# Effects of Budgetary Priorities on State Fiscal Stability during Times of Boom and Bust

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by

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# ABSTRACT

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This dissertation examines various budgetary priorities of 50 states in the U.S. in order to determine how the priorities influence fiscal stability during times of boom and bust. The research presented investigates the effects of budgetary priorities on state fiscal stability and state heterogeneity of fiscal approaches across state governments facing different circumstances. Primary research questions include: whether states value fiscal stability, if states respond differently with budgetary priorities during times of boom and bust, and if states have different influence on the stabilization from budgetary priorities, what differences do they have and why. A theoretical framework can help to provide the motivators of budget priorities of the states in the U.S. Based on public choice theory, political economy models, and budgetary stakeholder perspectives, this study explains the financial decision-making and spending propensities of politicians and administrative agencies.

State governments are concerned about fiscal instability because they want to maintain economic growth and program continuity. State governments also need to minimize the negative economic and programmatic impacts from economic swings. Fiscal stability indicates whether governments can maintain sufficient levels of funding for their programs during economic downturns. Even with the practical virtue of fiscal stability, state governments do not stick to the normative principle and they behave with fiscal instability. Here, fiscal instability implies pro-cyclicality in fiscal policy (Kwak 2014). Governments increase spending (or cut taxes) during economic booms and cut spending (or raise taxes) during economic downturns. In order to maintain fiscal stability, state governments show different budget behaviors based on differences in circumstances and in political philosophies. They enact various fiscal policies because of different budgetary priorities. Different priorities result in diverse levels of fiscal stability.

This research covers the years 1998 through 2013 and uses paneled state data. There have been two economic recessions during the period between 1998 and 2013; however, the strengths and durations of the two economic recessions were different. For example, in 2001, the U.S. economic recession was relatively mild and short. But in 2009, the federal deficit was a huge share of the economy (Auerbach and Gale 2009). Federal deficits increased in the early 2000s, and reached 10 percent of GDP in the aftershock of the peak of the recession

(usgovernmentspending.com).Thus, for the purposes of this analysis, the study is compared and divided into two periods, which are one from 1998 to 2005, and the other from 2006 to 2013.

In this research, budgetary priorities as motivators for fiscal policies are classified as a perspective of utility maximizer, budgetary stakeholders and service continuity for the purposes of soothing state budgets and helping these governments to maintain and possibly serve political purposes (i.e. concerns about voters). Budgetary priorities are analyzed based on business cycles in both economic boom and bust, because state budgeting should adapt and respond to these cycles (Rubin 2005). There are also the dynamics of state budgetary behavior over the business cycle (Kwak 2014). The impacts of state budgetary priorities on fiscal stability may differ across business cycle booms and busts—"making state fiscal policy asymmetric. State budgets could be more effective at mitigating economic slumps than at muting booms if taxes fall more sharply during a slump than they rise in an expansion of equal magnitude" (Sorensen and Yosha 2001, 43-44). In the study, state fiscal stability is measured by using expenditure stability (by type and function), because the expenditure side is controllable by state governments. This is calculated by estimating fiscal stability, which involves calculating the proportional changes in expenditures. In other words, fiscal stability is measured by how far actual expenditure changes deviate from mean changes in expenditures.

The heterogeneity of fiscal priorities across states varies depending on institutional, political (divided government, and/or political climate), and economic factors. For example, at the state level, balanced budget requirements may force state governments to engage in pro-cyclical policies involving budget cuts or tax increases in response to a fiscal crisis. In addition, there are pressures from budgetary stakeholders, such as credit rating agencies or interest groups who exert pressure on the states to save money or reduce spending. The budgetary choices of governments are made under constrained conditions. For instance, bond rating agencies expect states to have both reserves and low debt burdens. Moreover, governors in particular care about maintaining the highest AAA level of credit rating. Losing AAA status threatens a governor's political position in that they might be blamed by state legislatures and run the risk of not being re-elected. Budgetary strategies imply some degree of choice on the part of state governments, but the choices are constrained by the states' budgetary institutions. Budget institutions cannot be altered recurrently as do the annual government budget. These institutions establish the fiscal restrictions that limit the choices available to state governments (Howard 2009). Thus, the results from diverse priorities lead to different impacts on fiscal stability and shed light on how state governments show fiscal stability with a mixture of budget priorities under specific circumstances.

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# CHAPTER 1

# Introduction

## 1.1 Research Background

During the past two decades, state governments in the U.S. have experienced a budget roller coaster. Economic ups and downs have influenced the state's revenues and expenditure levels, thus amplifying fiscal instability. Generally, state governments with a given set of tax rates receive less revenue during an economic recession and increased revenue during boom times. Regarding expenditures, state governments face the pressure of spending increases during upturns and the need to reduce expenditures during economic downturns. In order to prevent fiscal stress from the economic shock, revenue stability is especially important during economic downturns because it can help governments avoid huge financing restrictions (Felix 2008). Past recessions have imposed critical financial hardships on state governments, requiring them to simultaneously reduce direct services to citizens, and to increase taxes. Instability of revenue and expenditure based on a business cycle directly impacts fiscal stability as well as budget performance (deficit vs. surplus).

Revenue swings in either direction prevent state decision makers from forecasting accurate revenue streams and maintaining balance in the budget. This results in new challenges for the state governments to manage their budgets for a long term view (Pew Charitable Trusts 2014). Thus, policymakers try to adopt strategies in order to cope with the sensitivity of state budgets and stabilize the budgets over changes in the business cycle. These policies can address the challenges from expenditure cuts or tax increases during economic downturns, and also recognize how to use the surplus tax appropriately when tax

collections are flush. Instability in revenues might also "require governments and public organizations to cycle continuously between growth and cutback in their spending, especially if they have no surplus funds or ability to borrow" (Hendrick and Crawford 2014, 3).

The fiscal instability of U.S. states has been identified as a remarkable and increasing problem (Gamage 2010; Jordan 2003). The previous researchers argue that higher instability of public expenditure negatively influences economic growth and public service continuity (e.g. Fatás and Mihov 2003, 2006; Furceri 2007; Afonso and Furceri 2008; Loayza et al. 2007). Higher fiscal instability is related to bond rating. CRAs provide a lower grade of creditworthiness when states face uncertainty and instability. Therefore, maintaining budget stability for state governments is a critical fiscal matter (Bernanke 2011). In order to compensate for the instability, states need to either adjust the tax rate, the amount of spending, or both. Unfortunately, these types of adjustments are difficult to achieve because of political infeasibility and the cost requirement of managing constant change (Hendrick and Crawford 2014). Due to this difficulty, other ways to keep stability have been examined, such as using a rainy day fund (Hou 2003; Pollock and Suyderhoud 1986; Wagner and Elder 2005), or revenue diversification (Yan 2012).

Modern economic theory (e.g., Krugman and Wells 2009; Stiglitz 2010) argues that governments should establish countercyclical fiscal policies to preventing the economy from overheating or inflation during booms, and to boost the economy after a recession. Theories of fiscal policy propose that policies need to be either acyclical or countercyclical. Thus, pro-cyclical patterns of spending behaviors of states indicate governments do not follow the principle of normative view that smooths tax or expenditure. Despite its importance in evaluating fiscal policy depending on business cycle, few studies try to examine the dynamics of state fiscal behavior over the business cycle (Kwak 2014).

The level of fiscal stability differs across states as well as time periods. Also, some states respond to instability actively because different motivators play a role in budget behaviors across states. Naturally, different responses by states lead to different budgetary outcomes. States have their own fiscal policies in place to maintain fiscal stability, depending on internal and external environmental conditions. For example, the amounts of state expenditures are significantly influenced by an economic recession. Specifically, due to recent economic downturns, spending from state general funds decreased in the fiscal years of 2009 and 2010 (NASBO 2010). Furthermore, regarding the composition of state expenditure, it has become more counter-cyclical, partly because health and welfare programs have become a larger portion of state budgets, and demand for these programs has increased during economic downturns (Gais 2009; Grogan and Rigby 2009). Thus, several states increase welfare spending while they decrease expenditures in other areas.

Alternatively, states might design their tax structure differently to correspond with the business cycle by changing either tax rates or the composition of the tax base (Felix 2008). The government can adjust tax rates by targeting broad-based taxes (e.g., income, sales, and property taxes) or narrower taxes (i.e., capital gains taxes). Regarding the composition, states can modify user fees (increase or decrease) or change the tax base (diversified or less diversified) in order to preserve stability. Each of these tax devices produce different results in economic booms and busts (Felix 2008). Revenues of state governments are composed of more elastic and less elastic bases, so revenue stability from revenue structures is influenced by business cycles (Braun and Otsuka 1998; Sobel and Wagner 2003). Additionally, states can increase stability because of credit rating with tapping addition resources from reserves, such as rainy day funds to protect against economic shock. A financial market might provide credits for financial performance or higher reserves with higher credit ratings and lower

borrowing costs.

Fiscal policy of states is related to their institutional factors, which is under the particular contexts of each state. The literature on political economy has focused on political institutions in determining fiscal policy and budget responsiveness as opposed to purely behavioral determinants (Johnson and Kriz 2005). Fiscal institutions also play a role in limiting the behavior of government officials. At the state level, as mentioned previously, balanced budget requirements may force state governments to engage in pro-cyclical policies like budget cuts or tax increases in order to respond to a fiscal crisis. State spending is not flexible under the restrictions of budget rules. State governments are required to balance their budgets, unlike the federal government. Here, as the institutional factor, a balanced budget rule (BBR) generally refers to the prohibition on operating a budget deficit in a budget year. The BBRs "can be broadly categorized, depending on the stage in the budget process at which balance is required" (Poterba 1996, 396).

States also have different rules regarding tax and expenditure limits (TELs). Brooks and Phillips (2010) indicated that districts with a restriction such as a tax and spending limitation (TEL) spend less than those lacking such restrictions, because TELs restrain government spending. That is, state governments have different reserve and balancing requirements as well as different restrictions on debt levels. Thus, institutional rules such as BBRs and TELs imposed on state governments might cause different patterns of fiscal stability, and therefore require different behaviors to cope with economic ups and downs.

## 1.2 Purpose and Research Question

This study examines the evidence of different degrees of fiscal stability and potential

causes (with fiscal priorities) of fiscal stability of a number of states, and also compares them across the states during times of boom and bust. Several previous studies (Krugman and Wells 2009; Stiglitz 2010) argue that governments should conduct countercyclical fiscal policies in order to stimulate the economy during recessions and protect the economy from overheating. However, state governments tend to exhibit pro-cyclical behavior under these circumstances. Thus, this research develops empirical models for how state budgetary priorities influence fiscal stability heterogeneously. Also, this study tries to show fiscal stability over the business cycle, because there has been little research on the dynamics of state fiscal behavior based on business cycles (Kwak 2014).

## 1.3 Scope and Organization

The thesis focuses on two components. The first is how states show fiscal stability using budgetary priorities of utility maximization, budgetary stakeholders, and service continuity. Secondly, which states have value on fiscal stability by effectively managing budget environments? Historical patterns in budgetary motivators in a state budget can provide some guidelines to influence fiscal stability (fiscal policies) toward coping with budgetary environments. Using a panel dataset from 1999 to 2013, this paper examines how the different budget priorities of states influence the fiscal stability of the state government. Additionally, this study examines the level of fiscal stability and what differences state governments have and their reasons. The factors of different priorities might depend on a state's institutional, political, and economic conditions. Therefore, these characteristics of state governments will be considered in the evaluation of stability and budget outcomes. Finally, the study attempts to explain the dynamics of budgetary behaviors over the business cycle in state governments. Shedding light on the effects of these factors will enable us to

understand how government policy makers decide on the fiscal policy in a state and how to deal with future economic fluctuation.

## 1.4 Contribution to Literature

Previous research fails to deal with the reasons or motivators for implementation of fiscal policies on budget stability in a state. Instead, they only examine fiscal stability using the structural factors, such as revenue diversification or saving level. Moreover, it is unclear, and still debatable, which of these budgetary priorities result in the outcomes concerning the condition of the state's fiscal stability. A state's unique contexts and its level of economic stress should be included in terms of which budgetary priorities are, and should be, undertaken. Some behaviors implemented by several states are likely to be considered as priorities for stability, but these priorities are not advanced for other states.

States respond with different motivators to cope with fiscal volatilities. State responses have changed over time. Before the 1990s, state governments relied more on a combination of tax increases and spending cuts to reduce fiscal shock. However, since the 1990s, their behaviors have changed, predominantly due to tax and expenditure limits (TEL) and rainy-day funds (Scorsone and Plerhoples 2010). In this study, we try to examine the impact of integrating budgetary priorities and the implications of those factors across state governments facing different environments. Budgetary priorities and fiscal stability within times of economic boom and bust will also be investigated. Moreover, during 1999 to 2013, there were two recessions, but the recessions were different in terms of severity and duration. The study will compare two periods with two panel data models (economic booms and economic busts) and provide some policy implications as to how to cope with state

governments dealing with fiscal environments differently.

Finally, this article investigates the business cycle behavior of state fiscal policy to see if the policy is countercyclical or pro-cyclical to deal with budgetary priorities. The study tries to identify the causes of behaviors. Previous studies argue the state fiscal policy is asymmetrical. According to Sorensen and Yosha (2001), "state revenue and expenditure display significant asymmetry over the business cycle, with nearly offsetting effects on the budget surplus. As a result, state fiscal policy tends to mute economic booms to roughly the same degree it mitigates slowdowns" (Sorensen and Yosha 2001, 44). Thus, this study tries to examine the business cycle behaviors of state governments for coping with budgetary environments and search for reasons why they act as they do using a theoretical framework. The present research contributes to the budget behavior literature and fiscal stability research by (1) indicating the evidence fiscal stability and state's value on the stability with budgetary priorities of states across business cycles (2) providing diverse factors that influence on fiscal stability and are comparable across states, years and business cycles and (3) clarifying the causes of budgetary behaviors/priorities in the state governmental context.

Our study is important for understanding dynamics of budget behaviors when state governments face cyclical fluctuations. There is little research about the cyclical behavior of state expenditures in terms of fiscal stability. In addition, diverse budgetary priorities are likely to affect state fiscal policies in either a pro-cyclical or countercyclical way, and that different states show different levels of fiscal stability. This study is novel because previous research does not deal comprehensively with motivators for implementation of certain fiscal policies. Moreover, it is unclear, and still debatable, which of these budgetary priorities or other institutional factors result in the outcomes concerning the condition of the state's fiscal stability. Therefore, this study contributes to the literature about state budgets and finances.

This study attempts to shed light on these issues and to examine budgetary behaviors and designing budget structures, while considering different motivators in different situations faced by state governments. Finally, our study will be valuable when suggesting how to prevent budget swings, and when addressing the negative impacts of fiscal instability.

# CHAPTER 2

# Literature Review

## 2.1 Theoretical Framework

This study examines budgetary priorities and their fiscal behaviors in state government, grounded on multiple perspectives. Many previous studies have used public choice theory to examine budget behaviors of state governments (Bartle 2001; Hou 2013; Lemieux 2004; Sobel 2001). Public choice theory explains fiscal policy in purely individual behavioral determinants, based on the assumption that decision makers are the most "rational" actors. However, this perspective does not account for "why some governments at the same income level that face similar financial constraints respond to a fiscal shock differently" (Howard 2009, 6). Public choice theory also implies strong spending propensities and explains only the expansion of the government. There are also several factors that limit states' fiscal discretion. It is difficult to explain the complexities of budgeting behaviors and management choices with one theory. The budgetary choices of governments are made under constrained conditions. Therefore, this study adds other frameworks for explaining state budget behaviors and choices, such as the actions for service continuity (economic growth) and the impact of budgetary stakeholders.

Budget theory provides a context and framework for how and why budget decisions in particular situations are made under the shift of business cycles, as well as how these budget priorities reach the outcomes of such decisions. Presented here, the theory primarily focuses on these motivators for fiscal priorities: the utility maximization of decision makers,

budgetary stakeholders, and service continuity. In addition, the study provides empirical research that includes the results of budgetary behaviors with fiscal stability. Finally, budgetary priorities will be discussed with institutional, political, and economic conditions in shaping government responses and their impacts.

2.1.1 Public choice perspective

Public choice theory provides understanding regarding how budget decisions are made and how key actors behave in the budget process within the government. Public choice theory explains how spending propensities increase and how expenditure demands from various groups interact and result in spending increases beyond sustainable levels. The theory also explains why governments pursue political success (Mueller 2003). Public choice theory is considered as the application from economic principles to politics, non-market decision making. One main assumption of public choice theory is that human beings are "self-interested utility maximizers." Individual decision makers applied to the political process in order to advance their self-interests under institutional and budgetary constraints (Hill 1999). There is a diverse group of actors involved in the fiscal policy decision making process, including voters, politicians, and bureaucrats.

According to this theory, politicians and bureaucrats are agents who work on behalf of the citizens, and are supposed to act in the citizen's interest. Specifically, politicians make fiscal policies that the majority of citizens prefer in order to win elections (Downs 1961). That is, budgetary decisions are made by elected politicians, who react to voter needs and the bureaucracy (Buchanan and Wagner 1977). However, in some cases, the agents behave on the grounds of self-interest rather than the interests of the principal, otherwise known as the

citizenry. Specifically, according to Lemieux (2004), the bureaucrat is considered to be an ordinary individual who is willing to maximize his utility. Tullock (1965) and Niskanen (1971) also explain the bureaucracy with maximizing utility, who behaves for his own career incentives (i.e., it increases their remuneration and reduces risks of losing recognition). In addition, Niskanen (1971) recognized the relevance of individual preferences of bureaucrats. Bureaucrats try to maximize the budget size and their budgetary slack. In order to maximize the budget "a bureaucrat would have to reduce the price charged to the sponsor to the level of his costs, eliminating productive inefficiency" (Wyckoff 1990, 35). Dunleavy (1991), however, rejects the economic definition of bureaucrats and offers an alternative model: 'the bureau-shaping model'. He argues that monetary incentives granted to bureaucrats do not influence the behavior of bureaus, but rather that quality of work, prestige, and status on behavior is aimed at bureau shaping, rather than maximizing.

In the public choice theory, a bilateral monopoly exists between bureaucrats and politicians, where bureaucrats play the role of the monopoly supplier, and politicians that of the buyer of public goods. Here, bureaucrats have a relative advantage and can therefore dominate some of the decision making process. This is because they possess the budgetary information concerning the real costs for public services, while politicians do not have such information. Information asymmetry can create incentives for bureaucrats to provide higher levels of service than that preferred by the legislatures (Keech, Munger, and Simon 2012).

Bureaucrats can sometimes lead the budgetary system in the direction they desire by deciding the alternatives or sequence, where the agenda will then be voted upon by the public or politicians (Lemieux 2004). Ostrom and Ostrom (1971) also maintain that governments whose role is to produce public goods and services do not reflect a diversity of interests among different groups of people, and, in the end, take actions without considering

information about the preferences of the persons they serve. This results in making decisions involving expenditure with little reference to the utility of their citizens.

However, public agencies cannot precisely know the marginal costs or the values of their services. Even they do not have raw data on the "fiscal worthiness of their services" (Forrester 2002, 127). Specifically, agencies think that budgetary success is defined by an increase in boom times or the avoidance of huge cuts in down terms (Forrester 2002). Therefore, they are more likely to pass filtered information to politicians, as the budget proposal depends on information. Under this situation, consequences of the agenda for the agency might not be in accord with legislative intentions, or the legislature might not choose the right agency to implement a particular policy. Moreover, agencies might face unexpected needs, urgencies and risks. However, they may modify their activity after they have been given the responsibility of implementing a policy (Forrester 2002).

Regarding budgetary decisions, public choice theory explains the expenditure propensities in a government. The theory assumes that taxpayers are not fully informed about the taxation's costs. Here, various fiscal devices (i.e., the structure of the tax system) are designed to underestimate the costs of expenditure. Thus, taxpayers perceive the cost to be less than the actual cost. Citizens reveal their preference by voting for politicians who try to expand government spending and the size of government (Sanandaji and Wallace 2011).

Thus, on the legislative side of decision-making, spending propensities tend to increase expenditure because citizens and interest groups put pressure on politicians to spend according to their preferences, which in turn gives politicians more political support from the public (Kwak 2014; Ryu 2015). Changes in government expenditure help garner more support from citizens, and this strengthened public support presumably has positive impacts

on the reelection of politicians. The budget decisions of the government thus have a political motive: to help the reelection chances.

Regarding the spending propensity, Wagner and Elder (2005) empirically show that states have not decreased the instability of spending over the business cycle; however, states with budget stabilization funds (BSFs) have had higher expenditure stability than those without BSFs. In addition, Kwak (2014) also shows the pro-cyclical shapes of state fiscal policies and argues that revenue volatility is related to fiscal instability. That is, state governments try to expand the size of expenditures when faced with additional revenue in an economic boom.

However, regarding the size of the bureaucracy, budget maximizing behaviors and the propensity toward government expansion have been challenged. Enforced retrenchment from external environments such as the economic recession will lead to a reduction in the size of the budget and adjust budgetary behaviors. The budget maximizing bureaucrat is not supported, given that the bureaucrat is a "public service oriented, disinterested, professional civil servant" (Dunsire 1991, 200), in the context of conserving economic resources. Decrementalism has been characterized during the period of a contraction. Decrementalism was "redistributive in that claimants fought for what they could get from a shrinking pie" (Savage and Schwarts 1999, 536), and it contributed to political conflict because of different perspectives regarding the optimal strategy for cutback management (Levine 1980). Savage and Schwarts (1999) also argue that:

> Decrementalism shifted the focus of budgeting from the increment to the base. It thus resulted in the nature of politics for fights to how to calculate the appropriate baseline. Depending on the outcome of political fights over the appropriate baseline, cuts could be made in discretionary spending rather than in

the more politically untouchable entitlements, while programmatic eliminations could be avoided even in discretionary accounts in favor of across-the-board reduction.

The decrementalism approach has advantages in that it reduces decision making costs and minimizes the conflict (considered as equitable) (Levine 1978, 1979; Hood and Wright 1981). It can increase the perceived fairness and legitimacy of cuts because it seems equitably perceived, lending legitimacy to the cuts (Biller 1980). However, the decrementalism approach, or across-the-board cuts has been criticized, because the cuts may not consider the citizen's needs and preferences, or reduce the quality and quantity of services, and even harm efficiency in institutions. For example, Levine (1985) argued that "decrementalism at the margins of units and programs does not reflect a realistic assessment of public needs and preferences for services" (692). Behn (1980) also claims that when "across-the-board cuts exceed a certain threshold (i.e. the point where organizational slack can be used to absorb the cuts without reducing output significantly), a budgetary cutback of Y percent will reduce production by more than Y percent" (615).

Regarding the numbers of bureaucrats, there has been little research about how to cut back the bureaucracy (organizational decline), while there has been much research about the growth of public spending and size of budget (Jacson, 1990). The process of budgetary decisions has been studied with allocating resources under growth environments (Downs 1957; Wildavsky 1964). On the other hand, Levine (1978, 1979) suggested the exception to the growth assumption with cutback management. Organizational decline can stem from scarce resources and political vulnerability. It faces a reduced cushion of extra resources that are necessary for uncertainty (Levine 1978). Dunsire and Hood (1989) also examined the cut back bureaucracy. Specifically, they tried to answer questions like "what is the cut when the

public spending cut : is anything other than the 'fairy gold' of a planning total cut; How these cuts designed in order to minimize the cost of political objectives" (Jacson 1990, 635).

Public choice theory explains resource management of the government with 'cut back management'. A public choice uses interest groups, which are more focused on the demand side, and with their role in shaping cut backs. However, Dunsire and Hood (1989) took the perspective of bureaucratic self–interest in order to examine the process through which public spending is cut. Self-interested bureaucrats wish career advancement, and so would cut back budgeting processes in order to cope with fiscal constraints according to their own preference. The cutback management embraces a problem in that public expenditure needs to be cut at minimum cost for political purposes. Fiscal retrenchment concentrated on the politics of retrenchment, and is more concerned with the decisions of elected officials involved in cutting the budget (Levine, Rubin, and Wolohojian 1981; Clark and Ferguson 1983). The role of politics in the retrenchment processes is the most focused question in previous studies. Schick (1988) argues that in economic boom times, "incremental budgeting searches for opportunities to expand programs", but in economic stress times "the decremental variant searches for opportunities to contract them" (524). These decremental strategies consist of cutting across the board to reduce political struggles (Schick 1978; Levine 1985). It cares about "whether to deal with imbalance by cutting expenditure or raising revenue; if to cut, whether to cut uniformly 'across the board', or cut selectively; if selectively on what criteria" (Dunsire and Hood 1989, 1).

As mentioned before, in public choice theory, the agency considers budgetary success to be the growth of the budget in boom times, or the prevention of enormous budget cuts in down periods. Thus, the agency utilizes an array of budgetary behaviors in order to cope with economic changes as well as fiscal policy preference. Public budgetary resources during

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economic booms results in increased demand for public services and pressures for spending. Thus, it leads to fiscal instability during economic booms (Wagner and Elder 2004). On the other hand, during economic recessions, governments try to minimize spending cuts and employ other budgetary strategies (i.e., rainy day fund and fee increases). Based on public choice, we can make the following hypotheses.

