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Articles

Do Budget Stabilization Funds Invite Transparent Budget Reporting? Budget Stabilization Funds and Fiscal Behavior of States

Eunjoo Choi [a]

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This study explores how fiscal reserves, such as Budget Stabilization Funds (BSF) and General Fund Ending Balances (GFB), affect budget transparency and procyclical budget adjustments. To determine whether the effects of fiscal reserves depend on the types of budget actions, the study organizes budget actions according to 1) level, indicating the level at which budget actions take place, and 2) accessibility, denoting accessible budget-balancing strategies that face the least legal and political constraints. This classification of budget actions, which has not been attempted in prior research, enhances our understanding of government fiscal choices as it shows that the visibility and political costs of budget actions depend on available resources, levels, and accessibility. By using panel data from 45 US states from 2000 to 2019, the study finds that BSFs improve budget transparency, while decreasing budget cuts. The study also finds that BSF has a greater impact on budget transparency than revenue-raising actions. In contrast, an election year has a greater negative impact on budget cuts than budget transparency. These results support our classification of budget actions, predicting that budget cuts are used less in election years than in non-election years due to their visibility and political risk.

INTRODUCTION

All US states except Vermont require a balanced budget to promote sound fiscal practices (National Conference of State Legislators, 2010). However, maintaining a balanced budget in times of fiscal stress can be a major challenge for policymakers due to a "resource scarcity" as revenue falls and spending demands rise (Levine, 1979). After the COVID-19 outbreak, for example, state and local government revenue decreased by about $61 billion in the second quarter of 2020, compared to the same period in 2019, while expenditures remained constant throughout 2020 (U.S. Government Accountability Office, 2021). Various theoretical perspectives have been put forward to understand how governments adjust their budgets in the face of fiscal and institutional challenges.

Theoretical perspectives stemming from the political economy of public finances predict that strict balanced budget requirements enforce states to cut public spending (Poterba, 1995). In contrast, public choice theorists (principal-agent model) are skeptical of the effectiveness of budget institutions in reducing deficit spending. For example, the theory of "fiscal illusion" stresses the incentives of policymakers to hide the true costs of public programs, obfuscating the budget (Buchanan & Wagner, 1977). Cutback management theorists focus on how external environments (e.g., the severity of fiscal stress) lead to organizational retrenchment (Levine, 1978, 1979; Levine et al., 1981a). From a public management perspective, "fiscal capacity" determines fiscal performance measured by spending cuts and revenue increases (Hou & Moynihan, 2008).

A puzzle that remains unanswered is *why some states pursue and maintain sound fiscal practices, while others rely on unsound budget gimmicks*? Answering this broad research question is of great importance to policy makers and the public because the use of budget gimmicks undermines fiscal health and economic growth potential (Benito & Bastida, 2009; von Hagen, 2008). To answer the aforementioned question, this study aims to examine how government capacity affects state budget strategies or fiscal practices.

To systematically compare the political costs of different budget actions, the study develops a framework that classifies budget actions found in the literature, as shown in Figure 1. In this framework, budget actions are organized along two dimensions: 1) *level*, indicating the level at which budget actions take place, and 2) *accessibility*, denoting accessible budget-balancing strategies that face the least legal and political constraints. In other words, budget actions vary in level and accessibility that make them more or less "visible."[1] Some of the less visible budget actions are seen as budget gimmicks.

a Ph.D. Candidate, Department of Public Administration, University of Illinois at Chicago, Email: echoi47@uic.edu

This research focuses on how fiscal reserves, such as budget stabilization funds (BSF) and general fund ending balances (GFB), help reduce the use of gimmicks (or enhance fiscal transparency), following the theoretical perspective of the capacity-performance literature (Hou & Moynihan, 2008; Lynn et al., 2000; Meier & O'Toole, 2002). This is because managerial responses of governments to fiscal stress may depend on available resources (Kioko et al., 2011). As most US states have established and implemented budget stabilization funds since the 2000s, it could be worth rethinking cutback management and fiscal practices in the context in which BSFs operate in most states.

