

**Higher Education and the 2007 Recession: Examining the Relationship  
Between State Agency Structure, Fiscal Support, and the  
State Fiscal Stabilization Fund**

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## **Executive Summary**

The United States public post-secondary education system varies in its reliance on state support. Some states have a historic predisposition to a private post-secondary education sector, while others have a tradition of strong public institutions. In all cases, public post-secondary relies on state revenue for their general operating and capital budgets. Effective operation in the current fiscal environment requires a clear understanding of different factors affecting a state's funding level and the challenges presented in periods of slow economic growth.

Over the past six years, higher education, on average, saw positive growth in state support. However, impressive increases in support throughout the early part of the decade are the primary reason for the positive change in funding over the entire period. To a certain extent, the growth was stymied by considerable funding cuts in fiscal years 2008-2010 as states were forced to make expenditure cuts as a result of the recession.

In 2008, the United States felt the full weight of the looming economic recession. The financial markets crumpled with the collapse of major financial players and the over-leveraged sub-prime market. Five months later, in an effort to aid states in the upcoming budget cycle, the federal government passed the American Recovery and Reinvestment Act (ARRA). One component of ARRA was the State Fiscal Stabilization Fund, which allocated resources to K-12 and higher education under strict federal and state guidelines.

The research presented here focuses on the central state higher education authority and the budget appropriations request mechanism used during the state budget process and the impact each variable has on funding trends for higher education. The research and analysis provide state policy makers with necessary information to operate in a post-stimulus fiscal environment.

**RQ1:** Is there a relationship between the state higher education agency structure and the total higher education appropriation from the state?

**RQ2:** Is there a relationship between the higher education appropriations request mechanism and the level of funding they receive from the state?

The study suggests that while agency structure does not have an effect on the change in appropriations from 2005-2010 and 2008-2010, the nature of the appropriations request mechanism does have an effect. Further, the change in total state general fund spending affects higher education expenditure levels in a recession.

The study adds another contributing factor to a body of research focusing on elements affecting higher education finance. This study does not imply that one mechanism is superior to another for any given state. Each state has a unique set of factors that affect the amount of state support higher education receives.

## Introduction

In September 2008, the S&P 500 peaked at 1561.8. In the following months, with the collapse of Lehman Brothers, AIG, and the sub-prime mortgage market, the United States' economy took a dive and the S&P bottomed out at 683.38 in March of 2009. In an effort to stave off greater economic disaster, the federal government crafted key legislation aimed at stabilizing the economy and supporting state lawmaker's efforts to maintain important state programs.

The 111<sup>th</sup> Congress passed the American Recovery and Reinvestment Act (ARRA/Recovery Act) in February 2009. Colloquially referred to as the states' stimulus, the mission of ARRA was just that – to assist states through difficult budget times, stimulate the economy, and, in part, make a considerable one-time investment in education spending. Through a set of guiding principles such as student and family assistance, research funding, infrastructure building, job training, and state fiscal relief, the ARRA made a significant short-term difference in how states are surviving this difficult fiscal period.

Even with considerable federal investment in individual state economies, forecasters are concerned that recovery will not happen quickly enough. Without considerable increases in tax revenue levels, states face a financial cliff at the end of the Recovery Act. States will face the task of funding programs accustomed to historically high levels of support with substantially less state revenue. Additionally, the challenge of replacing one-time funds with recurring state dollars will be present for state programs where the Recovery Act funds represented a substantial portion of revenue over the last year.

This paper takes a bilateral approach to examining higher education fiscal policy during the current economic recession. The first approach examines previous inquiries on state financial management during past recessions, the nature of state tax revenue cycles, and the Recovery Act funds. The second approach examines the effect state agency types, appropriations request mechanisms, and other state characteristics have on state fiscal policy and higher education. Testing the effect of state characteristics on higher education finance and understanding the state fiscal climate provide critical information to the post-secondary sector on what type of environment to expect in a post-stimulus era.

### State Involvement in Higher Education

Over the past two centuries, higher education policy has been influenced by changes in the central state agency, fiscal support for institutions and programs, state and federal political involvement, institutional mission directives, and public opinion. Due to the relative high-level production in states with a strong post-secondary sector, a comprehensive system of higher education is a major resource for economic development, a method for improving quality of life, and reducing expenditures in corrections and healthcare.

Religious institutions supported many of the nation's first colleges and universities, while state legislative involvement traditionally occurred through land grant apportionment. It was not until the late eighteenth and early nineteenth centuries that states began providing financial support for these institutions (Heller, 50). Quasi-public institutions, named so for the financial support they received from state legislatures and the general autonomy granted to their Boards of Trust, opened throughout the South and Midwest in the late eighteenth century. This was the general trend for the establishment

of institutions until the nineteenth century when state legislatures began retaining appointment power over trustees for each college or university. It was not until 1819, with the chartering of the University of Virginia, that the first *state university* was established. In the late nineteenth and early twentieth centuries, the widespread development of statewide coordinating and governing systems led to a major expansion of state control of the public post-secondary sector. There were a variety of structures passed due to the different strengths and political powers within the individual states (Heller, 52).