> *H1-1: Increases in tax revenues during economic boom are related to lower levels of fiscal stability.*

> *H1-2: Decreases in tax revenues during economic recessions are related to higher levels of fiscal stability.*

Certain legislatures or executives in the decision making process might be more prudent in their spending policies and attempt to reduce expenditure demands from constituency-oriented politicians. The initial attention in political ideology in public choice focused on an "effort to determine whether noneconomic factors influenced economic legislation" (Rubin 2001, 336). North (1990) has emphasized its importance. He argues that the direction of society is decided by its ideological preferences. This means that "in addition to determining the mapping between constituent and representative preferences, the underlying structure of these preferences itself is an issue of fundamental importance" (Rubin 2001, 336). Regarding political ideology, Democrats spend more or save less money in the budget stabilization fund (BSF). Thus, the spending level might increase under the control of the Democratic Party (Alt and Lowry 1994) and decrease spending stability during economic booms.

> *H1-3: A Democratic state government with increase in tax revenues will have lower levels of stability than Republican state government during economic booms.*

*H1-4: A Democratic state with decreases in tax revenues during economic recessions will have higher levels of stability than Republican state government during economic downturns.*

However, governments may face unexpected needs or urgencies because of external environmental changes and other pressures to adjust the fiscal policy. Thus, it is difficult to explain the complexities of budgeting behaviors and management choices with only one theory. Concerns about credit ratings and the difficulty of borrowing in credit markets during an economic downturn result in diverse budgetary behaviors of state governments (Johnson and Kriz 2005; Sorensen and Yosha 2001). Decision makers utilize an array of budgetary behaviors in order to cope with environmental changes as well as fiscal policy constraints.

2.1.2 Budgetary stakeholders (CRAs) perspective

Stallmann, Deller, Amiel, and Maher (2012) explain that access to credit markets is critical for the functioning of state governments. CRAs evaluate state governments' creditworthiness and thus influence the budget behaviors of states (Sorensen and Yosha 2001; Johson and Kriz 2005). States with a certain credit rating tend to experience a particular level of fiscal stability. State governments have been constrained by budgeting stakeholders like credit rating agencies when they decide on fiscal policies. CRAs are defined as "specialists in providing information regarding bond creditworthiness" and creditworthiness is considered to be "the likelihood that an issuer will default on the interest or principal due on its bonds" (Ryan 2012, 6). They help bond issuers provide information and assessment for investors to guarantee that the issuers can access capital markets, and to help financial market regulators such as the Securities and Exchange Commission (SEC). CRAs also play a critical role in

public debt financing by reducing asymmetrical information in financial markets (Forsythe, Lundholm, and Rietz 1999; Hillier 1997). From a regulatory perspective, governmental regulators delegated their authorities to monitor bond issuers to only a small number of the third-party rating agencies such as Standard & Poor's, Moody's, and Fitch, endowing the CRAs' ratings with the force of law. CRAs assign credit ratings by using several factors that evaluate the possibility that a government can maintain the funds necessary to pay back existing or future debt (Liu and Thacker 1984).

Governments seek a higher credit rating in order to lower borrowing costs and to demonstrate their excellent financial conditions to the financial market. The credit ratings of governments represent formal and credible proof of their financial capability and willingness to pay off their debt obligations in full and on time (Liu and Kim 2009). Public officials have to keep their eyes on credit rating fluctuations, as credit rating is a key indicator of sustainability (Liu and Kim 2009). Further, governments want to reduce their borrowing costs to the greatest possible extent. Governments with better budget performance are rewarded with higher bond ratings.

Credit rating agencies tend to reward states with flush reserves and low debt burdens (Fitch2015; Standard & Poor's 2007). Some states may eagerly build a fiscal policy to save money through rebuilding their rainy day funds, building a fund balance, or reducing their debt burden. Generally, maintaining a fund balance or rainy day fund is thought to be good fiscal policy, as is reducing the debt burden. Entities such as bond rating agencies actively assess state policies in these areas as metrics of fiscal health. Credit rating agencies regard the general fund balance (GFB) as a critical indicator of a government's fiscal strength (Fitch 2015).

Higher bond ratings directly decrease the borrowing cost for a state (Capeci 1991; Johnson and Kriz 2005) and can therefore reduce the cost of providing public services. As a result, some state policymakers are reluctant to dip into their rainy day funds out of concern about the further decline of economic conditions. Some state officials hold that bond rating agencies perceive drawing on these funds negatively, and that such action might lead to a lower bond rating in the future. In practice, credit rating agencies assess the contingency with reserve levels, a precaution for future economic shocks. In summary, state governments try to maintain prudent budgetary behavior in order to retain or achieve higher credit ratings.

In terms of budget accountability, these efforts emphasize holding elected officials responsible for budget outcomes and the quality of financial management. This type of accountability has been associated with the political positions of elected officials (Lowry, Alt, and Ferree 1998; Rubin 1999). Elected officials in state government are held accountable through the electoral process for their decisions on programs and budgets (Holyoke and Cummins 2012). Voters hold incumbent politicians responsible for financial conditions. A re-election process depends on both a politician's past fiscal performance and the level of economic activity during his time in office (Rogers 2013). Moreover, "executives will bear the brunt of punishment more than legislators for undesirable fiscal outcomes because the responsibility for decision-making is clearer" (Holyoke and Cummins 2012, 2). The media also focuses on, and reports where, governors stand on budgetary matters. As a result, voters can easily get information on their judgments and base their votes on those judgments. Thus, budgetary stakeholders limit states' fiscal discretion and influence on state budget choices.

In addition, there is the important political value of the AAA credit rating for a state government. The governments with concerning bond ratings have different budgetary priorities and enact different fiscal policies than other state governments. Thus, a particular

fiscal policy results in different levels of fiscal stability. A government with the AAA rating concerns a level of general balance and is more likely to reduce spending during economic downturns. For instance, CRAs have re-affirmed the State's strong AAA bond rating in the state of Maryland. Regarding this, Fitch Ratings said: "Financial operations are conservatively maintained, with the state consistently demonstrating a strong commitment to budgetary balance through the downturn and slow recovery that has followed. The state has maintained flexibility in the form of its rainy day fund (RDF), which remained funded at or near 5% of general fund revenues through the downturn, as well as it practice of responding quickly to changing budgetary circumstances through *repeated spending cuts*, fund balance transfers and revenue increases."[1]

For example, Martin O'Malley took over as governor of Maryland in 2007 facing estimated deficits. His concern about being the governor to lose the state's AAA rating was the subject of media attention. The credit rating is related to whoever is holding the governor position. Governor O'Malley stated, after all three major rating agencies reaffirmed the State of Maryland's AAA bond rating: "Fiscal responsibility, and taking a balanced approach to investments and cuts, are essential to strengthening our economy. Since 2007, we have made $9.5 billion worth of cuts — more than any administration in modern Maryland history — and our executive branch is the smallest it's been on a per capita basis since the early 1970s" (Governor's Press Office 2014)[2].

On the other hand, Minnesota government officials were frustrated by the loss of a AAA credit rating from one of the CRAs in 2011. If a state's credit rating is downgraded, "the losses of top ratings could carry a cost, virtually impossible to measure, by dragging down

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[1]See: ( http://somd.com/news/headlines/2014/18379)
[2]See : (http://www.afro.com/governor-omalley-issues-statement-on-credit-rating-agencies-triple-aaa-bond-rating/)

the state's reputation" (Beal 2011) .And, generally, the inability of the legislature and the governor to agree on a comprehensive fiscal proposal going forward increases uncertainties across the state (Beal 2011). If a state's credit rating is downgraded, political conflicts between legislatures and the governor exist. For example, Fitch cut Maine's credit rating to 'AA'. In its rating statement, Fitch noted that "Gov. Paul LePage's proposal for balancing this year's budget relies largely on digging into state reserves, a move that could affect the state's ability to react to future budget challenges" (Stone 2013).

After getting this, legislatures in the Democratic Party took news of the Fitch rating downgrade as a sign that

> LePage needs to adopt a more collaborative style. And they also lamented the slow economic growth.Gov. LePage's current approach to the budget and revenues needs to be more collaborative and less like the obstructionist approach of Republicans in Washington. House Speaker Mark Eves, D-North Berwick, said in a statement. LePage has said that he doesn't plan to issue those bonds until next year unless the state can rein in spending. But LePage said last week he would issue bonds this year if lawmakers sign off on his proposal to pay off $186 million the state owes its hospitals for Medicaid services (Stone 2013)[3].

For example, Utah continues to be recognized as one of the best-managed states in America (Governor's Office of Management & Budget 2014). In addition, Utah was graded A in terms of financial management in 2008 for Government Performance Project (GPP) (Barrett and Greene 2008). The GPP has provided states' fiscal performance in proximate years by evaluating multi-year assessment of the management capacity of governments (Rubin and Willoughby 2009). Utah is one of only a few states that preserve the AAA Bond

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[3] Fitch cuts Maine credit rating to 'AA' because of budget gap, 'contentious decision-making environment' Retrieved from http://bangordailynews.com/2013/01/23/politics/maine-credit-rating-cut-to-aa-by-fitch-over-budget-gap-increasingly-contentious-decision-making-environment/

rating. This achievement comes as a result of solid financial management. According to a Moody's report, prudent financial and debt management plans, such as statutory limits on appropriation growth and debt issuance, play a key role for maintaining credit strength (Moody's 2010).

The difficulty in borrowing can restrict spending during economic downturns, generating instability in the responses of government spending. Gavin and Perrotti (1997) argue that credit market problems explain the reasons that fiscal policy in Latin America is highly asymmetric. That is, credit constraints play a role in generating fiscal instability, and then the instability of the macroeconomic environment is a significant factor of the pro-cyclicality of Latin American fiscal policy (Gavin and Perrotti 1997, 43). The state governments concerned with certain bond ratings have different budgetary priorities and enact different fiscal policies than other state governments. In addition, a state with higher credit ratings tries to behave more for the purpose of maintaining its current credit rating (Wagner 1999). CRAs point out that keeping a higher bond rating in a state is the result of a prudent spending propensity; thus, state governments try to adjust their fiscal policies according to the CRAs' notes. As a result, the ratings from CRAs constrain the budgetary behaviors of state governments (Sorensen and Yosha 2001) not increasing expenditure during economic booms, but reducing spending during economic downturns. Thus, we make a hypothesis based on previous studies about the credit ratings of states with respect to fiscal stability.

*H2-1: A state with a AAA credit rating has higher levels of fiscal stability than a state without AAA credit ratings during economic booms.*

*H2-2: A state with a AAA credit rating has lower levels of fiscal stability than a state without AAA credit ratings during economic downturns.*

Governors have considerable influence on state budgets. The governor is considered to have more budget powers than the legislature. Budgeting is also typically considered to be an executive responsibility (Holyoke and Cummins 2012, 4). Endersby and Towle (1997) also examine the impacts of political control on state per capita expenditures. They show that the gubernatorial veto (line-item veto and item reduction veto) and recision power (a governor's power to withhold budgetary appropriations without legislative approval) are statistically significant in limiting spending. In addition, the extent of a governor's control over the budget process is emphasized as a cause of aggressive actions (Hackbart and Ramsey 2004; Breunig and Koski 2009). Therefore, credit rating constraints and their impact on fiscal policies can be dependent on the power of the governor. A governor with strong budget-making power can manipulate the budget relatively easily.

*H2-3: A state with a AAA credit rating with a strong governor has higher levels of fiscal stability than a state with a AAA credit rating with a less strong governor during economic booms.*

*H2-4: A state with a AAA credit rating with a strong governor has lower levels of fiscal stability than a state with a AAA credit rating with a less strong governor during economic downturns.*

2.1.3 Service Continuity perspective

Public expenditures, which are service driven, tend to increase over time. In reality, even though revenue decreases, service demands (e.g. the health care safety net) increase

during economic recession (Felland et al. 2010). Spending needs and demands determine how much state governments must spend to ensure that services are adequate and that citizens are satisfied. As these and other economic indicators worsen, state governments continue to face strong pressures to cut spending on social programs, even though service demands increase as they faces reductions in tax revenues (Gais 2009). The nation's unemployment rate varies from 5.0 percent to 10.0 percent between October 2009 and November 2015, which is critical economic factor influencing welfare caseloads and other means-tested programs provided by state governments (U.S. Department of Labor 2015). On the other hand, service demands are likely to increase during the economic boom when additional resources become available. Thus, the levels of service demand depending on business cycle influence directly to fiscal stability through spending adjustment.

Government officials are concerned about the continuity of services as well as economic growth, because they want to win elections, and voters want to gain policy benefits through government spending. As Chen and Healy (2014) point out, "under a classic view of distributive politics, voters respond positively simply because they are motivated to maximize their share of government spending. They thus tend to reelect incumbents who have delivered distributive benefits to them" (Chen and Healy 2014, 2).State governments spend their money to provide goods and services, but their levels and the patterns of spending are different depending on their internal and external conditions (Kwak 2014; Knight 2002).

Citizens also choose jurisdictions to live in based on their preferences about public goods. Accordingly, government officials decide fiscal policy for services in order to attract and retain citizens by meeting citizen policy preferences (Tausanovitch and Warshaw 2014). According to Tiebout (1956), consumer voters are completely mobile and willing to move to jurisdictions where they are most satisfied (Tiebout 1956). Thus, state governments try to

provide public services that meet their citizens' preferences in order to retain their citizens. In addition, according to Geys (2006), voters pay attention to other states "as a yardstick to assess their own government's competence" (Geys 2006, 3) in terms of service delivery by the governments. Thus, public officials care about fiscal policy (i.e. the composition of government spending).

Nice and Fredericksen (1995) argue that state governments have a considerable responsibility for the delivery of public services and programs. Gargan (2000) also claims that "the programs and services that state and local governments deliver affect citizens most directly and fundamentally." The U.S. Bureau of Census presents a breakdown of state government general expenditures for 2008, indicating about 26 percent for education, about30 percent for public welfare, about 40 percent for hospitals and health, 40 percent for highways, about 28 percent for police protection and corrections (See Table 1).States provide significant direct services, programs, and support to the public, unlike the federal government. These state expenditures were significantly influenced by the national economic recession. Expenditures from state general funds decreased significantly in both fiscal years 2008 and 2010 (nearly 12 percent, or by $78.5 billion) because of revenue shortfalls during recent economic downturns (NASBO 2010).

Table 1. State Expenditures of Total Spending

| Types | State (billon) | Total | Proportion (%) |
|---|---|---|---|
| Pensions | 160.1 | 862.3 | 18.6 |
| Health Care | 389.3 | 961.6 | 40.5 |
| Education | 232.5 | 884.1 | 26.3 |
| Welfare | 115.3 | 385.9 | 29.9 |
| Protection | 68.6 | 241.7 | 28.4 |
| Transportation | 104.2 | 258.3 | 40.3 |
| General Government | 51.6 | 159.3 | 32.4 |

(Source: www.census.gov)

The composition of state spending has become more counter-cyclical, meaning that health and welfare programs have become a larger portion of state budgets, and demands for those programs have increased during economic downturn (Dye and McGuire 1999; Gais 2009; Grogan and Rigby 2009). For example, applications for unemployment and welfare benefits rise as a state's unemployment rate increases. Based on a Kaiser Family Foundation report (2008), a 1 percent increase of the unemployment rate increased Medicaid and the State Children's Health Insurance Program (SCHIP) enrollment by 1 million, Moreover, it resulted in the growth of those uninsured by 1.1 million. This indicates that Medicaid and SCHIP costs increased by $3.4 billion, with $1.4 billion coming from state spending. Even though needs for social services increase, state governments face significant pressures to reduce the expenditure of those programs when under fiscal distress because of the revenue shortage. The degree to which economic downturns affect state welfare spending depends on the state's response with revenue and expenditure during the downturn. McGuire and Merriman (2005) investigated whether states reduce or increase welfare spending during economic downturns, examining the relationship between a percentage change in the unemployment rate and welfare spending levels. They found that a 3 percent increase in the unemployment rate is related to a 13 percent increase in social assistance spending, whereas total state spending declined.

Regarding welfare spending, some states increase welfare spending, while others do not do so during economic down times. This is related to states' fiscal capacities, socio-economic conditions, political factors, and policy changes that are a result of federal grants (Department of Health and Human Services 2014; Gais 2009; McGuire and Merriman2005). During an economic downturn states are challenged to develop balanced budget policies that navigate between quick obligations and program stability, as well as efficiency in addressing

the gap until economic recovery (Baker and Deutsch 2009; McNichol, Oliff, and Johnson 2011). Under this condition, federal assistance is lessening the extent to which states need to take pro-cyclical actions, such as increasing service cuts or tax rates that worsen the economy condition (McNichol, Oliff, and Johnson 2011). Table 2 indicates the cyclical behavior in expenditures of subnational governments from 1977 to 2008. Spending on social services, including health and hospitals and public welfare, has countercyclical patterns, which means that subnational governments do not reduce spending on social services during economic downturns. However, general expenditures by state governments are pro-cyclical.

Table 2. Cyclical Behavior of State and Local Government Expenditures, 1977 to 2008

| Expenditure function | Correlation with GDP | Cyclical behavior |
|---|---|---|
| General expenditures | 0.34 | Procyclical |
| Capital outlays | 0.50 | Procyclical |
| Current expenditures | 0.23 | Procyclical |
| Elementary and secondary education | 0.60 | Procyclical |
| Higher education | 0.29 | Procyclical |
| Health and hospitals | -0.36 | Countercyclical |
| Highways | 0.53 | Procyclical |
| Police and corrections | 0.38 | Procyclical |
| Public welfare | -0.31 | Countercyclical |
| All other current expenditures | 0.40 | Procyclical |

(Source: General Accounting Office report 2010)

Regarding the spending propensity, based on Keynesian macroeconomic theory[4], during a recession, high unemployment leads to a decrease in aggregate demand in the economy; government can address this problem by increasing demand through increased government spending as opposed to cutting spending (Gwartney et al. 2014).

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[4]John Maynard Keynes, The General Theory of Employment, Interest and Money, published in 1936

The effects of government intervention are multiplied as businesses hire workers and those with incomes pour that money back into the economy in the form of household spending (Gravelle and Hungerford 2013). Keynesian theory argues that the multiplier effect of government spending is larger than the effects of reducing taxes, because individuals and businesses may save instead of spend the difference (Mankiw 2010). When the governments purchase some goods, that policy has 'repercussions'. The instant impact of the increasing demand of the government is to raise employment and income at recipients (i.e. households, firms) (Mankiw 2014). Then, the consumers would raise their spending level. When consumer spending rises, firms hire more people. Thus, there is "positive feedback as higher demand leads to higher income, which in turn leads to even higher demand. Once all these effects are added together, the total impact on the quantity of goods and services demanded can be much larger than the initial impulse from higher government spending" (Mankiw 2008, 484). Other research indicates that increases in government spending are more likely to have a larger stimulative effect than tax cuts, given the more immediate fiscal boost to the economy growth that such financial aid provides (Zandi 2008; Orszag and Stiglitz 2001).In conclusion, priorities regarding economic growth, or the multiplier effect of continuous government spending, influence the fiscal stability of a state government.

In addition, there are previous studies on the relationship between the composition of public expenditure and economic growth (Devarajan, Swaroop, and Zou 1996; Fan and Rao 2003; Riscado et al. 2010). "Understanding why certain countries spend more on one sector than others will help developing countries reallocate government resources to the most productive sector by focusing on major forces behind existing patterns" (Fan and Rao 2003, 17). Here, according to Fan and Rao (2003), the composition of government expenditures reflects government spending priorities. The composition of government expenditures differs

across regions. Lane (2003) also builds measures of cyclicality for spending categories, stating that capital expenditure is considered to be the most pro-cyclical component of government spending, while current spending is considered to be mildly countercyclical. Thus, we make a hypothesis based on previous studies about service priorities with respect to fiscal stability.

*H3-1: A state with a higher proportion of current spending has higher levels of fiscal stability than a state with a lower level of current spending during economic downturns.*

*H3-2: A state with a higher proportion of current spending has higher levels of fiscal stability than a state with a lower level of current spending during economic booms.*

How, and to what extent, budgetary priorities influence fiscal stability should be explored. The government tries to employ multiple strategies in order to stabilize its budget and reduce the negative impacts from economic swings. Regarding budgetary behaviors, Rubin (2005) indicates that a change in the environment can influence participants' fiscal decisions that reduce or increase their activities. The environmental changes (e.g., economic situation, political change including legislatures) affect fiscal stability directly or indirectly through adjustments to the budgetary priorities of state governments.

This study examines budgetary priorities from multiple perspectives. Concerning the importance of the institutional environment, diverse institutional contexts are also complicated and vary by government. When considering budgetary priorities in multiple perspectives, diverse institutional and other political environmental situations of each government should be included. Public budgeting is characterized by "patterns of conflict among various actors in the budgetary process who have different stakes in the outcome" (Lynn 1991, 74). These patterns of interaction within the institutional context are more likely

to have a "strong bearing on the extent to which utility maximization leads to budget maximization" (Lynn 1991, 73). Lynn argues that a bureau's budget strategies result from complex strategic relations among actors with differing purposes within various contexts. Thus, budgetary outcomes (i.e., stability) from budgetary behaviors include elements of ambiguity. This study examines fiscal stability as a budgetary behavior from different budgetary priorities across states and compared to business cycles. States usually face revenue and expenditure changes during every business cycle. State budget priorities, being composed of utility maximizer, budgetary stakeholders, and service continuity, can be affected by business cycles as well as by different internal environments. Accordingly, collected budget outcomes might fluctuate over business cycles. In order to see the different environments on budget priorities and their results on stability, this study will consider diverse factors such as structural factors, institutional factors, political environments, grants and other economic conditions in states.

2.1.4 Other Relevant Factors on fiscal stability

(1) Budgetary institutions on fiscal stability

Budgetary institutions in government responsiveness constrain purely individual behavioral determinants of fiscal policy. Johnson and Kriz (2005) argue that "fiscal institutions are intended to constrain the behaviors of government officials. Indeed, the limits and rules are explicitly designed to supplant the fiscal decision making of government officials in favor of the limit or rule, imposed either directly by voters or through their representatives in the legislature, and embodied in state statutes and often in the state constitution" (Johnson and Kriz 2005, 85). Fiscal institutions can play a role in decreasing the

principal-agent problem wherein public officials might deploy revenues in ways that are not most preferable to the taxpayers (Johnson and Kriz 2005).

However, it is still questionable whether these institutional constraints lead to efficient responses to fiscal shocks or economic crisis thorough the adjustment of the fiscal policy. Several scholars argue that budgetary institutions can cause a decline in average budget deficits and respond more efficiently (Alesina and Perotti 1995). However, other scholars argue that governments with such constraints are less likely to respond efficiently to economic shocks (Poterba 1994). In terms of budgetary institution constraints, it is necessary to explore whether these constraints lead to effective budgetary responses in practice across states and time periods.

Previous studies (Brook and Phillips 2010; Volden 1999; Wildasin 2004) emphasize the institutional factors on fiscal policy and fiscal impacts. They include the stringency of balanced budget rules, tax and expenditure limitation (TEL), partisan divisions within or between government branches, and the political climate of each state. Existing research has examined the impact of institutional and political influences on state government fiscal policies more generally (Alt and Lowry 1994; Endersby and Towle 1997; Hoover and Pecorino 2005; Lowry, Alt, and Ferree 1998), and it is likely that similar factors will influence state budgetary strategies and their impacts on fiscal stability. For instance, more restrictive state fiscal institutions such as "no-deficit carry over" rules and tax and expenditure limitations (TEL) inhibit state fiscal adjustments in an economic crisis (Poterba 1994). Below is an explanation of specific budgetary institutional factors:

*1) Budget Balanced Rules (BBR)*

State governments are required to balance their budgets, which is different from the federal government. Each state has different rules regarding the level of reserve and balancing requirements as well as restrictions on debt levels. Budget balance generally refers to the prohibition of operating a budget deficit in a budget year. Budget balance rules "can be broadly categorized, depending on the stage in the budget process at which balance is required" (Poterba 1996, 396). There are four types of balance rules: 1) a governor must submit a balanced budget to the legislature; 2) the legislature must pass a balanced budget;3) the governor must sign a balanced budget; and 4) a deficit cannot be carried over into the next fiscal year (Hou and Smith 2006; NASBO 2008; Poterba 1996). Among these four balance requirements, prohibiting states from carrying over a deficit is considered the strictest (Alesina and Bayoumi 1995; Bohn and Inman 1996).

Previous studies (Alesina and Bayoumi 1995; Bohn and Inman 1996) find that states with the strictest form of balanced budget requirements are more likely to have larger general fund surpluses and are less likely to run deficits (Hou and Smith 2006; Kiewiet and Szakaty 1996; Knight and Levinson 2000). Schultheis (2010) also shows that states that allow deficits to be carried over to the next fiscal year have lower year-end budget balances than those states with a no-carry-over rule. This indicates that less strict budget balanced rules, such as allowing the deficit carry-over, might result in increased spending levels and negatively influence fiscal stabilization.

