

THE DECLINE IN STATE FUNDING OF PUBLIC HIGHER
EDUCATION IN THE UNITED STATES:
COMPETING BUDGET PRIORITIES
AND STATE VARIATIONS

by

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ABSTRACT

State and national policy makers for 150 years have promoted public access to higher education, supported through state tax funds and more recently through federal direct appropriations and tax expenditures. In the past 3 decades, state tax funding of higher education has declined, resulting in increased reliance on tuition and reduced college affordability, thereby raising barriers to access. There are also vast differences in how well states fund higher education, with some providing more generous tax funds and others steadily providing less.

Higher education researchers have conducted ongoing inquiry regarding factors that may influence the level of state legislative support for higher education. These include institutional, political, economic, cultural, demographical, and fiscal factors. Several have pointed to what appears to be an inverse relationship between state funding of higher education and state funding of Medicaid.

This study employs regression analyses of a 20-year, 50-state panel of data (1992-2011), considering the changes in budget share devoted to higher education, Medicaid, K-12 Public Education, and Corrections. During that 20-year period, higher education's share declined in 33 states, Medicaid's increased in 44 states, and 28 states experienced both a decrease in higher education's share and an increase in Medicaid's. Also considered were political party control of states, and changes in Gross State Product. The analysis tries to determine if increases in Medicaid's share is contributing to a decline in the share for higher education, and whether the share for each budget category

explains state funding variations.

A fixed effects regression model, taking into account both the differences within (across time) and between (across states), determined that 85% of the variation in the error term is due to the wide cross-sectional state differences. This calls into question much of the prior research that relied on ordinary least squares regression models, and did not account for what Zhu called “cross-unit heterogeneity.” These findings indicate that additional research is needed, both quantitative (considering groupings of states rather than all 50 states), and interpretive case studies to elicit more insights and research questions that will yield more definitive answers about budgetary tradeoffs between higher education funding and other budgetary categories.

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CHAPTER 1

INTRODUCTION, LITERATURE REVIEW, CONTRIBUTION, AND APPROACH

Introduction

The collision between constrained public funding and the need to increase postsecondary access and degree attainment is by now well documented. The problem stems from structural pressure on state budgets, growing dependency on tuition revenues that harm access and opportunity, and institutional cost structures that require unsustainable funding increases. The postsecondary funding gap has been growing in most states for some time, and is reaching crisis proportions with the economic collapse of 2008-2009.

--Policy Advisory to State Fiscal Policymakers, February 2009¹

Access to a college education has long been viewed as essential to achieving economic well-being in America. Starting with the Morrill Act in 1862, and significantly accelerated by the post-World War II GI Bills, followed by the National Defense Education Act in the 1950s, the Higher Education Act in the 1960s and 1970s (which introduced Pell Grants, federally-backed student loans), and income tax credits of the 1990s and beyond, Congress has shown interest in encouraging college access to ordinary Americans by helping to make it more affordable. For instance, between 2006-07 and 2010-11, federal spending on Pell Grants increased by 158% in constant dollars, from \$12.8 billion to \$32.4 billion. This is a result of an 80% increase in the number of grant

¹ A joint statement on the American Recovery and Restoration Act of 2009 by the Delta Project, The National Center for Public Policy and Higher Education, and the National Center for Higher Education Management Systems.

recipients and a 43% increase in the average grant (Congressional Budget Office, 2013).

However, in recent years, college affordability has been diminishing. As pointed out more than a decade ago by the National Center for Public Policy and Higher Education, “Most American families have lost ground in college affordability.” This is due to tuition and other education-related expenses growing much faster than the rate of inflation, and resulting in lower-income families losing the most ground with a doubling in the percentage of income required for tuition at public colleges between 1980 and 2000 (National Center, 2002, p. 4).

Although the size of Pell awards has increased, they have not kept up with rising tuition and other costs of college attendance. In the 1970s, the value of a maximum Pell Grant covered nearly 80% of average tuition, fees, and room and board at a public 4-year university and only 31% in 2012-13 (Mettler, 2014).

Compounding the difficulty in Americans paying for college is stagnation in median household income. According to the U.S. Census Bureau (2013b), in constant 2012 dollars, median household income has been relatively flat or even declined since 1989. In 2012, it was \$51,017 compared to \$51,681 in 1989 (peaking at \$56,080 in 1999). In the last decade (2002-2012), median household income in constant dollars varied between a high of \$55,627 in 2007 and a low of \$51,100 in 2011 (U.S. Census Bureau, 2013b).

Citing the most recent data from the United States Census National Center for Education Statistics, Kirshstein (2012, p. 2) points out that “public four-year tuition represented only 4 percent of the median family income in 1970, but reached 11% by

2010." The major reason for tuition increases is less relative state tax support.² While the total average amount spent per student in public colleges and universities (using constant dollars) decreased from 2002 to 2012 from \$11,961 to \$11,695, more of the cost shifted to students through tuition. Average tuition has gone from \$3,609 annually in 2002 to \$5,189 in 2012, while average state tax appropriations have dropped from \$8,352 to \$5,906 (SHEEO, 2013).

The increased reliance on tuition as a funding source—and thus the increased cost of public higher education for students and their families—has a negative impact on access. Increases in tuition undermine access unless financial aid is increased proportionately. For instance a “\$1,000 increase in tuition at public two-year schools decreases enrollment rates by 7.2 percentage points for low-income students and 4.4 percentage points for high-income students” (Kane, Orszag & Gunter, 2003, p. 25).

These trends also have an impact on academic quality. Even though tuition has increased, it has not entirely filled the gap from state funding declines, due at least in part to political constraints on those who set public higher education tuition. Academic quality, whether measured by the percentage of spending per full-time student at public institutions versus their private counterparts, the salaries of public versus private faculty, or by rankings in *U.S. News and World Report*, has declined since the late 1970s (Kane, et al., 2003; Kane, Orszag, Apostolov, Inman, & Reschovsky, 2005).

What Rizzo (2006) called a “precipitous drop” in state tax support for higher education since the 1970s has been noted by a number of scholars (cf., Kane, et al. 2005;

² In some instances, the total amount spent on higher education has declined. In other cases, the amount spent has gone up but the relative support has declined. By relative support I mean in terms of funding per student. For instance, funding could increase in total and yet, with more students covered by the same money mean relatively less state support.

McLendon, Hearn & Mokher, 2009a, McLendon and Mokher, 2009b). Since the 1990s, state funding has dropped in most states whether they traditionally funded higher education well or poorly (Rizzo, 2006). Dr. Muriel Howard, the president of the American Association of State Colleges and Universities, has called this “the de facto privatization of public higher education” resulting from the “disturbing trend of state disinvestment” (Howard, 2014).

More than a decade ago, Harold A. Hovey predicted that states faced structural revenue imbalances and that, even with normal economic growth, would result in “curtailed spending for higher education in many states” (Hovey, 1999, p. vi). Recessions in 2001 and in particular 2008 significantly accelerated the decline Hovey foresaw, and contributed to the approaching crises in higher education funding described in the epigraph above.

As the U.S. Department of Education acknowledged recently, despite the historic interest of Congress and the federal government, public higher education funding remains mostly a responsibility of the 50 states (U.S. Department of Education, 2011). Over 11 million (full-time equivalent) students a year attend public colleges and universities that rely on state taxpayer support (SHEEO, 2013). On average, state support for higher education has been declining; however, this is not true for all states, and there is quite a range in both total state appropriations per student and state funding effort.

In fiscal year 2013, state legislatures appropriated \$71.9 billion to support public higher education, down from \$80.7 billion 5 years earlier. In the past 5 years, which includes the “Great Recession,” it is clear that higher education was not only cut in most states, but cut deeply. Thirty-eight states reduced spending on higher education, with 24

states reducing it by more than 10%. As Table 1.1 shows, at the same time that most were reducing expenditures, 12 states increased higher education spending, four by more than 10% (Grapevine, 2013). Clearly when it comes to tax support for higher education, not all states are created equal.

When funding effort is considered (defined as amount of state spending on higher education per \$1,000 in total personal income) in 2012-13, states ranged from \$1.38 in New Hampshire to \$13.68 in Wyoming, with a national mean of \$5.47. Utah compares favorably at \$7.62. Sixteen states were 20% or more above the mean and 10 states were 20% or more below the mean (Grapevine, 2013).

The states also vary widely in terms of the percentage of their state budgets committed to supporting higher education, from a high in 1992 of 26.4% (Wisconsin) to a low of 2.9% (Massachusetts) and from a high in 2011 of 24.6% (Iowa) to a low of 2.0% (Vermont). Utah was 12.5% for higher education 1992 and 10.8% in 2011 (NASBO, 2013).

As noted earlier, the general decline in higher education funding, as evidenced by a reduction of state commitment by more than three-quarters of the states in recent years, has led some to call this phenomenon the “privatization of public higher education.” For

Table 1.1

Number of States Increasing or Reducing Higher Education Spending, 2009-2013

States Reducing Spending	38	States Increasing Spending	12
Reducing by less than 10%	14	Increasing by less than 10%	8
Reducing by 10% or more	24	Increasing by more than 10%	4

Source: Grapevine Table 2 (2013)

instance, McLendon and Mokher (2009b) observed that “state investment in higher education has substantially declined relative to changes in enrollment, in state wealth, and in the growth of institutional budgets.” This indicates over the past 3 decades greater privatization of higher education as institutions depend less on state appropriations (McLendon & Mokher, 2009b). This downward trend in state support for higher education led one higher education policy analyst to predict that if present trends continue over the next several decades, state tax support will disappear entirely by 2059, and “sooner in some states and later in others” (Mortensen, 2012, p. 27). If states had maintained the higher education budget share at 1977 levels, the average state would spend “an additional \$605 million per year,” representing on average a 50% increase in state funding (Rizzo, 2006, p. 8).

The cost for students through tuition also varies widely depending on the state in which they live. Nationally, 10.7% of median family income is required to pay in-state tuition at a public 4-year college or university. This varies widely (2009, latest available) from 5.5% in Wyoming to 17.6% in Vermont (and Utah at 6.6%). The mean state and local tax support per full-time equivalent student (FTE) in 2011 was \$6,290, but this ranged from \$3,025 in Vermont to \$14,837 in Alaska (Utah is at \$5,338) (NCHEMS, 2013a). While most states cluster around the mean (\pm \$1,000), over a third of the states (19) are either 20% above or 20% below the mean (spending more than \$7,548 or less than \$5,032 per student).

For the poorest American families, the differences in cost are even more dramatic. For families in the lowest quartile of family income, the percentage of income necessary to attend even a lower cost, public 2-year college ranged from a high of 62.7% in New

York to a low of 25.5% in Wyoming (Utah is 29.5%) (NCHEMS, 2013b). Thus, increasing costs of college attendance limit access. As noted earlier, one study found that a \$1,000 increase in tuition results in decreasing enrollment rates by 7.2% among low-income students and even among high-income students by 4.4% (Kane, et al., 2003).

Research Questions

I start with two basic questions. First, why are states retrenching their commitment to funding public higher education? Second, why do states vary in their support?

A number of factors have been identified that may contribute to the differences among states. I categorize those found in the literature as institutional, economic, demographic, cultural, political, and fiscal, e.g., budget competition. Each plays varying roles in the states. However, of these, from both research of the literature and practical experience, I am persuaded that the fiscal or budget competition factor merits additional analysis in order to understand more about how it may be contributing to the decline in higher education funding. I approach this not only from an academic perspective, but also from a practical one, having been involved in legislative budget making or higher-education advocacy for over 25 years.

A popular textbook declares that budgeting is “at the heart of public policy making” and demonstrates public priorities that “cut through political rhetoric” (Gosling, 2006, p. 1). Legislators are confronted with competing priorities and demands through which they must sort. They are also confronted with a finite number of dollars to spend. “The politics of expenditures is the politics of choice. Revenue is never sufficient to satisfy all possible claims on the budget, so governments have a ...process for making

budget requests, sorting through them, prioritizing them, trimming them back, and approving the resulting plan...” (Rubin, 2006, p. 145). These authors convey a point that is all too often overlooked in public policy and political science, but commonly recognized in the field of public administration -- that budgets do more to define and drive policies than the other way around. This is especially true of public higher education policy today.

Better understanding the dynamics of budget competition may help us understand the dramatic drop in state support, not only during the most recent recession, but actually since the late 1970s. This drop in support has implications not only for the cost of college and thus its accessibility to average let alone less-advantaged Americans, but also for the quality of public higher education. The fact that state support has dropped is well known; however, the reasons and the potential causes for continued decline are much less understood.

Of the various budget categories with which higher education competes, it is plausible that one more than the others may best explain the decline—state funding of Medicaid. As illustrated in Figure 1.1, on average, the share of state budgets going to pay for Medicaid has increased while at the same time, the share of budgets for higher education has declined.

Although this apparent association is not enough from which to draw any firm conclusions, I am interested in seeing if it helps explain not only the general decline in higher education funding by states, but also the differences in higher education funding among states. It is worth noting that there are also differences among states in the percent of their budgets appropriated for Medicaid, ranging from a high in 1992 of 34.4%

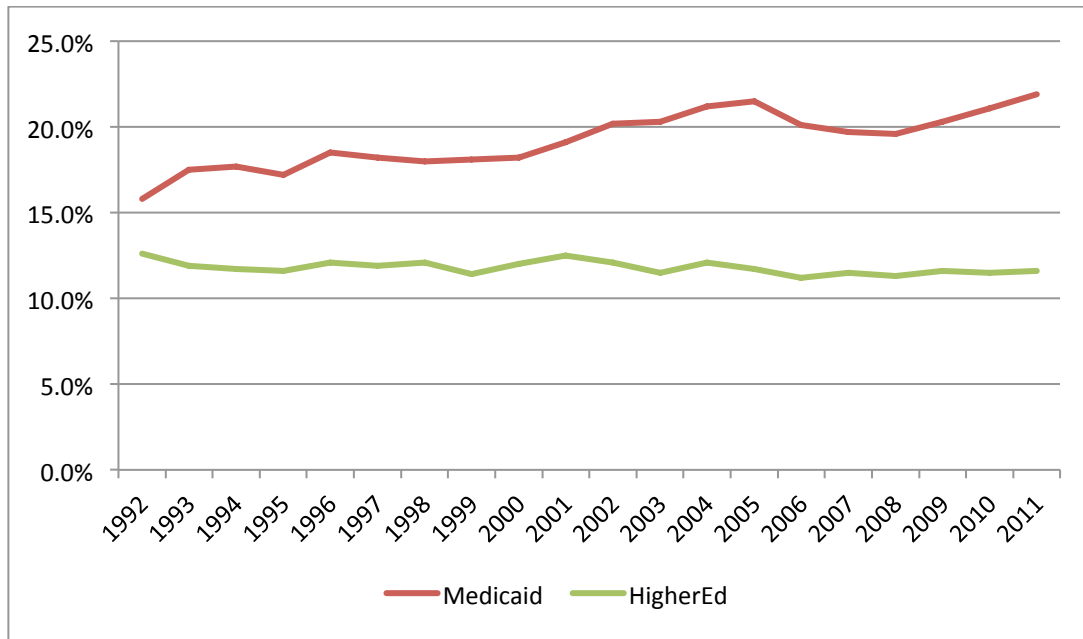


Figure 1.1

Percentage of State Budgets, 1992-2011

Source: NASBO, 2013

(New Hampshire) to a low of 4.5% (Alaska), and a high in 2011 of 33.9% (Arizona) to a low in 1992 of 9.0% (Wyoming) (Utah's percent of budget for Medicaid was 10.7% in 1992 and 14.7% in 2011) (NASBO, 2013). These vast differences among states in Medicaid funding cause me to wonder if the states that are most generous in higher education funding are less generous in funding Medicaid and vice-versa.

The question of the possible negative impact of Medicaid funding on higher education budgets is particularly timely as a result of the Affordable Care Act. Its implementation will further expand enrollment in Medicaid (and its associated program CHIP). While during the first few years, cost of expansion is to be borne entirely by the federal government, it clearly has implications for state budgets in the longer term. For instance, during the first few months of implementation of the Affordable Care Act

(September 2013 compared to February 2014), Medicaid and CHIP enrollments grew by 5.2% across all states—from 58 to nearly 62 million individuals, and by 8.3% in the states fully embracing Medicaid expansion (U.S. Department of Health and Human Services, 2014). According to a report by The Pew Charitable Trusts, as the Affordable Care Act began its implementation in the fall of 2013, states reported “far higher enrollment in Medicaid than in private insurance” as much as 25 times as many (Vestal, 2013).

My research questions are the following: Are increases in state funding of Medicaid negatively associated with state funding of higher education? Are differences in state funding of higher education among the 50 states explained by how well they fund Medicaid? The 20-year trends for all state budgets for all NASBO categories are illustrated in Figure 1.2

A common thread here is that except for Medicaid and “Other,” each category is either flat or has declined as a percentage of state budgets. Thus it seems logical to conclude that the decline in higher education’s share may be due at least in part to increasing state funding of Medicaid.

Literature Review

In an effort to answer the question of state variations in higher education funding effort, a number of scholars—Lindeen and Willis in 1975, Clotfelter and also Peterson both in 1976, and a number who followed—have done empirical studies considering dozens of possible factors that may influence state legislatures in making higher education appropriation decisions. These studies are considered.

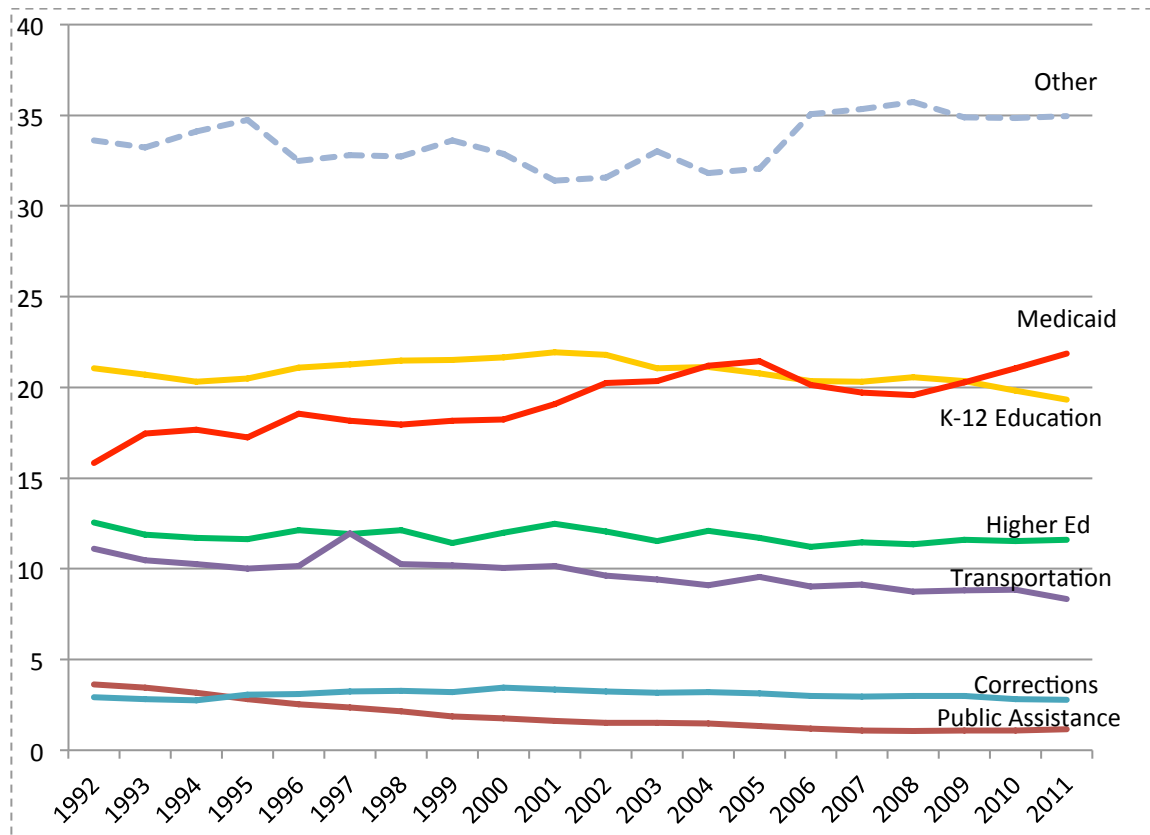


Figure 1.2

Percentage of State Spending by Category 1992-2011

Source: NASBO, 2013

I have categorized the factors identified by a number of scholars as potentially significant in determining state legislative funding of higher education into six groups:

1- Institutional (higher education governance, legislative professionalism and term limits, institutional strength of the governor, statutory and constitutional spending, and tax limitations); **2- Economic** (the state's economy and wealth); **3- Demographic** (specifically focused on age—the 18-24 age population, enrollment in private versus public colleges, and enrollment in 2-year versus 4-year colleges); **4- Cultural** (ethnic diversity, political culture, and political ideology); **5- Political** (partisan affiliation of the

legislature and governor, and higher education lobbying as an interest group); and **6- Fiscal Factors**, which include primarily budget competition (funding of other state priorities such as K-12 education, Medicaid, transportation, and prisons). “Revenue replacement” also deserves consideration, i.e., the theory that states cut their support to higher education or institutions have raised tuition due to increased subsidies in federal financial aid, including subsidized loans. The institutional and political categories focus on decision makers, especially state legislators. The demographic and cultural groups focus on the context in which decision makers operate, as do the fiscal factors.

