schneider, 2001; Thompson & Felts, 1991). Even some of the early foundational research on incrementalism provided some evidence of the effect of institutions on budgetary outputs (Sharkansky, 1968). Of particular interest to this study is what has been termed "new institutionalism" (March & Olsen, 1984; Shepsle, 1979, 1989).

### **New Institutionalism**

Shepsle (1989) explains new institutionalism in this way: "Like the rational choice theories that preceded them, and in contrast to the older institutional traditions . . . these efforts are equilibrium theories. They seek to explain characteristics of social outcomes on the basis not only of agent preferences and optimizing behavior, but also on the basis of institutional features" (p. 135). New institutionalism is more of a general perspective on social behavior than a specific theory. In fact, the perspective encompasses numerous theories, such as institutional rational choice, normative institutionalism, and historical institutionalism. Many other theories within policy

research have been birthed or heavily influenced by new institutionalism, even though some do not have the word “institutionalism” in their names (Sabatier, 1999). In viewing institutions more widely, that is, as social constructs, and taking into account the influence that institutions have on individual preferences and actions, new institutionalism has moved away from its pure institutional (formal, legal, descriptive, and historical) roots, and has become a more explanatory discipline within political science and policy research. This wide-angle view has also extended to budgetary research. Kiel and Elliot (1992) explain that a proper understanding of budgeting must consider the relationships between relevant institutional actors and other exogenous forces.

Much of the research within new institutionalism deals with the pervasive influence of institutions on human behavior through rules, norms, and other frameworks. New institutionalism also stresses the importance of history and culture, in addition to the effect of specific institutions. Scholars in this area argue that institutions can influence individuals to act in one of three ways: 1) they can cause individuals within institutions to maximize benefits (*regulative* institutions), which is similar to rational choice theory; 2) to act out of duty or an awareness of what one is “supposed” to do (*normative* institutions); 3) or individuals act because of conceptions (*cognitive* institutions).

Institutions are defined as shared concepts used by actors in repetitive situations, rules, norms, strategies, particular formal organizations and structures of government and public service, patterns of behavior, negative norms, and constraints (Coriat & Dosi, 1998; Ostrom, 1999). Institutions define the goals, meaning, and actions of individuals who are interacting within governments, within a particular policy subsystem, or other



social settings. In this way, institutions impact the decisions and outputs of such organizations, systems, or settings. March and Olsen (1984), when discussing new institutionalism, they assert that institutionalism “is simply an argument that the organization of political life makes a difference” (p. 747).

### **Institutional Rational Choice**

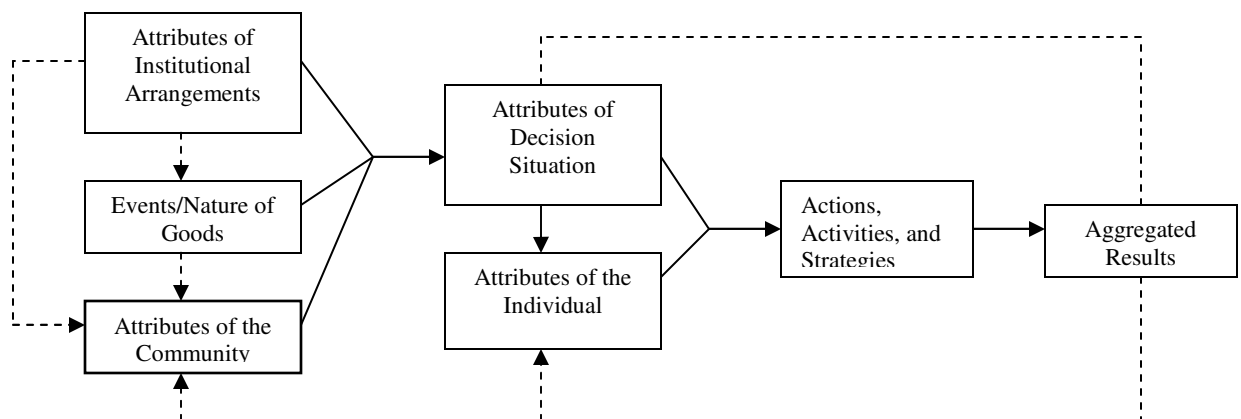
Rational choice theory has also received a lot of attention in the scholarly literature. Rational choice, put simply, assumes that individuals compare expected benefits and costs of their potential actions prior to adopting strategies to implement them. They then choose the strategy or action which best serves their interests.

Several authors, within the new institutionalism framework, have argued that rational choice theory inadequately addresses the context in which individuals make choices. However, convergence has occurred as more political scientists, within the new institutional framework, presume that individuals are rational and search for institutional structures to help explain behavior, receive clues on how to act and understand an otherwise overly complex world or environment. Ostrom (1991) explains: “To offer coherent rational choice explanations of complex institutional behavior, however, requires a deep understanding of the logic of institutions and institutional choice. Thus, rational choice and institutional analysis are likely to be essential complements in the political science of the twenty-first century” (pp. 242–243).

Various authors have attempted to merge rational choice theory and institutional theory (Dowding & King, 1995; Grafstein, 1992; Ostrom, 1991, 1999). The effort to combine rational choice and new institutionalism led Ostrom to develop the theory, or

framework, called Institutional Rational Choice (IRC) (Figure 3.1). IRC is a general analytic framework that stresses how various norms, rules, structures, and strategies affect the internal incentives confronting individuals and their resulting behavior (Ostrom, 1999). IRC also takes into account how history and culture affect behavior (Ostrom, 1991). This perspective argues that actions are a function of the attributes of the individuals (e.g., values and resources) and the attributes of the decision situation. The latter is a product of institutional rules, the nature of the relevant good, and the attributes of the community/environment (Kiser & Ostrom, 1982; Sabatier, 1991). Rational choice institutionalism sees institutions as evolving over time as politicians seek to remake them in order to further their own interests (Geddes, 1994, 1996; North, 1990). While IRC has the phrase “rational choice” in its name, it is more closely aligned with the ideas of bounded rationality than the more constrained rational choice perspective.

**Figure 3.1:** Ostrom’s Institutional Rational Choice Framework



Source: Ostrom, 1999

Ostrom’s theory or framework, as she prefers to call it, helps to isolate the decision-making process of the political actors and opens the process to the effect of its context. Likewise, the framework isolates the possible effect of the action arena or

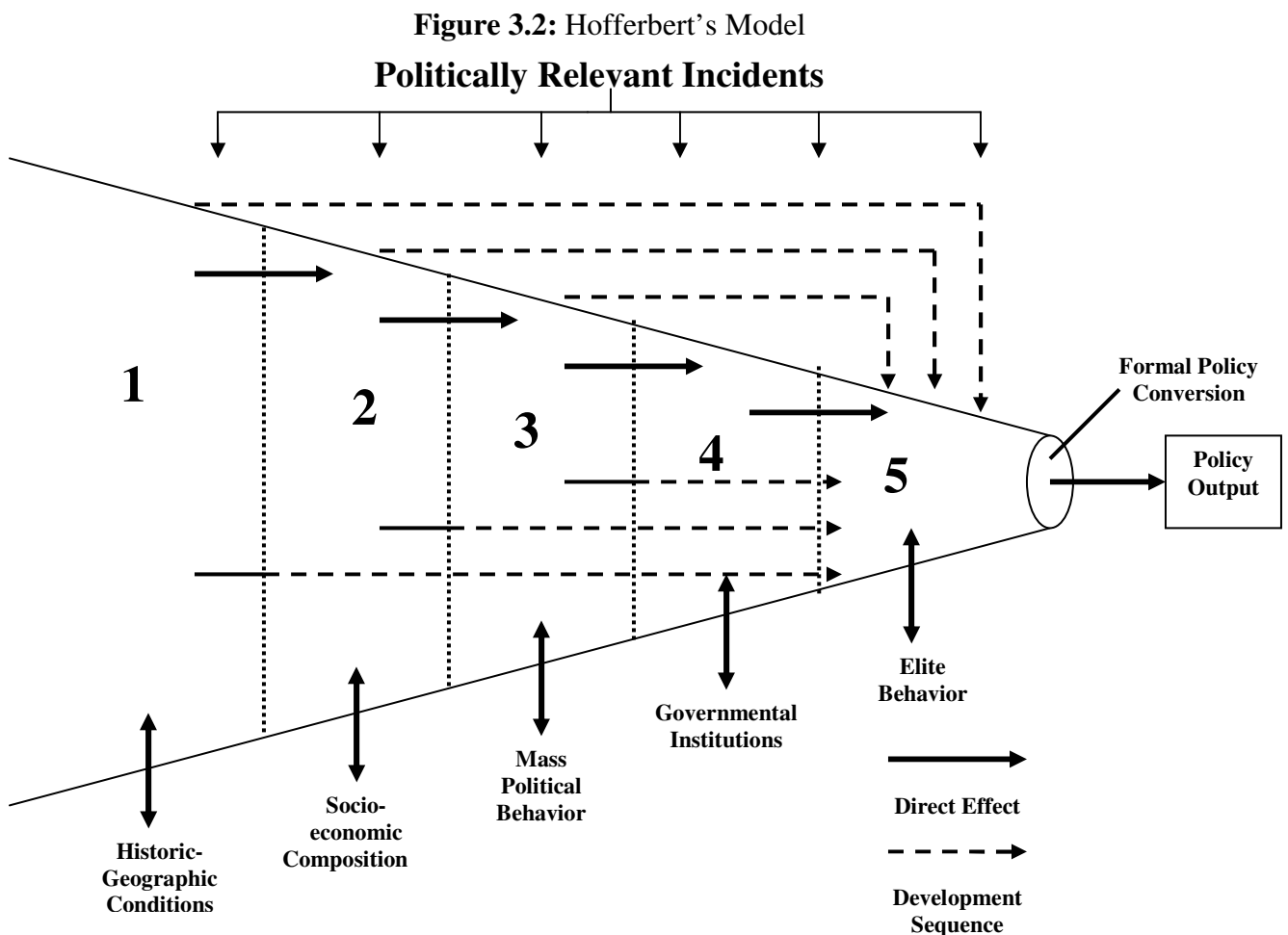
decision situation. The fundamental propositions of the framework serve as the basis for this study's approach, specifically that various norms, rules, structures, and strategies affect the internal incentives confronting individuals and their behavior; that history and culture affect behavior; and that actions are a function of the attributes of the individuals (e.g., values and resources) and the attributes of the decision situation (Kiser & Ostrom, 1982; Ostrom, 1991, 1999).

However, Ostrom's theory has generally not been used to predict or explain specific state expenditures. Instead it has more commonly been used to develop or explain, and possibly improve, the policy development process—specifically, how institutions are organized for the provision and production of various public policy and administration issues. Hence, some of the specific elements or terminology of the framework are not entirely applicable to this research problem. However, the fundamental propositions of the approach and the framework, mentioned above, are helpful and in part constitute the basic assumptions and approach of this study.

### **Hofferbert's Policy Framework**

To find the additional framework elements for this study, we will need to look elsewhere. Several long-standing policy models have been used to explain state budgeting; among the more popular ones are Dawson and Robinson's (1963), Dye's (1966), Sharkansky's (1970), and Hofferbert's (1974). Generally, each of these envisions the policy process as linear: external conditions affect the political system or characteristics, which affect the political process, which results in public policy. As aspects of each stage vary, so too does the public policy. Hofferbert's model is perhaps

the most complex and has been used to explain state spending in a variety of areas (Hofferbert & Urice, 1984). It accounts for historic-geographic conditions, socioeconomic composition, mass political behavior, governmental institutions, and elite behavior. Each of these elements helps to establish the framework for this study (Figure 3.2). Hofferbert's



Source: Hofferbert, 1974

As mentioned before, Hofferbert's framework, like other similar ones, conceptualizes the process as linear. With each element (e.g., historic-geographic) directly affecting the next one and, and aside from the final stage, only indirectly affecting the policy decision. This is contrary to Ostrom's conceptualization and contrary

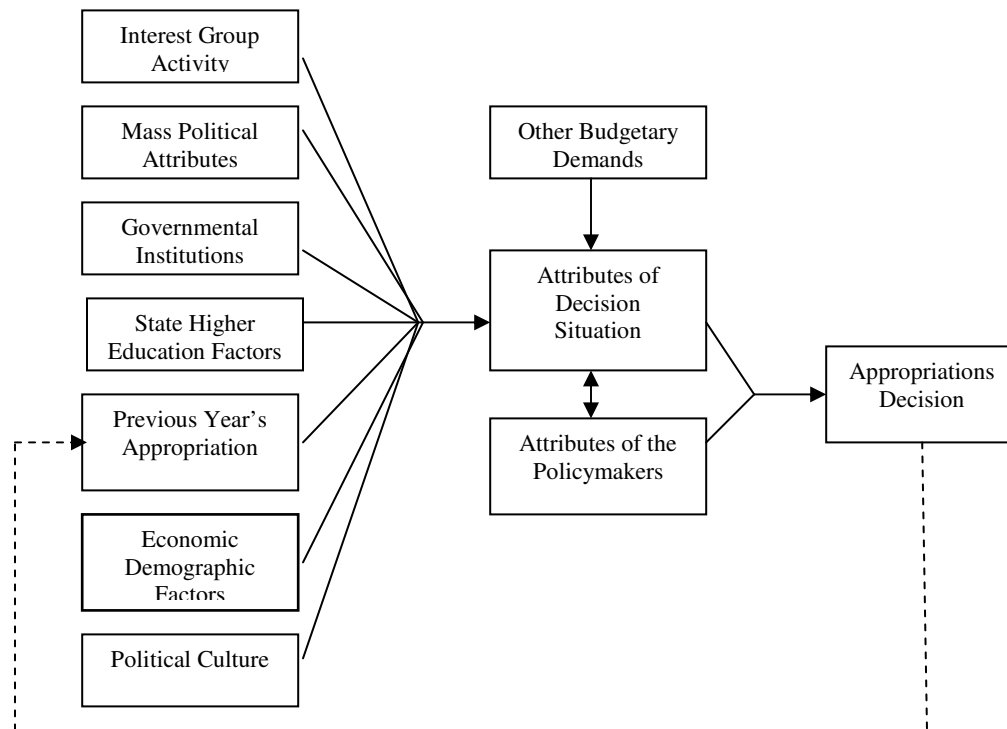
to simple observation of the state governmental appropriation process. While there certainly may be linear elements to the policy decision process, economic situations have a direct effect on how state governments appropriate their funds, as would advocacy efforts and characteristics of the higher education sector. It is also difficult to know how to categorize interest group activity. Would this interest group activity fall under mass political behavior, governmental institutions, or elite behavior? The model would be improved by explicitly recognizing the effect of political competition and alternative interests, however the specific influences the model highlights are useful in designing a model for this study (Sabatier, 1999).

### **New Theoretical and Conceptual Perspective**

It seems what would be most useful is an alternative model that is based on a combination of what Ostrom and Hofferbert have suggested (see Figure 3.3). For this study, I assume that the actions of political decision-makers are a function of the attributes of the individuals (e.g., values and resources) and the attributes of the decision situation, and that within those constraints actors are weighing expected benefits and costs of their possible actions prior to making a decision. They then choose the strategy or action which best serves their interests. Specifically, I assume that various norms, rules, structures, and strategies affect the internal incentives confronting state political decision-makers and influence their resulting behavior, and that history and culture also affect political behavior. Similar to Hofferbert, I categorize the various sources of influence as political culture, economic-demographic, mass political attributes, governmental institutions, and attributes of the policymakers. Like both Hofferbert and

Ostrom, I conceptualize elected officials as responsive to their constituents or the median voter, which explains the inclusion of the mass political attributes. The resulting framework is titled the Fiscal Policy Framework.

**Figure 3.3:** Fiscal Policy Framework



My model also accounts for competing state interests, because appropriations decisions in one budgetary area affects other budgetary areas, and the political context within each state includes various interests groups that compete for state policymakers' attention (Garand & Hendrick, 1991; Gray & Lowery, 1996; Sabatier, 1999). Likewise, the model accounts for the previous year's appropriation and the influence of higher education sector factors. I argue that these sources of influence collectively shape state expenditures for higher education. My model is essentially an adjusted and expanded IRC framework in which I have taken cues from Hofferbert's model. Specifically, the model defines state appropriations for higher education as a product of the attributes of the

policymakers and the attributes of the decision situation. The attributes of the decision situation is impacted by and/or comprised of, interest group activity, mass political attributes, governmental institutions, state higher education factors, the last year's appropriation, economic and demographic factors of the state, political culture, and other budgetary demands. This model also allows for interactions to occur between various actors and influences as they converge in the attributes of the decision situation.

Another major assumption of this study is that states and state policymakers have finite resources. These limited resources include monetary/budgetary, knowledge, staff, infrastructure, time, and attention, to name the most important ones. States have only so much money they can appropriate; they are limited in their knowledge of the issues; they have only so much professional assistance; they have a limited amount of working hours and are limited by the calendar; and they can only pay attention to a certain amount of things, issues, groups, and individuals at any one time and throughout the year. This assumption has particular implications for the influence of the other state interests, budgetary areas, and interest group activity variables, as each represents competition for state policymakers' resources.

### **Other Budgetary Demands and Trade-off Behavior**

Because states are generally required to balance their budgets and the difficulty of generating additional revenue, any conceptual or theoretical framework of state budgeting and expenditures for higher education must consider the impact of other state budgetary areas. In this regard, one theoretical explanation of state budgetary practices that has not received adequate empirical testing or theoretical development is state

budgetary trade-offs. At the state level, trade-offs are an almost universally accepted phenomenon, even though they have received almost no empirical testing. This is particularly surprising in regard to higher education funding because scholars argue that higher education is particularly vulnerable to negative trade-offs. In fact, Lowry (forthcoming) argues that the study of state higher education funding is ripe for understanding state budgetary trade-offs. Generally, the existing research on budgetary trade-offs has focused on the federal level, with mixed results (Berry & Lowery, 1990).

Garand and Hendrick (1991), on the other hand, focused specifically on state expenditure trade-offs. The authors indicate that at the time of their writing, no one had concentrated his or her research on state level expenditure trade-offs. Also, a recent search of published articles did not reveal that any additional work concerning trade-offs had been completed since Garand and Hendrick's publication. Garand and Hendrick theorized that there are key structural reasons that indicate that spending decisions in states may be much more of a zero-sum game than spending decisions at the national level, meaning that trade-offs would occur more readily. States (except for Vermont) are required to balance their budgets, and many states face legal or constitutional restrictions on increasing revenues. Even those that do not face such restrictions have a difficult time generating additional revenue for political reasons, as most states are fairly averse to raising taxes. Therefore, shifts in policy priorities at the state level may necessitate the withdrawal of funding from one or more spending areas to increase spending in another area.

Garand and Hendrick (1991) discussed two different trade-off possibilities. In the first example, an increase in funding for one area results from a literal decrease in



funding for another area. In the second example, an increase in one area results in less of an increase in the other area, even though both areas receive increases. The latter example is what many argue has happened with state funding for higher education. Garand and Hendrick analyzed state spending in education, welfare, highways, and health. They developed a model to test whether trade-offs occurred between the four areas, and their results suggested that substantial evidence exists that shows that trade-offs affect state spending priorities. The four areas varied in their likelihood to be engaged in trade-offs, and the degree to which trade-offs were observed varied substantially across states. In particular, they found that states were very likely to take monies from highway projects to fund such things as education, health, and welfare.

Garand and Hendrick's (1991) research left unresolved the questions of why trade-offs varied across states and why they varied across policy areas. They addressed these questions in a later article (Hendrick & Garand, 1991), in which they examined several different aspects of states to determine what characteristics would impact the chance of the state engaging in trade-off behavior. They used the coefficients that represented trade-offs in education welfare, highways, and health from their last study as dependent variables in a cross-sectional model to explain trade-offs among those spending areas. The independent variables represented political-strategic, political-organizational, and economic-financial characteristics of the states. Although their results were somewhat mixed, the authors' models did a good job of explaining trade-off behavior for education and highways. Among their results were the findings that greater gubernatorial power, liberal ideology, fewer institutional restrictions, and a poorer economy were generally associated with trade-offs. (The theoretical arguments in regard

to these variables will be discussed in the Conceptual Framework and Theoretical Arguments section that follows.) They did not look at higher education, but for reasons that will be discussed shortly, higher education may be uniquely susceptible to trade-offs; therefore, the variables discussed by Hendrick and Garand may have a particularly strong effect on the likelihood of states to engage in trade-off behavior with higher education.

From this research, we learn that trade-offs do occur, that states vary in their propensity to engage in such behavior, that various state characteristics are associated with the likelihood of states engaging in trade-offs, and that the likelihood of trade-offs also varies between policy areas. A logical argument can be made that higher education is a policy area that is particularly susceptible to trade-offs. Higher education has the ability to raise tuition and fees, pursue private donors, receive research funding, and some institutions can engage in entrepreneurial activities. (However, it must be clearly stated that the only viable alternative for public institutions is raising tuition; the other revenue areas provide mere drops in the revenue bucket compared to state funding and tuition.) Further, the federal government subsidizes higher education through student aid, which makes increases in tuition slightly more tolerable. Because of these unique characteristics, state lawmakers see higher education as a resource they can siphon when needed (Delaney & Doyle, 2004; Kane, Orszag, and Gunter, 2003; National Education Association of the United States, 2001).

### **Higher education and budgetary trade-offs**

When a state reduces its subsidies to higher education, public colleges and universities almost inevitably raise tuition, which results in the state's residents becoming

eligible for additional federal funds in the form subsidized federal student loans and tax credits under the Hope and Lifetime Learning tax credit programs. Likewise, poorer students are eligible for Pell grants that provide further federal aid. So states can presumably feel comfortable cutting appropriations, because at least indirectly they are rewarded for it by greater federal aid to the citizens of the state. Conversely, a program like Medicaid receives matching federal funds, providing state governments with an incentive not to cut program funding, because it would lose federal funds. A dollar of Medicaid services for a state's residents costs a state significantly less than a dollar of its state funds. For these reasons, Medicaid has been seen as a primary policy area that leeches money from higher education (Kane, Orszag, and Gunter, 2003). In fact, Medicaid surpassed higher education as the second most funded state program in 1990, and in 2003 it became the most funded, displacing K-12 education (NASBO, 2006).

In 2001, the National Education Association of the United States interviewed state lawmakers about higher education. They found that lawmakers viewed higher education as a balancing wheel or a budget balancer. State lawmakers use higher education as a place where they can cut from when they need to balance the state budget. This, they reported, made higher education particularly vulnerable to cuts or trade-offs. They indicated that most legislators recognized that a share of higher education's fiscal problems can be shifted to others, primarily in the form of tuition and fee increases. The authors reported that well over half of the legislators interviewed for the study agreed that a significant factor in determining how much the legislature will appropriate for higher education is "the ability of colleges and universities to provide for themselves through tuition, research funds, and gifts" (p. 10) These findings are supported by the research

done by Delaney and Doyle (2004), who found that higher education is much more susceptible to being used as a balance wheel than other state budgetary areas, such as K-12 education, health care, and corrections.

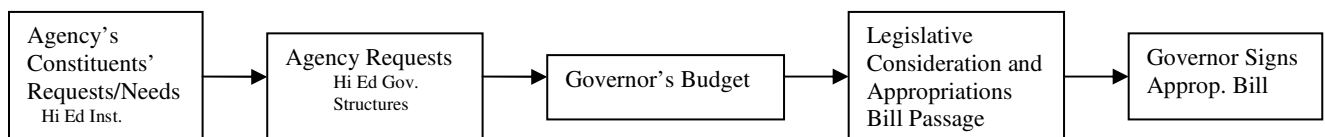
According to Hendrick and Garand's research, because of higher education's susceptibility to negative trade-off behavior, certain of the states' political attributes may affect the state's funding of higher education. These include such things as greater gubernatorial power and fewer institutional restrictions (e.g., uniparty governments). Likewise, a poorer economic situation may also result in negative trade-offs for higher education.

Because of the existence of trade-off behavior in state budgeting and because of higher education's susceptibility to negative trade-offs, the theoretical and conceptual framework for this study includes other budgetary demands like to compete with higher education for scarce. Likewise, Hendrick and Garand's results help develop the arguments in regard to several of the variables included in this study. This study, in addition to the other goals, attempts to model and predict state higher education budgetary trade-offs. In line with the National Association of State Budget Officers, the primary state budgetary areas considered in this study are K-12 education, higher education, Medicaid, corrections, transportation, and welfare assistance, which account for 70% of the total state spending and 74% of state general fund expenditures (NASBO, 2006).

## The State Budgetary Process

The question now becomes which particular state political institutions, political aspects of the public, economic and demographic variables, and characteristics of the policymakers are likely to impact state appropriations for higher education. How will they affect it, and in what way? In order to answer these questions we must become acquainted with the state budgetary process. The procedural path of state budgeting for higher education differs little among states (see Figure 3.4). An agency, either a state governance structure or the institution itself, makes a request to the governor prior to his or her preparation of the final budget request to the legislature. The governor then adjusts the agency's request to fit his or her budget priorities, generally reducing the request by a certain percentage. The governor sends the final state budget request to the legislature, which then considers the amount requested for higher education along with the amount requested for the other state budget areas. Next, the legislature must pass an appropriations bill, which is sent to the governor for his or her signature (Layzell & Lyddon, 1990; Sharkansky, 1968; Thompson, 1987).

**Figure 3.4:** State Budgetary Process



## The Politics

While most past studies of higher education funding have developed frameworks that emphasize socioeconomic variables and demographic variables, this study, following

in the tradition of state budgetary, expenditure, and policy research in political science, develops a framework that incorporates the politics of the process. Because there is a dearth of research that considers the potential political influences intrinsic to state funding of higher education, the primary focus of this study are those political factors. Therefore, possible political variables that may impact state funding of higher education will be considered first and in the greatest depth.

State policy priorities, once again, are defined as, “the component of governmental decision-making in which public officials allocate scarce resources, in the form of expenditures, to different program areas” (essentially the budgetary process) (Jacoby & Schneider, 2001, p. 545). It can be conceptualized as a function of state legislatures (Barrilleaux & Berkman, 2003); political culture (Elazar, 1984; Hero & Tolbert, 1996; Lieske, 1993); party competition (Barrilleaux, 1986; Dawson & Robinson, 1963; Holbrook & Van Dunk, 1993); legislative professionalism (Fiorini, 1994; Squire, 1992); public opinion (Erikson, Wright, and McIver, 1993); elite ideology and party affiliation (Berry, Ringquist, Fording, and Hanson, 1998); gubernatorial power (Beyle, 1999); interest group characteristics (Gray & Lowery, 1996); and bureaucratic characteristics (Keiser, Wilkins, Meier, and Holland, 2002; Schneider & Jacoby, 2004). Schneider and Jacoby (2004) further argue that “there now exists a scholarly consensus on [these] variables that measure state-level political phenomena” (p. 1). Variation among state political systems has been shown to impact the outcomes of state budgetary processes. The theoretical framework for this study places state funding for higher education within this competitive political context.

The various factors that are included in this study have been conceptualized and measured in various ways. This study seeks to emphasize the particular aspects of each factor that has the greatest potential to impact state funding for higher education. Figure 3.5 visually displays which elements of the conceptual framework are considered to be political and considered in this section (the political categories are shown in bold).

**Figure 3.5:** Fiscal Policy Framework Political Factors

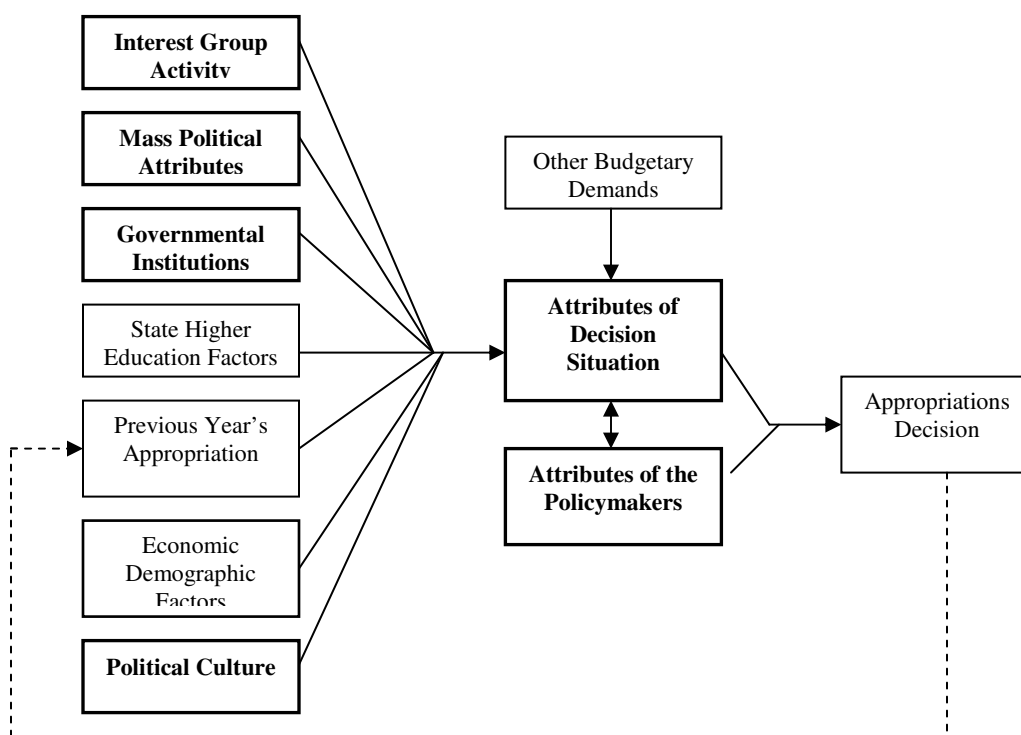
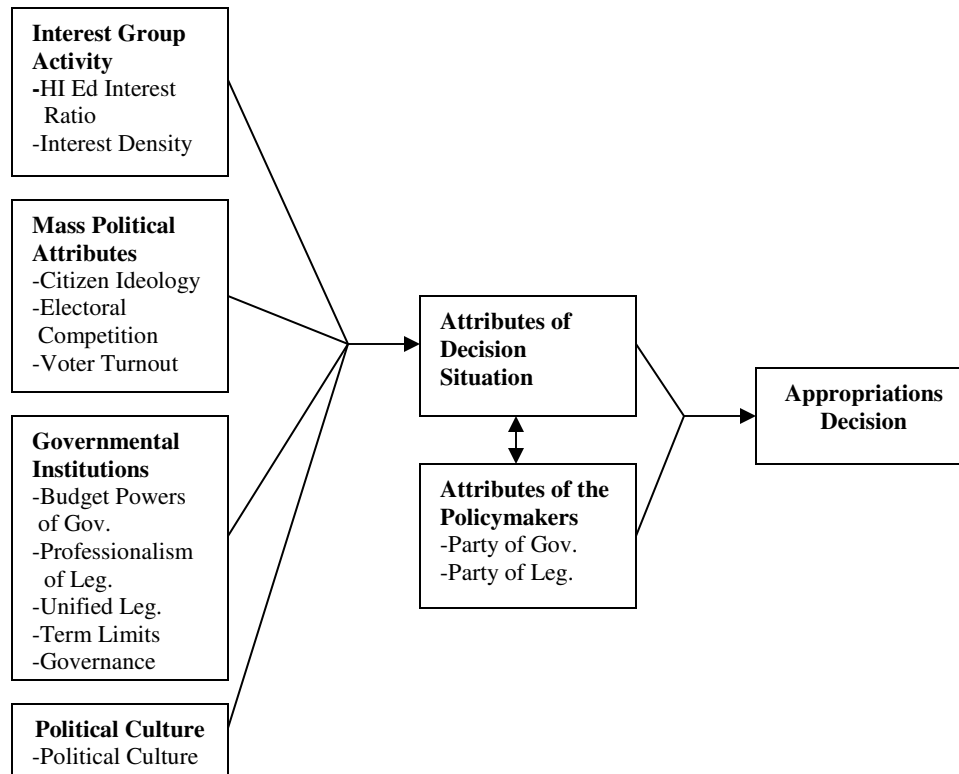


Figure 3.6 includes only the political categories, and within each element or category of the theoretical framework, the specific variables are listed that correspond to the category. The various interactions between the variables are contained within the Attributes of Decision Situation. The specific theoretical and conceptual arguments for

why and how each variable may impact state funding for higher education are discussed next, organized by category.

**Figure 3.6: Fiscal Policy Framework Political Variables**



### Specific Theoretical Arguments

Lewis (2005) observed that most empirical research on the determinants of state policy have directed attention to governmental and socioeconomic explanations, while most theories of the policy process tend to also include political forces from outside government (e.g., public opinion and interest groups). This study attempts to avoid this limitation by including governmental explanations (institutions and attributes of the policymakers) and outside political forces (interest groups, mass political attributes, and political culture) in both the framework and in the empirical analysis, in addition to economic and higher education sector variables.



### **Interest group activity**

Because higher education institutions are being forced to compete intensely for increasingly scarce and contested resources, they are being called upon more frequently to defend their autonomy and their use of limited state funds (Sabloff, 1997). One way they do this is through their lobbying efforts.

Interest groups play an important role in state policymaking. Jacoby and Schneider (2001) found that interest groups have a visible and powerful impact on establishing state spending priorities. Specifically, the authors found that the level interest group diversity and strength influenced whether the state favored general policy areas or particularized policy areas (such as aid for the needy). Less diversity and strength was found to be correlated with policymakers focusing more of their resources on programs that provided particularized benefits.

Gray and Lowery (1999) have deduced that having more interest groups makes it more difficult to enact legislation and results in having fewer bills introduced. Likewise, and more importantly for this study, Gray and Lowery found that the types of interest groups in the state is a key consideration. Having a greater proportion of not-for-profit interests was associated with more enactments and higher passage rates of legislation.

Heinz, Lauman, Nelson, and Salisbury (1993) have shown that interest groups are an important influence on legislative and executive actions in certain circumstances; Nice (1984) found that state-level interest group activity was shown to impact public policy in a variety of areas and ways, including spending. Recent literature which stresses that interest groups are most successful when there are relatively few of them within the state, the groups are concentrated in particular substantive areas, and the active interests

possess economic power (e.g., Browne, 1990; Cigler, 1991; Gray & Lowery, 1996; Heinz, Laumann, Nelson, & Salisbury, 1993).

Although Gray and Lowery (1999) did not find much evidence that organized interests' number or diversity impacts broad general policy outputs, they argue that if we are to discern the real influence of special interests, "we need to examine specific interests at specific times in specific places" (p. 241). The authors conclude that "when such [organized] interests, as well a government interests, add their weight to efforts to pass legislation, it has a greater likelihood of passage, all other things being equal" (p. 242). Clearly, interests groups are swaying state decision-making.

This study attempts to examine a specific state action—funding of public higher education. Because it is something that is revisited annually by every state, this study is applying Gray and Lowery's (1999) recommendation of examining a specific policy at specific times and in specific places; this issue arises every year in almost every state (if not every year, every two years).

Lowry (forthcoming), in his review of the literature on the determinants of state funding for public higher education, found that past studies have not actually measured organized interest groups, and indicates that one set of organizations that has a clear interest in state funding is the public universities themselves. Most universities have either an in-house lobbyist or an outside contract lobbyist, and all public institutions engage in some form of lobbying (Ferrin, 2003, 2005; Gove & Carpenter, 1997; Murphy, 2001; Tandberg, 2006). Many, if not most, large public universities have an office of government affairs that lobbies at the state and federal level. At the state level one of its primary purposes is to lobby for more state funding (Tandberg, 2006). Even if the

institution does not have an office or individual responsible for lobbying, as is the case for some smaller institutions, presidents frequently assume that role, as do others within the institution, including students. Thomas and Hrebener (2004) have found that the state higher education lobby is acquiring greater influence within states. This is a possible indication of the value institutions place on lobbying, as it appears they are expending more energy and resources in their lobbying efforts, and that state policymakers are noticing their efforts.

Although there has been no available research on how effective the state higher education lobbies are at garnering additional funding, the existing lobbying and interest group literature seems to indicate that the larger the lobby is relative to the rest of the state lobby, the more effective it will be in accomplishing its legislative goals. Because interests groups compete with each other (Heinz et al., 1993; Truman, 1951), the larger a specific interest area is relative to the rest of the state lobby, the more successful they should be in procuring state dollars. This is in line with Jacoby and Schneider's (2001) finding that when there are few interest groups and less diversity, specific interests receive more funding (in their analysis, they focused on particularized interests).

Because policymakers tend to view higher education as an area in which they operate discretion over spending decisions (because of colleges and universities have the ability to dip into alternative forms of revenue), higher education has not always fared well in the scramble for state dollars (Delaney & Doyle, 2004; Hovey, 1999; Humphreys, 2000; Rizzo, 2005). Therefore, if there is a higher state interest group density relative to the higher education lobby, it will lead to less funding for higher education. However, in theory, states with larger higher education lobbies relative to other state interest groups

should be more generous to higher education. In general, the higher the number of interest groups present in a state (interest density), the less likelihood that higher education will receive generous funding, due to greater competition.

Some constructs or variables included in this study may be more related to differences in funding levels between states or long-term average levels of funding, and others may be concerned with year-to-year change or change within states. In this case, because there does seem to be a degree of consistency in the relative size of interest groups between states and in the size of the higher education lobby, this construct may affect funding levels between states. At the same time, short-term shifts in the relative size of the higher education lobby may have fairly immediate effects on state higher education funding. However, generally speaking, interest group effects will most likely be perceptible in the differences in state funding between states and in long-term patterns of funding within states.

### **Mass political attributes**

#### *Ideology*

Political ideology has been defined as “a coherent and consistent set of orientations or attitudes toward politics” (McLendon, Hearn, & Mokher, 2006, p. 8). Erickson, Wright, and McIver (1993) argue that state policy is largely the result of public liberalism or ideology. For instance, they showed that Aid to Families with Dependent Children (AFDC) expenditures increased linearly as state opinion became more liberal (Erickson, Wright, and McIver, 2001). Research has replicated the influence of public

ideology on welfare policy numerous times (e.g., Brown, 1997; Ringquist, Hill, Leighley, and Hinton-Anderson, 1997; Fellows & Rowe, 2004). These scholars have argued and found that more liberal citizenries are more supportive of state spending and big government in general. Likewise, one study found that state ideology had a statistically significant effect on higher education appropriations. Using Berry, Ringquist, Fording, and Hanson's (1998) measure of state citizenry ideology (the mean position of the state's electorate on a liberal to conservative continuum) (state ideology and ideology will be used synonymously with state citizenry ideology for the remainder of the study), and using as their dependent variable appropriations per \$1,000 personal income, Archibald and Feldman (2004) found that more liberal states were more generous towards higher education. Further, Hendrick and Garand (1991) theorized that because the demand for public goods may be greater in states with liberal ideologies, and because there is a greater amount of spending in these states, trade-offs would be more difficult to carry out and would be less likely to occur. Their findings were mixed. However, because higher education is particularly susceptible to trade-offs, there is good reason to expect less ambiguous results.

Generally, the effects of citizen ideology will most likely be apparent in the differences between states and in long-term funding patterns within states. Although Berry et al. (1998) discovered greater variability in political ideology than past researchers, there does not appear to be many dramatic year-to-year shifts. However, ideology does change within states, and those changes should be reflected in how a state financially supports higher education.

### *Electoral competition*

Electoral competition is a measure of how competitive elections are for public office within states. Electoral competition sits at the nexus of internal and external influences, because it directly relates to both the candidates running for office and the voters. However, because it is easier to conceive of it as an environmental influence, related more to voter preferences than any structural arrangement, it is more suitable to place as an attribute of the public.

In his 1976 cross-sectional study, Peterson found that Sharkansky and Hofferbert's (1969) interparty competition-voter turnout factor scores were associated with more generous appropriations. However, the present study utilizes an improved measure of competition developed by Holbrook and Van Dunk (1993) that the authors call electoral competition. Holbrook and Van Dunk make use of district-level indicators of competition as opposed to the state-wide two-party competition measures used by Ranney (1976) or Sharkansky and Hofferbert.

Greater electoral competition has been shown to result in the increased generosity of legislatures towards redistributive policies (Barrilleaux & Berkman, 2003; Plotnick & Winters, 1985). Plotnick and Winters (1985) went so far as to say that "probably the best known link in comparative state politics is between two-party competition and redistribution" (p. 463). When states are highly competitive, political leaders will vie for support by offering services and support to the widest possible range of constituents, thereby causing them to favor redistributive policy areas, which encompass more constituents. Because higher education offers diffuse benefits and is viewed by policymakers as a redistributive area, greater electoral competition should result in more

funding for higher education. Further, as policymakers attempt to bring benefits to as many groups and individuals as possible, they may avoid making trade-offs, therefore protecting higher education from such actions.

Because electoral competition is so intertwined with the ideologies of the candidates themselves (who are fairly variable), and not only with the electorate (which shows less variability), this construct may, in some cases have more of a short-term, within-state effect on funding for higher education. At the same time, there do seem to be patterns among states, with some states traditionally being more competitive than others.

### ***Voter turnout***

Voter turnout impacts politicians' perception of and attention to their constituents (Bibby & Holbrook, 2004; Bowler & Donovan, 2004). The greater the turnout, the more responsive the elected officials become. Citizens are generally supportive of higher education, and with recent attention to rising costs and the establishment of a link between state funding and levels of tuition (Dillon, 2005a, 2005b), the general population may be even more supportive of an increased distribution of monies to higher education, as a way to keep tuition down. Policymakers are bound to perceive this trend; therefore, in states with greater voter turnout, policymakers will feel compelled to appropriate more funds to higher education.