A study by Cohen and March (1986) classified higher education goals in two categories: those that benefit the student and those that benefit society (Heller, 54). Today, the most widely accepted public benefits of higher education are the economic and societal improvement factors. Advanced degree holders tend to earn higher wages over a lifetime, which increases the tax base for the state. The aforementioned social improvements in healthcare and corrections lower expenditures for a state (Heller, 55). Thus, state policy favorable to public post-secondary education provides a myriad of individual and societal benefits that transcend improvement specific to the education sector.

### State Fiscal Crisis

State budgets, programs, and state supported agencies like higher education are taking a major hit from the current economic crisis. The Center for Budget Policy and Priorities (CBPP) collected aggregated state fiscal data on revenue shortfalls as a proportion of general fund expenditures and projected shortfalls for the mid-2010 fiscal year and FY2011. *Table 1* shows a collection of states with a difficult fiscal challenge

over the next year and a half. The entire sample and associated data can be seen in *Table IA* of the Appendix.

**Table 1:**  
**Outlooks for State Budgets**

States	%Change Gen. Fund FY08-10	Bud. Shortfall FY 2010	2010 Mid-year Budget Gap	2011 Proj. Bud. Shortfall
Alaska	-20.6	30	0	-
Florida	-23.5	23.3	0.6	18.1
Illinois	-7.4	40.9	14.3	34.3
Minnesota	-11.5	22.3	1.4	26.4
New Jersey	-13.7	37.3	7.4	34
Nevada	-5.4	50.3	12.5	59.8
Utah	-24.3	19.8	5.5	13.9

*Gathered from the National Association of State Budget Officers and the Center for Budget and Policy Priorities*

Alaska, Florida, and Utah saw the greatest change in spending as a percentage of the general fund in FY 2008-10 (column 1). The most alarming statistic is the 2010 revenue shortfalls as a percentage of the state general fund (column 2), when the majority of states in the sample face a double-digit shortfall. Additionally, the CBPP projected a FY2010 mid-year shortfall for most states (column 3). States with double-digit gaps include: Arizona, Illinois, Kentucky, Nevada, New Mexico, Oklahoma, and Virginia. The final column in *Table 1* lists the projected revenue shortfalls for each state in FY2011, which is the first year without education expenditure support from the State Fiscal Stabilization Fund. Illinois, Nevada, and Vermont face considerable projected shortfalls for FY2011 and without aid from Recovery Act funds, state supported institutions of higher education will be affected. Because of the impending funding cliff, states such as Arizona, Illinois, Nevada, Oregon, and Rhode Island, will see double-digit revenue shortfalls and be forced to make serious cutbacks in state spending.

The American Recovery and Reinvestment Act & State Fiscal Stabilization Fund

The Congressional Budget Office reported “\$49 billion [of ARRA] would be outlaid to states and localities by the Federal government in fiscal year 2009” (GAO Report, 4). Of this spending, the nine programs listed in *Table 2* are estimated to represent 87 percent of ARRA expenditures at the time of the report.

**Table 2:**  
**The American Recovery and Reinvestment Act**

FY2009 Outlays	
Expenditure	% Represented
Medicaid	63%
State Fiscal Stabilization Fund	13%
Highways	6%
Other Selected Programs	5%
IDEA	
WIA Youth Programs	
ESEA	
Byrne Grants	
Weatherization Asst Prog.	
Public Housing Cap. Fund	
Other Prog. Not Included	13%

Table represents 87% of ARRA Expenditures as of July 2009  
Information gathered from the GAO July 2009 Report

The majority of education expenditures from the ARRA originate with the State Fiscal Stabilization Fund (SFSF) - the primary focus of this research. Representing approximately \$53.6 billion in federal support to the states, the function of the SFSF is to assist states in stabilizing their budgets “by minimizing budgetary cuts in education and other essential government services such as public safety” (GAO Report, 27). As the chief steward of the SFSF, the US Department of Education allocated 81.8 percent of the fund for education stabilization purposes and the remaining 18.8 percent for a government services fund (GAO Report, 27).

In order to receive SFSF funding, states must meet a list of federal requirements and put forth effort and funding toward: increasing teacher effectiveness, address inequity in teacher quality distribution, create and maintain a P-16 data system for tracking student progress, create college and career ready standards for all children, provide support for schools requiring reorganization or restructuring, build a transparent and accountable

system to measure efficiency and effectiveness, and a Maintenance of Effort (MOE) clause (GAO Report, 28).

Each state's MOE requires FY2006 funding levels to be maintained throughout the life of the stimulus. If maintained in both K-12 and post-secondary education, SFSF funds should be applied to fulfilling a second MOE agreement at the FY2008 level. There is growing concern among state budget officers that the MOE requirement will bring harm than good to the state fiscal situation because states are unable to decrease education expenditures proportional to the total decrease in the state budget. This places significant financial burden at the end of the stimulus, which could lead to major cutbacks as states face the challenge of maintaining unsustainable levels of funding.