Balance Wheel Theory

State funding of higher education varies over time, strongly influenced by the economy and the resulting impact on state revenue collections. This is aptly described by Hovey (1999) in what he called the “Balance Wheel Theory” of higher education funding. This theory provides a context for thinking about how state legislatures view higher education funding. However, it also suggests that economic forces are the primary, if not the only, factor influencing funding decisions. It does not account for differences among states in their funding even when economic situations may be similar.

Hovey (1999) argued that higher education spending is used as a “balance wheel in state finance.” When state finances are strong, higher education benefits “disproportionately” (p. 19). However, when finances are down, legislators see higher education as a place where they can cut budgets to assist other state priorities since higher education institutions are viewed, probably correctly, as having greater fiscal flexibility and the ability to tap other resources such as tuition that are not available to other state programs.

A panel data analysis by Rizzo of higher education spending between 1977 and 2001 supported Hovey's theory, and he concluded there is "substantial evidence" that the reason for decline in higher education's share of state budgets is its "discretionary nature...and its ability to independently raise revenues" (Rizzo, 2006, p. 28). Hovey's conclusion was also supported by Delaney and Doyle (2011), who found that even when controlling for economic, political, and higher education factors, "higher education is cut more than other major spending categories in bad times" and receives larger increases in good times (p. 363).

Tandberg (2009) also verified Hovey's theory of larger cuts in bad times in a cross-sectional time-series analysis spanning the years 1976-2004. His time-series regression analysis showed 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" (Tandberg, 2009, p. 763). In a follow-up study, however, Tandberg found that increases in state spending do not necessarily result in increasing "their spending on higher education at a similar rate" (2010, p. 441), which contradicts this portion of Hovey's theory. Kane, et al. (2005), noted that in the 1980s, when the economy declined and unemployment increased, higher education funding was cut, but when the economy recovered, so did support for higher education. In the 1990s, the same thing happened when the economy dipped, and yet when the economy recovered, higher education funding did not—something had changed between the economic cycles of the 1980s and the 1990s and beyond.

Hovey's "Balance Wheel" provides a useful framework for illustrating the cyclical nature of higher education funding—and yet only partially so as Kane, et al.

(2005) pointed out, it appears that the predicted rebound in funding has not occurred since the early 1990s. Nor does Hovey address the differences among states in their level of support for higher education in good times as well as bad.

Institutional Factors

Institutional factors include the governance structure of public higher education (although some disagreement is found regarding impact), professionalism of the legislature (agreement on its positive impact), legislative term limits (positive impact), institutional strength of the governor (positive for weak governors), and one study on the impact of statutory or constitutional spending or tax limitations (negative impact). Each is summarized below.

A number of scholars have identified the governance form of state higher education as a factor that may be important for understanding state expenditure support for higher education. Tandberg (2009) found a “significant negative relationship between more centralized structures and state support of higher education” (p. 766). In contrast, McLendon, et al. (2009) expected centralized governance of higher education would have a positive impact on state appropriations since these systems would be able to leverage their size and resources in pursuit of state subsidies, but found it statistically insignificant. Delaney and Doyle (2011) also indicate the type of governance structure is not statistically significant. These findings show that higher education governance may or may not be a factor, but if it is, centralized governance may have a negative impact. It suggests that concentrating a lobbying effort in a single strong voice may be less effective (or a negative relationship) as contrasted with many voices pushing for a common goal, e.g., increased state funding.

The evidence as noted above is mixed and inconclusive. My own experience suggests a statewide higher education system may be effective *if* there is unity in its message to legislators from among the several institutions--their presidents and in-house lobbyists. While anecdotal, I have heard the same observation numerous times from higher education government relations directors from other states. In fact, from this anecdotal evidence, it appears that centralized systems (as McLendon expected) may have an advantage by being able to speak with one voice versus decentralized states where it is entirely each institution for itself.

The professionalism of state legislatures, based on institutional resources, salary, and length of sessions, identified as a factor favorable to higher education funding by Peterson (1976), has also been found by two more recent studies to have a positive influence on state higher education appropriations. McLendon, et al. (2009) found it has a significant positive relationship and Tandberg (2009) found that a "\$10,000 increase in legislative salary results in a .129 increase" (p. 761) in higher education spending in the state. McLendon, et al. (2009a) speculated that greater resources and professionalism may result in a greater appreciation for higher education. Tandberg noted there is a correlation between states with professional legislatures and alignment with the Democratic Party, and in more politically competitive states that tend to attract more educated members who also may be more sympathetic to higher education, all of which may help explain the difference.

In the 1990s, a number of states, usually through voter initiatives, adopted term limits on legislators. In their model, McLendon, et al. (2009a) included term limits and found the surprising result that states with term limits saw an increase in state

appropriations per \$1,000 in personal income “by about \$0.46, other factors held constant” (p. 701). However, McLendon and Mokher (2009b) also argued that term limits may have hurt higher education spending by “facilitating the election of legislators who favor limited government and removing legislative ‘patron saints’ from office who had long championed higher education” (p. 10).

McLendon, et al. (2009a) also considered the institutional strength of the governor using Beyle’s index of gubernatorial power, and found that states with stronger governors tend to fund higher education at comparatively lower levels. This may be due to their power over the budget, which may be exercised to counter parochial legislative ambitions for local campuses.

Using a longitudinal study with a 41-year panel of data based on state appropriations for higher education per \$1,000 in personal income as the dependent variable, Archibald and Feldman (2006) considered a number of factors similar to others cited, but added a new dimension not considered by the others—whether or not states have statutory or constitutional limits on expenditures or taxes. They found that this factor “explain[s] over half of the observed decline” in funding (p. 634). McLendon and Mokher (2009b) also noted that state revenue growth has been limited at least in part to “new restrictions on taxing authority” (p. 8).

In summary, from the institutional factors considered, the literature indicates that weaker state institutional controls, in particular on the part of the legislature or the governor, are better for higher education funding. This may be because states with weaker controls are less able to resist the political clout of higher education institutions and their boosters. However, this is not true for states with institutional tax and spending

limitations. States with these controls are likely to be worse for higher education budgets, which stands to reason as they have artificially restricted the amount of revenue available for lawmakers to spend on even the most worthy or popular priorities.

Another institutional factor can be whether the type of higher education institution affects its level of taxpayer support. Weerts and Ronca (2012) found that “research universities have experienced the most intense fluctuations [in] dollar support while appropriations for associate’s colleges” (two-year community or junior colleges which grant associate’s degrees) “have grown steadily” (p. 167). This issue of support for research institutions versus community colleges surfaces again in consideration of political factors which showed that Republican legislators tend to favor 2-year colleges as they are perceived to be more closely aligned with the job market and needs of employers.

Economic Factors

Economic factors include the wealth of the state’s population as measured by income, unemployment rate, Gross State Product, and economic development. These are reviewed below.

One might expect that wealthier states would fund higher education at a higher level than poor states, and in fact, per capita income within a state is positively associated with spending on higher education (Delaney & Doyle, 2011; Koven & Mausolff, 2002). Slower growth in incomes beginning in 2000 likely contributed to declines in the growth of state tax collections (Tourkoushian, 2009).

Looking at state wealth from the perspective of the unemployment rate, McLendon, et al. (2009a) found that high unemployment rates are negatively associated

with higher education funding. Weerts and Ronca's (2012) model found that "for a 1% increase in unemployment there is a 7% decrease in funding for higher education" (p. 167). Kane, et al. (2003) also found that "higher education is among the most cyclical of state budget categories. A one percentage point increase in the unemployment rate...is associated with roughly a \$3.80 decline [in] state appropriations for higher education, on average" (p. 201). Kane, et al. (2005) found "A single point increase in unemployment rate is associated with a 2.6 percentage point decline in higher education spending per capita" (p. 109). The effect of unemployment on higher education budgets may be growing. Rizzo (2006) found that, between 1977 and 1982, a 1 percentage point increase in unemployment dropped higher education's budget share by 0.1 points, yet by 2006, it resulted in a .5 decline. Although there is disagreement about the precise numerical impact of unemployment on higher education funding, there is broad agreement that as unemployment increases in a state, higher education funding decreases.

Similarly, Tandberg (2009) found that the percent of population below the income level necessary to qualify for Pell grants is negatively associated with funding (the poorer the state, the lower the funding). Surprisingly, Tandberg also found that as state Gross State Product (GSP) increases, higher education funding decreases as states invest "more in other areas relative to higher education" (p. 440). In a cross-sectional study that measured a number of factors and considered a 1-year change in higher education funding, Lindeen and Willis (1975) found that economic development correlated positively with increasing state support for higher education.

With the exception of Tandberg's GSP finding, there is broad support for the claim that poorer states fund less and wealthier fund more, which seems intuitive. In

addition to having fewer resources in total to allocate, states with lower personal incomes might be expected to have other needs (such as social services) that would have a higher priority claim on state funds. Thus, it has been found by several researchers that more prosperous states spend more than those with fewer resources, and less economically robust states, based on income or unemployment statistics, spend less.

Demographic Factors

One might assume that legislators representing states with a disproportionately large population that is traditional college age (ages 18-24) might give college funding a higher priority. In fact, it appears the opposite is true. States with large college-age populations were negatively associated with higher education funding (Tandberg, 2009) or it was found to be insignificant (Delaney & Doyle, 2011). While it might be expected that where there is large demand in terms of the 18-24 population, there would also be larger spending, in relative terms, it makes intuitive sense that Tandberg found a negative relationship with more students per tax-payer among whom to spread higher education dollars.

Whether college students in a state attend a private or public college also impacts state support. McLendon, et al. (2009a) and Delaney and Doyle (2011) both found that private college enrollment had a negative impact on state higher education funding. Contradicting their findings, Tandberg (2009) found that states with a larger number of students in private higher education provided more state funding per \$1,000 in total personal income. If more of a state's 18-24 population were receiving their higher education at a private institution, this would leave a larger share of the resources for those attending a public college. So once again, the evidence is mixed and at times

contradictory.

Tandberg (2009) and Delany and Doyle (2011) agree that states with a larger share of students enrolled in 2-year colleges versus 4-year colleges/universities provide less state funding per \$1,000 of total state personal income. This may be explained by 2-year colleges being less expensive in terms of operational costs. For instance, faculty members at these institutions often have master's degrees or even baccalaureate degrees or vocational certificates rather than doctorates, and they also rely heavily on adjuncts, all of which reduce operating costs.

Thus, it appears that states with larger college-age populations tend to spend a smaller portion of total personal income, although it is not known why this is the case. There is disagreement over whether a state with more students attending private colleges increases or decreases state funding of public institutions. However, there is agreement that states with proportionately more students in 2-year colleges than 4-year spend less, which is understandable since those institutions are usually lower cost to begin with.

Using a time series for all U.S. states from 1986-95, Morgan, Kickham, and LaPlant (2001) concluded enrollment (viewed as supply/demand) is "the strongest predictor of state spending effort" (p. 359). Perhaps the most novel explanation discovered in the literature is also one of the earliest, concluding that a state's college athletic success is positively related to state aid (Coughlin & Erekson, 1986).

Cultural Factors

The research focused on three aspects of state culture: the political culture, political ideology, and ethnic diversity. Each was found to influence the level of higher education funding.

Both Tandberg (2010) and Koven and Mausloff (2002) used Elazar's political culture framework (as modified in 1969 by Sharkansky), which categorized states based on a scale as either predominately "traditionalist, individualist, or moralist." Based on these categories, Koven and Mausloff concluded that the political culture of a state was significantly correlated with education spending, but did not find this to be the case in other spending categories such as corrections, highways, and welfare. Tandberg found a significant association, and that as states become more traditionalistic and less moralistic, "they spend more on higher education relative to other...areas" (p. 438).

Similarly, Hero (1998) built upon Elazar's cultural framework to consider minority and ethnic White diversity and associations with state policies including spending on a number of state functions including education. He found that racially and ethnically diverse states tended to provide greater state funding for education (in total, not separating out higher education) than less diverse states. Tandberg (2010), referring to both Hero (1998) and Tolbert (1996), also found that as diversity in a state increased, so did higher education funding. Diversity may be associated with other factors, such as partisan identification or political ideology, although these were not discussed in the studies.

Elazar's political culture classifications were first formed in the late 1960s. A likely shortcoming in relying on Elazar's political culture framework is that it assumes that the cultures of states are frozen in time and does not account for the considerable demographic or cultural changes that have occurred since they were categorized nearly 50 years ago. Surprisingly, my search of the literature has not uncovered a substantive update to take into account the vast demographic changes in states. Given this, I question

whether this is a measure worth using until or unless it is updated to provide greater confidence that it still reflects the populations of the 50 states.

The political ideology of a state has also been found to be associated with the level of higher education funding. Archibald and Feldman (2006) found ideology of a state's citizenry (based upon the Berry, et al. (1998) ratings of ideology of a state's congressional delegation as determined by interest group rankings of their voting records) to be statistically significant and that "more liberal [states] have a higher state appropriation effort" (p. 634) with the dependent variable measured as state funding per \$1,000 of state personal income. This is supported by Tandberg (2009, 2010) who found "political ideology has a relatively large effect...on state appropriations" (2009, p. 761), and that the "more liberal a state's citizenry, the more supportive of higher education they are" (Tandberg, 2010, p. 437). However, McLendon, et al. found the "unanticipated result" of finding no evidence that the ideology of a state's citizenry influences state funding of higher education (2009a, p. 704). This is not only "unanticipated" but contradicts others' findings. Surprisingly, McLendon, et al. and Tandberg used the same measurement of ideology but came up with different results in their statistical models. Archibald and Feldman used a different way to determine ideology, but arrived at the same conclusion as Tandberg. It appears that ideology may well have a bearing, although it is important to note that this is not entirely undisputed.

Thus, cultural factors have been found to influence higher education spending by states. The political culture of a state (per Elazar's model) is associated with education funding, with traditionalistic most positively associated; no relationship was found when it comes to funding of other state functions. States that are more racially and ethnically

diverse are also positively associated, as are those with a more liberal political ideology (based on interest group scoring of congressional delegation votes), although one researcher did not find any correlation.

Political Factors

Hovey's "Balance Wheel Theory" (1999) suggests that state funding of higher education is primarily a result of economic factors beyond the state's control. Particularly in recent years, scholarship has considered other factors, including political ones. As noted, Tandberg (2009) developed a "fiscal policy framework," using a cross-sectional time-series analysis, which looks more directly at the factors that may be most influential on the dependent variable of state higher education funding per \$1,000 in personal income. His research framework gives prominence to political factors. He argued his research "clearly shows that the higher education appropriations process does not occur within a vacuum immune to politics and other budgetary forces" (Tandberg, 2009, p. 768). Later, Tandberg wrote that "politics appears to play a role in determining the share of state expenditures" devoted to higher education (2010, p. 433). Similarly, McLendon, et al. wrote that the purpose of their study was driven by their perception that "state political indicators" have received "insufficient attention in the past" and was the "central focus" of their investigation (2009a, p. 689). Political factors include the partisan balance within state legislatures, partisan affiliation of governors, and higher education as an interest group that lobbies for its share of the budgetary pie.

Some argue that party control of the legislature and the governor's office is significant when it comes to funding of higher education. According to McLendon, et al. (2009a), when Republicans control both the legislature and the governor's office, higher

education funding goes down. They found that a 1% increase in the number of Republican legislators is associated with a \$0.05 decline in higher education appropriations per \$1,000 in personal income. Tandberg (2009) found that Democratic legislatures are associated with an increase in higher education effort but uni-party legislative control by either party has a significant and negative effect on higher education funding. Tandberg also found that having a Democratic governor is associated with an increased higher education funding effort. Kane, et al. (2003) found that “increases in higher education appropriations are associated with a Democratic house, senate, or governor, though the coefficient on having a Democratic governor is not statistically significant” (p. 11).

However, not all agree. Weerts and Ronca’s (2012) analysis of funding changes by institutional type helps explain a “puzzling finding...that increases in percentage change of state support are correlated with republican controlled legislatures. ... Republicans are often viewed as being more generous to associate’s [two-year] colleges than research universities, and the growth in higher education dollars during the past 20 years for 2-year colleges reflect this support ” (p. 168). One explanation may be that “Republicans generally favor economic development initiatives, and the work of associate’s colleges is often in line with these state wide goals” (p. 168)

Republican legislators in particular may view 2-year community colleges, which provide short-term skill training (such as for construction trades, diesel mechanics, and in the health professions) as well as transfer associate’s degrees, as more directly connected to the workforce than are colleges and universities that grant baccalaureate degrees, particularly for majors in the humanities or social sciences. However, the mean earnings

for a bachelor's degree in the U.S. were \$56,665 in 2009 as compared to \$39,771 for an associate's degree (U.S. Census Bureau, 2012).

Using a time-series regression analysis of California “as a microcosm of the United States,” Dar (2012) found that in terms of higher education's budget share, “as the share of Democrats increases, higher education's share of the budget diminishes” (p. 786). She hypothesizes that this may be because Democrats may give a greater preference to “programs clearly targeted to low-income constituents (e.g. welfare, K-12 education)” (p. 786). Dar also confirmed her hypothesis of a relationship between political polarization in a state and state higher education funding. “[A]s politicians become more polarized, higher education becomes a loser in the competition for state funds” (p. 786). “The empirical illustration suggests that the role of ideological polarization in higher education's budgetary fortunes seems to be more relevant than previously assumed” (p. 787).

Peterson (1976) found that “interparty competition generates greater legislative responsiveness” and this “translated into higher expenditure levels...” for higher education (p. 536). Koven and Mausolff (2002) found that party affiliation of the legislature was not significant, and Delaney and Doyle (2011) did not find partisan control of legislative and governor offices made a statistically significant difference. Compton (2011) looked at the membership of key legislative committees in one state and found that those with alumni members—especially senators—disproportionately benefitted their alma mater.

So while there is not universal agreement in the literature, there is some evidence that party affiliation likely has an impact, although when there is a degree of partisan

competition (such as different party control of each legislative house), that may further improve higher education's budgetary prospects, while polarization may decrease the chances for improved funding.

Can higher education, acting as a political interest group, impact legislative funding? McLendon, et al. (2009a) found that for "every registered higher education lobbyist in a given state, appropriations to higher education rise by about \$0.05 per \$1,000 of personal income" (p. 701). Tandberg (2009) "formulated a higher education interest group ratio" (p. 756) by dividing the number of registered interest groups in a state by the number of higher education interest groups. He found that along with legislative professionalism, this ratio had "the largest effect...of all the political variables" (p. 756). According to Tandberg's study, "as the higher education lobby increases in number relative to the rest of the state lobby, the state tends to increase its support for public higher education" (p. 760).