Sharkansky (1968) found in his analysis, *Agency requests, gubernatorial support and budget success*, that there was a positive correlation between governors' acceptance of agency requests for budget expansion and high voter turnout. Sharkansky further found that governors' support of agency requests was essential for success in the

legislature. Therefore, voter turnout may also have an indirect effect on the level of appropriation through its impact on the budgetary process at the early stage of an agency's request.

In fact, an early study, which covered 1960 to 1970, found a statistically significant positive correlation between voter turnout and state support of higher education per capita (Lindeen & Willis, 1975). Further, a more recent study, which covered a larger time period, found that voter turnout had a small positive effect on the share of state education budgets allocated to public higher education, although the coefficient was not significant by traditional standards (Rizzo, 2005).

While there are patterns between states voter turnout also changes depending on elections (how competitive they are, is it a presidential election, and is there an incumbent and what types of issues are facing voters and the candidates). Therefore this variable should be associated with change both within states and between states.

## **Governmental institutions**

### ***Budgetary powers of the governor***

While some scholars have portrayed the governor as an influential part of the state political process (e.g., Barrilleaux & Berkman, 2003; Beyle, 1996; Sharkansky, 1968), others have portrayed the governor as unimportant (e.g., Erikson, Wright, and McIver, 1993). However, research concerning higher education has repeatedly shown the importance of the governor in state higher education policymaking (Heller, 2002; Marcus, 1997; McLendon, 2003a; McLendon & Ness, 2003), and in one dated cross-



sectional study, greater gubernatorial institutional powers were found to be associated with increased higher education appropriations (Peterson, 1976, p. 537).

Various aspects of the state executive have been examined and measured, such as governor's general formal and informal powers (Beyle, 1996). Because this study is concerned with one particular stage, namely the allocation of state resources, a measure of the governor's budgetary powers is most appropriate. Barrilleaux and Berkman (2003) developed a budget powers index in order to measure the governor's relative power over the state budgetary process versus the legislature's. The authors discovered that governors with greater control over the state budget process will use those powers to produce policies that deliver benefits to statewide constituencies. Those governors will thereby seek higher levels of spending for redistributive programs that benefit geographically diffuse constituencies.

Developmental policies provide physical and social infrastructure benefits that are normally concentrated in specific geographic sections of a state. Redistributive policies reallocate societal resources from the haves to the have-nots and are structured by class rather than geography. The benefits of redistributive policies are generally dispersed geographically. Because state public higher education has statewide effects, greater gubernatorial budgetary powers may result in increased higher education allocations.

Scholars have debated the issue of the redistributive effects of higher education, and it is difficult to determine the degree to which higher education has developmental or redistributive effects (Crean, 1975; Hansen & Weisbrod, 1969; Cohn, 1970; Hansen, 1970; Bowen, 1977; Heller, 2002; Nicholson-Crotty & Meirer, 2003; Bailey, Rom, & Taylor, 2002). Regardless of the actual distributive effects, Bailey, Rom, and Taylor

(2002) found that policymakers tend to treat higher education as if it were a redistributive policy area. Therefore, for the purposes of this study, the debate is negated altogether, because my purpose is to determine the effects of various political factors on higher education funding. If policymakers do in fact treat higher education as a redistributive policy area, greater budgetary powers of the governor might result in more funding for higher education relative to other non-redistributive budgetary areas.

However, regardless of whether governors view higher education as a redistributive policy area, there is reason to believe that governors with greater budgetary powers would divert funds away from higher education and towards other redistributive policy areas. Hendrick and Garand (1991) found that governors with greater powers were more willing to engage in expenditure trade-offs. Hendrick and Garand theorized that trade-offs were more likely to occur when decision-making is centralized, as opposed to fragmented and decentralized. They argued that decision-makers in centralized decision environments are better able to coordinate the reciprocal changes in spending priorities that are implied by the trade-off concept. They further argue that governors with greater powers provide the best opportunity for centralized budgetary and expenditure decision-making, particularly in comparison to relatively decentralized legislative bodies.

Therefore, governors with strong powers (budgetary or otherwise) are in a better position to coordinate spending decisions across expenditure categories, to have their proposals enacted into law, and to make the necessary trade-offs to accomplish their objectives. Thus, trade-off behavior is expected to be more common and frequent when there are governors who wield more budgetary power. Because, as discussed earlier, higher

education is particularly susceptible to negative trade-offs, greater gubernatorial budgetary powers may be associated with less funding for higher education.

In addition, when the governor has more budgetary control, there is a trend toward less total state spending. The governor is responsive to the state median voter, and the individual legislators are responsive to their individual districts' median voter. There is no theoretical reason to believe that they would be the same. The state median voter may desire the governor to use his or her budgetary powers (veto power, etc.) to offset the power of the district median voter. The conflicting interests have been shown to result in less government spending (Bails & Tieslau, 2000; Dearden & Husted, 1993). This is yet another reason to believe that greater budgetary powers of the governor will be associated with less spending for higher education.

Budgetary powers of the governor are something that has changed overtime within states but change does not occur very frequently. Therefore, we should see fairly consistent patterns between states and change within in states when the executive's powers are adjusted.

### ***Legislative professionalism***

Legislative professionalism is generally defined as the extent to which state legislatures embody the attributes of the U.S. Congress (e.g., a well-staffed body, amount of pay, time in session). The more professional a legislature is, the more the legislators are paid, the longer they are in session, the more staff they have, and in general the more resources they have at their disposal. A certain two year cross-sectional study found that legislative professionalism was associated with increased state appropriations for higher

education (Peterson, 1976), as has a more recent study (McLendon, Hearn, & Mokher, 2006). Other studies have found that professionalism is associated with greater policy innovation (Hayes, 1996; Rosenthal, 1981, 1998).

One could expect greater professionalism to be associated with increased funding for higher education for several reasons. First, higher education institutions are dispersed throughout the state; therefore, a large percentage the legislators will often have a public college or university in their districts, which provides motivation to increase funding. Second, professional legislatures are likely to have more Democrats than unprofessional legislatures (Fiorina, 1994). Third, professional legislatures are more likely to be competitive, which has been associated with more redistributive funding (Barrilleaux & Berkman, 2003). Fourth, more professional legislatures have been found to be associated with increased spending in general (McLendon, Hearn, and Mokher, 2006). Fifth, professionalized legislatures typically attract more highly-educated members (Barrilleaux & Berkman, 2003); people with more education tend to be more sympathetic toward higher education and place higher value on higher education (Pascarella & Terenzini, 2005). Sixth, more professional legislatures have greater analytic ability (Squire, 2000) and therefore maybe better able to recognize the benefits greater investment in higher education may bring their states.

This variable will most likely be associated with differences between states and change in this category takes time to develop and states tend to maintain their differences.

### *Unified institutional control*

Unified institutional control (when one party controls both the upper and lower houses in the legislature) has been associated with greater policy innovation due to its removal of institutional and partisan roadblocks; it has also been linked to tax policy adoption and K-12 reform (Hansen, 1983; Mintrom & Vergari, 1998).

Rizzo (2005) found that uniparty governments preferred to fund K-12 education as opposed to higher education. The result did not depend on the specific party that was in control. This result is understandable—when both houses of legislature are controlled by the same party, the legislators may want to do the most politically desirable thing, which, according to Rizzo, is to increase state funding for K-12 education. As previously mentioned, this may occur at the expense of higher education. An additional theoretical reason for why unified state governments may be more willing to cut or withhold funding increases for higher education is that they are more able to react to exogenous shocks. When faced with income shocks, unified governments react quickly by adjusting state spending priorities. The opposite is true for divided state governments, which find it difficult to adjust to exogenous shocks. Unified governments may be quicker to cut higher education funding, especially during times of income shocks (Alt & Lowry, 1994). This is especially true considering higher education's susceptibility to trade-offs and sensitivity to the business cycle. During economic downturns, state governments must balance their budgets, and higher education tends to be an easy target for cuts. Likewise, unified governments may be more able to reduce or limit higher education's appropriation in order to fund the growing demand of Medicaid.

States frequently switch from being unified to not being unified and therefore this variable may be associated with differences and change within and between states.

### *Term limits*

One argument used by reformers who advocate term limits is that the limits will impose greater fiscal discipline on legislators. Part of the motivation for term limits has been dissatisfaction with professional legislatures and their spending habits. The argument, in brief, is that term-limited legislators would have fewer log rolling opportunities (a phrase used to describe trading of votes by legislative members to obtain passage of actions of interest to each legislative member), because the likelihood of log rolling increases with tenure. Log rolling has been associated with greater spending (Owings & Borck, 2000). Also, some argue that term limits would facilitate the election of state legislators who favor a more limited government.

However, there may be reason to believe that state spending for higher education may not be negatively affected by term limits and may actually benefit from them. In the only available study on higher education that included term limits as a predictor of state spending, term limits were found to have a positive effect. Because the direction of the coefficient was surprising and it was the first time term limits had been used as a predictor of state appropriations for higher education, the authors had a difficult time interpreting the result (McLendon, Hearn, & Mokher, 2006). There are good reasons to accept the finding as valid. The evidence to support the theoretical argument that term limits curtail spending has been mixed at best. While Bails and Tieslau's (2000) results indicated a reduction in total state and local spending as a result of term limits, Lopez's

(2003) review of the relevant literature found that the literature provides no conclusive evidence. He concluded that the “main practical weakness [of the argument that term limits result in less spending] is that term limits do not combat the single most important underlying force that increased both tenure, and perhaps, spending: term limits do not make legislators less ambitious, and do not attract a less ambitious set of candidates to office” (p. 43).

McLendon, Hearn, and Mokher (2006) posited that the positive result may be caused by term limited legislators, the principal, depending more on higher education, the agent, for the interpretation of information and data, especially that which is technically complex, like higher education finance. The argument here is that term limited legislators do not have the time in office to develop expertise in any one policy area and therefore they become more dependent on interest groups and others for information and expertise (Bails & Tieslau, 2000). This dependency may benefit the higher education sector as they may be able to offer more convincing arguments and have better control over the information and the interpretation offered. One major issue is that every interest, area, and sector competing for public dollars may benefit in the same way from this phenomenon and therefore it may lead to a general increase in spending and not reflect a special relationship with higher education.

Another argument made in regard to term limits is that they make elected officials more responsive to the citizenry, as they dampen the incumbency effect (Bails & Tieslau, 2000). If this is the case, term limits may curtail some spending and encourage other forms of spending. As discussed elsewhere, citizens generally favor state spending for

higher education. If legislators become more responsive to the state's citizens, then term limits may result in increased spending for higher education.

States have switched from having and not having term limits a surprising number of times and therefore this variable should be associated with differences between state and within states overtime in state support of higher education.

### *Governance structures*

Increased professionalism in state agencies and agency heads has been shown to lead to greater success in budgetary matters (Thompson & Felts, 1991). Likewise, agencies have become far more assertive (Thompson, 1987; Thompson & Felts, 1992; Wilson & Sylvia, 1993). This assertiveness has implications for the budgetary process, because the amount that the agency requests from the state government has a significant impact on the ultimate amount appropriated to the agency (Sharkansky, 1968). In addition, agency administrators have been shown to be among the most successful lobbyists within state political systems, and have been shown to impact state spending priorities (Elling, 1999; Gormley, 1996; Jacoby & Schneider, 2001). These findings can be applied to the effect different types of higher education governance may have on the amount appropriated to higher education.

All states have some sort of governance structure for higher education. However, the specific structure employed and the power granted to the structure differs from state to state. McGuinness (2003) developed a four-fold state governance typology based on (in descending order) strength of control: consolidated governing board, regulatory coordinating board, weak coordinating board, and planning agency. Consolidated



governing boards and regulatory coordinating boards possess direct control over the academic and fiscal affairs of campuses. Weak coordinating boards and planning agencies' authorities are limited to reviewing campus policies and making recommendations to the legislature or governor. In this second group of governance models, decision authority is less centralized, which allows individual campuses to have far more autonomy (McGuinness, 2003; McLendon, Heller, & Young, 2005).

Theoretically, a more powerful centralized board would have more resources and influence within state government. The greater the centralization, the more influence the structure has over the institutions. Generally, more centralized boards also represent more institutions, than do less centralized boards. Because of centralized boards' relatively significant powers, they may have more influence in the appropriations process. Therefore, states with centralized higher education governance structures may appropriate more money to higher education than states with less centralized governance structures. Furthermore, centralized governance structures may be more adept at protecting higher education from trade-offs. Lowry (2001) looked at a related issue and found that states with more governing boards appropriated less money to higher education. States with more governing boards generally have a less centralized state governance structure. Thus, Lowry concluded that it benefited higher education to speak with one voice.

With only a few exceptions change does not happen all that frequently in this area. This means that this variable will primarily be associated with differences between states. However, when change does occur to a governance structure by becoming more or

less centralized we can expect it to affect state funding of public higher education within the state.

### **Political culture**

Elazar (1984) developed what is perhaps the most popular classification of state political culture. He developed his measure by analyzing the historic migratory patterns of ethnic and religious groups and the general state orientation towards public policy. Elazar defined political culture as the “particular pattern of orientation to political action in which each political system is imbedded” (p. 9). The orientation may be found among the mass and political elite, it may affect their understanding of what politics is and what can be expected from government, influence the types of people who become active politics, influence the way that politics are practiced, and policy outcomes.

Elazar classified states into three categories: Moralistic, Individualistic, and Traditionalistic. 1) Moralistic states emphasize the care of the people (welfare programs, etc.), local government and programs, decentralized government, innovative activity, and the encouragement of popular participation. 2) Individualistic states emphasize the function of the marketplace, the encouragement of welfare programs for economic reasons, centralized decision making, innovation when there is demand, citizen participation is neither encouraged or discouraged, and the importance of political parties. 3) Traditionalistic states emphasize the maintenance of the status quo and the position of the elite, discouragement of welfare programs, centralized decision making, a lack of innovation, and a discouragement of popular participation (Elazar, 1984).

Sharkansky's (1969) operationalized Elazar's culture types with a numerical rating. The scale assigns to each state a culture rating, on a scale ranging from 1 to 9. In this scale, 1 is a pure moralistic culture, 5 a pure individualistic culture, 9 a pure traditionalistic culture, and the values between represent states with combinations of cultural types. The cultural types and Sharkansky's ratings have been shown to be fairly consistent over time, and Sharkansky's rating scale has been used in previous research with adequate results (e.g., Fitzpatrick & Hero, 1988; Koven & Mausloff, 2002; Morgan & Watson, 1991).

Even though the terms have been viewed as interchangeable, Erikson, Wright, and McIver (1987), showed that citizen ideology and political culture are two separate things. In fact, Sharkansky's adaptation of Elazar's political culture correlates with Berry's citizen ideology scale at  $-.48$  and with Erikson, Wright and McIver's at only  $-.14$  (in each case using 1980 data). The correlation coefficients indicate that ideology and political culture are two different things, or at least Sharkansky's scale and the two ideology scales are measuring different things. In each case a *t*-test indicates that they are statistically different from each other. The negative correlation coefficients makes sense in that moralistic states would seem have more in common with liberal citizens. It is important to note that political ideology in this case refers only to citizen ideology whereas political culture refers to the entire states' orientation to politics and government (the public and the policymakers).

Koven and Mausloff (2002) found that after controlling for relevant economic, political, and demographic variables, political culture exerted an independent impact on state and local spending. As expected, they found that states with more moralistic

cultures spent more generally. In addition they found that culture was directly correlated with educational and hospital spending. One policy study analysis found that political culture impacted state higher education policy in three states (Texas, California, and North Carolina), although they did not look at funding (Gittell & Kleiman, 2000).

French and Stanely (2005) found that higher per pupil funding for K-12 education was more associated with moralistic and individualistic subcultures and less with traditionalistic. This finding is logical, since a moralistic state would want to promote education because it is viewed as a public good. An individualistic state would want to promote education because it stimulates economic activity and provides individuals the opportunity to advance economically on his or her own. A traditionalistic state may not want to promote education because it threatens the status quo and possibly the elites' place in society. The same theoretical argument could also be made for higher education funding; therefore, elevated funding levels for higher education may be associated with moralistic and individualistic states. Because moralistic states tend to spend more freely, they may also be less likely to engage in trade-off behavior.

Theoretically there should be fairly consistent differences between states when it comes to political culture, with slow change within states. Therefore this variable should be associated with differences between states and long term trajectories within states.

### **Attributes of the policymakers**

#### ***Party of the governor***

Another aspect of the governor that may impact state higher education appropriations is his or her party affiliation. Studies have shown that a relationship exists

between party strength in governmental institutions and the policy posture of the state. For instance, market-oriented policies have been associated with Republicans, and greater spending on education has been associated with Democrats (McLendon, Hearn, & Deaton, 2004). Likewise, different spending priorities have been associated with shifts in partisan control of the governorship (Garand, 1985). Alt and Lowry (1994), for example, found that Democrats tend to tax more heavily and spend more liberally. In regard to higher education, the governor may have the ability to funnel more money to higher education relative to other funding areas. Perhaps a Democratic governor would be more willing to do so.

However, the evidence has been somewhat mixed in whether a positive relationship exists between state spending on higher education and Democratic control of the executive branch. Kane, Orszag, and Gunter (2003, p. 11) found that increases in higher education appropriations as a percentage of GSP and per capita were associated with Democratic control, though the coefficient was not significant by conventional standards. Likewise, Archibald and Feldman (2004) found that a sitting Democratic governor was positively associated with state higher education appropriations per \$1,000 personal income after 1980, but had a negative affect before 1980. The picture is further confused when one considers that Bailey, Rom, and Taylor (2004) found no relationship between Democratic control of government and the level of state appropriation per student and per capita, except for a negative relationship in the South. Most recently, McLendon, Hearn, and Mokher (2006) found that a Democratic governor was positively associated with appropriations per \$1,000 personal income.

From a theoretical perspective, the idea of trade-offs provides another reason to hypothesize that a Democratic governor may be associated with greater funding appropriations for higher education. As noted before, increased spending and taxation have been associated with Democratic control of the state. This may make trade-offs less likely, because when spending and taxation are expanded, there is less reason to draw from higher education to fund other areas. Therefore, whether Democrats view higher education more favorably is not the only important issue. It may be that they just do not take from higher education's coffers, or limit its increase, in order to fund other areas. This study may shed greater light on the issue.

Because switches in party control of the governorship happen fairly regularly this variable should be associated with change within and between states.

### *Party of the legislature*

A related concept is the party of the legislature. As in the case of the governor, different spending priorities have been associated with shifts in partisan control of the state legislature (Alt & Lowry, 1994; Garand, 1985). Kane, Orszag and Gunter (2003, p. 11) found that increases in higher education appropriations as a percentage of GSP and per capita were significantly associated with Democratic control of the house and senate. Archibald and Feldman (2004) found that the effects of having a Democratic majority in the lower house yielded the same results as having a Democratic governor, although in the upper house a Democratic majority was consistently associated with increased funding for higher education. Again, Bailey, Rom, and Taylor (2004) found no relationship between Democratic control of government and the level of state

appropriation per student and per capita, except in the South, where they found a negative relationship. The weight of the evidence indicates that it can reasonably hypothesize that a Democratic majority in the legislature will be associated with increased appropriations for higher education. Again, as noted before, higher spending and taxation has been associated with Democratic control; therefore, trade-offs with higher education may be less likely, because as spending and taxation is expanded, the need to draw from higher education to fund other areas is lessened.

The dominate party in the legislature is fairly consistent in some states and changes more frequently in others and therefore we should expect this variable to be associated with both differences between states and change within states.

### **Interaction terms**

State higher education governance structures act as boundary spanning organizations in that they interact with higher education institutions and also interact with, and in some cases serve as agents of, state government. Since governance structures sit at the boundary of government and higher education institutions they may condition the effect various other political factors or actors have on state support of higher education.

Adams (1976) listed five types of boundary spanning activity as: filtering, transacting, buffering, representing, and protecting. A governance structure may filter the information that is shared between higher education and state government. In its weaker forms a governance structure may also serve as only an information sharing entity or exist solely to facilitate transactions between state government and the higher education

sector. More powerful structures may actually serve as a buffer to other political actors interests. Some governance structures may represent and/or protect either the institutions or state government, and therefore work for the interests of one or the other. Most frequently, especially in the case of more centralized and powerful governance structures, the structure will engage in several of these activities. Each of these activities may affect how other institutions approach supporting higher education.

How effective the structure is in carrying out any of the roles offered by Adams (1976) may depend on its own resources. A possible measure of the institutional resources a governance structures has may be the centrality of the structure as defined by McGuinness (2003) and described earlier. For example, as a governance structure increases in power and influence other political actors and institution may have less direct influence on state policy for higher education. Therefore, a highly centralized structure may buffer the effect other political institutions have on higher education spending. State governance structures may also magnify the effect of institutional actors when the actors are attempting to do something that is inline with the structure's preferences and the centralized structure is able to use its resources to help accomplish their common goal. In both of these examples the governance structure is conditioning the effect of other political actors.

Because of the possible conditioning affect of state higher education governance structures, the impact other actors have on state support of higher education may depend on the nature of the governance structure itself. Therefore, it is not adequate alone to examine the influence individual actors and institutions have on state support of higher education net the influence of state governance structures. Instead, the impact of the



actual relationship between the political actors and the governance structures should also be examined.

How would the effect of the governor differ when she or he is operating under a less centralized higher education governance structure versus a centralized structure? Likewise, as a boundary organization does the governance structure condition the influence of other political actors such as the legislator and interests groups?

One way to explore these complex relationships is to use interaction terms so that the effect of two, or more, variables are not simply additive; instead the effect of one variable depends on the value of another. Interaction terms are computed by multiplying the two main effect terms by each other.

### ***Governance structure \* budget powers of the governor***

Independent of the governance structure (the boundary institution), the governor may use her or his budgetary powers to divert money away from higher education, however the power of the governor may be conditioned by the boundary institution, and in the case of stronger or more centralized state higher education governance structures the governor's effect may be further conditioned compared to states with less centralized institutions. The centralized governance structure may have the ability to influence the governor to increase his or her support of higher education and may provide the governor with additional resources in order to accomplish that goal. The governance structure controls much of the information that is shared with the governor and serves as the link between the governor and the higher education institutions. Because of this relationship a more centralized governance structure (one with more resources, autonomy, and control

over higher education institutions) may be able to effectively advocate for increased funding. In this case the structure is acting as a protector and representor for higher education. Of course this is assuming that the governance structure would support more resources for higher education.

***Governance structure \* higher education interest group ratio***

More centralized higher education governance structures may magnify the influence of higher education interest groups. One reason for this may be that when the higher education lobby is large relative to the rest of the state lobby, the more centralized governance structures may provide greater access to, and influence on, the governor's office and state legislators. As a relatively large higher education lobby interacts with a centralized governance structure, the governance structure may serve as a vehicle of influence for the higher education sector, therefore magnifying the affect of the higher education lobby.

***Governance structure \* higher education interest density***

The opposite may be true when it comes to interest group density where the governance structure may serve as a buffer, limiting the influence of the interest groups to effectively divert money to their cause. As the structure magnifies the influence of the higher education interest groups it would in turn be protecting higher education from other interest groups.

### ***Governance structure \* party of the legislature***

Democratic controlled legislatures have been found to spend more than Republican controlled legislatures, and to be more willing to spend on social programs and education. This being the case a more centralized governance structure may influence Democratic legislatures to direct more of those funds towards higher education. The reason for this may be that more centralized governance structures have more resources at their disposal and can use those resources to sway the legislature. The centralized governance structure may be better able to make the case for why higher education would need increased state support relative to other spending areas. In so doing the governance structure is acting as a representor and protector of the higher education institutions.

### **State higher education factors**

Several higher education factors, or attributes of higher education within the states, have been shown to impact state funding of higher education. These include the share of higher education enrollments in private higher education, the share of higher education enrollments in two-year institutions, whether a state employs a higher education funding formula, the average in-state tuition, and the total giving to public research universities.

### ***Enrollments***

Theoretically, as total enrollment rises in public four-year institutions, states will feel pressured to increase funding in order to maintain quality and to remain competitive. The findings of several studies support this notion (Hossler et al., 1997; McLendon,

Hearn, & Mokher, 2006; Rizzo, 2005). However, total enrollments in public higher education cannot be included on the left side of the model directly, as increased funding may result in increased enrollments; therefore, the pressure of enrollments on state policymakers must be measured in other ways. The opposite may be true for enrollments in two-year and private higher education. Two-year institutions offer educational services at a lower cost, and private higher education generally receives little to no direct state funding. States with a higher proportion of students in private colleges and universities will experience less demand for public higher education and will view public higher education as a lower priority, compared to other states with small private sectors. Likewise, as more students enroll in two-year institutions, the demand for state funds will diminish because the states will be able to educate more students at a lower cost. Support for these arguments is provided by past studies which found confirming evidence (McLendon, Hearn, & Mokher, 2006; Rizzo, 2005).

### *Higher education funding formula*

Higher education funding formulas are developed at the state level in order to provide some sort of mechanism by which to fund higher education. They have been defined by Marks and Caruthers (1999) as a system that “links resources mathematically to an institution’s characteristics,” (p. 5) These formulae generally include an inflation index, adjustment for enrollment increases and decreases, and they generally incorporate calculations for instruction, academic support, research, public service, and other functional areas. However, Deaton (2004) indicated that “Modeling, through a formula,

the vast and complex enterprise of a higher education system is a daunting task, and there is simply no universally preferred method” (p.3).

While the effect of funding formulae on state appropriations for higher education has received almost no attention in the scholarly literature, many states have adopted a formulaic approach to funding higher education. Funding formulae have been instituted in as many as 38 states to assist states in setting higher education appropriations levels and to ensure institutional funding continuity by linking state funding to enrollments based on predefined ratios and expenditure rates (MGT of America, 2007). This does not mean that states with funding formulae have predictable funding levels—quite the contrary. The determination of the funding formulae themselves has become part of the political process, as opposed to the direct determination of funding levels. In addition, these formulae are not binding, as actual appropriations can vary from the prescribed amounts. Often the formula does not cover the entire appropriation. Nevertheless, because the formulae are tied to enrollments and the prior year’s level of funding, one can expect that states with funding formulae will react more dramatically to changes in enrollment pressures and less to various economic and demographic pressures. Thus, states that employ funding formulae may do a better job at insulating higher education from the budget axe than nonformula states. Since enrollments have remained fairly static or have increased in most states, funding formulae may be predicted to have a positive effect on higher education funding, as Leslie and Ramey (1986) and Rizzo (2000) have found.

### *Average in-state tuition*

Recently it seems that many states have been adopting a more market-based approach to public higher education (Geiger, 2004; Hossler et al., 1997; McLendon, Hearn, & Mokher, 2006; Rizzo, 2005), meaning that they depend more on tuition and other funding sources and less on state financing. Therefore, as tuition increases, states may be inclined to decrease appropriations. States may also penalize institutions for increasing tuition through a decrease in their appropriations.

### *Total giving to public research universities*

For similar reasons, increases in private giving may also be expected to lead to decreases in state funding as states view increases in alternative forms of revenue as an opportunity to shift the burden away from public financing of higher education (Rizzo, 2005).

### **Economic and demographic**

The effect of economic and demographic variables on state higher education funding has been well established in the literature (e.g., Archibald & Feldman, 2004; Hossler et al., 1997; Kane, Orszag, and Gunter, 2003; Lowry, 2001; McLendon, Hearn, & Mokher, 2006; Rizzo, 2005; Toutkoushian & Hollis, 1998). The variables included in this study have been shown to be significant predictors of state funding for higher education. The variables are income inequality, unemployment, the proportion of the population below the eligible Pell grant level, gross state product per capita, and share of the a state's population by age range.

### ***Income inequality***

It may be the case that states with less equal income distributions may be more generous towards higher education. Fernandez and Rogerson (1995) found that increases in the level of income inequality make it more likely that poorer individuals are excluded from obtaining an education, while at the same time their tax payments help offset the cost of education obtained by others. Previous research by Hansen and Weisbrod (1969), Windham (1970), UNESCO (2003), and Rizzo (2005) suggest that the economic middle and upper class have been able to shift income toward itself in the political process using the higher education finance system. If it is the case that the structure of state higher education systems effectively redistributes income to the upper and upper middle class, then one expects to find states with wide income distributions disproportionately supporting public higher education.

### ***Recessions***

Past research has shown that state support of higher education is very responsive to the business cycle. National recessions have been shown to negatively affect state support. When the economy is bad, states will reduce funding to higher education in order to balance the budget (Delaney & Doyle, 2004; Hovey, 1999; Humphreys, 2000; Rizzo, 2005; SHEEO, 2006).

### ***Unemployment***

States with higher unemployment may appropriate relatively less to higher education because they may have and/or anticipate weaker economies that may be less able to fund

areas such as higher education (Lowry, 2001; McLendon, Hearn, & Mokher, 2006; Toutkoushian & Hollis, 1998). From a trade-off perspective anytime the economy is weak and/or there is less tax revenue, such as when there is high unemployment, elected officials will be inclined to take from higher education in order to support other areas that are less able or unable to generate alternative forms of revenue.

### ***Proportion of the population below the eligible Pell grant level***

Rizzo (2005) found that states with a large proportion of the population below the eligible Pell grant level were less generous towards higher education. There are several possible reasons why this may be expected. The first among these reasons follows the same logic as the argument in regard to income inequality. States with a larger poor population may be less inclined to support higher education, as it is seen as primarily benefiting the rich. Second, states with high proportions of poor may not have adequate tax bases to support higher education, and third, such states may have other priorities such as Medicaid and other assistance programs.

### ***Gross state product per capita***

Delaney and Doyle (2004) found that higher education funding is uniquely sensitive to the economic situation of the states. Higher education funding has been found to climb as the economy improves and to fall when the economy declines. In particular, Cohen and Noll (1998) and Rizzo (2005) have found that the gross state product has a significant positive influence on state funding of higher education. When the GSP is high, policymakers may anticipate improved tax revenue and may have more funds to



appropriate immediately. Taxpayers themselves may also be more willing to tolerate increased appropriations if the state's economy is viewed as being strong.

### *Share of the state's population age range*

Changes in a state's population shares may impact funding for higher education. Certainly, different age ranges place varied pressures on a state's budget. A state with a large college-age population may be more concerned with funding higher education, as the demand is high. A state with a large elderly population may find greater demand for budgetary areas such as Medicaid. Also, from the median voter's perspective, elected officials may seek to bring benefits to these constituencies if they account for a large share of the population (McLendon, Hearn, & Mokher, 2006; Rizzo, 2005).

### **Hypotheses**

The conceptual and theoretical arguments discussed above lead naturally to testable hypotheses. This section begins with a general hypothesis that guides this study, and then offers specific hypotheses for each of the possible influences discussed above.

This study hypothesizes that:

**H1:** Variation in the state political context results in variation in state support of higher education.

In regards to the specific variables that comprise the state political context construct, this study hypothesizes that (in regard to appropriations per \$1,000 personal income and higher education's share of general fund expenditures):

**Table 3.1:** Political Hypotheses

Conceptual Category	Variable	Effect on Dependent
<b>Interest Groups</b>	Interest Group Density	-
	HI ED Interest Group Ratio	+
<b>Mass Political Attributes</b>	Political Ideology	+
	Electoral Competition	+
	Voter Turnout	+
<b>Govt. Institutions</b>	Budget Power of Governor	-
	Legislative Professionalism	+
	Uni-Party Legislature	-
	Term Limits	+
	Hi Ed Governance Structure	+
<b>Political Culture</b>	Political Culture	-
<b>Attributes of Policymakers</b>	Party of Governor	+
	Party of Legislature	+

**Table 3.2:** Interaction Hypotheses

Interaction Variable	Effect on Dependent
Gov Struct * Budget Pow of the Gov	+
Gov Struct * Interest Ratio	+
Gov Struct * Interest Density	+
Gov Struct * Party of Leg	+

**H2:** Variation in states' higher education sectors will impact state support of higher education.

In regard to the specific variables that make up this construct this study hypothesizes that:

**Table 3.3:** HI ED Hypotheses

Variable	Effect on Dependent
% Enroll Private HI ED	-
% Enroll 2 Year HI ED	-
Funding Formula	+
Giving to Public Universities per FTE	-
Log Tuition	-

**H3:** Variation in states' economies and demographics will impact state support of higher education.

In regard to the specific variables that make up this construct this study hypothesizes that:

**Table 3.4:** Econ and Dem Hypotheses

Variable	Effect on Dependent
% Pop. College Age	+
% Pop. Elderly	-
Gini Coefficient	+
Log GSP Per Capita	+
% of the Pop. Below Pell Level	-
Recessionary Year Lagged	-
State Unemployment	-
Log Spending on Medicaid	-

**H4:** Budgetary trade-offs will happen between higher education and other state budgetary areas.

In regard to the specific variables that make up this construct this study hypothesizes that:

**Table 3.5:** Trade-Off Hypotheses

<b>Budgetary Area</b>	<b>Higher Education's Effect on</b>	<b>Effect on Higher Education</b>
<b>Public Assistance</b>	-	-
<b>Corrections</b>	-	No Effect
<b>K-12 Education</b>	No Effect	-
<b>Medicaid</b>	No Effect	-
<b>Transportation</b>	-	No Effect

**H5:** Higher education will be the most susceptible to political influences (more political variables will significantly affect higher education than any of the other budgetary areas).

**H6:** Higher education will engage in trade-off behavior with more budgetary areas than any of the rest of the state expenditure areas.

## Chapter 4

### Variables, Research Design, Methods, and Limitations

This chapter outlines the variable construction and data collection. It then outlines the research design, methods and limitations of the study.

#### Variables

This section provides a listing of the variables included in this study and also a detailed description of a few of the variables that warrant further explanation. Appendix A provides a description of all of the variables and each variable's data source.

#### Dependent variables

This study includes several models employing different dependent variables. The first dependent variable is state appropriations per \$1000 personal income (here after referred to HI ED Effort). The second is the share of state general fund expenditure devoted to higher education (here after referred to HI ED Share).

One of the significant difficulties in studying state funding of higher education is that multiple measures of state funding exist, though as of yet there is no consensus as to which measure should be employed and under what circumstances.

Policy analysts and researchers rely primarily on three sources of state funding of higher education for their analysis.<sup>2</sup> These measures are the National Association of State

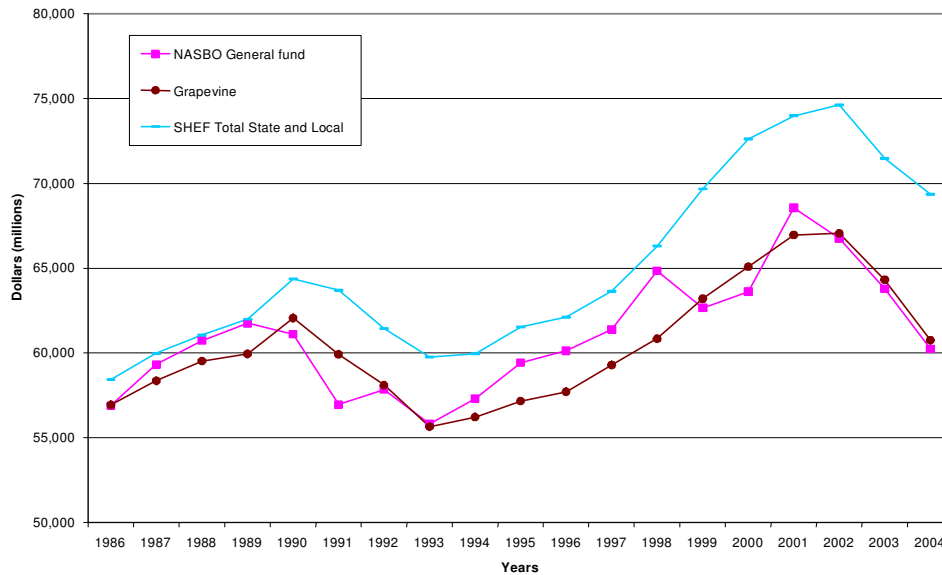
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<sup>2</sup> Another available data source for state funding of higher education is the Integrated Postsecondary Education Data System (IPEDS) of the National Center for Education Statistics. For institutional comparisons, the IPEDS data source is very useful, since you can extract data on capital funds, financial aid, and other line items. However, because of reliability concerns and the sheer effort required to make

Budget Officers (NASBO) *State Expenditure Reports*, the Grapevine *Annual Compilation of State Tax Appropriations for the General Operations of Higher Education*, and the State Higher Education Executive Officers *State Higher Education Finance* (SHEF) report. NASBO collects higher education expenditure data as part of its annual *State Expenditure Report*. The *Expenditure Report* includes state spending on all major state expenditure areas since 1986. Grapevine data are collected by The Center for the Study of Education Policy at the Illinois State University and reports data back to 1961. The *State Higher Education Finance* (SHEF) data are collected by State Higher Education Executive Officers (SHEEO). SHEF builds directly on a 25-year effort by Kent Halstead and reports data from 1980. Analysts have also relied on census data for state support of higher education and general state expenditures. However, recently NASBO, Grapevine, and SHEF have become more popular sources for data on state support of higher education. The measures report similar amounts and trends for state support of higher education (See Figure 4.1)

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cross-state comparisons over time, these data are seldom used as a measure of state funding of higher education in national or other large-scale studies.

**Figure 4.1:** Higher Education Funding Measures (Constant U.S.)

Sources: SHEEO-SHEF, NASBO, & Grapevine; Adjusted by HECA

The SHEF data use the Grapevine data as its base but also includes non-appropriated and non-tax support, which includes lottery funds, oil and mineral fees, and tobacco settlements. While SHEF provides the most complete picture of state support of higher education, I am interested in only the discretionary spending of tax dollars on public higher education; therefore, the SHEF data are not appropriate for this study.

### *HI ED Effort*

The NASBO data isolate the discretionary portion of the state budget better than the SHEF data, however, it is less reliable and it varies more year to year than either the SHEF or the Grapevine data. It has also been collected for the least amount of time (since 1985). Hence, the information I use to construct my first dependent variable (HI ED Effort) is the Grapevine and Bureau of Economic Analysis data, accessed from *Postsecondary Education Opportunity* (Mortenson, 2005). Grapevine makes great efforts to capture the most discretionary portion of state higher education budgets. The data do

not include appropriations for capital outlays and debt service, or appropriations from monies derived from federal sources, student tuition or fees, auxiliary enterprises and other non-tax sources. Because I want to capture the allocation of tax dollars to higher education, the best source is Grapevine. The Grapevine data has also been collected since 1961.

The data available from *Postsecondary Education Opportunity* needed some adjustment in order to make it useable. Because the data on the website is only updated periodically and the Grapevine data includes appropriations for the upcoming year, whereas the Bureau data only reflects the last year's information, postsecondary.org uses a two year lag for its income data. For example, it matches 2004 higher education appropriations figures with 2002 income figures. This is easily amended by downloading the most current data from the Bureau of Economic Analysis website and updating the postsecondary.org income data.

The Grapevine data was also adjusted prior to usage. Because this study is only interested in state funding of public higher education and Grapevine includes state funding of private higher education, those dollars needed to be subtracted. Luckily, Grapevine includes a fairly detailed description of how each state spent its money for higher education and how it was allocated. Therefore, for each state year, any dollars that were directed to private higher education were subtracted—a fairly arduous task, but an important one.

HI ED Effort was used instead of unadjusted appropriation levels because it controls for state resources and provides a means of measuring and assessing how willing a state is to commit its potential tax resources to higher education.



### *HI ED Share*

To determine higher education's share of state general fund expenditures (HI ED Share) I use NASBO data, because NASBO uses similar criteria in determining what is classified as higher education general fund expenditure versus total general fund expenditures. NASBO also collects data on each of the other major general fund expenditure areas. The NASBO data separates capital expenditures from basic general fund expenditures, and also separates federal reimbursements, which can be substantial and can greatly inflate the amount states are spending if not separated. I also use the same criteria in determining total general fund expenditures and therefore similar data is available for both sides of the equation.

NASBO collects data on state expenditures instead of appropriations. Expenditures are what states actually spent, while appropriations are the amount of money set aside for a specific budgetary to spend. The amounts can and do vary. Grapevine, on the other hand, measures higher education appropriations. An alternative source for the data is the *Statistical Abstracts of the United States* available from the U.S. Census Bureau, however the Census data record expenditures, and therefore it would not be appropriate to use the Grapevine data in tandem with the Census general fund expenditure data or the NASBO general fund expenditure data. Further, the Census data include capital expenditures which Grapevine and NASBO do not, and the census data do not subtract federal reimbursements. Therefore, the only reasonable source for higher education's share of state general fund expenditures is the NASBO data. Because NASBO collects data for the other major state budgetary areas included in the trade-off

models, for comparison purposes, it is most sensible to use the NASBO data for each of the budgetary areas.

HI ED Share was used as a way of measuring and assessing how supportive states are of higher education relative to the rest of the general fund expenditures areas. It also provides a means of assessing and measuring budgetary trade-off behavior within states.

### **Independent variables**

As indicated earlier, the political variables included in this study are the higher education interest group ratio, interest group density, citizen ideology, electoral competition, voter turnout, budget powers for the governor, legislative professionalism, unified institutional control, term limits, higher education governance structure, political culture, party of the governor, and the dominant party of the legislature. Interaction terms will be created by multiplying the state higher education governance structures variable by budget powers of the governor, the interest groups variables, and dominate party of the legislature.

The economic and demographic control variables to be included have been drawn from past studies of state higher education appropriations and have been shown to have a significant impact on the amount appropriated to higher education (Archibald & Feldman, 2004; Kane, Orszag, & Gunter, 2003; Rizzo, 2005; McLendon, Hearn, & Mokher, 2006). The specific variables included are the share of the population age 18–24 (college age), the share of population >65 years old (elderly), the Gini coefficient, a measure of inequality (generally economic inequality), the gross state product per capita,

the percentage of the population below Pell grant level, a lagged dummy variable for a recessionary year, unemployment, and spending on Medicaid.