Furthermore, if a state is permitted to carry over a deficit into the next budget cycle, the year-end fund balances increases. More lenient balanced budget requirements suggest that a state has no need to employ the current surplus in order to lower deficits. Thus, allowing deficits to carry forward is reasonable when fiscal conditions face little improvement in the year following a recession (Hou 2004).Previous studies have also explored how the strictness

of BBR influences fiscal policy (Alt and Lowry 1994; Bayoumi and Eichengreen 1995; Bohn and Inman 1996; Poterba 1994; Rose 2006). Results show that the stringency of BBR influences fiscal policy with less discretion. For example, Levinson (1998) reveals that a state's fiscal institutions have an impact on macroeconomic results, and strict BBRs decrease business cycle fiscal stability. However, Fatas and Mihov (2006) argue that less strict BBRs decrease business cycle fiscal stability. Poterba (1994) also shows that states with more stringent rules were quicker to reduce spending than states with less stringent rules, because states with more stringent rules should respond more to negative revenue shocks than those without. Battaglini and Coate (2008) argue the necessity of imposing a constitutional constraint that prevents state government from running deficits. Likewise, Hou and Smith (2006) argue that the establishment of BBRs is an effective way to restrict state spending and keep the budget balanced. In addition, states may fund RDF or BSF to avoid a constrained fiscal environment brought about by the above-explained BBRs. While the majority of states adopt BSF, not all states have one or the same funding rules and balance requirements. In conclusion, state's fiscal policies have policy outcomes, and strict BBRs impact business cycle stability.

### 2) Tax and expenditure limits (TELs)

Tax and expenditure limits (TELs) constrain the level of government revenues or spending increases to a fixed numerical target (Mullins and Wallin 2004). For revenue limits, "these cap the amount of revenue that can be collected, while expenditure limits attempt to constrain spending during fiscal year" (Mullins and Wallin 2004, 7). TELs may sound "compatible with stabilization rules, in particular by constraining state revenue growth to inflation-plus-population growth" (Schunk and Woodward 2005, 124). According to

Waisanen (2010), thirty states built at least one TEL in 2008. As other devices for restraining tax increases, sixteen states adopted the requirement for legislative or voter approval of the enactment of additional taxes in 2008 (Waisanen 2010).

A number of previous studies examine how TELs work and other implications for state fiscal policy (Brooks and Phillips 2010; Gordon 2008; Waisanen 2010). Research on TELs investigates impacts on state responses and state stability according to the business cycle. Rueben (1995) found that the existence of TELs, in order to adjust spending levels, resulted in a 2 percent reduction in state expenditures. Bails and Tieslau (2000) also provides the similar result that state expenditures per capita with TELs are less than those without TELs. Brooks and Phillips (2010) indicated that districts with a restriction such as TELs spend less than those lacking such restrictions. Poterba (1994) argues that states with TELs are more likely to adjust faster than states without TELs. But, he does not find a difference in spending reduction behavior between states with TELs and states without TELs. Fatas and Mihov (2006) explain that strict restrictions result in lower discretion of policy responses and state governments with strict restrictions can maintain the stability from business cycles. However, research shows different results, namely that governments with stringent TELs cannot recover well from recessions and tend to have less revenue stability than governments with less strict rules (Levinson 1998; Martell and Teske 2007). Bails and Tieslau (2000) found that TELs resulted in limiting state spending. That is, TELs influence the fiscal policy of state governments and budgetary outcomes, like stability, by reducing discretion in fiscal policy.

(2) Structural factors on fiscal stability

Hendrick and Crawford (2014) argued that the fiscal structure can also create financial risks because certain fiscal structures can be more exposed to the positive effects of fiscal stability. For example, governments with a revenue structure that rely on elastic revenue are more likely to be vulnerable to economic stress. Holding higher levels of slacks can offset these effects. Specifically, "higher levels of risk in a government's fiscal structure can be balanced with higher levels of slack to maintain financial condition and stabilize services delivery during volatile periods" (Hendrick and Crawford 2014, 11). According to the authors, the diversification and investment of resources within a diversified investment portfolio can reduce the risks associated with resource investment in budget strategies. In this study, two structural factors, such as saving levels and federal grants, are discussed.

*1) Saving factors*

Many states protect and maintain a reserve in preparation of economic downturn when revenues decline and there exists a need for public services (Zahradnik and Ribeiro 2003). A rainy day fund (RDF), or budget stabilization fund (BSF), becomes a major fiscal savings device (Hou 2003). RDF and BSF are defined as "funds that have an enabling legislation, accumulates across budget cycles and serves the whole governmental entity for general purposes" (Hou 2003, 1). From the perspective of policymakers, BSFs may be a more attractive method for coping with economic stress than spending cuts and tax increases. This is because spending cuts and tax increases are thought to result in a longer period of downturn. Also, these spending cuts and tax increases are politically costly because citizens disapprove of those kinds of decisions. Policy makers have a greater incentive to save during economic growth, but there are several pressures from voters and interest groups to reduce

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taxes or increase services (Wagner and Elder 2005). Politicians must also care about both voters and interest groups in order to win elections. Because of those sources of pressure, budget surpluses are difficult to accumulate and maintain.

The subnational countercyclical theory supports the fiscal policy for stability (Hou 2003). State governments can lessen the variability from business cycles by reducing spending to generate reserves during boom times and by using those reserves during downturns. Here, particular types of structured BSFs are considered meaningful tools for providing an increase of savings in the state government. However, to what extent savings is helpful for stability still needs to be explored. Each state has a different level of RDF or BSF; requirements for these funds are stipulated in state constitutions or statutes. Higher saving reserves are considered a legitimate measure of a state's ability to respond to unexpected revenue shortfalls (Zahradnik and Johnson 2002; Cummins 2008). During the most recent Great Recession, a report by the National Conference of State Legislatures (2010) warned about a "cliff effect" in the states – when federal money ends or is exhausted, states will have to fill substantial budget gaps. Such a situation attests to the importance of having a healthy balance in the RDF or BSF. On the other hand, although RDFs ought to help cushion states in periods of fiscal crisis, this may not be the case. Some states have rules that these funds be replenished after they are used, even if the economy has not rebounded. Some policymakers also advocate saving, rather than spending, these funds, contending that a further decline in the economy will necessitate tapping into the reserve (Zahradnik and Ribeiro 2003). For example, the RDF must be replenished over a three year period in Missouri and South Carolina, and over a two year period in Rhode Island (Zahradnik and Ribeiro 2003).

In terms of particular cases of saving in state governments, during the 1990-1991recession, Georgia experienced a high level of state budget deficit, while Wisconsin did

not. However, in the 2002 recession, Wisconsin was in worse fiscal condition than Georgia. The responses to the economic recession by these two states were different from each other. Lauth (2003) explains that policy makers in the state of Georgia have encouraged savings in boom times by accumulating the reserve. Conant (2003) points out that in boom periods Wisconsin has historically expanded state spending. Thus, during the 2002 recession, Wisconsin had no RDF that could mitigate the negative effects of the recession. This indicates that rainy day funds assist in stabilizing budgets in the state government.

For mitigating instability and economic stress, RDFs and BSFs are a more appealing tool than expenditure reductions or tax increases, for obvious political reasons (Hou and Duncombe 2008). In fact, the increased utilization of these funds over the past decade indicates that state policymakers place great importance on such savings to offset revenue shortages (Zahradnik and Johnson 2002). According to Hendrick and Crawford (2014), governments are dealing with spending stability using the tools available in the fund balance (reserves), and it is an important tool for maintaining stability.

Some states comply with the build capacity of countercyclical fiscal policy, but others face pressures to spend their money during economic booms. State policymakers are reticent in terms of spending down their RDF or BSF concerning about the further decline of economic conditions. State officials hold that bond rating agencies perceive drawing on these funds negatively and that such action might lead to a lower bond rating in the future. For example, in fiscal 2001, Florida introduced about $1 billion in budget cuts without touching the state's $941 million RDF. Likewise, decision makers in other states prefer significant budget cuts and making only minimal use or no use at all of their RDF or BSF (Zahradnik and Johnson 2002).

Previous studies show that building and maintaining a reserve is generally viewed as good fiscal policy (Douglas and Gaddie 2002; Hou 2004, 2006). Higher levels of reserves provide higher countercyclical fiscal capacity to state governments, which can be translated into actual performance (Hou 2004). Hou (2004) argues that rainy day funds play the role of a counter-cyclical pressure for state expenditures. Hou (2006) explains that states with robust rainy day funds before recessions fared better than those that did not. Douglas and Gaddie (2002) also argued that stronger rainy day funds assist in the lessening of state fiscal stress, and help the state to continue to provide services during the recession. This saving factor with rainy day funds is influenced by other factors, such as a political party or credit rating agency, in that states with high reserves are rewarded with higher credit ratings or lower borrowing costs.

### 2) Grants

Federal grants influence state spending levels and tax rates. During periods of economic downturn, federal funding is a stabilizing force for state governments (Fiscal Policy Institute 2010; Gamkhar and Pickerill 2011; Mattoon et al. 2010). By providing temporary fiscal relief, federal grants can support state government budget behaviors that minimize tax increases and/or expenditure cuts (Fiscal Policy Institute 2010; Orszag and Stiglitz 2001). Also, federal funds being allocated to states during these periods can help states protect their core services. The federal government presumably (and often overtly) provides such funding to states for the "stimulative" effect – to counter the effects of an economic downturn nationwide. Therefore, the federal government would expect states to use these funds in specific ways quickly to address things like high unemployment, increased

poverty and expanding health services according to the needs of citizens. That is, federal stimulus funds are primarily for the purposes of spending. For example, in 2003 state governments continued to suffer substantial budget shortfalls, even though the national recession had ended in 2001 (McNichol et al. 2011). Budget relief, offered by Congress and signed by President George W. Bush in 2003, supported states with 15 months of funding that helped the states recover without having to make large spending cuts or tax increases (Fiscal Policy Institute 2010). More recently, the American Recovery and Reinvestment Act (ARRA) of 2009 set aside $135 billion for state fiscal relief; relief that allowed states to maintain core services (Super 2005).

In particular, the federal Medicaid program has played a critical role as a fiscal stabilizer in the states. The cost of Medicaid is jointly supported by the federal and state governments. The federal government pays from 50 to 83 percent of the costs of the program, depending on federal matching assistance percentages (FMAPs) that exist in each state. Despite this, Medicaid expenditures comprise a significant share of state budgets (about 16 percent of a state's general fund expenditures, on average, and this figure is growing) (Kaiser Family Foundation 2004). Especially during a recession, as the unemployment rate increases and the unemployed lose their health care coverage, this program and its costs skyrocket. Federal stimulus funding legislation in both 2003 and 2009 included a Medicaid adjustment to help states stabilize their budgets.

Another way that federal funding can stabilize state budgets involves their positive effects on employment rates (Chodorow-Reich et al. 2011). Temporary expansions in unemployment insurance can provide benefits to unemployed workers and, subsequently, boost household spending. This succession of events can greatly improve a state's economic condition because of the potential increased revenue base (sales) (Gamkhar and Pickerill

2011; Orszag and Stiglitz 2001). Increases in federal stimulus money to states during 2008 and 2009 helped unemployment rates reduce, and additional federal housing assistance reduced home foreclosures. Both of these results helped states stabilize their budgets. However, the effects of federal funds on state policy responses to such aid are not clear. Recent work by Inman (2010) points out that states are not passive actors regarding fiscal federalism. That is, states face pressures to "save" federal grant money in order to rebuild their rainy days funds, to build other fund balances, or to reduce their debt burden. In addition, some states engage in budget making that is highly ideological, and budget decision makers may even be reluctant to accept federal funding given a goal conflict with federal priorities (Croty 2004; Rich 1989; Stein 1979).[5] In conclusion, the potentially positive results of federal grants, when used as intended, work to stabilize states economically (i.e. reduce spending cut during economic downturn).


(3) Political factors on fiscal stability

A divided government, as well as whether political control is held by Democrats or Republicans, has been shown to affect state responses to fiscal instability (Alt and Lowry 1994; Poterba 1994). Government fiscal responses to economic changes or policies are controlled by political institutions and conditions (Porteba 1994; Howard 2009). Democrats favor more public spending, while Republicans are more concerned about controlling inflation with less spending. Therefore, the two parties have different preferences about fiscal policies and respond differently to economic shocks and budget deficits. In addition, politically divided governments result in different fiscal outcomes. For example,

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[5] For example, Governor Freudenthal of Wyoming has said, "If it is simply money that is available, but it is not money that works with the agenda that works in Wyoming, I'm not going to take it" ("Governor Says He'll Scrutinize Stimulus Funds," *Casper Star-Tribune*, 2009).

disagreement in the decision-making process leads to ineffective responses to fiscal shocks and budget deficits (Roubini and Sachs 1989). Furthermore, opposition parties employ substantial power to oppose the proposals of dominant parties, without having enough power to advance their own agendas. According to Howard (2009), "Weak enforcement mechanisms due to imperfect information in the electorate, prevents voters from discerning which party is responsible for any given outcome. Therefore, there is no real incentive for conflicting parties to respond effectively" (Howard 2009, 8).

According to previous empirical studies, divided government, party affiliation of the governor, and other political factors influence state fiscal policy and outcomes (Alt and Lowry 1994, 2000; Lowry, Alt, and Ferree 1998). Alesina and Rosenthal (1994) argue that divided governments behave differently and choose different economic policies compared with single-party ones. The authors state that fiscal policy outcomes are influenced by party control of the government Therefore, divided-party governments do not react as quickly to fiscal stress and recessionary shocks, such as unforeseeable deficits, as a unified government. For example, regarding additional reserves, the divided party government should compromise on how to spend the money. Thus, it makes states decide slowly and spend even more slowly, often keeping the money in their general fund account.

Likewise, Roubini and Sachs (1989) find that governments with divided control have higher budget deficits than those under the control of a single party. Divided governments are more vulnerable to fiscal distress and are more likely to respond to stress too late. Clarke (1998) argues that conflict over state budgets is higher with divided government than unified ones. Also, it could be the case that different parties have different spending priorities. For example, Crain and Muris (1995) show that divided government reduces state spending.

Also, divided government between the governor and majority in the state legislature is indicative of the level of friction between the executive and the legislative branches on fiscal policies such as state savings or spending. This assumes that the existence of political conflict between the two branches leaves savings more exercisable, because of conflict for public spending. Divided government decreases spending because conflict between (and within) executives and legislatures reduces the possibility for the passage of new spending programs (Gould 2009). Hou (2004) argues that the sign of this party division within the government increases the general fund balance, rather than spending.

Regarding political propensity in fiscal policy, fiscal policy may reflect decision makers' partisan preferences within a state (Alt and Lowry 1994, 2000). Specifically, elected officials use extra resources in order to expand their preferred programs (Volden 1999). Different government parties have different preferences involving the establishment of fiscal policies, and especially regarding reactions to unexpected revenue shortfalls. Also, each has different goals and responds differently to increasing or decreasing resources. Alt and Lowry (1994) find that states under Democratic control show a lower tendency to improve the fiscal balance than states governed by Republicans. In contrast, Democrats try to use increased revenue for public spending more than Republicans. It is generally considered that Republicans tend to prefer "smaller government" and Democrats are more likely to prefer "bigger government," which indicates that Republican are more fiscally prudent than Democrats. Thus, Republicans prefer less public spending and more savings than Democrats. Singhal (2008) finds that Republican governors spend less than Democratic governors.

In addition, regarding the reserves, Democrats are more likely to spend from the reserves or allocate less money to the general fund balance. Republicans, on the other hand, are more likely to reduce revenues when they face budget surpluses (Alt and Lowry

1994).Thus, state political cultures might affect state spending on state programs. Erikson, Wright, and McIver (1989) show that liberal states increase their welfare benefits at a higher rate. Brown (1995) found that the Democratic Party's control over the state government has a greater impact on welfare efforts. Thus, it presupposes that the states with Democratic decision makers have different fiscal policies from those with Republican decision makers.

Hou (2004) shows the specific impacts of political factors on saving behaviors in state governments. He emphasizes that "how to fund a budget stabilization fund (BSF) has been, and will remain, a political phenomenon in most states" (44). It depends on the moods of both the governor and the legislature and their support for transferring funds into the BSF (Hou 2004). Politically, depositing surplus funds into a BSF is a less preferable choice for a politician compared to either cutting taxes or increasing spending during economic downturns.

Interestingly, legislative influence on saving budget decisions is statistically more significant than gubernatorial influence.[6] The particular rule that dictates that "the legislature passes a balanced budget" improves the BSF balance because legislatures are less likely to use the BSF to fill in revenue shortages by balancing the budget. Also, it is because adopting RDFs should be preferable, with agreement from state legislations. Further, maintaining BSFs is considered by state decision makers as a means to maintain or even improve fiscal discipline. State government officials who have struggled with reserving resources for the general fund may fund a BSF in order to increase fiscal health. In contrast, those state legislators who have historically shown a commitment to saving may decide to choose to adopt a BSF to ensure that fiscal health continues (Wagner 1999). Meanwhile, in order to

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[6]Both studies (Wagner 1999;Hou 2004) show that the budget process related to the governor on BSF is not statistically significant.

balance the current budget, expenditures in the current year may have had to be restrained within available means so that the state can divert funds into the BSF. In conclusion, divided government can influence the fiscal policy and the impact of budgetary outcomes.

(4) Economic factors on fiscal stability

State economic factors such as the composition of industries, populations, and other contexts influence the level of fiscal stability (Pew Charitable Trusts 2014). This indicates the magnitude of economic conditions that influence states differently, and states have different capabilities to deal with economic stress. For example, if unemployment increases, states collect less tax revenue. In this case, the state has used several strategies in order to balance the budget by "using rainy day funds, cutting spending, issuing additional debt, or relying [more] on the federal government for funds" (The Pew Center on the States 2009). Schultheis (2010) shows that decreased unemployment rates lead to increased budget year-end balances, indicating that states in better economic condition have healthier year-end budget balances. If consumers spend less and unemployment rates rise, state revenue from income or sales taxes decrease. It makes state economic conditions worsen. Therefore, the state has few other options but to use RDFs, or to rely more on federal funds (The Pew Center on the States 2009). In contrast, states with better economic conditions hold reserve funds better than states in worse conditions. Further, states where the ratio of the real gross debt to personal income is low are more able to pay back debts and are therefore more likely to hold reserves.

Status of expenditures is influenced by state fiscal condition (Hicks and Swank 1983; Hines 2010; Steuerle and Mermin 1997). It is typically assumed that states with a higher poverty rate or greater need will focus their expenditures more on programs aimed to

alleviate poverty. Mogull (1990) suggests that, firstly, high poverty levels increase the demand for service from eligible persons and, secondly, that high unemployment rates and other factors of need significantly affect social welfare spending by increasing the numbers of eligible families. Hicks and Swank (1983) also found a correlation between need and the volume of welfare caseloads. Nevertheless, states in poor fiscal capacity are likely to allocate less funds to social welfare programs than states in better fiscal condition, because they do not have their own source revenue to support the current programs. However, they should meet increased welfare demands under the economic decline; so they should rely on outside money, besides their own source revenues, in order to meet the service levels. Given this literature, economic conditions in states can influence fiscal policies as well as budgetary outcomes.

The Pew Charitable Trust (2014) provided examples with Nevada and West Virginia, in order to show that volatilities depend on economic conditions within states. In 2005, Nevada achieved a high rank among the nation in revenue growth, primarily from job growth and population. However, by 2010, Nevada suffered mostly from unemployment and foreclosures due to the economic recession. Over five years, Nevada's economy went from top to bottom among every other state in terms of economic performance. West Virginia was, on the other hand, more stable. "Severance tax revenue rose 66 percent between budget years 2007 and 2012, offsetting significant losses in the state's personal income tax and sales tax receipts over the same period" (Pew Charitable Trusts 2014, 1). As a result, West Virginia did not even withdraw reserves during the recession.

Hou (2006) provides an economic structure (ES) in states. The variable composition of state industries leads to changing levels of state revenue according to the business cycle. It is related to fluctuations in state expenditures during economic downturns. The author

includes eight economic sectors for industry composition. According to Hou, "six of the eight sectors are pro-cyclical: manufacturing of durable goods, manufacturing of nondurable goods, mining industries, construction, electronics, and agriculture, forestry, and fishing. The government sector is countercyclical, because in recession years more people rely on welfare. The finance, insurance, and real estate sector are insensitive to business cycles" (Hou 2006, 738).

## 2.2 Context

2.2.1 Recent State Conditions from Fiscal Stress

During an economic downturn, states are challenged to develop balanced budget policies that navigate between quick obligation and program stability as well as efficiency in addressing the gap until economic recovery is achieved (Baker and Deutsch 2009; McNichol et al. 2011). Also, the revenue shortfalls in most state governments might continue after the recession has ended (Schunk and Woodward 2005). Schunk and Woodward (2005) argue that recent budget problems arise from cyclical forces. It means "from the national and global economic downturns that states do not prepare for adequately" (Schunk and Woodward 2005, 109). Thus, state revenue is susceptible to economic swings and variation depending on economic swings. Regarding these swings, Conant explains the business cycle in 2003:

> Often described as the "boom and bust cycle" in state budgeting, this fiscal pendulum is both associated with and driven by swings in the national economy. During the early and middle stages of the boom, or economic growth phase, state revenues tend to grow at a more rapid rate than expenditures. At least in the short term, this gives elected officials the opportunity to cut taxes and raise spending without creating deficits. In the long term, however, these

actions may put the state budget permanently out of balance.

All states, except Vermont, have a constitutional and/or statutory requirement that their budgets be in balance. Because of these requirements, states cannot run deficits when tax revenues fall, as they have done spectacularly in the recent Great Recession. Also, various tax and expenditure limitations further constrain governments in their ability to recoup revenues in periods of fiscal crisis. Recently, since the start of the Great Recession in December 2007, U.S. state governments have suffered severe fiscal stress, experiencing gaps of about $304 billion between projected revenue and spending (The Pew Charitable Trusts 2010). By the middle of fiscal year 2009, 44 states indicated fiscal deficits of $78 billion, or about $260 per capita (Inman 2010). The term "budget," or phrase "fiscal deficits," indicates the "end of fiscal year circumstance in which expenditures exceeded revenues" (Conant 2010). The national unemployment rate currently stands about 10.92 percent in 2009, almost doubling from 5.47 percent in 2006. The figure is dramatically higher for certain states and populations. For example, the unemployment rate in Nevada and California is more than 12 percent, and young workers and African Americans are experiencing ever higher unemployment rates (Bureau of Labor Statistics 2011). Higher unemployment, coupled with the stagnant salaries of those employed, has dramatically reduced revenues in state governments that are heavily dependent on sales taxes, income taxes, or both.

In order to balance the budget, states cut services and increase fees or taxes. States made close to $22 billion in cuts to their fiscal 2010 budgets after enactment. These cuts were predominantly in higher education and corrections (74 percent of states) and K-12 education (70 percent of states), followed by Medicaid (62 percent of states), public assistance (44 percent of states) and transportation (42 percent of states) (NASBO 2010, 4). According to the Center on Budget and Policy Priorities (2011), service cuts have been implemented since

2008 in most state services such as health care (31 states), services for vulnerable populations such as the aged and disabled (30 states), and furthermore in K-12 education (35 states) and higher education (43 states). These cuts have worsened states' economic problems because individuals and businesses have less to spend (Johnson, Oliff, and Williams 2011). For the near future, after a recession ends, many states still try to close their budget gaps. These gaps are difficult to address because there are only a few options to close them, and the option of employing temporary federal aid as one way has expired. Also, states keep struggling to find the revenue needed to provide critical public services.

Dougherty and Klase (2009) examined the budgetary responses of several states to their budget deficits between 2002 and 2005. According to the research, states initially applied across-the-board cuts and hiring freezes, but as deficits increased, they were more likely to use targeted cuts (Dougherty and Klase 2009). That is, state governments have deployed a number of methods in order to stabilize and balance the budget during economic downturns. It is quickest to make expenditure cuts, and expenditure cuts to personal services offer an immediate and significant adjustment. States use across-the-board cuts to programs, selective expenditure cuts, delayed aid to local governments, and other tactics.

Table 3 shows reduction strategies in the budget by states for fiscal years 2001 through 2011. State actions increase in variety and number by the second year of the 2001 recession, with the most recent one being before the current Great Recession. By 2003, at least one third or more of states engage in layoffs, across the board cuts, increasing fees or making other revenue increases, accessing rainy day funds, and taking other actions to stabilize the budget. As the condition of the economy recovers, state budgetary activities for cutting services or increasing fees for stabilization are less necessary, and this is indicated by marginal actions beginning in 2004 and through 2007. By 2008, as the country barrels

headlong into the deep recession, 20 percent of states indicate needing to make across the board cuts.