This recent research shows the importance of political factors—going far beyond Hovey's "balance wheel" theory. Most research, though not all, indicates that states with Democratic governors and legislatures are more likely to spend more on higher education than those with Republican officials, particularly if both the legislature and governor's office are controlled by the GOP. However, this is tempered somewhat by indications that uni-party legislative control by either party is negatively associated, suggesting that higher education funding does better where there is political competition between the state house and senate. Further, the number of higher education legislative lobbyists is positively associated, as is legislative professionalism.

Fiscal Factors

When state legislators decide budget priorities, Hovey (1999) argues, it “is a zero-sum game” as gains for one budget category mean a loss for another as available resources are divided among all state priorities (p. 20). An economist, Robert Tourkoushian (2009), concluded that higher education is seen as more discretionary than other categories. He found that “significant enrollment increases at the K-12 level beginning in the mid-1990s increased legislative demand for K-12 funding...[and] K-12 is a competing interest group for higher education in terms of state funding” (pp. 82-83). Noting that it is difficult to document, Tourkoushian speculates that there is a growing perception among many policymakers that higher education is a good that produces mainly private and not social benefits resulting in diminishing support: “If society believed that the benefit/cost ratio for higher education was higher than in other areas, then more funds would be redirected toward education (p. 83).” This result may be because of difficulty in measuring societal benefits.

Like others, Tourkoushian’s study points out the “discretionary” nature of higher education funding. His speculation that the growing tendency to view higher education as a “private good” that could result in less legislative support is helpful in considering why support may have diminished. However, his faith in a rational economic choice model—if only legislators considered the costs versus benefits, more funding would result—ignores the political rationality of legislative budgeting that entails the piecemeal results of log-rolling compromises and hard bargains over competing values, ideology, and priorities. These political factors are noted, for instance, by Gosling (2006), Rubin (2006), and Stone (2001).

As for competing priorities, Weerts and Ronca (2012), looking at a time frame of 1984 to 2004, found that “corrections budgets may have the greatest impact among various state priorities (e.g. health care, K-12 education) in squeezing out state support for higher education. Specifically, the model shows that for every \$10,000 per capita increase in funding on corrections, there is a 12% decrease in funding for higher education” (p. 167). They also noted a Pew study that showed between 1987 and 2007, state spending on corrections increased 127%, more than 6 times the 21% increase in spending on higher education during the same period.

Hovey (1999) focused on Medicaid and corrections as two priorities that have grown most rapidly as a share of state budgets. During the late 1980s and through the 1990s (and beyond) “factors unique to Medicaid and corrections were causing rapid annual increases in spending for those programs” (p. 20), leaving less money available for higher education. Okunde (2004) pointed out that the state share of Medicaid spending went from \$27 billion in 1981 to \$122 billion in 1996. According to the National Association of State Budget Officers, the share of state budgets spent on Medicaid increased from an average of 15.8% in 1992 to 21.9% in 2011 (NASBO, 2013). Tandberg (2010) found that “as the share of state general fund expenditures devoted to Medicaid increases, higher education’s share decreases” (p. 441). This evidence indicates that Medicaid can be a fierce competitor to higher education when it comes to state funding. Further, higher education is competing with demands seen by legislators and governors as more pressing and less discretionary, and perhaps even mandatory.

Kane, a professor of Education and Economics at Harvard University, and his associates conducted quantitative studies to determine if there is a relationship between

state funding of Medicaid and of higher education (Kane et al., 2003, 2005). In their research published in 2003, they used state level data on expenditures since 1977 on higher education and the interaction with other state budget items, especially Medicaid. “The principal explanation we offer for the trends” of declining support for higher education “is fiscal pressure from other state budget requirements (p. 5).”

Kane, et al. (2003) found that on a state basis, increases in correctional spending were not statistically significant. States experienced a rapid rise in state spending on correctional expenses due to changes in sentencing and parole policies including lengthy sentences for drug dealers that are thought to be “the principal contributing factors” to increases in prison populations, with state prisoners as a share of the total population increasing from 0.1% in 1977 to more than 0.4% in 1999. Their econometric regression analysis showed that “the apparent relationship between an increase in correctional spending and the decrease in higher education spending at the national level was not reflected at the state level” and that those states “with large increases in correctional spending were not more likely to reduce higher education spending” (pp. 9-10). This contradicts the findings of Weerts and Ronca (2012) cited earlier.

State spending on all health programs increased from 12.3% of the budget in 1985 to 19.3% in 2003; Medicaid increased from 8.0% to 17.7% (1985-2003) or more than double. Spending on public safety, including corrections, grew more modestly, from 10.7 to 12.9% (Kane, et al. 2005).

At least since the late 1980s, state support for public higher education has been declining. The underlying story that emerges from this analysis is that pressure from other state budget items, especially Medicaid, has been crowding out appropriations for higher education. Reductions in higher education appropriations during the recession in the early 1990s were made permanent, as states struggled with mounting Medicaid costs. At the same time, state

policymakers have been hesitant to raise tuition fully to offset these cuts—resulting in widening gaps in faculty salaries, ratios of faculty to students, and expenditures per pupil between public and private institutions. (Kane, et al. 2005, p. 124)

In their ordinary least squares regression model, Kane, et al. (2003) found that “real higher education appropriations per capita” are negatively related to Medicaid spending per capita in a state and that “a \$1 increase in real state Medicaid spending per capita reduces higher education appropriations by about \$.06 or \$.07.” Further, they point out that “real state Medicaid spending per capita increased from roughly \$125 in 1988 to roughly \$245 in 1998” while in the same time period state appropriations per capita for higher education “declined from \$185 to \$175” (p. 11). Their model suggests that, based on the increase in Medicaid funding, state higher education funding (appropriations per capita) would be reduced “between \$7.20 and \$8.40. The increase in Medicaid spending could thus potentially explain the vast majority of the \$10 decline in higher education appropriations per capita” (pp. 10-11). Based on their regression analyses (Kane, et al., (2005), “[A] dollar increase in Medicaid expenditures per capita, associated with an increase in the proportion of residents of a state that were poor or elderly, led to a 39 or 58 cent decline in spending on higher education expenditures per capita” (p. 114).

Kane, et al. (2003) point out that Medicaid costs increased significantly in the late 1980s and through the 1990s due to Congressional actions expanding coverage in 1986, 1987, 1989, and 1993 in order to cover children and pregnant women, and by a Supreme Court ruling in 1990 (*Sullivan v. Zelbey*) that further expanded eligibility: “[S]tate spending on Medicaid nearly doubled as a percent of gross state product between the late eighties and nineties...from 0.45% of state gross product to 0.80%. ...The rapid

increases in Medicaid costs appear to be crowding out higher education spending” (pp. 7-9). Costs also rose as a result of the rising cost of health care (Kane, et al. 2005).

As noted earlier, Hovey’s “balance wheel theory” seemed to work in the early 1980s when, after a recession and cuts, higher education funding rebounded. However, in the recessions of the 1990s and 2000s, higher education funding did not rebound. Kane, et al. (2003) argue that the difference is the growth of Medicaid funding. As the economy entered a recession, “real appropriations per student” declined but “during the boom of the 1990s, appropriations for higher education rose only slightly and never reached their pre-recession levels” (p. 14). They note that one of the things that was different in the 1990s “is the rapid increase in Medicaid costs” (p. 15). According to Kane et al. (2003): “The bottom line is that a variety of perspectives suggest a strong negative linkage between higher education appropriations and Medicaid spending.” The failure of higher education funding to rebound during the economic boom of the 1990s is attributable to the “substantial increases in Medicaid spending” during the same period (p. 19). Kane et al. (2005) cited as “one of the obvious factors that changed between the early 1980s and early 1990s is the rapid increase in Medicaid costs due to both increases in costs per enrollee and expanded eligibility.” Further, they point out that “a clear negative relationship, suggesting that the states with large Medicaid obligations going into the early 1990s recession witnessed the largest cuts in state higher education spending” (pp. 111-112).

Just as state legislatures have discretion about how much to fund higher education, they also enjoy discretion over Medicaid funding. Lukens (2011) identified two kinds of “Medicaid generosity.” “Eligibility generosity” refers to who is eligible to

receive Medicaid at all, such as the age or income of children, income level for adults, etc. There is variation to the eligibility standards in states. “Payment generosity” refers to the kind and amount of benefits to which recipients are entitled. While most of what is covered by Medicaid is required by the federal government, the amount that is reimbursed to providers varies greatly across states with Medicaid fees in New Jersey equaling 37% of Medicare fees, and in Wyoming, Medicaid fees being 143% of Medicare fees. Of course, the size and scope of Medicaid programs also vary by “non-policy characteristics of states” such as their income and age distribution, employment, family sizes, and healthiness of the population (pp. 8-9, 10-11).

The differences in state-determined eligibility can be dramatic. “Parents with incomes up to 300 percent of the federal poverty line are eligible for Medicaid in some states, whereas in other states, those earning more than 11% of the poverty line do not qualify” (Lukens, 2011, p. 1). The percentage of state budgets in 2011 used for Medicaid varied among the states from a high of 33.9% (Arizona) to a low of 9.0% (Wyoming) (Utah was at 14.7%). On average, states spent 21.9% of their budgets on Medicaid compared to 11.6% on higher education (NASBO, 2013).

State decisions on the level of Medicaid funding “generosity” have been found to have a correlation with their funding of higher education. Running ordinary least squares regressions for each state, Kane, et al. (2003) found that “the downward shift in the trend in higher education appropriations in the 1990s are positively related to average Medicaid expenditures between 1980 and 1998” (p. 16). They concluded that “states with larger per capita Medicaid burdens had a larger downward shift in their trend of higher education appropriations in the 1990s than states with smaller per capita Medicaid

burdens” (p. 16). In times of unemployment, “states with more costly Medicaid programs reduce their higher education appropriations by more than states with less costly Medicaid programs” (p. 17).

Medicaid is unique among state funded programs in that the federal government provides matching funds for legislative appropriations, making it “quite different from other state spending programs from the point of view of state legislatures” (Kane, et al., 2005, p. 104). The matching rate signifies the fraction of each dollar paid by the federal government and is formulated so poorer states receive a larger federal match. The minimum rate is 50% “meaning the federal government covers at least half of every state’s Medicaid expenditures” and in 2010, 15 states received the minimum match. According to the federal Center for Medicaid Services (CMS), the state with the highest match was Mississippi which “received 76% of its Medicaid funding from the federal government” (Lukens, 2011, p. 4).

Kane, et al. (2003) argue that the states thus have an incentive from the federal government to fund Medicaid, as well as an incentive to push more of the costs for higher education on tuition because of federal grant and tax credit policies. “Because of the federal matching, a dollar of Medicaid services for its residents costs a state significantly less than a dollar in state funds. As a result, if a state were to reduce state spending on Medicaid, it loses federal funds” (p. 7). However, they point out, this is contrasted with when a state reduces funding for higher education and subsequently raises tuition, “the residents of the state may actually receive additional federal funds, in the form of greater eligibility for subsidized federal student loans and greater tax credits under the Hope and Lifetime Learning tax credit programs” (p. 7). (This is similar to the “revenue

substitution” argument discussed below.) The federal matching rate for Medicaid can vary from 50 to 83%. The federal subsidies for loans or through tax credits “do not make up all of the difference” (p. 7). Kane et al. (2005) point out that the way the tax credits work, for middle income families (less than \$52,000 in adjusted gross income for a single filer or \$105,000 for a joint return), the federal government is “picking up a substantial share of tuition increases on the margin” (p. 105).

Medicaid is rapidly growing, with the number of recipients increasing from 22 to 66 million from 1980 to 2007 and total spending from \$65 to \$306 billion during the same time frame (Lukens, 2011). As noted earlier, the average share of state budgets spent on Medicaid has grown from 15.8 to 21.9% from 1992 to 2011 (NASBO, 2013). It is expected to continue to increase both as the number of the elderly doubles between 2000 and 2035 (low income elderly are Medicaid eligible), and with the expansion required by the Affordable Care Act of 2009 (although much of the costs of that expansion, at least in the beginning, is promised to be paid by the federal government) (Kane, et al. 2005). The Congressional Budget Office projects that the federal portion of Medicaid spending will more than double, increasing from 1.7% of the United States GDP in 2012 to 3.6% of GDP by 2037 (Congressional Budget Office, 2012). State spending on Medicaid is projected to increase by 72% from \$183.7 billion in 2012 to \$316.8 billion in 2021 (U.S. Department of Human Services, 2013).

Given the correlation found in state Medicaid spending and higher education by Tandberg (2010) and in particular Kane, et al. (2003, 2005), and projections for continued rapid increases, this would seem to have serious implications for state funding of public higher education. “To the extent that state Medicaid costs crowd out higher

education appropriations in the future, the projected increase in state Medicaid costs poses a threat to the public higher education system”³ (Kane, et al., 2003, p. 25).

Another fiscal factor that deserves consideration is sometimes referred to as “revenue substitution,” whether or not federal participation in subsidizing the cost of college attendance through direct need-based aid (Pell Grants), or subsidized student loans, or through tax credits has contributed to colleges and universities increasing tuition. This concept was introduced in a *New York Times* editorial in 1987 titled “Our Greedy Colleges” by then U.S. Secretary of Education William J. Bennett.

Bennett was responding to comments from the then President of Yale University who had said tuition increases were necessary due to cuts in government support for student aid. “If anything,” Bennett wrote, “increases in financial aid in recent years have enabled colleges and universities to blithely raise their tuitions, confident that Federal loan subsidies would cushion the increase” (p. A31). Bennett did not place the total blame for increased tuition on increases in federal aid, however. His editorial continued, “Federal student aid policies do not cause college price inflation, but there is little doubt that they help make it possible” (p. A31). Some have called this the “Bennett Hypothesis” (cf., Heller, 2013).

This argument continues today in some conservative circles. For instance, Vedder (2007) stated to the Heritage Foundation, “When someone else is paying the bills, people want to buy more of the good or service in question at prevailing prices than when

³ Kane, et al. also make the argument that in a sense, shifting funding from higher education to Medicaid, the “net effect is likely to be progressive. That is, much of the subsidy provided to higher education through state governments flows to middle- and upper-income households. Most of the benefit from Medicaid, by contrast, flows to low-income households” (Kane, et al. 2005, p. 106).

the customer pays the bills. This means a higher demand for higher education, and other things being equal, higher tuition costs” (pp. 2-3). He estimated that for every \$1 increase in grant aid, tuition increases \$0.35 more than it otherwise would be.

Summarizing research conducted to prove or disprove the “Bennett Hypothesis,” Archibald and Feldman (2011) noted that McPherson and Schapiro (1991) and Rizzo and Ehrenberg (2004) found a relationship between increased federal aid and public higher education tuition increases, while Singell and Stone (2007) found no effect on tuition. Using a Granger test, Archibald and Feldman (2011) found “...no significant pattern of causality running from Pell Grant support to list-price tuition changes for public universities” (p. 205). Similarly, in a study mandated by Congress in 1998 by the U.S. Department of Education, Cunningham, et al. (2001) reported that statistical “models found no associations between most of the aid variables (federal grants, state grants, and student loans) and changes in tuition in either the public or private not-for-profit sectors” (p. x). The only exception found was in “institutional aid” or financial assistance provided students directly by institutions in the form of tuition waivers, discounts, or scholarships.

Heller (2013) points out that Pell Grants, targeted to low income Americans, have lost purchasing power over the past number of years, from covering 58% of a student’s annual costs at the average-priced public institution in 1981 to 32% in 2011. This leads me to conclude that while some findings provide at least partial support for the “Bennett Hypothesis,” it is unsupported by most of the evidence. Nor have I found anything in the literature that suggests that state legislatures have reduced their support for higher education specifically as a result of increased federal support.

Conclusion

The literature shows that several possible factors have been identified and found to be associated with the effort states make in funding public higher education. It also shows scholars disagree and that there are discrepancies among studies even with very common approaches. A number of factors—from success on the athletic field, to well-placed alums on key legislative committees, and to a consideration of institutional, economic, demographic, cultural, political, and budget completion factors—have been considered. While several of these have merit, there is little consensus among scholars as to which has the greatest impact and some conclusions are entirely contradictory.

These identified factors—institutional, economic, demographic, cultural, political, and fiscal-budget competition—have been used to help explain the differences in state funding of higher education. Tandberg (2009) found those with the strongest positive associations to be the following: interest group activity positively associated at .269 ($p=.01$), state political ideology (if more liberal) at 0.19 ($p=.01$), party of the governor (if Democrat) at .146 ($p=.05$), and party of the legislature (if Democrat) at .018 ($p=.01$). The most significant negative association found by Archibald and Feldman (2006) is that states with tax and spending limitations and supermajority requirements “together can explain over half of the observed decline in effort” (p. 634). Since there are a range of tax and spending limitations in terms of strictness, the coefficients range from -2.793 where the limitation includes tuition, to -0.374 where tuition is excluded. The most significant negative associations found by Tandberg (2009) were for central governance of higher education -.505 ($p=.01$), and unified party control of legislature -.171 ($p=.032$).

Several scholars considered budget competition from Medicaid, corrections, or K-

12 as an explanation for the decline in relative higher education funding (Hovey, 1999; Kane et al., 2003; Kane, et al., 2005; Okunde, 2004; Tandberg, 2010; Tourkoushian, 2009; Weerts & Ronca, 2012). Most other studies focused on other factors as noted previously (Archibald & Feldman, 2006; Clotfelter, 1976; Coughlin & Erekson, 1986; Delaney & Doyle, 2011; Hero, 1998; Koven & Mausoloff, 2002; Lindeen & Willis, 1975; McLendon, et al., 2009a; McLendon, et al., 2009b; Morgan, Kickham, & LaPlant, 2001; Peterson, 1976; Rizzo, 2006; Tandberg, 2009).

While many factors likely have influence, it seems most compelling that the fiscal-budget competition factor is very significant and deserves further attention. Specifically, it seems plausible that the decline in higher education funding may be largely explained by the concurrent increase in Medicaid funding.

Contribution and Approach

It has been shown that the availability of state revenue—either from the economic condition of the state and/or statutory or constitutional tax and budget constraints—impacts legislative spending decisions, and yet there is more confusion than consensus concerning the extent to which institutional, political, or demographic factors influence budget decisions about higher education. What is common to all states is the need to enact a budget, and thus make spending choices among many competing and often worthy priorities, and thereby balancing expenditures with revenues.⁴ This always involves choices and trade-offs. The focus of this study is the fiscal-budget competition factor, building upon the work cited here, using more recent data and with a somewhat different approach that highlights the fact that budgeting is making decisions about

⁴ All states except Vermont have a constitutional requirement to balance revenue and expenditures.

priorities. These decisions are made, of course, in a political context, by politicians—those elected to enact policies and decide questions of resource allocation (spending and tax priorities). The political context, as represented by political party control, merits consideration in helping to understand the fiscal decisions by states as they portion the budget pie.

In public budgeting, one year often influences the next as the focus is typically on the incremental increases, “a narrow range of increases or decreases” (Gosling, 2006, pp. 29-30), or occasionally, such as in times of revenue shortfalls, decreases, while the “base” (the amount appropriated the prior year) is a given. “The largest determining factor of this year’s budget is last year’s” (Wildavsky and Caiden, 2001, p. 47).

My study considers and analyzes a 20-year time-series-cross-sectional panel of budget data from all 50 states, from 1992-2011, and the annual percentage of the state budget devoted to higher education and its competitors—Medicaid, K-12 education, corrections, public assistance, transportation, and other. Given the wide variation in the size of states and their budgets, e.g., California as the largest with a state general fund budget of over \$86 billion and New Hampshire with the smallest budget at \$1.2 billion (NASBO, 2013a), using nominal dollar amounts in a per-dollar comparison would be meaningless. Thus, using percentages of budgets allocated for higher education and other categories is preferable.

As with any time-series of data, it may inherently include some bias based on the time-frame chosen. The time period of 1992-2011 is chosen for several reasons. First, it includes the period that the most states, even those traditionally generous to higher education, saw the most dramatic drop in state tax funding of higher education (Rizzo,

2006). Second, it was also during these 2 decades that there have also been major increases in state tax funding of Medicaid (Kane, et al., 2003, 2005). Third, it was selected to build upon previous work, and with the assumption that the past 20 years are most relevant to the next decade. During the 2 decades covered by the study, state budgets included, in most cases and in the aggregate, sharp increases in Medicaid spending and declining—sometimes significantly—higher education funding.