In addition, higher education funds cannot be used to "increase endowments; modernize, renovate, or repair sports facilities, or maintaining equipment" (GAO Report, 29). SFSF funds can aid in mitigating tuition increases, the modernization of academic facilities, as well as other general fund expenditures related to the goals of the ARRA. States were given additional latitude in creating further restrictions on SFSF usage in post-secondary education.

Information gathered from the State Higher Education Executive Officers' *State Higher Education Finance* report and Illinois State University's *Grapevine* survey provide a fiscal context for higher education as it relates to state budget challenges and the Recovery Act.

**Table 3:**  
**Higher Education and the State Fiscal Stabilization Fund**

States	Higher Ed. Fund Change FY2005-10	*Higher Ed. Fund Change FY2005-10	Higher Ed. Fund Change FY2008-10	*Higher Ed. Fund Change FY2008-10	% Stimulus in Higher Ed. Budget
Alabama	19.3	29.1	-26.1	-20.1	3.8
Arizona	11.8	20.3	-16.1	-9.7	10.6
Colorado	13.7	38.9	-9.1	11.1	18.1
Iowa	-2.9	11.3	-17.4	-5.3	6.1
Nevada	-0.2	18.2	-19.2	-4.3	7.6
New Mexico	15.1	17.1	-17.1	-15.6	0.8
Washington	11.7	17.4	-10.8	-6.2	2.3
West Virginia	18	21.4	-10.5	-7.9	1.4
National Avg.	15.5	21.9	-6.8	-1.7	3.9

Gathered from the State Higher Education Executive Officers "State Higher Education Finance" report and Illinois State University's "Grapevine" survey.  
\*Includes Recovery Act Funds

The percent change in higher education funding over time and level of post-secondary education funding represented by Recovery Act funds is provided in *Table 3*. States with considerable changes are presented above, and information on all 43 states included in the sample can be found in *Table 3A* of the Appendix. The first two columns list the percent change in higher education appropriations from the state and do not include tuition revenue and local support. Nationally, the support for higher education has grown over the five-year period. The third and fourth columns show negative appropriations changes from FY2008-10, which indicates that growth over the five-year period is primarily due to substantial growth from 2005-2007. The positive growth could be a function of low funding for higher education in the earliest part of the sample, which would make large growth margins achievable.

## Literature Review

### *Economic Implications for Higher Education*

Providing a historical context for state fiscal behavior in recessionary cycles, White (1978) examined the change in state tax revenue structures, the effect those changes had on the availability of total state revenue, and the effect those changes had on

state support for higher education. Early state tax structures relied heavily on property tax revenue, which provided a relatively stable supply of income that was not as susceptible to ups and downs in economic productivity. However, changes in state tax policy led to the adoption of new, more responsive, tax structures. As state revenue sources shifted to more elastic tax sources like a state income tax, the state's revenue became more reliant on short-run business cycles (White, 180). As a result, state revenue grows during economic prosperity and shrinks with slow economic activity, by extension, support for state programs like higher education does as well.

White used the recession of the 1970s as a case study for state fiscal behavior and higher education. He concluded similar practices to those we see today in state prioritization of expenditures during a recession: states focus on social support programs like Medicaid, welfare, and K-12 education by reducing expenditures elsewhere. Higher education took a disproportionate share of the cuts because of the relative flexibility in budgets for higher education, which is similar to views many state legislators hold today (White, 183). His theory leaves open the question of whether state governing agencies, to which some state appropriations are made, affects the entire appropriations process.

More recently, Hovey (1999) and the National Center for Public Policy and Higher Education created fiscal forecasts for higher education support in the coming decade (1999-2009). Noting the favorable fiscal environment when conducting his research, Hovey concluded that states would have a difficult time funding higher education at current levels over the next decade due to slow growth in state and local revenue. He considers the growth in enrollment rates as the primary culprit of higher education expenditures growing faster than state revenue (Hovey, 10).

While White's primary critique is related to income tax revenue, Hovey focuses on sales tax as the state's primary resource for revenues, "as individual income rises, people spend a successively smaller proportion of incremental income on taxed goods and higher proportion on non-taxed outlays for services" (Hovey, 15). Even if state institutions responded as other state agencies, they would not be able to expand programs without cutbacks elsewhere and the steady annual revenue growth would remain 0.5 percent lower than current service levels would require (Hovey, 19).

Just as White concluded, Hovey maintained that state legislators tend to treat higher education fiscal policy like other discretionary spending, which has led to higher education being disproportionately cut in times of slow economic growth and disproportionately awarded in times of strong economic growth. Hovey's *Balance Wheel* approach is supported by the following legislative perceptions:

- Institutions have separate budgets with reserves to absorb fiscal adversity.
- Institutions can address budget changes through employee pay changes.
- Institutions have more flexibility to vary spending levels.
- Institutions have other revenue sources such as tuition and fees (Hovey, 30).

Therefore, the perceived flexibility that higher education enjoys is a factor in legislative appropriation negotiations. Hovey concludes his analysis by stating that central fiscal authorities do not have the opportunity to impact how appropriated money is spent at individual institutions (Hovey, 32). This hypothesis leaves open the possibility that a central state fiscal agent for higher education, such as a governing board, might affect expenditure behavior on an institutional level, which could impact the state level appropriations process.