The higher education sector variables include the percentage enrolled in private higher education, the percentage enrolled in two-year colleges, a dummy variable indicating if a state uses a funding formula for higher education, giving to public research universities per FTE, and the average in-state four-year tuition.

The other state general fund budgetary areas include public assistance, corrections, K-12 education, Medicaid, and transportation expenditures.

### **Independent variable construction and description**

Some of the political variables deserve specific mention in regard to their construction beyond what was discussed in the conceptual framework section. A description of the other variables not discussed here can be found in Appendix A.

#### ***Interest groups***

The higher education interest ratio variable is constructed by dividing the total number of state higher education institutions and registered non-college or -university higher education interest groups by the total number of interest groups in the state, minus any registered colleges and universities or other registered higher education interests groups that may lobby for more money for higher education. The interest group density measure is constructed by taking the total number of registered interest groups minus the total number of registered higher education interest groups. The interest group data has been retrieved from state websites and government archives, from the Council

on Governmental Ethics Laws (CGEL) *Blue Book* (various years), and data provided by Lowery. Data on the number of public institutions were retrieved from the National Center for Education Statistics' *Digest of Education Statistics*. The higher education interest ratio is the first such variable constructed. This measure allows researchers to understand and analyze the impact of higher education lobbying on state politics and policy. The interest group density measure is the longest and most complete measure available.

### ***Citizen ideology***

Berry, Ringquist, Fording, and Hanson (1998) measure citizen ideology by identifying the ideological position of each member of Congress in each year, using interest group ratings. Next, they estimate citizen ideology in each district (both house and senate districts) of a state using the ideology score for the district's incumbent, the estimated score for a challenger (or hypothetical challenger) to the incumbent, and election results that presumably reflect ideological divisions in the electorate. Finally, the authors use the citizen ideology scores for each district to compute an unweighted average for the state as a whole. The authors have updated their measure to cover 1960–2005.

### ***Electoral competition***

Holbrook and Van Dunk's (1993) measure of electoral competition is based on several indicators of district level competition. First, the percentage of the popular vote won by the winning candidate; second, the winning candidate's margin of victory; third,

whether the seat is “safe” (the authors conceptualize “safe” as a seat won by 55% or more); and fourth, whether the race was contested. The complete absence of competition is indicated by a score of zero. The scale increases from 0 to 100, although a score of 100 is theoretically impossible as long as someone wins the election. The problem with this measure is that it has only been updated to 1992. Because of this issue a proxy was used. A predictive model was developed that included Ranney’s interparty competition score, the original cross-sectional measure of electoral competition, the party of the governor, the party of the legislature, whether a state has term limits, political culture, interest group density, the Gini coefficient, the percentage of the population that is elderly, the gross state product per capita, unemployment, legislative professionalism, and a dummy variable indicating years that included a recession. The *R* square of the predictive model is .63 and is correlated with the original measure at .77.

### ***Budget powers of the governor***

One measure of budget powers of the governor was developed by Barrilleaux and Berkman (2003) and is a scale composed of seven items. However, the index is a cross-sectional one and only measures the governors’ budgetary powers for 1990.

Beyle uses data on governors’ budget powers to develop his overall measure of gubernatorial powers, though his index of budget powers has a critical data error that makes it unfit for use. It shows a systematic decrease in governors’ budgetary powers across almost every state in 1994. Governors’ powers did not decrease in that manner, nor did state legislatures’ powers increase in that manner. Therefore, the data is not useable.

Because of these issues, a new index was developed. This index closely resembles the one developed by Barrilleaux and Berkman. It is a scale of 0 to 7 and includes data from 1976–2004 across all 50 states. The items included are whether state agencies make requests directly to the governor or to the legislature; whether the executive budget document is the working copy for legislation or if the legislature can introduce budget bills of its own, or whether the legislature or the executive introduces another document later in the process; whether the governor can reorganize departments without legislative approval; whether revenue estimates are made by the governor, the legislature, or another agency, or if the process is shared; whether revenue revisions are made by the governor, the legislature, or another agency, or if the process is shared; whether the governor has the line item veto; and whether the legislature can override the line item veto by a simple majority. Each of these has a value of 0 or 1. The 1990 data correlates with the Barrilleaux and Berkman data at .76. The sources for the data are Council of State Governments' *The Book of the States*, the National Association of State Budget Officers' *Budget Processes of the States*, and The National Conference of State Legislatures data (various years). The variable constructed for this study is the first truly time series measure of governors' budget powers available, which enable cross sectional time series analysis and a more precise measure of the budgetary powers of the governor.

### ***Legislative professionalism***

This study is interested in specific characteristics and behavior of the memberships of state legislatures. Thus, legislative professionalism will be measured using legislative salary (Barrilleaux & Berkman, 2003) which has been found to indicate

important characteristics of the membership (Carey, Niemi, & Powell, 2000; Fiorina, 1994). Some past studies have used a composite index score in order to develop a measure of legislative professionalism (Squire, 1992). These indexes tend to emphasize various institutional characteristics, which are at least partially accounted for by other measures included in this study, as opposed to individual characteristics and behavior. Either way, the composite scores and legislative salary are highly correlated with each other (.86) for the specific years in which the composite scores exist.

Another reason to use legislative salary as a measure of legislative professionalism is that the data is available for every year covered by this study, whereas the composite scores have only been constructed for various specific years (1963-64 fiscal year, 1973-74 fiscal year, 1983-84 fiscal year, 1988, 1993-94 fiscal year, 1996, and 2002) (King, 2000; Squire, 1992; Squire, 2000; McLendon, Hearn, & Mokher). Therefore, if the composite score were to be used much of the year to year variance would be lost as the data would have to be stretched over the periods of missing data. Likewise, one would be unable to target the specific year in which a change took place. Since the two measures are so highly correlated it makes better sense to use the time series measure (legislative salary).

### ***Higher education governance structures***

McGuinness (2003) developed a four-fold state governance typology which is as follows (in descending order of strength of control): consolidated governing board, regulatory coordinating board, weak coordinating board, and planning agency. This study employs his metric. Consolidated governing boards are coded 4, coordinating boards are

coded 3, weak coordinating boards (advising) are coded 2, and planning agencies are coded 1. Coding reflects the year a transition from one type of governance structure to another occurred. Data were gathered from the Education Commission of the States' (ECS) website; ECS's *State Postsecondary Education Structures Handbook* and *State Postsecondary Education Profiles Handbook: 1969–2003*; from Gabriel Kaplan, who developed a similar measure for his dissertation; and with input from McGuinness. Using the written state governance descriptions for each individual state provided in the Handbooks and on the ECS website the coding reflects the year a transition from one type of governance structure to another happened. The variable constructed for this study is one of the few if not the only time series measures of state higher education governance structures to actually code the year a transition happened, allowing for time series analysis and a more precise measure of higher education governance.

### ***Political culture***

The most popular operationalization of Elazar's political culture was developed by Sharkansky (1969). His scale assigns each state a culture rating on a scale ranging from 1 to 9. In this scale, 1 is a pure moralistic culture, 5 a pure individualistic culture, 9 a pure traditionalistic culture, and the values in between represent states with combinations of cultural types. Sharkansky's rating scale has been used in previous research with adequate results (e.g., Fitzpatrick & Hero, 1988; Koven & Mausloff, 2002; Morgan & Watson, 1991). However Sharkansky's measure is cross-sectional and data is not readily available to develop time-series measures for all 50 states, which is essential if a fixed effects model is to be used.



For this study Elazar's culture types will be operationalized using a time-series version of a measure developed by Hero and Tolbert (1996). Using data from the 1980 *The Statistical Abstracts of the United States*, Hero and Tolbert developed a cross-sectional ratio of each state's minority population compared to the dominant white population. Their index was computed using Equation 4.1:

**Equation 4.1:** Political Culture

$$\text{Minority Diversity} = 1 - \frac{(\% \text{Latino population})^2 + (\% \text{Black population})^2}{(\% \text{White population})^2 + (\% \text{Asian population})^2}$$

The authors found that the minority diversity index was closely correlated with Elazar's political culture. They noted that of the lowest one third of states on their minority diversity scale, 38% are pure moralistic states, 75% have moralism as their dominant or predominant culture, and 94% have some component of moralism present. They go on to note that of the middle one third, 50% have individualism as their dominant or predominant culture, and 75% have some element of individualism. Of the top states in minority diversity, 38% are purely traditionalistic and 70% have traditionalism as their primary cultural influence. I also found that it is closely correlated with Sharkansky's measure (.7).

While Elazar contended that the political subcultures of a state are derived from a state's dominant ethnic and religious groups, Hero and Tolbert (1996) contend that much of what influences state politics is racial/ethnic diversity, and that this diversity may be driving the political culture in the state. They argue that the political culture categories tend to parallel their diversity typology—noting that homogeneous states are moralistic, heterogeneous states tend to be individualistic, and that bifurcated states tend to be traditionalistic. Hero and Tolbert argue that their index is more clear, precise, and

dynamic than what has been offered in regard to political culture in the past, primarily because the alternatives have ignored recent and older minority groups.

For this study, Hero and Tolbert's (1996) index is used and extended to include every year from 1976–2004. Conceptually, it makes sense to create a time-series measure of state political culture. While others have argued that political culture is fairly static, they have ignored that fact that Elazar himself allowed for states to move from one categorization to another, as a close inspection of the various editions of his books reveals. Because political culture, according to Elazar, is a product of the migration patterns of ethnic and religious groups, political culture will change as populations change. It makes sense to argue that the changes in the racial/ethnic diversity within a state would most likely resemble the changes in a state's religious and ethnic groups. Therefore, it also seems logical to assume that a time-series measure of racial/ethnic diversity that correlates very closely in 1980 with political culture would mirror the changes over time in a state's political culture as conceived by Elazar. This variable is the first time series measure of state political culture, again allowing for time series analysis and a more precise understanding political culture.

### *Income inequality/Gini coefficient*

The Gini coefficient is a measure of inequality of a distribution, and is defined as a ratio. The numerator is the area between the Lorenz curve (the cumulative distribution function of a probability distribution) of the distribution and the uniform (perfect) distribution line; the denominator is the area under the uniform distribution line (Dorfman, 1979). The Gini coefficient is often used as an income inequality metric,

which is the way it is used here. Zero corresponds to perfect income equality (i.e., everyone has the same income), and 1 corresponds to perfect income inequality (i.e., one person has all the income, while everyone else has no income). The source for these data is the U.S. Census Bureau's *Current Population Survey*, 1977-2005.

The remainder of the variables should not require extensive description. Again, for variable names, brief descriptions, and sources, see Appendix A; for general descriptions, see the appropriate sub-section under the Conceptual Framework section. Table 4.1 shows the summary statistics for the variables included in this study.

**Table 4.1: Descriptive Statistics**

<b>Conceptual Area</b>	<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>
Dependent	Higher Education Funding Per \$1,000 Personal Income	8.368509	2.647797
	HI ED's Share of State General Fund Expenditures*	0.1514055	0.05261
Interests	Interest Group Density	583.4762	471.321
	HI ED Interest Group Ratio	0.0680374	0.0506211
Mass Political Attributes	Citizen Ideology	47.09118	15.17208
	Electoral Competition	28.03751	22.01888
	Voter Turnout	44.56299	11.40008
Government Institutions	Budget Powers of the Governor	3.975862	1.265253
	Legislative Professionalism	22643.78	22139.73
	Uni Party Legislature	0.4855172	0.4999626
	Term Limits	0.1586207	0.365448
	HI ED Governance Structure	3.273103	0.8281833
Political Culture	Political Culture	0.0038071	0.1670622
Attributes of Policymakers	Party of Governor	0.5482069	0.4935193
	Party of Legislature	57.98286	17.57316
Higher Education Sector	% Enrolled in Private HI ED	0.2063535	0.1235337
	% Enrolled in Private HI ED	0.2978811	0.1449713
	Funding Formula	0.6682759	0.4709949
	Giving to Public Research Univ. per FTE	1410.379	1417.868
	Average Public 4 Year Tuition	2.613691	1.230948
Economic and Demographic	% Population College Age	12.14946	1.923293
	% Population Elderly	12.84329	2.302563
	Gini Coefficient	0.4205594	0.0309948
	GSP Per Capita	26410.08	7445.221
	% of the Population Below Pell Grant Level	39.14351	23.34723
	Recessionary Year	0.2068966	0.4052204
	Unemployment	6.040855	2.045494
	Spending on Medicaid	1.06E+09	1.97E+09
Other Budgetary Areas	Assistance's Share of State General Fund Expenditures*	0.0331373	0.0971134
	Corrections' Share of State General Fund Expenditures*	0.0647086	0.0872876
	K-12's Share of State General Fund Expenditures*	0.3848995	0.4708568
	Medicaid's Share of State General Fund Expenditures*	0.1383195	0.2654756
	Transportation's Share of State General Fund Expenditures*	0.0083851	0.0176604

\*Data includes all 50 states from 1985–2004; all other variables include data for all 50 states from 1976–2004.

## Research Design

In order to analyze adequately the state budgetary context in regard to higher education, several perspectives must be used; therefore, several models are employed that use the same general analytical framework (The Fiscal Policy Framework). First, using descriptive statistics, national patterns related to state support of higher education and the various political and budgetary trade-off variables will be examined. Second, similar patterns within in select states will be examined. Third, multivariate analysis will be used to examine the independent effect of the various variables included in the Fiscal Policy Framework on state support of higher education.

First, national patterns in HI ED Effort and HI ED Share will be examined and compared to changes and patterns in the various political variables included in this study. Second, within state patterns will be examined. States will be selected which portray patterns of decreasing support, increasing support, level funding, or unique patterns.

Third, the first multivariate model includes as the outcome HI ED Effort. Appropriations per \$1,000 personal income represent a state's effort to support higher education relative to resources available from its tax base.

Stepwise regression will be used in order to analyze the relative explanatory power of economic and demographic variables, the higher education variables, and the political variables. For the primary model, the categories will be loaded in that order because it makes theoretical sense. The economic and demographic variables represent the uncontrollable basic realities within which the state and elected officials must make decisions. The higher education variables are ones which policymakers may manipulate to a certain extent, though their control over some variables is fairly limited in that

respect. The final group, the political factors, in part represents the decision arena, where the economic, demographic, and higher education factors converge as decisions are made. Among the political factors are ones which can be changed and manipulated. Further, one of the primary purposes of this analysis is to show the independent and relative explanatory power of the political variables. Entering the political variables last will do this. Using stepwise regression in this fashion will show to what extent the political factors are responsible for the variance after all of the other variables are included. The stepwise regression will also be reversed in order to compare the relative explanatory power of each group of variables over the two approaches. Also, the interaction terms will be included in order to examine the possible conditioning affect of state higher education governance structures.

The second model will include as the outcome HI ED Share. HI ED Share captures the how policymakers distributes funds between budgetary areas. It gets at the internal decision making of policymakers and the relative priority given to the various areas.

Again, the analysis will be guided by the Fiscal Policy Framework and employ stepwise regression loaded in the same manner as the first set of models. Also, each budgetary area will be included within this model in separate regressions (collinearity concerns) in order to determine if any of the budgetary areas engage in trade-off behavior with higher education. Again, the interaction terms will be added to examine the possible condition affect of higher education governance structures.

Next, the Fiscal Policy Framework will be applied to the other major state budgetary areas. These include public assistance, corrections, K-12 education, Medicaid,

and transportation. Each area's share of state general fund expenditures will serve as dependent variables. Included in the model will be higher education's share of state general fund expenditures. By including higher education's share, we will be able to determine how an increase in its share affects the other budgetary areas' shares.

Finally, in order to determine which of the major state budgetary areas is most likely to engage in trade-off behavior (both positive and negative) each of the areas will be included within each of the other areas.

The models will be run using both raw scores and standardized scores. A standardized, or  $z$ -score, is derived by subtracting the mean from an individual (raw) score and then dividing the difference by the standard deviation. The  $z$ -score reveals by how many units of the standard deviation a case is above or below the mean. In regression analysis, when each of the dependent and independent variables' scores are standardized or transformed into  $z$ -scores, the relative contributions of each of the independent variables can be more easily compared. The raw scores will all for interpretation in the variables original matrix. The  $b$  coefficients represent the results using the raw scores and the Beta coefficients represent the results using the  $z$ -scores.

## **Methods**

For the multivariate analysis, the study will employ a pooled, cross-sectional times-series analysis for each of the models. Such an approach is capable of developing a more powerful and accurate predictive model than a simple cross-sectional design, because multiple states are examined over multiple points in time. This approach enables the researcher to increase the sample size and thereby the predictive power. The first

model will use data on all 50 states from 1976 to 2004 for the model and will utilize appropriations per \$1,000 personal income as the dependent variable. Because each state-year serves as the unit of analysis for this study, the data set will consist of 1,350 observations (50 states by 27 years). When shares of general fund expenditures is used as the dependent variable, the data set will use data on all 50 states from 1985–2004. In this case, the data set will consist of 950 observations. Generalization is not an issue in this study because all 50 states are included; instead, the key consideration is the predictive and explanatory power of the model, which is one reason that each model covers such a large time period.

The general cross-sectional time-series model is as follows (Equation 4.2):

**Equation 4.2** Cross Sectional Time-Series Model

$$y_{it} = a + bx_{it} + u_i + v_{it}.$$

where  $y$  is the dependent variable,  $x$  represents the independent variables,  $a$  is the intercept coefficient and  $b$  represents the coefficients for the various independent variables, and  $i$  and  $t$  are indices for individual states and time. The error terms,  $u_i$  and  $v_{it}$ , are very important in this analysis. The  $u_i$  is the fixed or random effect, and the  $v_{it}$  is the pure residual. Assumptions about the first error term determine whether the model is a fixed effects or random effects model. Fixed effects models control for omitted variables that differ between states but are constant over time. Using a fixed effects model is the same as generating dummy variables for each case and including them in a standard linear regression to control for fixed “case effects.” Therefore, fixed effects models allow the researcher to observe primarily the effects of changes in independent variables within states on the dependent variable.



Random effects models are used if there is reason to believe that some omitted variables may be constant over time but vary between states, and others may be fixed between states but vary over time. Both instances are included in a random effects model. This allows researchers to analyze changes in independent variables within states, the differences in independent variables between states, and the effects on the dependent variable. Fixed effects models are always assumed to be reasonable because they always give consistent results, but they may not be the most efficient model to run. Random effects will result in better  $P$  values because they are a more efficient estimator, so this study will run a random effects model if it is statistically justifiable to do so.

In order to determine which model should be used, a Hausman test will be run. The Hausman test analyzes whether the null hypothesis that the coefficients estimated through the efficient random effects estimator are the same coefficients as those estimated by the consistent fixed effects estimator. If they are (insignificant  $P$  value, Prob>chi2 larger than .05), then it is safe to use a random effects model. If the test results in a significant  $P$  value, however, then a fixed effects model should be used, and this study will do so (Princeton University Library, 2006).

Because this study will also include interaction terms an additional model is used. When an interaction term is included the model will look like this (with  $c$  representing the interaction term) (Equation 4.3):

**Equation 4.3:** Interaction Terms

$$y_{it} = a + bx_{1it} + bx_{2it} + c(x_{1it} \times x_{2it}) + u_i + v_{it}.$$

When an interaction term is created the effect of two, or more, variables are not simply additive; instead the effect of one variable depends on the value of another. Interaction

terms are computed by multiplying the two main effect terms by each other, as shown in the equation above.

As with most predictive models of this sort that include economic, demographic and other variables, there is a risk of multicollinearity, a condition involving a linear relationship between two or more independent variables. Multicollinearity may result in substantially higher standard errors, with correspondingly lower  $t$  statistics; unexpected changes in coefficient magnitudes or signs; and non-significant coefficients despite a high  $R^2$ . The statistical program that will be used to analyze the data (Stata) automatically tests for high levels of multicollinearity, and if it is inhibiting the analysis, the program will drop one of the variables that are causing the problem. However, even if no variables are dropped, multicollinearity may still exist; therefore, a variance inflation factor (VIF) test, a statistical test for multicollinearity, will be performed following the regression. A VIF test indicates the proportion of a variable's variance that is independent of all the other variables, and the degree to which the other coefficients' variances (and standard errors) are increased due to the inclusion of that predictor. An individual VIF greater than 10 and an average VIF greater than 6 is generally considered problematic. Also a tolerance ( $1/\text{VIF}$ ) below .1 is considered problematic (UCLA Academic Technology Services, 2006; Williams, 2005). Also, a correlation matrix test will be performed between all independent variables. Although there is no set parameter, the range of unacceptable correlation coefficients is somewhere between .5 and .9. However, generally a correlation coefficient of .60 or above is considered high correlation (Borghers & Wessa, 2006; Jensen, 2003; Nolan, 2005; Williams, 2005). If serious

multicollinearity exists, proper steps will be taken to rectify the problem (by dropping a variable or centering).

### **Limitations**

As with all research this study has certain limitations. There are several limitations that fall into three broad categories, these are:

#### 1) Data limitations

As Figure 4.1 shows the NASBO data suffers from greater variability than some of the other available measures of state support for higher education. However, the NASBO data is highly correlated with the Grapevine data (.89) and therefore we can be confident that the data is a fairly accurate measure of state support of higher education.

In some cases proxies were used instead of actual measures. The most obvious one is the measure for electoral competition. Because data was not available past 1992 predicted values were used. Also, because the original measures for political culture were cross sectional a different measure was used and although the measures are highly correlated they are not exactly the same (Hero & Tolbert, 1996). When proxies are used it can be difficult to determine if they would have the same affect as the actual measure or phenomenon. However, both proxies were highly correlated with the original measures and were the best measures that could be developed or located.

A related concern is that many of the variables included in this study attempt to measure complex constructs. Therefore it is difficult to determine how well the variables actually measure the phenomenon. However, each measure has been either established in the literature or is closely based on or related to an established measure.

## 2) Model Limitations

Large scale cross sectional times series analyses suffer from some basic and fairly unavoidable limitations. First, because such large spatial and temporal domains are covered it can be difficult to contextualize what is happening and make arguments about future relationships. Likewise, it is difficult to make arguments about specific cases based on the results of large scale cross sectional time series models. I have attempted to alleviate both of these issues somewhat by providing a theoretical and conceptual framework which helps in both contextualizing the problem, in understanding how specific cases might be affected, and provides a means by which future relationships may be understood and predicted. Further, specific cases are analyzed and discussed in order to examine how these variables act within individual states.

A second limitation of large scale cross sectional time series analyses is that with large  $n$  studies variables that have little effect can still be statistically significant by conventional standards. I have attempted to provide a way to compare the effect size of the various variables included in this study by displaying both the raw and standardized scores.

A third limitation of these types of models is that in fixed effects models you naturally get large R-Squares because the model controls for state factors not included in the model, in essence including dummy variables for each state for each year of the study.

Fourth, various contextual issues are not accounted for. It is impossible to account for every possible factor that may impact state funding for higher education.

Fifth, for the reasons discussed earlier, capital expenditures are not included in state spending for higher education; likewise some states budget health insurance and other benefits for state employees outside of the higher education appropriation and they are not accounted for in this study.

### 3) Framework Limitations

As with most models of complex phenomenon there is a possibility of under specification. Influences other than the ones included in the model used in this study may also be influencing state support of higher education. The Fiscal Policy Framework was developed based on existing theory and research in political science, public policy, economics, public administration, and higher education and what seemed to be the most important.

## Chapter 5

### Analysis and Results

This chapter presents both descriptive and regression analyses based on the Fiscal Policy Framework. First, national patterns in regard to both HI ED Effort and HI ED Share and the various political variables are analyzed. Second, several within state patterns are analyzed. Third, the Fiscal Policy Framework is used to predict HI ED Effort. Fourth, the Framework is applied to HI ED Share. Fifth, the Framework is used to predict the share of state general fund expenditures the other major budgetary areas receive and HI ED Share is included in the model in order to determine if higher education takes from any of the other areas. Sixth, each of the other budgetary areas is included within HI ED Share in order to determine if they take from higher education. Finally, each area is included with in each other in order to determine which budgetary areas are the most likely to engage in trade-off behavior.

This section begins with national and state patterns and descriptive statistics in order to provide evidence and justification for further inferential analysis later. They also provide actual examples of how the various political variables affect state support of higher education, thereby making the theoretical discussion and empirical analysis more real.

#### National Patterns

As indicated earlier, on a national scale, state HI ED Effort has been declining steadily since 1976. HI ED Share has also declined significantly since 1985. We should

therefore see changes in the independent variables that correspond to these changes. Focusing only on the political variables, we generally see that the variables have been moving in the hypothesized directions, with four surprises.

Table 5.1 shows the percentage change for each of the dependent variables included in this study, and also the change for the political and other budgetary areas' independent variables.

**Table 5.1:** Expected Direction and Percent Change

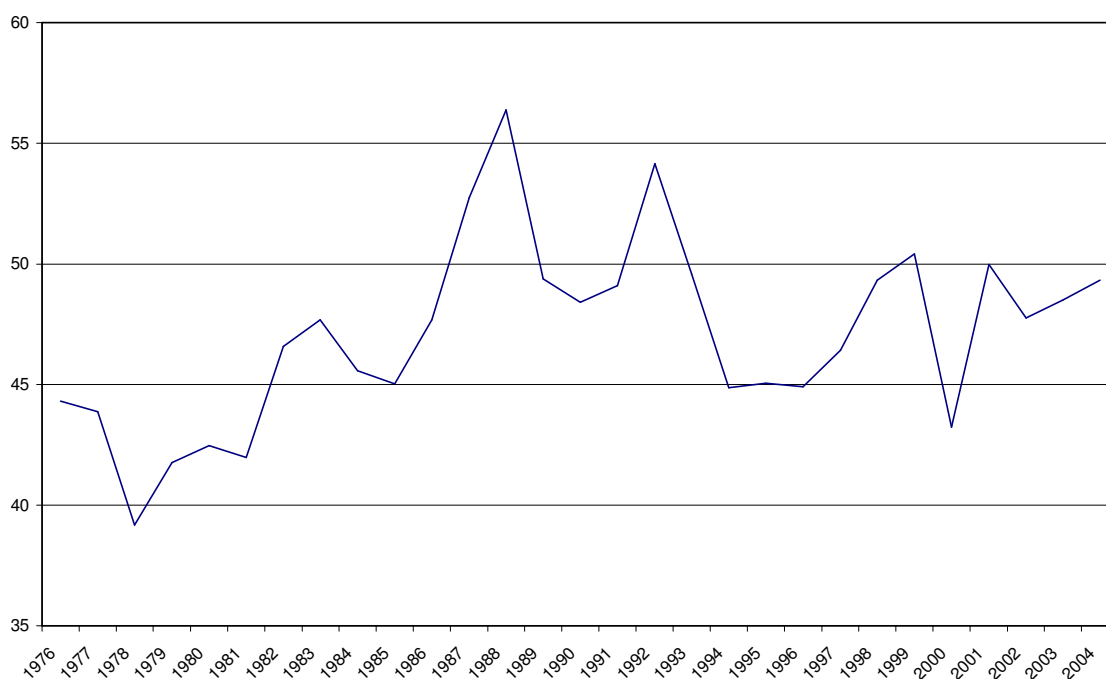
Conceptual Area	Variable	Expected Direction	Percent Change
Dependent	HI ED Effort		-25.99%
	HI ED Share		-12.25%
Interests	Interest Group Density	+	184.41%
	HI ED Interest Group Ratio	-	-58.55%
Mass Political Attributes	Citizen Ideology	-	11.29%
	Electoral Competition	-	-41.34%
	Voter Turnout	-	5.06%
Government Institutions	Budget Powers of the Governor	+	3.29%
	Legislative Professionalism	-	-46.11%
	Uni Party Legislature	+	53.85%
	Term Limits	-	0 in '75; 15 in '04
	HI ED Governance Structure	-	5.66%
Political Culture	Political Culture	+	-42.16%
Attributes of Policymakers	Party of Governor	-	-39.72%
	Party of Legislature	-	-26.88%
Other Budgetary Areas	Assistance	NA	
	Corrections	NA	
	K12	+	12.44%
	Medicaid	+	27.57%
	Transportation	NA	

As the table shows, in 10 out of 15 instances (excluding assistance, corrections, and transportation), the variables moved in the expected direction based on the changes in the dependent variables.

The five variables that did not move in the predicted direction deserve special mention. The first is ideology. This study hypothesizes that as states become more liberal,

they will be more generous towards higher education. However, on average, as states have become more liberal, the support for higher education, as it is measured here, has declined. However, as Figure 5.1 shows, states were less liberal in 2004 than they were in 1988; overall, the result is anything but a smooth line, which indicates a certain amount of variability.

**Figure 5.1:** Citizen Ideology National Average



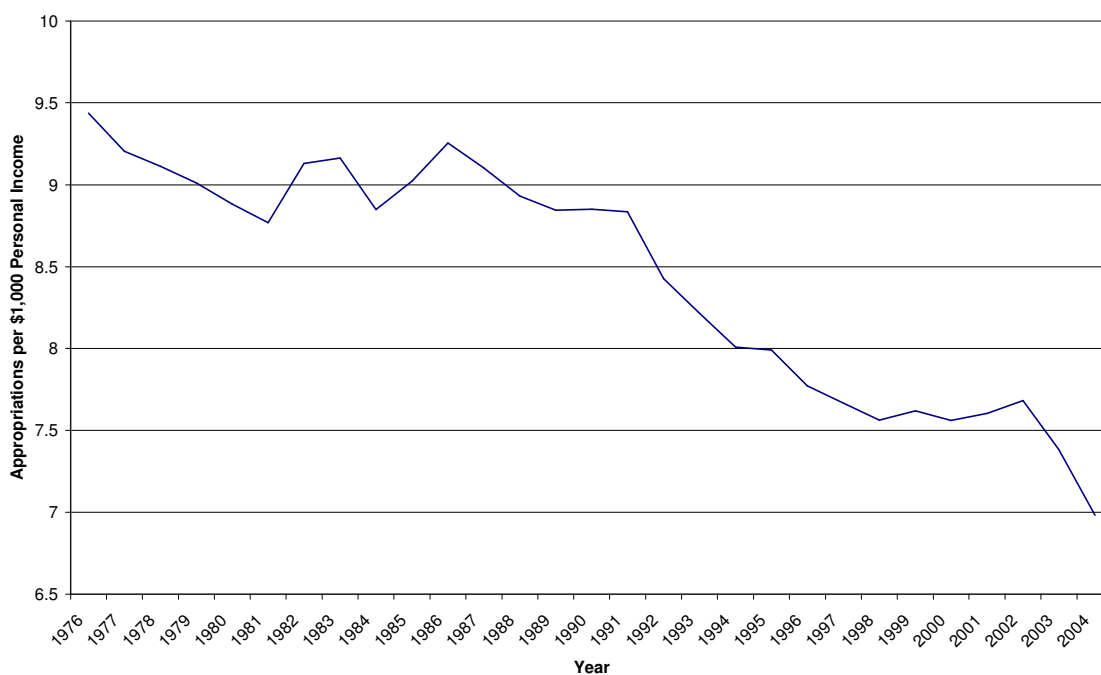
*Source:* Berry, Ringquist, Fording, and Hanson: Interuniversity Consortium for Political and Social Research (ICPSR #1208), ideo6004

When figure 5.1 is compared to the graph of HI ED Effort (Figure 5.2), it seems that the hypothesis may in fact still hold. In both cases, in the late 1970s, there is an initial drop followed by a concurrent increase in the 1980s, with ideology experiencing a dramatic increase. Then in the mid- to late 1980s, both experience a general and prolonged decrease. Although ideology experienced a less dramatic decrease and the decline was broken by intermittent increases, the trend is nevertheless in the downward direction. In each case, in the late 1990s and the early 2000s they experienced either an



increase or leveling out. Therefore, upon closer examination, it appears that there may yet be evidence to support the initial hypothesis that greater liberalism will be associated with increased state support of higher education.

**Figure 5.2:** State Appropriations for Higher Education per \$1,000 Personal Income

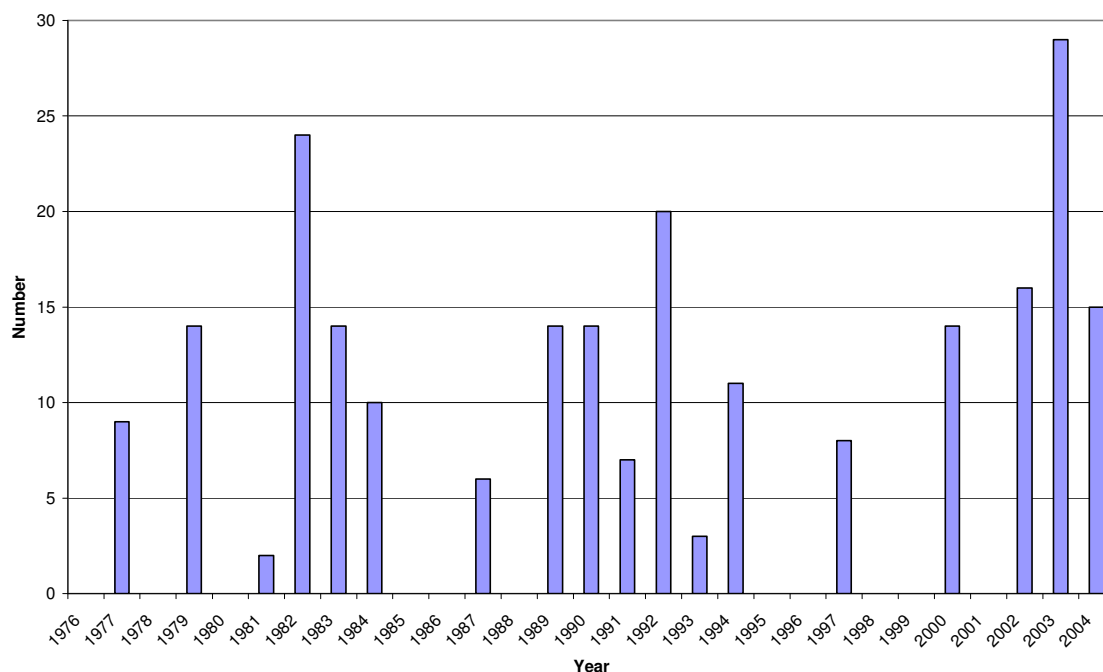


Source: Grapevine; Bureau of Economic Analysis

Another couple of variables with surprising patterns are voter turnout and term limits. Voter turnout was expected to decrease based on its hypothesized relationship with state support of higher education. A 5% change over 26 years is basically a flat line, though we would have expected a declining line and therefore are given reason to wonder about the hypothesized relationship. Based on the theoretical arguments presented in regard to the term limits, we would have expected there to be fewer states with term limits in 2004 than there were in 1976. When the data is examined more closely though, it is obvious that there is no clear trend; instead, the states seem to adopt term limits for a time, then abandon them only to adopt them again in some instances (see Figure 5.3).

This means that there is little to be gained by comparing the number of states with term limits in 1976 to the number in 2004.

**Figure 5.3:** Number of States with Term Limits



Source: National Conference of State Legislatures

State higher education governance structures is a third variable that was expected to decrease but instead increased. Governance structures became slightly more centralized between 1976 and 2004. There was only a 6% change—in 1976 the average was 3.18 and in 2004 the average was 3.36—but the change is contrary to the projected direction. This sheds some doubt on the original hypothesized direction, although an increase of only 6% over 28 years is not very significant.

Finally, in the case of political culture, the percentage change appears significant and in the wrong direction. This causes considerable doubt about the original hypothesis, though we will have to await further analysis before determining whether these results are supportable or not.

The fact that 10 of the variables display patterns that are consistent with the hypotheses is noteworthy. This is even more significant considering that, upon closer inspection, three out of the five variables that appeared not to display patterns consistent with what was expected were either operating in a manner that may actually be in line with what was hypothesized or were not displaying patterns that allowed for easy interpretation. For the most part, this simple descriptive analysis provides some support for the general theoretical arguments put forth so far and provides encouragement for further analysis.

### **Individual States**

If the hypotheses have merit one should also expect to see similar patterns within states. In order for the arguments in regard to the specific variables to hold, we should not only see predictable time-series trends, but we should also see year-to-year changes in the dependent variable that correspond to changes in various independent variables. Not only will this type of analysis extend the evaluation of the stated arguments, but it will also provide insight into how these various factors actually operate within states and therefore make the theoretical argument and framework more “real,” and understandable.

The various states included here have been selected because they have either distinctive levels or patterns in their state support of higher education. Some states were also selected because of obvious changes within the state’s funding pattern. For graphical presentations of each state’s funding patterns for the dependent variables see Appendix B and C.

### **Mississippi**

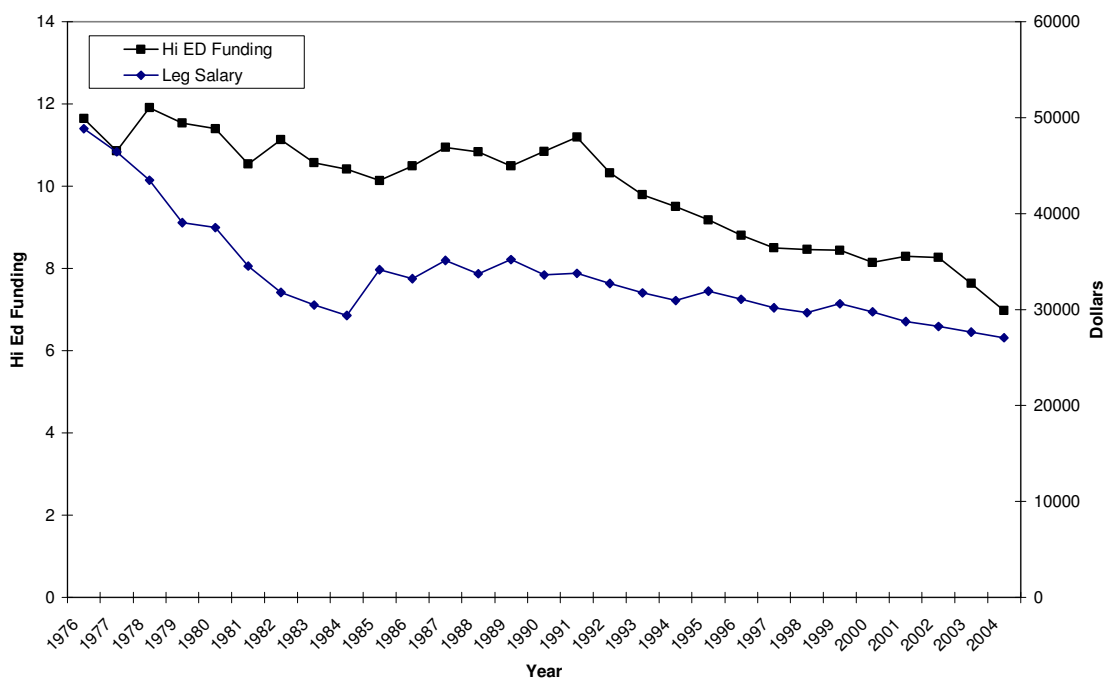
Mississippi provides a clear example of the possible effect of interest groups, shown by its average of 12.62 for HI ED Effort from 1976–2004, in comparison to the national average of 8.44. It also devoted a greater share of its general fund expenditures to higher education than the national average. Its higher education interest ratio average was .20, which is much above the national average of .068. Mississippi is also more likely to have a Democratic governor and legislature. However, there is reason to believe that much of the reason why Mississippi is so relatively generous to higher education may have much to do with the relative strength of its higher education lobby. By analyzing and comparing the specific states, it becomes apparent that interest groups may have a significant effect on state support of higher education. When the data is sorted from states with the most HI ED Effort to the least, the top 10% of state years has an average ratio of .104 for higher education interest ratio. The average for the entire data set is .068. For the bottom 10%, it is .042.

### **Minnesota**

Another interesting example of the possible effect of various political factors is Minnesota. Its average HI ED Effort (9.90) is slightly greater than the national average (8.44). However, measured this way (HI ED Effort), Minnesota's higher education appropriations have been on a fairly steady decline from 1976 to 2004 (-40% change), which is much greater than the national average of -25%. What might explain Minnesota's above average appropriations and its downward trajectory?

First, in regard to its above average HI ED Effort, Minnesota has a more professionalized legislature, which according to the prior argument increases the likelihood that it will be more generous to higher education. While Minnesota's legislature is more professionalized than the average, its legislators' average salary has been declining (-44% change) at a rate similar to HI ED Effort, as Figure 5.4 shows.