On average, Medicaid received 15.8% of state budgets in 1992 and this grew to 21.9% in 2011. For higher education, the average decrease across all states was seemingly slight—from 12.6% in 1992 to 11.6% in 2011. It is important to note that when averaging across states, the differences among states can be obscured. Between 1992 and 2011, higher education's share of state budgets declined in 34 states by an average of 2.9% and increased in 16 by an average of 3.2%. Between 1992 and 2011, the percent of state budgets appropriated to Medicaid increased in 44 states by an average of 7.5%, and declined in only 6 (by an average of 4.3%).⁵ The differences among states in both categories is significant. Higher education's budget share ranged from a low of 2.9% to a high of 26.4% in 1992 and from a low of 2.0% to a high of 24.6% in 2011. Medicaid's budget percentage ranged from a low of 4.5% to a high of 34.4% in 1992 to a low of 9.0% and a high of 33.9% in 2011. These differences are discussed in more detail in Chapter 2. Although differences among states in how they fund each category are significant, the trend in nearly all states (44) is an increasing share for Medicaid and in most states (34) a declining share for higher education (NASBO, 2013).

This study began by looking for obvious patterns, reporting the percentage of state budgets for each of the budget categories used by NASBO, focused on three points

⁵ Nevada did not report in 1992-1994 and is shown as a 16-year difference, 1995-2011.

in time, the beginning, middle, and end of the 20-year time-frame. Next, the top and bottom states in terms of higher education and Medicaid funding were considered to look for any observable patterns. The impact of the party control of a state—looking at those states that are most dominated by one political party or the other, and states that are most often under mixed party control—was then considered to see if there were patterns of support for higher education or Medicaid. These are all included in Chapter 2.

Statistical tools are used to determine if negative or positive associations could be established between various budget categories and higher education funding. As Zhu (2012) pointed out, “panel data analysis has become a popular tool for researchers in public policy and public administration” (p. 395). However, when using population data across states, “unobserved unit heterogeneity may bias statistical estimation and lead to invalid causal relationships” (p. 399). Zhu notes that using a “fixed effect” model “controls for cross-unit heterogeneity” and “is better than” using ordinary least squares regression “because it improves the estimation consistency” (p. 400).

This study used both ordinary least squares (OLS) regression analysis and a fixed effect (FE) model; each of the seven NASBO categories—higher education, K-12 public education, public assistance, transportation, corrections, Medicaid, and “other” were considered.⁶ The focus was on those categories most often identified in the literature as negatively impacting higher education—K-12 public education, corrections, and Medicaid—to determine if a negative association is present and to what extent.

Even as the focus was on fiscal factors as state budgets are constructed and

⁶ The “Other” category in NASBO’s data is a grab bag of expenditures including the Children’s Health Insurance Program (CHIP), usually associated as part of Medicaid, but reported along with other state functions not tracked individually such as employer contributions to pensions and health benefits of retired employees, hospitals, economic development, housing, environmental programs, natural resources, parks and recreation, water and air transportation. CHIP is a very small slice, estimated at 3%, of the “Other” category (NASBO, 2013).

spending decisions are made, two other factors mentioned in the literature deserved consideration—whether and to what extent party control of the legislature and governor’s office and a state’s economic condition were influential. Partisan political influence has been considered by a number of studies (Dar, 2012; Delaney & Doyle, 2011; Kane, et al. 2003; Koven & Mausolff, 2002; McLendon, et al. 2009a; Tandberg, 2009; Weerts & Ronca, 2012). As politicians are those entrusted to make budgetary decisions and to prioritize how public resources are spent, it is important to consider whether their partisan affiliation is a factor in how higher education fares in competition with other categories and in particular Medicaid. Further, since states operate within the constraints of the revenue available (or make decisions to augment revenue through tax or fee increases), the economy of a state clearly has significant impact on budgetary decisions. This intuitively rings true even when considering, as I am here, the relative size of the budgetary pie. When the pie itself shrinks due to a poor economy, it is reasonable to assume that some spending areas will be given priority over others. Several scholars have considered economic impacts as influencing state higher education spending, personal income (Delaney & Doyle, 2011; Hovey, 1999; Koven & Mausolff, 2002; Tourkoushian, 2009), unemployment rate (Kane, et al., 2003, 2005; Rizzo, 2006; Weerts & Ronca, 2012), or Gross State Product (Tandberg, 2009). Party control of the state legislatures (upper and lower houses) of the 49 states that have bi-cameral partisan legislatures (Nebraska excluded, which has a unicameral nonpartisan legislature) and of the governor’s office is considered to determine if this results in a positive or negative statistical association.

Gross State Product (GSP) is the most comprehensive measure of the economic

output of a state, and since Tandberg (2009) found the surprising result that an increase in GSP was associated with a decrease in a state's higher education funding, the percentage change—up or down—from one year to the next in GSP is included as part of the model. The OLS and FE regression analyses are reported in Chapter 3.

It was expected that the study findings would support Kane (2003, 2005), Hovey (1999), and Tandberg (2010) to show statistically that there is a negative relationship between increasing Medicaid costs and support for higher education. It was also expected that a correlation might be established between states that put fewer dollars in Medicaid would also put more resources in higher education and vice-versa. A negative association between Medicaid and higher education funding percentages in both OLS and Fixed Effect (FE) models was found; however, it was very slight in the FE model, and it was not statistically significant in terms of the *p* value. As noted earlier, the differences among states in higher education funding are dramatic. Although it was expected this might be explained by Medicaid—since states have some discretion in the scope of benefits and eligibility—it was not. Nor does the FE model explain the differences between states and very little among states.

While this study does not demonstrate statistically that budget competition is responsible for higher education's declining share of state budgets, it may still be the case, as the variation of how states fund higher education—including the starting place for each state—may well mask the overall effect when the states are considered as a whole. These results are reported in detail in Chapter 3.

Additional research using other approaches will be necessary to learn more about the root causes of the decline in public support for public colleges and universities.

These are explored in Chapter 4.

The budgetary and cost pressures facing higher education pose serious implications for maintaining, let alone growing, high quality and accessible public colleges and universities. As one prominent association of public higher education institutions, (AASCU, 2014), recently noted, “The primary driver of higher tuition prices over the last several decades has been the state-to-student cost shift borne out of state disinvestment in public higher education” (p. 4). They declared that the “top priority for American public higher education leaders today must be a relentless call for states to provide sufficient, consistent and sustained state funding in order to keep college affordable for all students, especially those from modest circumstances” (p. 3).

CHAPTER 2

DATA SET: STATE BUDGETS 1992-2011

Introduction

The basic question to be addressed is why are states retrenching their commitment to funding public higher education? And secondarily, why do states vary in their higher education support? The decline in public support for public higher education has dramatic consequences for access by average and especially lower-income Americans, as well as the academic quality of institutions. Answering these questions would be important to higher education policymakers, legislators, and governors concerned about these issues of access and quality.

Based on the research cited in Chapter 1, and my own professional and practical experience, there is reason to believe that the fiscal-budgetary competition factor is worthy of additional serious consideration and may help answer these questions. Building on the work of Kane, et al. (2003, 2005) and others, I seek to establish whether increases in state funding of Medicaid have a negative association with state funding of higher education, and if, so, how much. Additionally, it is reasonable to believe that the vast differences in state funding of higher education among the 50 states might also be associated with how well they fund Medicaid. In addition to the fiscal or budget competitors to higher education, political and economic factors deserve consideration, including party control of state governments and a measure of the overall economy of

states from year to year. These factors were also included in the analyses. In this chapter, I describe the data being used and consider its implications for these questions.

Data

To address the questions noted above, I use a panel of state budget data from all 50 states and spanning 20 years, available from the National Association of State Budget Officers. NASBO (2013, 2013a) reports annually on “state spending by function as a percent of total state expenditures.” The reports I use as a data source are those that focus on spending paid for by state-generated taxes and other revenue, not including federal grants.⁷ NASBO uses seven categories: 1) K-12 public education, 2) corrections, 3) higher education, 4) Medicaid, 5) transportation, 6) public assistance, and 7) other. The relative size of budgets in dollars varies dramatically among large and small states (with state general fund actuals ranging from \$86.4 billion in California to \$1.2 billion in New Hampshire). Thus, I consider the percentages allocated to each of the seven reported categories for each of the years, 1992-2011. In addition to the NASBO measures, I also measured the party control of each legislative house and the governor’s office—which political party had majority control in the houses of the legislature and the party affiliation of the governor with data from the National Council of State Legislators (NCSL, 2012) and National Governors’ Association (NGA, 2013) for each of the years considered.

Finally, I include an economic measure, the percentage increase or decrease from

⁷ NASBO state revenue sources include general taxes as well as specific fees and other revenues such as from state lotteries. For simplification, I refer to all of these sources as “state tax funds.”

one year to the next, in the Gross State Product (GSP) of each state.⁸ Gross State Product is “the value added by the labor and capital located in a state... derived as the sum of all gross domestic product originating in all industries of the state” (U.S. Department of Commerce, 2013). In other words, GSP is intended to quantify the total economic output of a state.

NASBO’s “other” category includes state functions not tracked separately, including employer contributions to pensions and health benefits for public employee retirees, hospitals, economic development, housing, environmental programs, natural resources, parks and recreation, water and air transportation, and the Children’s Health Insurance Program (CHIP), usually associated as part of Medicaid. The Henry J. Kaiser Family Foundation (2009) published state expenditures for CHIP. Comparing the amount spent by states with the total dollar amounts for “other” reported by NASBO, I determined that CHIP makes up roughly 3% of the “other” category—not a very significant portion. Altogether, in 2012, states spent \$150.7 billion on Medicaid (36.3% of the total with the rest provided by the federal government) and \$3.15 billion on CHIP (30% of total with the federal government providing the balance). In other words, for every dollar states spend on Medicaid, they spent three cents on CHIP (Kaiser, 2014).

Three of the NASBO categories—K-12 public education, corrections, and Medicaid—are addressed in the literature as being fiscal competitors with higher education. These are the focus of my study, along with partisan control of statehouses and economic changes as measured by GSP.

⁸ Gross State Product was recently renamed “Gross Domestic Product by State” by the federal Bureau of Economic Analysis. Since GSP is a more familiar term, I will refer to it as Gross State Product or GSP.

Share of the Budget

In order to illustrate the changes over time, I have chosen three points in time from the 20-year study—the beginning (1992), the middle (2001), and the end (2011). Table 2.1 shows the percentage average of state appropriations for each of the budget categories for the three points in time.

One would not expect dramatic changes in the portion of the budget committed to any one category over time, and yet, as shown in Table 2.1, higher education’s share of state appropriations has declined slightly while at the same time, Medicaid’s share of the budget has grown significantly, from 15.8 to 21.9%. All other budget categories, with the exception of “other,” have also declined. Public assistance declined the most dramatically, reflecting the effects of federal welfare reform in the mid-1990s that imposed time limits and work requirements on recipients, which caused welfare rolls to “fall precipitously” (Grogger & Karoly, 2005). Even if all of the decline in public assistance (2.4 percentage points) were applied to Medicaid, most of its increase had to come from other categories. (Included in Appendix A is a table showing the average percent of budget for each category for all states by year 1992-2011.)

Table 2.1

Percent of State Budgets by Category

Year	Higher Ed	Medicaid	K-12	Public Assist.	Trans.	Corrections	Other
1992	12.6	15.8	21.1	3.6	11.1	2.9	33.6
2001	12.5	19.1	21.9	1.6	10.2	3.3	31.4
2011	11.6	21.9	19.3	1.2	8.3	2.8	35.0

Source: NASBO, 2013

Figure 2.1 illustrates that Medicaid is alone among budget categories in steadily increasing in its share of state budgets during this 20-year period, while every other category except “Other” has declined.

The changes illustrated in Figure 2.1 do not show the whole picture, however, as the percentage devoted to particular categories by individual states varies widely. For instance, while on average, higher education received 12.6% of state budgets in 1992, this varied from a high of 26.4% (in Wisconsin) to a low of 2.9% (in Massachusetts). In 2001, higher education varied from a high of 25.3% (in Iowa) to a low of 2.9% (in

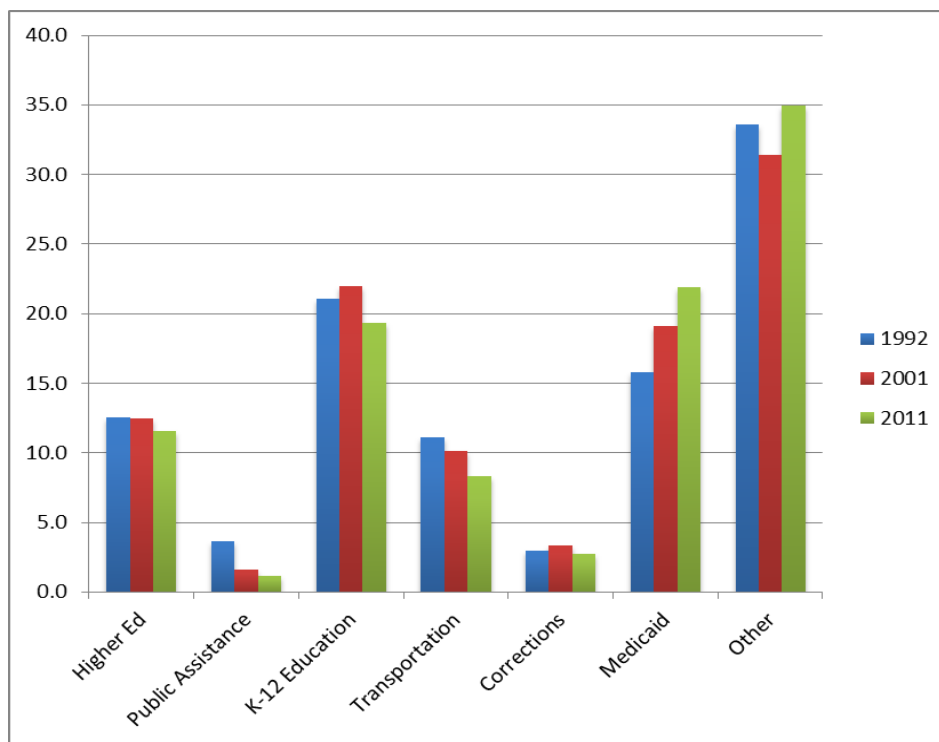


Figure 2.1

Percent of State Budgets for Budget Categories 1992, 2001, and 2011

Source: NASBO, 2013

Vermont) while the U.S. average was 12.5%. In 2011, higher education received between 24.6% (in Iowa) to just 2.0% (in Vermont) while the U.S. average was 11.6%. Utah's higher education percentage was 12.5 in 1992, 12.7 in 2001, and 10.8 in 2011 (NASBO, 2013).

Just as the percent of budget devoted to higher education varies among the states, so does the percent of budget allocated to Medicaid. In 1992, on average, Medicaid received 15.8% of the budget, yet this ranged from a high of 34.4% (New Hampshire) to a low of 4.5% (Alaska). Similarly, Medicaid varied in 2001 from a high of 31.3% (Tennessee) to a low of 8.4% (Hawaii) while the U.S. average was 19.1%. In 2011, Medicaid ranged from a high of 33.9% (Arizona) to a low of 9% (Wyoming) with the U.S. average at 21.9%. Utah's Medicaid percentage was 10.7 in 1992, 12.4 in 2001, and 14.7 in 2011 (NASBO, 2013). The top five and bottom five states as a percent of budget allocated to higher education in 1992, 2001, and 2011 are presented in Table 2.2 (HE representing higher education). Of the top five higher education states, three—Alabama, Iowa, and Nebraska—are included in each of the 3 years although in different spots. Of the bottom five, higher education states, two—New Hampshire and Vermont—appear in all 3 years and two others—Massachusetts and Maine—appear in 2 of the 3 years in the bottom category.

The top five and bottom five states as a percent of budget allocated to Medicaid in 1992, 2001 and 2011 are presented in Table 2.3 (ME representing Medicaid). For the top Medicaid states, only Tennessee appears in all 3 years, with Pennsylvania and Missouri appearing in 2 of the years. For the bottom five Medicaid states, none appear all 3 years, although Delaware, Hawaii, Oregon, Utah, and Wyoming appear in 2 of the years.

Table 2.2
Top and Bottom Five States by Percent of Higher Education Funding
in 1992, 2001, and 2011

Top States 1991	% HE	Top States 2001	% HE	Top States 2011	% HE
Wisconsin	26.4	Iowa	25.3	Iowa	24.6
Alabama	26.2	New Mexico	24.6	Kentucky	23.8
Nebraska	23.6	Alabama	24.0	Nebraska	22.8
Iowa	22.3	Nebraska	23.7	Alabama	22.5
Kansas	19.6	Mississippi	19.9	So. Carolina	21.0
Bottom States 1991	% HE	Bottom States 2001	% HE	Bottom States 2011	% HE
Massachusetts	2.9	Vermont	2.9	Vermont	2.0
Rhode Island	4.1	Massachusetts	4.5	Pennsylvania	3.2
Vermont	4.1	New Hampshire	4.5	Maine	3.3
New Jersey	4.9	Maine	4.6	New Hampshire	4.0
New Hampshire	5.4	Delaware	5.2	Michigan	4.4

Source: NASBO, 2013

Table 2.3
Top and Bottom Five States by Percent of Medicaid Funding
in 1992, 2001, and 2011

Top States 1991	% Med	Top States 2001	% Med	Top States 2011	% Med
New Hampshire	34.4	Tennessee	31.2	Arizona	33.9
Rhode Island	27.5	Pennsylvania	28.3	Missouri	31.1
Tennessee	23.6	Missouri	27.8	Illinois	32.9
Louisiana	23.2	New Hampshire	26.9	Pennsylvania	31.8
New York	22.6	Connecticut	26.2	Tennessee	29.8
Bottom States 1991	% Med	Bottom States 2001	% Med	Bottom States 2011	% Med
Alaska	4.5	Hawaii	8.4	Wyoming	9.0
Hawaii	6.6	Delaware	10.5	West Virginia	12.9
Delaware	7.3	Wisconsin	11.2	Oregon	13.3
Wyoming	8.3	Utah	12.4	North Dakota	14.3
Oregon	9.1	Virginia	12.5	Utah	14.7

Source: NASBO, 2013

If the differences among states in funding higher education were to be explained by their generosity in Medicaid funding by states, it is expected to be evident in Tables 2.2 and 2.3. Instead, there is no observable correlation in Tables 2.2 and 2.3 between the top higher education states and the bottom Medicaid states, or between the top Medicaid states and the bottom higher education states. The only exception is New Hampshire, which in 1992 and 2001 is both a top Medicaid and a bottom higher education state.

There is a clear trend between 1992 and 2011, in most states—28—reducing the share of their budgets devoted to higher education and increasing the share of their budgets spent on Medicaid. These are shown in Table 2.4

In total, between 1992 and 2011, 33 states reduced higher education's share by an average of 3%, and 44 states increased the share of budget for Medicaid by an average of 7.42%. Of the 33 states that reduced the budget share for higher education, all but five also increased the budget share for Medicaid. It is important to note we are discussing here the percentage change in the share of the total state budget, not an increase or decrease in spending for either category. Even over 20 years, one would not expect dramatic changes in budget share. And yet it is clear that in the vast majority of states, there have been declines in higher education's share and a significant increase in Medicaid's share—and nearly all of these states overlap.

Still, there are differences among states. At the same time most were reducing the budget share of higher education and increasing Medicaid, 17 states increased higher education's percentage (by an average of 3.11%) and six states decreased Medicaid's budget percentage (by an average of 4.18%). These states deserve further consideration and are listed in Tables 2.5 and 2.6.