This study makes several theoretical and empirical contributions to the literature. The classification of budgetary actions contributes to advancing financial management theory, as it accounts for the political costs (or visibility) of budget actions that can vary depending on level and accessibility. Although the geographical focus of this study is on US states, the empirical findings may provide policy implications for other countries in a situation where most nations in the world face similar financial challenges.

This study is organized as follows. The second section reviews the literature on budget stabilization funds, state budget actions, and fiscal transparency. The third section describes a conceptual framework that helps guide the formulation of hypotheses, which is introduced in the fourth section. The fifth section provides regression model results that account for over-time variation in budget actions. Lastly, the study presents a conclusion and policy implications.

LITERATURE

In his seminal article, Charles H. Levine (1979) claimed that a new era of public budgeting, personnel, and program management began in the late 1970s. It was an unprecedently-difficult time for the United States in many respects. The 1970s recession, sparked by oil shock, was bookended by double-digit inflation, high unemployment, a plummeting dollar, and soaring gold prices (Bozeman, 2010). This harsh period was called "an era dominated by resource scarcity" (Levine, 1979). In this economic milieu, Levine and his colleagues developed a theory of cutback management, referring to the management of "organizational change towards lower levels of resource consumption and organizational activity," to understand how governments responded to fiscal stress (Levine, 1978, 1979; Levine et al., 1981a).

Cutback management theory provides important insights into how governments respond to fiscal stress (Levine, 1979; Levine et al., 1981b; Schick, 1983). According to the theory, each budget strategy has a different degree of *visibility* or *political risk* (Hendrick & Hu, 2020; Levine, 1980). Some of the less visible budget actions can be viewed as budget gimmicks or maneuvers. Budget gimmicks make budget complicated and decrease fiscal (or budget) transparency (Alesina & Perotti, 1996, 1999; Dye et al., 2011; Hudspeth et al., 2015). However, the cutback management model was proposed in the 1970s when BSFs were not adopted by a majority of states in the U.S. Thus, it is necessary to reexamine cutback management and budget transparency in the context in which BSF has been operating in most US states since 2000.

To understand the relationships between fiscal reserves, budget actions, and fiscal transparency, this section will review the relevant literature. The literature on cutback management will introduce various budget-balancing tactics that governments employ. Then, I will discuss the literature on budget gimmicks and transparency to guide our conceptualization of fiscal transparency. The literature on BSFs will provide a rationale for how resource levels can direct states' choices of budget strategies or practices. Based on the theoretical discussion, lastly, the study will propose an alternative framework that comprehensively integrates and classifies budget actions found in the literature.

Literature on cutback management

The literature on cutback management attempts to explain the relationship between environmental factors (i.e., the severity and duration of fiscal stress) and cutback tactics frequently used by governments. According to the theory, government responses to fiscal stress are viewed as "systematic and dependent on resource levels and administrative responses to them" and are broadly divided into near-term and mid-term measures (Klase, 2018, p. 41). Long-term responses are distinguished from short-term responses as they refer to budget actions taken during the aftermath of a recession (Conant et al., 2012).

The initial response of governments to fiscal stress is to buy time, adjusting through the use of strategies that do not need to increase revenue or reduce expenditure; thus, these strategies do not disrupt the organization's external or internal equilibrium (Levine, 1978, 1980; cited in Hendrick, 2011, pp. 67–68). The prevailing near-term strategies identified in the empirical studies include i) using BSF or GFB, ii) using federal stimulus funds (e.g., ARRA), iii) hiring freezes or elimination of vacant positions, and iv) deferring or cutting payments, including capital or maintenance expenditures (Arnett, 2012; Berne & Stiefel, 1993; Conant et al., 2012; Duncombe & Kinney, 1984; Glassberg, 1978; Higgins, 1984; Klase, 2018; Levine et al., 1981a, 1981b; MacManus et al., 1989; Marando, 1990; Morgan & Pammer, 1988; Raudla et al., 2015; Wolman, 1983).

As fiscal stress lasts longer or worsens, however, the amount of budget deficits cannot be covered by near-term strategies. Therefore, governments shift from near-term strategies to mid- or long-term strategies that are more "visible and disruptive" (e.g., raising taxes, laying off employees, and terminating services) (Hendrick, 2011; Levine,

1 The term of "visible" budget-balancing strategy comes from the literature on cutback management (Hendrick & Hu, 2020, p. 109; Levine, 1980).