Table 3. Budget Reduction Strategies by State, Fiscal Years 2001-2011

| | Fiscal Year | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | Tol |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Personal Changes | Salary Reduction | | | | | | | | | 18 | 24 | 24 | 66 |
| | Cut Employee Benefits | | | | | | | | | 12 | 18 | 22 | 52 |
| | Hiring Limits | 0 | 12 | 10 | 2 | 0 | 0 | 0 | 2 | | | | 26 |
| | Furloughs | 0 | 12 | 18 | 4 | 0 | 2 | 0 | 0 | 30 | 44 | 26 | 136 |
| | Early Retirement | 2 | 30 | 32 | 6 | 2 | 2 | 0 | 6 | 38 | 52 | 38 | 208 |
| | Layoffs | 2 | 30 | 32 | 6 | 2 | 2 | 0 | 6 | 38 | 52 | 38 | 208 |
| Spending Strategies | Program and/ or Agency Reorganization | 2 | 26 | 26 | 4 | 4 | 2 | 0 | 8 | 14 | 28 | 36 | 150 |
| | Privatization | 0 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 6 | 10 | 28 |
| | Across-the Board Cuts | 20 | 54 | 64 | 12 | 10 | 4 | 2 | 20 | 58 | 56 | 36 | 336 |
| | Targeted Cuts | 2 | 4 | 4 | 8 | 2 | 0 | 0 | 4 | 66 | 72 | 68 | 230 |
| | Reduce/ Delay Local Aid | 0 | 16 | 22 | 4 | 2 | 0 | 0 | 4 | 34 | 44 | 40 | 166 |
| Revenue Strategies | Increase or Add Taxes | 0 | 8 | 4 | | | | | | | | | 12 |
| | Increase or Add Fees | 0 | 10 | 32 | 4 | 0 | 0 | 0 | 2 | 28 | 46 | 40 | 162 |
| | Revenue Increase | 0 | 18 | 32 | | | | | | 2 | 10 | 18 | 80 |
| Access Rainy Day fund | | 10 | 52 | 50 | 8 | 6 | 4 | 2 | 18 | 50 | 38 | 30 | 268 |
| Other Actions | | 0 | 64 | 58 | 34 | | | | | 32 | 44 | 36 | 268 |
| Total | | 38 | 340 | 384 | 92 | 28 | 18 | 4 | 70 | 426 | 534 | 462 | |

(Source: NASBO Fiscal Survey of the States December, 2001-2010)

Figure 1. Trend of Revenue
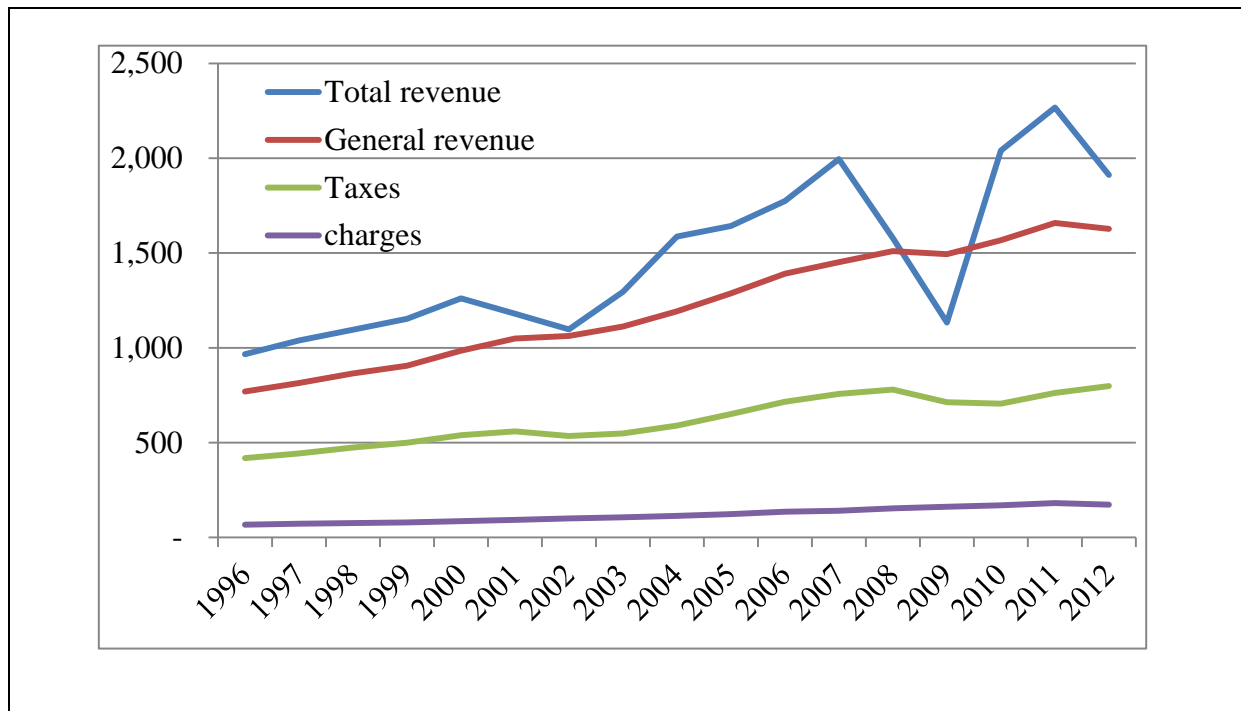


(Source: Comprehensive Annual Financial Reports (CAFR) by state from 1996 to 2012)

Figure 2. Trend of Expenditure
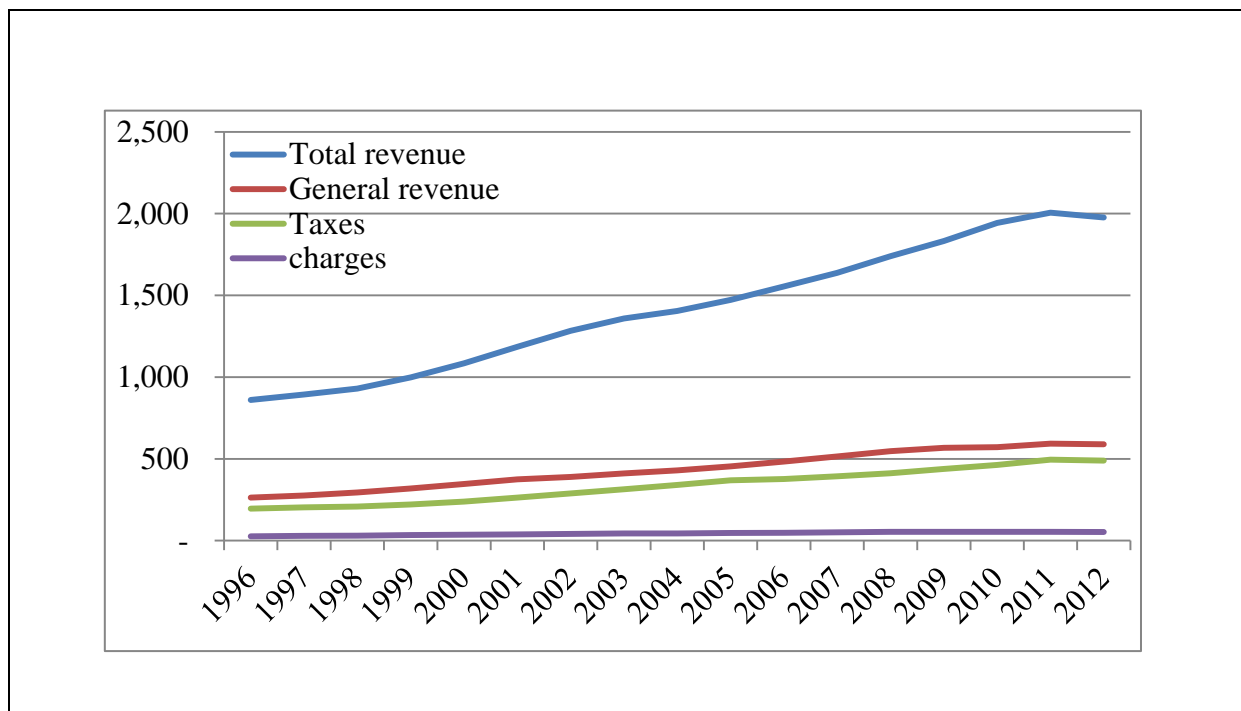


(Source: Comprehensive Annual Financial Reports (CAFR) by state from 1996 to 2012)

2.2.2 Business Cycle with Boom and Bust

The National Bureau of Economic Research (NBER) has been examining the business cycle in detail since 1929, and is considered the crucial authority for business cycle reference data in the United States. Fiscal data provided by the National Bureau of Economic Analysis shows that the current national recession is the fifth since 1980, and that it started toward the end of 2007. The last three decades have seen five economic downturns. The first term occurred in the first three quarters of 1980.The second lasted from the third quarter of 1981 through the fourth quarter of 1982.The third term started in the third quarter of 1990 and ended in the first quarter of 1991, and the fourth spanned every quarter of 2001 (http://www.nber.org; Boldin, 1994). The final term started in December of 2007, and finished in June of 2009. States' tendencies toward recession have typically been associated with national downturns (Hovey 1999; Owyang, Piger, and Wall 2005).

However, state recessions differ from national recessions in duration and timing, and their severity and duration have followed different patterns across the country and throughout history (U.S. General Accounting Office (GAO) 2011; Owyang, Piger, and Wall 2005; Rubin and Willoughby 2009). For example, during the recession that began in 2007, while the national unemployment rate increased from 5.0% to 9.5%, states' unemployment rate increased between 1.4 and 6.8 percentage points, with some variation across the country (GAO 2011). During economic recession, the federal government provides financial assistance intended to provide a counter-cyclical boost to the economy and to state governments (i.e., stimulus funds). In the past recessions, the federal government has given money to states for both the stabilizing effect it will have on the economy and for helping states continue to provide a higher level of services (or to keep states from increasing taxes) given states' balanced budget constraints.

During the 1980s and 1990s, the federal government enacted only one piece of legislation in order to stimulate economic recovery: the Emergency Jobs Appropriations Act in 1993. This was followed by a deeper, 16-month recession beginning in July of 1981, until December of 1982. This legislation provided about $9 billion through 77 different programs in order to stimulate the economy (GAO 1986). Out of those 77 programs, 55 aimed to create jobs, and 22 were for the support of state public services by block grants (Levine 2003). For the 1990s recession, no specific assistance was offered, because the impact of this recession was limited to the East and West Coasts (Mattoon et al. 2010).

The economic downturns in the United States during the 2000s are the recessions of 2001 (started in March) and 2007 (started in December). During the 2000s, the federal government also enacted two pieces of legislation in order to stimulate economic recovery: the Jobs and Growth Tax Relief Reconciliation Act (JGTRRA) in 2003, and the American Recovery and Reinvestment Act (ARRA) in 2009. In the first bill, the federal government provided $20 billion in financial assistance through a temporary increase in the Federal Medicaid Assistance Percentage (FMAP), valued at around $10 billion, and a $10 billion state fiscal stabilization fund. In the 2009 ARRA, the federal government provided around $84.6 billion in assistance to states by increasing the FMAP matching rate, and around $84.3 billion in fiscal stabilization funds.

State budgeting follows the states' adaptation and response to business cycles of boom and bust in the national economy. It also assumes that "the various sectors of state economies are closely interrelated under the roof of the U.S. national economy. As a result, state economies move together and share the same business cycle characteristics" (Kwak 2011, 73).

## 2.3 Schematic Model

The analysis in this study investigates the impact of budgetary priorities on state fiscal stability during times of boom and bust using a longitudinal analysis from 1999–2013. The study focuses on the perspectives of utility maximizer, budgetary stakeholders, and service continuity on fiscal stability. It also includes states' unique characteristics on fiscal stability, including institutional, political, and economic conditions. In addition, it considers interactions between budgetary priorities and states' own factors such as institutions, political factors, and economic conditions.

State level of fiscal stability in terms of expenditure is modeled as follows:

*Fiscal Stability = f (cyclical revenue, credit ratings, composition of expenditure, saving, federal grant, fiscal institutions/rules, partisan control, divided government, demographic-socioeconomic characteristics)*

Figure 3. Framework



Figure 3. Framework
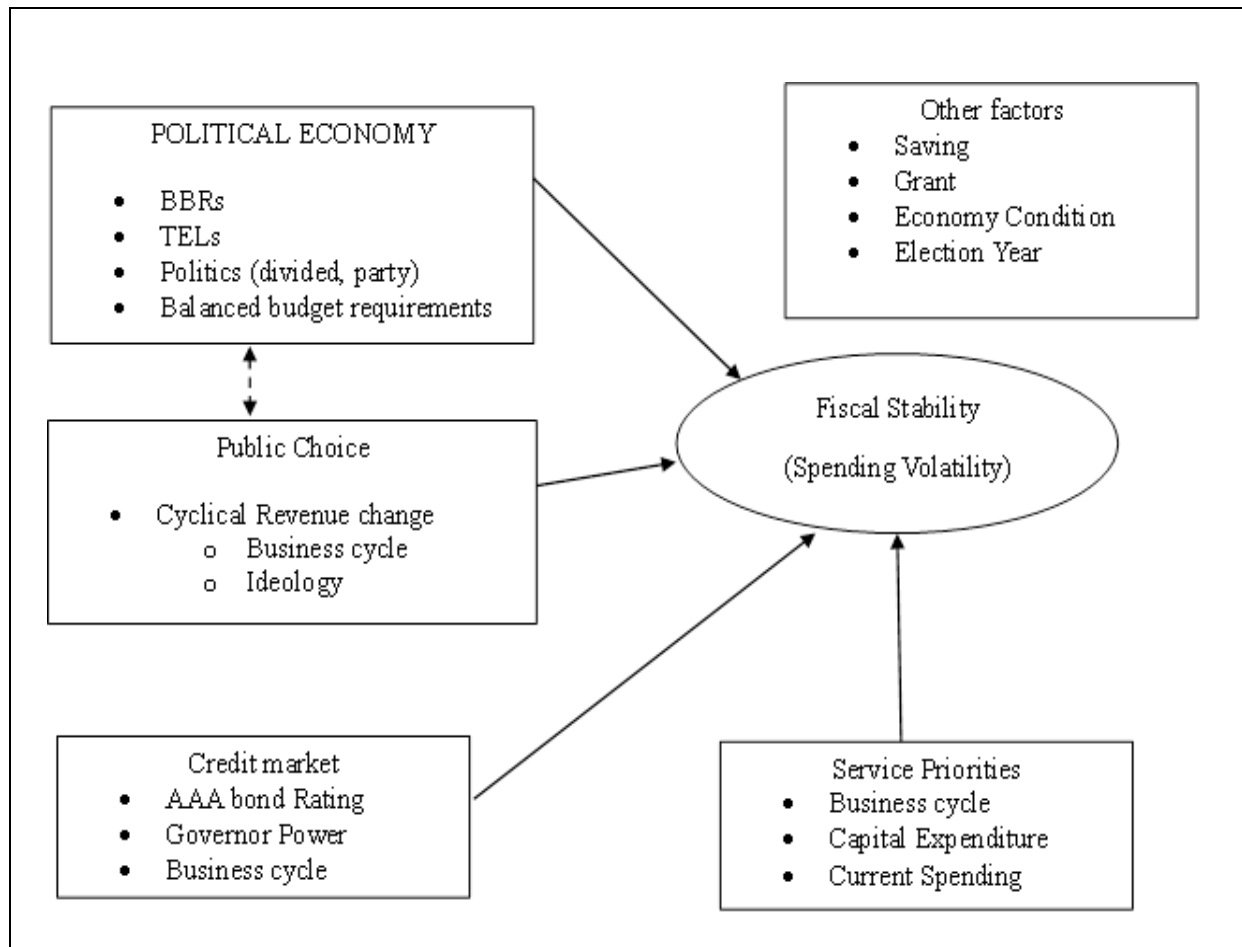
Table 4. Summary of Previous Studies

| Research Question | Previous Studies |
| --- | --- |
| Spending Decision | • Budgetary decisions by elected politicians, and the bureaucracy (Buchnnan and Wagner 1977)<br>• Tullock (1965) and Niskanen (1971) : the bureaucracy with maximizing utility<br>• Higher levels of service than that preferred (Keech, Munger, and Simon 2012)<br>• Citizens reveal their preference: increase in government spending (Sanandaji and Wallace 2011; Kwak 2014)<br>• Wagner and Elder (2004): not reduce the volatility of expenditures over the business cycle in state government<br>• Political ideology in public choice (Rubin 2001; North1990) |

| Credit Market | • Credit market constraints : asymmetry in fiscal policy (Sorensen and Yosha 2001) |
| | • Public officials: focus on credit rating fluctuations (Liu and Kim 2009) |
| | • Financial Status is associated with political position of the elected officials (Lowry, Alt, and Ferree 1998; Rubin 1999) |
| | • Governor's power : limit spending (Endersby and Towle1997), Aggressive fiscal actions (Hackbart and Ramsey 2004; Breunig and Koski 2009) |
| Service Priorities | • The composition of public expenditure and economic growth (Devarajan, Swaroop, and Zou 1996; Fan and Rao 2003) |
| | • The composition of government expenditures reflects government spending priorities (Fan and Rao 2003) |
| | • Capital expenditure is pro-cyclical component of government spending and current spending is counter-cyclical (Lane2003) |
| Budget Balanced Rules | • Strictness of BBR influences fiscal policy (Alt and Lowry 1994; Bayoumi and Eichengreen 1995; Bohn and Inman 1996; Poterba 1994; Rose2006) |
| | • Strict BBRs decrease business cycle fiscal stability (Levinson1998) vs Less strict BBRs decrease business cycle fiscal stability (Fatas and Mihov 2006) |
| Political influences | • A divided government, political control: affect state fiscal responses (Alt and Lowry 1994; Poterba 1994) |
| | • Divided government reduces state spending (Crain and Muris1995; Gould 2009) |
| | • Democrats try to use increased revenue for public spending more than Republicans (Alt and Lowry1994) |
| | • Republican governors spend less than Democratic governors (Erikson, Wright, and McIver1989; Singhal2008) |
| TELs | • Constrain the level of government spending increases (Mullins and Wallin 2004; Bails and Tieslau2000; Brooks and Phillips 2010) |
| | • Strict restrictions : less experience with volatility from business cycles (Fatas and Mihov2006) |
| Saving | • Increase services during boom (Wagner and Elder 2005) |
| | • Increase the fiscal stability: Hendrick and Crawford (2014), Hou (2003, 2004) |
| Federal Grants | • Stabilizing force for state governments during economic downturns (Gamkhar and Pickerill 2011; Mattoon et al. 2010) |
| | • States face pressures to "save" federal grant money in order to rebuild their rainy days funds (Inman 2010) |

| Economic Condition | • Status of expenditures is influenced by state fiscal condition (Hicks and Swank1983; Hines 2010; Steuerle and Mermin 1997) |
| | • High poverty levels increase the service (spending) ( Mogull 1990; Hicks and Sawnk 1983) |

## 2.4 Summary of Hypotheses Statements

This study will apply multiple perspectives for understanding how states might respond to changes in fiscal environments and the factors that influence state decisions. The study will also see how states' behaviors and priorities impact fiscal stability in a state government's fiscal environment. Previous studies provide some evidence of how, governments behave with each budgetary priority and why, such as the public choice perspective and political factors. State internal and external factors affect state behaviors and the effects of such behaviors on the level of stability state governments face. During times of economic boom, state governments might have an incentive to grow in size according to the public choice, and this budgetary priority can influence fiscal stability. During economic booms, state governments might have an incentive to spend more and may be associated with instability.

For political factors, certain legislatures involved with the decision making process might be more conservative regarding spending policies, and therefore attempt to reduce expenditure demands from constituency-oriented politicians. Different government parties have different perspectives about developing fiscal policies, especially under unexpected fiscal instability. For example, Alt and Lowry (1994) find that states under the control of the Democrats spend more. Thus, the spending level might increase under the control of the Democratic Party. Democrats try to use increased revenue for public spending more than

Republicans. Based on the previously outlined studies, this study offers the following hypotheses:

*H1-1: Increases in tax revenues during economic boom are related to lower levels of the fiscal stability.*

*H1-2: Decreases in tax revenues during economic recessions are related to higher levels of the fiscal stability.*

*H1-3: A Democratic state government with increase in tax revenues will have lower levels of stability than Republican state government during economic booms.*

*H1-4: A Democratic state with decreases in tax revenues during economic recessions will have higher levels of stability than Republican state government during economic downturns.*

State governments care about their credit rating. Specifically, there is the political value of the AAA credit rating. If a state's credit rating is downgraded from AAA status, the legislators can blame the governor. CRAs point out that keeping an AAA bond rating in a state results from a prudent spending propensity; thus, state governments try to adjust their fiscal policy according to the CRAs note. In addition, governors employ considerable influence over state budgets. Therefore, credit rating priorities and their impact on fiscal policies can be dependent on the power of the governor. A governor with strong budget-making power can manipulate the budget relatively easily. The state governments concerned with bond ratings have different budgetary priorities and enact different fiscal policies than other state governments. A state with higher credit ratings tries to behave more for the purpose of maintaining their current credit rating (Wagner 1999).

*H2-1: A state with a AAA credit ratings has a higher level of fiscal stability than a state*

*without an AAA credit ratings during economic booms.*

*H2-2: A state with a AAA credit ratings has a lower level of fiscal stability than a state*

*without an AAA credit ratings during economic downturns.*

*H2-3: A state with a AAA credit rating with a strong governor has a higher level of fiscal*

*stability than a state with an AAA credit rating with a less strong governor during*

*economic booms.*

*H2-4: A state with a AAA credit rating with a strong governor has a lower level of fiscal*

*stability than a state with an AAA credit rating with a less strong governor during*

*economic downturns.*

Government officials are concerned about the continuity of services with the spending adjustment, because they want to win elections, and voters want to gain policy benefits through government spending. State governments spend their money to provide goods and services, but their composition (priorities) of government spending are different, depending on their internal and external conditions. Here, according to Fan and Rao (2007), the composition of government expenditures reflects government spending priorities for the service.

*H3-1: A state with a higher proportion of current spending has a higher level of fiscal*

*stability than a state with a lower level of current spending during economic downturns.*

*H3-2: A state with a higher proportion of current spending has a higher level of fiscal*

*stability than a state with a lower level of current spending during economic booms.*

States respond to volatilities differently, and its impact during times of boom and bust. It might be the most important factor of budgetary strategies and budgetary priorities. Some budgetary priorities are more effective than others when it comes to increasing stability

during economic downturns compared to economic boom.

Table 5. Variables and Possible Directions of the Relationship

| Variable | Explanation | Boom | Bust |
|---|---|---|---|
| Dependent Variable | Fiscal Stability | | |
| Independent Variable | Cyclical Revenue Component | (-) | (+) |
| | Credit Rating (AAA) | (+) | (-) |
| | Spending Composition (Higher level of Operational) | (+) | (+) |
| | Governor Party (D) | (-) | (+) |
| | Power of Governor | (+) | (-) |
| Control Variable | BBRs | (+) | (+) |
| | TELs | (+) | (+) |
| | Ideology of Legislatures | (-) | (+) |
| | Division of Government | (+) | (-) |
| | Saving Level | (-) | (+) |
| | Grant Level | (-) | (+) |
| | Economic Condition | (+) | (+) |

# CHAPTER 3

# Data and Methodology

## 3.1 Measures and Data Source

This study tests hypotheses of budgetary priorities on fiscal stability by using an empirical model of several budgetary factors of state government. 50 states in the United States are used as sample units. Alaska is excluded in this analysis because, unlike the other states in the dataset for the years 1998-2013, Alaska has extremely different financial matters. Many previous studies have also omitted the state of Alaska due to its exceptional economic structure, which can influence statistical analysis (i.e. Primo 2007; Hou 2013; Kwak 2014). The data set is paneled and comprised of a total of 784 observations from 1998 to 2013. The perspectives of utility maximizer, budgetary stakeholders, and service continuity are measured as budgetary priorities and used as independent variables in this analysis.

In addition, there were two economic recessions during the period between 1998 and 2013. The strength and duration of these two economic recessions were different. The first economic recession spanned the four quarters of 2001 (http://www.nber.org; Boldin 1994). The second recession began in 2007 and finished in 2009, according to the National Bureau of Economic Research (NBER). In each model, two different sets of dependent variables, expenditure stability (by type and function), are tested. Finally, the states might react differently to fiscal instability, depending on their economic conditions and other contexts. States in dissimilar conditions have different types of budgetary priorities, so they exercise alternative budgetary behaviors to deal with different contexts. Therefore, in order to compare economic booms and busts, the study is divided into business cycles: boom years

from 1998 to 2000, 2002 to 2006, 2010 to 2013, and bust years from 2001, and from 2007 to 2009.