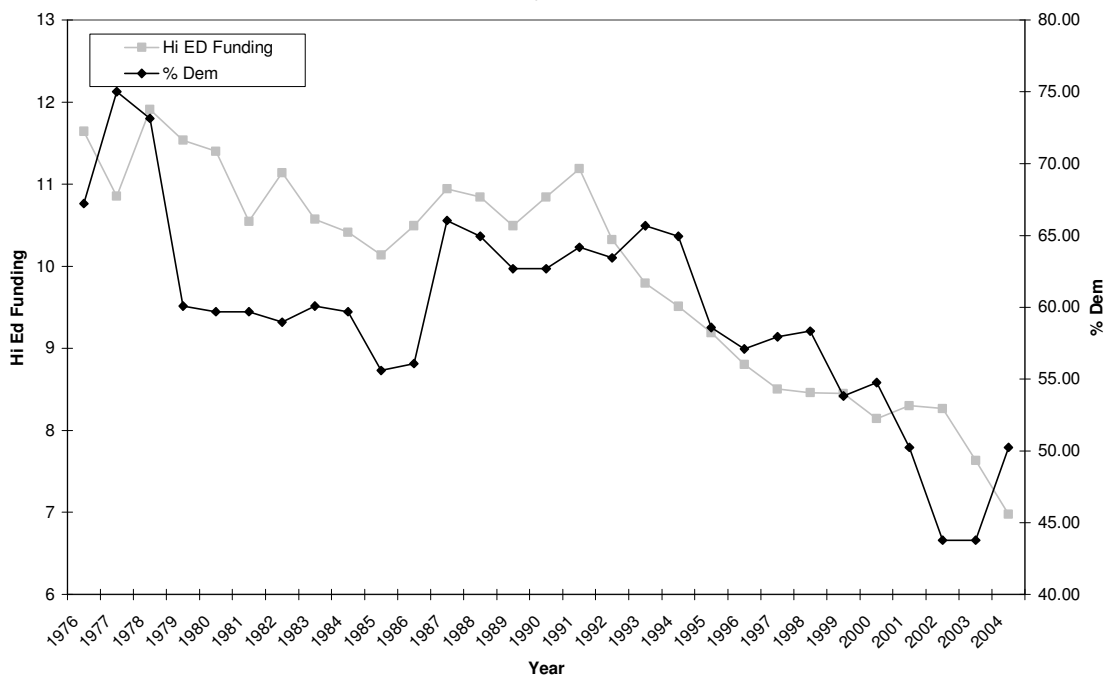
**Figure 5.4:** Minnesota Hi Ed Appropriations per \$1000 Personal Income - Legislative Salary



Source: Grapevine; National Bureau of Economic Analysis; Council of State Governments, *Book of the States*

Second, the average number of Democratic legislators serving in Minnesota between 1976 and 2004 is elevated slightly above the national average. This may help to explain why Minnesota, on average, is more generous towards higher education. At the same time, the average number of Democratic legislators is declining in Minnesota (-25% change), which could indicate the reason for the decline in Minnesota's support (see Figure 5.5). This idea is reinforced by the fact that HI ED Effort and the percentage of the state legislature that is Democratic have a correlation coefficient of .74.

**Figure 5.5:** Minnesota Hi Ed Appropriations per \$1000 Personal Income - % Democratic Legislators



Source: Grapevine; National Bureau of Economic Analysis; U.S. Census Bureau, *Statistical Abstracts of the United States*

## New Mexico

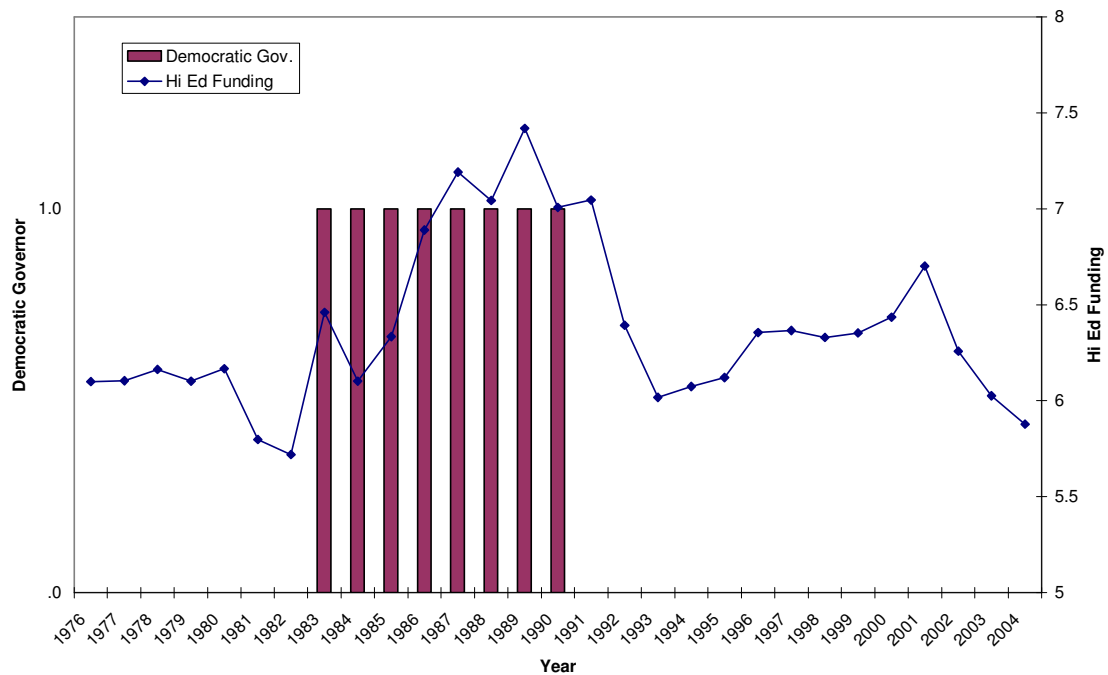
New Mexico appropriates significantly more to higher education relative to its tax base than the national average. It has also increased its level of support from 1976–2004 (11% change). This makes New Mexico unique among the 50 states. It is also unique in other ways that may contribute to its pattern of supporting higher education. First, it has been more likely to have a Democratic governor. In fact, most of New Mexico's increase in state support occurred under a Democratic administration. From 1976 to 1985, state support increased by 25% during a Democratic administration. In 1987, a Republican took office, and for the next four years funding averaged significantly less than its high point in 1985. For the remaining years, state support on average remained fairly flat with

year-to-year changes regardless of the party of the governor. Second, its legislature has on average been more Democratic than the national average (63% versus 58%).

## Ohio

Ohio also exhibits clearly how a switch in the party of the governor may affect state support of higher education. As Figure 5.6 shows, there is an obvious difference between years when a Democratic governor was in power and years when one was not.

**Figure 5.6:** Ohio Hi Ed Appropriations per \$1000 Personal Income - Party of Governor



Source: Grapevine; National Bureau of Economic Analysis; U.S. Census Bureau, *Statistical Abstracts of the United States*

It could be argued that examples exist of Republican governors increasing appropriations for higher education, which is certainly true. However, nationally on average, it appears that Democratic governors are more likely to be generous towards higher education than their Republican counterparts. When comparing the top 10% of

state funding years to the bottom 10%, there is a significant difference in the number of Democratic governors. The top 10% has a cumulative total of 99 state years with a Democratic governor (mean .68) and the bottom 10% has 57 (mean .40). For all state years, the mean is .54. Thus, it appears more likely that a Democratic governor will be associated with increased appropriations for higher education than a Republican governor.

### **Nebraska**

Nebraska provides some interesting examples of the possible effects of several other political and budgetary factors on the share of state general fund expenditures devoted to higher education. Between 1985 and 2004, Nebraska funneled a larger share of its general fund expenditures to higher education (23%) than the national average (15%). Nebraska's governor had less budgetary powers (index score of 3.2) than the national average (index score of 4). This situation underscores the argument that governors with greater budgetary powers will be inclined to use those powers to divert funding away from higher education and toward other budgetary areas. That hypothesis is further supported when comparing the bottom 10% of state years for HI ED Share and the top 10%. In the bottom 10%, the governors had an average index score of 4.3 and the top 10% had an average index score of 3.7 (*t* score .0004).

Nebraska also had significantly lower interest group density. The national average was 684 while Nebraska averaged only 462. Therefore, in Nebraska's case, there were far fewer groups contending for state funding and attention. This is once again supported by comparing the top 10% of state years for share of state general funds devoted to higher



education to the bottom 10%. The top 10% averaged 556 and the bottom 10% averaged 727.

In regard to competing state general fund expenditure areas in Nebraska, higher education faced relatively less competition. Nebraska devoted less than the national average to public assistance, corrections, K-12, Medicaid, and transportation. Corrections, K-12, and Medicaid were all growing less rapidly than the national average, and public assistance was declining more quickly than the national average.

The descriptive analysis of both national patterns and within- and between-state patterns appears to provide some support for the hypotheses in regard to various state political factors. However, a partial correlation does not indicate causation, and certainly there are numerous factors at work other than the political ones discussed thus far. Mere descriptive analysis using a few variables cannot hope to explain such a complex phenomenon as state budgeting. To truly test the various hypotheses and gauge the relative effect of the variables, multivariate analyses are needed.

### **Multivariate Analysis**

As indicated earlier, several models were run that each applied the Fiscal Policy Framework. First state HI ED Effort is examined, second HI ED Share is examined, and third state trade-offs are examined. Before the actual analysis could be conducted, several diagnostic tests needed to be completed.

### **Diagnostic tests**

A Variance Inflation Factor (VIF) test to evaluate the multicollinearity among the independent variables indicated that none of the variables included in the models used approached 10 and the average VIF was 1.94. All of the tolerance levels were above 0.1 indicating that multicollinearity is not a concern (UCLA Academic Technology Services, 2006; Williams, 2005). The model contains no correlation coefficients at or above .60, which, is considered the cutoff for this study (Borghers & Wessa, 2006; Jensen, 2003; Nolan, 2005; Williams, 2005). The results of the Hausman test indicated that it was not safe to use a random effects model (significant *P* value), so a fixed effects model was used for each multivariate analysis.

### **Model 1: HI ED Effort**

As Table 5.2 shows, the results of the stepwise cross-sectional time-series regression analysis largely confirm the study's hypotheses.

**Table 5.2: State Appropriations to Higher Education Per \$1,000 Personal Income (Stepwise)**

	(1) Lag Dep.	(2) Econ & Dem		(3) Plus HI ED		(4) Plus Political	
		b-coefficient	Beta-Coef.	b-coefficient	Beta-Coef.	b-coefficient	Beta-Coef.
Lagged Dependent	0.94261** (0.00887)	0.58464** (0.01831)	0.58173** (0.01831)	0.55015** (0.01841)	0.54643** (0.01837)	0.53156** (0.01871)	0.53149** (0.01871)
% Pop. College Age		-0.06218** (0.02279)	-0.03289+ (0.01677)	-0.13187** (0.02390)	-0.08526** (0.01753)	-0.12873** (0.02422)	-0.08619** (0.01774)
% Pop. Elderly		0.00026 (0.01961)	-0.00064 (0.01707)	0.01754 (0.01934)	0.01442 (0.01681)	0.02408 (0.01951)	0.01937 (0.01697)
Gini Coefficient		-3.66180** (1.19956)	-0.04997** (0.01395)	-2.71158* (1.18728)	-0.03778** (0.01379)	-1.97624+ (1.17622)	-0.02886* (0.01371)
GSP Per Capita		-0.63267** (0.22157)	-0.05214* (0.02124)	-0.28912 (0.22629)	-0.01849 (0.02166)	-0.05653 (0.23148)	0.00046 (0.02227)
% of Pop. Below Pell		0.00253** (0.00093)	0.03153** (0.00914)	0.00226* (0.00091)	0.03004** (0.00892)	0.00186+ (0.00098)	0.02386* (0.00958)
Lag Recession Year		0.15263** (0.05041)	-0.02330* (0.00909)	0.12777** (0.04953)	-0.02495** (0.00887)	0.12378* (0.05068)	-0.02146* (0.00900)
Unemployment		0.01023 (0.01427)	0.00531 (0.01121)	0.02274 (0.01407)	0.01384 (0.01101)	0.02810* (0.01405)	0.01802 (0.01108)
Medicaid		-0.31562** (0.05582)	-0.17064** (0.02972)	-0.29260** (0.05622)	-0.15925** (0.02986)	-0.30871** (0.05654)	-0.16352** (0.02995)
% Enroll Private Hi Ed				0.89098 (0.86790)	0.04839 (0.04037)	1.02802 (0.87235)	0.05088 (0.04067)
% Enroll 2 Year Hi Ed				-1.31913** (0.37782)	-0.07089** (0.02070)	-1.46789** (0.38712)	-0.08037** (0.02123)
Funding Formula				0.24204** (0.08840)	0.04309** (0.01572)	0.20384* (0.08771)	0.03584* (0.01560)
Giving to Public Universities per FTE				-0.00000 (0.00002)	-0.00193 (0.01244)	0.00001 (0.00002)	0.00266 (0.01252)
Log Tuition				-0.86513** (0.11807)	-0.14713** (0.01930)	-0.70413** (0.11707)	-0.12064** (0.01915)
HI ED Interest Ratio						0.20105** (0.06985)	0.05512** (0.01831)
Political Ideology						0.00876** (0.00294)	0.04540** (0.01704)
Electoral Competition						0.00092 (0.00089)	0.00604 (0.00745)
Voter Turnout						-0.00935** (0.00249)	-0.04578** (0.01052)
Budget Power of Gov.						0.02081 (0.04653)	0.00666 (0.02230)
Leg. Professionalism						0.00001** (0.00000)	0.05534** (0.01823)
Uni-Party Leg.						-0.13146** (0.04429)	-0.02411** (0.00836)
Term Limits						-0.03410 (0.05485)	0.00084 (0.00763)
Hi Ed Gov. Structure						-0.08949 (0.05794)	-0.02997+ (0.01815)
Political Culture						0.00083 (0.26321)	0.00069 (0.01662)
Party of Governor						0.13770** (0.04257)	0.02565** (0.00794)
Party of Legislature						0.00593* (0.00277)	0.04024* (0.01840)
R-squared (within) <sup>1</sup>	0.52	0.59	0.59	0.61	0.61	0.63	0.63

Standard errors in parentheses + significant at 10%; \* significant at 5%; \*\* significant at 1%

<sup>1</sup> Because it is a fixed effects model and therefore the most reliable and comparative measure is the within R-square it is reported within the table. However the overall R-square is .84.

Based on the stepwise regression the lagged dependent variable (prior year's HI ED Effort) explains by far the largest share of the variance (.52). The lagged dependent variable is the prior year's HI ED Effort. This captures the effect of incrementalism. The economic and demographic variables explain the second greatest amount of the variance, adding 7% to the R-square. The higher education and the political variables both add 2% to the total R-square or the total explained variance. This is not very much. However, there are two things to consider: 1) generally the variables that are loaded last in the stepwise regression almost always add the least amount to the explained variance, and 2) the lagged dependent variable is soaking up the majority of the variance.

When the order is reversed (but keeping the lagged dependent first) the political variables add 7% to the explained variance, and both the higher education and the economic and demographic variables add 2% (see Table 5.3). The average increases, over the two stepwise regressions, to the R-Sqr for the various variable categories are: political 4.5%, economic and demographic 4.5%, and higher education 2%.

**Table 5.3:** State Appropriations to Higher Education Per \$1,000 Personal Income (Reverse Stepwise)

	(1) Lag Dep.	(2) Political	(3) Plus HI ED	(4) Plus Econ & Dem
R-squared (within)	0.52	0.59	0.61	0.63

When the lagged dependent variable is removed, the economic and demographic variables explain 29% of the variance. The higher education variables increase the R-square by 4%, and the political variables increase the R-square by 9% (see Table 5.4).

**Table 5.4:** State Appropriations to Higher Education Per \$1,000 Personal Income (Stepwise without lagged dependent)

	(1) Econ & Dem	(2) HI ED	(3) Political
R-squared (within)	0.29	0.33	0.42

When the order is reversed, the political variables alone explain 26% of the variance, which is fairly significant, substantively. The higher education variables increase the *R*-square by 11%, and the economic and demographic variables increase it by 5%. The average increase to the *R*-square for each category is economic and demographic 17%, higher education 7.5%, and political 17.5% (Table 5.5).

**Table 5.5:** State Appropriations to Higher Education Per \$1,000 Personal Income (Reverse stepwise without lagged dependent)

	(1) Political	(2) HI ED	(3) Econ & Dem
R-squared (within)	0.26	0.37	0.42

Referring back to Table 5.2, 8 of the political variables are significant out of the total 12 included. The significant variables include higher education governance structure, higher education interest group ratio, political ideology, legislative professionalism, party of the governor, party of the legislature, voter turnout, and uniparty legislature. When the political variables were entered first, electoral competition is significant until the higher education variables were added. Based on the Beta coefficients, legislative professionalism and higher education interest group ratio have the largest effect size of all the political variables. Overall, state spending on Medicaid and average tuition had the largest effects sizes of all variables included in the full model (excluding the lagged dependent variable). Log of tuition however must be considered carefully, as changes in levels of appropriations also affect tuition setting. Of the eight significant political coefficients, six were in the hypothesized direction: interest groups, ideology, legislative professionalism, uniparty legislature, party of the governor, and party of the legislature. The two that were not significant were higher education governance structure and voter turnout.

Referring back to the conceptual framework, based on the eight significant political variables, it appears that the attributes of the policymakers, governmental institutions, mass political attributes, and interest group activity all impact state appropriations decisions in regard to higher education. Likewise, so do economic and demographic factors, attributes of the higher education arena, and competing budgetary areas (Medicaid). However political culture does not have a significant effect.

Of the economic and demographic factors, five out of the eight variables included in the model are statistically significant. These include the percentage of the population that is college-age, the Gini coefficient, the percentage of population below Pell Grant level, lagged recessionary year, unemployment, and spending on Medicaid. Of these factors, at least two of them are not in the hypothesized direction—three, if recessionary year is included.

Three of the higher education variables are statistically significant: the percentage enrolled in two-year institutions, state usage of funding formulae for higher education, and the average in-state tuition at four-year institutions. Each performed in the hypothesized direction.

### **Discussion of Model 1 Results**

The results of this first analysis provide some previously unavailable insights into state budgeting for higher education. This section will discuss the results outlined above using the State Fiscal Policy Framework and the theoretical arguments introduced earlier with regard to each variable.

The results largely support the Fiscal Policy Framework as each area of the Framework significantly impacts HI ED Effort except political culture. The theoretical and conceptual discussions regarding each individual variable (provided in theoretical framework section) help in understanding how and why the variables behave as they do in this model. Because the political categories and variables are the primary conceptual interest of this study, they will be discussed first and in the greatest depth.

### **Political variables**

Perhaps one of this study's most important findings is that this model confirms the general hypothesis that variation in the state political context contributes to variations in state funding of higher education. While the majority of past studies have found significant results in regard to state economic and demographic factors, they have either ignored the political realm or have conceived and/or measured it narrowly, thus giving it inadequate attention. These findings appear to indicate that this has been a significant oversight, as most of the political variables include in this model have a relatively significantly impact HI ED Effort.

### **Interest group activity**

As hypothesized, the higher education interest group ratio has a significant and positive influence on HI ED Effort.<sup>2</sup> This is an important finding because it provides some confirmation that lobbying and interest group activity have a nontrivial effect on the appropriation of state funds for higher education. Comparing the Beta coefficients

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<sup>2</sup> The interest group density variable was dropped because it was insignificant and the regression behaved strangely when it was included with the interest group density variable.

shows that the higher education interest ratio has a larger effect on the dependent variable than any of the other political variables, except legislative professionalism, which has an effect nearly equal. Overall, only 5 out of the 16 significant variables have a greater influence on the dependent variable.

The results indicate that as the higher education lobby increases in number relative to the rest of the state lobby, states tend to increase their support for public higher education relative to their available tax base. This is in line with recent literature, which stresses that interest groups are most successful when they have to compete with fewer groups, when the groups are concentrated in particular substantive areas, and when the active interests possess economic power (e.g., Browne, 1990; Cigler, 1991; Gray & Lowery, 1996; Heinz, Laumann, Nelson, & Salisbury, 1993).

This finding is especially interesting in light of the fact that the state higher education governance structures negatively affect HI ED Effort. It would seem that having one agency lobbying for higher education may not be as effective as having many individual institutions all asking for more money for higher education. This finding supports the argument that lobbying by individual institutions is important and effective.

What is clear is that the larger the higher education lobby, relative to the rest of the state lobby, the more likely that higher education will be treated favorably when appropriations decisions are made. Likewise, these findings provide additional evidence of the importance of state interest groups in state policymaking. Specifically, this supports the findings of Jacoby and Schneider (2001) that when there are fewer interest groups and less diversity, specific interests, such as particularized interests, receive more funding. It also supports the argument that interest groups do in fact compete with each



other (Heinz et al., 1993; Truman, 1951), and especially Gray and Lowery's (1999) argument that the types of interest groups in a state matter in regard to state policymaking and budgeting.

### **Mass political attributes**

Two of the three variables that comprise the portion of the conceptual framework entitled "Mass Political Attributes" were significant by conventional standards, indicating that the political attributes of the public impact state budgeting for higher education.

### ***Political ideology***

Political ideology was a significant factor in the predicted direction. An increase of one in the political ideology variable (meaning becoming more liberal) results in a .00876 increase in HI ED Effort. Compared to all other factors, political ideology has a relatively large effect size on state appropriations.

These results indicate that the ideological propensity of a state's citizenry significantly impacts state support of higher education. The more liberal a state's citizenry, the more supportive of higher education they are. This is consistent with Archibald and Feldman's (2004) findings that more liberal states are more generous towards higher education and, with the general understanding of citizen political ideology, that more liberal citizenries are more supportive of state spending, big government, and education.

### ***Voter turnout***

The results in regard to voter turnout are a surprise. The model hypothesized higher voter turnout would be associated with more state funding for higher education. The basis for this expectation was the assumption that the public generally views higher education positively and that elected officials would sense this. That being the case, it was further assumed that as voter turnout increased, those officials would feel more inclined to fund areas supported by the public, therefore increasing funding for higher education. However, increased voter turnout is negatively associated with HI ED Effort, showing that the above argument is flawed in some way. The most likely explanation is that elected officials do not perceive that the public desires them to increase funding for higher education. Perhaps elected officials view the public as preferring expenditures in areas other than higher education that they view as more important, such as K-12 education, as it affects a greater portion of the population.

This finding seems to imply that higher education may have a public relations problem. Whether the elected officials are wrong and the public really does support increased funding for higher education or they are correct and the public would rather that they decrease funding, the higher education sector needs to be more convincing in its argument that the payoffs are worth an increased investment.

### **Governmental institutions**

Three of the five variables that compose the governmental institutions variable are significant by conventional standards. These include legislative professionalism, having a unified legislature, and centralization of the higher education governance structure.

### *Legislative professionalism*

The result for legislative professionalism is significant and in the predicted direction. A \$10,000 increase in legislative salary results in a .1 increase in HI ED Effort. When the Beta coefficients are compared, legislative professionalism has a relatively large effect. There are only 4 out of the 16 significant variables have a greater influence on the dependent variable.

Explaining why legislative professionalism is associated with greater support of higher education is somewhat difficult, as there are several possible reasons. As indicated in the conceptual framework, these include the following possibilities. First, professional legislatures are likely to have more Democrats than unprofessional legislatures (Fiorina, 1994). Second, professional legislatures are more likely to be competitive, which has been associated with more redistributive funding (Barrilleaux & Berkman, 2003). Third, more professional legislatures have been found to be associated with increased spending in general (McLendon, Hearn, & Mokher, 2006). Fourth, more professionalized legislatures generally attract more educated members (Barrilleaux & Berkman, 2003; Squire, 1992), who tend to be more sympathetic toward higher education and place higher value on it (Pascarella & Terenzini, 2005). And lastly, more professional legislatures have greater analytic ability (Squire, 2000) and thus may be better able to recognize the benefits that greater investment in higher education may bring their states.

One obvious issue is that since legislative professionalism is measured using salary, the positive coefficient may not have been the result of any attribute of the members, but instead may reflect an overall state spending increase. The two increase simultaneously and may be shaped by some other factor. Another issue is that if more

professional legislatures are associated with increased spending in general, then they may not have any specific relationship with higher education.

Both of these issues will be addressed in the second regression when we use higher education's share of state general fund expenditures as the dependent variable in the State Fiscal Policy Framework. If legislative professionalism's positive relationship with state appropriations for higher education is the result of a general increase in state spending, it should have little to no effect on HI ED Share. However, if more professionalized legislatures have unique and positive relationship with higher education, as this model hypothesizes, one might expect a significant positive effect on HI ED Share.

### *Uni-party legislature*

As hypothesized, uniparty legislatures have a significant and negative effect on HI ED Effort. Having a uniparty legislature is associated with a .013146 decrease in the dependent variable. Compared to the other significant variables in the model, its effect size is below the median.

Legislatures desire to deliver benefits to their constituents, and when one party controls both houses they are better able to do so. Having a unified legislature appears to remove at least some of the roadblocks, enabling them to accomplish more of their legislative goals. Generally, unified governments have been more generous towards K-12 education (relative to higher education), and are more able to react in times of income shocks by cutting budgetary areas such as higher education and engaging in trade-off behavior. Again, the argument here is that higher education may be particularly

susceptible to budgetary trade-offs and funding cuts during economic decline because of its ability to generate income from sources other than state government.

### *Higher education governance structures*

The results for higher education governance structures were also a surprise. Studies in political science, public policy, and public administration literature indicate that more centralized and powerful state agencies are generally more effective in lobbying elected officials and obtaining state support; thus, it was hypothesized that more centralized higher education governance structures would be associated with increased appropriations. However, based on the results, they appear not to be.

The Beta coefficients are just barely significant. Based on the results, a one standard deviation increase in the state governance structure variable (meaning becoming more centralized) results in a .08949 decrease in HI ED effort. Based on the Beta coefficients, the governance structure variable has a relatively small effect size.

Several possible reasons may explain why more centralized governance structures are associated with decreased appropriations for higher education. One reason may be that more centralized governance structures insulate the institutions from the political process, causing the institutions to disengage from the process. Alternatively, in states with less centralized structures, the institutions may have greater access to elected officials and therefore engage more in the political process.

Another reason for this finding may be that in states with more centralized higher education governance structures, the organization itself has become co-opted by the government; therefore, the organization's leaders see themselves as agents of the

government rather than representatives of higher education institutions in the state. In this case, the governance structure leadership may be more amenable to elected officials' concerns and desires, more willing to absorb funding cuts or trade-offs "for the good of the state," and less willing to fight against them. In many states with centralized governance structures, the agency head is appointed by the governor and is thus, in many ways, accountable to and affiliated with the governor rather than with the higher education institutions.

### **Attributes of policymakers**

Based on these results, the attributes of policymakers play a significant role in state budgeting for higher education. Both variables that make up the category have a significant and theoretically predictable effect on HI ED Effort.

### ***Party of the governor***

As expected, having a Democratic governor is associated with increased HI ED effort—a .13700 increase. However, compared to the rest of the significant Beta coefficients, the effect size is relatively small.

The significant and positive relationship provides further evidence of the partisan effect in state funding of higher education (McLendon, Hearn, & Mokher, 2006; Archibald & Feldman, 2004). This finding correlates very well with past research, which has found that there is a relationship between party strength in governmental institutions and the policy (including fiscal policy) posture of the state (McLendon, Hearn, & Deaton, 2004).

However, as Alt and Lowery (1994) point out, Democrats tend to spend more generally than Republicans; therefore, this finding may reflect a general increase in spending and not reflect a special relationship between a Democratic governor and an increase in spending on higher education. The small effect size may be an indication of this. Again, when higher education's share of state general fund expenditures is analyzed, we will be able to determine if this is the case.

### *Party of the legislature*

Consistent with the hypothesized direction, more Democratic legislatures are associated with increased state appropriations. An increase of one in the party of the legislature variable (percent Democratic) results in a .00593 increase in HI ED Effort. Based on the Beta coefficients and compared to the other significant variables, party of the legislature has a fairly large effect size. This provides further evidence of the partisan effect in state funding of higher education and the relationship between party strength in governmental institutions and the policy (including fiscal policy) posture of the state.

### **Interaction terms**

The interaction terms provide further understanding of the role of the state higher education governance structures of the political process of state support of higher education, as Table 5.6 shows.

**Table 5.6:** Interaction Terms (HI ED Effort)

Dep= HI ED Effort	Gov Struct*Gov Power		Gov Struct*Interest Ratio		Gov Struct*Leg Party	
	b-coefficient	Beta-Coef.	b-coefficient	Beta-Coef.	b-coefficient	Beta-Coef.
Gov Struct*Gov Power	-0.07995+ (0.04182)	-0.12001+ (0.07032)				
Gov Struct*Interest Ratio			0.10587+ (0.06350)	0.14288 (0.09081)		
Gov Struct*Leg Party					0.00974** (0.00252)	0.27193** (0.06973)
Budget Power of Governor	0.28638* (0.14510)	0.11051+ (0.06480)	0.01743 (0.04715)	0.00387 (0.02236)	0.02117 (0.04679)	0.00555 (0.02219)
Hi Ed Governance Structure	0.24091 (0.18189)	0.05639 (0.05376)	0.22916 (0.19928)	0.06416 (0.06252)	-0.72602** (0.17457)	-0.23087** (0.05458)
HI ED Interest Group Ratio	0.21015** (0.06989)	0.05704** (0.01833)	-0.15189 (0.22326)	-0.03257 (0.05866)	0.20419** (0.06947)	0.05582** (0.01822)
Party of Legislature	0.00601* (0.00277)	0.04017* (0.01838)	0.00599* (0.00277)	0.04022* (0.01839)	-0.02692** (0.00895)	-0.17987** (0.05933)
Constant	11.96074** (2.44069)	0.00023 (0.00707)	12.63270** (2.36846)	0.00023 (0.00707)	15.03133** (2.35405)	0.00023 (0.00704)
R-squared	0.63	0.63	0.63	0.63	0.64	0.64

***Governance structure \* budget powers of the governor***

Two of the three cases confirmed the hypotheses made above. However, when the influence of the governor is conditioned by the centrality of the higher education governance structure, greater budgetary powers of the governor is associated with lower spending than when the governance structure is weaker and the governor's preferences control. This is contrary to the expected result. In light of the other findings, that the governance structure magnifies the effect of the other political institutions, this is a surprising finding. While it is difficult to explain this result, it may have something to do with the possible buffering effect of the higher education governance structure. A highly centralized structure may buffer the effect governors have on higher education spending because as a governance structure increases in power and influence the governor may have less direct influence on state policy for higher education.

As the governance structure becomes more centralized, and therefore increases in power and influence, it also becomes more autonomous and is able to act more



independently of the governor and other political actors. A more centralized governance structure assumes more responsibility for higher education policy and for the analysis and transformation of information concerning higher education, compared to less centralized structures. This may force governors to depend more on the governance structure when it comes to issues concerning higher education. The governance structure may therefore buffer the influence governors have on state support of higher education. Under weak governance structures the governor is able to act independent of the structure and their preferences prevail, but under highly centralized structures the structure buffers the effect of the governor.

***Governance structures \* higher education interest group ratio***

More centralized higher education governance structures appear to magnify the effect of higher education interest groups. As the interaction term between governance structures and higher education interests groups shows, when there is a more centralized governance structure and there are more higher education interest groups relative to the rest of the state lobby, states increase their efforts in supporting higher education relative to their tax base. As can be seen when the Beta coefficient of the higher education interest group lobby in the original model (.055) is compared to the Beta coefficient of the governance structure - higher education interest interaction term (.143). In this case the governance structure, in its role as a boundary spanner, may be acting as representor, transactor, and/or protector of the higher education sector and in so doing may magnify the affect of the higher education interest groups.

*Governance structure \* party of the legislature*

Higher education governance structures also condition the effect of democratic legislatures, causing them to support spending on higher education. In the first model the party of the legislature had a significant and positive effect on HI ED Share. The interaction term (composed of higher education governance structure and party of the legislature) also has a significant and positive effect on HI ED Share. In the second, interactive model, party of the legislature alone has a significant and negative effect. This indicates that the governance structure is conditioning the relationship between the legislature and state support of higher education. The governance structure appears to be what causes a more Democratic legislature to be more generous towards higher education.

The reason higher education governance structures have differing affects when it comes to the governor and the legislature may have something to do with the fact that in most cases higher education falls under the purview of the executive branch. Furthermore, the governor represents the entire state and therefore may be less accessible to individual people and organizations. This being the case, much of the governor's interactions with the higher education sector may come primarily through the formal governance structure. However, legislators represent individual districts and may not have the same formal relationship with the governance structure. Therefore, they may be more accessible to individual constituents and may be better attuned to what goes on in their district than the governor is. This means that the higher education governance structure may not buffer the legislature as it does the governor because of the proximity

of the individual legislators to their constituents and their districts in general, including the higher education institutions.

The various institutional actors' relationships with state support of higher education are conditioned by the institution that bridges those relationships, the higher education governance structure. While at least one past study found that higher education governance structures had an insignificant affect on state support of higher education (McLendon, Hearn, & Mokher, 2006), this study shows that the governance structure plays a critical role that can be more fully understood by examining its role as a boundary spanner.

### **Insignificant political variables**

While the vast majority of the political variables have a significant impact on HI ED Effort, four of them do not and deserve specific mention because it is important to understand why they do not have an affect.

#### ***Electoral competition***

Because greater electoral competition has been widely found to affect state spending and policy (e.g., Barrilleaux & Berkman, 2003; Peterson, 1976; Plotnick & Winters, 1985), it was assumed that there was a strong likelihood that a significant effect would be found in regard to higher education funding. Specifically, a positive effect was expected, because, based on prior research (Bailey, Rom, & Taylor, 2002), policymakers tend to view higher education as a redistributive policy area (whether or not it actually

is), and greater electoral competition has been found to be positively associated with redistributive spending. However, in this case no such affect was found.

Electoral competition may have an insignificant effect for several reasons. First, because the values used were proxies (predicted values) and not the actual measure, it is difficult to gauge how much credence to give this finding. However, the model was run using Ranney's two-party competition measure, which is supposed to measure something similar to electoral competition, and the results were fairly similar. Ranney's measure had an insignificant effect. Still, neither measure is a perfect substitute, and therefore this finding could very well be the result of measurement error.

Second, electoral competition may not affect elected officials' thinking in regard to higher education spending. Greater electoral competition may cause officials to pay attention to other issues without causing them to divert funding from higher education. This may especially be the case if elected officials do not see higher education as a redistributive policy area.

### ***Budget power of the governor***

While the budget power of the governor has been shown to affect state spending in other areas (Barrilleaux & Berkman, 2003), it has no significant effect on HI ED Effort. This is unexpected, considering how influential governors have been shown to be in state higher education policymaking (Heller, 2002; Marcus, 1997; McLendon, 2003a; McLendon & Ness, 2003). Also, one dated study found a significant relationship between greater institutional powers of the governor and state funding of higher education (Peterson, 1976). The result may have more to do with how state spending on higher

education is measured than with how involved the governor is with spending for higher education.

### *Term limits*

A recent study that uses the same methods (cross sectional time series analysis), dependent variable, and source for the term limits variable found a significant and positive relationship between HI ED Effort and term limits (McLendon, Hearn, & Mokher, 2006), while the current study did not. Based on McLendon et al.'s finding and other research that has indicated that term limits make legislators more responsive to their constituents and do not constrain spending, this study hypothesized that term limits would positively affect state spending on public higher education. This assumption was not supported by the results.

There are several possible reasons for the conflict between McLendon et al.'s finding and the results reported here. First, while both studies used the same dependent variable and retrieved the data from the same source, McLendon et al. do not indicate whether they corrected the data for the two year lag in the income figures. Second, the two studies include different independent variables, other than term limits, and therefore when other variables are controlled for term limits, they may act differently in regard to HI ED Effort. Third, the studies cover slightly different years: this one covers 1976–2004 and McLendon et al.'s covers 1984–2002. Further research will be needed to determine if and in what way term limits affect state support of public higher education.

### ***Political culture***

Political culture does not have a significant effect on HI ED Effort. Based on prior research this is a surprise, as political culture has been shown to impact a variety of state policy and spending decisions (French & Stanely, 2005; Gittell & Kleiman, 2000; Klingman & Lammers, 1984; Koven & Mausolff, 2002). It is difficult to determine why this variable appears to have no effect. The results in regard to the other budgetary areas and higher education's share of state general fund expenditures will help us understand the relationship between political culture and state support of higher education.

### **Higher education factors**

As indicated previously, three out of the five higher education sector variables have a significant effect on HI ED Effort. The variables include the percentage enrolled in two-year higher education, if a state uses a funding formula for higher education, and average tuition for four-year institutions.

### ***Percent enrolled in two year higher education***

As hypothesized, the percentage enrolled in two-year higher education had a significant negative effect on the dependent variable. It appears that as more students enroll in the relatively less expensive two-year institutions, there is decreased demand on state policymakers to fund public higher education in general.

### ***Higher education funding formula***

Confirming past research (Rizzo, 2005), the usage of funding formulas to fund higher education appears to benefit higher education in the long run, as they protect higher education from various economic pressures and allow funding to increase with enrollments.

### ***Tuition***

The results for average in-state tuition for four-year institutions confirmed the hypothesis. Increasing tuition appears to lead to decreases in state effort in regard to funding higher education. This may represent the “privatization” or “marketization” of higher education as state policymakers have been moving away from the public funding model and towards the private model of high tuition. In other cases, where the state leaders are committed to the public approach to funding higher education, state policymakers may be punishing higher education for raising tuition by cutting appropriations. Either way, this finding must be viewed as tentative because of the possibility of dual causality between appropriations and tuition.

### **Economic and demographic**

Consistent with past studies of state support of public higher education, most of the economic and demographic variables have a significant impact on HI ED Effort. These include the percentage of the population that is college-age, the Gini coefficient, the percentage of the population below Pell Grant level, one year lagged recessionary year, unemployment, and spending on Medicaid. Many of the coefficients are not in the

hypothesized direction. A major reason for this is because of the composition of the dependent variable, which includes personal income. Many of the economic and demographic variables directly impact that portion of the variable.

### *Percent of the population college age*

The percentage of the population that is college-age is negatively associated with state support of higher education. This is unexpected, as it was suspected that with a larger college-age population share, there would be greater demand for higher education and state funding support thereof. Perhaps states with a large population ratio of 18–24 year olds have fewer resources to devote to higher education. Analyzing the effect of this variable on the share of state general fund expenditures devoted to higher education will help provide some insight on this question.

### *Gini coefficient/income inequity*

Income inequity (measured by the Gini coefficient) is associated with less state support of higher education. This finding is the opposite of the hypothesized direction. It was argued that middle class and wealthy populations in states with wide income distributions would be better able to use the public higher education system to benefit themselves. One reason for the contrary findings may be that states with wide income distributions may have a smaller middle class. The wealthy may be disproportionately attracted to private and out-of-state institutions, and the poor may not be attending postsecondary education in large numbers or may be attending low cost two-year institutions; therefore, there is less demand for public higher education.



***Percent of the population below Pell grant level***

Another surprising result was that the percentage of the population within a state that is below the eligible federal Pell Grant level (in 2003, household income below \$45,000) is positively associated with HI ED Effort. The argument was that states with large low-income populations may have less taxable resources and will be less inclined to support an area that benefits the rich. There are two reasons that this variable is positively associated with state appropriations for public higher education per \$1,000 personal income. If a state has lower income, it will naturally inflate the ratio term that makes up the dependent variable in this case (lower per capita income). Likewise, the Grapevine data that compose part of the dependent variable includes state financial aid. States with more households with incomes below the Pell level may need to appropriate more money for financial aid.

***Recessionary year***

According to these findings a recessionary year is associated with increased HI ED Effort. The years were carefully coded; however, simple observation reveals that state support declines as result of national recessions (SHEEO, 2007). This finding may be the result of measurement error. Perhaps the use of dummy variables does not truly capture the effect of recessions because recessions normally do not last an entire calendar year. This finding could also be due to depressed incomes that are a result of recessions.

### *Unemployment*

At only one point is the coefficient connected to unemployment significant, and even then it is just barely significant (.1). Therefore, this result is somewhat tentative. The significant result is positive, which is counter to past research (Lowry, 2001; McLendon, Hearn, and Mokher, 2006; Toutkoushian & Hollis, 1998) and the hypothesized direction. Whether it is considered significant or not, the result may be related to decreased or lower income in states with high unemployment numbers.

### *Medicaid*

State spending on Medicaid has a significant and large negative effect on HI ED Effort. Aside from the lagged dependent variable, it has the largest effect of all the independent variables. The more that states spend on Medicaid, the less they appropriate to higher education. This finding supports the notion that spending on Medicaid causes constraints on state budgets and forces policymakers to make choices among budgetary areas—in this case to the detriment of higher education (Kane, Orszag, and Gunter, 2003). This idea will be examined in greater depth when higher education share of general fund expenditures is analyzed.

While many of the economic and demographic variables did not have the hypothesized effect on state appropriations for higher education, the relationships will be considered again as we explore how the Fiscal Policy Framework explains how elected officials decide to divide up the fiscal pie amongst the primary state budgetary areas including higher education.

**Model 2: Higher Education's Share of State General Fund Expenditures**

Similar to the first model, the results of Model 2 largely confirm the hypothesis and provide further insights into the state funding process for public higher education (Table 5.7).