1980; cited in Hendrick & Hu, 2020, p. 109). With severe and long fiscal stress, governments adopt more diverse and disruptive strategies, such as targeted cuts, furloughs, and layoffs (Dougherty & Klase, 2009; Klase, 2018; Rubin & Willoughby, 2009). Even after the Great Recession ended, the strong and extended impact of the Great Recession inevitably forced state governments to use "long-term expenditure reduction" in fiscal year 2012, including reducing agencies' base budget, education funds, or Medicaid and social service funding (Conant et al., 2012, p. 33).

Literature on budget gimmicks and fiscal transparency

While the literature on cutback management covers organizational retrenchment and fiscal adjustments, the literature on budget gimmicks pays specific attention to unsound government borrowing to conceal budget deficits. Government borrowing refers to any actions that commit the government to give up "control over some future flow of resources or benefits in order to acquire resources for current use" (Bifulco et al., 2012, p. 659). Government borrowing occurs through "off-budget" transactions, also called budget gimmicks or maneuvers, as they are *neither legally enforceable nor easily detectable* (Bifulco et al., 2012, p. 660). Budget gimmicks include accelerating revenues, selling government assets, deferring payments, underfunding pension and OPEB, debt structuring and refinancing, and sweeping funds (Bifulco et al., 2012; Conant et al., 2012; Dye et al., 2011; Mikesell, 1986).

For example, accelerating tax revenue or fees means moving revenue "backward" into the current fiscal year, by changing the due date of taxes and fees (Conant et al., 2012, p. 6). Another frequently used budget gimmick is deferring payments or pension funding to future periods as governments comply with balanced budget limitations (Chaney et al., 2002; Clair, 2013; Hawthorne, 1992; Retkwa, 1990). Governments can shift expenditures from the general fund to special funds for the current fiscal year because special funds are less publicly and politically scrutinized (Dye et al., 2011; Hudspeth et al., 2015).

The use of budget gimmicks makes budgets complex or opaque. Budget complexity hides true information about the costs and benefits of public services (Kopits & Craig, 1998). Thus, unsound fiscal practices decrease fiscal (or budget) transparency (Alesina & Perotti, 1996, 1999; Dye et al., 2011; Hudspeth et al., 2015). Specifically, fiscal transparency is conceptualized as sound budget reporting practices that disclose full financial information in a simple and timely manner (Alt et al., 2006; Bastida & Benito, 2007; Benito & Bastida, 2009; Dye et al., 2011; Kopits & Craig, 1998; OECD, 2002). Although some of studies broadly cover transparency in government operations (Kopits & Craig, 1998) and parliamentary and public scrutiny on budget reports (Benito & Bastida, 2009; OECD, 2002), this study focuses narrowly on accounting transparency or accounting techniques.

Budget reporting practices in Illinois

The U.S. state government's funds consist of a general fund and special funds. A general fund is used for general or multiple purposes, while special funds refer to specific revenue sources that are allocated to a certain type of expenditure. As special funds are designated for specific expenditures, they are not expected to be used discretionarily, and thus receive little public attention (Dye et al., 2011). In practice, however, complicated accounting techniques and various special funds can be used to conceal budget deficits or to circumvent limits on spending (Alesina & Perotti, 1996, 1999; Bennett & DiLorenzo, 1983; Block, 2008; Dye et al., 2011; Hudspeth et al., 2015).

For example, the state of Illinois deposited federal funds for education into a special fund in FY 2010; that year's General Fund education budget decreased, while General Fund dollars originally intended for education were used for other purposes (Dye et al., 2011). In FY 2015, the state of Illinois transferred $400 million of individual income tax revenues to two new funds outside the general funds, which were spent on education and human services (The Civic Federation, 2015). In addition, an approximately $600 million general fund surplus in FY 2014 was shifted to the FY 2015 budget to pay for FY 2015 Medicaid expenses that should be paid for out of FY 2015 general funds; thus, this fund shift reduced the enacted FY 2015 budget (The Civic Federation, 2015).