States' tendencies toward recession have typically been associated with national downturns (Hovey1999; Owyang, Piger, and Wall 2005). However, state recessions differ from national recessions in duration and timing, and their severity and duration have followed different patterns across the state and throughout history (GAO 2011; Rubin and Willoughby 2009; Owyang, Piger, and Wall 2005). A casual indication to state economic data shows that some states have already experienced recessions, even though the national recession had not started yet and some states had recovered from their recessions when the nation experienced its recession (Crone 2006). According to Crone (2006), in March 2001, economic crisis were concentrated in most states of the Midwest and South. The recession had spread to almost every state by September. By March 2002, however, most of the states in the West, Rocky Mountains, and Southeast recovered. By June 2002, almost all the states recovered. That is, economic booms or recession in the state precedes booms or recession at the national level (Crone 2006)[7]. Table 6 shows that the correlation between particular states economic indexes and nation economic index about the series of economic growth or decline. Most states precede or equal booms or recession at the national level.

In addition, state-level economies slowed down during the first and second quarters of 2007. According to Novak (2008, 3), "It is quite common for the NBER to release its analysis well after the peak of economic activity, that is, the start of a recession. Economic turning points are volatile periods, and according to this rationale, it is better to wait until the dust settles when an accurate picture of the data is available". Actual NBER recession dates indicate four to six months' lead time in marking recessions. That is, ending dates are usually

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[7] See more: Crone, Theodore M. "What a New Set of Indexes Tells Us About State and National Business Cycles," Business Review, Federal Reserve Bank of Philadelphia (First Quarter 2006).

publicized several months after the recession ends.

Table 6. Correlation of Change in the State Index With change in the National Index

| Period Relative to U.S(=t) | t-2 | t-1 | t | t+ |
|---|---|---|---|---|
| Number of the States | 7 | 13 | 23 | 7 |
| States | AR, DE, ID, MT, OR, SD, WA | GA,IN,MD,ME,MI,MO,MS,NE,NH,NV,OH,RI,SC | AL,AZ,CA,CO,CT,FL,HI,IA,KS,KY,MA,MN,NC,ND,NJ,NM,NY,PA,TN,VA,VT,WI,AK | IL,UT,WV,TX,LA,Ok, WY |

Note: The correlation indicates the degree to which the change in the state's index moves with the change in the national index. For example, if the highest correlation occurs at t-1, this means that economic growth or decline in the state precedes growth or decline at the national level. (Source: Crone 2006, 16)


3.1.1 Dependent Variables

Regarding the dependent variables, this study will use the expected spending level of each state and each year, which is the year-over-year proportional per capita change to the spending level, as measured by distance from the mean change. This measure can capture every year's spending changes from both a positive and negative direction. Two different sets of dependent variables, expenditure stability (by type and function), are used for dependent variables. According to the census report[8], government expenditures are measured by characteristic and function. The characteristic expenditures are divided by the time element involved, such as current operation and capital outlay. The functional grouping of the expenditures is divided by purpose, or type of service rendered, such as health and hospitals, education, highway, and public welfare. Four major sources of the spending (see Figure 1)

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[8]  See more http://www2.census.gov/govs/state/g13-asfin.pdf

will be used for our analysis. According to the census, capital outlay is about6.8 (%); public welfare is 30.8(%); education is about 35(%); health and hospitals is about 7.8(%). Data on government expenditures are obtained from the State Government Finances series.

Figure 4. Source of State Government General Expenditure by Function
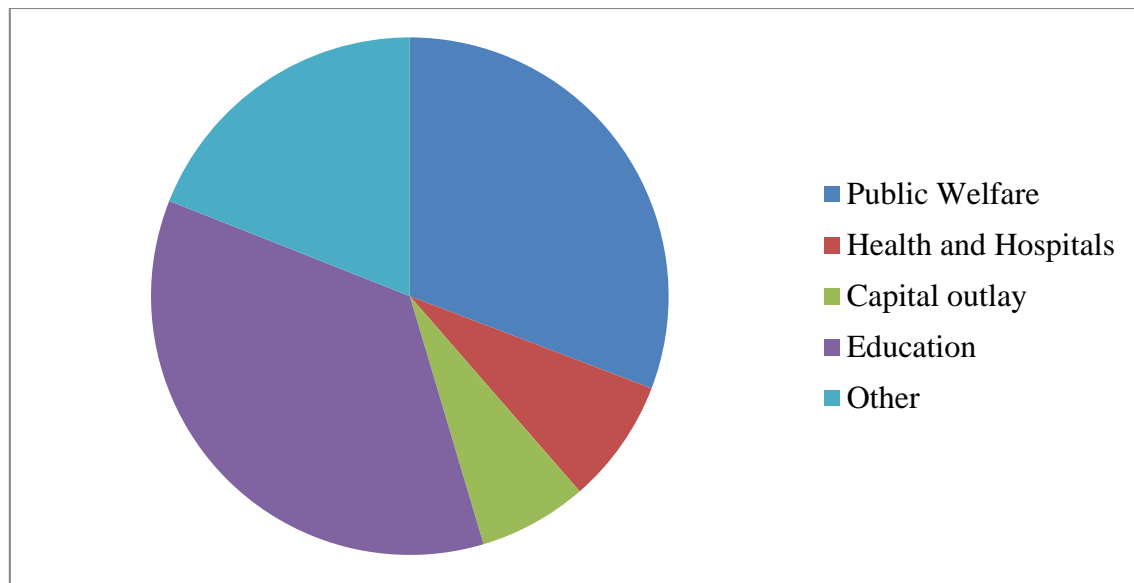


(Source: U.S. Census Bureau 2013)

3.1.2 Independent Variables

Three independent variables are used to measure state budgetary priorities. First, the cyclical revenue gap is defined by how significantly actual tax revenues deviate from expected revenue. In this analysis, regression models identify trends in revenues that can be applied to examine the least variations based on both states and time periods (White 1983; Hou 2003). In this sense, the linear trend line can identify the true gap between actual and expected tax revenue trends.

The expected tax revenue (E*) is calculated by using the following regression model:

$$E^*_{i,t} = \exp(\alpha + \beta_1 t + \beta_2 i) \tag{1}$$

Where E* represents the expected revenue of the general fund, i represents the dichotomy variables indicating each state, and t stands for a year variable. So, the number of state dummy variables included in this model is 48. From this regression model, the expected GEs reflect the trends of both states and years. Finally, after calculating the expected total revenues in each state at each year, we obtain the stability of GEs by computing the standard deviation between the actual and the expected revenues. As previously specified, the state of Alaska is excluded in our analysis due to its unique economic and fiscal conditions. Data on government revenues are obtained from the State Government Finances series.

Second, credit rating is measured by a dummy variable—whether the state credit rating is of Triple A. Triple A crediting rating is coded 1, if others in place; 0. Data on government credit ratings are obtained from the State Government Finances series.

Third, service continuity is about the composition of spending. According to Fan and Rao (2007), the composition of government expenditures reflects government spending priorities. Lane (2003) also considers capital and current expenditure as a component of government spending. Thus, this is measured by the ratio between operational expenditures and capital expenditures. Data on each government expenditure is obtained from the State Government Finances series.

3.1.3 Control Variables

To estimate the variation of the effect of budgetary priorities on the fiscal stability of state governments, this study uses institutional, political, economic, and demographic data for

49 states.

(1) Institutional variables

Institutional factors include balanced budget requirements (BBRs) and tax and expenditure limitations (TELs). In terms of BBRs, we use the index of fiscal rules stringency published by ACIR (1987). This index provides the stringency of fiscal rules in each state from 0 to 10, with 10 being assigned to states with the strictest rules. In particular, the use of the ACIR index which contains the individual elements of Balanced Budget Rules means that these elements were amalgamated into one index. The way to use one index with an interval variable can address the issue of constraining the model to avoid multicollinearity, so the model's performance can be improved. Tax and expenditure limitations are measured with a dichotomous variable whether a state has a legal restriction on revenue or expenditure increases. The variable is coded 1 if a state has TELs and 0 if a state does not. Data on TELs are from the National Conference of State Legislatures.

(2) Political variables

Political factors indicate the party affiliation of the governor and the ideology of the citizens in a state as politicians' political propensity. Governor party is measured with a dichotomous variable. The variable is coded 1 if a state has a Democratic governor and 0 if a state does not. Citizen ideology is measured by a state citizen ideology developed by Berry et al. (1998). The score ranges from 0 to 100, and state citizen with liberal propensity results in a higher score. In addition, the other variable is whether different political parties control the

executive and legislative branches of state government, which would indicate a divided government. Divided government is measured by a dummy variable, which is whether the legislative majority party is of the same party as the governor. For states with the same party for the executive and legislative branches, the variable is coded 0, while states with different parties are coded a 1. Political party affiliation of state governors and legislatures comes from the Book of the States.

Citizen ideology, measured by a state citizen liberalism test developed by Berry et al. (1998), is from Fording's website[9] who is also one of the authors. According to them, to measure citizen ideology they identify the "ideological position of each member of congress in each year using interest group ratings, and then estimate citizen ideology in each district of a state using the ideology score for the district's incumbent, the estimated ideology score for a challenger to the incumbent and election results that presumably reflect ideological division in the electorate" (Berry et al. 1998, 330-331). The score ranges from 0 to 100, and state citizens with liberal propensities have higher scores.

To measure formal powers of the governor, our study concerning governor power uses the Beyle's index, which has been extensively employed in the literature and is less subject to interpretation (e.g. Holbrook 1993; Dilger 1995; Woods and Baranowski 2007). The scale measures institutional formal powers across several dimensions such as budget powers; veto power of the executive branch, electoral independence, tenure potential, gubernatorial party control; and appointment powers (Ferguson 2006). This index is "widely accepted and used within political science, and to provide state-level power scores for governors over nearly a 50-year period, from 1960 to 2007" (Krupnikov and Shipan 2012, 439). In addition, previous studies have used this index for analysis of comparing governors'

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[9]Retrieved from : https://rcfording.wordpress.com/state-ideology-data/

institutional resources (Bernick 1979; Sigelman and Smith 1981; Mueller 1985; Sigelman and Dometrius 1988).

The index is considered comprehensive, but there are limitations to its use. The index for formal powers of the governors described here cannot fully explain the informal power of the governor. Informal power is less concrete than formal powers in the political process; thus, the formal power index has limitations on including complex political interactions. Also, the governor needs to consider interaction with government legislatures. The governor's influence is limited by legislature professionalism (Kousser and Phillips, 2012; Lewis et al. 2015). Bargaining positions can influence the governor's power with respect to state legislatures (Besley and Case 2003); thus, the governor's power depends on institutional characteristics if the government is divided. In addition, the Beyle index uses stable institutional measures of power, so this does not consider the "temporal standing of the governors at the time" (Ferguson 2006). Institutional power of governor can be from a variety of sources, including informal sources, which are difficult to identify and to completely measure index. He published the index to measure the governor's institutional power in 1990. He then updated the index in 2007. He measured by each state being "given an overall average score by using a two-step method. First, for each of six categories-length of tenure and succession, the power to remove officials, control over the budget, the ability of the legislature to change the governor's budget, veto power, and the governor's party control, a zero-to-five point scoring range was used" (Beyle 1990, 41). Beyle's index is from his article and website[10].

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[10]  Governors' Institutional Powers: Beyle's index (Updates 2007), retrieved from
http://www.unc.edu/~beyle/gubnewpwr.html on August 23, 2009

(3) Economic variables

As an economic variable, this study uses unemployment rates to capture the economic conditions in each state from 1998 to 2013. The unemployment index can explain the changes in this indicator with changes to others correspondently. Elimination of economic indicators except for the unemployment index can also lead to the resulting improvement in the model's performance. The data comes from the U.S. Bureau of Labor Statistics. Variable definitions and data sources are summarized in Table 7.

Table 7. Descriptive Variables

| Variables | Descriptions | Data sources |
|-----------|--------------|--------------|
| Fiscal Stability | Year-over-year proportional per capita change to the spending level as measured by distance from the mean change | Comprehensive Annual Financial Reports (CAFR) in each state |
| Cyclical Revenue Change | the cyclical component of tax revenue, measured by the sum revenue gaps of taxes | State Government Finance series |
| Credit Rating | Triple A crediting rating : 1, if in place; 0, otherwise | State Government Finance Series |
| Service Continuity | Service continuity: composition of spending with operational budgets and capital budgets | Comprehensive Annual Financial Reports (CAFR) in each state |
| Budget Balanced Rules | Level of Budget Balance rules, measured by ACIR Index | Advisory Commission on Intergovernmental Relations ACIR |
| Tax and Expenditure Limitation | Expenditure limitation: 1, if in place; 0, otherwise | National Conference of State Legislatures |
| Saving Level | Budget stabilization fund level | National Association of Budget Officers |
| Governor Power | Power of the Governor | Governors' Institutional Powers: Beyle's index |

| | | |
|---|---|---|
| Citizen Ideology | Citizen ideology of the state | https://rcfording.wordpress.com/state-ideology-data/ |
| Governor Party | Democratic governor: 1, if yes; 0, otherwise | The Book of the States Series |
| Divided Government | Divided government: 1, if yes; 0, otherwise | The Book of the States Series |
| Grant Level | Per capita revenue from the federal government | State Government Finance Series |
| Economic Condition | Unemployment rate | BEA Database |

## 3.2 Methods

This study uses panel data analysis with state and year-fixed effects to explore the variations in fiscal stability. The fixed effect model can reduce the endogenous problem. The study of the effect of budgetary priorities on fiscal stability has an endogenous problem. The fiscal stability of the states can be influenced by time period, where budget conditions are different depending on each economic downturn (duration and strength of economic distress). Thus, year dummies are used to control for time specific, unobserved heterogeneity. Also, each state has different characteristics that influence fiscal stability endogenously, which results in variation of state factors on fiscal stability. The models use Ordinary Least Squares (OLS) regression with all quantitative dependent and independent variables. In addition, the study employs panel data at the state level using the fixed-effect model in order to control unobserved factors. By doing this, the study can test whether a model is capable of using a Hausman test. Regressions using the entire range of years at once provide overall results, but do not show the detailed outcomes of fiscal behaviors over the business cycle.

# CHAPTER 4

## Findings

### 4.1 Descriptive Statistics

Table 8, 9 presents the mean and scope of the variables from 1998 to 2013. Table 8 indicates the descriptive statistics for boom years, while Table 9 indicates the descriptive statistics for bust years. In addition, Tables 10 and 11 present the correlation among variables. According to the tables, there is no significant correlation between variables.

Table 8. Descriptive Statistics (Boom)

| Variable | Mean | SD | Min | Max |
|---|---|---|---|---|
| *Dependent Variable* | | | | |
| Total Expenditure | 0 | 0.17 | -0.5 | 1.0 |
| Current Expenditure | 0 | 0.11 | -0.5 | 0.7 |
| Capital Expenditure | 0 | 0.06 | -0.3 | 0.5 |
| Education Expenditure | 0 | 0.08 | -0.4 | 0.5 |
| Highway Expenditure | 0 | 0.05 | -0.4 | 0.5 |
| Welfare Expenditure | 0 | 0.08 | -0.3 | 0.7 |
| Hehos Expenditure | 0 | 0.03 | -0.2 | 0.2 |
| | | | | |
| *Independent and control variable* | | | | |
| Cycr | 1.69 | 3.26 | 0.0 | 37.0 |
| Creditr | 0.21 | 0.41 | 0.0 | 1.0 |
| Servcontr | 7.74 | 2.38 | 2.8 | 18.2 |
| Bbrs | 8.14 | 2.57 | 0.0 | 10.0 |
| Explim | 0.58 | 0.49 | 0.0 | 1.0 |
| Bsf | 349.43 | 920.85 | -3,535.0 | 10,071.0 |
| Citizen | 49.63 | 15.15 | 8.4 | 96.0 |
| Governor | 0.42 | 0.49 | 0.0 | 1.0 |
| Govpo | 3.48 | 0.43 | 2.4 | 4.7 |
| Split | 0.40 | 0.49 | 0.0 | 1.0 |
| Grant | 1.47 | 0.59 | 0.5 | 4.4 |

| | Mean | SD | Min | Max |
|---|---|---|---|---|
| Unemployment | 5.67 | 2.07 | 2.3 | 13.8 |

Note: N=588

Table 9. Descriptive Statistics (Bust)

| Variable | Mean | SD | Min | Max |
|---|---|---|---|---|
| *Dependent Variable* | | | | |
| Total Expenditure | -0.01 | 0.20 | -0.5 | 0.8 |
| Current Expenditure | -0.01 | 0.14 | -0.6 | 0.8 |
| Capital Expenditure | 0.00 | 0.07 | -0.3 | 0.3 |
| Education Expenditure | 0.00 | 0.08 | -0.3 | 0.4 |
| Highway Expenditure | 0.00 | 0.06 | -0.3 | 0.4 |
| Welfare Expenditure | 0.00 | 0.07 | -0.2 | 0.4 |
| Hehos Expenditure | 0.00 | 0.03 | -0.2 | 0.2 |
| | | | | |
| *Independent and control variable* | | | | |
| Cycr | 1.35 | 1.83 | 0.0 | 12.5 |
| Creditr | 0.22 | 0.41 | 0.0 | 1.0 |
| Servcontr | 7.66 | 2.51 | 3.3 | 18.5 |
| Bbrs | 8.14 | 2.57 | 0.0 | 10.0 |
| Explim | 0.60 | 0.49 | 0.0 | 1.0 |
| Bsf | 474.64 | 701.57 | 0.0 | 6,276.0 |
| Citizen | 56.64 | 16.03 | 15.6 | 91.9 |
| Governor | 0.52 | 0.50 | 0.0 | 1.0 |
| Govpo | 3.46 | 0.42 | 2.4 | 4.7 |
| Split | 0.40 | 0.49 | 0.0 | 1.0 |
| Grant | 149 | 0.54 | 0.6 | 4.2 |
| Unemployment | 5.60 | 2.15 | 2.6 | 13.5 |

Note: N=196

Table 10. Correlation (Boom)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | 1.00 | | | | | | | | | | | | |
| Cycr | 0.10 | 1.00 | | | | | | | | | | | |
| Creditr | -0.01 | -0.06 | 1.00 | | | | | | | | | | |
| Servcontr | 0.03 | 0.22 | -0.10 | 1.00 | | | | | | | | | |
| Bbrs | -0.13 | -0.20 | 0.20 | -0.24 | 1.00 | | | | | | | | |
| Explim | -0.10 | 0.04 | -0.01 | 0.05 | 0.17 | 1.00 | | | | | | | |
| Bsf | 0.03 | 0.24 | 0.05 | 0.06 | -0.10 | 0.06 | 1.00 | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Citizen | 0.17 | 0.14 | -0.12 | 0.38 | -0.41 | 0.04 | 0.04 | 1.00 | | | | | |
| Governor | 0.15 | 0.04 | -0.01 | 0.12 | -0.06 | 0.00 | -0.09 | 0.13 | 1.00 | | | | |
| Govpo | 0.05 | 0.04 | 0.06 | -0.12 | -0.03 | -0.15 | 0.08 | 0.11 | 0.08 | 1.00 | | | |
| Split | 0.00 | -0.07 | -0.09 | 0.07 | -0.16 | 0.00 | 0.01 | 0.19 | -0.02 | -0.01 | 1.00 | | |
| Grant | 0.18 | 0.09 | -0.09 | 0.13 | -0.07 | -0.15 | 0.00 | 0.07 | 0.06 | -0.07 | -0.07 | 1.00 | |
| Unemployment | -0.05 | 0.24 | -0.06 | 0.29 | 0.00 | 0.24 | -0.06 | 0.01 | 0.06 | -0.11 | -0.11 | 0.35 | 1.00 |

Table 11. Correlation (Bust)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | 1.00 | | | | | | | | | | | | |
| Cycr | -0.03 | 1.00 | | | | | | | | | | | |
| Creditr | -0.14 | -0.07 | 1.00 | | | | | | | | | | |
| Servcontr | -0.09 | 0.11 | -0.09 | 1.00 | | | | | | | | | |
| Bbrs | -0.12 | -0.16 | 0.21 | -0.29 | 1.00 | | | | | | | | |
| Explim | -0.11 | 0.06 | -0.02 | 0.14 | 0.17 | 1.00 | | | | | | | |
| Bsf | 0.08 | 0.26 | 0.10 | 0.01 | -0.15 | 0.04 | 1.00 | | | | | | |
| Citizen | 0.01 | 0.06 | -0.07 | 0.49 | -0.36 | 0.04 | 0.11 | 1.00 | | | | | |
| Governor | 0.07 | -0.11 | -0.03 | 0.14 | -0.03 | -0.04 | -0.08 | 0.16 | 1.00 | | | | |
| Govpo | 0.05 | 0.04 | 0.08 | -0.06 | -0.02 | -0.09 | 0.15 | 0.22 | 0.26 | 1.00 | | | |
| Split | 0.07 | 0.05 | -0.15 | 0.11 | -0.18 | 0.01 | -0.04 | 0.04 | -0.16 | -0.36 | 1.00 | | |
| Grant | 0.36 | -0.12 | -0.21 | 0.05 | -0.11 | -0.13 | -0.05 | 0.05 | 0.10 | -0.13 | 0.11 | 1.00 | |
| Unemployment | -0.14 | 0.03 | -0.02 | 0.25 | -0.01 | 0.23 | -0.08 | 0.03 | 0.07 | -0.11 | -0.01 | 0.12 | 1.00 |

## 4.2 Regression Results

Based on the results, there are significant differences in how stability comes about, depending on the boom or bust. This study presents the results from the overall expenditure models, capital expenditures and then provides discussion of hypotheses and findings. I provide two expenditures in detail because counter-cyclical and cyclical spending matter most for their impact on the economy of states. So the state's demand in its entirety, the total expenditure, is most significant variable to see. Capital expenditure is also important to present because it provides distinct macroeconomic effects. Capital investment by the government provides a favorable environment for economic growth. Infrastructure investment based on capital budget is also considered a useful budgetary tool to deal with the cycle of the economy (Rubin 2005).

4.2.1 Overall Findings

(1) Total tax expenditures

Table 12 provides the regression results for total expenditure model during boom and bust. ANOVA includes the significance test for the null hypothesis that multiple R=0. In this model, the models themselves are statistically significant (P< 0.05), so the overall regression equations are significantly predictive of number.

**Budgetary Priorities during boom:** Cyclical increases in revenue are not related to stability in total spending. This variable is not statistically significant. Increases in tax revenues during economic boom are not related to lower levels of fiscal stability. Among the budgetary priorities, the results indicate that a state with a AAA credit rating has a lower level of fiscal stability than a state without a AAA credit rating during economic booms and is statistically significant at the level of 10 percent. A triple A state is about 0.5 units lower than the fiscal stability in total expenditure of non triple A states holding other variables constant. It indicates that a Triple A state is more likely to increase total spending during boom years. Regarding the governor power, there is about0.06 decreases in stability for each unit increase in governor power, holding other variables constant, and is statistically significant at the level of 5 percent. This indicates that a state with a strong governor is more likely to have lower stability in total spending during boom years. However, a state with a AAA credit rating combined with a strong governor has a higher level of fiscal stability than a state with a AAA credit rating paired with a weaker governor during economic booms.

Regarding the service continuity, there is about 0.01 increases in stability for each unit increase in operational service continuity, holding other variables constant, and is

statistically significant at the level of 10 percent. A state with a higher proportion of operational spending has a higher level of fiscal stability during economic booms.

During economic boom, the governor's political party is statistically significant. A state with a Democratic governor is about 0.06 units lower in fiscal stability of total expenditures with a Republican state, holding other variables constant. That is, Democratic governors tend to have spending propensies compared to Republican governors during economic boom.

**Budgetary Priorities during Bust:** Regarding service continuity, there is approximately a 0.03 increases in stability for each unit increase in operational service continuity, holding other variables constant, and itis statistically significant at the level of 5 percent. A state with a higher proportion of operational spending has a higher level of fiscal stability in total expenditure during economic downturns.

**Control Variables:** During economic bust, the budget balanced rule (BBR) and the grant is statistically significant. The results indicate there are about 0.002 decreases in stability for each unit of increase in the budget balanced rules, holding other variables constant, and itis statistically significant at the level of 5 percent. A state with a strict budget balanced rule has a lower level of fiscal stability during economic busts. The state is more likely to cut total expenditure in order to satisfy its budget balanced rules. In addition, there is about a 0.39 increase in stability for each unit increase in the grant level, holding other variables constant, and itis statistically significant at the level of 5 percent. A state with a higher level of grant has a higher level of fiscal stability during economic downturns.

Table 12. Regression Model Results (Total Expenditure)

| Variable | Boom | | Bust | |
|---|---|---|---|---|
| | Coeff. | SE | Coeff. | SE |
| Cycr | -0.002 | 0.005 | -0.016 | 0.016 |
| Creditr | -0.544* | 0.280 | 0.110 | 0.582 |
| Servcontr | 0.009* | 0.006 | 0.029** | 0.012 |
| Bbrs | -0.000 | 0.000 | 0.002** | 0.001 |
| Explim | 0.074 | 0.055 | -0.051 | 0.133 |
| Bsf | -0.000 | 0.000 | -0.000 | 0.000 |
| Citizen | 0.002 | 0.001 | 0.002 | 0.003 |
| Governor | -0.056*** | 0.020 | -0.006 | 0.049 |
| Govpo | -0.132** | 0.052 | -0.015 | 0.108 |
| Split | 0.024 | 0.018 | 0.033 | 0.040 |
| Grant | -0.022 | 0.033 | -0.385*** | 0.071 |
| Unemployment | 0.006 | 0.006 | 0.012 | 0.010 |
| Cycr*Governor | -0.003 | 0.005 | -0.008 | 0.018 |
| Creditr*Governor | 0.152* | 0.081 | -0.042 | 0.167 |
| State Control | Yes | | Yes | |
| Year Control | Yes | | Yes | |

Note: ***, **, and * indicate significance at the level of 1%, 5%, and 10% respectively.