An agency's ability to effectively operate in a policy environment depends on political relationships, information symmetry, and the selection process of higher education policy makers, each of which are affected by the structure of the state agency. Waller and colleagues postulate that in "economic downturns, some state officials propose governance change in response to high university costs and declining state revenues" (Knott, 3). A governing board may play a significant role in the selection of institutional executives, or a state executive may play an influential role, either formally or informally, in the selection of a state institutions chief executive. These behavioral and relational factors tied to different board structures can affect a state agency's ability to play an influential role in the political process.

Additional research points to an interaction between state policy agendas, institutional behavior and expenditures, and the structure of the state agency. In one case, a state's board structure is a function of political factors (Toma, 1986). Follow-up research, published in 1989, argued, "individually governed public universities will behave more like private universities than will their counterparts that are centrally governed" (Toma, 1). Her conclusion is predicated upon a political battle for influence between multiple stakeholders: Faculty and staff, students, parents, administrators, and the general public, each with a different ability and opportunity to affect policy. Because there is a higher cost of access for the general public in a centralized system, educators experience greater ease in influencing the agenda. Institutions in a centralized system rely less on tuition revenue relative to state appropriations, tend to have a higher student/faculty ratio, and benefit from more tenured faculty. Centralized systems also present the opportunity for standardized rules, regulations, and outcomes. However,

product diversity diminishes, but ideally, one will begin to see a more efficient use of resources due to the more standardized system (Toma, 6). The propensity for more market interaction in a decentralized system leads to more diversity of available product and a varied level of output by each institution. Because institutions in a decentralized system tend to behave more like private institutions, they are more reactive to taxpayer demands and focus on input-output mixes. In either system, Toma concludes that structure does affect “the provision of higher education” (Toma, 7). This would suggest that changing to a more centralized structure in a state is related to the level of influence a stakeholder has in the political process.

Political interactions and the ability to secure state funds can differ with state agency structure. Lowry (2001) produced research suggesting a state with a more centralized board could lobby more effectively, which may lead to additional state support (Heller, 61). The opposite would be true in a decentralized structure as institutions lobby individually on their own behalf. Contrary to that, Knott (2001) concluded that a decentralized state agency positively affects the amount of resources and productivity at state universities. While previous research finds an interaction between state agency structure and policy considerations such as public agenda creation, fund allocation to institutions, and/or differing levels of political influence and interaction, it does not suggest whether state agency structure and the appropriations request mechanism affect the change in total state appropriations to higher education. The following research design will help answer that question.

## Research Design

Knowing how state agency structure and the appropriations request mechanism interact with the level of state appropriations will provide important management insight to state agencies and institutions. The level of influence these variables have play a role in determining how state agencies manage through challenging economic conditions.

***RQ1: Is there a relationship between state higher education agency structure and the total higher education appropriation from the state?***

States craft their higher education appropriations request in many different ways. Systems traditionally employ a base plus/minus, funding formula, or mixed approach to determine the budget proposal they make to the central fiscal agent. Each method has a different set of metrics that calculate the appropriations request. The way the mechanism prioritizes different changes in the higher education environment may affect the level of appropriations the state allocates.

***RQ2: Is there a relationship between the higher education appropriations request mechanism and the level of funding they receive from the state?***

Understanding the affect these independent variables have in the state budget process can yield insight on a state's ability to advocate and receive sufficient funds in a post-stimulus economy.

A multivariate regression model can examine the effect that agency structure and the appropriations mechanism have on the 5-year and 2-year funding change outlined below. The model will control for the size of the public post-secondary education sector and the enrollment change from 2004-2009.

## Defining the Variables

The study uses the percent change in total state funding<sup>1</sup> for higher education from 2005-2010 as the dependent variable, which means each state will have a single observation for the entire sample (FY05-10) instead of annual estimates. The study uses the same variable type for the percent change in state funding from FY2008-10. By separating these two variables, the study observes funding behavior during strong economic growth and the current recession.

The Education Commission of the States released a report in 2003 on differences between state agency structures. Three broad categories were established on the basis of political influence, statutory authority, financial and personnel control, and program approval.

**Governing Board:** Generally accepted as having the strongest statutory authority, a governing board is the most centralized of the three board categories. The general consistency among this board type is the authority over “personnel decisions, institutional operations, and corporate governance status” (SHEEO, 2). While there is greater statutory authority with a governing board, informal coordination can foster a cooperative environment and foster more effective policy advocacy.

**Coordinating Board:** The authority of coordinating boards varies from state to state, but a common characteristic is the lack of corporate authority over post-secondary institutions in the state. They typically plan the state’s public agenda and make budget recommendations for higher education. A few coordinating

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<sup>1</sup> The change in state funding is represented by state revenue only and does not include revenue from the State Fiscal Stabilization Fund.

boards have academic program approval and tuition setting authority (Kentucky Council on Postsecondary Education) while others operate state financial aid programs (Tennessee Higher Education Commission). The ability to informally coordinate, build partnerships, and advocate as an entire system provide the coordinating agency strength and support (SHEEO, 2).