Table 2.4

States That Both Reduced Budget Portion for Higher Education
and Increased for Medicaid between 1992-2001

State	Higher Education 20-year Percentage Change in Budget Share	Medicaid 20-year Percentage Change in Budget Share
Alabama	- 3.7	8.6
Alaska	- 0.2	4.8
Arkansas	- 0.7	6.4
California	- 4.6	7.9
Colorado	- 3.6	1.5
Connecticut	- 1.8	7.5
Delaware	- 2.6	8.9
Idaho	- 3.5	18.8
Illinois	- 3.9	15.4
Indiana	- 3.1	4.5
Kansas	- 3.1	8.1
Maine	- 2.5	6.7
Maryland	- 0.2	6.6
Michigan	- 3.6	5.5
Minnesota	- 2.2	9.4
Missouri	- 1.9	12.1
Nebraska	- 0.8	4.8
New Mexico	- 1.3	11.3
New York	- 1.7	6.5
North Carolina	- 2.4	6.7
Ohio	- 3.2	7.3
Oregon	- 8.4	4.2
Pennsylvania	- 2.8	10.3
Texas	- 1.3	3.4
Utah	- 1.7	4.0
Vermont	- 2.1	8.4
Washington	- 1.7	11.5
Wyoming	- 12.2	0.7
<i>Average 20-year Change</i>	-2.89	7.56

Source: NASBO, 2013

Table 2.5

States That Increased Percentage of Budget for Higher Education
1992 Compared to 2011

State	HE % 1992	HE % 2011	20 yr. % Change
Arizona	13.0	13.9	0.9
Florida	7.4	8.2	0.8
Georgia	15.0	17.1	2.1
Hawaii	7.6	9.1	1.5
Iowa	22.3	24.6	2.3
Kentucky	15.5	23.8	8.3
Massachusetts	2.9	9.9	7.0
Montana	8.0	9.8	1.8
Nevada*	7.7	10.0	2.3
New Jersey	4.9	8.1	3.2
North Dakota	12.5	20.6	8.1
Oklahoma	15.5	16.2	0.7
Rhode Island	4.1	12.4	8.3
South Carolina	19.6	21.0	1.4
South Dakota	16.4	18.4	2.0
Tennessee	11.5	13.3	1.8
Virginia	14.9	15.3	0.4
<i>Average 20 yr. Change</i>			<i>3.11</i>

*Nevada did not report in 1992, it is based on the next available year, 1995, showing the change over 16 years.

Source: NASBO, 2013

Table 2.6

States Which Decreased Percentage of Budget for Higher Medicaid
1992 Compared to 2011

State	Med % 1992	Med % 2011	20 yr. % Change
Louisiana	23.2	22.1	- 1.10
Mississippi*	22.0	18.5	- 3.50
New Hampshire	34.4	25.7	- 8.70
Rhode Island	27.5	25.9	- 1.60
West Virginia	18.5	12.9	- 5.60
Wisconsin	21.6	17.0	- 4.60
<i>Average 20 yr. Change</i>			<i>3.11</i>

*Mississippi did not report in 1992. In its place, 1993 is used, showing the change over 19 years.

Source: NASBO, 2013

While the states listed in Table 2.5 bucked the trend by higher education receiving a larger share of the budget, most saw relatively small changes in budget share over 20 years with eight (half of these states) increasing by less than 2% and four by less than 1%. However, three states saw more than an 8 percentage point increase—Kentucky, North Dakota, and Rhode Island. It would be difficult to name three more different states—each representing a different region of the country and each with very different demographic and social makeup. The reason for their commonality in significantly increasing the portion of state budgets spent on higher education is unknown and may merit further investigation.

As shown in Table 2.6, while most states (88%) increased Medicaid's share of the budget, six decreased its share over this 20-year period. In all cases, the decreases were more than 1%—four had decreases of more than 4%. Regionally, the states are from either the northeast or southern United States, with the exception of Wisconsin. Again, the reasons for these states reducing Medicaid's budget share are unknown and may merit further investigation.

Interestingly, there is only one state that both increased its higher education percentage and decreased its Medicaid percentage—Rhode Island. In every other instance, the lists on Tables 2.4 and 2.5 are mutually exclusive.

The states listed in Tables 2.5 and 2.6 are exceptions to the rule of most states which both decreased higher education's share of the budget while increasing Medicaid's share (as shown in Table 2.4). Still, the differences among states are significant. (Appendix B shows the percentage of state budgets for higher education and Medicaid in 1992, 2001, and 2011 for each state, and the percent changes from 1992-2011.)

Partisan Control and Impact

State budget decisions regarding how much is allocated to higher education, as noted by Tandberg (2009), “clearly... [do] not occur within a vacuum immune to politics and other budgetary forces” (p. 768). Tandberg (2009), along with McLendon, et al. (2009a) and Kane, et al. (2003), found that partisan control of the legislature and governor’s office had an impact on higher education funding, with Democratic control being positive and Republican negative. On the other hand, Weerts and Ronca (2012) and Dar (2012) found that Republican control was more favorable for higher education funding than Democratic.

Using the data collected from NASBO, NCSL, and NGA, I consider the possible impact of party control two ways. First, I look at party control of both the legislative and executive branches. Second, I look at five states where party control of state government has shifted during this 20-year period to see if these shifts might be associated with changes in higher education funding or other budget categories.

I start with states where one party or the other had total (or “solid”) control—defined as majorities in both houses of the legislature and the governor’s office, and then those that had mixed control—where one or more legislative house was controlled by each party and/or the governor is from a different political party than the legislature. I found that of 49 states (Nebraska excluded because of its nonpartisan legislature), four had total Democratic control for a majority of the time studied, eight were totally controlled by Republicans for a majority of the time, and most states—31—had mixed control for a majority of the 20-year period. (The tables showing party control are included in Appendix C.)

I then look at the top states measured by the percentage of time in each category—total Democratic control in four states with total control more than 50% of the time, in descending order: Maryland, West Virginia, Hawaii, and New Mexico; the top five states where Republicans were in total control most of the time in descending order are the following: Utah, North Dakota, South Dakota, Idaho, and Ohio; and the top five states where control was mixed between the parties with neither party in total control, in descending order are the following: Minnesota, Nevada, Connecticut, New York, and Rhode Island. The budget percentages for each of the top states were averaged.

The results for percentage of budget appropriated for higher education and Medicaid are summarized in Table 2.7. From this, it appears that states that are entirely controlled by majorities of the Democratic Party are more favorable to higher education than states entirely controlled by the Republican Party majorities. This is illustrated in Figure 2.2.

This shows the gap in higher education funding in 2001 between Republican-controlled states and Democratic-controlled states largely closed by 2011 with mixed control states lagging though increasing slightly over time.

The data presented in Table 2.7 and Figure 2.2 are similar to what past studies have shown (Kane, et al., 2003; McLendon, et al., 2009a; Tandberg, 2009). Interestingly though, while top Democratic states had a larger higher education share, the top Republican states were close to the national average in 1992 and above it in 2011. Most surprising is the dramatic drop in support among top states with mixed political control—nearly three percentage points lower than the U.S. average in 1992 and 2001 and more than one and one-half percentage points lower in 2011 (apparently contradicting Peterson

Table 2.7

Average Percentage of State Budget for Higher Education by Party Control

Year	U.S.	Top Republican States	Top Democratic States	Top Mixed States
1992	12.6	12.1	13.7	9.3
2001	12.5	11.0	17.3	9.6
2011	11.6	12.4	13.6	10.0

Sources: NASBO, 2013; NCSL, 2012; NGA, 2013

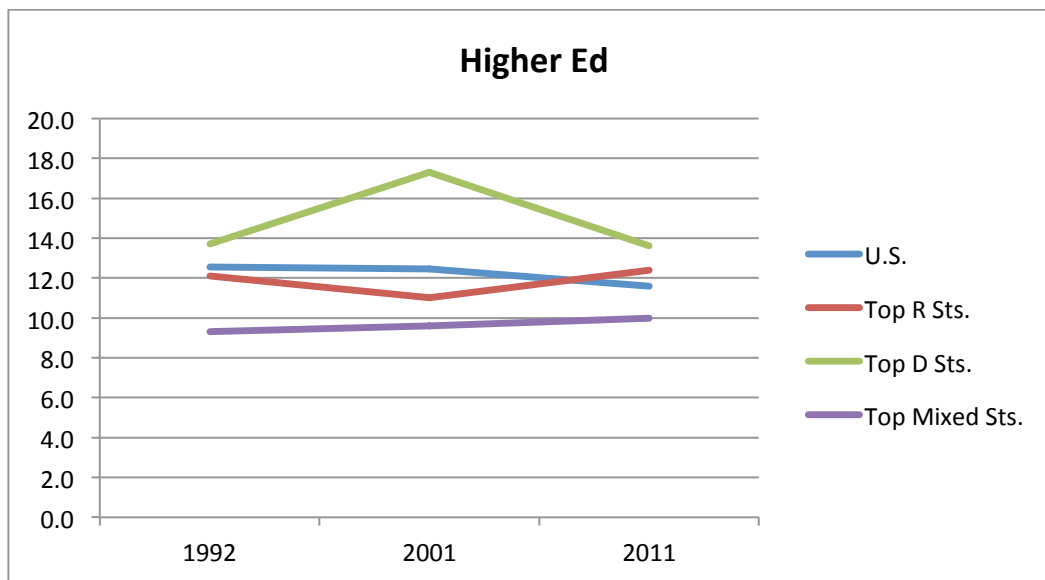


Figure 2.2

Percent of State Budgets Allocated to Higher Education
by Party Control of the State (Top States)

Sources: NASBO, 2013; NCSL, 2012; NGA, 2013

(1976), who found that political competition favored higher education funding). Also, surprisingly, the higher education share of the budget is increasing in the top mixed party control states (although still lower than the national average).

Next considered is the share of state budgets allocated to Medicaid among the top Republican-controlled, Democratic-controlled, and mix-controlled states (see Table 2.8). According to this measure, both the top Republican-controlled states and Democratic-controlled states lag behind the nation in the percentage of budget appropriated for Medicaid. This is illustrated in Figure 2.3.

This illustrates that for each category of party control among top states, the trend of increased Medicaid funding as a share of the total budget is very similar. Interestingly, top Republican-controlled states surpass top Democratic-controlled states in both 2001 and 2011. By a considerable amount, however, top states with mixed party control give Medicaid a larger share of their budget. (The averages for top states by party control for all budget categories are included in Appendix D.)

Table 2.8

Average Percentage of State Budget for Medicaid by Party Control

Year	U.S.	Top Republican States	Top Democratic States	Top Mixed States
1992	15.8	13.1	13.1	20.0
2001	19.1	17.5	14.9	22.1
2011	21.9	20.3	18.5	24.0

Sources: NASBO, 2013; NCSL, 2012; NGA, 2013

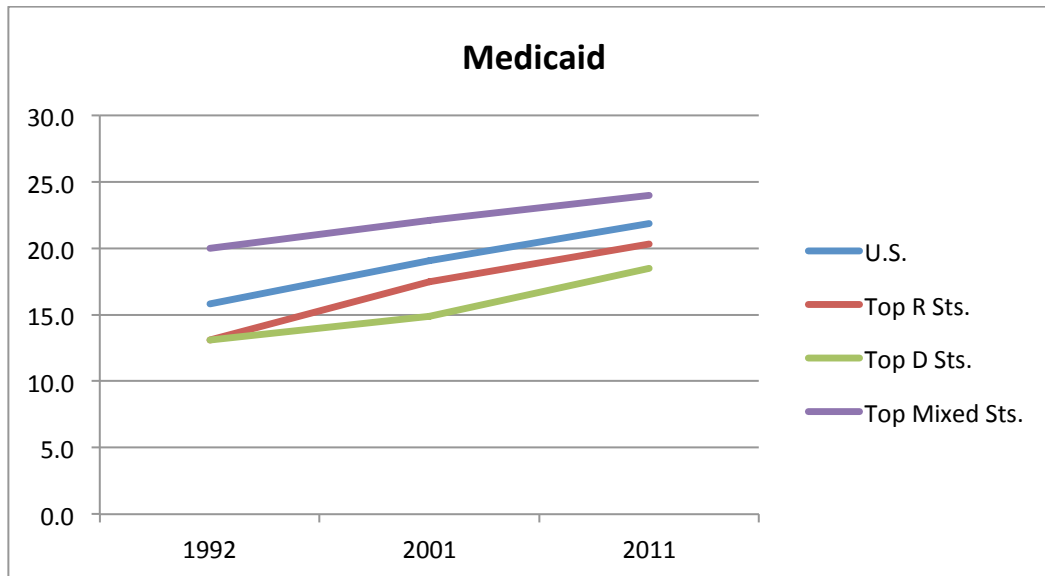


Figure 2.3

Percent of State Budgets Allocated to Medicaid
by Party Control of the State (Top States)

Sources: NASBO, 2013; NCSL, 2012; NGA, 2013

Change in Party Control and Impact

Over a 20-year period, partisan control in some states changed. In looking at the data compiled from NCSL (2012) and NGA (2013) for the period of 1992-2011, five states had clear changes in their party control, as follows:

- Colorado, from mostly Republican to mostly Democratic
- Florida, from mostly Democratic to solid Republican
- Georgia, from solid Democratic to solid Republican
- New Hampshire, from solid Republican to solid Democratic
- Texas, from solid Democratic to solid Republican.

In the cases of Georgia, New Hampshire, and Texas, in between the switch in party control, they had mixed control. In southern states, the change in party likely does not necessarily mean a significant change in political philosophy as the change might be from

conservative Democrats to conservative Republicans.

For each of these five states, I considered whether the change in party control impacted the percentage share of the state budget allocated to higher education and the percentage share of the budget allocated to Medicaid. The results are contained in Tables 2.9 through 2.13, with the most distant period on the left to the most recent on the right (except as noted for New Hampshire).

What do these examples of partisan change tell us about state funding of higher education and Medicaid? It is a mixed picture. In Colorado, Florida, and New Hampshire, both higher education and Medicaid received a larger percentage of the budget when the states were mostly or solidly Republican controlled. In Georgia, mixed control was best for higher education, while Medicaid fared best under solid Republican. In Texas, higher education got the largest percentage under solid Democratic although this was only 0.4% higher than solid Republican, and Medicaid did slightly better under mixed control. Perhaps the most striking thing about Texas is how little either of the categories changed over time and with changes in partisan control—only changing between 0.4 and 0.7%. Thus, these five states contradict the results of looking at the 14 most solidly Democratic, Republican, or mixed control states which showed higher education received the greatest percentage from Democratic control. I conclude that while party control may be a factor, it is not persuasively the most significant factor and likely there are other causes, perhaps unique to the circumstances and culture of individual states that are at work in shaping how legislators and governors decide spending priorities.

Table 2.9

Colorado Change in Party Control

	Mostly Republican	Mostly Democratic
Higher Education	14.3%	14.1%
Medicaid	18.4%	15.5%

Colorado Notes: **Mostly Republican 1992-2004**, during which Republicans controlled both houses for 11 years, Democrats controlled one house for 2 years, with a Democratic governor for 7 years and a Republican governor for 6 years. **Mostly Democratic 2005-2011**, during which Democrats controlled both houses for 6 years and one house for 1 year, with a Democratic governor for 5 years and a Republican governor for 1 year.

Sources: NASBO, 2013; NCSL, 2012; NGA, 2013

Table 2.10

Florida Change in Party Control

	Mostly Democratic	Mostly Republican
Higher Education	7.6%	9.1%
Medicaid	15.3%	22.4%

Florida Notes: **Mostly Democratic 1992-1998**, during which Democrats controlled one house for 4 years, tied in one house for 2 years, and Republicans controlled one house for 3 years. **Solid Republican 1999-2011**, during which Republicans controlled both houses of the legislature and the governor's office.

Sources: NASBO, 2013; NCSL, 2012; NGA, 2013

Table 2.11

Georgia Change in Party Control

	Solid Democratic	Mixed Control	Solid Republican
Higher Education	16.1%	16.6%	11.6%
Medicaid	18.4%	19.7%	20.2%

Georgia Notes: **Solid Democratic 1992-2001**, during which Democrats controlled both houses and the governor's office. **Mixed Control 2002-2004**, during which Democrats controlled one house and Republicans controlled one house and a Democratic governor for 1 year and a Republican governor for 1 year. **Solid Republican 2005-2011**, during which Republicans controlled both houses and the governor's office.

Sources: NASBO, 2013; NCSL, 2012; NGA, 2013

Table 2.12

New Hampshire Change in Party Control

	Solid Republican	Mixed Control	Solid Democratic
Higher Education	5.2%	4.9%	5.0%
Medicaid	32.9%	27.57%	25.8%

New Hampshire Notes: Unlike the other four states discussed here, party control in New Hampshire went back and forth between 1992 and 2011, rather than moving one direction or the other. **Solid Republican 1992-1996 and 2003-2004**, with Republicans controlling both houses and the governor's office. **Mixed Control 1997-2006 and 2011**, with both houses under Republican control and a Democratic governor. **Solid Democratic 2007-2010**, with both houses controlled by Democrats and a Democratic governor.

Sources: NASBO, 2013; NCSL, 2012; NGA, 2013

Table 2.13

Texas Change in Party Control

	Solid Democratic	Mixed Control	Solid Republican
Higher Education	13.2%	12.9%	12.8%
Medicaid	21.7%	22.67%	22.1%

Texas Notes: **Solid Democratic 1992-1994**, with both houses controlled by Democrats and a Democratic governor. **Mixed Control 1995-2001**, with both houses controlled by Democrats 1 year and one house by Democrats for 6 years and one by Republicans and a Republican governor for 7 years. **Solid Republican 2002-2011**, with both houses and the governor's office controlled by Republicans.

Sources: NASBO, 2013; NCSL, 2012; NGA, 2013

Conclusion

The budget data from each of the states demonstrate the variety of spending priorities among categories and changes over time. The trends of an increasing portion of the budget pie devoted to Medicaid and decreases for higher education (and most categories) in most states are clear. However, there is no clear connection between higher education and Medicaid funding (as shown in Tables 2.2 and 2.3). Top higher education funding states generally do not correspond with low Medicaid funding states, nor do top Medicaid funding states correspond with those that give the lowest percentages to higher education. There is, once again, the considerable variety among states as to their budget priorities. Also it appears that political party control of a state is inconclusive in determining budget priorities in particular as related to the funding of higher education and Medicaid.

In Chapter 3, I report the results of statistical analysis using both ordinary least squares (OLS) regressions and, to take account of the nature of the panel data, using a fixed effect (FE) regression model. These analyses are intended to answer my two

questions: Why are states retrenching their commitment to funding public higher education? And secondarily, why do states vary in their higher education support?

CHAPTER 3

QUANTITATIVE MODELS AND FINDINGS

Introduction

Is the increase in the share of state budgets devoted to Medicaid the reason that higher education's share is declining in most states? Between 1992 and 2011, higher education's percentage share of state budgets declined in 33 states (by an average of 2.89%) and increased in 17 (by an average of 3.11%). As pointed out in Chapter 2, of those 33 states, all but five also increased the share of the budget for Medicaid. In total, Medicaid's budget percentage increased in 44 states (by an average of 7.42%) and declined in just six (by an average of 4.18%). Given these trends, it seems intuitive that the decline in higher education's budget share may very likely be related to the concurrent increase in Medicaid's budget.

Higher education's budgetary challenges in the legislative world of competing priorities is heightened, as pointed out in the literature, by the perception among legislators that it is more discretionary than other categories. From the literature, we must also consider other major competitors for state tax appropriations in addition to Medicaid, namely, K-12 public education and corrections, which also may share responsibility in the context of budgetary or fiscal competition for higher education's decline. It is noteworthy, however, as shown in Chapter 2, that K-12 and corrections have also seen a decline in budget share. Only Medicaid and NASBO's "other" category (perhaps as a

result of public employee pensions and medical costs) have increased. Also of interest in the literature is whether political party control of a state or changes in the state's economy might be significant factors impacting the budget share of higher education funding.

These questions focus attention on budgetary politics – on tradeoffs made in the share of the budgetary pie. As one budget category receives a larger percentage, one or more categories must necessarily decline. This is true even if the actual amount of spending (in nominal dollars) for a given year increases over the previous. In general, state politicians treat state budgeting as a “zero-sum game” with each category competing for limited funds (Hovey, 1999; also see Gosling, 2006; Rubin, 2006).