(2) Capital Expenditures

Table 13 provides the regression results for the total tax expenditures model during boom and bust. ANOVA includes the significance test for the null hypothesis that multiple R=0. In this model, the models themselves are statistically significant (P< 0.05), so the overall regression equations are significantly predictive of number.

**Budgetary Priorities During Boom:** Among the budgetary priorities, the results indicate that a state with a AAA credit rating has a lower level of fiscal stability than a state without a AAA credit rating during economic booms and is statistically significant at the level of 5 percent. A Triple A state is about 0.2 units lower in fiscal stability than a non-triple A state holding other variables constant. However, this credit rating variable is found to have unexpected effects. Regarding the governor power, there is about a 0.04 decrease in stability

for each unit increase in governor power, holding other variables constant and is statistically significant at the level of 5 percent. This indicates that a state with a strong governor is more likely to have lower stability in total spending during boom years. However, a state with a AAA credit rating with a strong governor has a higher level of fiscal stability than a state with a AAA credit rating with a less strong governor during economic booms.

Regarding the service continuity, there is about a 0.02 increase in stability for each unit of increase in operational service continuity, holding other variables constant and is statistically significant at the level of 5 percent. A state with a higher proportion of operational spending has a higher level of fiscal stability in capital expenditures than a state with a lower level of operational spending during economic booms.

During economic boom, the governor's political party is statistically significant. A state with a Democratic governor is about 0.01 units lower in fiscal stability of total expenditures than a Republican state, holding other variables constant. That is, Democratic governors tend to have spending propensities compared to Republican governors during economic boom.

**Budgetary Priorities During Bust:** Cyclical decreases in tax revenues lead to decreases in spending for the capital expenditure. Revenue decreases during economic downturns are related to lower levels of fiscal stability in capital expenditures. For the service continuity, there is about 0.03 decrease in stability for each unit increase in operational service continuity, holding other variables constant and is statistically significant at the level of 5 percent. A state with a higher proportion of operational spending has a lower level of fiscal stability in capital expenditures during economic downturns.

**Control Variables:** The grant is statistically significant. Results indicate that there is

about a 0.1increase in stability for each unit of increase in the grant level, holding other variables constant and is statistically significant at the level of 5 percent.

Table 13. Regression Model Results (Capital Expenditure)

| Variable | Boom | | Bust | |
|---|---|---|---|---|
| | Coeff. | SE | Coeff. | SE |
| Cycr | 0.000 | 0.002 | -0.011** | 0.005 |
| Creditr | -0.216** | 0.102 | 0.063 | 0.199 |
| Servcontr | 0.017*** | 0.002 | 0.028*** | 0.004 |
| Bbrs | 0.000 | 0.000 | 0.000 | 0.000 |
| Explim | 0.005 | 0.020 | -0.038 | 0.046 |
| Bsf | 0.000 | 0.000 | 0.000 | 0.000 |
| Citizen | -0.000 | 0.001 | 0.001 | 0.001 |
| Governor | -0.013* | 0.007 | 0.003 | 0.017 |
| Govpo | -0.045** | 0.019 | -0.040 | 0.037 |
| Split | 0.004 | 0.006 | -0.006 | 0.014 |
| Grant | -0.018 | 0.012 | -0.105*** | 0.024 |
| Unemployment | 0.002 | 0.002 | 0.005 | 0.003 |
| Cycr*Governor | 0.001 | 0.002 | -0.009 | 0.006 |
| Creditr*Governor | 0.071** | 0.030 | -0.018 | 0.057 |
| State Control | Yes | | Yes | |
| Year Control | Yes | | Yes | |

Note: ***, **, and * indicate significance at the level of 1%, 5%, and 10% respectively.

4.2.2 Discussion of Hypotheses and Findings

Our findings provide evidence of the influences of the budgetary priorities of state and the effects of other institutional or structure factors on fiscal stability previously introduced.

(1) Impacts of the Budgetary Priorities

Hypothesis 1 and its sub-hypotheses suggest that decision makers with strong spending propensities in public choice will affect fiscal stability levels. With spending

propensity, budgetary success is the spending that grows in boom times or prevents an enormous spending cut in down periods. As described previously, there might be some differences in state responses depending on preference of the decision makers.

*H1-1: Increases in tax revenues during economic boom are related to lower levels of fiscal stability.*

This hypothesis is not mostly supported and regarding all expenditures measures during economic booms. Spending propensity is not supported in that the spending grows in boom times. The cyclical revenue component from additional revenues is not related to spending growth behavior of state government.

*H1-2: Decreases in tax revenues during economic recessions are related to higher levels of fiscal stability.*

During economic busts, this hypothesis is not supported. The cyclical revenue component from revenue shortage is not directly related to the spending behavior of state government. However, regarding highway expenditure and public welfare expenditure during economic recessions, the results are opposite of what we expect (See Appendix 9 and 10). Decreases in tax revenues during economic recessions are related to a lower level of fiscal stability. This indicates that state governments are more likely to reduce the expenditures in highway expenditure and public welfare expenditure when they have experienced reduced revenues during economic recession. Behavior of the state capital expenditures can be explained with the effect of fiscal rules and procedures on capital spending (pay-as-go rules) and concerns about debt issuance or maintenance. The spending patterns of welfare expenditure might be related to non-tax revenue funding sources, which include the federal grant, budget stabilization, or rainy day funds. Even though states cut the expenditures from

the tax revenue, states can continue to provide welfare services to their low-income populations during recession using their general purpose budget stabilization fund and their unspent TANF balances (Chernick, Howard, and Reschovsky 2003).

*H1-3: A Democratic state government with increases in tax revenues will have a lower level of stability than Republican state governments during economic booms.*

While this hypothesis is not supported, the governor's party is statistically significant, regardless of the level of tax revenues. Seeing the results, a Democratic governor has a much higher level of spending propensity regarding total expenditures and capital expenditures during economic booms. This indicates that state governments with Democratic governors are more likely to increase expenditures and are less stable compared to state governments with Republican governors. Political ideology in public choice is influential in that certain decision makers might be more prudent with regard to spending (Rubin 2001; North 1990).

*H1-4: A Democratic state with decreases in tax revenues during economic recessions will have a higher level of stability than Republican state governments during economic downturns.*

This hypothesis is not supported for overall expenditure, but it is supportive for public welfare expenditures. Democratic states experiencing decreases in tax revenues during economic recessions will not have a higher level of stability. Democratic governors are likely to reduce total expenditures from decreased tax revenue during economic busts. However, Democratic governors are less likely to reduce welfare expenditures in the face of decreased tax revenue. It explains that the Democratic governor has favored a larger role in providing for welfare than has the Republican governor (Browning 1986; Mogull 2015).

Hypothesis 2, and its sub-hypotheses, suggest that states with higher credit ratings will behave differently and affect fiscal stability levels.

*H2-1: A state with a AAA credit rating has a higher level of fiscal stability than a state without a AAA credit rating during economic booms.*

*H2-2: A state with a AAA credit ratings has a lower level of fiscal stability than a state without a AAA credit ratings during economic downturns.*

This hypothesis is not supported but is statistically significant for total expenditures, capital expenditures, and during economic booms. However, the results are opposite of what we expect. A state with a AAA credit rating has a lower level of fiscal stability and is likely to spend more during economic booms. It indicates that borrowing more money through bonds plays a role as the means by which decision makers could continue to spend (Kousser, et al. 2008), because higher credit ratings have less borrowing costs. This result also indicates that a higher credit rating itself is indicative of the power and capacity of the government, considered a structural factor, or that generally, state governments already maintain a higher financial fund balance during economic booms. Political actors might use the fiscal capacity, through tapping plentiful fund balances (a primary contributor to the AAA rating). Thus, it indicates that political actors in may indicate that a AAA rating state use awith a AAA credit rating tends to spend more obscure means of realizing programmatic objectives, while avoiding the more obvious mechanism (to the general public) of the credit markets during economic booms.

Hypotheses 2-3 and 2-4 indicate that governor power combined with a higher credit rating will make states behave differently and have different fiscal stability levels.

*H2-3: A state with a AAA credit rating with a strong governor has a higher level of fiscal stability than a state with a AAA credit rating with a weaker governor during economic booms.*

*H2-4: A state with a AAA credit rating with a strong governor has a lower level of fiscal stability than a state with a AAA credit rating with a weaker governor during economic downturns.*

H2-3 and H2-4 (pertaining to the interaction term between a strong governor and a higher credit rating) may explain more prominent behavioral factors of state government. H2-3 hypothesis is supported for total expenditures, capital expenditures and during economic booms. A state with a AAA credit rating with a strong governor has higher stability in total expenditures and capital expenditures with a weaker governor during economic booms. It explains that the governor is considered to have more budget powers and that the gubernatorial veto is effective in limiting spending (Endersby and Towle 1997). In addition, this is evidence of the strong governors taking responsibility for their states' creditworthiness. Liu and Kim (2009) explain that public officials have to monitor states' creditworthiness, as credit rating is a key indicator of sustainability in state or local governments. This is also consistent with the electorate holding that official responsibility because the budget power of governor is known to be strong and therefore can correctly be held responsible.

Hypothesis 3 suggests that decision makers with different service priorities will behave differently and affect fiscal stability levels. Government officials are concerned about the continuity of services as well as economic growth through government spending.

*H3-1: A state with a higher proportion of current spending has a higher level of fiscal stability than a state with a lower level of current spending during economic downturns.*

*H3-2: A state with a higher proportion of current spending has a higher level of fiscal stability than a state with a lower level of current spending during economic booms.*

This hypothesis is partially supported during economic booms. A state with a higher proportion of current spending exhibits higher stability in boom times. However, during economic busts, a state with a higher proportion of current spending has lower stability. That is, a state with a higher proportion of current spending is more likely to reduce spending during busts. Current spending is considered to be mildly countercyclical (Lane 2003), and states which put values more on current spending priorities are more likely to reduce the expenditures during recession but do not increase spending during economic booms. Our findings related to service continuity indicate that none of the behaviors for shaping the level of spending are at work during recessions.

(2) Impacts of other factors on fiscal stability

The most eminent result from the regression regarding the control variables are the budget balanced rules. For example, during economic recession, strict BBRs decrease fiscal stability, and this finding is consistent with the work by Levinson (1998). Strict BBRs make political actors take actions that lead to less stability, which reduces overall spending. On the other hand, strict BBRs make political actors take actions that contribute to stability, which reduces spending during economic booms. That is, strict BBRs play a role in constraining spending. Prior empirical studies have consistently found that balanced budget requirements have a constraining effect on expenditures (Smith and Hou 2013). The results show that governments' budgetary structural features make the level of governments' policy options by political actors to be constrained. Regarding this constraint, Hendrick and Crawford (2012)

argue "policy constraints to have a more significant impact on how governments respond to environmental threats and conditions" (29).

Fiscal institutions also play a role in limiting the behavior of government officials. At the state level, as mentioned previously, balanced budget requirements may force state governments to engage in pro-cyclical policies like budget cuts or tax increases in order to respond to a fiscal crisis. State spending is not flexible under the restrictions of budget rules: state governments are required to balance their budgets, unlike the federal government. Here, as the institutional factor, a balanced budget rule (BBR) generally refers to the prohibition on operating a budget deficit in a budget year. The BBRs "can be broadly categorized, depending on the stage in the budget process at which balance is required" (Poterba 1996, 396).

Federal grants also play a role in stabilizing spending cuts during economic busts. In the traditional theory of fiscal federalism, the national government has the primary responsibility for macroeconomic stabilization (Oates 1999). The basic assumption is that subnational governments are constrained by revenue-raising capacity. Used in these ways, federal stimulus money can help states maintain their core services, supporting state budget and policy priorities over strictly federal ones. The federal government presumably (and often overtly) provides such funding to states for the "stimulative" effect in order to counter the effects of an economic downturn nationwide.

In conclusion, there are few behavioral factors that factors that influence fiscal stability. The results indicate only a few significant variables in terms of budgetary behaviors. One of the primary factors that affect fiscal stability are structural factors. Significant impacts of institutional factors and federal grant suggest the reasons in not finding more clear-cut

evidence for the study's expected influences is the challenge of using economically based theories, such as public choice theory, to explain a largely political process, which budgetary decision making is. The economic model does not explain the political process completely in the budget process. The economic model is not reality itself; rather, it can represent only certain abstractions. Therefore, the results of the model involve errors from indirect observations. "These parameters are affected by errors and these errors cause errors in the results" (Kamarck 2002, 9).

The primary factors that affect fiscal stability are structural factors in this study. Significant impacts of institutional factors and federal grants suggest the possibility that state governments are passive actors, following the influence of federal policy or following the influence of past actors' (prior legislatures and executives) restrictions. In particular, during economic busts, state governments adapt to environmental changes and incorporate fiscal constraints and other structural devices to compensate for limited or diminished resources. In addition, the influences of the budgetary priorities of the state and the effects of other institutional or structure factors on fiscal stability are different depending on the type and function of the expenditures. Table 14 provides a summary of the regression results[11] for total expenditure, and other sub category expenditures during boom and bust.

Table 14. Summary of Results

|  | Boom Years | | Bust Years | |
|---|---|---|---|---|
| Total Exp | Independent | 1.Credit rating (+) 2.Servcon (-) 3.Governor Power (+) 4.Credit* Govpower(-) 5.Governor Party (+) | Independent | 1.Servcon (-) |
|  | Control | | Control | 1.BBR (-) 2.Grant (+) |

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[11]  Each result from the regression models (by function and by type) are presented in Appendix.

| | | | | |
|---|---|---|---|---|
| Current | Independent | 1.Servcon (+)<br>2.Governor Party (+) | Independent | |
| | Control | 1.BBR (-)<br>2.Grant (+) | Control | 1.BBR (-)<br>2.Grant (+) |
| Capital | Independent | 1.Credit rating (+)<br>2.Servcon (-)<br>3.Governor Power (+)<br>4.Credit* Govpower(-)<br>5. Governor Party (+) | Independent | 1.voltax(+)<br>2.Servcon(-) |
| | Control | | Control | 1.Grant (+) |
| Education | Independent | 1.Governor Power (+) | Independent | 1.Servcon (-) |
| | Control | 1.BBR(+)<br>2.Grant (-) | Control | 1.BBR(-)<br>2.BSF (+)<br>3.Grant (+) |
| Highway | Independent | 1. Servcon (-) | Independent | 1.Voltax (+)<br>2.Servcon(-) |
| | Control | | Control | 1.Grant (+) |
| Public Welfare | Independent | 1.Servcon (+) | Independent | 1. Voltax (+)<br>2. Tax*GovIdeo(-) |
| | Control | 2.BBR (-) | Control | 1.BBR(-)<br>2.BSF(+)<br>3.Split(-)<br>4.Grant (+) |
| Health &Hospital | Independent | | Independent | |
| | Control | 1.Unemployment (-) | Control | 1.Split (+) |

# CHAPTER 5

# Conclusion and Discussion

## 5.1 Summary of Empirical Findings

This dissertation begins with the issue of the effect of budgetary priorities on states' fiscal volatilities, and whether states respond differently with budgetary priorities during times of boom and bust. First of all, state governments generally do not value fiscal stability, but state governments show different level of fiscal stability depending on booms and busts.

Second, states respond differently with budgetary priorities, and there are significant differences in how stability occurs, depending on the boom or bust. However, the behaviors of political actors to influence are more likely to be attributable to structural factors, especially BBRs, according to the results. It indicates that our study does not support the theory based purely on economic perspective (public choice). Individual rational policy choices are limited by formal budgetary institutions that limit the policy choices available to political actors. These established constraints force political actors to take actions in response to environmental changes or economic shocks.

Budgetary institutions in government responsiveness play as against purely behavioral determinants. Johnson and Kriz (2005) argue that "fiscal institutions are intended to constrain the behavior of government officials. Indeed, the limits and rules are explicitly designed to supplant the fiscal decision making of government officials in favor of the limit or rule, imposed either directly by voters or through their representatives in the legislature, and embodied in state statutes and often in the state constitution" (Johnson and Kriz 2005,

85). Fiscal institutions can play a role in decreasing the principal-agent problem, in that public officials might deploy revenues in ways that are not most preferable to the taxpayers (Johonson and Kriz 2005).

The influences of the budgetary priorities of state and the effects of other institutional or structural factors on fiscal stability are different, depending on the type and function of the expenditures. Table 14 provides a summary of regression results[12] for total expenditure and other sub-category expenditures during boom and bust. Budgetary institutions include some regulations and rules that restrain the budget process. Budget rules cannot be changed, as these constraints make it difficult for decision makers to take action and are still questionable regarding their effects across states. Also, budgetary institutions have some difficulty in explaining large differences between states that have similar institutional structures (Howard 2009), as well as in explaining the variety of outcomes over time within the states.

In addition, the federal role in grant-giving to state governments to support macro-economic policy is described in theories of cooperative federalism (Elazar 1966; Anders and Shook 2003). Using states as a vehicle for stimulus type funds dates back, at least, to the policies of the Great Depression (Anders and Shook 2003). In the past two recessions, the federal government has given money to states both for the stimulative effect it has on the economy as well as to help states continue to provide a higher level of services (or to keep states from increasing taxes) given state balanced budget constraints.

However, federal funding for new programs cannot continue indefinitely. Eventually federal funds will expire or be reduced. Sobel and Crowley (2010) has claimed that state revenue does not, or will not, always suffice to sustain the work and added service

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[12] Each result from the regression models (by function and by type) are presented in Appendix.

costs of a new program after federal funding expires. Currently, some reports (Ellerson 2009; National Conference of State Legislatures 2009) have warned about the "cliff effect," which occurs when federal money ends or is exhausted: states cannot recover their financial condition in the short term and still struggle to find substitute revenue sources even as the economy improves. These issues have forced state officials to reexamine their budgetary priorities and strategies during economic busts (Benton 1992).

In conclusion, state governments stand as passive actors during economic recession. State governments adapt to environmental changes caused by economic environmental instability. They address fiscal stress from cyclical fluctuations by temporizing strategies, delaying expenses, and implementing ad-hoc budget cuts until the economy improves. States have used both across-the-board and targeted budget cuts to compensate for limited resources (NASBO 2013). Fiscal stress that results from structural gaps cannot be solved or addressed by delay tactics. This is indicative of the pro-cyclical nature of fiscal policy responses (Jonas 2012). However, ad-hoc spending cuts or quick policy changes during an economic recession indicate that states are inactive actors and are therefore vulnerable during recessions. Budget cuts "involving an array of possible tactics, ranging from strategic prioritization and managerial to ad hoc or even random cuts" (Bartle 1996; Hendrick 1989; Levine 1978, 1979; Raudla, Savi, and Randma-Liiv 2013, 5). State governments have taken a number of methods in order to stabilize and balance the budget during economic downturns. It is quickest to make expenditure cuts, as expenditure cuts to personal services offer immediate and significant adjustment.

**5.2 Implications of the Study Results**

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Regarding the spending propensity (budget maximizing behaviors) of political actors, this study shows that states have not increased the stability of spending over the course of economic downturns. In particular, during economic recession state government is more likely to decrease stability in spending for highway and public welfare. This find is partially consistent with Wagner and Elder (2004)'s work. They show, empirically, that states have not increased the stability of spending over the business cycle. Modern economic theory (e.g., Krugman and Wells 2009, Stiglitz 2010) generally holds that governments should play a countercyclical role in conducting fiscal policies to keep the economy stabilized, however this result shows that state governments do not show fiscal stability during economic recessions. Enforced retrenchment from external environments, such as economic recession, will lead to a reduction in the size of the state budget.

Regarding the credit rating, a Triple A state has a lower level of stability in total expenditure and capital expenditure during economic booms. In this study, a state with a strong governor has a lower level of stability in capital spending. However, this finding is not consistent with a previous study by Tandberg and Ness (2011). Tandberg and Ness show that states with greater gubernatorial budget authority are related to lower spending on capital projects (Tandberg and Ness 2011). His study used educational capital spending rather than total capital spending and did not consider the business cycle. Our study provides that a state with a AAA credit rating and a strong governor has a higher level of fiscal stability in capital expenditure than a state with a AAA credit rating without a strong governor during economic booms. This finding is consistent with our expectation, and shows that governors have a considerable influence on state budgets. The governor is considered to have more budget powers than the legislature and "budgeting is typically viewed as an executive responsibility" (Holyoke and Cummins 2012, 4). In terms of budget accountability, these efforts emphasize

holding elected officials responsible for the quality of financial management and creditworthiness. This type of accountability is related to the political positions of elected officials (Lowry, Alt, and Ferree 1998).

Pagano (2002) examines the municipal capital spending during boom and he shows that many cities increase the capital spending during economic booms. One of the sources for the capital projects are debt issuance. The cost for the debt issuance is low because of the lower interest rate of a Triple A state. Thus, Triple A states are more likely to have lower levels of fiscal stability in capital expenditure. Regarding the rationale for capital spending increases; one of the strategies, or budgetary tools, to stimulate an economic situation, is capital investment. Public infrastructure investment has a positive effect on regional economic development by increasing property value and delivering public service by providing better access to utility services, street lights, and transportation facilities. Most of infrastructure construction requires massive start-up costs, even though its long term benefits exceed its costs, which cause 'market failure.' Thus, infrastructure investment in the capital budget is a useful budgetary tools to deal with the cycle of the economy (Rubin 2005).

In addition, several previous studies show that depending on the economic situation, state governments increase capital spending during economic boom, and cut back on capital investment and maintenance during downturns (Forrester 1993; Pagano 2002). Wang, Hou, and Duncome (2008) use the effect of bond rating on Pay-as-You-Go expenditure in capital budget, and state governments with higher bond rating (Triple A) would expect that the capital debt expenditure will increase.

Regarding service continuity, our study shows that government spending priorities influence the stability of government expenditures. A state with a higher proportion of current

spending also has a higher level of fiscal stability in total expenditure than a state with a lower level of current spending during economic booms. However, a state with a higher proportion of current spending has a lower level of fiscal stability in operational spending and welfare spending than a state with a lower level of operational spending during economic booms. A state with a higher proportion of current spending has a higher level of fiscal stability in capital spending (highway spending) than a state with a lower level of current spending during economic booms.

On the other hand, during economic recession, a state with a higher proportion of current spending has a lower level of fiscal stability in total expenditure, capital spending (highway spending), and education spending, than a state with a lower level of current spending. In sum, a state with a higher proportion of current spending has a higher level of fiscal stability during economic booms, but has a lower level of fiscal stability during economic downturns. According to Lane (2003), capital expenditure is considered to be the most pro-cyclical component of government spending, while current spending is considered to be mildly countercyclical (Lane 2003). Our study shows that states with focused current service priorities have pro-cyclical components of government spending in operational and welfare spending during economic boom. States with focused current service priorities have pro-cyclical components of government spending in capital and education spending during economic bust.

During economic recession, some states demonstrated countercyclical spending during recessions for particular categories (i.e. current expenditure, welfare, and health and hospitals).Those spending have shown stability depending on the service priorities. It seems reasonable to expect states with operational service priorities to continue to exhibit counter-cyclical spending across the social services. Social service spending is defined here as the

state spending for social welfare programs such as public welfare and health and hospitals.

based on census classification. Also, it is consistent with the findings of GAO (2011),where

public welfare and health and hospitals show the countercyclical behavior of state

government expenditures (GAO 2011).In addition, our findings are explained with previous

studies (i.e. Grogan and Rigby 2009; Gais 2009) that show that the composition of state

spending has become more counter-cyclical; meaning that health and welfare programs

become a larger portion of state spending during economic downturn (Grogan and Rigby

2009; Gais 2009). This is because the demand for the services of unemployment and welfare

benefits rise during economic recession. McGuire and Merriman (2005) investigate whether

states cut or expand social welfare spending during economic downturns, and they show that

component public welfare spending was counter-cyclical, whereas there was an increase in

the pro-cyclicality in higher education spending. These findings are consistent with our study.

Also, Pagano (2002) explains that "government choose to maintain or minimally reduce

service delivery levels during an economic downturn, which often means postponing

infrastructure investment or at least reducing the level of capital spending( Pagano 2002, 3).