**Planning or Regulatory Agency:** As the statutorily weakest agency, planning or regulatory agencies “have limited or no formal coordinating or governing authority” (ECS, 15). The state of Delaware operates under this structure.

Additional independent variables that may affect higher education funding levels are the different appropriations request mechanisms employed by a state’s central governing authority or state higher education agency. The State Higher Education Executive Officers (SHEEO) released a report in 2007 explaining the different appropriations mechanisms: Funding Formula, Base Plus/Minus, or a mixed variation of the two.

**Funding Formula:** Formula requests are measured by fluctuating cost factors such as enrollment. They may include baseline enrollment changes in the aggregate student population, enrollment numbers by level of instruction, or comparisons to total peer state and institutional appropriations (SHEEO, 10). The formula can include non-instructional costs such as maintenance and operation revenue for new capital that has come online, performance and quality enhancements, and for major research projects. The primary difference for funding formula states is the use of these specific functions in order to determine funding levels.

**Base Plus/Minus:** Using the previous year’s funding as a starting point, the agency creating the appropriations request can make incremental changes to areas that require more funding: enrollment, faculty salaries, or maintenance and operations (SHEEO, 11). Additionally, like funding formulas, the base plus/minus technique can include benchmark comparisons for funding purposes.

**Mixed; Funding Formula or Base Plus/Minus:** Some states in the data set indicated they have a mixed approach to constructing budget requests. Having indicated either funding formula or base plus/minus as the primary method in their mixed approach, some of the influences mentioned above were reiterated by those states indicating a mixed process.

**Table 4:**  
**State Higher Education Agency Structure and Budgeting Mechanism**

States	SHEEO Member Agency	Structure	Budgeting Approach
Alabama	Commission on Higher Education	Coordinating	mixed, funding formula
Arizona	Arizona Board of Regents	Governing	base plus/minus
Colorado	CO Dept. of Higher Education	Coordinating	base plus/minus
Iowa	Board of Regents	Governing	base plus/minus
Tennessee	TN Higher Education Commission	Coordinating	funding formula
Nevada	Nevada System of Higher Ed.	Governing	mixed, funding formula
New Mexico	New Mexico Higher Ed. Dept.	Coordinating	mixed, funding formula
Washington	Higher Ed. Coordinating Board	Coordinating	base plus/minus
West Virginia	West VA Higher Ed Policy Coms.	Coordinating	base plus/minus

*Gathered from the State Higher Education Executive Officers*

In the model, characteristics were preserved and coded appropriately. Selected state agencies are displayed in *Table 4* above; the remaining sample can be viewed in *Table 4A* of the appendix.

The dataset contains 43 state observations with the characteristics described above. The study controlled for enrollment growth from 2004-09, the total number of public institutions in the state, and the percentage those public institutions represent in the total higher education sector. Additionally, the dataset includes the total change in

general fund spending over the two time periods (FY05-10 & FY08-10) to control for the total reduction in general fund spending for the state. Research indicated the affect political party affiliation has on funding levels; however, that variable was not included because the funding change is represented by a single percentage over a five-year period instead of annual changes. If the funding changes were annual, changes in party representation would be more valuable because election cycles and changes in authority can more closely align with funding changes.

<u>Descriptive Statistics</u>					
	<u>Obs.</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Min.</u>	<u>Max.</u>
Change in Funding FY 2005-2010 (w/o ARRA)	43	15.89302	14.47011	-13.5	49.3
Change in Funding FY 2008-2010 (w/o ARRA)	43	-6.2093	9.48567	-26.1	18.5
Coordinating Board	43	0.51163	0.50578	0	1
Governing Board	43	0.4186	0.49917	0	1
Planning/Regulatory Agency	43	0.06977	0.25777	0	1
# of Public Institutions	43	30.69767	22.27056	3	109
Percentage of Public Inst.	43	0.57143	0.17602	0.2308	1
Enrollment Change 2004-09	43	8.51395	7.09995	-7.5	26.9
Funding Formula Base Plus/Minus	43	0.06977	0.25777	0	1
Mixed, Funding Formula	43	0.51163	0.50578	0	1
Mixed, Base Plus/Minus	43	0.2093	0.41163	0	1
Mixed, Base Plus/Minus	43	0.2093	0.41163	0	1

The average change in funding from FY2005-10 is roughly 16 percent indicating strong positive growth during that time. However, FY2008-10 saw an average decline of 6.2 percent, which supports the theory of unstable funding patterns for higher education. North Dakota represents the 18.5 percent in revenue growth for FY2008-10; as an entire state, North Dakota continues to enjoy lucrative persistence throughout the recession.

### Results

A multivariate regression analysis conducted on the change in funding from FY2005-10 and the change in funding from FY2008-10 yielded the following results.

Also included in the model was a robust calculation to adjust for heteroskedasticity. The agency structure was compared to a coordinating board type and showed no effect in the funding change from FY2005-10 of FY2008-10.