In the past few decades, more than a dozen scholars have considered the institutional, economic, demographic, cultural, political, and fiscal factors that may be having a negative impact on state funding of higher education.⁹ Many of these used panel data and ordinary least squares (OLS) regression analyses to consider the possible relationships. I build upon their work by looking at higher education's slice of the state budgetary pie as measured by the percentage changes over a 20-year period, and by focusing on budget competitors. Medicaid is my primary focus as the budget competitor most likely to be detrimental to higher education's percentage of the budget. This is based on previous research cited earlier, and raw data that show Medicaid funding is mostly increasing while higher education funding's share is shrinking in a majority of states.

As noted in Chapter 1, a number of scholars have considered a state's economy as

⁹ Archibald & Feldman, 2006; Coughlin & Erikson, 1986; Dar, 2012; Hovey, 1999; Kane, et al., 2003, 2005; Koven & Mausoff, 2002; Lindeen & Willis, 1975; McLendon, et al., 2009a; McLendon, et al., 2009b; Morgan, et al., 2001; Peterson, 1976; Rizzo, 2006; Tandberg, 2009; Tandberg, 2010; Tourkoushian, 2009; Weerts & Ronca, 2012.

possibly impacting state funding of higher education. Delaney and Doyle (2011), Koven and Mausolff (2012), Tandberg (2009), and Tourkoushian (2009) each considered personal incomes within a state. Kane, et al. (2003, 2005), McLendon, et al. (2009a), Rizzo (2006), and Weerts and Ronca (2012) each considered the unemployment rate of a state. Tandberg (2009) considered Gross State Product. These scholars argued, while using different measures, that changes in a state's economy have an impact on the amount of state revenues available for budgeting and thus, for higher education funding. From a practical standpoint, it is clear that in prosperous times, tax revenue increases (and demands for certain services may decrease) and when the economy sputters, tax revenues decline (and demand for certain services may increase).

Since Gross State Product (GSP) is the most comprehensive economic measure of a state's economy including "the sum of all gross domestic product originating in all industries of the state" (U.S. Department of Commerce, 2013), I also included in my study the percentage change (increase or decrease) in GSP for each state from one year to the next.

As noted in Chapters 1 and 2, several researchers (Dar, 2012; Kane, et al., 2003; McLendon, et al., 2009a; Tandberg, 2009; Weerts & Ronca, 2012) considered the impact of partisan control of one or both houses of the legislature and the governor's office may have on higher education state funding. And while there is disagreement as to the impact of party or what that impact might be, it merits further investigation here.

Using panel data and both ordinary least squares (OLS) and fixed effect (FE) regression models, I have found that the wide variation in the level of state tax funding for higher education may, in fact, mask the actual effects of budget competition. The

regression models and their results are reported below.

Regression Models

As discussed in Chapter 2, I used cross-sectional panel data for each state with repeated observations over a 20-year period obtained from NASBO. The percentage of state expenditures for each of NASBO's seven budget categories for each year was considered. Since not all states reported each of the 20 years, the total number of observations for each category was 987.¹⁰ The data were then imported into a statistical package, Stata. The descriptive statistics for those categories are reported in Table 3.1 and are most often cited as relevant in the literature: higher education, K-12 education, Medicaid, and corrections. The percentage change in GSP is also included.

At first glance, one might assume that there has been significant variation over time in the share of the budget appropriated to each of these categories given the large ranges from minimum to maximum. For instance, over this 20-year period among the states, higher education ranged from 1% of the budget to 27.3%, K-12 education from 3.8% to 38%, and Medicaid from 4.5% to 38.8%. In fact, although not apparent in Table 3.1, the variations are more between states than over time.

Ordinary Least Squares (OLS) Models

To test whether budget competition may be reducing state appropriations for higher education over time, I start with an ordinary least squares (OLS) regression, with higher education's percent of the budget as the dependent variable.

¹⁰ Not reporting or incomplete were Alaska in 1996, 2001, 2002; Mississippi in 1992; Nevada in 1992, 1993, 1994, 1996, 1997, and 1998; New Mexico in 1993 and 1999; and Wyoming in 2000. In a few cases, when a state did not report for a category in a given year, it was then coded as missing.

Table 3.1
Descriptive Statistics

Variable	Mean	Std. Deviation	Minimum	Maximum	<i>N</i>
Higher Education	11.79	5.46	1	27.3	987
K-12	20.85	5.02	3.8	38	987
Medicaid	19.22	5.86	4.5	38.8	987
Corrections	3.07	1.04	0	9.3	987
GSP +/-	.03	.03	-.09	.14	1000

An OLS model assumes that each of the data points are independent observations. Although this approach was apparently used by a number of scholars, it is flawed since this is panel data and, as pointed out, one year's state budget has influence over the next—they are not truly independent of one another.

To consider if party control of the legislature or governor's office is associated with higher education funding, I compiled data on the party control of upper and lower houses of the legislature and executive branch from 1992 through 2011 from reports published by the National Council of State Legislatures (NCSL, 2011) and from the National Governors Association (NGA, 2013) for 1992 through 2011. I then created two dummy variables, one to measure Republican control of both the legislative and executive branches, and the other to measure Democratic control of both the legislative and executive branches. A zero on both of these Dichotomous variables indicates mixed partisan control.

Starting with the most basic, Model 1 is an OLS bivariate regression with higher education as the dependent variable and Medicaid as the independent variable. This model results in negative associations found for Medicaid, as reported in Table 3.2.

Model 1 shows that for every 1% increase in Medicaid's share of the state budget,

Table 3.2
Model 1
OLS Regression
Effect of Medicaid Budgets on Higher Education Budget Shares

Independent Variable	Coefficient	Standard Error	<i>t</i> -value	Probability
Medicaid	- 0.192	.029	- 6.61	0.000
Constant	15.5	.583	26.53	0.000

R-squared: 0.04

F-test: 43.69

N: 987

higher education's share decreases by .19%. The coefficient is negative and is statistically significant. The R^2 is only 0.04, which indicates that the model explains only 4% of the variation in higher education spending over time and between states, which is quite small.

Although my approach measures relative percentage changes in the budgetary pie versus per-capita spending, looking at Medicaid's potential effect on higher education in isolation (without other budget categories considered), Model 1 supports Kane, et al. (2003) who found that a \$1 increase in per-capita funding of Medicaid reduces higher education funding by between \$.06 and \$.07.

Model 2 is another OLS regression but adds to Medicaid the other budget categories identified in the literature as significant budget competitors to higher education: corrections and K-12 public education, as well as other factors thought to be significant—the economy (measured here by percentage changes in GSP) and partisan control (using dummy variables).

Even after adding these other independent variables to the regression, the adjusted R^2 is at 0.05, indicating the model explains only 5% percent of the variation. Model 2 is

summarized in Table 3.3.

Similar to Model 1, Model 2 shows that controlling for corrections, K-12, GSP, and party control, for every 1% increase in the appropriation for Medicaid, higher education's budget decreases by .18%. It also shows an even larger negative impact on higher education from corrections, controlling for the other factors, of -.44, more than twice the effect for Medicaid. For corrections, the standard error is comparatively large at 0.17. A slightly positive impact from K-12 is found at 0.03, which could mean legislators who are inclined to shift resources to education do so for both K-12 and higher education. However, it is important to note that the K-12 coefficient is not statistically significant.

A negative association is also found for Republican controlled states—slightly larger than the effect of Medicaid—at -0.19, although the coefficient is not statistically

Table 3.3

Model 2
OLS Regression
Effect of Medicaid, Corrections, K-12 Budgets, Gross State Product, and
Party Control on Higher Education Budget Shares

Independent Variable	Coefficient	Standard Error	<i>t</i> -value	Probability
Medicaid	- 0.18	0.03	- 6.15	0.00
Corrections	- 0.44	0.17	- 2.54	0.01
K-12 Education	0.03	0.04	0.76	0.45
Gross State Product	0.12	0.06	2.05	0.04
Democratic Control	0.36	0.44	0.83	0.41
Republican Control	- 0.19	0.42	- 0.46	0.65
Constant	15.67	0.972	16.12	0.00

Adjusted *R*-squared: 0.05

F: 9.24

N: 987

significant. The largest positive coefficient is for Democratic control, at 0.36, meaning that democratically dominated states see a .36% increase in higher education controlling for other factors. However, the coefficient for Democratic control is also not significant.

As the economic output of a state grows, so too should state revenue, although this growth could be evenly distributed among budget categories without any change in percentage shares. Model 2 shows that for every percentage increase in GSP, higher education's share of the budget increases by .12%. This suggests that when a state's economy is growing higher education's share of the budget increases—supporting Hovey's balance wheel theory.

If I were to end this study here, I could conclude, like others before, that even when considering the relative slice of the budgetary pie, higher education's share is getting smaller at least in part because Medicaid and corrections shares are getting larger. I might also conclude that when K-12 education's budget share grows, higher education might benefit as well.

However, ending here would overlook the very nature of the panel data being considered. To do so would be to assume that the data are completely poolable, that each state's budget percentages for each year are independent from every other year. As noted in Chapter 1, public budgeting is typically incremental, as one year strongly influences the next with changes focused on “a narrow range of increases or decreases” (Gosling, 2006, pp. 29-30). “The largest determining factor of this year's budget is last year's” (Wildavsky & Caiden, 2001, p. 47).

I neither expected nor found in the budget data wide swings from year to year within states for the budget categories—changes are slow and incremental. For example,

a 10% change over 20 years would average a change of 0.5% per year. Over the 20-year span of the study (as reported in Appendix B), only two states had a 10% change or greater (both decreases) in higher education's budget share with less than a 10% change in the other 48 states. Eight states had a 10% or greater change (all increases) in Medicaid with less than a 10% change in 42 states.¹¹

Ordinary least squares, while a popular approach in the literature, and often very fruitful using these kinds of data over time and between states, clearly has its limitations. As Zhu (2012) pointed out, "panel data analysis has become a popular tool for researchers in public policy and public administration" (p. 395). However, when using population data across states, "[u]nobserved unit heterogeneity may bias statistical estimation and lead to invalid causal relationships" (p. 399). Zhu notes that using a fixed effect model "controls for cross-unit heterogeneity..." and "is better than" using ordinary least squares regression "because it improves the estimation consistency" (p. 400).

There is a wide variety in the starting points for each state in their percentage of budget allocated to either higher education or Medicaid. Higher education's budget percent ranged in 1992 from a high of 26.4 (Wisconsin) to a low of 2.9 (Massachusetts), and in 2011, a high of 24.6% (Iowa) to a low of 2.0% (New Hampshire). Similarly, there is a wide variety in the percentage of state budgets allocated for Medicaid, with a high in 1992 of 34.4% (New Hampshire) to a low of 4.5% (Alaska), and in 2011, from a high of 33.9% (Arizona) to a low of 9.0% (Wyoming). These differences between states are instances of the "cross-unit heterogeneity" mentioned by Zhu for which we must account.

¹¹ Between 1992 and 2011, higher education's percentage of Wisconsin's budget reduced by 12.7%, and Wyoming's budget by 12.2%. Between 1992 and 2011, Medicaid's percentage of budget grew by 21.5% in Arizona, 14.9% in Florida, 18.8% in Idaho, 15.4% in Illinois, 12.1% in Missouri, 11.3% in New Mexico, 10.3% in Pennsylvania, and 11.5% in Washington.

The differences between states are illustrated, using the OLS models, in scatterplots. Figure 3.1 shows a scatterplot for each state in a regression with higher education's percent of budget as the dependent variable and Medicaid as the independent variable.

Figure 3.2 shows a scatterplot for each of the 50 states using the same model, higher education as the dependent variable, and Medicaid as the independent variable.

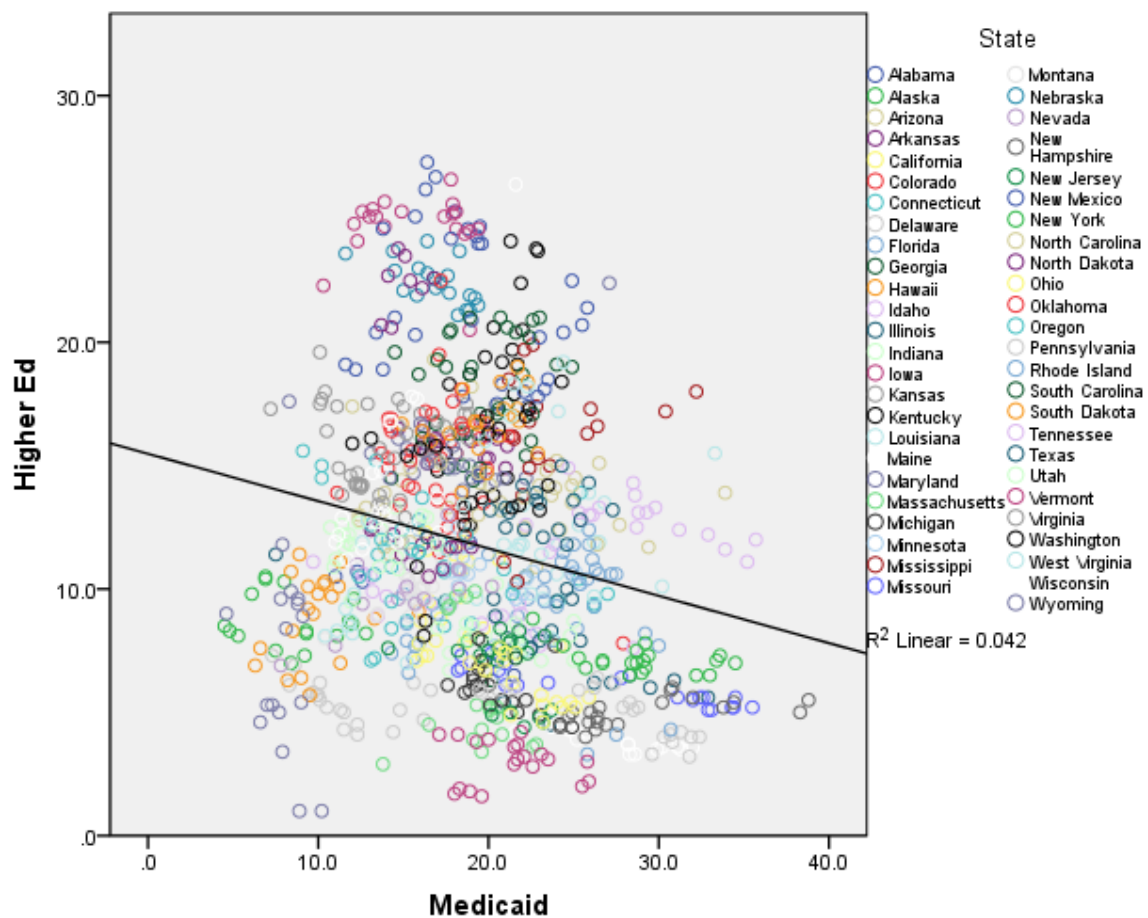


Figure 3.1

Higher Education and Medicaid All States

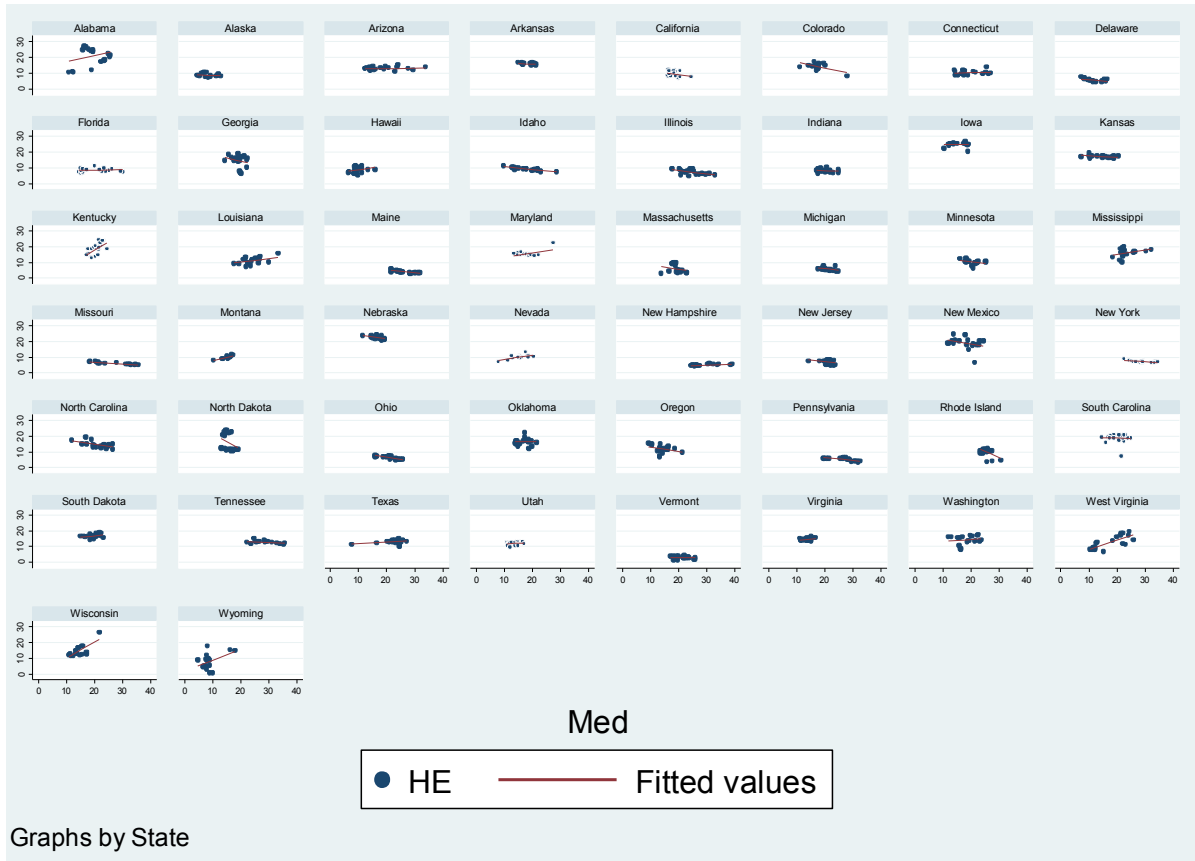


Figure 3.2

Higher Education and Medicaid by State

Although the software plotted a trend line and it is negative, what is more telling is how dispersed the states are, showing that in fact, no sound conclusion can be drawn. There is simply too much “cross-unit heterogeneity.” This is further illustrated in Figure 3.2, which shows the relationship for each state between higher education’s budget percentage as the dependent variable and Medicaid as the independent variable.

Fixed Effects Model

Model 3 is the fixed effects regression model, shown in Table 3.4. This model shows the results with the percentage of state budgets for higher education as the dependent variable, and the percentage for Medicaid, corrections, K-12 public education, change in Gross State Product, and dummy variables for Republican or Democratic control as the independent variables. This model is the equivalent of an OLS regression with 49 dummy variables (see the results in Appendix E).

The results for Model 3 (FE), which takes into account the unobserved variation across states as well as the variation across time, are quite different from Model 2 (OLS). In Model 2, it appears that in fact, Medicaid and corrections have a measurable negative impact on higher education (-.19 decrease for every percent increase in Medicaid, and -.44 decrease for every percent increase for corrections).

When taking into account both the differences *within* (across time) and *between* (across states), Model 3 shows only a small, nonsignificant negative effect (-.0009) for Medicaid with a much larger standard error, a low *t*-score, and a high probability value. Thus, we must conclude that higher education’s association with Medicaid spending is insignificant when considering all states in one model. K-12 public education continues to show a significant positive effect, larger than before, at 0.0888 (compared to 0.03).