Table 15. Cyclical Behavior of State Government Expenditures, 1998 to 2013

| Expenditure function | Service Priorities | Boom | Bust |
|---|---|---|---|
| General expenditures | States with focus on operational service | counter | pro |
| Current expenditures | States with focus on Operational Service | pro | - |
| Capital expenditure | States with focus on Operational Service | counter | pro |
| Education | States with focus on Operational Service | - | pro |
| Highways | States with focus on Operational Service | counter | pro |
| Health and hospitals | States with focus on Operational Service | - | - |
| Public welfare | States with focus on Operational Service | pro | - |

According to our results, governor political party affects state spending volatilities during economic boom. The states with Democratic governors have higher levels of fiscal volatilities, and this result is consisted with a previous study by Besley and Case (1995). They show that state taxes and spending are higher under Democratic governors. In addition, other scholars argue that Democratic governors might be less prudent in spending (Rubin 2001; North 1990; Pierson 1995). On the other hand, during economic downturn, a governor's political ideology does not influence the fiscal stability.

Regarding governor power, our results show that states with higher levels of governor power have lower levels of fiscal stability in capital expenditure and education expenditure during economic booms. However, these results were found to have unexpected effects. Barrilleaux and Berkman (2003) show that increasing a governor's budgetary powers results in a reduction of the ratio of developmental to redistributive spending. That is, according to their study, governors with greater budgetary power are more likely to prefer redistributive spending. However, Barrilleaux and Berkman (2003) explain that "governors appear to temper their preferences for redistribution when competition for legislative seats is high" (415).

Regarding the budget balanced rule (BBR), our paper presents evidence that stringent balanced budget rules make the volatilities in current and welfare expenditure decrease during economic booms. That is, balanced budget rules can deter a state spending increase in current and welfare expenditure during economic booms. On the other hand, during economic recession, our results show that stringent balanced budget rules make the volatilities increase in current, welfare, and education expenditures during economic busts. As a result, strict balanced budget requirements inhibit the spending increases regardless of business cycle.

Levinson (1998) reveals that a state's fiscal institutions have an impact on macroeconomic results, and that strict BBRs decrease business cycle fiscal stability. However, Fatas and Mihov (2006) argue that less strict BBRs, in fact, decrease business cycle fiscal stability. Poterba (1994) also shows that states with more stringent rules were quicker to reduce spending than states with less stringent rules. Our findings are more consistent with Levinson's work (1998) and Poterba's work (1994), in that strict BBRs are more influential and decrease stability during economic busts.

In terms of tax and expenditure limits (TELs), our study does not provide any significant evidence about this variable. Several researchers (Howard 1989; Poterba 1994) argue that TELs have no effect on the levels of spending reductions or increases during economic downturns. Howard (1989) argues that "the most compelling reason for TELS to have little impact would be that their integrity has been compromised. One state has consistently relied on the waiver clause to exceed its TEL; another, with a TEL that is advisory only, has exceeded its limit several times. Other state has relived pressure by amending limits to exclude certain types of expenditures" (Howard 1989, 87). Our research is consistent with previous studies that show that TELs are not related to effectively maintaining stability.

Regarding the budget stabilization fund, our results show that states with a greater BSF are more likely to have more stability in education and welfare spending during economic downturn. Higher levels of reserves provide higher countercyclical fiscal capacity to state governments, which can be translated into actual performance (Hou 2004). Hou (2004) argues that rainy day funds play a role as a counter-cyclical effect for state expenditures. Our results confirm Hou's study, in that a state government with a BSF might not reduce spending in education and welfare during economic down turns. It implies that

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fiscal reserves help ease the negative impacts of recessions on state spending and preserve fiscal stability. However, budget stabilization funds during booms are not statistically significant. That is, the counter-cyclical effects on expenditures are only effective during contractions.

Grants are found to be statistically significant in both boom and downturn years. During periods of economic downturn, federal funding reduces fiscal volatilities. During periods of economic downturn, federal funding is a stabilizing force for state governments. This finding confirms previous reports that reveal that in providing temporary fiscal relief, federal grants can support state government budget behaviors that minimize expenditure cuts (Fiscal Policy Institute 2010; Stiglitz and Orszag 2001). More recently, the American Recovery and Reinvestment Act (ARRA) of 2009 set aside $135 billion targeted for state fiscal relief; relief that allowed states to maintain core services (Super 2005). On the other hand, the results show that states with higher levels of federal grants have a lower level of fiscal stability in operational expenditures. This implies that states with federal grants show the flypaper effect. The flypaper effect is seen in the circumstance of intergovernmental grants, typically those from the federal government to state governments, which appear to have a greater impact on state spending than the income and substitution effects of the grants (Hines 2010). By contrast, federal grants during boom years are shown to be effective in improving fiscal stability in education spending. This finding is unexpected and might be explained with the flypaper effect. The flypaper effect is explained by the degree of fungibility of federal grants. If grants are fungible, it becomes difficult to find out exactly what has been financed with federal grants (Saunoris 2013).

Hence, the more fungible, the less flypaper effect (money sticks less where it lands).States rely on intergovernmental grants to help local governments to finance public

education. There are differences in actual types of aid programs used by states, because each state has different fiscal features and each grant program has different components. The most critical step in any reform effort is the selection of a state aid formula. This selection is usually guided by legal requirements crafted in court decisions, but it does also consider the interests of state policy makers (Yinger 2004). Our study does not consider the formula of the grants and this aspect should be explored in future research.

Regarding the political factor, in our study politically divided governments result in different fiscal volatilities during economic downturn. A state with a high level of political division has a lower level of stability in welfare spending, but higher stability in health and hospital spending during economic downturn. Regarding the welfare spending cuts, our finding is consistent with previous studies by Niskanen (2003) and Kwak (2014) that show that divided government generates fiscal restraint. Disagreement in the decision-making process leads to ineffective responses to, and delayed action in, spending decisions (Roubini and Sachs 1989). Thus, during economic downturns, divided government is more likely to make cuts to welfare spending. In contrast, regarding health and hospital spending cuts, our finding is consistent with Gould (2009)'s work. He finds that divided government has a positive relationship with expenditures. He argues that political division leads to compromise on the expenditure requests of different parties. In addition, this finding can be explained by taking into consideration the fact that health and hospital spending is related to the Medicaid costs of the state. The cost of Medicaid is jointly supported by federal and state governments. The federal government pays from 50 to 83 percent of the costs of the program, depending on the federal matching assistance percentages (FMAPs) that exist in each state. Despite this fact, Medicaid expenditures comprise a significant share of state budgets (about 16 percent of a state's general fund expenditures, on average, and this figure is growing) (Kaiser Family

Foundation 2004). Thus, state spending might not have higher levels of volatilities despite the state having a divided government.

Regarding the economic condition, the unemployment rate is only statistically significant in fiscal stability in the health and hospital expenditure. A state with a higher unemployment rate has a higher level of fiscal stability in health and hospital expenditure than a state with a lower unemployment rate during economic booms. However, previous studies explain that poor economic conditions increase the service (spending) (Mogull 1990; Hicks and Swank 1983). Our findings can be explained by the fact that states in poor fiscal capacity are likely to allocate less funds to social welfare programs than states in better fiscal condition during economic booms. This result implies that state spending in health and hospital expenditure is countercyclical in pattern.

# CHAPTER 6

## Contribution, Limitation and Future Research

### 6.1 Contributions to Theoretical and Empirical Research

This study contributes to the existing theoretical and empirical studies on fiscal stability and behaviors. The study explains the dynamics of budgetary behaviors over the business cycle in state governments. Previous studies are still debatable concerning the question of whether increased revenues lead to volatilities. In addition, our study deals with the reasons, or budget priorities, for the implementation of fiscal policies on budget stability in a state. This study is novel because it attempts to deal comprehensively with the motivators for implementation of certain fiscal policies. Specifically, credit rating and service priorities on fiscal stability have not been previously examined. Moreover, we can contribute to the political or public budgeting literature for still debatable results such as institutional effects on volatiles, and grant or government power on fiscal volatilities.

Further, this study looks into which categories of state expenditure are particularly influenced by budgetary priorities based on booms and busts. This has not been attempted before, therefore our results contribute to the empirical research by using newly adopted factors as the expenditure category (by type and function).Analysis using this category can uncover variations in cyclical behaviors that can show across expenditures.

This study measures fiscal stability, which involves calculating proportional changes in expenditures. To measure stability, previous studies (i.e. Hendrick and Crawford 2014; Kwak 2014; Wagner and Elder 2004) employed different measurements. However, findings

are consistent with our findings for grants and BBRs. For example, Kwak (2014) found that a grant is effective in maintaining expenditure stability during an economic recession. Additionally, Hendrick and Crawford (2014) demonstrated that spending stability is higher with BSFs than without. Budgets with higher levels of slack are better able to maintain their financial condition and stabilize service delivery during economic busts. These findings are consistent with our findings. Thus, we can recommend using our measurement for fiscal stability, because the measurement in this study has not previously been employed.

## 6.2 Limitations of the Study

Even though we identified some meaningful results in this study, there are also some limitations and multiple opportunities for further research. The first limitation is that the dataset used only covers a short time period (from 1998 to 2013 and two recessions), and economic downturns only last four years. That fact influences the validity of the results, because downturn periods are relatively short compared to boom years. Also, institutional variables such as TELs and BBRs are less variant depending on the time periods, because the rules are not changed easily. Therefore, the effects of these institutions on fiscal volatilities are limited in estimation. Additionally, the credit rating of the state as a key independent variable is relatively stable regardless of time periods. A triple A state tends to keep its credit rating for a long time. Thus, the effects of this credit rating on fiscal volatilities are relatively limited in estimation. Lastly, this study uses the secondary data set. As a result, data does not perfectly capture the meaning of budgetary priorities. For example, service continuity is operationalized according to the composition of spending under operational budgets and capital budgets. However, this measurement is limited and cannot capture the service

continuity or service priorities of the state. This is associated with the inherent validity issue in investigating the direct relationship between service continuity and fiscal stability. This study uses a quantitative analysis, and this does not capture the specific state's unique contexts. Individual states have particular policy problems and contexts, but our research analysis is limited in its amount of detailed description or explanation about this research topic. Thus, future research must include case studies in order to identify budgetary strategies of the state and all aspects of budgetary priorities. Qualitative supports are necessary for this research to more convincingly corroborate the results. The qualitative methodology helps the researcher to conduct the study for "complex phenomena within their contexts" (Baxter and Jack 2008, 544).Qualitative analysis enables researchers to understand the problem and the contexts related to phenomena in depth. As a result, the qualitative study tries to examine the "how" and "why" questions by investigating contexts in depth.

**6.3 Suggestions for Future research**

Our study provides several suggestions for future research. First, we need to expand the data set. Using more years will improve the validity of the results. The recent economic recession was the unique period. The lop-sided influence of the Great Recession period account for 75% of the "bust" years in this study. For example, the Federal Reserve had implemented a different operation of fiscal and monetary policies, which means the Federal Reserve has maintained zero interest rates since 2008. Thus, if the monetary policies would change, it can influence the operation of a model predicated on traditional assumptions. The expansion of the research timeframe, to include at least three more recessionary periods (1980, 1981–1982, and 1991) can dilute the strong influence of the great recession period on

the model. Second, this study needs to include qualitative evaluations of case studies in order to understand the complexity of the states. Specifically, for future study, I will select four states: two are from financially well-managed states such as Utah and Maryland, which are among the few states that preserve the AAA bond rating. This achievement comes as a result of sound financial management. In addition, Utah continues to be recognized as one of the best-managed states in America (GOMB, 2014). Two states with less fiscal responsibility are Illinois and California. California had a decrease in its outlook rating (A), and Illinois had a downgraded rating. According to a Tax Foundation report (2013), Illinois' rating was downgraded twice (from A+ to A and from A to A-).

Third, performances or budget conditions, according to fiscal stability, need to be investigated. When states choose their policy, or fiscal structure, they need to consider the outcomes of the policy choice. In particular, states choose either tax increase (decrease) or spending cuts based on business cycle differently and depending on the state's particular context. Fourth, unexpected results from our study, such as the flypaper effect, should be investigated more deeply during times of boom and bust, because the flypaper effect can be more prominent in either economic booms or economic downturns. So, in the future, it will be necessary to examine the unexpected results of this study.

# APPENDIX

Appendix 1. Proportion of Expenditure in Bust Year (2008)

| State | Education | Public welfare | Highways | Governmental administration |
|---|---|---|---|---|
| Alabama | 62.00 | 26.66 | 7.99 | 3.36 |
| Alaska | 39.13 | 26.70 | 23.78 | 10.39 |
| Arizona | 45.96 | 38.73 | 11.56 | 3.75 |
| Arkansas | 54.46 | 32.54 | 7.90 | 5.10 |
| California | 47.43 | 38.96 | 7.88 | 5.74 |
| Colorado | 55.56 | 29.47 | 8.92 | 6.05 |
| Connecticut | 43.56 | 42.12 | 5.96 | 8.36 |
| Delaware | 48.21 | 30.92 | 10.57 | 10.30 |
| Florida | 45.54 | 35.47 | 14.30 | 4.69 |
| Georgia | 55.93 | 33.34 | 7.91 | 2.82 |
| Hawaii | 58.44 | 26.67 | 6.79 | 8.10 |
| Idaho | 50.95 | 29.65 | 12.78 | 6.61 |
| Illinois | 41.65 | 43.75 | 11.49 | 3.11 |
| Indiana | 50.01 | 37.85 | 9.27 | 2.87 |
| Iowa | 49.78 | 33.57 | 11.88 | 4.77 |
| Kansas | 54.29 | 29.91 | 11.46 | 4.34 |
| Kentucky | 47.80 | 33.99 | 13.60 | 4.61 |
| Louisiana | 50.54 | 32.43 | 11.86 | 5.17 |
| Maine | 37.97 | 46.90 | 9.00 | 6.13 |
| Maryland | 50.27 | 32.56 | 11.48 | 5.69 |
| Massachusetts | 39.23 | 46.44 | 8.22 | 6.10 |
| Michigan | 56.31 | 34.17 | 7.03 | 2.49 |
| Minnesota | 50.59 | 36.83 | 9.09 | 3.49 |
| Mississippi | 47.62 | 38.35 | 11.18 | 2.85 |
| Missouri | 49.62 | 35.64 | 11.64 | 3.10 |
| Montana | 47.48 | 27.50 | 15.66 | 9.36 |
| Nebraska | 49.78 | 35.91 | 10.80 | 3.51 |
| Nevada | 62.04 | 24.09 | 9.29 | 4.58 |
| New Hampshire | 47.61 | 36.42 | 10.37 | 5.60 |
| New Jersey | 47.56 | 38.28 | 8.43 | 5.74 |
| New Mexico | 51.73 | 34.48 | 8.68 | 5.12 |
| New York | 41.95 | 47.23 | 4.62 | 6.20 |
| North Carolina | 53.72 | 32.63 | 10.02 | 3.63 |
| North Dakota | 49.45 | 28.85 | 17.11 | 4.59 |
| Ohio | 48.41 | 38.77 | 7.74 | 5.07 |
| Oklahoma | 50.77 | 34.73 | 10.61 | 3.89 |

| | | | |
|---|---|---|---|
| Oregon | 50.15 | 31.94 | 11.33 | 6.58 |
| Pennsylvania | 40.26 | 40.98 | 13.58 | 5.18 |
| Rhode Island | 37.86 | 49.60 | 4.49 | 8.05 |
| South Carolina | 51.64 | 34.68 | 6.74 | 6.93 |
| South Dakota | 43.89 | 32.28 | 17.09 | 6.74 |
| Tennessee | 43.26 | 44.20 | 8.51 | 4.02 |
| Texas | 55.38 | 31.44 | 10.80 | 2.39 |
| Utah | 60.28 | 22.00 | 10.60 | 7.12 |
| Vermont | 54.32 | 33.01 | 8.55 | 4.12 |
| Virginia | 54.49 | 28.52 | 12.20 | 4.79 |
| Washington | 55.48 | 29.93 | 11.50 | 3.09 |
| West Virginia | 47.94 | 33.45 | 13.24 | 5.38 |
| Wisconsin | 53.17 | 33.58 | 9.79 | 3.47 |
| Wyoming | 52.73 | 22.50 | 17.87 | 6.89 |

(Source: Census State Government Finance Series)

Appendix 2. Proportion of Expenditure in Boom Year (2005)

| State | Education | Public welfare | Highways | Governmental administration |
|-------|-----------|----------------|----------|------------------------------|
| Alabama | 56.62 | 31.29 | 8.89 | 3.21 |
| Alaska | 37.88 | 30.43 | 22.52 | 9.17 |
| Arizona | 48.11 | 37.94 | 10.68 | 3.27 |
| Arkansas | 53.49 | 31.97 | 9.63 | 4.91 |
| California | 48.32 | 39.23 | 6.67 | 5.79 |
| Colorado | 54.04 | 30.69 | 10.65 | 4.62 |
| Connecticut | 42.74 | 41.39 | 7.14 | 8.72 |
| Delaware | 48.24 | 28.49 | 12.74 | 10.53 |
| Florida | 43.97 | 37.75 | 12.77 | 5.51 |
| Georgia | 50.89 | 35.58 | 10.42 | 3.11 |
| Hawaii | 55.94 | 29.88 | 5.87 | 8.31 |
| Idaho | 48.52 | 31.84 | 13.08 | 6.56 |
| Illinois | 43.88 | 42.36 | 9.83 | 3.93 |
| Indiana | 52.95 | 32.85 | 10.65 | 3.55 |
| Iowa | 48.31 | 32.82 | 14.17 | 4.71 |
| Kansas | 51.81 | 30.27 | 13.62 | 4.30 |
| Kentucky | 47.93 | 37.61 | 9.64 | 4.83 |
| Louisiana | 51.13 | 34.55 | 9.71 | 4.61 |
| Maine | 35.52 | 48.01 | 10.81 | 5.66 |
| Maryland | 45.89 | 34.07 | 11.56 | 8.47 |
| Massachusetts | 38.37 | 47.39 | 7.76 | 6.47 |
| Michigan | 56.43 | 33.24 | 7.57 | 2.75 |
| Minnesota | 49.35 | 37.73 | 8.97 | 3.95 |
| Mississippi | 44.62 | 42.80 | 9.90 | 2.68 |
| Missouri | 45.67 | 39.71 | 10.93 | 3.70 |
| Montana | 47.21 | 26.60 | 17.74 | 8.45 |
| Nebraska | 46.59 | 37.99 | 11.90 | 3.51 |
| Nevada | 56.45 | 25.88 | 12.55 | 5.12 |
| New Hampshire | 44.24 | 40.74 | 10.03 | 5.00 |
| New Jersey | 46.04 | 40.21 | 7.82 | 5.93 |
| New Mexico | 50.37 | 35.81 | 8.30 | 5.51 |
| New York | 38.40 | 51.19 | 4.81 | 5.59 |
| North Carolina | 50.36 | 35.09 | 11.52 | 3.04 |
| North Dakota | 48.40 | 29.45 | 17.15 | 5.00 |
| Ohio | 47.94 | 38.47 | 8.75 | 4.83 |
| Oklahoma | 52.31 | 34.06 | 9.66 | 3.96 |
| Oregon | 45.78 | 33.19 | 14.60 | 6.43 |
| Pennsylvania | 37.66 | 43.98 | 13.30 | 5.06 |
| Rhode Island | 36.32 | 49.14 | 6.64 | 7.91 |
| South Carolina | 46.37 | 37.32 | 10.31 | 6.01 |
| South Dakota | 41.29 | 32.53 | 20.31 | 5.87 |

| | | | |
|---|---|---|---|
| Tennessee | 37.88 | 50.06 | 8.80 | 3.26 |
| Texas | 50.74 | 34.11 | 12.63 | 2.52 |
| Utah | 57.01 | 25.63 | 8.74 | 8.63 |
| Vermont | 54.54 | 33.02 | 8.29 | 4.16 |
| Virginia | 54.35 | 28.53 | 12.50 | 4.63 |
| Washington | 54.58 | 31.95 | 10.51 | 2.96 |
| West Virginia | 45.03 | 34.09 | 13.94 | 6.93 |
| Wisconsin | 52.27 | 34.32 | 9.98 | 3.42 |
| Wyoming | 52.42 | 23.85 | 18.19 | 5.55 |

(Source: Census State Government Finance Series)

## Appendix 3. Budget Balanced Rules

| State | Governor Must Submit Balanced Budget | Legislature Must Pass Balanced Budget | Governor Must Sign Balanced Budget | May Carry Over Deficit |
|---|---|---|---|---|
| Alabama | YES | YES | – | – |
| Alaska | YES | YES | YES | – |
| Arizona | YES | YES | YES | – |
| Arkansas | YES | – | YES | – |
| California* | YES | YES | YES | YES |
| Colorado* | YES | YES | YES | – |
| Connecticut | YES | YES | YES | – |
| Delaware | YES | YES | YES | – |
| Florida | YES | YES | YES | – |
| Georgia | YES | YES | YES | – |
| Hawaii* | YES | – | YES | – |
| Idaho* | – | YES | – | – |
| Illinois | YES | YES | YES | – |
| Indiana* | – | – | – | YES |
| Iowa | YES | YES | YES | – |
| Kansas | YES | YES | – | – |
| Kentucky | YES | YES | YES | – |
| Louisiana* | YES | YES | YES | YES |
| Maine | YES | YES | YES | – |
| Maryland* | YES | YES | – | – |
| Massachusetts | YES | YES | YES | – |
| Michigan | YES | YES | YES | YES |
| Minnesota* | YES | YES | YES | – |
| Mississippi | YES | YES | – | – |
| Missouri | YES | – | YES | – |
| Montana | YES | YES | – | – |
| Nebraska | YES | YES | – | – |
| Nevada | YES | YES | – | – |
| New Hampshire | YES | – | – | – |
| New Jersey | YES | YES | YES | – |
| New Meoico | YES | YES | YES | – |
| New York | YES | YES | YES | – |
| North Carolina | YES | YES | – | – |
| North Dakota | YES | YES | YES | – |
| Ohio | YES | YES | YES | – |
| Oklahoma* | YES | YES | YES | – |

| | | | | |
|---|---|---|---|---|
| Oregon | YES | YES | YES | – |
| Pennsylvania | YES | – | YES | – |
| Rhode Island | YES | YES | YES | – |
| South Carolina | YES | YES | YES | – |
| South Dakota | YES | YES | YES | – |
| Tennessee | YES | YES | YES | – |
| Texas | – | YES | YES | – |
| Utah | YES | YES | YES | – |
| Vermont* | – | – | – | YES |
| Virginia* | – | – | YES | – |
| Washington* | YES | – | – | YES |
| West Virginia | – | YES | YES | – |
| Wisconsin | YES | YES | YES | YES |
| Wyoming | YES | YES | YES | – |
| Total | 44 | 41 | 37 | 7 |

(Source: 2008 NASBO Budget process report)

Appendix 4. Recession: FY 2001-2003

| Required Reserves | Shortfall in Reserves | | | | |
|---|---|---|---|---|---|
| | More than 20% | 15% to 20% | 10% to 15% | 0% to 10% | No Shortfall |
| More than 25% | Idaho Nevada Oregon South Dakota Tennessee Texas Utah West Virginia Wisconsin | | Nebraska | | |
| 20% to 25% | Georgia New Hampshire | Connecticut Florida Illinois Kentucky Missouri No. Carolina | Colorado Kansas Ohio | New Mexico Oklahoma | |
| 15% to 20% | | Arkansas | Arizona Montana Pennsylvania So. Carolina | Maryland Mississippi Wyoming | Iowa Minnesota |
| 10% to 15% | | | Alabama | New Jersey New York Rhode Island Vermont Virginia Washington | Delaware Indiana |
| Less than 10% | | | | California Louisiana | Maine Massachusetts Michigan No. Dakota |

(Source: Lav and Berube (1999))