**Table 5.7:** Share of State General Fund Expenditures Devoted to Higher Education (Stepwise)

	(1) Lag Dep.	(2) Econ & Dem		(3) Plus HI ED		(4) Plus Political	
		b-coefficient	Beta-Coef.	b-coefficient	Beta-Coef.	b-coefficient	Beta-Coef.
Lag Share HI ED	0.46636** (0.02521)	0.38976** (0.02603)	0.38976** (0.02603)	0.37697** (0.02622)	0.37697** (0.02622)	0.35880** (0.02618)	0.36241** (0.02620)
% Pop. College Age		0.00029 (0.00084)	0.01046 (0.03084)	-0.00038 (0.00089)	-0.01393 (0.03237)	-0.00056 (0.00090)	-0.03075 (0.03275)
% Pop. Elderly		-0.00030 (0.00064)	-0.01303 (0.02815)	0.00015 (0.00065)	0.00636 (0.02843)	-0.00002 (0.00065)	-0.00281 (0.02838)
Gini Coefficient		-0.09317* (0.03863)	-0.05489* (0.02276)	-0.06865+ (0.03922)	-0.04045+ (0.02311)	-0.06590+ (0.03956)	-0.03899+ (0.02337)
GSP Per Capita		-0.04032** (0.00896)	-0.16926** (0.03761)	-0.03692** (0.00953)	-0.15498** (0.03999)	-0.04378** (0.01001)	-0.18253** (0.04211)
% of Pop. Below Pell		-0.00007 (0.00005)	-0.03028 (0.02274)	-0.00009+ (0.00005)	-0.04206+ (0.02293)	-0.00012* (0.00005)	-0.05551* (0.02405)
Lag Recession Year		0.00426* (0.00194)	0.03280* (0.01491)	0.00411* (0.00194)	0.03169* (0.01492)	0.00231 (0.00203)	0.01751 (0.01566)
Unemployment		-0.00129* (0.00060)	-0.05019* (0.02339)	-0.00121* (0.00061)	-0.04703* (0.02358)	-0.00117+ (0.00062)	-0.05107* (0.02404)
% Enroll Private Hi Ed				0.06106+ (0.03382)	0.14338+ (0.07942)	0.11085** (0.03469)	0.23632** (0.08105)
% Enroll 2 Year Hi Ed				0.00078 (0.01711)	0.00217 (0.04721)	0.00263 (0.01731)	0.00212 (0.04786)
Funding Formula				0.00050 (0.00295)	0.00445 (0.02645)	-0.00049 (0.00297)	-0.00220 (0.02664)
Giving to Public Univ. per FTE				-0.00000 (0.00000)	-0.00200 (0.02001)	-0.00000 (0.00000)	-0.00663 (0.02028)
Log Tuition				-0.01494** (0.00419)	-0.10938** (0.03072)	-0.01261** (0.00428)	-0.09209** (0.03140)
Interest Group Density						-0.00001** (0.00000)	-0.06631* (0.02930)
Political Ideology						0.00014 (0.00011)	0.04102 (0.03320)
Electoral Competition						-0.00004 (0.00003)	-0.01717 (0.01303)
Voter Turnout						0.00006 (0.00008)	0.01180 (0.01724)
Budget Power of Gov						-0.00265+ (0.00155)	-0.06221+ (0.03749)
Leg Professionalism						0.00000** (0.00000)	0.27021** (0.07175)
Uni-Party Leg						-0.00207 (0.00159)	-0.02214 (0.01513)
Term Limits						0.00366+ (0.00195)	0.02605+ (0.01355)
Hi Ed Gov Structure						0.00087 (0.00190)	0.01110 (0.02996)
Political Culture						0.01617* (0.00790)	0.04822+ (0.02511)
Party of Governor						-0.00313* (0.00155)	-0.02691+ (0.01451)
Party of Legislature						0.00009 (0.00012)	0.02012 (0.03859)
R-squared <sup>3</sup>	0.27	0.33	0.33	0.34	0.34	0.37	0.37

Standard errors in parentheses + significant at 10%; \* significant at 5%; \*\* significant at 1%

<sup>3</sup> The overall R-square is .44

As in the first model, the lagged dependent variable accounts for most of the explained variance (.27). The economic and demographic variables add .06, the higher education variables add .01, and the political variables add .03. Again, by loading the political variables last the majority of the variance has already been accounted for.

When the order is reversed, the political variables add .05 to the explained variance, the higher education add .02, and the economic and demographic add .03 (Table 5.8). The average increase to the *R*-square for each of the variable categories are 4.5% for the economic and demographic, 4% for the political variables, and 1.5% for the higher education variables.

**Table 5.8:** Share of State General Fund Expenditures Devoted to Higher Education  
(Reverse Stepwise)

	(1) Lag Dep.	(2) Political	(3) Plus HI ED	(4) Plus Econ & Dem
R-squared (within)	0.27	0.32	0.34	0.37

When the lagged dependent variable is not included, the economic and demographic variables explain 16% of the variance. The higher education variables add 3% and the political variables add 5% (Table 5.9).

**Table 5.9:** State Appropriations to Higher Education Per \$1,000 Personal Income  
(Stepwise without lagged dependent)

	(1) Econ & Dem	(2) Plus HI ED	(3) Plus Political
R-squared (within)	0.16	0.19	0.24

When the order is reversed, (Table 5.10) the political variables explain 12% of the variance. The higher education variables add 7% and the economic and demographic add 4%. The average increase to the *R*-square for each category is 10% for the economic and demographic, 8.5% for the political, and 6% for the higher education.

**Table 5.10:** State Appropriations to Higher Education Per \$1,000 Personal Income  
(Reverse stepwise without lagged dependent)

	(1) Political	(2) Plus HI ED	(3) Plus Econ & Dem
R-squared (within)	0.12	0.19	0.23

Referring back to Table 5.6 shows that 6 out of the 12 political variables are significant.<sup>4</sup> These include interest group density, budget power of the governor, legislative professionalism, term limits, political culture, and party of the governor. Based on the Beta coefficients, legislative professionalism has the largest effect size, followed by interest group density, and then by budget powers of the governor. Overall, legislative professionalism and private higher education enrollment have the largest effect sizes, with the former boasting the most significant effect (interest group density is fifth overall).

Of the six significant political variables, four were in the hypothesized direction: interest group density, budget powers of the governor, legislative professionalism, and term limits. The results for political culture and party of the governor both appeared to operate in a direction contrary to expectations.

Referring to the conceptual framework, most of the categories significantly affect HI ED Share. Interest group activity, governmental institutions, political culture, and attributes of the policymakers all impact HI ED Share. The one category that does not is mass political attributes. It appears that when the model focuses on internal decision making regarding the division of post-tax general fund expenditures, the outcome is more contingent on internal governmental institutions and policymaker attributes than external mass political attributes. This statement does not hold true when the dependent variable is HI ED Effort, where at least two of the mass political attributes are significant. HI ED

<sup>4</sup> Political Ideology is significant when the lagged dependent variable is not included and it is in the hypothesized direction. This would bring the total number of significant political variables to seven.

Effort measures the state's tax effort in regard to higher education; therefore, it is strongly related to the state citizenry's preferences as they relate to the issue. Thus, it is natural that mass political attributes would contribute significantly to the overall effect.

The higher education category appears to have an impact on HI ED Share, with the percentage enrolled in private higher education and the average four-year tuition having significant effects. So does the economic and demographic category: the Gini coefficient, gross state product per capita, and unemployment all have significant effects. The next section interprets each significant variable's direction and affect.

### **Discussion of Model 2 Results**

The results of the second model further clarify some of the results of the first model and provide some new insights into state budgeting for higher education. This section will discuss the results outlined above using the State Fiscal Policy Framework and the theoretical arguments relating to each variable. Again, the results of this analysis largely support the Fiscal Policy Framework, as each category of the Framework significantly impacts HI ED Share except mass political attributes. However, political ideology is significant when lagged HI ED Share is not included. Similar to the discussion of the first model, this section will use theoretical and conceptual discussions for each individual variable that were provided in the theoretical framework section to help explain the variables' behavior in this model. Also, because the political categories and variables make up the primary conceptual interest of this study, they will be discussed first and in most depth.

### **Political variables**

An important finding of this analysis is that this model, like the first one, confirms the general hypothesis that variation in the state political context results in variation in state funding of higher education. It is significant that two different measures of state support of higher education both verify the importance of politics in the state budgeting process.

### **Interest group activity**

Consistent with the hypothesis of this study, state interest group density has a significant and negative effect on HI ED Share. An increase of one in interest group density results in .0001 decrease in HI ED Share. While this effect size may appear small, the number of interest groups within a state has a relatively large impact on HI ED Share when compared to the other Beta coefficients. It is also important to remember when interpreting this model's coefficients in their original matrix that HI ED Share's mean is .151 and its standard deviation is .053; thus, none of the coefficients will be large.

The result for interest group density provides further evidence interest groups' importance in state budgeting (Nice, 1984). Specifically, it supports past findings that assert that the number of interest groups in a state influences state political activity, policy, and budgeting (Gray & Lowery, 1999; Jacoby & Schneider, 2001).

### **Governmental institutions**

While it appears that within-state, public political attributes do not have a significant impact on HI ED Share, governmental institutions do. Three out of the five



variables that comprise this conceptual framework category are significant by conventional standards.

### ***Budget powers of the governor***

As hypothesized, greater gubernatorial budgetary powers are associated with less HI ED Share. An increase of one in budgetary powers of the governor results in a .00265 decrease in HI ED Share. Comparing the Beta coefficients shows that budgetary powers of the governor have a relatively large impact compared to the other variables included in the model.

The predictable and significant effect of the gubernatorial budgetary powers is additional evidence of institutions' impact on political decision making. It likewise provides further evidence of the importance of governors in state higher education policy formation and budgeting (Heller, 2002; Marcus, 1997; McLendon, 2003a; McLendon & Ness, 2003).

While at least one recent study found that governors' institutional powers (Beyle's index) were not significantly associated with state appropriations for higher education (McLendon, Hearn, & Mokher, 2006), that study (like this study's first model), did not look specifically at the share higher education receives. By analyzing HI ED Share, this model captures trade-off behavior. Hendrick and Garand (1991) argued that more centralized decision making within states increased the likelihood that trade-offs would occur. They specifically argued that governors with greater powers were more likely to engage in trade-offs. Because higher education is particularly susceptible to trade-offs, it makes sense that greater gubernatorial budgetary powers would be

negatively associated with HI ED Share. Likewise, they did not use a measure of governors' specific budgetary powers. Further, the Beyle index of governors' institutional powers which they used contains the critical error discussed earlier.

### *Legislative professionalism*

Legislative professionalism is significantly and positively associated with HI ED Share. A \$10,000 increase in legislative salary results in a 0.0077 increase in HI ED Share. Comparing the Beta Coefficients, of all the independent variables it has the largest effect. The first model's results that used State Effort were not able to determine whether a real relationship existed between professionalized legislatures and higher education or whether the effect was an artifact of professionalized legislatures spending more generally. The results from this model however, significantly clarify the scenario. As legislatures become more professionalized, they devote a larger share of the state's spending to higher education, meaning that there is an actual relationship between the two.

Why do more professionalized legislatures favor higher education? There are several possible reasons. First, professional legislatures are likely to have more Democrats than unprofessional legislatures. Second, professional legislatures are more likely to be competitive, which has been associated with more redistributive funding. Third, more professional legislatures have been associated with increased spending in general. Fourth, more professionalized legislatures generally attract more educated members, who tend to be more sympathetic toward higher education and value it more highly. And finally, more professional legislatures have greater analytic ability and

therefore may be better able to recognize the benefits that increased investment in this area may bring their states.

Based on the results of this model, it is easy to eliminate several of the reasons listed above. First, both this model and Model 1 control for the percentage of Democrats in the legislatures; in this model, the percentage of Democrats in the legislature does not have a significant effect, thereby eliminating option one as a viable explanation. Second, because the dependent variable is higher education's share of general fund expenditures, option three is no longer possible. Remaining, then, is option two, which argues that professionalized legislatures prefer to fund redistributive policy areas; option four, which argues that more professionalized legislatures attract more educated members who may value higher education more; or option five, which argues that more professionalized legislatures have a greater analytic ability that stems from their greater resources.

Option two seems doubtful. Although Baily, Rom, and Taylor (2002) found that state policymakers view higher education as a redistributive policy area, the results from this study relating to budgetary powers of the governor and electoral competition show a relationship that is tentative at best. We are then left with either option four or option six. Both of these seem plausible, and they also complement each other. The basic argument is that more educated legislatures will value higher education more highly, as will legislatures with access to better information and resources. The results from Model 1 (HI ED Effort) and this model (HI ED Share) provide fairly solid evidence of this special relationship.

### *Term limits*

In Model 1, term limits did not have a significant effect, though when the dependent variable is HI ED Share, term limits have a significant effect and in the predicted direction. The existence of term limits results in a .0036 increase in HI ED Share. Compared to the rest of the Beta coefficients, the effect of term limits is not great but is nevertheless significant.

Based on the earlier theoretical discussion about term limits and state higher education spending, there are at least two possible reasons why term limits may cause a state to devote an elevated share of general fund expenditures to higher education. First, elected officials may view higher education as an area where their constituencies, or at least the median voter, would want them to devote more money. They may feel they would be scoring political points by favoring higher education. The argument stated here is that by imposing term limits the incumbency effect is diminished, thereby causing elected officials to be more responsive to the desires of the voters.

Second, because term-limited legislators may not have adequate time in office to develop expertise in a targeted area, they may become dependent on higher education interests (namely the institutions or governance structures) for information, analysis, and interpretation of complex data and ideas (McLendon, Hearn, & Mokher, 2006). However, it is possible that this benefit could extend to other budgetary areas and competing interests as well; therefore each area may receive an increase, but not necessarily to higher education's advantage. My findings argue against the general "lifting of the field" since the dependent variable is HI ED Share.

When the two possibilities are combined, the field may be tilted towards higher education. If, in fact, legislators view higher education as an area their constituencies favor, this may cause them to seek or be more welcoming of information from the higher education sector, thus allowing higher education a better opportunity to plead its case and gain an advantage in the competition for state dollars.

### **Political culture**

Political culture is significantly associated with HI ED Share, though the effect is in the opposite direction than what was hypothesized. As states become more traditionalistic (or less moralistic), they spend more on higher education relative to other state budgetary areas. An increase of one in political culture (a state becoming more traditionalistic) results in a .016 increase in HI ED Share; comparing the Beta coefficients shows that political culture has a fairly average effect size.

Originally, I argued that because moralistic states promote the public wellbeing and because traditionalistic states promote the status quo and the preservation of the elite class, greater state support of higher education would be associated with more moralistic states. This assertion was based on the assumption that elected officials and their constituents view higher education as a public good and an equalizing force in society, which are moralistic values. Based on the findings, this assumption appears to be incorrect.

There is significant debate in the scholarly literature about whether higher education has redistributive effects (Bailey, Rom, and Taylor, 2002; Bowen, 1977; Cohn, 1970; Crean, 1975; Hansen, 1970; Hansen & Weisbrod, 1969; Heller, 2002; Nicholson-

Crotty & Meirer, 2003). This study's finding, as it relates to political culture, provides some evidence that higher education is not viewed and/or treated as a redistributive policy area. This result, along with the gubernatorial budgetary powers and electoral competition findings, seem to contradict Bailey, Rom, and Taylor's (2002) findings that elected officials treat higher education as a redistributive policy area. The perception, whether real or imagined, that higher education serves the elite and perpetuates their place in society may prevail, at least compared to some other state budgetary areas. Were this not the case, moralistic states would be more supportive of higher education and traditionalist states less so. Of course, further investigation is needed and will be provided in part as we investigate the Fiscal Policy Framework on other budgetary areas' shares of state general fund expenditures.

### **Attributes of policymakers**

The attributes of policymakers, or at least the partisanship of policymakers, does not appear to have the same type of impact on HI ED Share as it did on HI ED Effort. This is surprising, as one might expect that partisanship would play a larger role when dividing funds among budgetary areas. However, in this model, only the party of the governor had a significant effect.

### ***Party of the governor***

This analysis indicates that having a Democratic governor is negatively associated with HI ED Share. This is an unexpected result, because the available theoretical and empirical evidence seems to indicate that having Democratic governor is associated with

increased support of higher education (Archibald & Feldman, 2004; Kane, Orszag, and Gunter, 2003; McLendon, Hearn, & Mokher, 2006). In addition, this study found that having a Democratic governor is positively associated with HI ED Effort. However, greater overall state spending has been associated with Democratic control. This fact may reconcile past findings with this one. If Democratic governors spend more overall, their increased spending on higher education may be trumped by greater spending in other budgetary areas. If HI ED Effort is analyzed (or higher education funding per FTE or per capita), then having a Democratic governor will be positively associated with funding; however, when HI ED Share is analyzed there will be a negative relationship.

### Interaction terms

Once again the interaction term provides further understanding of the political process of state funding for higher education and the results differ slightly from the HI ED Effort results (Table 5.11).

**Table 5.11:** Interaction Terms (HI ED Share)

Dep= HI ED Share	Gov Struct*Gov Power		Gov Struct*Interest Density		Gov Struct*Leg Party	
	b-coefficient	Beta-Coef.	b-coefficient	Beta-Coef.	b-coefficient	Beta-Coef.
Gov Struct*Gov Power	-0.00340* (0.00149)	-0.38560** (0.14651)				
Gov Struct*Interest Density			0.00000 (0.00000)	-0.07522 (0.12967)		
Gov Struct*Leg Party					0.00009 (0.00010)	0.10290 (0.14790)
Budget Power of Governor	0.00896+ (0.00528)	0.28792* (0.13940)	-0.00253 (0.00157)	-0.06418 (0.04126)	-0.00250 (0.00157)	-0.06079 (0.04127)
Hi Ed Governance Structure	0.01460* (0.00637)	0.29324** (0.10976)	-0.00003 (0.00244)	0.03274 (0.04204)	-0.00494 (0.00710)	-0.06454 (0.12251)
HI ED Interest Group Ratio	-0.00001* (0.00000)	-0.07002* (0.03207)	-0.00001 (0.00001)	0.00047 (0.12858)	-0.00001* (0.00000)	-0.07148* (0.03218)
Party of Legislature	0.00004 (0.00012)	0.05395 (0.04223)	0.00006 (0.00012)	0.06190 (0.04228)	-0.00023 (0.00038)	-0.02817 (0.13741)
Constant	0.58593** (0.10874)	0.04127 (0.02958)	0.58111** (0.10880)	0.05261* (0.02447)	0.58593** (0.10874)	0.04127 (0.02958)
R-squared	0.37	0.23	0.37	0.23	0.37	0.24

Unlike the first model only the governance structure \* budgetary powers of the governor interaction term was significant. Once again the governance structure buffers the affect of the governor. While independent of the governance structure the governor will use his or her powers to provide greater support for higher education, under the conditioning affect of the higher education governance structure the result is negative. Again, a more centralized governance structure assumes more responsibility for higher education policy and for the analysis and transformation of information concerning higher education, compared to less centralized structures. This may force governors to depend more on the governance structure when it comes to issues concerning higher education. The governance structure may therefore buffer the influence governors have on state support of higher education.

### **Insignificant political variables**

In this model, half of the political variables did not reach statistical significance by conventional standards. It is important to attempt to make note of them and to try and understand why they did not have the anticipated affect. It is interesting to note that between the two models, all but one of the political variables reached statistical significance. As discussed earlier, it is also important to note the inability of the mass political attributes to affect HI ED Share.

### ***Political ideology***

In the full model, political ideology of the citizenry was not statistically significant. Past studies have found a statistically significant relationship between state



support of higher education and political ideology of the citizenry (Archibald & Feldman, 2004; Nicholson-Crotty & Meier, 2003), as did the first model in this study. This is the first study to analyze the ability of political ideology to predict HI ED Share. The findings appear to indicate that the citizenry's ideological propensity has little impact on how state policymakers distribute funds, while it does impact the state's effort in regard to higher education.

### *Electoral competition*

Once again, electoral competition does not have a statistically significant effect. This finding may be related to a measurement error resulting from the use of predicted values, or it may indicate that electoral competition actually has little to no influence on state support of higher education. If the latter is true, it would again call into question whether policymakers actually view higher education as a redistributive policy area. A second possibility is that the insignificant effect is another manifestation of how mass political attributes are unimportant in determining how state funds will be apportioned. It is important that a more up-to-date measure of electoral competition be developed so that questions such as these can be answered.

### *Voter turnout*

The final variable in the mass political attributes category was also statistically insignificant—voter turnout. While voter turnout does not have a significant effect on the internal determination of state dollar distribution, it does impact the state's effort on behalf of higher education.

### *Uniparty legislature*

Uniparty legislature did not have a statistically significant effect. This was a surprising finding. While it may be understandable that the external mass political attributes had less to do with HI ED Share, it is less understandable when it comes to the effect of an aspect of an actual institution of government that plays an integral role in determining how the available funds get distributed.

### *Higher education governance structure*

The fact that the centrality of the states higher education governance structure is not statistically significant is also a surprising finding. From both an interest group/advocacy perspective and a resource perspective, it seems logical to assume that the governance structure type would affect higher education's state expenditure share. Higher education governance structures are generally formal agencies within state government that would seem to have access to elected officials and play an important role in state financing of higher education. However, it appears that this influence does not extend to how state dollars are distributed among budgetary areas. This lack of influence may be explained by the fact that governance structures are not involved in the appropriations process in the same way that governors and legislatures are. Governors and legislatures have to be concerned about individual appropriations and how they compare to other budgetary areas, whereas the agencies are only concerned with their own appropriation. Therefore, the governance structure may impact the amount higher education receives but not what the amount is relative to other budgetary areas.

### ***Party of the legislature***

While party of the governor has a significant, though surprising effect, the dominant party of the legislature does not. This is an unanticipated finding which may be the result of the fact that the dominant party within legislatures must still compromise and cooperate with minority party, unlike the executive branch. Therefore, the partisan effect is more limited than it is in the executive branch. It may also be a further indication of Democrats spending more generally and therefore not having significant affect on higher education's share.

### **Higher education factors**

Higher education factors appear to have less impact on HI ED Share than they did on HI ED Effort. Only two out of the five variables that make up the higher education factors category are statistically significant by conventional standards. This seems to indicate that external factors, such as attributes of the higher education institutions, are more related to the overall appropriations level or to the state's effort on behalf of higher education than to the actual distribution of general expenditure funds. The significant variables are the percentage of enrolled students attending private higher education institutions in the state and the average four-year institution tuition in the state.

### ***Percentage enrolled in private higher education***

The percentage enrolled in private higher education had an effect opposite of what was expected. It appears that the more students that are enrolled in private higher education versus public higher education, the better higher education fares in the

distribution of general fund expenditure dollars. This is particularly surprising because Eastern states tend to have the most students enrolled in private higher education, but they tend to spend less on public higher education relative to Western and Midwestern states. Enrollment growth in the private sector mimicking enrollment growth in the public sector may be a reason for this result—as more students enroll, every area benefits. If this is the case, the percentage enrolled in private higher education may be working as a proxy for overall enrollments. Overall, enrollment in public higher education has been found to be positively associated with state support of higher education; however, there is an issue of dual causality, because increased appropriations have been positively associated with increased enrollments (McLendon, Hearn, & Mokher, 2006). More research is needed to determine the relationship between the percentage enrolled in private higher education and HI ED Share.

### *Tuition*

The results for average in-state tuition for four-year institutions confirmed the hypothesis. Increasing tuition appears to lead to decreases in HI ED Share. This may represent the “privatization” or “marketization” of higher education, as state policymakers have been moving away from the public funding model towards a private model of high tuition. In other cases where the state leaders are committed to the public approach to funding higher education, state policymakers may be punishing higher education for raising tuition by cutting appropriations. Either way, this finding must be viewed tentatively because of possible dual causality between appropriations and tuition.

### **Economic and demographic**

Economic and demographic factors significantly impact HI ED Share. Four out of the seven variables that comprise the category have a statistically significant impact on HI ED Share. Two out of the four were in the hypothesized direction. The significant variables include the Gini coefficient, gross state product per capita, the percentage of the population below eligible Pell Grant level, and unemployment.

#### ***Gini coefficient***

As in the case of HI ED Effort, greater inequity is negatively associated with HI ED Share. Again, the reason for this may be that in states with wide income distributions there may be a smaller middle class. The wealthy may be disproportionately attracted to private and out-of-state institutions, and the poor may not be attending postsecondary education in large numbers or may be attending lower cost two-year institutions; therefore, there would be little demand for public higher education.

#### ***GSP per capita***

Gross state product per capita is negatively associated with HI ED Share, which is opposite of the hypothesized direction. From the perspective of higher education as a state budgetary “balance wheel,” as economies improve we would expect to see a reinvestment in higher education. However, as gross state product increases, states are investing more in other areas relative to higher education.

### *Percentage of the population below eligible Pell grant level*

Consistent with the hypothesized direction, the percentage of the population below the eligible Pell Grant level is negatively associated with HI ED Share. Among the possible reasons for this finding is that states with a larger poor population may be less inclined to support higher education, as it is seen as primarily benefiting the rich. Second, states with high proportions of poor may not have adequate tax bases to support higher education; and third, such states may have other priorities such as Medicaid and other assistance programs.

### *Unemployment*

Unemployment is negatively associated with HI ED Share. This is in line with the hypothesized direction. From a trade-off perspective, any time that the economy is weak and/or there is less tax revenue (such as when there is high unemployment), elected officials will be inclined to take funds from higher education in order to support other areas that are less able (or unable) to generate alternative forms of revenue.

### **Comparison of models**

As Table 5.12 shows, all but one of the political variables was significant in at least one of the models, and 10 out of 14 times the significant variables were in the hypothesized direction. It is clear from these results that political institutions, attributes, characteristics, and interests play an important role in determining a state's effort toward higher education and the relative value states place on higher education, as measured by general fund expenditures. This is a significant finding in and of itself. Different political

forces however, are at work in each model. The only two variables that significantly impact both HI ED Effort and HI ED Share are legislative professionalism and the party of the governor. However, the party of the governor has an inconsistent direction of impact. It is important to note that HI ED Effort is impacted by mass political attributes while HI ED Share is not.

**Table 5.12:** Comparison of Models

Categories	Measure	HI ED Effort	HI ED Share
Interest Groups	Interest Group Density	NA	-
	HI ED Interest Ratio	+	NA
Mass Political Attributes	Political Ideology	+	
	Electoral Competition		
	Voter Turnout	-	
Govt. Institutions	Budget Power of Governor		-
	Legislative Prof	+	+
	Uni-Party Legislature	-	
	Term Limits		+
	HI ED Governance Structure	-	
Political Culture	Political Culture		+
Attributes of Policy-makers	Party of Governor	+	-
	Party of Legislature	+	
Interaction Terms	Gov Struct* Budget Power Gov	-	-
	Gov Struct* Interest Ratio	+	NA
	Gov Struct* Interest Density	NA	
	Gov Struct* Party of Leg	+	

Shaded box=Opposite of hypothesized direction

Although both HI ED Effort and HI ED Share are affected by governmental institutions, they are affected by different aspects of it. HI ED Share is affected only by internal structural factors that often depend on the force of law: the budgetary powers of



the governor, legislative professionalism, and legislative term limits. It is not, however, affected by whether a legislature is unified, which is unrelated to the structure or the law; nor is it influenced by the type of governance structure, which is an external governmental agency (*external* indicating that it is not a branch of government). The higher education governance structure may not influence the ultimate distribution of funds among various budgetary areas.

Likewise, other external factors affected the dependent variables differently. Again, most notably, none of the mass political attributes affect HI ED Share in the full model. While the political attributes of the public appear to affect the amount of effort the state is willing to put forth for higher education (tax effort), which is akin to the level of funding, it does not affect how elected officials distribute funding among areas. While political culture does affect HI ED Share, it is the one area that measures something that is related to both the policymakers and the general public. It appears that only factors related to the government or legislature (except for interest groups) exercise influence over the distribution of funds among expenditure areas.

Interest groups have been increasing in number and influence (Thomas & Hrebener, 2004), so it is understandable that they are the one external force that impacts the distribution funds, especially since there are most likely interest groups lobbying on behalf of each expenditure area. From this perspective, it makes sense that the higher education interest group ratio would only affect HI ED Effort and not HI ED Share, because it is a measure of the higher education lobby's robustness and does not measure the total interest lobby size in the state. Because the higher education interest group ratio

has to do specifically the higher education lobby, it impacts HI ED Effort but not HI ED Share.

Similarly, the results for the interaction terms varied with the models. While higher education governance structures had a significant conditioning affect budgetary powers of the governor, the results were not consistent in regard to interest groups or party of the legislature. Again, this may have something with the governance structure being an external governmental agency functioning most closely with executive branch.

### **Trade-Offs**

So far we have been able to determine the political, higher education, and economic and demographic factors that impact HI ED Effort and HI ED Share, but the question of from whom higher education is borrowing and who is borrowing from higher education remains thus far unanswered. To answer this question, the Fiscal Policy Framework will be applied to the other major general fund expenditure areas. Each area's share of the general fund expenditures will serve as dependent variables, and included in the model will be HI ED Share. In so doing we will be able to determine if HI ED Share takes from any of the other expenditure areas. The positions will then be switched and each of the other expenditure areas' shares will be used to predict HI ED Share, in order to determine if any of those areas take from higher education. Finally, each of the other expenditure areas will be included within each other in order to determine how susceptible higher education is relative to the other areas. As indicated before, the other general fund expenditure areas are public assistance, corrections, K-12 education, Medicaid, and transportation.

### **HI ED Share within other expenditure areas**

Although the full model was run for Table 5.13 below, only the results for the political variables are shown. Based on the results of this analysis, it appears that trade-offs do in fact occur. Higher education takes funds from K-12 and transportation and has the largest negative influence on public assistance and transportation. However, relatively greater spending on higher education appears to have a positive impact on relative spending on corrections, which is not easily explained. The large negative impact on transportation was somewhat predictable based on Hendrick and Garand's (1991) finding that transportation was the area most susceptible to trade-offs, apart from higher education. Transportation spending is something that is seen as easily deferred. The negative coefficients for interest group density, HI ED Share, and public assistance also make some sense. There are generally few powerful interest groups lobbying on behalf of the poor, and the poor themselves are generally not well-organized or connected. This paucity of resources would make them likely to be crowded out by other interest groups and to have their appropriations cut to fund other areas.

**Table 5.13: Higher Education Within Public Assistance, Corrections, and K-12 Education (Full Model, Only Political Variables Shown)**

	(1) Share Public Assist.		(2) Share Correct.		(3) Share K-12		(4) Share HI ED	
	b-coef.	Beta-Coef.	b-coef.	Beta-Coef.	b-coef.	Beta-Coef.	b-coef.	Beta-Coef.
Share Higher Education	-0.18684+	-0.10122+	0.15342*	0.09247*	-0.67588*	-0.07552*	NA	NA
	(0.10828)	(0.05866)	(0.06131)	(0.03695)	(0.30450)	(0.03402)		
Interest Group Density	-0.00004**	-0.23003**	0.00001	0.04744	-0.00002	-0.02398	-0.00001*	-0.06631*
	(0.00001)	(0.05762)	(0.00001)	(0.03612)	(0.00003)	(0.03333)	(0.00000)	(0.02930)
Political Ideology	-0.00002	-0.00339	-0.00009	-0.01574	0.00060	0.01944	0.00014	0.04102
	(0.00042)	(0.06491)	(0.00024)	(0.04085)	(0.00117)	(0.03768)	(0.00012)	(0.03320)
Electoral Competition	0.00001	0.00135	-0.00001	-0.00184	-0.00001	-0.00036	-0.00004	-0.01717
	(0.00011)	(0.02548)	(0.00006)	(0.01603)	(0.00032)	(0.01480)	(0.00003)	(0.01303)
Voter Turnout	0.00021	0.02436	-0.00027	-0.03494	-0.00126	-0.03061	0.00005	0.01180
	(0.00029)	(0.03372)	(0.00016)	(0.02122)	(0.00081)	(0.01957)	(0.00008)	(0.01724)
Budget Power of Gov.	-0.00731	-0.09551	-0.00119	-0.01726	-0.00392	-0.01055	-0.00258+	-0.06221+
	(0.00562)	(0.07346)	(0.00318)	(0.04615)	(0.01581)	(0.04259)	(0.00156)	(0.03749)
Leg. Professionalism	0.00000	0.06601	0.00000	0.04447	0.00000+	0.14570+	0.00000**	0.27021**
	(0.00000)	(0.14149)	(0.00000)	(0.08894)	(0.00000)	(0.08203)	(0.00000)	(0.07175)
HI ED Governance Structure	0.00418	0.03567	0.00061	0.00575	-0.01461	-0.02569	0.00071	0.01110
	(0.00687)	(0.05855)	(0.00388)	(0.03684)	(0.01933)	(0.03400)	(0.00190)	(0.02996)
Uni-Party Leg.	0.01426*	0.07340*	-0.00445	-0.02547	-0.00378	-0.00402	-0.00233	-0.02214
	(0.00576)	(0.02966)	(0.00325)	(0.01862)	(0.01618)	(0.01718)	(0.00160)	(0.01513)
Term Limits	-0.00257	-0.00967	-0.00295	-0.01236	-0.01663	-0.01291	0.00375+	0.02605+
	(0.00704)	(0.02650)	(0.00398)	(0.01668)	(0.01983)	(0.01539)	(0.00196)	(0.01355)
Political Culture	-0.01042	-0.01793	-0.03191*	-0.06107*	0.20305*	0.07204*	0.01519+	0.04822+
	(0.02858)	(0.04917)	(0.01617)	(0.03094)	(0.08048)	(0.02855)	(0.00791)	(0.02511)
Party of Governor	-0.01167*	-0.05929*	-0.00360	-0.02037	-0.03800*	-0.03983*	-0.00287+	-0.02691+
	(0.00559)	(0.02839)	(0.00315)	(0.01783)	(0.01571)	(0.01646)	(0.00155)	(0.01451)
Party of Legislature	-0.00064	-0.11510	-0.00016	-0.03242	-0.00017	-0.00622	0.00006	0.02012
	(0.00042)	(0.07526)	(0.00024)	(0.04735)	(0.00117)	(0.04369)	(0.00012)	(0.03859)
R-squared (Within)	0.09	0.09	0.49	0.49	0.54	0.54	0.36	0.36
<b># Sig. Political Variables</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>6</b>	<b>6</b>

Standard errors in parentheses + significant at 10%; \* significant at 5%; \*\* significant at 1%

**Table 5.13, continued:** Higher Education Within Medicaid and Transportation (Full Model, only Political Variables Shown)

	(1) Share Medicaid		(2) Share Trans.		(4) Share HI ED	
	b-coefficient	Beta-Coefficient	b-coefficient	Beta-Coefficient	b-coefficient	Beta-Coefficient
Share Higher Education	-0.01827 (0.19730)	-0.00362 (0.03910)	-0.03244* (0.01387)	-0.09664* (0.04132)	NA	NA
Interest Group Density	-0.00000 (0.00002)	-0.00306 (0.03825)	-0.00000 (0.00000)	-0.04958 (0.04077)	-0.00001* (0.00000)	-0.06631* (0.02930)
Political Ideology	-0.00031 (0.00076)	-0.01798 (0.04325)	0.00006 (0.00005)	0.05271 (0.04580)	0.00014 (0.00012)	0.04102 (0.03320)
Electoral Competition	0.00013 (0.00020)	0.01039 (0.01698)	-0.00000 (0.00001)	-0.00323 (0.01799)	-0.00004 (0.00003)	-0.01717 (0.01303)
Voter Turnout	-0.00018 (0.00052)	-0.00761 (0.02246)	-0.00004 (0.00004)	-0.02775 (0.02377)	0.00005 (0.00008)	0.01180 (0.01724)
Budget Power of Governor	-0.01781+ (0.01024)	-0.08511+ (0.04893)	0.00071 (0.00072)	0.05122 (0.05174)	-0.00258+ (0.00156)	-0.06221+ (0.03749)
Legislative Professionalism	-0.00000 (0.00000)	-0.07884 (0.09433)	-0.00000 (0.00000)	-0.05177 (0.10007)	0.00000** (0.00000)	0.27021** (0.07175)
Uni-Party Legislature	-0.01055 (0.01047)	-0.01988 (0.01972)	0.00031 (0.00074)	0.00881 (0.02090)	-0.00233 (0.00160)	-0.02214 (0.01513)
Term Limits	-0.01066 (0.01283)	-0.01468 (0.01766)	0.00061 (0.00090)	0.01256 (0.01869)	0.00375+ (0.00196)	0.02605+ (0.01355)
HI ED Governance Structure	-0.00262 (0.01251)	-0.00818 (0.03902)	-0.00060 (0.00088)	-0.02817 (0.04131)	0.00071 (0.00190)	0.01110 (0.02996)
Political Culture	0.00552 (0.05206)	0.00347 (0.03276)	-0.00085 (0.00367)	-0.00808 (0.03468)	0.01519+ (0.00791)	0.04822+ (0.02511)
Party of Governor	-0.02125* (0.01016)	-0.03950* (0.01890)	-0.00083 (0.00072)	-0.02315 (0.02000)	-0.00287+ (0.00155)	-0.02691+ (0.01451)
Party of Legislature	0.00011 (0.00076)	0.00740 (0.05014)	0.00003 (0.00005)	0.03354 (0.05338)	0.00006 (0.00012)	0.02012 (0.03859)
R-squared	0.42	0.42	0.21	0.21	0.37	0.37
# of Sig. Political Variables	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>6</b>

Standard errors in parentheses + significant at 10%; \* significant at 5%; \*\* significant at 1%

As the results clearly show, HI ED Share is affected by the highest number of political variables (six). The closest areas are public assistance and K-12, which are impacted by three each. This appears to indicate that higher education is the most susceptible to political influences. This result may be because policymakers view higher education as the budgetary area where they can operate the most discretion. Since higher education is able to generate revenue from other sources, policymakers can easily cut funding during a slow economy to maintain other areas or to minimize cuts in those areas. Because of these discretionary powers, higher education spending is likely to be affected by influences like politics that operate separately from purely economic forces like supply and demand. Those political forces are magnified, in that higher

education is used as the balancing wheel and is combined with or filtered through various political forces.

It is also important to note that the political variable that most consistently impacts budgetary decisions across spending areas is the party of the governor, which affects three of the five areas (not including HI ED Share). Governors play such a critical role in state budgeting and policy, a fact that helps explain these results (Barrilleaux & Berkman, 2003; Beyle, 1996; Heller, 2002; Marcus, 1997; McLendon, 2003a; McLendon & Ness, 2003; Sharkansky, 1968) and shows the importance of party affiliation among the political elite (Alt & Lowry, 1994; Garand, 1985; McLendon, Hearn, and Deaton, 2004). Other political variables that shape the share of state expenditures other areas receive are interest group density (public assistance), budgetary powers of the governor (Medicaid), legislative professionalism (K-12), uniparty legislature (public assistance), and political culture (corrections and K-12). None of the dependent variables are impacted by mass political attributes. This result supports the notion that distribution of state funds among budgetary areas is fairly immune to public influence.

### Other budgetary areas within HI ED Share

In order to determine if other budgetary areas take from higher education each area was regressed within HI ED Share. The results are shown in Table 5.14 (again the full model was run).

**Table 5.14:** Other State Budgetary Areas Within Higher Education (Share of General Fund Expenditures Devoted to Higher Education)

(1) Share Assist.		(2) Share Correct.		(3) Share K-12		(4) Share Medicaid		(5) Share Trans.	
b-coef	Beta-Coeff	b-coef	Beta-Coeff	b-coef	Beta-Coeff	b-coef	Beta-Coeff	b-coef	Beta-Coeff
-0.03052**	-0.05633**	-0.00479	-0.00795	-0.00712**	-0.06376**	-0.00838*	-0.04226*	-0.07161	-0.02404
(0.00903)	(0.01668)	(0.01196)	(0.01985)	(0.00222)	(0.01984)	(0.00392)	(0.01980)	(0.06751)	(0.02266)
R-sqr=0.36 for all models;		Standard errors in parentheses;		+ significant at 10%; * significant at 5%; ** significant at 1%					

Although the full model was run in each case, only the results for the various budgetary areas are shown. The results clearly indicate that state policymakers will take from higher education in order to support other areas of state government. Public assistance, K-12 education, and Medicaid each take appropriations from higher education, with K-12 accounting for the largest effect. Each of these areas is generally driven by caseload and cannot tap into alternative forms of revenue. Corrections and transportation do not have a significant effect on HI ED Share. From a political standpoint, it is logical that corrections would not receive higher education's budgetary shares, since it would be hard to argue for increased spending on corrections at the expense of higher education—advanced education is one of the few factors known to reduce the chances of incarceration. The results for transportation are also expected, because as indicated previously, it is easy to defer highway maintenance.

### **Trade-offs between other budgetary areas**

In order to compare how susceptible higher education is to trade-offs compared to other expenditure areas I also included each of the areas within each other. I found that they were all positively and significantly associated (see Appendix D for results). When states increase spending, they do so almost universally. Aside from higher education, the major state expenditure areas do not engage in trade-off behavior. Therefore, the only area involved in state budgetary trade-offs is higher education (each time there is a trade-off higher education is involved). This finding, combined with the finding that higher education is affected by significantly more political variables, provides substantial evidence that state policymakers view higher education in a fundamentally different way

than they view the other major state expenditure areas. This is most likely the result of several factors. First, higher education can generate its own revenue and is therefore in a better position to absorb funding cuts from the state. Second, higher education possibly provides the greatest return for each state dollar invested. Not only does it provide immediate returns (e.g., jobs and economic stimulation), but it also provides long term returns (increased salaries) and revenue (tax dollars). As indicated earlier, this suggests that states may choose to return funding and invest in higher education when they are able. The two factors taken together create the perfect scenario for both positive and negative budgetary trade-offs involving higher education.

### **Summary of trade-off models**

The results from the last two analyses revealed that trade-off behavior involving higher education is real phenomenon. It has long been assumed that elected officials would take monies from higher education to support other government areas. These findings provide evidence to support that notion. What has not been as frequently discussed is the idea that higher education may in turn take from other areas; that is, that positive trade-offs exist involving higher education. This study provides empirical evidence of increases in HI ED Share that are the result of decreases in transportation, K-12 education, and public assistance's shares of state general fund expenditures.

The idea that elected officials would take from other budgetary areas to increase funding for higher education is a new idea. However, there may be good theoretical reasons for state officials to take such actions. As indicated earlier, higher education is often a valuable investment that can provide positive economic returns to states.



Numerous studies conducted by academics, institutions, and the states themselves have shown the substantial economic impact higher education institutions can have. Studies have generally shown that states receive a significant return on every dollar they invest in higher education (Bowen, 1997; Cohen & Noll, 1998; Psacharopoulos & Patrinos, 2004; Tripp Umbach, 2004). Armed with this knowledge, elected officials may be willing to divert funds from areas such as public assistance, transportation, and K-12 education in order to fund higher education. When the caseload for public assistance or K-12 education does not require an increase, it may be tempting to divert or limit their appropriations in favor of investing in higher education with the hope of a significant return. Of course, states are always able to defer highway maintenance. However, when the caseload is too high in the other areas or the economy is weak, policymakers will be forced to fund the areas that cannot sustain themselves, and/or are caseload-driven; therefore, higher education funding is likely to be cut, or at best receive minimal increases.