However, the budget request mechanism did generate an effect on the level of higher education spending during the sample. Base Plus/Minus and the two mixed

R <sup>2</sup> = 0.2862						
<b>Change in Funding FY2008-2010 (w/o ARRA)</b>	<u>Coefficient</u>	<u>Robust Std. Error</u>	<u>t</u>	<u>P&gt; t </u>	<u>95% Conf. Interval</u>	
Independent Variable						
<i>Agency Structure</i>						
Governing Board	2.457	2.759	0.89	0.38	-3.157	8.072
Planning/Regulatory Agency	0.988	2.899	0.34	0.735	-4.909	6.886
<i>Budget Mechanism</i>						
Base Plus/Minus	-6.545	2.559	-1.84	0.075	-13.786	0.696
Mixed, Funding Formula	-8.262	4.161	-1.99	0.055	-16.727	0.203
Mixed, Base Plus/Minus	-2.673	4.951	-0.54	0.593	-12.745	7.399
<i>State Characteristics</i>						
# of Public Institutions	0.0724	0.081	0.9	0.373	-0.091	0.236
% of higher education represented by publics	0.319	8.614	0.04	0.971	-17.206	17.844
04-09 Enrollment Change	0.107	0.237	0.45	0.654	-0.375	0.589
08-10 % change State General Fund Spending	0.416	0.153	2.72	0.01	0.105	0.728

approaches rendered a smaller change in spending than the funding formula method. The model controls for enrollment change, which funding formula states indicated as a major calculation in their formula. Therefore, it is not simply enrollment accounting for the changes in funding formula states. The appropriations mechanism impacted the 5-year funding change. The analysis did not reflect a significant impact other state characteristics had on the change in funding.

Past research indicated the total effects of reduced state spending on higher education; consequently, a second analysis was conducted on FY08-10 to measure specific effects on spending during the recession. The Base Plus/Minus and Mixed, Funding Formula methods remained significant at the .10 level. However, the percent

change in general fund spending had a substantial impact on higher education funding. This finding supports the theory that major decreases in state revenue adversely impact higher education funding.

In either analysis, the agency structure did not affect the change in state higher education funding. The budget request mechanism had a statistically significant impact on the change in state funding for higher education in both time frames. We can deduce that the mechanism plays a significant role in the budget process, but when states enter a recession, the total change in general fund spending has the most significant impact. While this is an expected behavior, each mechanism does decrease in significance, which indicates that even broad state appropriation mechanisms do not guarantee stable funding during a recession.

#### Implications and Recommendations

The behavior exhibited by states in prosperous and slow periods of economic growth has a major impact on the financial conditions post-secondary institutions face. State revenue represents a substantial portion of public agency budgets, and the state's ability to meet that support level each fiscal year weighs heavily on an institution's ability to maintain service levels.

During periods of economic prosperity, the budget request mechanism employed by the central state agency affects higher education funding levels. However, in times of fiscal restraint, the effect of the central agency diminishes and institutions are forced to manage current service levels with decreasing state assistance. They can manage this change by creating new methods of providing service, cutting back on expenditures, or institutional reorganization.

The ability to manage this change increases in significance as enrollment patterns continue their upward trend, the college age population is growing, and expenses are increasing. The exodus of the Recovery Act funds in 2011 creates a considerable structural imbalance in the majority of state budgets, which will disproportionately impact higher education spending as postulated by Hovey (1999) and confirmed by the substantial funding decrease observed in this analysis. Both the state agency and budget request mechanism have smaller effects in times of fiscal constraint, which the academy must recognize.

Recommendations on fiscal management during an economic crisis would include public institutions and/or states preparing a list of funding priorities that are reflected in the appropriations and expenditure processes. By assuring these priorities are met, states and institutions can assess the ability to accomplish their primary mission. Additionally, planning and management of an institutional strategic reserve is paramount in sustaining periods of slow economic growth. Institutions can establish agreements with state fiscal authorities for a share in the states strategic reserve for funding priorities set by both parties.

### Further Research

It would be short sighted to recommend all states move to a funding formula model. State agencies and institutions prioritize and balance changes in higher education with appropriate funding levels. It is naïve to conclude that one funding mechanism would maximize outcomes for all states. Further research should be conducted on which of the budget mechanism factors have the greatest effect on the total appropriations request (enrollment, instruction, faculty salary, etc). Additionally, drilling down the

statutory differences within the agency categories may yield interesting results. By adding these new variables to the model, the level of influence each variable has is subject to change.

A second consideration for future research is the process by which these budget mechanisms evolved. State institutions have reason to be very protective over their current funding levels and negotiations regarding a change in the methodology may be met with resistance. Institutions will likely remain steadfast to a “hold harmless” requirement throughout any type of negotiation in order to protect the base level of funding to which they are accustomed. The historical perspective on circumstances under which the current budget mechanism was developed may provide information on the aspects of higher education important to the state’s fiscal authority.

Finally, the effects and behavior exhibited by states and post-secondary institutions throughout the life of the American Recovery and Reinvestment Act may provide valuable insight on federal, state, and institutional behavior during a recession. The funding priorities of states and institutions would be of particular interest during this time and should be continually studied to measure the future impacts of the substantial one-time federal investment.