Table 3.4

Model 3
Fixed Effects (FE) Regression
Effect of Medicaid, Corrections, K-12 Budgets, Gross State Product, and
Party Control on Higher Education Budgets

Independent Variable	Coefficient	Standard Error	<i>t</i> -value	Probability
Medicaid	- 0.0009	0.0219	- 0.04	0.969
Corrections	0.6392	0.1233	5.18	0.000
K-12 Education	0.0888	0.0220	4.04	0.000
Gross State Product	0.0295	0.0262	1.13	0.259
Democratic Control	- 0.3378	0.2054	- 1.64	0.100
Republican Control	0.0860	0.2299	0.37	0.708
Constant	7.96	0.659	12.09	0.000

R-squared: within 0.059, between: 0.023, overall: 0.004

F: 9.58

N: 987

RHO: 851

While some scholars, in particular Tourkoushian (2009), have argued that K-12 is a strong budget competitor of higher education, it is also intuitive that states inclined to increase the share of spending on education might benefit both K-12 and higher education. What is surprising, however, is that Model 3 also shows a positive effect for corrections—the largest of all variables—at 0.6392. Corrections also has a large *t*-value and 0.000 *p*-value, which indicates that states that increase the budget share for corrections also do so for higher education. Partisan control shows Republican states have higher percentages of spending on higher education than Democratic states on average, yet in both instances, the associations are not statistically significant. Finally, a positive association is found for GSP, although again the association is not statistically significant.

Before drawing too strong of conclusions from any of the above measured effects,

it is important to note that the R^2 shows that overall this model explains virtually none of the effect—0.004—of the changes in the percentage of budget for higher education. The reason for this may well be understood by considering the rho statistic at 0.851, which shows that 85% of the variation in the error term is due to the cross-sectional or state differences.

The fixed effects model demonstrates that because of the strength of the cross-sectional effects between states, we should not rely on the OLS results as they are actually capturing the differences across states rather than the effects of Medicaid or other factors on higher education over time. (The Fixed Effects with Least Squares Dummy Variables for 49 states reported in Appendix E is equivalent to Model 3. Using this approach, the F -test is 95.195, showing a strong fit and the adjusted R^2 is .840, also showing the effects are a result of variation between states.) These results call into serious question the results of many earlier studies, and indicate that other kinds of analyses are needed to assess the significance of various relationships affecting higher education funding.

Conclusion

It may be true that fiscal factors—budget competition between higher education and other categories viewed by state legislators as less discretionary, such as Medicaid—are contributing to the overall decline in higher education's share of the state budgetary pie. It is my hunch that this has merit. The fixed effects model shows that Medicaid does not have the strong negative effect on higher education budgets as others had concluded once other variables are controlled and the cross-sectional differences between states are taken into account. Thus, my original hypotheses is not supported. What I found through

the fixed effects model is that statistically, the differences between states is more significant than the differences within a state over time.

As noted in Chapter 1, considerable work has taken place among scholars, particularly during the past decade, with many using ordinary least squares regression models, to determine which among many possible factors may explain the plight of higher education, particularly in some states. If any considered the impact of the variation across states as well as time, and used a fixed effects model, it was not evident in my literature search (with the exception of Tandberg, 2009, 2010). The answer to the question of why states are retrenching in funding of higher education may in fact be because of competition from other pressing priorities, taking into account the differences among states, it is clearly shown that it cannot be determined through statistical modeling such is common throughout the literature.

Taking a step back, it is unarguable that budgets for each of these categories are decided annually (or sometimes biennially) in the state capitols of 50 states, with certain commonalities, but also their own individual cultures, politics, histories, and priorities. The opening question I started with—Why are states retrenching their commitment to funding public higher education?—is still an important one given the increasingly strong connection between educational achievement and economic and societal well-being. It turns out the second question—Why do states vary in their support?—is more central than at first thought.

In Chapter 4, I explore areas for further research that could prove fruitful to better answer these questions now that we know the limitations of the quantitative approach in this instance. The questions remain important to any who are concerned about the

implications of less public support for higher education contributing to higher tuition, student debt, and less opportunity for Americans.

CHAPTER 4

RECOMMENDATIONS

Introduction

For the past 2 decades, the overall trend in state funding support for higher education has been one of decline. As a consequence, the tuition cost for students has increased, as has student debt. In 2012, 71% of college graduates in the U.S. left with college-related debt, at an average of \$29,400 (Institute for College Access and Success, 2014).¹² Ironically, even as tuition has increased, the amount spent by institutions per student has remained largely stagnant or even slightly declined (constant 2012 dollars) at \$11,695 per full-time equivalent student in 2012 compared to \$12,267 in 2001 (SHEEO, 2012). Increased student tuition and debt at the same time as stagnant per-student spending by institutions are both directly related to the overall trend of higher education's declining share of state budgets.

Over the same period, higher education scholars have tried to identify the reasons for these changes—looking for causal explanations. Most researchers seek to establish associations using statistical methodology and largely (for instance Kane, et al., 2003 and 2005) relied on ordinary least squares regression analyses. When controlling for cross-unit heterogeneity with a fixed effects model, the differences across states explain 85% of the error term. The wide variation among states in their share of higher education funding

¹² Utah ranked 44th in college graduate debt in the U.S., with 50% having debt, at an average of \$21,250 (Institute for College Access and Success, 2014).

makes ordinary least squares analysis of all 50 states unreliable. This study concludes that if regression modeling can be meaningful at all, it should be applied to subgroupings rather than to the states as a whole.

Contribution

Building upon the work of scholars who focused on fiscal factors, this study took a unique turn by considering the share of state budgets devoted to higher education as compared to those factors most often identified as competitors for tax support. In particular, it looked at the competition within state budgets of other priorities previously identified—K-12 public education, corrections, and especially Medicaid. It also considered whether partisan control of state houses and the economy of states were major factors.

This study focused on two questions: 1- Why are states retrenching in their support of higher education, and 2- What accounts for the variation among states in how they fund higher education? I expected to replicate the results found by Kane, et al. (2003, 2005) that as states find it necessary to devote a growing portion of their tax resources to Medicaid, this is coming at the expense of higher education funding, which is often viewed as more discretionary because funding alternatives are available. Although this may be the case, this study found that while in most states, higher education budget shares are generally declining and Medicaid is most certainly increasing, the variations among the 50 states' funding patterns is so strong that it defies generalizations arrived at through conventional statistical tools used in social science research.

It became clear that while researchers have posed important questions, they

cannot be answered by this type of research alone—at least when considering all 50 states together. The fixed effect model (Model 3 in Chapter 3) showed that the variation in the error term is mostly due to cross-sectional or state differences. Thus, additional approaches are needed to further our understanding of the dynamics involved among the states in determining the widely varying budget share for higher education.¹³

This study's findings call into question the literature upon which it is based. The approaches, assumptions, and methods typically employed in the literature, as well as in this study, appear to be unreliable because they do not generally distinguish between high and low funding states.

Exploring more about the nature of state funding variations now seems critical for explaining the dynamics of higher education funding in the current era. The analysis here suggests that the dynamics of higher education funding decisions are likely specific to group and individual state characteristics, and accordingly, that American federalism is alive and well.

Even though states face similar pressures and incentives, such as the rising price of health care and stagnant or declining personal income, they display an amazing variation in the levels and types of state investment in education. The impetus to increase state spending for Medicaid does pose challenges for all states, but the ways they respond in terms of budgetary tradeoffs that affect higher education spending vary widely.

¹³ Tandberg (2010) notes that higher education funding decisions by states “are not made in a uniform manner...as states prioritize higher education differently” (p. 418). However, his emphases are the various environmental factors that may cause states to make different decisions, not specifying by state their particular differences. My approach was similar.

Recommendations for Future Research

Additional research is thus needed to answer the questions of why most but not all states are pulling back on their funding support of higher education, and why they vary so greatly in how they divide the budgetary pie. The wide variation among states in how they fund higher education demonstrates the need to look beyond aggregating state data using OLS and Fixed Effects regressions, to looking at states in specific groupings as well as more individually through other research approaches and methods. This study recommends the following approaches:

- Consider groupings of states to see if regression analyses might establish significant inverse relationships among budget spending categories. What are the difference and similarities between:
 - The anomalous states—why have they gone against the general funding trends?
 - The congruent states— why have they followed the general trends?
 - Is there a difference between states identified as having restrictive tax and expenditure limits and other states?
- Use qualitative or interpretive studies to gain deeper understanding of state budgetary dynamics. These include:
 - Case studies of several states that have decreased higher education's budget share and also increased Medicaid's share.
 - Case studies of several states that have increased higher education's budget share and decreased Medicaid's share.
- Understanding the political culture of states may provide greater insight; however,

caution should be exercised in using Elazar's framework. It may well be that the theoretical framework needs updating to account for dramatic demographic shifts and other factors since the model was developed.

Each of these recommendations is discussed briefly below.

Consider State Groupings—Anomalous States

Between 1992 and 2011, nearly half of the states have gone against the general trend by either increasing higher education's share of the budget or decreasing the share for Medicaid. In every case but one (Rhode Island), these lists are mutually exclusive.

Seventeen states increased higher education's share of their budgets, with nine of those states increasing its share by 2% or more (see Table 2.5). Three states—Kentucky, North Dakota, and Rhode Island—increased the higher education budget share by more than 8%. These three states with 8-plus% higher education increases not only are found in different parts of the country but on the surface at least seem to share little politically, culturally, or socially. One might expect or assume that states in the same region of the country—southern, mountain, northeast, etc.—would share political as well as social values. Are there regional similarities when one considers all 17 states that increased higher education's budget share during 20 years, or the nine that increased by 2% or more? No strong regional trend is apparent as these 17 states represent all but one of the nine geographical divisions determined by the United States Census Bureau (2014b).¹⁴ However, of the eight states that increased the higher education budget share by 2% or greater, three are the West North Central states (division four). This may merit further

¹⁴ The Census Bureau's regional divisions are: New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific. The only division not represented in the 16 states that increased higher education's budget share is East North Central, sometimes referred to as "the rust belt."

study. As noted earlier, the top three states in terms of increasing higher education's budget share are each from different geographic regions.

Six states, as shown in Table 2.6, have differed from the overwhelming trend of increasing Medicaid's budget share by instead reducing it. Again, regional trends are not apparent as these states represent six of nine geographic regions—although none are in the West North Central, Mountain, or Pacific states. Of four states that during the 20-year study period reduced Medicaid's budget share by 4% or more, New England, East North Central, South Atlantic, and East South Central regions are included.

These anomalous states—which have gone against the general trend—merit further study. Can associations be established among budget funding categories that are different than for the 50 states as a whole? In particular, the 17 states that are increasing the budget share for higher education also merit additional study through regression analyses to determine if statistical models help us better understand the reasons for their differences from the nation as a whole.

Consider State Groupings—Congruent States

Most states—33—were congruent in terms of reducing the budget share for higher education from 1992-2011. Looking closer at the 33 states that reduced higher education's budget share, one finds that 19 states reduced higher education's share by 2% or more, three by 8% or more. The three making the largest decreases in percentage share were Oregon, Wisconsin, and Wyoming—three very different states from different regions of the nation. Of states reducing higher education and increasing Medicaid's budget share, not surprisingly, every regional geographical division of the nation is represented leading to no regional inferences.

During the same time period, 44 states increased the budget share for Medicaid. There is considerable overlap among these two groups with 28 states both reducing higher education and increasing Medicaid's share. These 28 states, on their face at least, are congruent with the hypothesis that Medicaid may be reducing higher education's state budget share. These states and their budget changes are detailed in Table 2.4.

These 28 congruent states merit further study through regression analyses to determine if any relations can be established among budget funding categories that are different than for the 50 states as a whole. Further, it would be helpful to understand the similarities and differences between the anomalous and congruent states, if any.

Consider State Groupings—Tax and Expenditure Restricted States

Archibald and Feldman (2006) focused on statutory and constitutional limits on expenditures and revenues and considered how these may have contributed to diminished higher education funding. They listed 23 states with tax and expenditure limitations, and categorized them as to whether the limitation is "restrictive or non-restrictive." While these tax and spending limitations are "a hodgepodge of different types of regulations" they can be distinguished between states that have nonrestrictive limits "that are either binding on the administration's budget submissions but not on the budget the legislature eventually passes" or can be overridden with a simple majority vote (p. 621). Fourteen states were described as having restrictive limits. In their study, they found these tax and expenditure restricted states, particularly those with "broadly based limitations," have the strongest negative effect on higher education budgets.¹⁵ It would be worth building upon their work, using regression analyses to consider whether the most restrictive states in

¹⁵ These states are Alaska, Arizona, California, Hawaii, Idaho, Massachusetts, Michigan, Missouri, Montana, North Carolina, New Jersey, Nevada, Oklahoma, Oregon, South Carolina, and Washington.

terms of tax and expenditure limits are also more likely than other states to shift the share of budget from higher education to other areas.

Interpretive Studies to Gain Insight and Understanding

The scholarship to date on the questions of the decline state in funding of higher education have all used quantitative methodologies. Such studies may be more fruitful if focused on either individual states or groupings of states based on their funding patterns rather than all states together. Additional understanding of the dynamics of state funding of higher education may be gained through interpretive research by conducting case studies. McLendon (2003) argues that case studies can provide "an important corrective to the 'black box' tendency that sometimes attends positivist research, whereby the complexities of political phenomena are excessively simplified to meet the requirements for statistical manipulation of data" (pp. 184-185). McLendon's recommendation of using case studies was also supported by Weerts and Ronca (2012) as a way "to help scholars address complexities not captured in statistical models" (p. 172).

Case studies should include interviewing key participants in state budgetary decision-making in several states to deepen our understanding of budgetary trends and trade-offs. "In interpretive research, human beings are understood not as objects, but as agents...actively and collaboratively constructing...their polities, societies, and cultures—along with the institutions...[and] practices..." (Schwartz-Shea & Yanow, 2012, p. 46). Engaging some of these actors may help deepen our understanding of the questions of higher education funding decline, as well as the differences between states in both where they started 20 years ago and where they are now in budget priorities. This would require field research across states in each budgetary grouping discussed above,

and should include interviews, examination of media reports, legislative histories/records, and other materials that could be synthesized through a case-study approach.

Case studies should be designed and conducted of at least four anomalous states and at least four congruent states. The anomalous states include those that have both increased the higher education share of state budgets and decreased the Medicaid share of the state budget. The congruent states include those that have both decreased the higher education share of state budgets and increased the Medicaid share. Case studies would thus be developed for a minimum of 8 states (more states could be included, of course, time and resources permitting). The selection of states should be informed by the data included in Tables 2.4 and 2.5.

Archival research of these states should be conducted on newspapers and legislative minutes and reports and gubernatorial papers, to gain context and understanding and assist in developing specific questions. Following archival research, face-to-face (or if necessary telephone) interviews should be conducted of key actors and analysts in the selected states such as:

- Key legislators (such as higher education appropriation committee chairs, legislative leaders such as house/assembly speakers and senate presidents, as well as legislative fiscal or budget staff members).
- Governors or key gubernatorial staff members (such as education aide and budget director or budget analyst for higher education).
- Higher education leaders (the State Higher Education Executive Officer, university and college presidents and chief financial officers, and in-house legislative lobbyists at institutional or system levels).
- Political analysts in each state.

Ideally, interviews would be conducted not only with individuals currently

holding the positions identified above, but also those who held them a number of years ago—as far back as 1992 if possible. In the interviews and archival research, consideration should be given to the six factors identified in the literature as impacting higher education funding: 1) institutional, 2) economic, 3) demographic, 4) cultural, 5) political, and 6) fiscal factors. Key questions for actors in these anomalous states would focus on what led them to being opposite of the national trend in the share of budget for higher education and for Medicaid. Were these intentional, purposeful efforts, or a result of other factors? Questions for actors in the congruent states would focus on the extent to which funding of Medicaid or other priorities may be crowding out funding of higher education and to test the extent to which higher education funding is seen as discretionary.

There are some obvious challenges and difficulties with this kind of interpretive or qualitative research. First is cost. It is expensive to travel to several states—even as few as eight—for perhaps several days each. Second, it is challenging to gain access to actors one desires to interview. For these actors, whether a politician or higher education official, to take time to meet with a researcher, is asking her/him to do something that is largely altruistic. Third, when one interviews such actors, it is likely that their answers are what immediately comes to their minds and based on their recollection of past events (imperfect at best). Fourth, it must always be recognized that people may answer in a way that is self-serving or is intended to put themselves and their past decisions and actions in the best possible light. Truth-seeking can be elusive. Finally, it is important to note that as valuable as this kind of research can be to gaining greater understanding, it is almost by definition not replicable, as “...they may well reflect the identity and persona

of the researcher, as well as the participants, who cannot be counted on to reappear—or even to articulate the same views in the same words or tone of voice” (Schwartz-Shea & Yanow, 2012, p. 125). However, such research may be vital in identifying the factors that most influence budgetary decisions among these states, and thereby lead to more nuanced and meaningful statistical analyses down the road.

Develop a Better Tool for Understanding States’ Political Culture

The political culture of states may help us better understand the wide variety in their legislative spending choices. For decades, social scientists have used Elazar’s political culture framework, which proposed that American political culture “is a synthesis of three major political subcultures” that both exist side by side and at times overlap: individualistic, moralistic, and traditionalistic and roughly follow migration patterns across and within states (Elazar, 1972, p. 93). His framework, first proposed in 1966, modified by Sharkansky in 1969, has been widely used by political scientists ever since. It was used by Koven and Mausloff (2002) and as recently as Tandberg (2010) in considering which factors may influence state funding of higher education.

Although Elazar’s framework has not been updated for decades to account for changes in the United States population or culture, it is still being used.¹⁶ Many changes have occurred in the United States during the past 40 years due to such factors as immigration from outside the U.S., sunbelt migration within the U.S., changing political priorities, wholesale changes in technology and communications, the size and structure of families, aggregate increases in the level of education, changes in cultural and social

¹⁶ Hero and Tolbert (1996) argued that Elazar’s theoretical framework of “political culture may in fact be a function of racial/ethnic diversity” (p. 859). They argued that, in effect, their framework of racial and ethnic diversity could replace Elazar as it “provides a theoretical and empirical explanation for policy variations in the states” (p. 851).

mores, and so on.

For instance, between 1970 and 2010, the percent of the United States population identifying as from a minority group doubled, and the percent identifying as Hispanic/Latino almost quadrupled. The population today is also older, better educated, and American households half as likely to consist of a married couple living with one or more child. These are reported in Table 4.1.

In addition to these demographic changes in the United States, since Elazar’s framework was published, there have been other social changes that may affect his classifications (in particular “traditionalistic” and “moralistic”). For instance, in 1972, nearly one-third (29.1%) of Americans responded that they attended church “weekly,” but in 2006, less than one-fifth did so (19%). Similarly, in 1972, only 9.3% of Americans reported they “never attended church” and this more than doubled to 22.5% in 2006 (National Opinion Research Center, 2014).

Updating Elazar’s political culture framework could be helpful in better

Table 4.1

Differences in the United States 1970 versus 2010

Category	1970	2010
Total Population	203.2 million	308.7 million
Percent of population White	87.5%	72.4%
Percent of population minority	16.5%	36.3%
Median age	4.5%	16.3%
Population ages 25+ high school diploma/above	52%	86%
Population ages 25+ bachelor’s degree/above	11%	28%
1-person households	17%	27%*
Households—married couples with children	40.3%	19.6%*

*2012

Source: United States Census, 2103a, 2014a

understanding the questions posed here, but would also be a very significant contribution to social science research in general. If made more current, it may well help explain the differences among states in the budget priorities affecting higher education. Updating Elazar's framework is a large undertaking—which may well explain why it has not been done. Unless or until it is updated, social scientists should be cautious, or at least consider the demographic and social changes that have occurred since it was formulated, when relying on it.

Conclusion

Americans almost unanimously believe a college education is important and yet many are concerned about the cost, and not particularly supportive of states increasing the funding. A study by Gallup for the Lumina Foundation published in 2013 showed that while only 3 in 10 Americans reported having a bachelor's degree, 97% said it was important to gain an education beyond high school (72% saying it was "very important"). When asked if "higher education is affordable to everyone who needs it?" 3 out of 4 said it is not (74%). Most would like to see colleges and universities reduce tuition and fees (59% strongly agreed) and fewer agreed (38% strongly agreed) that state government "should provide more assistance" (Gallup, 2013). This public opinion research illustrates the dilemma facing public higher education today—it is highly valued, yet significant concerns exist about the increasing cost of tuition. The public likely does not seem to appreciate the connection between state funding of higher education and college tuition.