This behavior of fair weather investing and rainy day saving at the state level appears to mimic the behavior of individuals and families. When people have discretionary funds they often invest, but when the budget is tight, they often avoid investing in order to take care of necessities. There may even be times when states will borrow monies from other areas to increase higher education funding, even though the caseloads from the other areas have not diminished. States may do this because they are convinced that there will be a future payoff, such as a revitalized economy that will be spurred by higher education growth. Such circumstances, however, are most likely rare.

## **Chapter 6**

### **Discussion and Conclusion**

The funding of higher education in the states is a political process. When measured with different methods and compared to other state budgetary areas, it is clear that state support of higher education is particularly political and is uniquely susceptible to budgetary trade-offs. These findings should fundamentally change the way state support of higher education is viewed and modeled and could also have implications for practice, or how institutions and governing boards in advocacy for state funds. The following section will discuss the implications of this study for both theory and practice, the significance of the study, and directions for future research.

#### **Implications for Theory**

This study clearly showed that the higher education appropriations process does not occur within a vacuum, immune to politics and other budgetary forces. Not only is it not immune, it is especially susceptible to such forces. Using the Fiscal Policy Framework developed for this analysis, it is clear that each of the political categories impacts state support for higher education in some measurable fashion. All but one of the political variables that comprise the political categories was significant in at least one of the two models. This analysis provides strong empirical evidence that interest groups, mass political attributes, governmental institutions, political culture, and attributes of policymakers all impact how states support public higher education. This study also

shows that trade-offs between higher education and other budgetary areas do occur and that higher education is uniquely susceptible to trade-off behavior.

Specifically, this study found that higher education governance structure (-), higher education interest group ratio (+), political ideology (+), legislative professionalism (+), party of the governor (+), party of the legislature (+), voter turnout (-), and uniparty legislature (-) all significantly impact higher education appropriations per \$1,000 personal income (HI ED Effort). Also, interest group density (-), budget power of the governor (-), legislative professionalism (+), term limits (+), political culture (+), and party of the governor (-) all significantly impact the share of state general fund expenditures higher education receives (HI ED Share). This study also revealed that Medicaid, public assistance, and K12 education all take from higher education and that higher education takes from transportation, public assistance, and K12 education (public assistance and K12 education trading off with higher education).

Further more, this study provided evidence of the unique role of state higher education governance structures in the organizations' boundary spanning roles, as they condition the effect other political variables have on state support of higher education. More centralized structures are better able to effect state support of higher education either by buffering or by magnifying the affect of other variables. In regard to HI ED Effort, more centralized structures magnify the effect of interest groups and the legislature, while buffering the effect of the governor. While more centralized governance structures buffer the effect of the governor on HI ED Share. This reveals the structures as critical actors in the appropriations process. While previous studies have ignored the boundary spanning role and the conditioning effect of higher education

governance structures this study was able to provide empirical evidence of the important role these structures have in determining state support of higher education.

Policymakers behave in theoretically predictable ways, and the political variables appear to have theoretically predictable effects on state support of higher education. Also, in hindsight, there were typically good theoretical explanations as to why the few political variables that had effects opposite of what was predicted acted in the resulting manner. Therefore, future studies will benefit from the inclusion of inclusion of these various political components as they attempt to model state support of higher education.

By using the Fiscal Policy Framework, we were able to distinguish between the different political forces acting on HI ED Effort and HI ED Share. The framework provided through which this analysis revealed that while the general public has a degree of influence over levels of state spending relative to their tax base, they have little or no influence over the distribution of state funds among budgetary areas. This conclusion was prompted by the finding that none of the variables that compose the mass political attributes category were significant in any of the models, except in the HI ED Effort model.

The findings of this study support the general new institutionalism perspective that political institutions, environment, culture, history, and attributes of policymakers affect political outcomes and in particular state support of higher education measured two ways. The theoretical contribution to the study of higher education may be even greater. Past studies and theories of state support of higher education have emphasized the contribution of economic, demographic, and higher education factors and have either ignored, given little attention to, or even deemphasized the effect of political factors.

Likewise the critical role of state governance structures had not been adequately analyzed. Furthermore, the budgetary trade-offs involving higher education had not been adequately empirically analyzed. However, these findings provide strong empirical evidence of the effect political influences from various sources, the role of state governance structures, and budgetary trade-offs. Future researchers attempting to model state support of higher education should not overlook the influence of interest groups, mass political attributes, governmental institutions (including interactions between governance structures and other variables), political culture, attributes of policymakers, and other budgetary areas in their analysis.

In the future researchers may also want to consider state support of higher education through the lens of this study's Fiscal Policy Framework, as this analysis found general support for the framework. This is one of the few studies of state support of higher education to approach the topic from a theoretical perspective and with a general conceptual framework. The model can accommodate new or different variables in order to improve upon what has been done here. However, without some sort of common perspective or understanding, it is difficult to know how improvement has happened and how the elements converge. The Fiscal Policy Framework is meant to help provide such a perspective and understanding. Because each of the categories in the Framework contained variables that were significant in each of the models (with the possible exception of mass political attributes in the HI ED Share model), the Framework does not need major adjustment, although future studies may find reasons to do so. The one important factor that must be taken into consideration is the conditioning effect of state governance structures. As this study found, various institutional actors' relationships with

state support of higher education are conditioned by the institution that bridges those relationships, the higher education governance structure. No other study has examined these relationships; this study shows that the governance structure plays a critical role that can be more fully understood by examining its role as a boundary spanner. The Fiscal Policy Framework allows for and can accommodate these types of interactions

### **Implications for Practice**

The findings of this study provide some clues that may help higher education leaders and other advocates for higher education who are concerned about securing state support for their cause. The first implication for practice relates to the interest group results. The relative strength of the higher education lobby and the density of the total state lobby impact state support for higher education. Likewise, more centralized governance structures appear not to be effective at securing increased state support for higher education and in fact have a negative effect on state appropriations. However, when interacted with other political variables governance structures play an important magnifying role, except when interacted with the governor where the structure actually buffers the effect. Thus, based on these findings, it may be strategic for institutions to ensure that they lobby on their own behalf—greater lobbying efforts by institutions may pay dividends. While those with more centralized structures may want to take advantage of the possible magnifying effect the structure can have by lobbying the structure itself. Some institutions that have avoided engaging directly in the political process might reconsider that decision; others that have limited their efforts may want to intensify their actions.

Institutional lobbying becomes more complicated in situations where multiple institutions belong to a centrally-controlled state system of higher education. Perhaps in these cases, the message and methods could be coordinated centrally while the message is brought to the government individually by each institution and by the central system. The result would be an increase in the relative strength of the higher education lobby and a consistent message that eliminates competition among institutions. These institutions may not want to rely on their governance structure to carry the message for them alone, as the relative number of messengers makes a difference. A centrally coordinated message carried by the institutions and the governance structure may be more efficacious.

Institutions and advocates for higher education may want to focus their lobbying efforts on the governor. The governor's influence was the most consistent across the various models included in this study. Both the party of the governor and the budgetary powers of the governor provided significant results. The governor wields the power to set the stage for the budgetary debate, so it would be advisable for higher education lobbyists to focus their efforts on the governor prior to the budget proposal's submission to the legislature. Year-round courting of the governor should also be considered.

Institutional leaders and lobbyists should acquaint themselves with their state's political institutions, culture, and ideology so they understand these areas' impact and can develop their institutional strategy accordingly. A good example is political culture. Political culture reflects a state's orientation to government, politics, and political action. If institutional leaders and other advocates know their state's orientation, they can shape their message to appeal to that orientation. The same might be true for political ideology. Having an intimate knowledge of the process and the factors possibly influencing the

process will help advocates plan accordingly. For example, an awareness that a uniparty legislature may lead to reductions in state appropriations enables higher education advocates to increase their efforts in order to stave off any efforts to reduce state support.

Higher education leaders, advocates, and researchers may want to increase public and policymaker awareness of higher education's social benefits. This analysis revealed several unexpected findings that ran counter to the assumption that elected officials treated higher education as a redistributive policy area. Especially troubling was the finding that traditionalistic states devoted a larger share of their general fund expenditures to higher education than moralistic states. This is also supported by the finding which indicates that increases in tuition are associated with decreased state support. These findings show that both elected officials and the public view higher education as an area that primarily benefits the elite and does little to help the less privileged. Those who desire to see higher education receive more state funding may want to do more to inform the public and state policymakers of the benefits of higher education, though there also may be some benefits in institutional leaders keeping tuition as low as possible and investing more in need-based aid. These actions would send a clear message that the institutions are not solely committed to serving the elite class.

As indicated earlier, the state appropriations process is a competitive one. Thus, individuals interested in seeing higher education receive greater state support, such as institutional leaders and lobbyists, should be prepared to attest to why higher education deserves state dollars relative to other major general fund areas—especially those that have been siphoning dollars from higher education. This is not to suggest that leaders and lobbyists should demand that public assistance suffer for the sake of higher education.



Instead, advocates could be more thorough in explaining the immediate and long term benefits of investing in higher education, in particular the way in which many of the problems that necessitate spending in other areas can be lessened by further investment in higher education. This kind of lobbying is especially important for higher education as it is clearly the most susceptible to trade-offs, in fact the evidence indicates that it is the only budgetary areas engaged in such behavior. Therefore, if greater state support for higher education is the goal, it is vitally important that advocates articulate their message clearly and effectively.

Finally, as Layzell and Lyddon (1990) put it, referring to state budgeting for higher education: “You have got to know the system to beat the system” (p. *xix*). Because, of the primary state general fund expenditures areas, higher education is the most susceptible to political influences and budgetary trade-offs, it must take the time to understand the political system and be the most engaged in the political process, if it wishes to adequately compete for state resources.

### **Significance of the Study**

This study is significant for several reasons. First, this is the first study to develop a theoretically driven comprehensive conceptualization of the state political system, placed within a larger theoretical framework that also consists of state economic and demographic factors, and state higher education system attributes. Furthermore, this is the first study that has addressed the boundary spanning and conditioning roles of state higher education governance structures and the issue of budgetary tradeoffs and higher education funding, although the idea is widely talked about and accepted, all of which

was shown the significantly effect state support of higher education. In this study a theoretical and conceptual framework was developed based on existing theories of the state political and policy processes and existing empirical research. Also, the inclusion of each variable was support by theoretical and empirical evidence.

Second, several of the significant findings are firsts when it comes to studies of state support of higher education. These include the effect of higher education interest groups and interest groups in general, budgetary powers of the governor, uniparty legislature, higher education governance structures, and political culture. In regard to specific variables, higher education interest ratio, interest group density, budgetary powers of the governor, and political culture have never been included in past studies. These variables significantly add to our understanding of state support of higher education.

Third, this is the first study which attempted to model budgetary trade-offs with higher education. This is significant because strong empirical evidence was found of trade-off behavior and of which areas higher education trades-off with.

Fourth, the conceptual model developed in this study can be used in future research of state support of higher education and possibility state support of other budgetary areas. Further, it can be used as a tool to understand the influences on the state fiscal policy process.

Fifth, in the process of carrying out this study several major data contributions were made. The higher education interest group ratio is an original variable created for this study. The interest group density variable is the longest time series measure of interest group density available. The budgetary powers of the governor index developed

for this study is the only time series measure that exists. For this study the first time series measure of state political culture was developed. In addition, this was the first time series measure of higher education governance structures that significantly impacted state support of higher education. These data elements are important because they were found to significantly affect state support of higher education and they can be used in future studies of state politics and higher education, including future cross sectional time series analyses.

Finally, the data set itself is an important contribution. Data were collected from around 26 sources and considerable effort was involved in pulling the set together. While, 25 variables were included in the models, there are 37 variables in the actual data file, all of which may be useful in future studies.

Sixth, although not the primary audience, this study contributes to the political science literature by drawing attention to an area of state government, policy, and politics that has been largely ignored by the higher education literature. Measures, methods, findings, and theories from political science were brought to bear on a higher education issue. This study heeded the call of Lowry (forthcoming) who recommends that political scientists begin paying more attention to higher education as an area of scholarly inquiry as “ issues surrounding public universities provide many opportunities for research that can shed light on a broad range of questions of interest to political scientists” (p. 2).

Seventh, while most past studies of state support of higher education provided little information that could be used by advocates to benefit higher education that is not the case with this analysis. As the previous section discusses, the findings from this study provide insights that have the potential for application.

## **Future Research**

Because this study has attempted to analyze state support of higher education in a new way and takes a large-scale approach to the problem, it has generated many new research questions and areas for future inquiry. Among these are the following: The relationship between the various political variables should be further explored? Capital expenditures are not included for the reasons discussed earlier; however it may be interesting to explore how these factors influence capital spending on higher education. It may be interesting to do a residual analysis, in order to examine what states consistently underperforms or over performs relative to what the model predicts and use the findings as the basis for future case studies. How does higher education lobbying and interest group activity affect other higher education policy areas (e.g., financial aid, governance restructuring, institutional autonomy)? Similarly, how do the political measures affect other higher education policy areas? (McLendon and his colleagues are pioneers in this area, but several of the political variables included in this study have not been included in their studies.) The relationship between the governor and the governance structure needs to be further explored, including the preferences of the governance structure in when involved in this relationship. How does the discussion and action surrounding higher education funding within state government compare to what occurs in other areas? Further information is also needed to understand why higher education is a more political area of state budgeting than other budgetary areas and what contributes to its susceptibility to budgetary trade-offs. More information is also needed to understand the nature of what the state cultural perception of higher education is and how those perceptions affect higher education policy. Likewise, it will be important to determine

whether higher education is actually viewed as a redistributive policy area by both the public and elected officials.

## **Conclusion**

Currently the stage seems to be set for further government intervention in public higher education. The Spellings Commission on the Future of Higher Education (2006), and its aftermath in the form of further studies, meetings, hearing, discussions, and legislation, has increased the pressure on states to become more involved in higher education. States are being asked to increase accountability, produce measurable results, and increase efficiency. The states are, in turn, asking institutions to do the same things. In short, institutions and states are being asked to produce results. The scrutiny is not just coming from Washington and state policymakers, but also from the public. The public see increased prices and they ask what is higher education doing that warrants such high tuition? As political as this study has shown higher education to be in the past, things may be getting even more political in the future. This scrutiny will open higher education up to being used as a political tool for politicians. The increased scrutiny and political tampering should force institutional leaders and advocates to become more involved in the political processes and more proactive in their advocacy. As higher education is particularly susceptible to political influences and budgetary trade-offs, it appears that it stands to gain the most from its involvement, and it also has the most to lose by refusing to engage therein.

## References

- Adams, J. S. (1976). The structure and dynamics of behavior in organizational boundary roles. In M. D. Dunnette (Ed) *Handbook of industrial and organizational psychology* (1175-1199). Chicago: Rand McNally.
- Alt, J. E. & Lowry, R. C. (1994). Divided government, fiscal institutions, and budget deficits: Evidence from the states. *The American Political Science Review*, 88(4), 811-828.
- Archibald, R. B., & Feldman, D. H. (2004). State Higher Education Spending and the Tax Revolt. College of William and Mary, Department of Economics, Working Paper # 9.
- Bailey, M. A. & Rom, M. C. (2004). A wider race? Interstate competition across health and welfare programs. *The Journal of Politics*, 66(2), 326–347.
- Bailey, M. A., Rom, M. C., & Taylor, M. M. (2004). State competition in higher education: A race to the top, or a race to the bottom? *Economics of Governance*, 5, 53-75.
- Bails, D. & Tieslau, M.A. (2000). The impact of fiscal constitutions on state and local expenditures. *The Cato Journal*, 20(2), 255-277.
- Baker, J. R. (1990). Exploring the "Missing Link": Political culture as an explanation of the occupational status and diversity of state legislators in thirty states. *The Western Political Quarterly*, 43(3), 597-611.
- Barrilleaux, C. J. (1986). A dynamic model of partisan competition in the American states. *American Journal of Political Science*, 30(4), 822-840.
- Barrilleaux, C. (1999). Governors, bureaus, and state policymaking. *State and Local*

*Government Review 31, 3-59*

- Barrilleaux, C. & Berkman, M. (2003). Do Governors matter? Budgeting rules and the politics of state policy making. *Political Research Quarterly*, 56(4). 409-417.
- Baumgartner, F. R. & Jones B. D. (1993). *Agendas and instability in American politics*. Chicago: University of Chicago Press.
- Becker, G. S. (1983). A theory of competition among pressure groups for political influence. *The Quarterly Journal of Economics*, 98(3), 371-400.
- Berry, J. F. & Berry, W. D. (1992). Tax innovation in the states: Capitalizing on political opportunity. *American Journal of Political Science*, 36, 715-742.
- Berry, F.S. & Berry, W. D. (1990). State lottery adoptions as policy innovations: An Event history analysis. *American Political Science review* 84(2), 395-416.
- Berry, W. D. & Lowery, D. (1990). An alternative approach to understanding budgetary trade-offs. *American Journal of Political Science*, 34(3), 671-705.
- Betts, J. R. & McFarland, L. L. (1995). Safe port in a storm: The impact of labor market conditions on community college enrollments. *Journal of Human Resources*, 30, 741-765.
- Berry, W. D., Ringquist, E. J., Fording, R. C., & Hanson, R. L. (1998). Measuring citizen and government ideology in the American States, 1960-1993, *American Journal of Political Science*, 41, 337-348.
- Berry, Ringquist, Fording, & Hanson (2006). *Measuring citizen and government ideology in the United States*. Data via the Interuniversity Consortium for Political and Social Research (ICPSR), Study Number 1208.
- Beyle, T. (1999). The governors. In V. Gray, R. Hanson, & H. Jacob (Eds.), *Politics in*

- the American states: A comparative analysis* (7th ed., pp. 191–231). Washington, DC: CQ Press.
- Beyle, T. (1996). Governors: The middlemen and women in our political system. In V. Gray & H. Jacobs (Eds.) *Politics in the American States: A comparative analysis* (6<sup>th</sup> ed.) (pp. 207-252). Washington, D.C.: CQ Press.
- Bibby, J.F. & Holbrook, T. M. (2004). Parties and elections. In V. Gray & R. L. Hanson (Eds.) *Politics in the American States: A comparative analysis* (8<sup>th</sup> ed.) (pp. 62-99). Washington, D.C.: CQ Press.
- Borghers, E. & Wessa, P. (2006). *Online econometrics textbook: Statistics - econometrics – forecasting*. Office for Research Development and Education, <http://www.xycoon.com/>, (Accessed November, 01, 2006).
- Bowen, Howard. (1977). *Investment in learning: The individual and social value of American higher education*. San Francisco: Jossey-Bass.
- Bowler, S. & Donovan, T. (2004). The initiative process. In V. Gray & R. L. Hanson (Eds.) *Politics in the American States: A comparative analysis* (8<sup>th</sup> ed.) (pp. 129-156). Washington, D.C.: CQ Press.
- Boyd, D. (2005). *State fiscal outlooks from 2005 to 2013: Implication for higher education*. Boulder, CO: National Center for Higher Education Management Systems.
- Brown, R. D. (1997). Party cleavages and welfare effort in the American states. *American Political Science Review*, 89(1), 23-33.
- Browne, W. P. (1990). Organized interests and their issue niches: A search for pluralism in a policy domain. *Journal of Politics*, 52(2), 477-509.



- Bureau of Economic Analysis (2006). *State and local personal income*.  
<http://www.bea.doc.gov/bea/regional/statelocal.htm>. Retrieved July, 2006.
- Callan, P. M. (2002). *Coping with recession: Public policy, economic downturns, and higher education*. San Jose, CA: National Center for Public Policy and Higher Education.
- Carey, J.M., Niemi, R.G., & Powell, L.W. (2000). Incumbency and the probability of reelection in state legislative elections. *Journal of Politics*, 62, 671-700.
- Cigler, A. J. (1991). Interest groups: A subfield in search of an identity. In W. Crotty (Ed.) *Political science: Looking to the future*. pp. 99-135. Evanston, IL.: Northwestern University Press.
- Cohen, L.R. & Noll, R.G. (1998). Universities, constituencies, and the role of the states. In R.G. Noll (ed.) *Challenges for research universities*. Washington, DC: Brookings Institution Press.
- Coriat, B. & Dosi, G. (1998). Learning how to govern and learning how to solve problems: On the coevolution of competences, conflict and organizational routines. In A. Chandler, P. Hagstrom, & O. Solwell (Eds.), *The dynamic firm*. pp. 103-133. Oxford: Oxford University Press.
- Cohn, E. (1970). Benefits and costs of higher education and income redistribution. *The Journal of Human Resources*, 5(2), 222-226.
- Council for Aid to Education (various years). *Voluntary support of education*. New York, New York: Author.
- Council of Governmental Ethics Laws (various years). *Blue book*. Jacksonville, FL: Author.

- Council of State Governments (various years) *Book of the states*. Lexington, KY: Author.
- Council on Governmental Ethics Laws (various years). Blue book. Author: Athens, Ga.
- Crean, J. F. (1975). The Income Redistributive Effects of Public Spending on Higher Education. *The Journal of Human Resources*, 10(1), 116-123.
- Dawson, R. E. & Robinson, J. A. (1963). Inter-party competition, economic variables, and welfare policies in the American states. *The Journal of Politics*, 25(2), 265-289.
- Dearden, J. A. & Husted, T.A. (1993). Do governors get what they want?: An alternative examination of the line-item veto. *Public Choice*, 77(4), 707-723.
- Deaton, R. (2004). The funding formula as a higher education policy tool in Tennessee. Paper presented at the annual meeting of the Association for Institutional Research, Boston, MA.
- Dillon, S. (October 19, 2005a). Tuition rise tops inflation, but rate slows, report says. *The New York Times*, On-line:  
<http://www.nytimes.com/2005/10/19/education/19tuition.html?th&emc=th>  
Accessed on March 21, 2006.
- Dillon, S. (October 16, 2005b). At Public Universities, Warnings of Privatization. *The New York Times*, On-line:  
<http://www.nytimes.com/2005/10/16/education/16college.html>. Accessed on March 21, 2006.
- Delaney, J. A. & Doyle, W. R. (2004). The role of higher education in state budgets. Presented at the annual meeting of the Association for the Study of Higher Education, Kansas City, MO.

- Dorfman, R. (1979). "A Formula for the Gini Coefficient". *The Review of Economics and Statistics* 61, 146-149.
- Dowding, K. & King, D. (1995). *Preferences, institutions and rational choice*. Oxford: Clarendon Press.
- Dye, T.R. (1966). *Politics, economics, and the public*. Chicago: Rand McNally
- Dynarski, S. (2004). "The Consequences of Merit Aid." in Caroline M. Hoxby (Ed.) *College choices: the economics of which college, when college, and how to pay for it* (pp. 63-100). Cambridge: The University of Chicago Press.
- Education Commission of the States (various years). *State postsecondary education profiles handbook*. Denver, Colorado: Author.
- Education Commission of the States (2006). *Postsecondary governance structures database*. <http://www.ecs.org/ecsmain.asp?page=/html/issuesPS.asp>, Retrieved July, 2006.
- Ehrenberg, R. (2002). Studying ourselves: The academic labor market. *NBER Working Paper 8965*. Cambridge, MA: The National Bureau of Economic Research.
- Ehrenberg, R. (2000). *Tuition rising: Why college costs so much*. Cambridge, MA: Harvard University Press.
- Elazar, D. J. (1966). *American federalism: A view from the states*. New York: Thomas Y. Crowell Company.
- Elazar, D. J. (1972). *American federalism: A view from the states* (2<sup>nd</sup> ed.). New York: Thomas Y. Crowell Company.
- Elazar, D. J. (1976). *The generational rhythm of American politics*. Philadelphia: Center for the Study of Federalism, Temple University.

- Elazar, D. J. (1984). *American federalism: A view from the states* (4th ed.). New York: Harper & Row, Publishers.
- Elling, R. C. (1999). Administering state programs: Performance and politics. In V. Gray, R. L. Hanson, & H. Jacob (Ed.), *Politics in the American states a comparative analysis* (7<sup>th</sup> ed.). Washington, D.C.: CQ Press.
- Erikson, R. S., McIver, J. P., & Wright, G. C. (1987). State political culture and public opinion. *American Political Science Review*, 81(3), 797-813.
- Erikson, R. S., Wright, G. C., & McIver, J. P. (1993). *Statehouse democracy: Public opinion and policy in the American states*. New York: Cambridge University Press.
- Fellows, M. C. & Rowe, G. (2004). Politics and the new American welfare states. *American Journal of Political Science*, 48(2), 362-373.
- Fernandez, R. & Rogerson, R. (1995). On the political economy of education subsidies. *Review of Economic Studies*, 62(2), 249-262.
- Ferrin, S. E. (2003). Characteristics of in-house lobbyist in American colleges and universities. *Higher Education Policy*, 16(1), 87-108.
- Ferrin, E. S. (2005). Tasks and strategies of in-house lobbyists in American colleges and universities. *International Journal of Educational Advancement*, 5(2), 180-191.
- Fiorina, M. (1994). Divided government in the American States: A byproduct of legislative professionalism? *American Political Science Review*, 88, 304-316.
- Fitzpatrick, J. & Hero, R. (1988). Political culture and political characteristics of the American states: A consideration of some old and new questions. *Western Political Quarterly*, 41, 145-153.

- French, P. E. & Stanely, R. E. (2005). Political culture and per pupil spending for education: Daniel Elazar revisited. Working paper:  
<http://www.angelfire.com/tn3/rstanley/Publications/WSSA.PDF>
- Garand, J. C. (1985). Partisan change and shifting expenditure priorities in the American States, 1945-1978. *American Politics Quarterly*, 13(4), 255-391.
- Garand, J. C. & Hendrick, R. M. (1991). Expenditure tradeoffs in the American States: A longitudinal Test, 1948-1984. *Western Political Quarterly*, 44(4), 915-940.
- Geddes, B. (1994). *Politician's dilemma: Building state capacity in Latin America*. Berkeley: University of California Press.
- Geddes, B. (1996). Initiation of new democratic institutions in Eastern Europe and Latin America in Lijphart A, Waisman CH (Eds), *Institutional design in new democracies: Eastern Europe and Latin America*. In: Westview Press, Boulder
- Geiger, R. L. (2004). *Knowledge and money: Research universities and the paradox of the market place*. Stanford, CA: Stanford University Press.
- Gittell, M. & Kleiman, N. S. (2000). The political context of higher education. *American Behavioral Scientist*, 43(7), 1058-1091.
- Gove, S. K., & Carpenter, J. (1977). State lobbying for higher education. *Educational Record*, 58(4), 357-373.
- Grafstein, Robert (1992) *Institutional realism: Social and political constraints on rational actors*, New Haven, Conn.: Yale University Press.
- Grapevine System (2006). *An annual compilation of data on state tax appropriations for*

- the general operation of higher education*. Normal, IL: Center for the Study of Education Policy Illinois State University <http://www.coe.ilstu.edu/grapevine/>. Retrieved July, 2006.
- Gray V. & Lowery D. (1988). Interest group politics and economic growth in the U.S. States. *American Political Science Review*, 82(1), 109-131.
- Gray V. & Lowery D. (1999). *The population ecology of interest representation: Lobbying communities in the American States*. Ann Arbor, MI: University of Michigan Press.
- Gormley, J. C., Jr.(1996). Accountability battles in state administration. In C. E. Van Horn (Ed.), *The state of the states* (3<sup>rd</sup> ed.). Washington, D.C.: Congressional Quarterly Press.
- Hansen, S. (1983). *The politics of taxation*. Westport, CT: Praeger.
- Hansen, W. L. (1970). Income distribution effects of higher education. *The American Economic Review*, 60(2), 335-340
- Hansen, W. L. & Weisbrod, B. A. (1969). The distributional of costs and benefits of public higher education: The case of California. *Journal of Human Resources*, 4, 176-191.
- Hayes, S. P. (1996). Influences on re-invention during the diffusion of innovations. *Political research quarterly*, 49(3), 631-650.
- Heinz, J. P., Lauman, E. O., Nelson, R. L. & Salisbury, R. H. (1993). *The hollow core: Private interests in national policy making*. Cambridge: Harvard University Press.
- Heller, D. E. (1999). The effects of tuition and state financial aid on public college

- enrollment. *The Review of Higher Education*, 23(1), 65-89.
- Heller, D. E. (2002). The policy shift in state financial aid programs. In J. Smart (Ed.), *Higher education: Handbook of theory and research*. (Vol. XVII). New York: Agathon Press.
- Hendrick, R. M. & Garand, J. C. (1991) Expenditure tradeoffs in the US states: A pooled analysis. *Journal of Public Administration and Theory*, 1(3), 295-318.
- Hofferbert, R. (1974). *The study of public policy*. Indianapolis: Bobbs-Merrill.
- Hofferbert, R. I. & Urice, J. K. (1985). Small-scale policy: the federal stimulus versus competing explanations for state funding of the arts. *American Journal of Political Science*, 29(2). 308-329.
- Holbrook, T. M. & Van Dunk, E. (1993). Electoral competition in the American states. *American Political Science Review*, 87(4), 955-962.
- Hossler, D., Lund, J. P., Ramin, J., Westfall, S., & Irish, S. (1997). State funding for higher education: The Sisyphean task. *Journal of Higher Education*, 68(2), 160-190.
- Hovey, H. A. (1999). State spending for higher education in the next decade: The battle to sustain current support. San Jose, CA: National Center for Public Policy and Higher Education
- Huber, J. D., Shipan, C. R., & Pfahler, M. (2001). Legislatures and statutory control of bureaucracy. *American Journal of Political Science*, 45, 330-345.
- Humphreys, B. R. (2000). Do business cycles affect state appropriations to higher education? *Southern Economic Journal*, 67(2), 398-413.
- Integrated Postsecondary Education Data System (2006). *Peer analysis system*

- [www.nces.ed.gov/ipeds/pas/](http://www.nces.ed.gov/ipeds/pas/). Retrieved June, 2006.
- Jacoby, W. G. & Schneider, S. K. (2001). Variability in state policy priorities: An empirical analysis. *The Journal of Politics*, 63(2), 544-568.
- Jensen, A. N. (2003). *Correlation analysis*.  
<http://www.csus.edu/indiv/j/jensena/mgmt105/correl01.htm>, (Accessed November 01, 2006).
- Johnstone, D. B. (2000). *Privatization in and of higher education in the U.S.* On-line: [www.gse.buffalo.edu/FAS/Johnston/privatization.html](http://www.gse.buffalo.edu/FAS/Johnston/privatization.html). Retrieved November 2, 2005.
- Kane, T. J. (1999). *The price of admission: Rethinking how Americans pay for college*. Washington, D.C.: Brookings Institution Press.
- Kane, T. J. & Orszag, P. R. (2003). Funding restrictions at public universities: Effects and policy implications. *Brookings Institution Working Paper*.
- Kane, T. J., Orszag, P. R., & Gunter, D. L. (2003). State fiscal constraints and higher education spending: The role of Medicaid and the business cycle. Discussion Paper No. 11. Washington, D.C.: The Urban Institute.
- Kaplan, G. E. (2002). *Between Politics and Markets: The Institutional Allocation of Resources in Higher Education*. Unpublished Doctoral Dissertation, Harvard University.
- Keiser, L. R., Wilkins, V. M., Meier, K. J., & Holland, C. A. (2002). Lipstick and logarithms: Gender, institutional context, and representative bureaucracy. *American Political Science Review*, 96, 553-564.
- Kelly, P. J. & Jones, D. P. (2005). *A new look at the institutional component of higher*



- education finance: A guide for evaluating performance relative to financial resources*. Boulder, CO: National Center for Higher Education Management Systems.
- Kiel, L.D. & Elliott, E. (1992). Budgets as dynamic systems: Change, variation, time, and budgetary heuristics. *Journal of Public Administration Research and Theory*, 2(2), 139-156.
- King, J. (2003) *Status report on the Pell Grant program*. Washington, DC: American Council on Education.
- Kingdon, J.W. (1995). *Alternatives, and public policies* (2<sup>nd</sup> ed.). Boston: Little, Brown
- Kiser, L. & Ostrom, E. (1982). The three worlds of action. In E. Ostrom, (Ed.), *Strategies of political inquiry* pp. 179-221. Beverly Hills, CA: Sage.
- Klingman, D. & Lammers, W. W. (1984). The “general policy liberalism” factor in American State politics. *American Journal of Political Science*, 28(3), 598-610.
- Koshal, R. K. & Koshal, M. (2000). State appropriation and higher education tuition: What is the relationship? *Education Economic*, 8(1), 81-89.
- Koven, S. G. & Mausolff, C. (2002). The influence of political culture on state budgets: Another look at Elazar’s formulation. *American Review of Public Administration*, 32(1), 66-77.
- Leslie, L.L. & Ramey, R. (1986). State appropriations and enrollments: Does enrollment growth still pay? *The Journal of Higher Education*, 57(1), 1-19.
- Lewis, D.C. (2005). Public opinion and interest group influence: An analysis of policy variation in the American states. A paper presented at the State Politics and Policy Conference, East Lansing, MI.

- Lieske, J. (1993). Regional subcultures of the United States. *Journal of Politics*, 55, 888-913.
- Lindeen, J. W. & Willis, G. L. (1975). Political, socioeconomic and demographic patterns of support for public higher education. *The Western Political Quarterly*, 28(3), 528-541.
- Lopez, E. J. (2003). Term limits: Causes and consequences. *Public Choice*, 114 (1-2), 1-56.
- Lowry, R.C. (Forthcoming) The political economy of public universities in the United States. *State Policy and Politics Quarterly*.
- Lowry, R. C. (2001). The effects of state political interests and campus outputs on public university revenues. *Economics of Education Review*, 20, 105-119.
- Lyall, Katharine C. and Sell, K. R. (2006). *The true genius of America at risk: Are we losing our public universities to de facto privatization?* Greenwood Publishing Group: Westport, CT
- Lyazell, D. T. & Lyddon, J. W. (1990). *Budgeting for higher education for higher education at the state level: Enigma, paradox, and ritual*. ASHE-ERIC Higher Education Report No. 4. Washington, D.C.: The George Washington University, School of Education and Human Development.
- Marks, J.L & Caruthers, J.K. (1999). *A primer on funding of public higher education*. Southern Regional Education Board: Atlanta, GA.
- McGuinness, A. C. (2003) *Models of postsecondary education and governance in the States* Denver, CO: Education Commission of the States.
- McGuinness, A.(various years). *State postsecondary education structures handbook*.

- Denver, Colorado: Education Commission of the States.
- McLendon, M. K. (2003a). Setting the agenda for state decentralization of higher education. *Journal of Higher Education*, 72(2), 1-37.
- McLendon, M. K. (2003b). The politics of higher education: Toward an expanded research agenda. *Educational Policy*, 17(1), 165-191.
- McLendon, M.K. & Eddings, S. (2003). Direct democracy and higher education: The state ballot as an instrument of higher education policy making. *Educational Policy* 19(1), 193-218.
- McLendon, M. K., Hearn, J. C., & Mokher, C. G. (2006). The politics of funding public higher education: A longitudinal analysis of influences on state appropriations patterns. A paper presented at the Annual Conference of the Association for the Study of Higher Education, Anaheim, CA.
- McLendon, M. K., Hearn, J. C., & Deaton, R. (2004). Called to account: An analysis of state performance-accountability policies for higher education. A paper presented at the annual meeting of the Association for the Study of Higher Education, November 5, 2005, Kansas City, MO.
- McLendon, M. K., Heller, D. E., & Young, S. P. (2005). State postsecondary policy innovation: Politics, competition, and the interstate migration of policy ideas. *Journal of Higher Education*. 76(4 ), 363-400.
- McLendon, M. K. & Ness, E. C. (2003). The politics of state higher education governance reform. *Peabody journal of education*, 78(4), 66-88.
- MGT of America (2007). *Funding Formulas*. Paper presented at the Annual SHEEO Professional Development Conference, August, 2006, Chicago.

- Mintrom, M., & Vergari, S. (1998). Policy networks and innovation diffusion: The case of state education reforms. *Journal of Politics*, 60, 126–148.
- Morgan, D. & Watson, S. (1991). Political culture, political system, characteristics, and public policies among the American states. *Publius: The Journal of Federalism*, 21, 31-48.
- Mortenson, T. G. (2005). *State tax fund appropriations for higher education FY1961 to FY2005*. Oskaloosa, IA: Postsecondary Education Opportunity [www.postsecondary.org](http://www.postsecondary.org)
- Mueller, K. (1985). Explaining variation and change in gubernatorial powers, 1960-1982. *Western Political Quarterly*, 38, 424-431.
- Murphy, E. (2001). Effective lobbying strategies for higher education in state legislatures as perceived by governmental relations officers (Doctoral dissertation, Louisiana State University, 2001). *Dissertation Abstracts International*, 62(06), 2049.
- National Association of State Budget Officers (2006). *State expenditure reports, 1986-2005*. Washington, DC: Author.
- National Association of State Budget Officers (various years). *Budget processes of the states*. Washington, DC: Author.
- National Bureau of Economic Research (2006). *Business cycle expansions and contractions*. <http://www.nber.org/cycles.html>. Retrieved May, 2006.
- National Center for Education Statistics (various years). *Digest of education statistics*. Washington, DC: Author.
- National Center for Higher Education Management Systems (2005). *A new look at the*

- institutional component of higher education finance: A guide for evaluating performance relative to financial resources.* Boulder, CO: Author.
- National Conference of State Legislatures (2006). [www.ncsl.org](http://www.ncsl.org). Retrieved June, 2006.
- National Conference of State Legislatures (2006). *Term limited states*.  
<http://www.ncsl.org/programs/legismgt/about/states.htm>. Retrieved November, 2006.
- National Education Association of the United States (2001). *Where we go from here: State legislative views on higher education in the new millennium, results of the 2001 higher education issues survey*. Littleton, CO: Author.
- Neuby, B. L. (1997). On the lack of a budget theory. *Public Administration Quarterly*, 21(2), 131-143.
- Nice, D. (1984) Interest groups and policymaking in the American states. *Political Behavior*, 6(2), 183-196.
- Nicholson-Crotty, J. & Meier, K.J. (2003). Politics, structure, and public policy: The case of higher education. *Educational Policy*, 17(1), 80-97.
- North, Douglass. (1990). *Institutions, institutional change, and economic performance*. New York: Cambridge University Press.
- Owings, S. & Borck, R. (2000). Legislative professionalism and government spending: Do citizen legislators really spend less? *Public Finance Review*, 28(3), 210-225.
- Olsen J. G & March, J. P. (1984). The New Institutionalism: Organizational factors in political life. *The American Political Science Review*, 78(3), 734-749.
- Ostrom, E. (1999). Institutional rational choice: An assessment of the institutional

- analysis and development framework. In P. A. Sabatier (Ed.), *Theories of the policy process* pp. 35-71. Boulder, CO: Westview.
- Pascarella, E. T. & Terenzini, P. T. (2005). *How college affects students: A third decade of research*. San Francisco: Jossey-Bass.
- Perna, L. W. (2005). The benefits of higher education: Sex, racial/ethnic, and socioeconomic group differences. *The Review of Higher Education*, 29(1), 23-51.
- Peterson, R. G. (1976). Environmental and political determinants of state higher education appropriations policies. *Journal of Higher Education*, 47(5), 523-542.
- Peterson, P. E. (1995). *The price of federalism*. Washington, D. C.: Brookings Institution Press.
- Plotnick, R. D. & Winters, R. F. (1985). A politicoeconomic theory of income redistribution. *American Political Science Review*, 79, 458-473.
- Princeton University Library. (2006). Data and statistical services. Author. Retrieved from web, January, 25, 2006.  
[http://dss.princeton.edu/online\\_help/analysis/panel.htm#models](http://dss.princeton.edu/online_help/analysis/panel.htm#models)
- Psacharopoulos, G. & Patrinos, H. A. (2004). Returns to investment in education: a further update. *Education Economics*, 12(2), 111-134.
- Raimondo, H. J. (1996). State budgeting: problems, choices, and money. In C. E. Van Horn (Ed). *The state of the states* (3<sup>rd</sup> ed.). Washington, D.C.: Congressional Quarterly.
- Ranney, A. (1976). Parties in state politics. In H. Jacob & K.N. Vines (Eds.) *Politics in the American states* (pp. 51-92). Washington, D.C.: CQ Press.
- Ringquist, E. J., Hill, K. Q., Leighley, J. E., Hinton-Anderson, A. (1997). Lower-class

- mobilization and policy linkage in the U.S. States: A correction. *American Journal of Political Science*, 41(1), 339-344.
- Ripley, B. R. (1985) *Policy analysis in political science*. Chicago: Nelson-Hall.
- Rizzo, M. J. (2005). State preferences for higher education spending: A panel data analysis, 1977-2001. Paper presented at the Cornell Higher Education Research Institutes annual conference, Ithaca, NY.
- Robst, J. (2001). Cost efficiency in public higher education institutions. *Journal of Higher Education*, 72(6), 730-750.
- Rosenthal, A. (1998). *The decline of representative democracy*. Washington DC: CQ Press.
- Rosenthal, A. (1991). *Legislative life*. New York: Harper and Row.
- Sabatier, P. A. (1991). Toward better theories of the policy process. *PS: Political Science and Politics*, 24(2), 147-156.
- Sabatier, Paul A. (Ed.). (1999). *Theories of the policy process*. Boulder, CO: Westview.
- Sabloff, P. L. W. (1997). Another Reason Why State Legislatures Will Continue to Restrict Public University Autonomy. *The Review of Higher Education*, 20(2), 141-162.
- Schneider, S. K. & Jacoby, W. G. (2003). A culture of dependence? The relationship between public assistance and public opinion. *British Journal of Political Science*, 33 (July), 213-231.
- Schlesinger, J. A. (1971). The politics of the executive. In H. Jacob & K. Vines, (Eds.) *Politics in the American states* (2<sup>nd</sup> ed.), pp. 210-237. Boston, MA: Little, Brown.
- Sharkansky, I. (1969) The utility of Elazar's political culture. *Polity*, 2, 66-83.