Appendix 5. Budget stabilization fund level (Dollars: Millions)

| | 2001 | 2002 | 2003 | 2004 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|
| Alabama | 8 | 261 | 68 | 104 | 677 | 248 | 179 | 55 |
| Arizona | 373 | 65 | 14 | 14 | 677 | 219 | 3 | 0 |
| Arkansas | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| California | 1,564 | -3,535 | 0 | 0 | 3,015 | 0 | 0 | 0 |
| Colorado | 0 | 0 | 0 | 122 | 267 | 284 | 444 | 146 |
| Connecticut | 595 | 0 | 0 | 302 | 1382 | 1382 | 1382 | 103 |
| Delaware | 126 | 128 | 129 | 137 | 175 | 183 | 186 | 186 |
| Florida | 894 | 941 | 959 | 966 | 1,237 | 1,345 | 274 | 275 |
| Georgia | 734 | 700 | 185 | 52 | 1,545 | 1,025 | 217 | 193 |
| Hawaii | 21 | 50 | 0 | 54 | 62 | 74 | 60 | 63 |
| Idaho | 53 | 53 | 0 | 0 | 122 | 141 | 128 | 31 |
| Illinois | 225 | 226 | 226 | 276 | 276 | 276 | 276 | 276 |
| Indiana | 526 | 269 | 279 | 242 | 344 | 363 | 365 | 0 |
| Iowa | 405 | 166 | 0 | 163 | 535 | 592 | 519 | 419 |
| Kansas | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kentucky | 240 | 0 | 5 | 51 | 232 | 215 | 7 | 0 |
| Louisiana | 197 | 266 | 0 | 239 | 683 | 776 | 854 | 644 |
| Maine | 144 | 20 | 0 | 33 | 116 | 130 | 0 | 0 |
| Maryland | 888 | 548 | 490 | 497 | 1,432 | 685 | 692 | 612 |
| Massachusetts | 2,294 | 882 | 641 | 1,137 | 2,335 | 2,119 | 841 | 657 |
| Michigan | 994 | 145 | 0 | 82 | 2 | 2 | 2 | 2 |
| Minnesota | 1,574 | 0 | 104 | 1,003 | 1,145 | 1,222 | 0 | 0 |
| Mississippi | 190 | 111 | 23 | 41 | 54 | 365 | 334 | 250 |
| Missouri | 151 | 235 | 231 | 222 | 268 | 279 | 260 | 252 |
| Montana | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nebraska | 170 | 110 | 59 | 87 | 504 | 546 | 576 | 467 |
| Nevada | 136 | 136 | 1 | 72 | 268 | 73 | 1 | 0 |
| New Hampshire | 55 | 0 | 17 | 17 | 89 | 89 | 9 | 9 |
| New Jersey | 720 | 0 | 0 | 282 | 485 | 735 | 0 | 0 |
| New Mexico | 0 | N/A | 0 | 447 | 651 | 735 | 389 | 253 |
| New York | 627 | 710 | 710 | 794 | 1,031 | 1,206 | 1,206 | 1206 |
| North Carolina | 158 | 0 | 150 | 267 | 787 | 787 | 150 | 150 |
| North Dakota | 40 | 25 | 6 | 0 | 200 | 200 | 325 | 325 |
| Ohio | 1,011 | 428 | 181 | 181 | 1,012 | 1,012 | 0 | 0 |
| Oklahoma | 340 | 72 | 0 | 218 | 572 | 597 | 597 | 373 |
| Oregon | 0 | 0 | 0 | 0 | 0 | 622 | 113 | 16 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Pennsylvania | 1,127 | 0 | 70 | 260 | 713 | 742 | 755 | 1 |
| Rhode Island | 80 | 82 | 84 | 84 | 79 | 103 | 80 | 112 |
| South Carolina | 61 | 0 | 0 | 25 | 168 | 95 | 0 | 111 |
| South Dakota | 111 | 116 | 107 | 158 | 133 | 107 | 107 | 107 |
| Tennessee | 178 | 178 | 178 | 217 | 543 | 750 | 557 | 453 |
| Texas | 197 | 904 | 561 | 366 | 405 | 4,355 | 6,276 | 7736 |
| Utah | 120 | 20 | 27 | 67 | 313 | 414 | 419 | 209 |
| Vermont | 43 | 13 | 24 | 45 | 55 | 58 | 60 | 57 |
| Virginia | 716 | 478 | 0 | 340 | 1,190 | 1,015 | 575 | 295 |
| Washington | 462 | 116 | 0 | 0 | 293 | 303 | 21 | 95 |
| West Virginia | 79 | 56 | 58 | 54 | 515 | 581 | 473 | 556 |
| Wisconsin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wyoming | 65 | 65 | 247 | 247 | 295 | 296 | 398 | 398 |

(Source: NASBO annual survey report)

Appendix 6. Tax and Spending Limitation by State

| State | Year Adopted | Constitution or Statute | Type of Limit | Main Features of the Limit |
|---|---|---|---|---|
| | State Tax and Expenditure Limits | | | |
| Alaska | 1982 | Constitution | Spending | A cap on appropriations grows yearly by the increase in population and inflation. |
| Arizona | 1978 | Constitution | Spending | Appropriations cannot be more than 7.41% of total state personal income. |
| California | 1979 | Constitution | Spending | Annual appropriations growth linked to population growth and per capita personal income growth. |
| Colorado | 1991 | Statute | Spending | General fund appropriations limited to the lesser of either a) 5% of total state personal income or b) 6% over the previous year's appropriation. |
| | 1992 | Constitution | Revenue & Spending | Most revenues limited to population growth plus inflation. Changes to spending limits or tax increases must receive voter approval. |
| | 2005 | Referendum | Revenue & Spending | Revenue limit suspended by voters until 2011, when new base will be established. |
| | 2009 | Statute | Spending | Revised general fund appropriations limit to remove the 6% of prior year appropriations alternative, while retaining a limit based on 5% of total state personal income. |
| Connecticut | 1991 | Statute | Spending | Spending limited to average of growth in personal income for previous five years or previous year's increase in inflation, whichever is greater. |
| | 1992 | Constitution | Spending | Voters approved a limit similar to the statutory one in 1992, but it has not received the three-fifths vote in the legislature needed to take full effect. |
| Delaware | 1978 | Constitution | Appropriations to Revenue Estimate | Appropriations limited to 98% of revenue estimate. |
| Florida | 1994 | Constitution | Revenue | Revenue limited to the average growth rate in state personal income for previous five years. |
| Hawaii | 1978 | Constitution | Spending | General fund spending must be less than the average growth in personal income in previous three years. |

| State | Year Adopted | Constitution or Statute | Type of Limit | Main Features of the Limit |
|---|---|---|---|---|
| Idaho | 1980 | Statute | Spending | General fund appropriations cannot exceed 5.33% of total state personal income, as estimated by the State Tax Commission. One-time expenditures are exempt. |
| Indiana | 2002 | Statute | Spending | State spending cap per fiscal year with growth set according to formula for each biennial period. |
| Iowa | 1992 | Statute | Appropriations | Appropriations limited to 99% of the adjusted revenue estimate. |
| Louisiana | 1993 | Constitution | Spending | Expenditures limited to 1992 appropriations plus annual growth in state per capita personal income. |
| Maine | 2005 | Statute | Spending | Expenditure growth limited to a 10-year average of personal income growth, or maximum of 2.75%. Formulas are based on state's tax burden ranking. |
| Massachusetts | 1986 | Statute | Revenue | Revenue cannot exceed the three-year average growth in state wages and salaries. The limit was amended in 2002 adding definitions for a limit that would be tied to inflation in government purchasing plus 2 percent. |
| Michigan | 1978 | Constitution | Revenue | Revenue limited to 1% over 9.49% of the previous year's state personal income. |
| Mississippi | 1982 | Statute | Appropriations | Appropriations limited to 98% of projected revenue. The statutory limit can be amended by majority vote of legislature. |
| Missouri | 1980 | Constitution | Revenue | Revenue limited to 5.64% of previous year's total state personal income. |
| Missouri, continued | 1996 | Constitution | Revenue | Voter approval required for tax hikes over approximately $77 million or 1% of state revenues, whichever is less. |
| Montana* | 1981 | Statute | Spending | Spending is limited to a growth index based on state personal income. * In 2005 the Attorney General invalidated the statute, and it is not in force at this time. |
| Nevada | 1979 | Statute | Spending | Proposed expenditures are limited to the biennial percentage growth in state population and inflation. |

| State Tax and Expenditure Limits | | | | |
|---|---|---|---|---|
| State | Year Adopted | Constitution or Statute | Type of Limit | Main Features of the Limit |
| New Jersey | 1990 | Statute | Spending | Expenditures are limited to the growth in state personal income. |
| North Carolina | 1991 | Statute | Spending | Spending is limited to 7% or less of total state personal income. |
| Ohio | 2006 | Statute | Spending | Appropriations limited to greater of either 3.5% or population plus inflation growth. To override need 2/3 supermajority or gubernatorial emergency declaration. |
| Oklahoma | 1985 | Constitution | Spending | Expenditures are limited to 12% annual growth adjusted for inflation. |
| | 1985 | Constitution | Appropriations | Appropriations are limited to 95% of certified revenue. |
| Oregon | 2000 | Constitution | Revenue | Any general fund revenue in excess of 2% of the revenue estimate must be refunded to taxpayers. |
| | 2001 | Statute | Spending | Appropriations growth limited to 8% of projected personal income for biennium. |
| Rhode Island | 1992 | Constitution | Appropriations | Appropriations limited to 98% of projected revenue (becomes 97% July 1, 2012). |
| South Carolina | 1980 1984 | Constitution | Spending | Spending growth is limited by either the average growth in personal income or 9.5% of total state personal income for the previous year, whichever is greater. The number of state employees is limited to a ratio of state population. |
| Tennessee | 1978 | Constitution | Spending | Appropriations limited to the growth in state personal income. |
| Texas | 1978 | Constitution | Spending | Biennial appropriations limited to the growth in state personal income. |
| Utah | 1989 | Statute | Spending | Spending growth is limited by formula that includes growth in population, and inflation. |
| Washington | 1993 | Statute | Spending | Spending limited to average of inflation for previous three years plus population growth. |
| Wisconsin | 2001 | Statute | Spending | Spending limit on qualified appropriations (some exclusions) limited to personal income growth rate. |

(Source: National Conference of State Legislatures, 2010.)

Appendix 7. Regression Model Results (Current Expenditure)

**Operational Expenditures** Table A provides the regression results for the operational expenditures model during boom and bust. ANOVA includes the significance test for the null hypothesis that multiple R=0. In this model, the models themselves are statistically significant (P< 0.05), therefore the overall regression equations are significantly predictive of number.

**Budgetary Priorities During Boom:** Cyclical increases do not lead to increases in spending in current expenditure. Increases in tax revenues during economic boom are not related to a lower level of the fiscal stability in current expenditure. Among the budgetary priorities, the results indicate the service continuity is statistically significant. There is about 0.01 decreases in stability for each unit of increase in operational service continuity, holding other variables constant. It is statistically significant at the level of 5 percent. A state with a higher proportion of operational spending has a lower level of fiscal stability in current spending than a state with a lower level of operational spending during economic booms. During economic boom, the governor's political party is statistically significant. A state with a Democratic governor is about 0.02 units lower in terms of the fiscal stability of current expenditures than a Republican state, holding other variables constant. That is, Democratic governors have spending propensities in current expenditure compared to Republican governors during economic boom.

**Budgetary Priorities During Bust:** There is no statistically significant variable. Cyclical decreases do not lead to decreases in fiscal stability in current expenditure.

**Control Variables:** The budget balanced rule (BBR) and the grant is also statistically significant during both boom and bust. During economic boom, the results indicate there is

about 0.001 increases in stability for each unit increase in the budget balanced rules, holding other variables constant and is statistically significant at the level of 5 percent. A state with a strict budget balanced rule has a higher level of fiscal stability during economic booms. In addition, there is about 0.06 decreases in stability for each unit increase in the grant level, holding other variables constant, and it is statistically significant at the level of 5 percent. A state with a higher level of grant has a lower level of fiscal stability in current expenditure during economic booms.

During economic bust, the results indicate there is about 0.002 decreases in stability for each unit increase in the budget balanced rules, holding other variables constant, and it is statistically significant at the level of 5 percent. A state with a strict budget balanced rule has a lower level of fiscal stability during economic downturns. In addition, there is about 0.2 increases in stability for each unit of increase in the grant level, holding other variables constant, and is statistically significant at the level of 5 percent. A state with a higher level of grant has a higher level of fiscal stability during economic downturns.

Table A. Regression model results (Current Expenditure)

| Variable | Boom | | Bust | |
|---|---|---|---|---|
| | Coeff. | SE | Coeff. | SE |
| Cycr | -0.002 | 0.004 | -0.011 | 0.011 |
| Creditr | -0.148 | 0.185 | 0.158 | 0.149 |
| Servcontr | -0.011 *** | 0.004 | -0.001 | 0.010 |
| Bbrs | 0.001 *** | 0.000 | 0.002 ** | 0.001 |
| Explim | 0.056 | 0.037 | -0.005 | 0.046 |
| Bsf | 0.000 | 0.000 | -0.000 | 0.000 |
| Citizen | 0.001 | 0.001 | 0.000 | 0.002 |
| Governor | -0.023 * | 0.013 | -0.012 | 0.039 |
| Govpo | -0.031 | 0.034 | 0.063 | 0.047 |
| Split | 0.016 | 0.012 | 0.038 | 0.031 |
| Grant | -0.061 *** | 0.022 | -0.211 ** | 0.078 |
| Unemployment | 0.004 | 0.004 | 0.003 | 0.010 |
| Cycr*Governor | 0.001 | 0.004 | -0.003 | 0.012 |
| Creditr*Governor | 0.031 | 0.054 | -0.059 | 0.045 |
| State Control | Yes | | Yes | |

| Year Control | Yes | Yes |
| --- | --- | --- |

Note: ***, **, and * indicate significance at the level of 1%, 5%, and 10% respectively.

Appendix 8. Regression Model Results (Education Expenditure)

**Education Expenditures:** Table B provides the regression results for the total tax expenditures model during boom and bust. ANOVA includes the significance test for the null hypothesis that multiple R=0. In this model, the models themselves are statistically significant (P< 0.05), so the overall regression equations are significantly predictive of number.

**Budgetary Priorities During Boom:** Among the budgetary priorities, the results indicate that governor power is statistically significant at the level of 5 percent. There is approximately a 0.05 decrease in stability for each unit of increase in governor power, holding other variables constant and is statistically significant at the level of 5 percent. It indicates that a state with strong governor is more likely to have lower stability in education expenditures during boom years.

During economic boom, the governor's political party is statistically significant. A state with a Democratic governor is about 0.02 units lower in fiscal stability of total expenditures than a Republican state, holding other variables constant. That is, Democratic governors have spending propensities compared to Republican governors during economic boom.

**Budgetary Priorities During Bust:** The results indicate the service continuity is statistically significant at the level of 10 percent. There is about a 0.01 decrease in stability for each unit of increase in operational service continuity, holding other variables constant. A state with a higher proportion of operational spending has a lower level of fiscal stability during economic downturns.

**Control Variables:** During economic boom, the budget balanced rule (BBR) and the

grant is statistically significant. Results indicate that there is about a 0.001 decrease in stability for each unit of increase in the budget balanced rules, holding other variables constant and is statistically significant at the level of 5 percent. A state with a strict budget balanced rule has a lower level of fiscal stability in the education expenditure than a state with looser budget balanced rules during economic booms. This variable is found to have unexpected effect. In addition, there is about a 0.04 increase in stability for each unit of increase in the grant level, holding other variables constant and is statistically significant at the level of 5 percent. A state with a higher level of grant has a higher level of fiscal stability in the education expenditure than a state with a lower grant level during economic booms. However, this control variable is found to have unexpected effect.

During economic bust, the budget balanced rule (BBR) and the grant are both statistically significant. The results indicate that there is about a 0.001 decrease in stability for each unit of increase in the budget balanced rules, holding other variables constant and is statistically significant at the level of 5 percent. A state with a strict budget balanced rule has a lower level of fiscal stability during economic downturns. In addition, there is about a 0.1 decreases in stability for each unit increase in the grant level, holding other variables constant and is statistically significant at the level of 5 percent. A state with a higher level of grant has a higher level of fiscal stability during economic downturns. Also, the budget stabilization fund is statistically significant. The results indicate there is about a 0.0002 increase in stability for each unit increase in the budget stabilization fund, holding other variables constant and is statistically significant at the level of 10 percent.

Table B. Regression Model Results (Education Expenditure)

| Variable | Boom | | Bust | |
|---|---|---|---|---|
| | Coeff. | SE | Coeff. | SE |
| Cycr | 0.001 | 0.003 | 0.003 | 0.006 |

| | | | | |
|---|---|---|---|---|
| Creditr | -0.155 | 0.132 | -0.151 | 0.234 |
| Servcontr | 0.003 | 0.003 | 0.009 * | 0.005 |
| Bbrs | -0.000 *** | 0.000 | 0.001 ** | 0.000 |
| Explim | -0.002 | 0.026 | -0.002 | 0.054 |
| Bsf | 0.000 | 0.000 | 0.000 * | 0.000 |
| Citizen | 0.001 | 0.001 | 0.000 | 0.001 |
| Governor | -0.011 | 0.009 | -0.017 | 0.020 |
| Govpo | -0.049 ** | 0.024 | 0.033 | 0.043 |
| Split | 0.009 | 0.008 | 0.013 | 0.016 |
| Grant | 0.043 *** | 0.016 | -0.095 *** | 0.029 |
| Unemployment | 0.001 | 0.003 | 0.002 | 0.004 |
| Cycr*Governor | -0.003 | 0.003 | -0.000 | 0.007 |
| Creditr*Governor | 0.046 | 0.038 | 0.027 | 0.067 |
| State Control | Yes | | Yes | |
| Year Control | Yes | | Yes | |

Note: ***, **, and * indicate significance at the level of 1%, 5%, and 10% respectively.

Appendix 9. Regression Model Results (Highway Expenditure)

**Highway Expenditures:** Table C provides the regression results for the total tax expenditures model during boom and bust. ANOVA includes the significance test for the null hypothesis that multiple R=0. In this model, the models themselves are statistically significant (P< 0.05), therefore the overall regression equations are significantly predictive of number.

**Budgetary Priorities During Boom:** Among the budgetary priorities, the results indicate that a service continuity variable is statistically significant at the level of 5 percent. There is about 0.01 increases in stability for each unit increase in operational service continuity, holding other variables constant and is statistically significant at the level of 5 percent. A state with a higher proportion of operational spending has a higher level of fiscal stability in highway expenditure during economic booms.

**Budgetary Priorities During Bust:** Among the budgetary priorities, the results indicate that a revenue gap variable is statistically significant. There is about 0.01 decreases in stability of highway expenditure for each unit increase in revenue gap, holding other variables constant and is statistically significant at the level of 5 percent.

Regarding the service continuity, there is about 0.02 decreases in stability for each unit increase in operational service continuity, holding other variables constant and is statistically significant at the level of 5 percent. A state with a higher proportion of operational spending has a lower level of fiscal stability in highway expenditures during economic downturns.

**Control Variables:** During economic bust, the grant is statistically significant. The results indicate that there is about 0.08 increases in stability for each unit increased in the

grant level, holding other variables constant and is statistically significant at the level of 5 percent. A state with a higher level of grant has a higher level of fiscal stability during economic downturns.

Table C. Regression model results (Highway Expenditure)

| Variable | Boom | | Bust | |
|---|---|---|---|---|
| | Coeff. | SE | Coeff. | SE |
| Cycr | -0.002 | 0.002 | -0.010** | 0.005 |
| Creditr | -0.118 | 0.090 | 0.036 | 0.177 |
| Servcontr | 0.011*** | 0.002 | 0.016*** | 0.004 |
| Bbrs | 0.000 | 0.000 | 0.000 | 0.000 |
| Explim | 0.009 | 0.018 | -0.021 | 0.041 |
| Bsf | 0.000 | 0.000 | 0.000 | 0.000 |
| Citizen | 0.000 | 0.000 | 0.000 | 0.001 |
| Governor | -0.002 | 0.006 | 0.003 | 0.015 |
| Govpo | -0.026 | 0.017 | -0.038 | 0.033 |
| Split | 0.006 | 0.006 | -0.012 | 0.012 |
| Grant | -0.014 | 0.011 | -0.081*** | 0.022 |
| Unemployment | 0.002 | 0.002 | 0.002 | 0.003 |
| Cycr*Governor | 0.002 | 0.002 | -0.007 | 0.005 |
| Creditr*Governor | 0.039 | 0.026 | -0.015 | 0.051 |
| State Control | Yes | | Yes | |
| Year Control | Yes | | Yes | |

Note: ***, **, and * indicate significance at the level of 1%, 5%, and 10% respectively.

Appendix 10. Regression Model Results (Welfare Expenditure)

**Public Welfare Expenditures:** Table D provides the regression results for public welfare expenditures model during boom and bust. ANOVA includes the significance test for the null hypothesis that multiple R=0. In this model, the models themselves are statistically significant (P< 0.05), so the overall regression equations are significantly predictive of number.

**Budgetary Priorities During Boom:** Among the budgetary priorities, the results indicate that a service continuity variable is statistically significant at the level of 5 percent. There is about 0.01 decreases in stability for each unit increase in operational service continuity, holding other variables constant and is statistically significant at the level of 5 percent. A state with a higher proportion of operational spending has a lower level of fiscal stability in welfare expenditure during economic booms.

**Budgetary Priorities During Bust:** Among the budgetary priorities, the results indicate that a revenue gap variable is statistically significant. There is about 0.006 decreases in stability of welfare expenditure for each unit increase in revenue gap holding other variables constant and is statistically significant at the level of 5 percent. However, a Democratic state with decreases in tax revenues during economic recessions will have a higher level of stability than Republican state governments during economic downturns.

**Control Variables:** During economic boom, the budget balanced rule (BBR) and the grant is statistically significant. The results indicate there is about 0.002 increases in stability for each unit increase in the budget balanced rules, holding other variables constant and is statistically significant at the level of 5 percent. A state with a strict budget balanced rule has a higher level of fiscal stability during economic booms.

During economic bust, the budget balanced rule (BBR) and the grant is also statistically significant. The results indicate there is about 0.001 decreases in welfare expenditure stability for each unit increase in the budget balanced rules, holding other variables constant and is statistically significant at the level of 5 percent. A state with a strict budget balanced rule has a lower level of fiscal stability during economic bust. In addition, there is about 0.07 increases in stability for each unit increase in the grant level, holding other variables constant and is statistically significant at the level of 5 percent. A state with a higher level of grant has a higher level of fiscal stability during economic downturns. Also, there is about 0.002 increases in stability for each unit increase in the budget stabilization fund (BSF) level, holding other variables constant and is statistically significant at the level of 5 percent. A state with a lower level of BSF has a higher level of fiscal stability during economic downturns. Regarding the political factor, during economic bust, the divided government is statistically significant. A state with division of government is about 0.02 units lower than fiscal stability of total welfare expenditures with a Republican state, holding other variables constant.

Table D. Regression model results (Welfare Expenditure)

| Variable | Boom | | Bust | |
|---|---|---|---|---|
| | Coeff. | SE | Coeff. | SE |
| Cycr | -0.000 | 0.003 | -0.006* | 0.003 |
| Creditr | -0.033 | 0.137 | 0.019 | 0.139 |
| Servcontr | -0.007** | 0.003 | 0.000 | 0.004 |
| Bbrs | -0.000* | 0.000 | 0.001* | 0.000 |
| Explim | 0.008 | 0.027 | -0.009 | 0.022 |
| Bsf | 0.000 | 0.000 | -0.000*** | 0.000 |
| Citizen | 0.000 | 0.001 | -0.001 | 0.002 |
| Governor | -0.015 | 0.010 | 0.005 | 0.021 |
| Govpo | 0.026 | 0.025 | 0.023 | 0.029 |
| Split | 0.011 | 0.009 | 0.021* | 0.011 |
| Grant | -0.020 | 0.016 | -0.067*** | 0.025 |
| Unemployment | 0.002 | 0.003 | 0.000 | 0.004 |
| Cycr*Governor | -0.003 | 0.003 | 0.013*** | 0.003 |
| Creditr*Governor | 0.001 | 0.040 | -0.002 | 0.040 |

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| | | |
|---|---|---|
| State Control | Yes | Yes |
| Year Control | Yes | Yes |

Note: ***, **, and * indicate significance at the level of 1%, 5%, and 10% respectively.

Appendix 11. Regression Model Results (Health and Hospital Expenditure)

**Health and Hospital Expenditures:** Table E provides the regression results for the health and hospital expenditures model during boom and bust. ANOVA includes the significance test for the null hypothesis that multiple R=0. In this model, the models themselves are statistically significant (P< 0.05), so the overall regression equations are significantly predictive of number.

**Control Variables:** During economic boom, unemployment rate is statistically significant. The results indicate there is about 0.002 increases in stability for each unit increase in the unemployment rate, holding other variables constant and is statistically.

Regarding the political factor: during economic bust, the divided government is statistically significant. A state with division of government is about 0.02 units higher than in fiscal stability of health and hospital expenditures with a unified state holding other variables constant.

Table E. Regression model results (Health and Hospital Expenditure)

| Variable | Boom | | Bust | |
|---|---|---|---|---|
| | Coeff. | SE | Coeff. | SE |
| Cycr | -0.001 | 0.001 | 0.004 | 0.002 |
| Creditr | 0.014 | 0.046 | 0.032 | 0.048 |
| Servcontr | -0.001 | 0.001 | 0.001 | 0.002 |
| Bbrs | 0.000 | 0.000 | 0.000 | 0.000 |
| Explim | 0.008 | 0.006 | 0.000 | 0.009 |
| Bsf | 0.000 | 0.000 | 0.000 | 0.000 |
| Citizen | 0.000 | 0.000 | 0.000 | 0.000 |
| Governor | 0.001 | 0.003 | 0.002 | 0.008 |
| Govpo | -0.013 | 0.013 | 0.007 | 0.015 |
| Split | 0.006 | 0.004 | -0.013*** | 0.004 |
| Grant | -0.007 | 0.007 | -0.011 | 0.011 |
| Unemployment | 0.002** | 0.001 | 0.001 | 0.002 |
| Cycr*Governor | 0.002** | 0.001 | -0.001 | 0.001 |
| Creditr*Governor | -0.004 | 0.013 | -0.011 | 0.015 |
| State Control | Yes | | Yes | |
| Year Control | Yes | | Yes | |

Note: ***, **, and * indicate significance at the level of 1%, 5%, and 10% respectively.

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