The financial pressure and uncertainty facing public higher education in most states threatens access and quality. Although there is broad agreement about the negative fiscal trend for higher education, there is less agreement as to the causes. Despite

considerable research by a number of scholars over the past 2 decades, the reasons for the states' retrenchment are not well understood, nor are the vast differences in funding from one state to another.

I continue to believe, based on my understanding and experience of legislative and political processes and the overall budget trends, that fiscal factors, chiefly budget competition from other state priorities and in particular Medicaid, are largely responsible for higher education's decline. However, this study demonstrates that the differences between states are so great that it is not possible, when considering the 50 states as a whole and using the usual statistical approaches, to establish strong associations let alone causal linkages to particular factors. This calls for additional approaches that consider states in either groupings or individually in order to explain why public support in most states is lagging. Interpretive, case-based research may provide important insights and raise better questions for further research.

APPENDIX A

BUDGET CATEGORY AVERAGE PERCENTAGE

FOR ALL STATES 1992-2011

Table A.1

Budget Category Average Percentage
for All States 1992-2011

Year	Average of Higher Ed	Average of Public Assistance	Average of K-12 Education	Average of Transportation	Average of Corrections	Average of Medicaid	Average of Other
1992	12.6	3.6	21.1	11.1	2.9	15.8	33.6
1993	11.9	3.5	20.7	10.5	2.8	17.5	33.2
1994	11.7	3.2	20.3	10.3	2.8	17.7	34.1
1995	11.6	2.8	20.5	10.0	3.0	17.2	34.7
1996	12.1	2.5	21.1	10.2	3.1	18.5	32.5
1997	11.9	2.4	21.2	12.0	3.2	18.2	32.8
1998	12.1	2.1	21.5	10.2	3.3	18.0	32.7
1999	11.4	1.9	21.5	10.2	3.2	18.1	33.6
2000	12.0	1.8	21.7	10.1	3.5	18.2	32.9
2001	12.5	1.6	21.9	10.2	3.3	19.1	31.4
2002	12.1	1.5	21.8	9.6	3.3	20.2	31.6
2003	11.5	1.5	21.0	9.4	3.2	20.3	33.0
2004	12.1	1.5	21.1	9.1	3.2	21.2	31.8
2005	11.7	1.4	20.8	9.5	3.1	21.5	32.1
2006	11.2	1.2	20.3	9.0	3.0	20.1	35.1
2007	11.5	1.1	20.3	9.1	2.9	19.7	35.3
2008	11.3	1.1	20.6	8.7	3.0	19.6	35.7
2009	11.6	1.1	20.4	8.8	3.0	20.3	34.9
2010	11.5	1.1	19.8	8.8	2.8	21.1	34.9
2011	11.6	1.2	19.3	8.3	2.8	21.9	35.0
Grand Total	11.8	1.9	20.8	9.7	3.1	19.2	33.6

Source: NASBO, 2011

APPENDIX B

PERCENT OF BUDGET FOR HIGHER EDUCATION AND MEDICAID
BY STATE, 1992, 2001, AND 2011

Table B-1

Percent of Budget for Higher Education and
Medicaid by State, 1992, 2001, and 2011

State	HE 1992	HE 2001	HE 2011	20 yr. change	ME 1992	ME 2001	ME 2011	20 yr. change
Alabama	26.2	24.0	22.5	-3.7	16.3	19.4	24.9	8.6
Alaska	8.5	n/a	8.3	- 0.2	4.5	n/a	n/a	n/a
Arizona	13.0	12.4	13.9	0.9	12.4	15.9	33.9	21.5
Arkansas	16.5	15.4	15.8	- 0.7	14.7	16.6	21.1	6.4
California	12.3	11.6	7.7	- 4.6	16.3	16.4	24.2	7.9
Colorado	17.2	14.0	13.6	- 3.6	16.3	16.9	17.8	1.5
Connecticut	12.0	9.3	10.2	- 1.8	14.1	26.2	21.6	7.5
Delaware	7.3	5.2	4.7	- 2.6	7.3	10.5	16.2	8.9
Florida	7.4	9.0	8.2	0.8	14.3	17.0	29.2	14.9
Georgia	15.0	16.3	17.1	2.1	18.5	19.4	20.5	2.0
Hawaii	7.6	10.7	9.1	1.5	6.6	8.4	15.9	9.3
Idaho	11.1	9.4	7.6	- 3.5	9.7	17.8	28.5	18.8
Illinois	9.5	7.6	5.6	- 3.9	17.5	22.5	32.9	15.4
Indiana	10.2	8.6	7.1	- 3.1	20.5	18.7	25.0	4.5
Iowa	22.3	25.3	24.6	2.3	10.3	14.9	19.4	9.1
Kansas	19.6	17.7	16.5	- 3.1	10.1	14.7	18.2	8.1
Kentucky	15.5	19.4	23.8	8.3	17.5	19.8	22.8	5.3
Louisiana	9.6	12.6	7.5	- 2.1	23.2	25.3	22.1	-1.1
Maine	5.8	4.6	3.3	- 2.5	21.6	24.9	28.3	6.7
Maryland	14.7	16.7	14.5	- 0.2	15.6	16.0	22.2	6.6
Massachusetts	2.9	4.5	9.9	7.0	13.8	16.5	19.2	5.4
Michigan	8.0	6.5	4.4	- 3.6	19.4	19.1	24.9	5.5
Minnesota	12.4	10.1	10.2	- 2.2	15.9	18.2	25.3	9.4
Mississippi*	13.8	19.9	13.0	- 0.8	22.0	22.6	18.5	- 3.5
Missouri	7.0	6.4	5.1	- 1.9	21.0	27.8	33.1	12.1
Montana	8.0	10.0	9.8	1.8	10.4	15.4	15.7	5.3
Nebraska	23.6	23.7	22.8	- 0.8	11.6	18.3	16.4	4.8
Nevada**	7.7	11.0	10.0	2.3	11.0	15.4	18.3	7.3
New Hampshire	5.4	4.5	4.0	- 1.4	34.4	26.9	25.7	-8.7
New Jersey	4.9	7.4	8.1	3.2	20.2	22.3	23.3	3.1
New Mexico	19.1	24.6	17.8	- 1.3	11.6	13.8	22.9	11.3
New York	8.8	7.2	7.1	- 1.7	22.6	25.3	29.1	6.5
North Carolina	14.9	13.7	12.5	- 2.4	15.4	22.1	22.1	6.7
North Dakota	12.5	11.7	20.6	8.1	13.2	17.8	14.3	1.1

Table B.1 *continued*

State	HE 1992	HE 2001	HE 2011	20 yr. change	ME 1992	ME 2001	ME 2011	20 yr. change
Ohio	7.8	6.7	4.6	- 3.2	15.9	19.8	23.2	7.3
Oklahoma	15.5	17.1	16.2	0.7	13.7	16.7	21.2	7.5
Oregon	15.6	12.4	7.2	- 8.4	9.1	14.9	13.3	4.2
Pennsylvania	6.0	5.4	3.2	- 2.8	21.5	28.3	31.8	10.3
Rhode Island	4.1	10.2	12.4	8.3	27.5	25.4	25.9	-1.6
South Dakota	16.4	14.7	18.4	2.0	16.1	19.9	20.7	4.6
Tennessee	11.5	12.4	13.3	1.8	23.6	31.2	29.8	6.2
Texas	13.1	13.2	11.8	- 1.3	21.2	20.1	24.6	3.4
Utah	12.5	12.7	10.8	- 1.7	10.7	12.4	14.7	4.0
Vermont	4.1	2.9	2.0	- 2.1	17.1	21.5	25.5	8.4
Virginia	14.9	14.1	15.3	0.4	11.2	12.5	16.9	5.7
Washington	15.9	16.5	14.2	- 1.7	12.0	20.6	23.5	11.5
West Virginia	13.4	17.0	12.8	- 0.6	18.5	21.3	12.9	-5.6
Wisconsin	26.4	12.2	13.7	-12.7	21.6	11.2	17.0	-4.6
Wyoming	17.6	15.1	5.4	-12.2	8.3	16.4	9.0	0.7

* Mississippi did not report in 1992,* 1993 is used, or a 19-year change.

**Nevada did not report in 1992-1994,* 1995 is used, or a 16-year change.

APPENDIX C

PARTY CONTROL BY STATE

Table C.1:
Party Control by State

State	Yrs. Democrat	D%	Yrs. Republican	R%	Mixed	M%
Alabama	6	30%	1	5%	13	65%
Alaska	0	0%	7	355	13	65%
Arizona	0	0%	12	60%	8	40%
Arkansas	9	45%	0	0%	11	55%
California	5	25%	0	0%	15	75%
Colorado	4	20%	4	20%	12	60%
Connecticut	1	5%	0	0%	19	95%
Delaware	3	15%	0	0%	17	85%
Florida	0	0%	13	65%	7	35%
Georgia	10	50%	7	355	3	15%
Hawaii	13	65%	0	0%	7	25%
Idaho	0	0%	17	85%	3	15%
Illinois	7	35%	2	10%	11	55%
Indiana	0	0%	3	15%	17	85%
Iowa	4	20%	3	15%	13	65%
Kansas	0	0%	9	45%	11	55%
Kentucky	8	40%	0	0%	12	60%
Louisiana	8	40%	1	5%	11	55%
Maine	8	40%	1	5%	11	55%
Maryland	16	80%	0	0%	4	20%
Massachusetts	5	25%	0	0%	15	75%
Michigan	0	0%	5	25%	15	75%
Minnesota	0	0%	0	0%	20	100%
Mississippi	3	15%	0	0%	17	85%
Missouri	7	35%	4	20%	9	45%
Montana	0	0%	11	55%	9	45%
Nebraska*	n/a		n/a		n/a	
Nevada	0	0%	0	0%	20	100%
New Hampshire	4	20%	7	35%	9	45%
New Jersey	7	355	7	35%	6	30%
New Mexico	11	55%	0	0%	9	45%
New York	2	10%	0	0%	18	90%
North Carolina	9	45%	0	0%	11	55%
North Dakota	0	0%	18	0%	2	10%
Ohio	0	0%	14	70%	6	30%
Oklahoma	5	25%	1	5%	14	70%
Oregon	4	20%	1	5%	15	75%
Pennsylvania	0	0%	9	45%	11	55%
Rhode Island	3	15%	0	0%	18	90%
South Carolina	0	0%	9	45%	11	55%
South Dakota	0	0%	18	90%	2	10%
Tennessee	5	25%	1	5%	14	70%
Texas	3	15%	10	50%	7	35%
Utah	0	0%	20	100%	0	0%
Vermont	5	25%	0	0%	15	75%
Virginia	2	10%	2	10%	16	80%
Washington	10	50%	0	0%	10	50%
West Virginia	16	80%	0	0%	4	20%
Wisconsin	2	10%	4	20%	14	70%
Wyoming	0	0%	9	45%	11	55%

Source: NGA, 2013; NCSL, 2011

APPENDIX D

AVERAGES FOR TOP STATES BY
PARTY CONTROL FOR ALL
BUDGET CATEGORIES

Table D.1

Averages for Top States by Party Control
for All Budget Categories

Top R States K12 %	1992	2001	2011
Utah	28.1	26.9	23.2
North Dakota	21.6	17.1	15.8
South Dakota	14.5	12.8	16.3
Idaho	28.1	27.5	25.5
Ohio	16.8	18.8	17.7
Top R Avg K12 %	21.8	20.6	19.7
U.S. Average	21.1	21.9	19.3

Top D States K12 %	1992	2001	2011
Maryland	17.6	16.6	21
West Virginia	28.8	23.6	10.4
Hawaii	14.4	19.8	15.3
New Mexico	28.3	24.3	18.9
Top D Avg K12 %	22.3	21.1	16.4
U.S. Average	21.1	21.9	19.3

Top Mixed States K12 %	1992	2001	2011
Minnesota	20.6	24.1	22.9
Nevada	n/a	17.7	21.5
Connecticut	19.2	13.6	14.2
New York	21.9	20.5	20.7
Rhode Island	14.2	15.8	14.4
Top Mixed Avg K12 %	19.0	18.3	18.7
U.S. Average	15.8	19.1	21.9

Table D.1: *continued*

Top R States Public Assistance %	1992	2001	2011
Utah	2.3	1.3	0.9
North Dakota	1.8	0.6	0.1
South Dakota	2.3	0.4	0.8
Idaho	1.4	1.4	0.2
Ohio	10.3	0.8	1.7
Top R Avg Pub Asst %	3.6	0.9	0.7
U.S. Average	3.6	1.6	1.2

Top D States Public Assistance %	1992	2001	2011
Maryland	3.4	0.8	3.6
West Virginia	2.7	2.6	1
Hawaii	2.7	2.7	0.9
New Mexico	2.5	1.5	0.9
Top D Avg Pub Asst %	2.8	1.9	1.6
U.S. Average	3.6	1.6	1.2

Top Mixed States Public Asst. %	1992	2001	2011
Minnesota	3.1	2.2	1.5
Nevada	n/a	0.8	0.7
Connecticut	7.3	2.7	1.6
New York	9	3.3	2.8
Rhode Island	5.2	5.2	1.4
Top Mixed Avg Pub Asst %	6.2	2.8	1.6
U.S. Average	3.6	1.6	1.2

Table D.1: *continued*

Top R States Trans %	1992	2001	2011
Utah	10.3	11.8	10.8
North Dakota	13.9	13	12.4
South Dakota	16.4	18.8	15
Idaho	11.7	12.2	11
Ohio	9.6	7.8	4.9
Top R Avg. Trans %	12.4	12.7	10.8
U.S. Average	11.1	10.2	8.3

Top D States Trans %	1992	2001	2011
Maryland	15	13.3	9.4
West Virginia	13.8	15.3	6
Hawaii	23.4	16.1	9.2
New Mexico	9.2	10.1	5.2
Top D Avg. Trans %	15.4	13.7	7.5
U.S. Average	11.1	10.2	8.3

Top Mixed St. Trans %	1992	2001	2011
Minnesota	13.5	10.8	10.1
Nevada	n/a	9.7	9.5
Connecticut	12.5	6.4	11.7
New York	7.3	5.5	6.4
Rhode Island	9.6	6.9	4.9
Top Mixed Avg Trans %	10.7	7.9	8.5
U.S. Average	11.1	10.2	8.3

Table D.1: *continued*

Top R States Correct. %	1992	2001	2011
Utah	2.8	3.9	1.8
North Dakota	1.2	2	1.8
South Dakota	2.1	2.5	2.6
Idaho	3.3	4.1	3.3
Ohio	3.2	4.4	3.2
Top R Avg Correct %	2.5	3.4	2.5
U.S. Average	2.9	3.3	2.8

Top D States Correct. %	1992	2001	2011
Maryland	3.9	4.5	4.3
West Virginia	1	1.4	1
Hawaii	1.7	2	2
New Mexico	2.7	1.9	2.3
Top D Avg Correct %	2.3	2.5	2.4
U.S. Average	2.9	3.3	2.8

Top Mixed St. Correct.%	1992	2001	2011
Minnesota	1.5	2	1.6
Nevada	n/a	3.7	3.5
Connecticut	4.4	2.9	2.6
New York	4.7	3.3	2.4
Rhode Island	2.9	3.3	2.3
Top Mixed Correct %	3.4	3.0	2.5
U.S. Average	2.9	3.3	2.8

Table D.1: *continued*

Top R States Other %	1992	2001	2011
Utah	33.3	31	37.8
North Dakota	36	37.9	35
South Dakota	32.2	30.9	26.1
Idaho	34.8	27.9	23.8
Ohio	36.4	41.8	44.7
Top R Avg Other %	34.5	33.9	33.5
U.S. Average	33.6	31.4	35

Top D States Other %	1992	2001	2011
Maryland	29.8	32.2	24.9
West Virginia	21.8	18.9	56
Hawaii	43.6	40.3	47.7
New Mexico	26.6	23.9	31.9
Top D Avg Other %	30.5	28.8	40.1
U.S. Average	33.6	31.4	35

Top Mixed St. Other%	1992	2001	2011
Minnesota	32.9	32.7	28.4
Nevada	n/a	41.7	36.5
Connecticut	30.5	38.9	38.2
New York	25.7	34.9	31.4
Rhode Island	36.6	33.2	38.7
Top Mixed Other %	31.4	36.3	34.6
U.S. Average	33.6	31.4	35

Sources: NASBO 2013, NCSL 2012, NGA 2013

APPENDIX E

FIXED EFFECTS MODEL WITH LEAST
SQUARES DUMMY VARIABLES
FOR 49 STATES

Table E.1

Fixed Effects Model with Least Squares
Dummy Variables for 49 States

Percent of State Budgets				
Dependent Variable: Higher Education				
Independent Variables: Medicaid, Corrections, K-12, Change in GSP, Democratic Party Control, Republican Party Control				
Independent Variable	Coefficient	Standard Error	t-test	Probability
Medicaid	- 0.001	0.022	- 0.039	0.969
Corrections	0.639	0.123	5.182	0.000
K-12	0.089	0.022	4.035	0.000
GSP	0.030	0.026	1.129	0.259
Democratic Control	- 0.338	0.205	- 1.644	0.100
Republican Control	0.086	0.230	0.374	0.708

State	Coefficient	Standard Error	t-test	Probability
AL	13.730	0.709	19.369	0.000
AK	1.664	0.798	2.086	0.037
AZ	4.677	0.719	6.502	0.000
AR	9.297	0.724	12.840	0.000
CA	0.880	0.705	1.249	0.212
CO	5.929	0.707	8.383	0.000
CT	3.277	0.731	4.483	0.000
DE	- 2.593	0.718	- 3.613	0.000
FL	0.583	0.717	0.813	0.416
GA	6.297	0.704	8.947	0.000
HA	2.538	0.763	3.329	0.001
ID	0.537	0.719	0.747	0.455
IL	0.109	0.712	0.153	0.878
IA	17.881	0.718	24.893	0.000
KS	9.207	0.709	12.992	0.000
KY	11.496	0.708	16.238	0.000
LA	3.870	0.714	5.423	0.000
ME	- 2.269	0.748	- 3.035	0.002
MD	7.424	0.747	9.933	0.000
MA	- 0.756	0.736	- 1.027	0.305
MI	- 3.502	0.718	- 4.875	0.000
MN	3.264	0.713	4.576	0.000
MS	8.991	0.722	12.453	0.000
MO	- 1.541	0.712	- 2.164	0.031
MT	2.566	0.718	3.571	0.999

Table E.1: *continued*

State	Coefficient	Standard Error	t-test	Probability
NE	15.793	0.729	21.662	0.000
NV	2.076	0.795	2.611	0.009
NH	- 1.616	0.755	- 2.140	0.033
NJ	- 1.089	0.698	- 1.561	0.119
NM	11.864	0.731	16.238	0.000
NY	- 0.480	0.729	- 0.658	0.511
NC	6.515	0.700	9.306	0.000
ND	9.527	0.760	12.529	0.000
OH	- 1.596	0.725	- 2.201	0.028
OK	8.895	0.700	12.708	0.000
OR	4.265	0.737	5.786	0.000
PA	- 2.631	0.722	- 3.644	0.000
RI	2.632	0.739	3.562	0.000
SC	11.320	0.710	15.941	0.000
SD	9.814	0.745	13.168	0.000
TE	5.668	0.740	7.662	0.000
TX	3.011	0.753	3.997	0.000
UT	3.365	0.746	4.511	0.000
VT	- 4.608	0.696	- 6.617	0.000
VI	6.551	0.735	8.913	0.000
WA	6.511	0.699	9.315	0.000
WV	6.510	0.760	8.562	0.000
WI	6.876	0.711	9.667	0.000
WY	1.254	0.761	1.647	0.100
Constant	3.680	0.888	4.146	0.000

Adjusted *R*-Squared: 0.840

F: 95.195

Number: 987

Source of Data: NASBO 2011

Note: IN (Indiana) was randomly selected as the state to be removed from the binary variable list.

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