- Sharkansky, I. (1968). Agency requests, gubernatorial support, and budget success in state legislatures. *American Political Science review*, 62, 1220-1231.
- Sharkansky, I. (1970). *Policy analysis in political science*. Chicago: Markham.
- Sharkansky, I. & Hofferbert, R. I. (1969). Dimensions of state politics, economics, and public policy. *American Political Science Review*, 63(3), 867-879.
- State Higher Education Executive Officers (2006). *State higher education finance*.  
Author: Boulder, CO.
- Shepsle, K. A. (1979). Institutional arrangements and equilibrium in multidimensional voting models. *American Journal of Political Science*, 23(1), 27-59.
- Shepsle, K. A. (1989). Studying institutions: Some lessons from the rational choice approach. *Journal of Theoretical Politics*, 1(2), 131-147.
- Southern Regional Education Board (2006). *Fact book on higher education*.  
<http://www.sreb.org/main/EdData/FactBook/indexoftables05.asp#Enrollment>.  
Retrieved July, 2006.
- Spelling's Commission on the Future of Higher Education (2006).  
<http://www.ed.gov/about/bdscomm/list/hiedfuture/index.html>
- Squire, P. (1992). Legislative professionalization and membership diversity in state legislatures. *Legislative Studies Quarterly*, 17(1), 69-79.
- Squire, P. (1993). Professionalization and public opinion of state legislatures. *Journal of Politics* 55, 479-491.
- Squire, P. (2000). Uncontested seats in state legislative elections. *Legislative Studies Quarterly*, 25(1), 131-146.
- Tandberg, D. A. (2006). State-level higher education interest group alliances. *Higher*



- Education in Review*, 3, 25-49.
- The College Board (2005). *Trends in college pricing*. Washington, D.C.: Author.
- Thomas, C. S. & Hrebemar, R. J. (2004) Interest groups in the States. In V. Gray & R. L. Hanson (Eds.) *Politics in the American States: A comparative analysis (8<sup>th</sup> ed.)* (pp. 100-128). Washington, D.C.: CQ Press.
- Thompson, J. A. (1987). Agency request, gubernatorial support, and budget success in state legislatures revisited. *Journal of Politics*, 49, 756-779.
- Thompson, J. A. & Felts, A. A. (1991). Politicians and professionals: The influence of state agency heads in budgetary success. *The Western Political Quarterly*, 45(1), 153-168.
- Tolbert, C. J. & Hero, R. E. (1996). Race/ethnicity and direct democracy: An analysis of California's illegal immigration initiative. *The Journal of Politics*, 58(3), 806-818.
- Tripp Umbach (2004). Penn State's economic impact. Downloaded from <http://live.psu.edu/story/9128>
- Truman, D., (1951). *The governmental process*. Knopf: New York.
- UCLA Academic Technology Services (2006). *Stata FAQ: How can I check for collinearity in survey regression?* <http://www.ats.ucla.edu/stat/stata/faq/svycollin.htm> (Accessed November 01, 2006).
- UNESCO (2003). *Gender and education for all: The leap to equity*. Author, Paris: France.
- U.S. Bureau of the Census (2006). *Current population survey: Estimates of income of households by State 1979-2005*. Unpublished data.
- U.S. Bureau of the Census (2006). *Current population survey: Selected measures of*

- household income dispersion, 1977 to 2005*. Washington, DC: Author
- U.S. Bureau of the Census (2006). Decennial census microdata files: via IPUMS  
<http://www.ipums.org>. Retrieved June 2006.
- U.S. Bureau of the Census (2006). *Population estimates program*.  
[http://eire.census.gov/popest/archives/state/st\\_sasrh.php](http://eire.census.gov/popest/archives/state/st_sasrh.php). Retrieved May, 2006.
- U.S. Bureau of the Census (various years). *Statistical abstract of the United States*.  
Washington, DC: Author.
- U.S. Bureau of Economic Analysis (2006). *Gross state product*.  
<http://www.bea.gov/rss/rss.xml>. Retrieved July 2006.
- U.S. Department of Education (2006). *Higher education general information surveys*, via  
WebCASPAR. [webcaspar.nsf.gov/](http://webcaspar.nsf.gov/). Retrieved July, 2006.
- U.S. Department of Health and Human Services, Centers for Medicare and Medicaid  
Services (2006). *Quarterly expense reports*, published and unpublished data  
[http://new.cms.hhs.gov/MedicaidBudgetExpendSystem/02\\_CMS64.asp](http://new.cms.hhs.gov/MedicaidBudgetExpendSystem/02_CMS64.asp).  
Published data retrieved July, 2006.
- U.S. Department of Labor, Bureau of Labor Statistics (2006). Local area unemployment  
statistics (published and unpublished data).
- Vredevelde, G. M. (1978). Distributional impacts of alternative methods of financing  
higher education. *Journal of Higher Education*, 49(1), 47-69.
- Volkwein, J. F. (1987). State regulation and campus autonomy. In J. C. Smart (Ed.),  
*Higher education handbook of theory and research* (Vol. III, pp. 120-154). New  
York: Agathon.
- Volkwein, J. F. (1989). Changes in quality among public universities. *Journal of Higher*

- Education*, 60(2), 136-151.
- Walker, J. L. (1969). The diffusion of innovations among the American states. *The American Political Science Review*, 63, 880-899.
- Williams, R. (2005). *Multicollinearity*. <http://www.nd.edu/~rwilliam/stats2/111.pdf>  
(Accessed April 3, 2007).
- Wilson, L. A. & Sylvia, R. (1993). Changing revenue conditions and state budgetary decisions. *Journal of Public Administration Research and Theory*, 3(3), 319-333.
- Wright, G. C., Erikson, R. S., & McIver J. P. (1987). Public opinion and policy liberalism in the American states. *American Journal of Political Science*, 31, 980-1001.
- Windham, D. M. (1970). *Education, equality and income redistribution*. Heath Lexington Books: Lexington, MA
- Zemsky, R., Shaman, S. & Shapiro, D. B. (2001). *Higher education as competitive enterprise: When markets matter*. New Directions for Institutional Research, no. 111. San Francisco: Jossey Bass.
- Zhang, L. (2006). Does Public Funding for Higher Education Matter? Paper presented at the Annual Cornell Higher Education Research Institute Conference, Ithaca, NY.

APPENDIX A

VARIABLES' DESCRIPTIONS AND SOURCES

VARIABLES**†	DESCRIPTION	SOURCE
<b>Primary Dependent Variables</b>		
HI ED Effort	State appropriations per \$1,000 personal income	Illinois State's Grapevine System <a href="http://www.coe.ilstu.edu/grapevine/">http://www.coe.ilstu.edu/grapevine/</a> ; Bureau of Economic Analysis <a href="http://www.bea.doc.gov/bea/regional/statelocal.htm">http://www.bea.doc.gov/bea/regional/statelocal.htm</a> ; Postsecondary Education Opportunity <a href="http://www.postsecondary.org">www.postsecondary.org</a>
HI ED Share	Higher education's share of state general fund expenditures	National Association of State Budget Officers, <i>State Expenditure Reports</i> , 1986-2005
<b>Competing State Interests Variables</b>		
Share Corrections	Share of general fund expenditures	National Association of State Budget Officers, <i>State Expenditure Reports</i> , 1986-2005
Share K12 Education	Share of general fund expenditures	National Association of State Budget Officers, <i>State Expenditure Reports</i> , 1986-2005
Share Medicaid	Share of general fund expenditures	National Association of State Budget Officers, <i>State Expenditure Reports</i> , 1986-2005
Share Public Assistance	Share of general fund expenditures	National Association of State Budget Officers, <i>State Expenditure Reports</i> , 1986-2005
Share Transportation	Share of general fund expenditures	National Association of State Budget Officers, <i>State Expenditure Reports</i> , 1986-2005
<b>Economic and Demographic Variables</b>		
Gini Coefficient	Ratio of inequality within a state (measure of the inequality of the distribution)	U.S. Bureau of the Census, Current Population Survey, <i>Selected Measures of Household Income Dispersion: 1977 to 2005</i>
GSP Per Capita	Gross State Product Per Capita	U.S. Bureau of Economic Analysis, <a href="http://www.bea.gov/rss/rss.xml">http://www.bea.gov/rss/rss.xml</a>
Medicaid	Spending on Medicaid minus federal reimbursement	U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services, <i>Quarterly Expense Reports</i> , <a href="http://new.cms.hhs.gov/MedicaidBudgetExpendSystem/02_CMS64.asp">http://new.cms.hhs.gov/MedicaidBudgetExpendSystem/02_CMS64.asp</a> , published and unpublished.
Recession Year	Dummy variable, 1 if a recession happened during the year	National Bureau of Economic Research, <a href="http://www.nber.org/cycles.html">http://www.nber.org/cycles.html</a>
Unemployment	Unemployment rate – entire population	U.S. Department of Labor, Bureau of Labor Statistics. Local Area Unemployment Statistics (published and unpublished data)
% of Pop. Below Pell	Proportion of households below maximum Pell Grant eligibility level	U.S. Bureau of the Census, Current Population Survey (unpublished data), <i>Estimates of Income of Households by State 1979-2005</i> ; King (2003) American Council on Education, Status of the Pell Grant Report
% Pop. Elderly	Share of population > 65 years old	U.S. Bureau of the Census, Population Estimates Program, <a href="http://eire.census.gov/popest/archives/state/st_sasrh.php">http://eire.census.gov/popest/archives/state/st_sasrh.php</a> U.S. Bureau of the Census, Decennial Census Microdata Files: via IPUMS <a href="http://www.ipums.org">http://www.ipums.org</a>
% Pop. College Age	Share state population age 18-24	U.S. Bureau of the Census, Population Estimates Program,

		<a href="http://eire.census.gov/popest/archives/state/st_sasrh.php">http://eire.census.gov/popest/archives/state/st_sasrh.php</a> U.S. Bureau of the Census, Decennial Census Microdata Files: via IPUMS <a href="http://www.ipums.org">http://www.ipums.org</a>
<b>Higher Education Variables</b>		
Funding Formula	Higher education funding formulas; dummy variable, 1 if state uses a funding formula	MGT of America, <i>Funding Formulas</i> , Paper present at the Annual SHEEO Professional Development Conference, August, 2007, Chicago
Giving to Public Research Universities per FTE	Giving per student (\$1,000), total giving per FTE student from all sources at public research universities	U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS) Surveys via WebCASPAR. <a href="http://caspar.nsf.gov">http://caspar.nsf.gov</a> ; U.S. Department of Education's Higher Education General Information Surveys (HEGIS) via WebCASPAR; IPEDS Peer Analysis System <a href="http://www.nces.ed.gov/ipedspas/">www.nces.ed.gov/ipedspas/</a> ; Council for Aid to Education, <i>Voluntary Support of Education</i> , Various years
Tuition	Average four year tuition, logged	U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS) Surveys via WebCASPAR. <a href="http://caspar.nsf.gov">http://caspar.nsf.gov</a> ; U.S. Department of Education's Higher Education General Information Surveys (HEGIS) via WebCASPAR; IPEDS Peer Analysis System <a href="http://www.nces.ed.gov/ipedspas/">www.nces.ed.gov/ipedspas/</a>
% Enroll Private Hi Ed	Share of higher education enrolled in private institutions	Southern Regional Education Board, <i>Fact Book on Higher Education</i> , <a href="http://www.sreb.org/main/EdData/FactBook/indexoftables05.asp#Enrollment">http://www.sreb.org/main/EdData/FactBook/indexoftables05.asp#Enrollment</a>
% Enroll 2-year Hi Ed	Share of higher education enrolled in two-year institutions	Southern Regional Education Board, <i>Fact Book on Higher Education</i> , <a href="http://www.sreb.org/main/EdData/FactBook/indexoftables05.asp#Enrollment">http://www.sreb.org/main/EdData/FactBook/indexoftables05.asp#Enrollment</a>
Lagged Dependent	Dependent variable lagged by one year	Same source as dependent variable
<b>Political Variables</b>		
Budgetary powers of the governor	Index 0-7 (see description in text pp. 98-99)	Closely based on Barrilleaux & Berkman (2003); Council of State Governments: <i>Book of the States: 1977-2005</i> ; National Association of State Budget Officers: <i>Budget Processes of the States 1977-2002</i> ; National Conference of State Legislatures
Citizen Ideology	Annual, state-level measures of citizen ideology	Berry, Ringquist, Fording, and Hanson via the Interuniversity Consortium for Political and Social Research (ICPSR #1208), ideo6004.
Electoral Competition	Predicted district level competition	Original competition data provided by Barrilleaux; predictive model described in text.
Higher Education Governance Structure	4 governing board (strongest); 3 coordinating board; 2 coordinating advising board; 1 planning agency (weakest)	Education Commission of the States <a href="http://www.ecs.org/ecsmain.asp?page=/html/issuesPS.asp">http://www.ecs.org/ecsmain.asp?page=/html/issuesPS.asp</a> , <i>State postsecondary education structures handbook</i> ; <i>State postsecondary education profiles handbook</i> : 1969-2003; Some data provided by Gabriel Kaplan
Higher Education Interest Ratio	Total number of public institutions plus other reg. hi ed interests, divided by the number of interest groups minus reg. hi ed	Gray and Lowery (1996), data provided by Lowery; state government websites; State archives; and COGEL <i>Blue Book</i> ; National Center for Education Statistics: <i>Digest of Education Statistics</i> : 1977-2005

	interests, logged	
Interest Group Density	Total number of interest groups minus registered hi ed interests	Originally developed by Gray and Lowery (1996), data provided by Lowery; state government websites; State archives; and COGEL <i>Blue Book</i>
Legislative Professionalism	legislative salary	Council of State Governments, <i>Book of the States: 1977-2005</i>
Party of the governor	Coded 1 if Democratic governor	U.S. Bureau of the Census, <i>Statistical Abstract of the United States: 1977-2005</i>
Party of the Legislature	Percentage of democratic legislators in both houses combined (Nebraska average of surrounding states)	U.S. Bureau of the Census, <i>Statistical Abstract of the United States: 1977-2005</i>
Political Culture	Racial/ethnic diversity ratio	Originally developed by Hero & Tolbert (1996). Data from U.S. Bureau of the Census, <i>Statistical Abstract of the United States: 1977-2005</i>
Term Limits	1 if a state has term limits	National Conference of State Legislatures: <a href="http://www.ncsl.org/programs/legismgt/about/states.htm">http://www.ncsl.org/programs/legismgt/about/states.htm</a>
Unified Institutional Control	One party controls both houses of the legislature; 1 if unified (Nebraska coded 1)	U.S. Bureau of the Census, <i>Statistical Abstract of the United States: 1977-2005</i>
Voter Turnout	Percent of eligible voters casting ballots	U.S. Bureau of the Census, <i>Statistical Abstract of the United States: 1977-2005</i>

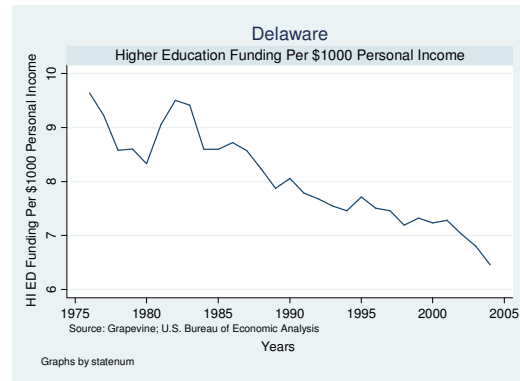
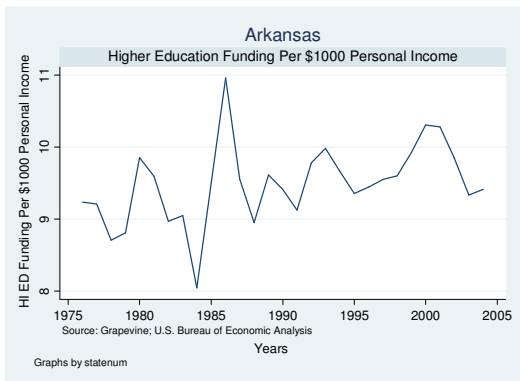
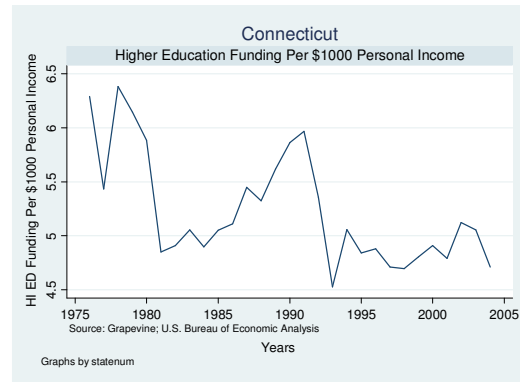
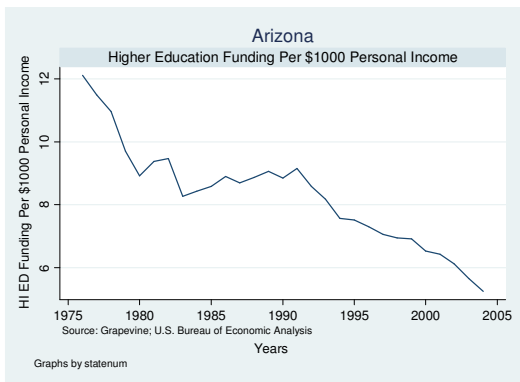
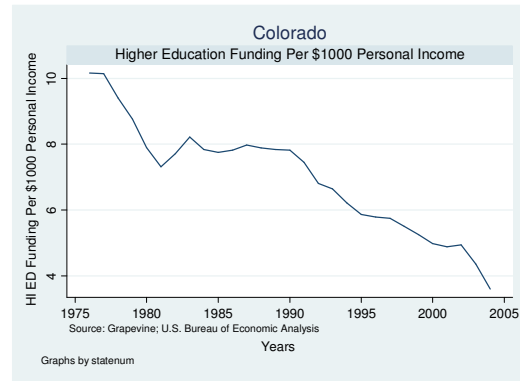
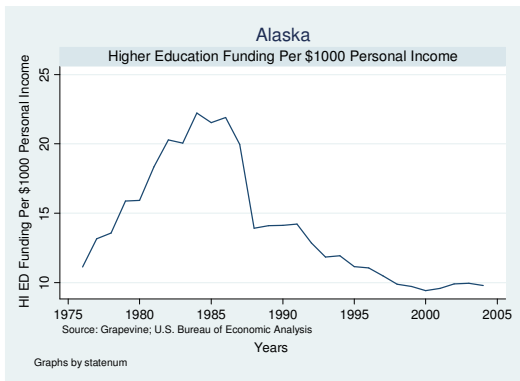
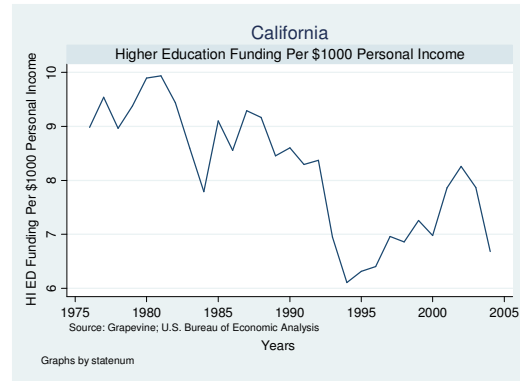
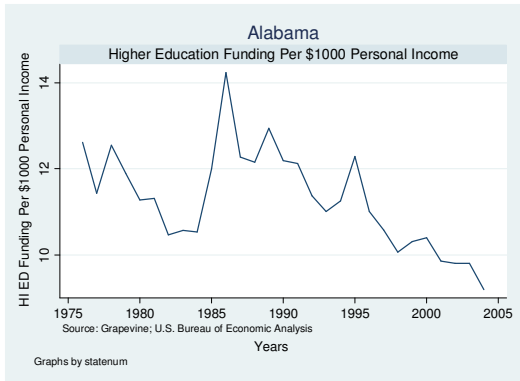
\*For detailed descriptions of the variables see the appropriate sub-section of the Conceptual Framework section and the Variable Construction section.

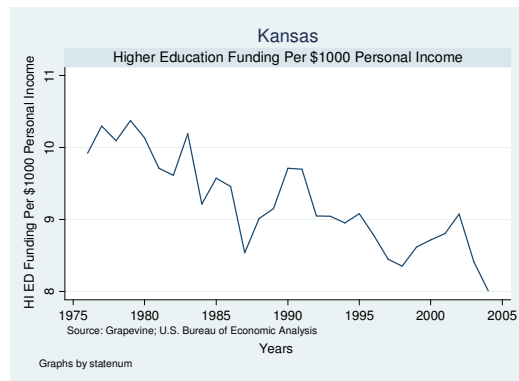
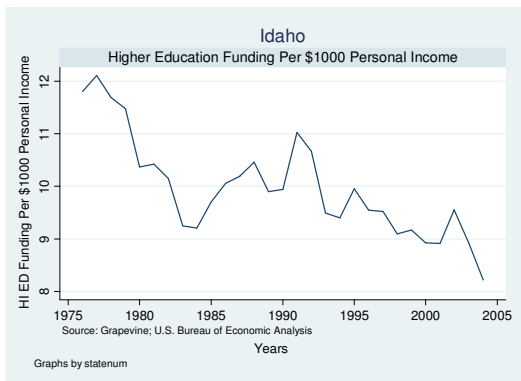
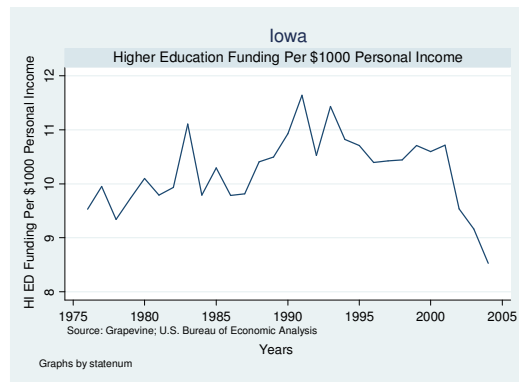
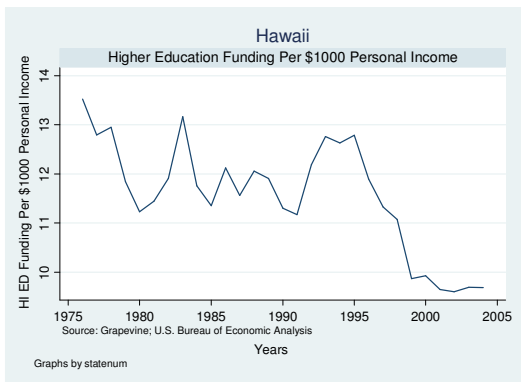
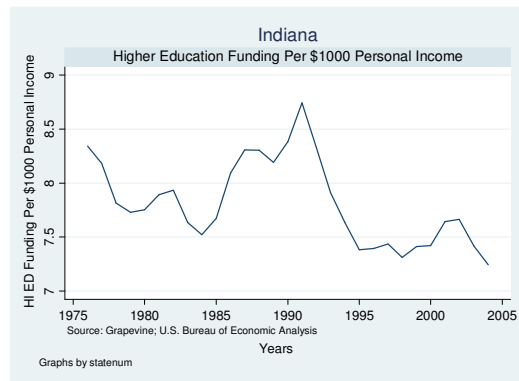
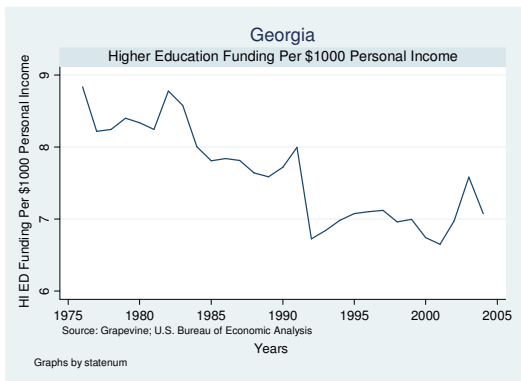
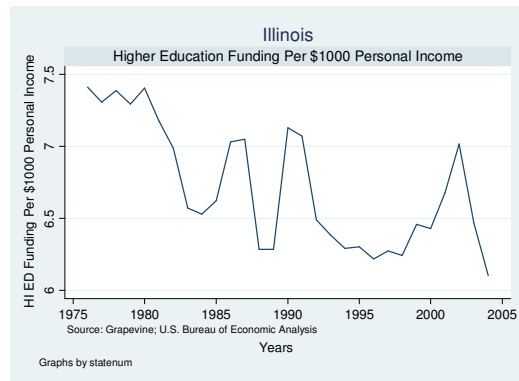
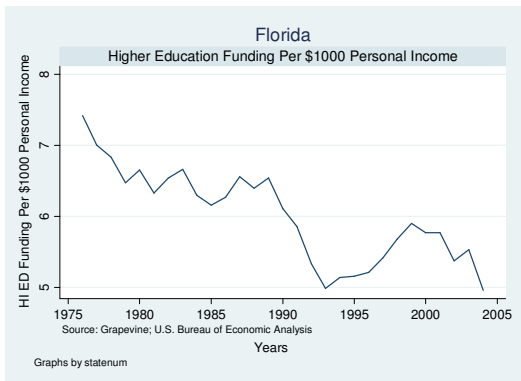
†All financial data is in constant 1998 dollars (higher education–HECA; all other-CPI-U)

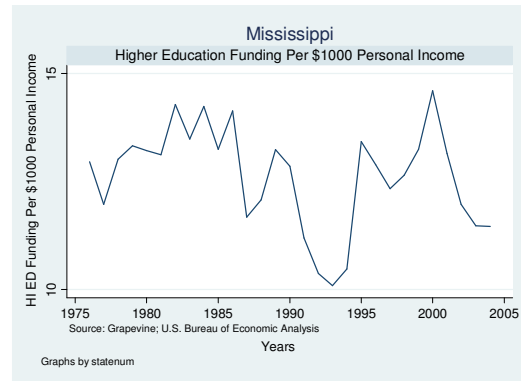
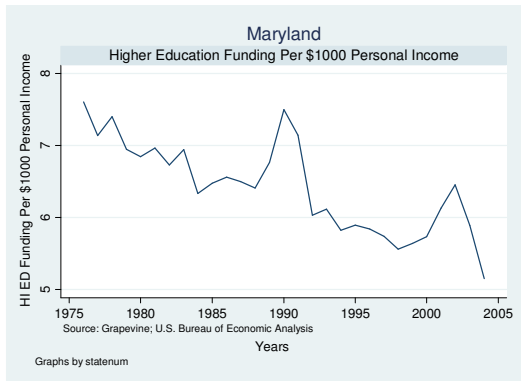
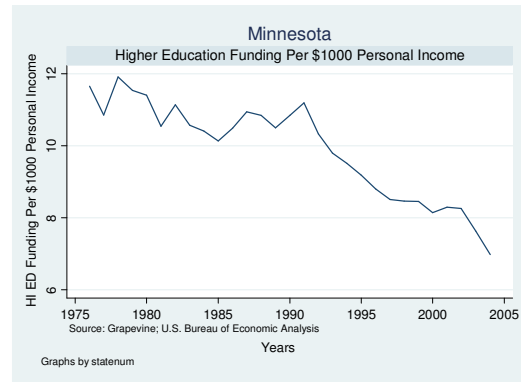
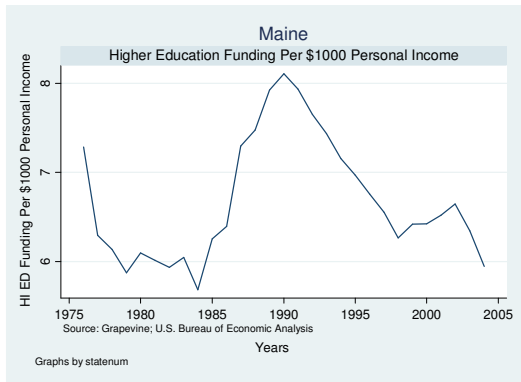
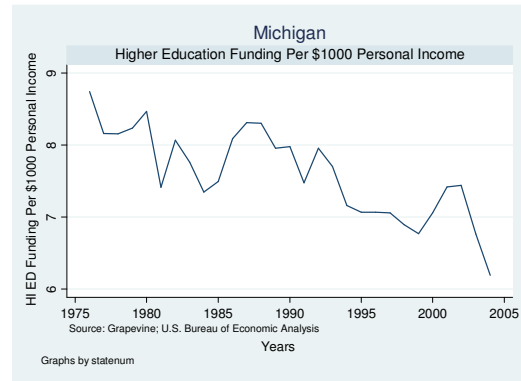
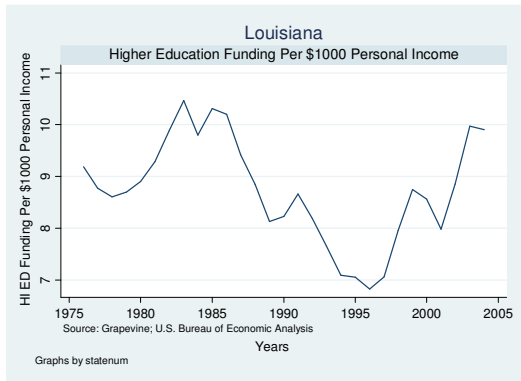
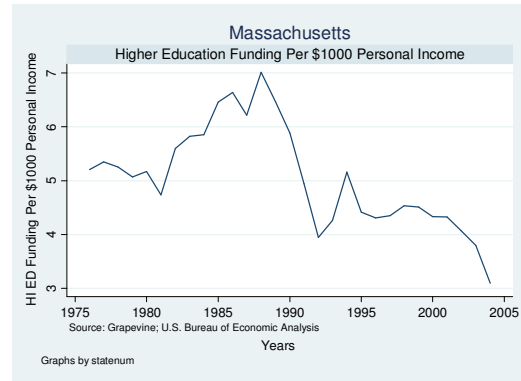
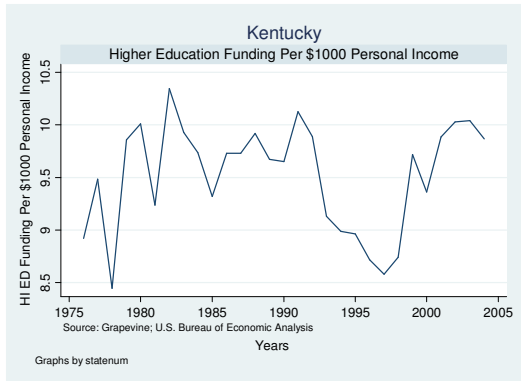
APPENDIX B

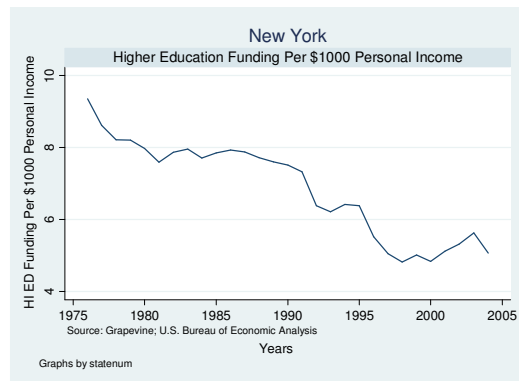
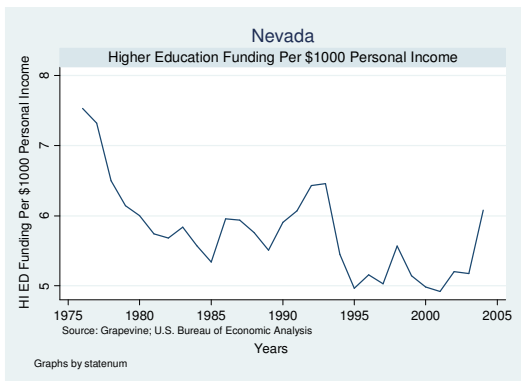
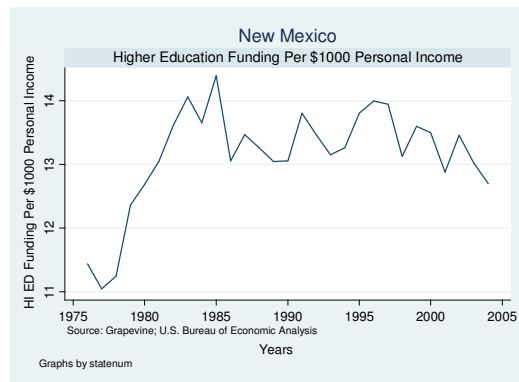
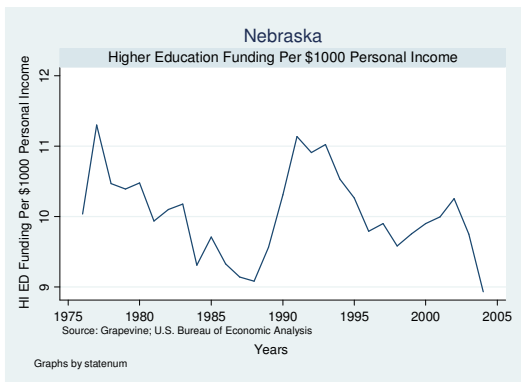
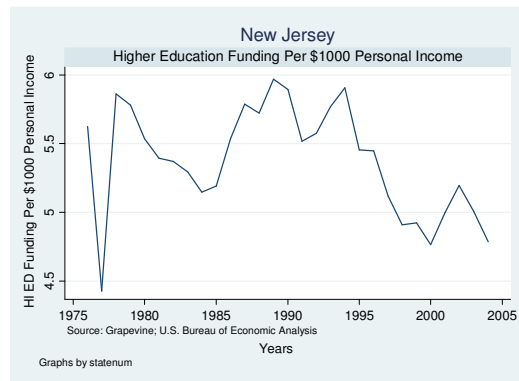
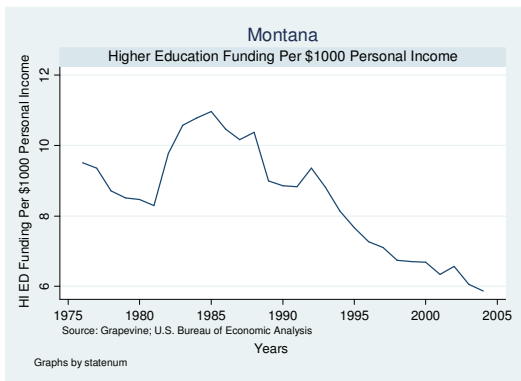
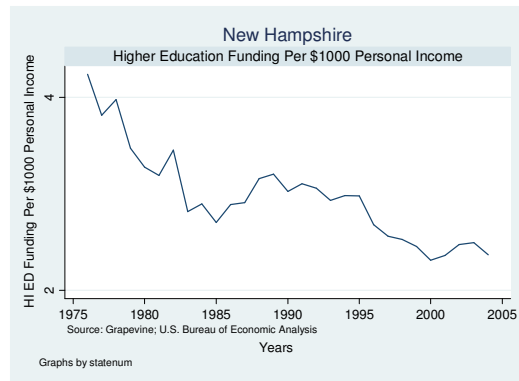
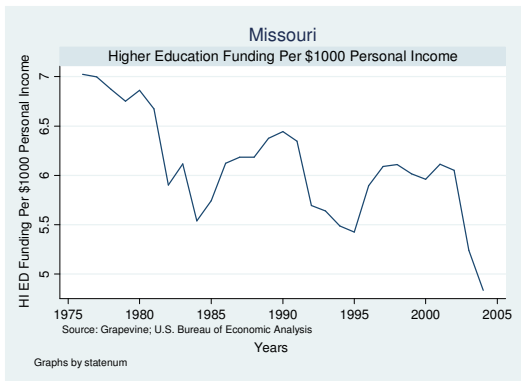
INDIVIDUAL STATE GRAHPS OF HIGHER EDUCATION APPROPRIATIONS  
PER \$1,000 PERSONAL INCOME (HI ED EFFORT)

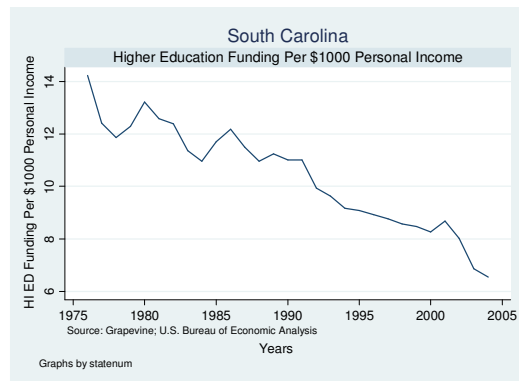
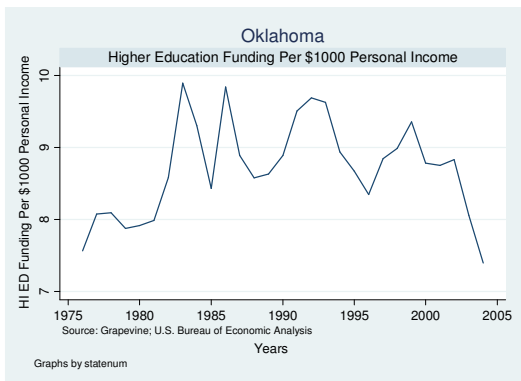
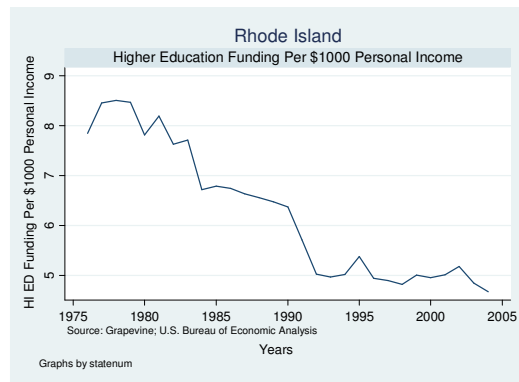
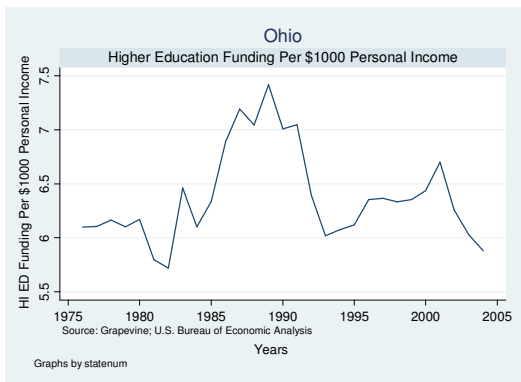
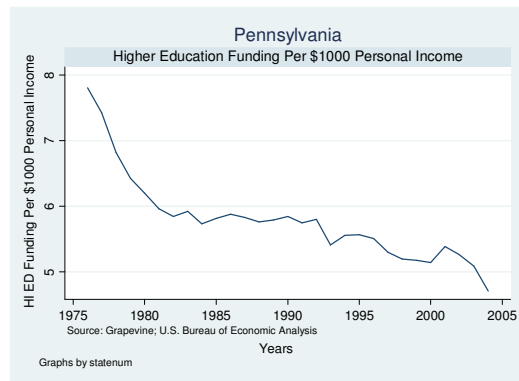
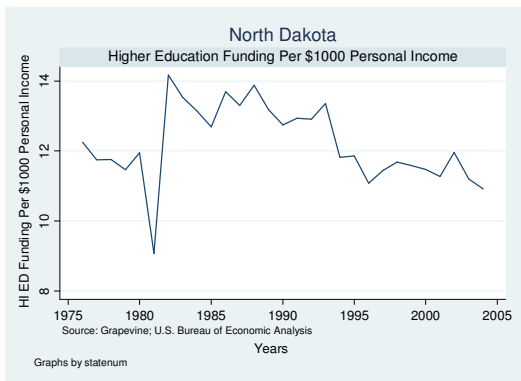
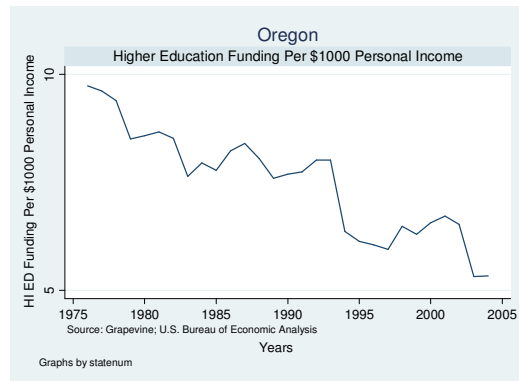
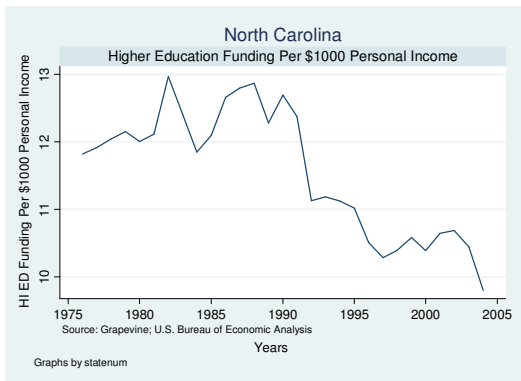