### Conclusion

Public post-secondary institutions have a profound impact on improving economic development opportunities, slowing the rising cost of healthcare, and increasing the quality of life for the general public. State assistance of these institutions is paramount to that mission. Research presented here indicates a relationship between the appropriations request mechanism and the level of state assistance for higher education in

strong and restrained periods of economic growth. Observance of this relationship is important to the administration of operations and fiscal priorities of public post-secondary institutions. Implications associated with findings on state fiscal behavior are increasingly relevant to state programs considering the departure of federal funds provided by the American Recovery and Reinvestment Act. The ability to operate in the post-Recovery Act era is predicated on state agency's understanding of what to expect.

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## Appendix I

**Table 1A:**  
**Outlooks for State Budgets**

States	%Change Gen. Fund	Bud. Shortfall FY 2010	2010 Mid-year Budget Gap	2011 Proj. Bud. Shortfall
Alabama	-16.9	22.2	5.5	8.1
Alaska	-20.6	30	0	-
Arizona	-12.6	52.2	19.7	26.7
Arkansas	3.6	6.8	3.6	-
Colorado	-6.7	21.5	8	24.1
Connecticut	6.5	26.8	2.9	26.7
Delaware	-5.4	17.6	0	11.9
Florida	-23.5	23.3	0.6	18.1
Idaho	-10.3	22.4	6	3.3
Illinois	-7.4	40.9	14.3	34.3
Indiana	1.3	9.6	2.2	2.2
Iowa	-2	22.2	9	18.1
Kansas	-8	30	7.5	5.8
Kentucky	-9.2	12.9	12.9	6.2
Louisiana	-6.5	24.1	2.4	-
Maine	-6.4	26.9	3.5	31.4
Maryland	-7.5	20.4	6.8	14.5
Minnesota	-11.5	22.3	1.4	26.4
Mississippi	-3.5	18.4	8.8	14.4
Missouri	-2.7	16.4	7.7	-
Nebraska	4.1	8.6	4.4	9.3
Nevada	-5.4	50.3	12.5	59.8
New Hampshire	2.2	20.1	3.9	17.7
New Jersey	-13.7	37.3	7.4	34
New Mexico	-8.2	18.1	11.8	5.8
New York	2.8	38	5.7	14.8
North Carolina	-7.3	21.9	0	21
North Dakota	32.3	0	-	-
Ohio	-2.4	13.4	5.7	11.8
Oklahoma	-9.2	28.7	15.1	12.7
Oregon	-4.1	29	0	19
Pennsylvania	-6.6	19.9	2	15.4
Rhode Island	-11.9	32.2	13	13.9
South Dakota	-3.6	4.3	1.4	9
Tennessee	-8.9	10.7	0.9	9.6
Texas	-15.4	9.5	0	-
Utah	-24.3	19.8	5.5	13.9
Vermont	-9.3	27.3	2.5	30.2
Virginia	-8.2	22	11.1	8
Washington	1.6	26.7	9	26.7
West Virginia	1.5	8	3.2	3.5
Wisconsin	-1.4	23.2	0	24.6
Wyoming	0.9	1.7	1.7	8
National Avg:		21.9		

*National Association of State Budget Officers and the Center for Budget and Policy Priorities*

**Table 3A:**

<b>Higher Education and the State Fiscal Stabilization Fund</b>					
<b>States</b>	<b>Higher Ed. Fund Change FY2005-10</b>	<b>*Higher Ed. Fund Change FY2005-10</b>	<b>Higher Ed. Fund Change FY2008-10</b>	<b>*Higher Ed. Fund Change FY2008-10</b>	<b>% Stimulus in Higher Ed. Budget</b>
Alabama	19.3	29.1	-26.1	-20.1	3.8
Alaska	41.5	41.5	11.1	11.1	0
Arizona	11.8	20.3	-16.1	-9.7	10.6
Arkansas	38.2	40.2	2.9	4.4	0.8
Colorado	13.7	38.9	-9.1	11.1	18.1
Connecticut	31	33.4	-0.2	1.6	0.9
Delaware	11.4	19.2	-6.8	-0.3	3.3
Florida	3.7	10.7	-16.5	-10.9	3.1
Idaho	10.9	15.9	-5.2	-0.9	2.1
Illinois	13.2	16.7	3.1	6.3	1.5
Indiana	10.4	15.7	2.3	7.3	3.7
Iowa	-2.9	11.3	-17.4	-5.3	6.1
Kansas	3.6	9.1	-8.7	-3.9	3.1
Kentucky	11.8	18.3	-8.8	-3.5	2.8
Louisiana	9.5	24.3	-17.4	-6.3	5.7
Maine	12.8	12.9	-1.6	-1.5	3.8
Maryland	40.8	41.1	7.3	7.6	0.1
Minnesota	12.1	22.9	-9.3	-0.6	5.4
Mississippi	32.2	32.2	-3.8	-3.8	3.9
Missouri	12	27.1	1.4	15.1	6.1
Nebraska	19.9	19.9	-5.2	-5.2	0
Nevada	-0.2	18.2	-19.2	-4.3	7.6
New Hampshire	19.4	23	3.5	6.6	1.5
New Jersey	6.3	10.2	-1.7	1.9	1.8
New Mexico	15.1	17.1	-17.1	-15.6	0.8
New York	34	38.5	2.7	6.2	1.7
North Carolina	38.4	43.3	0.3	3.9	3.4
North Dakota	49.3	49.3	18.5	18.5	0
Ohio	-6.4	8.4	-14	-0.4	6.5
Oklahoma	29.3	38.1	-7.4	-1.1	3.2
Oregon	13.1	18.2	-8.7	-4.6	6.1
Pennsylvania	1.2	5.9	-7	-2.6	3.7
Rhode Island	-13.5	-4.9	-15	-6.5	4.7
South Dakota	-6.8	0.2	-22.7	-16.8	6.7
Tennessee	13.3	25.9	-7.8	2.5	7.5
Texas	28	34.4	3.1	8.3	2.5
Utah	6.4	15.3	-15.3	-8.2	5.7
Vermont	16.9	16.9	0.5	0.5	0
Virginia	6.4	15	-16.4	-9.7	3.5
Washington	11.7	17.4	-10.8	-6.2	2.3
West Virginia	18	21.4	-10.5	-7.9	1.4
Wisconsin	6.2	6.2	-3	-3	0
Wyoming	40.4	44.2	5.1	8	1.3
National Avg.	15.5	21.9	-6.8	-1.7	3.9

*State Higher Education Executive Officers "State Higher Education Finance" report and Illinois State University's "Grapevine" survey*

\*Includes Recovery Act funds

**Table 4A:****State Higher Education Agency Structure and Budgeting Mechanism**

<b>States</b>	<b>SHEEO Member Agency</b>	<b>Structure</b>	<b>Budgeting Approach</b>
Alabama	AL Commission on Higher Ed.	Coordinating	mixed, funding formula
Alaska	University of Alaska	Governing	mixed, base plus/minus
Arizona	AZ Board of Regents	Governing	base plus/minus
Arkansas	AR Dept. of Higher Ed.	Coordinating	Fuding formula
Colorado	CO Dept. of HE	Coordinating	base plus/minus
Connecticut	CT Dept. of Higher Ed.	Coordinating	base plus/minus
Delaware	DE Higher Ed Commission	Plan/Reg	base plus/minus
Florida	Board of Governors	Coordinating	mixed, base plus/minus
Idaho	Office of State Board of Ed.	Governing	base plus/minus
Illinois	IL Board of Higher Ed.	Coordinating	base plus/minus
Indiana	IN Commision for Higher Ed.	Coordinating	mixed, funding formula
Iowa	Board of Regents	Governing	base plus/minus
Kansas	KS Board of Regents	Governing	mixed, base plus/minus
Kentucky	KY Council on Postsecondary Ed.	Coordinating	mixed, base plus/minus
Louisiana	LA Board of Regents	Coordinating	mixed, base plus/minus
Maine	Univ. of ME System	Governing	base plus/minus
Maryland	MD Higher Ed. Commission	Coordinating	mixed, base plus/minus
Minnesota	MN State Colleges & Universities	Plan/Reg	base plus/minus
Mississippi	MS Inst. Of Higher Learning	Governing	mixed, funding formula
Missouri	Wagner	Coordinating	mixed, base plus/minus
Nebraska	NE Coord. Coms. For Post. Ed.	Coordinating	Base plus/minus
Nevada	NV System of Higher Ed.	Governing	mixed, funding formula
New Hampshire	NH PE Coms./Univ. System of NH	Governing	Base plus/minus
New Jersey	NJ Commission On Higher Ed.	Coordinating	Base plus/minus
New Mexico	NM Higher Ed. Department	Coordinating	mixed, funding formula
New York	State University of NY	Coordinating	mixed, funding formula
North Carolina	University of NC	Governing	mixed, base plus/minus
North Dakota		Governing	Funding formula
Ohio	Ohio Board of Regents	Coordinating	base plus/minus
Oklahoma	OK State Regents for Higher Ed.	Coordinating	mixed, funding formula
Oregon	OR University System	Governing	mixed, base plus/minus
Pennsylvania	PA State System of Higher Ed.	Plan/Reg	base plus/minus
Rhode Island	RI Board of Governors	Governing	base plus/minus
South Dakota	SD Board of Regents	Governing	base plus/minus
Tennessee	TN Higher Ed. Commission	Coordinating	funding formula
Texas	TX Higher Ed. Cord. Board	Coordinating	mixed, funding formula
Utah	UT System of Higher Ed.	Governing	base plus/minus
Vermont	VT State Colleges	Governing	base plus/minus
Virginia	St. Council on HE for VA	Coordinating	mixed, funding formula
Washington	Higher Ed. Coordinating Board	Coordinating	base plus/minus
West Virginia	WV Higher Ed. Policy Coms.	Coordinating	base plus/minus
Wisconsin	Univ. of Wisconsin System	Governing	base plus/minus
Wyoming	Univ. of Wyoming	Governing	base plus/minus

*Gathered from the State Higher Education Executive Officers*