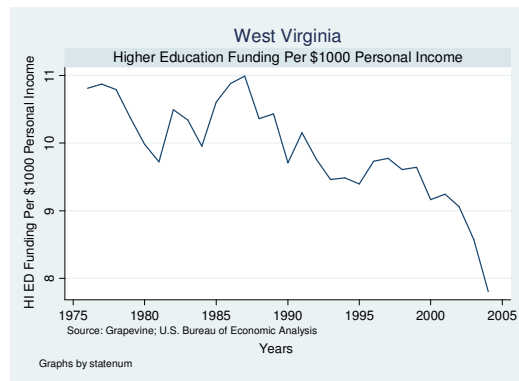
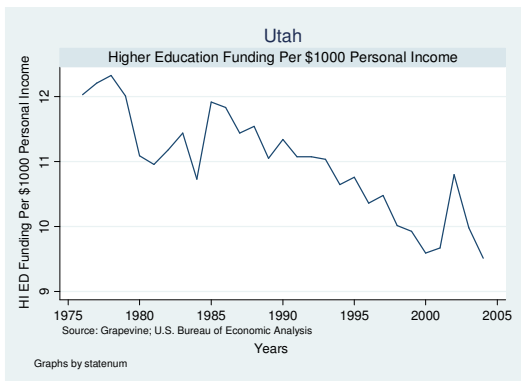
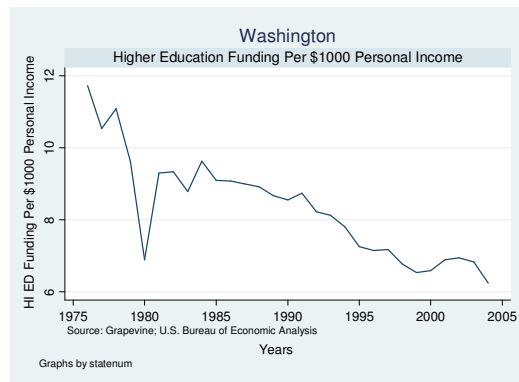
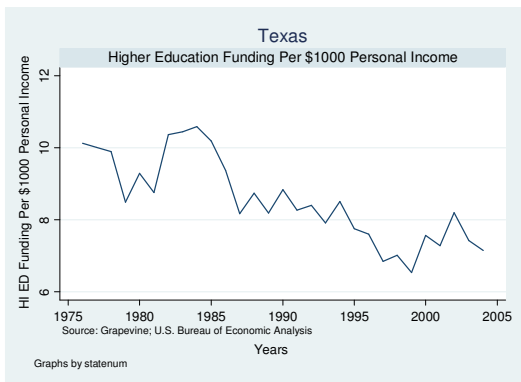
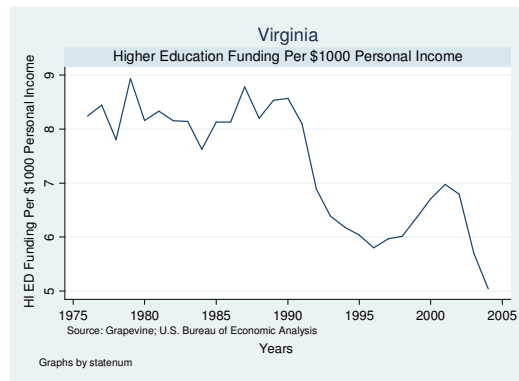
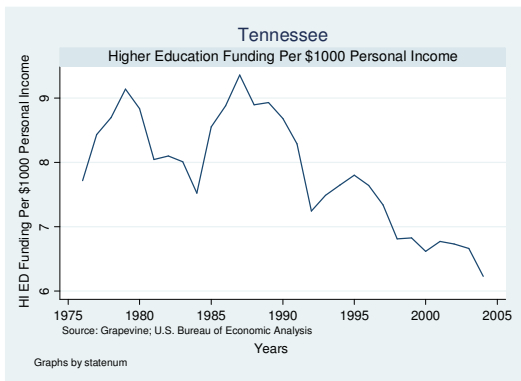
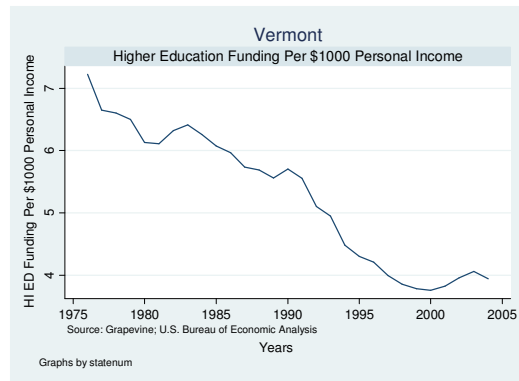
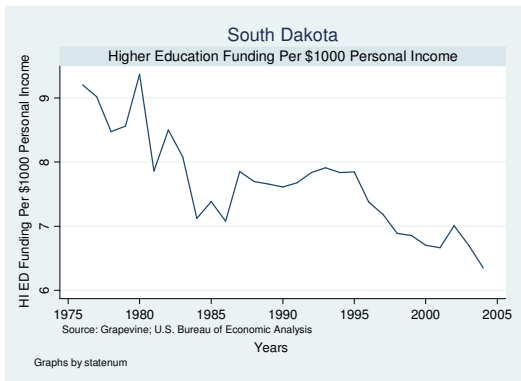


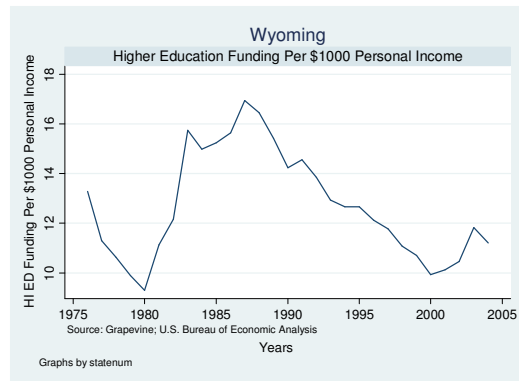
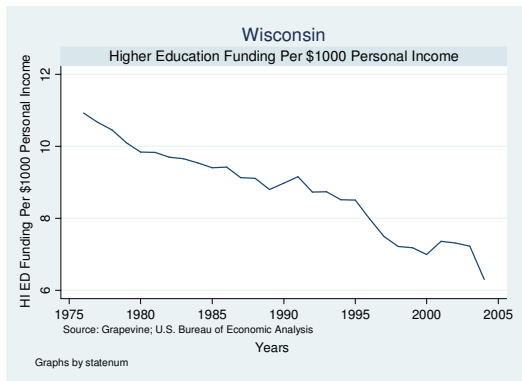








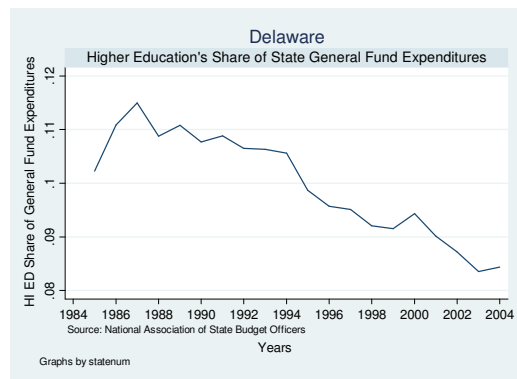
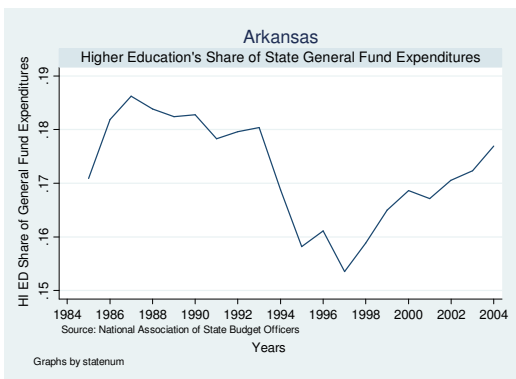
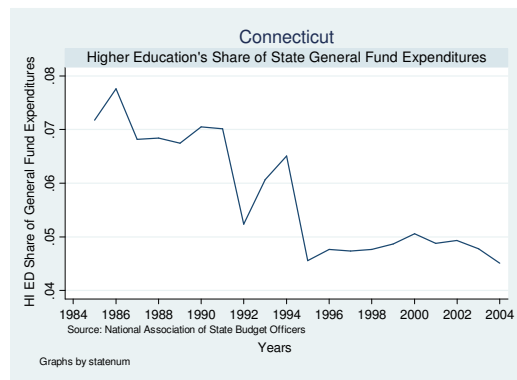
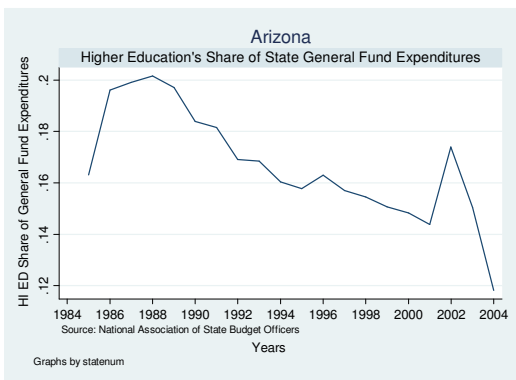
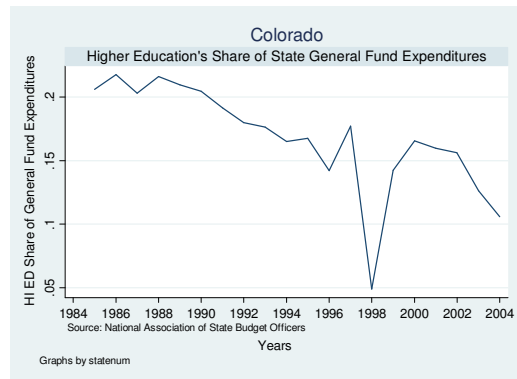
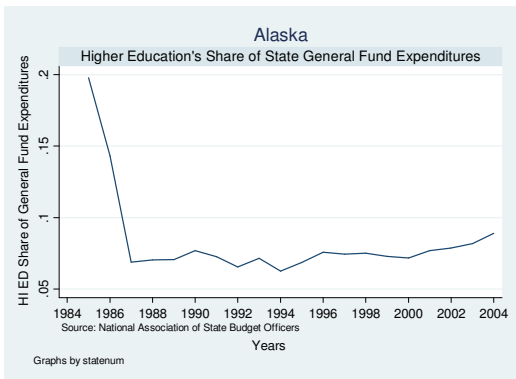
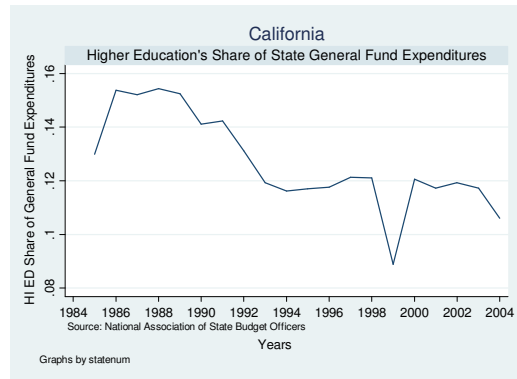
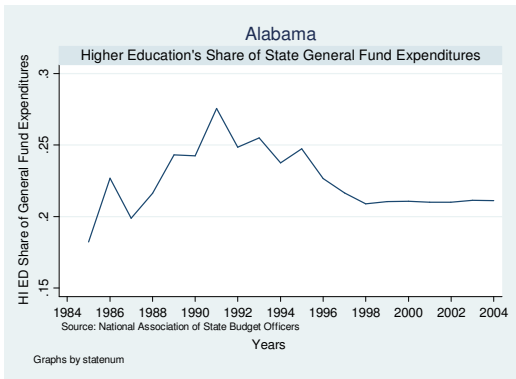


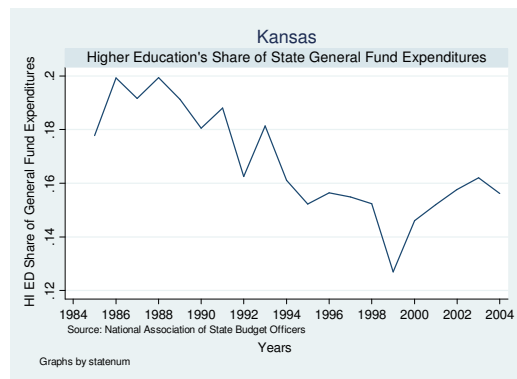
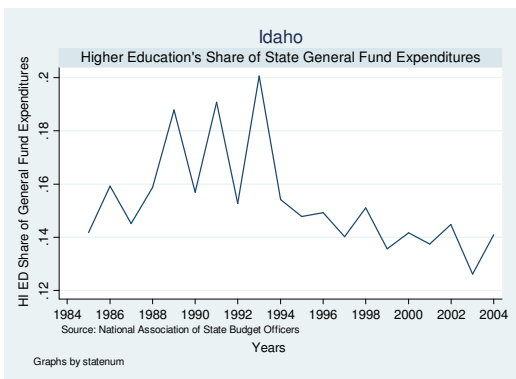
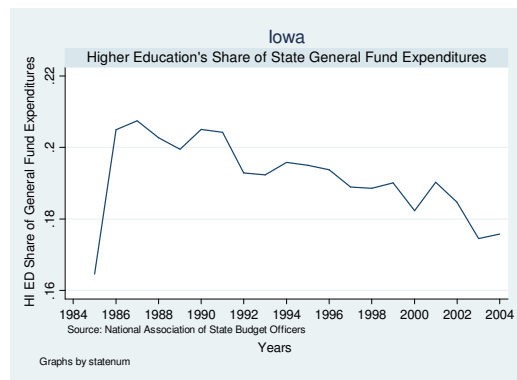
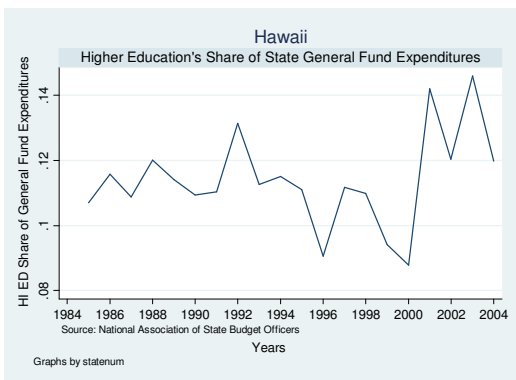
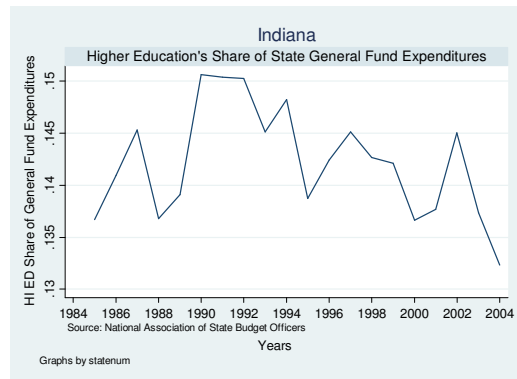
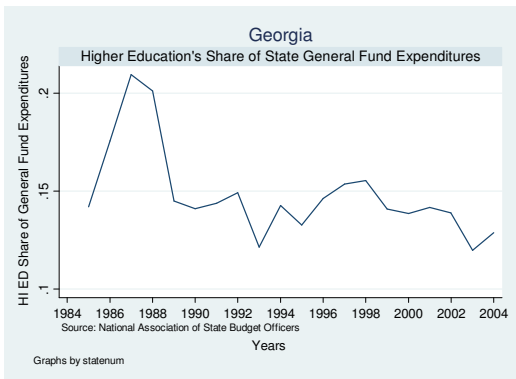
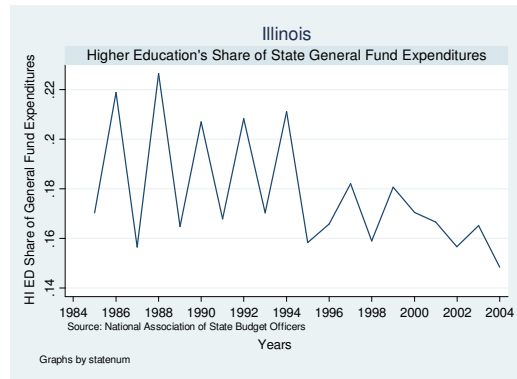
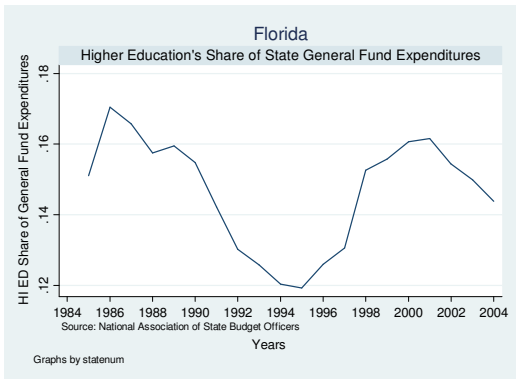


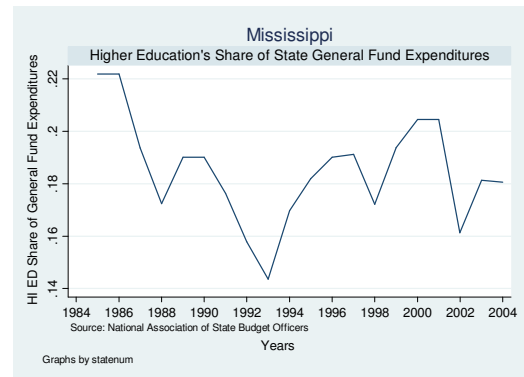
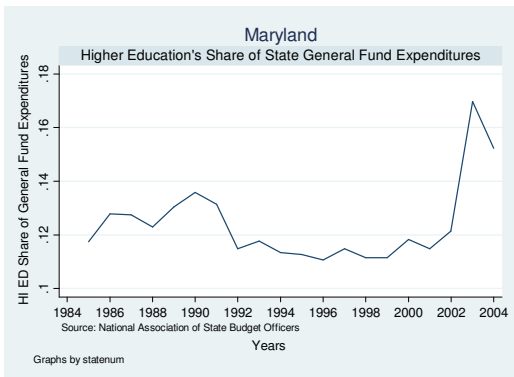
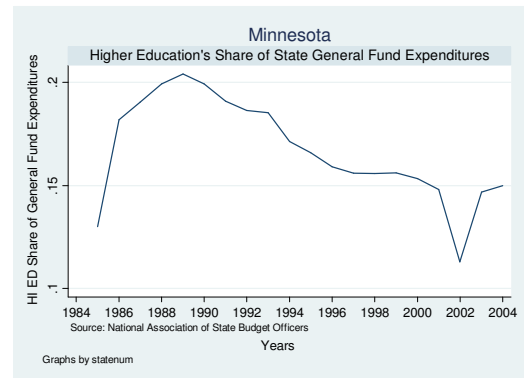
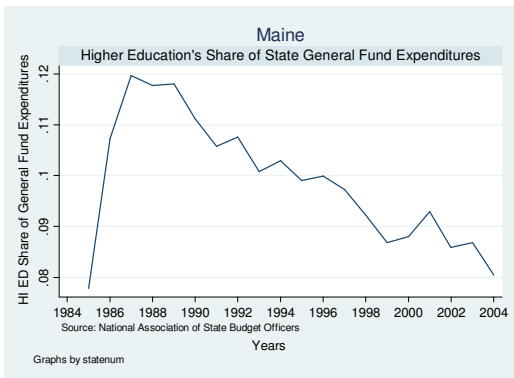
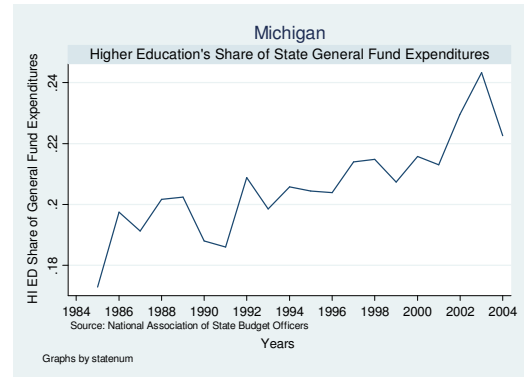
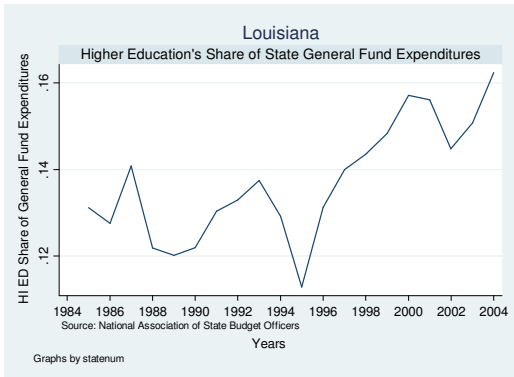
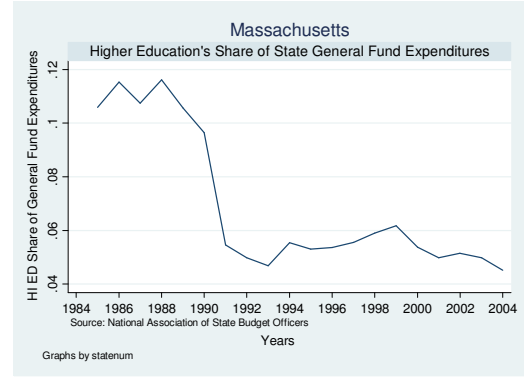
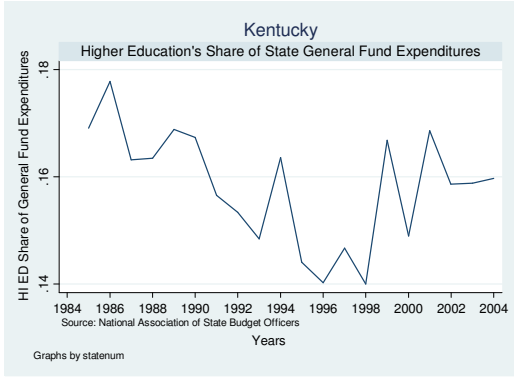
APPENDIX C

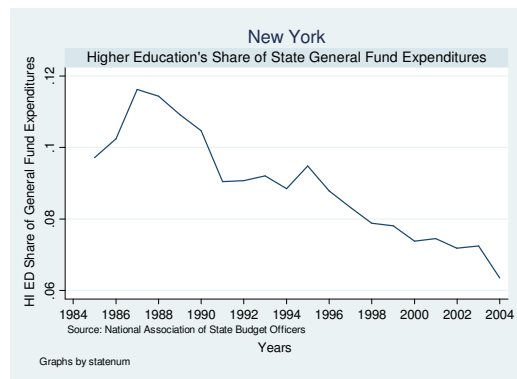
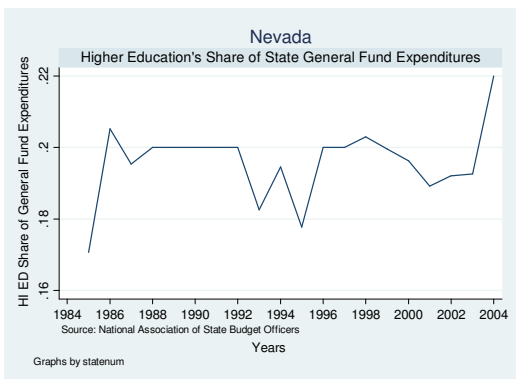
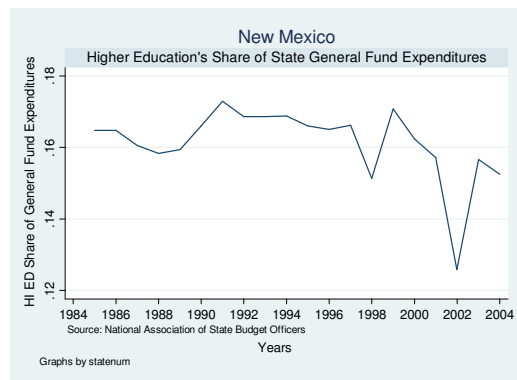
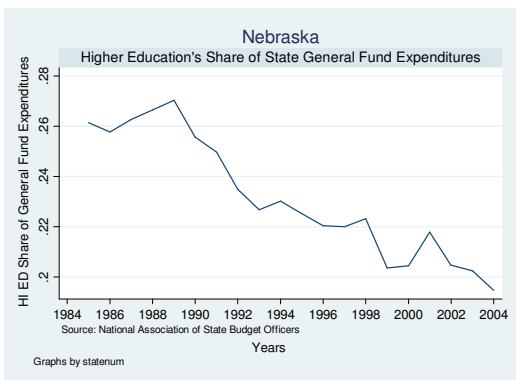
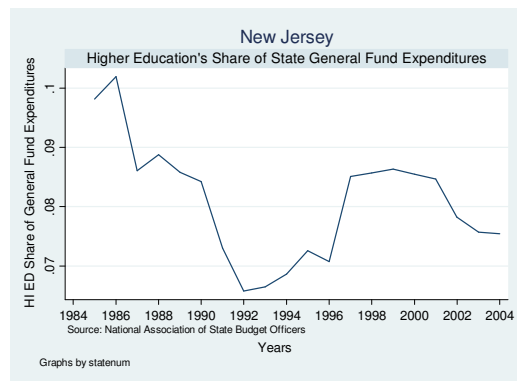
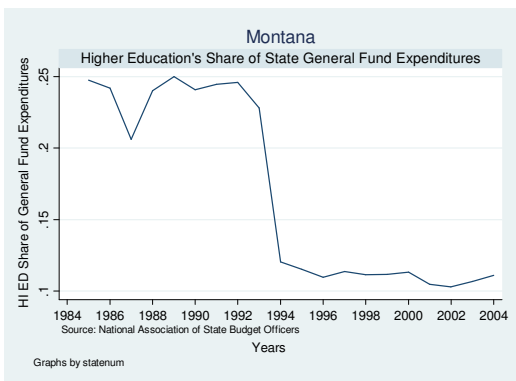
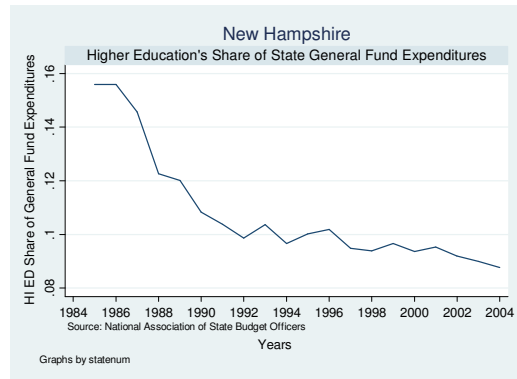
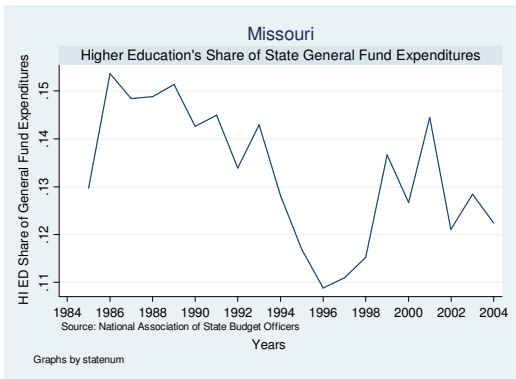
INDIVIDUAL STATE GRAHPS OF HIGHER EDUCATION'S SHARE OF STATE  
GENERAL FUND EXPENDITURES (HI ED SHARE)

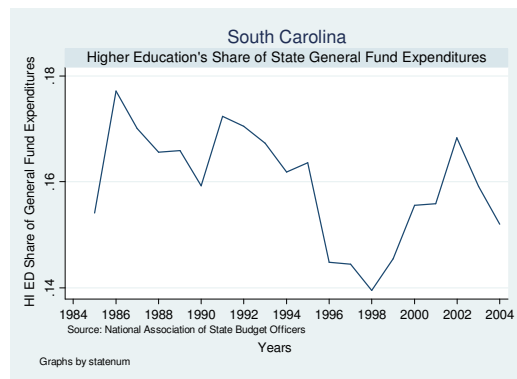
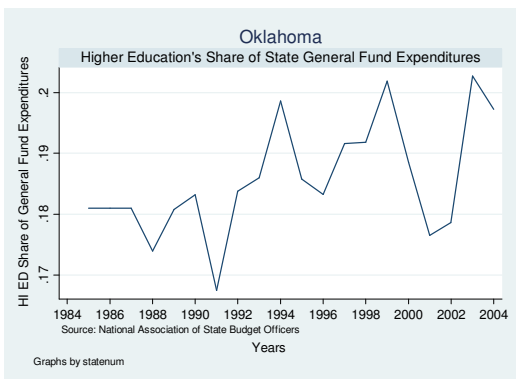
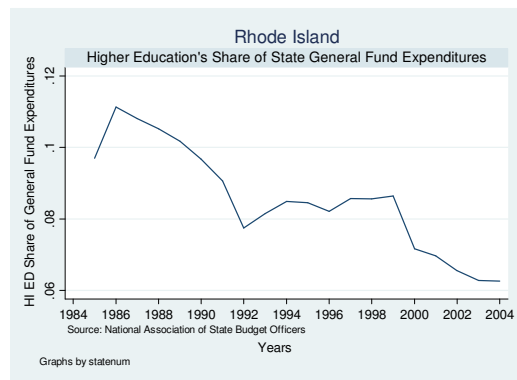
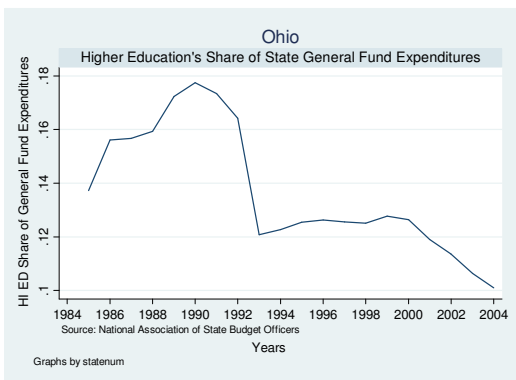
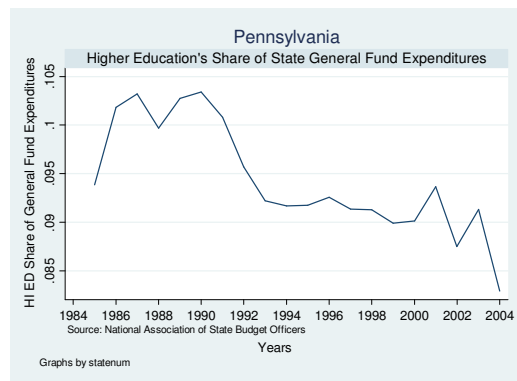
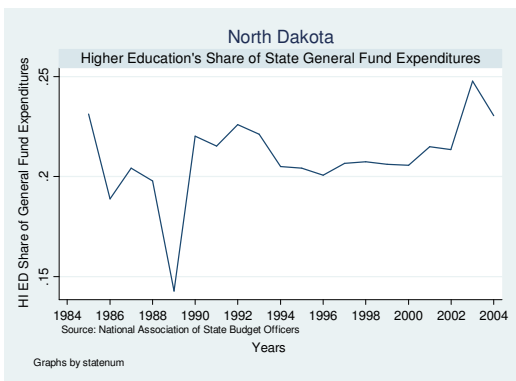
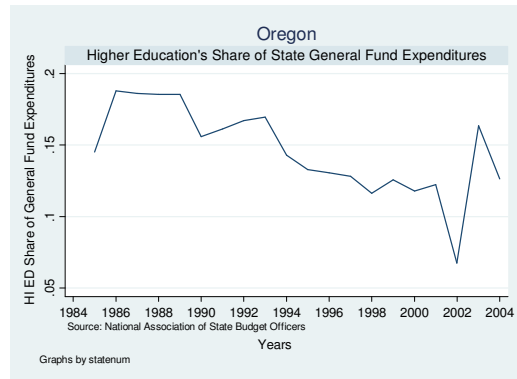
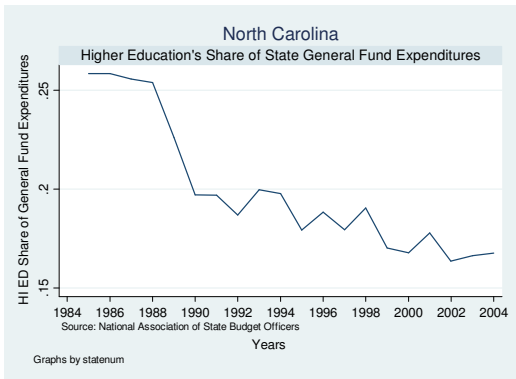


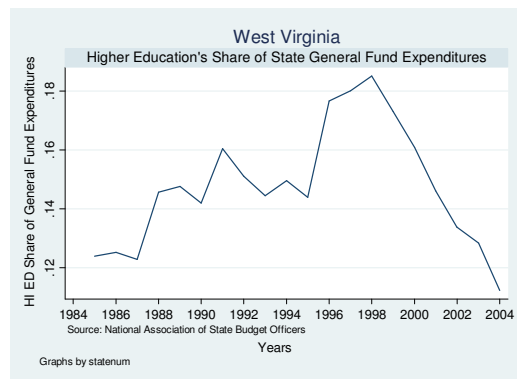
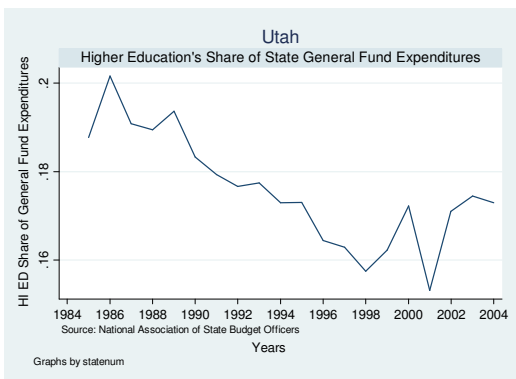
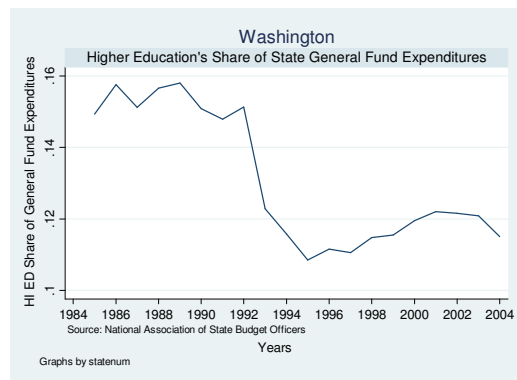
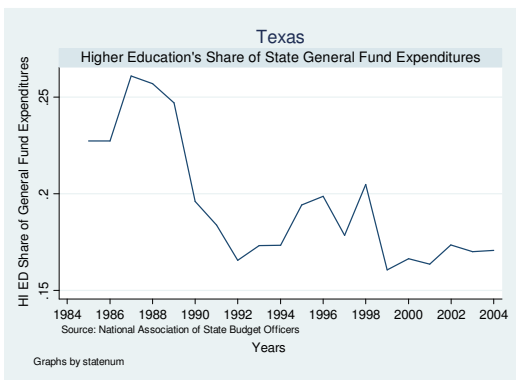
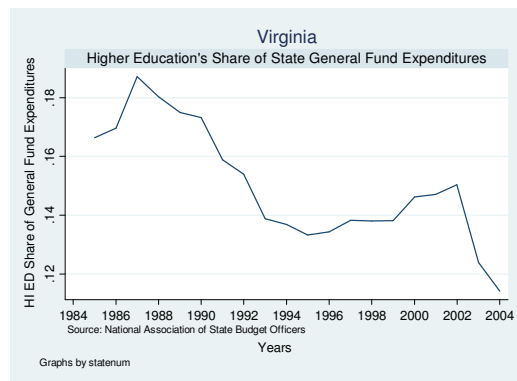
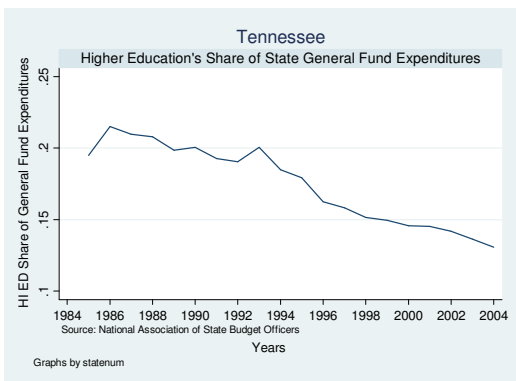
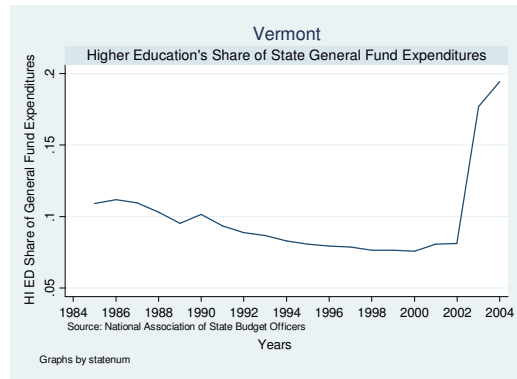
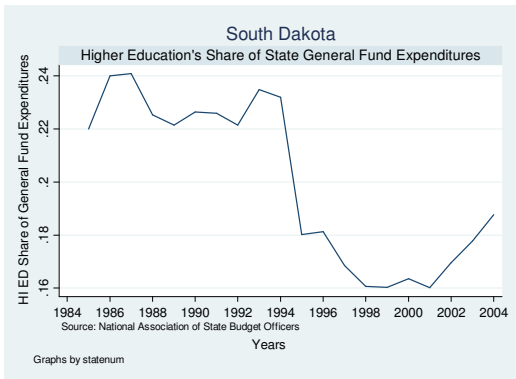


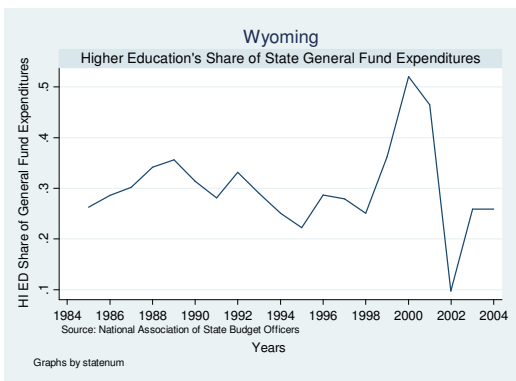
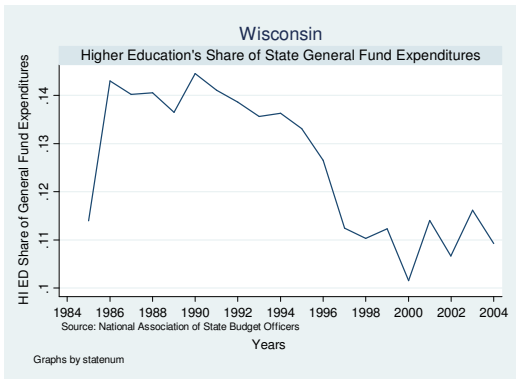












APPENDIX D

REGRESSION RESULTS FOR STATE BUDGETARY AREAS WITHIN EACH  
OTHER (OTHER THAN HIGHER EDUCATION)



Share Public Assistance			
Share Corrections	Share K12	Share Medicaid	Share Transportation
0.48008**	0.67891**	0.71221**	0.12967**
(0.03924)	(0.03587)	(0.03562)	(0.04425)
Standard errors in parentheses + significant at 10%; * significant at 5%; ** significant at 1%			

Share Corrections			
Share Public Assistance	Share K12 Education	Share Medicaid	Share Transportation
0.05976*	0.96730**	0.86174**	0.19150**
(0.02395)	(0.01686)	(0.01973)	(0.02799)
Standard errors in parentheses + significant at 10%; * significant at 5%; ** significant at 1%			

Share K12 Education			
Share Public Assistance	Share Corrections	Share Medicaid	Share Transportation
0.19802**	0.84748**	0.77567**	0.13780**
(0.02090)	(0.01570)	(0.02056)	(0.02611)
Standard errors in parentheses + significant at 10%; * significant at 5%; ** significant at 1%			

Share Medicaid			
Share Public Assistance	Share Corrections	Share K12	Share Transportation
0.28914**	0.84365**	0.86521**	0.19687**
(0.02255)	(0.01757)	(0.01957)	(0.02930)
Standard errors in parentheses + significant at 10%; * significant at 5%; ** significant at 1%			

Share Transportation			
Public Assistance	Share Corrections	Share K12	Share Medicaid
0.14916**	0.39484**	0.38500**	0.37648**
(0.02293)	(0.02499)	(0.02553)	(0.02541)
Standard errors in parentheses + significant at 10%; * significant at 5%; ** significant at 1%			

# VITA

## DAVID A. TANDBERG

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### ACADEMIC PREPARATION

- Ph.D.      Expected graduation: August 2007  
Higher Education (Specialty: Higher Education Policy and Politics)  
Cognate: Political Science  
Advisor: Patrick T. Terenzini  
The Pennsylvania State University  
Dissertation (in progress): *Politics, Budgetary Tradeoffs, and State Funding of Public Higher Education* (Defense: April 20, 2007)  
Chair: Donald E. Heller
- M.A.      Political Science (Major: American Politics; Minor: Comparative  
Politics) The Pennsylvania State University  
Advisor and Chair: Michael B. Berkman
- B.A.      Secondary Education/Social Studies; emphasis in Government and  
Philosophy  
Minor in English  
Adams State College, Alamosa, CO

### RESEARCH INTERESTS

My research interests include higher education policy, politics, finance, and economics. Specifically they include, state governance structures and regulatory practices, governance restructuring and reform, performance, accountability, state funding, and state and federal financial aid policies and practices. I am equally interested in the political process and how it impacts state and federal higher education finance, policy, and practices.

### EXPERIENCE

**Policy Analyst and Executive Assistant to the Deputy Secretary for Postsecondary and Higher Education**, Pennsylvania Department of Education, May 2007-Present.

**Allan W. & Roberta Ostar Graduate Fellow**, Grassroots Network, Alumni Association, The Pennsylvania State University, August 2006 – May 2007

### PUBLICATIONS

Tandberg, D. A. (2006). State-level higher education interest group alliances. *Higher Education in Review*, 3, 25-49.