The issuance of pension bonds also reduces the general fund expenditure as a share of total expenditures if pension payments are made from a special fund. For example, three retirement systems in Illinois, such as the Teachers' Retirement System, Judges' Retirement System, and General Assembly Retirement System, receive all of their State contributions from General Funds, but most of them have been seriously underfunded (The Civic Federation, 2019).[2] Thus, the state borrowed the money to meet the required contributions and put the borrowed money in a special fund in FY 2010; as the pension payment did not come from the general funds in FY 2010, general fund spending decreased by 15 percent in 2010 compared to 2009 (Dye et al., 2011).

Reduction in pay-as-you-go capital funds may negatively affect the share of general fund spending for the current fiscal year. To finance capital expenditures, states tend to use general fund surplus in the pay-go fashion in boom years, while they rely more on other sources in bust years, including long-term debt, borrowing, or federal grants (Wang & Hou, 2009). In Illinois, for example, the state's School Construction Program did not obtain any new

2 The State Employees' Retirement System receives about 35% of its contributions from other State funds.

appropriations but was financed through debt issuance during the period FY 2005 - FY 2009 (Bunch, 2010).

Deferred payments can decrease the share of general fund spending for the current fiscal year by postponing payments to the next fiscal year. In Illinois, for example, Section 25 of the State Finance Act allows the payment of current year expenses, primarily Medicaid, in the future fiscal year.[3] Deferring Medicaid bills through the Section 25 has become a common practice to reduce the appropriation levels needed to fund certain programs within any given fiscal year (The Civic Federation, 2012). In sum, the budgetary gimmicks used by the state of Illinois, including the use of special funds, fund shifting, reduction in capital funding, and deferred payments, tend to diminish the general fund share of total expenditures.

Literature on Budget Stabilization Funds

All states in the U.S., except Colorado, have implemented BSF policies, the majority of which were established in the 1980s after the recession that occurred in 1980-82. This situation differs from the pre-recession period of the 1970s, when only four states, including Florida, New Mexico, New York, and Tennessee, had BSFs.[4] With the widespread adoption of BSF in the 1980s, scholars have studied the impact of BSF on fiscal performance or fiscal stress. One of the dominant approaches views BSF adoption as the result of reasoned recognition by policymakers to buffer fiscal shocks during a recession (Hou, 2003). To cope with undesirable future events, appropriate allocation of financial resources is critical to financial management capacity.

Hou and Moynihan (2008) propose the concept of Countercyclical Fiscal Capacity (CCFC) as the creation and use of financial tools that enable state governments to maintain program stability in the face of fiscal shocks. They conceptualize government capacity in terms of fiscal reserves that are designed to avoid drastic spending cuts and tax increases in economic downturns. Like CCFC, organizational theory suggests that organizations with more slack have a "greater capacity" to buffer the effects of fiscal shocks on the organization (Hendrick, 2006). The logic of organizational adaptation provides important insights into how slack resources, consisting of BSF and GFB, affect state budget actions or strategies.

From the perspectives of organizational adaptation and CCFC, it is predicted that *sufficient fiscal reserves reduce the need for other budget actions, such as tax increases, spending cuts, or budget gimmicks*. Empirical research finds that BSFs have countercyclical effects with the business cycle (Hou, 2003, 2005) and help alleviate fiscal stress caused by recession (Douglas & Gaddie, 2002; Sobel & Holcombe, 1996), thereby improving fiscal performance (Hou & Moynihan, 2008). The use of BSF also tends to increase budget transparency by reducing the states' reliance on budget maneuvers (Hendrick & Hu, 2020) and decreasing revenue underestimation (Rose & Smith, 2012).

Another scholarly interest found in the literature is whether there is a substitution or supplementation effect between BSF and GFB. A *substitution effect* suggests that an increase in the BSF leads to a decrease in the GFB (Hou & Brewer, 2010). In theory, the substitutability between BSF and GFB is determined by the degree of similarities among the rules governing BSF and GFB (Wagner, 2003). In contrast, a *supplementation effect* expects that the BSF increases the amount of total savings as it is designed to ward off spending pressures (Hou & Brewer, 2010; Knight & Levinson, 1999).

Prior empirical research has produced mixed findings. Knight and Levinson (1999) find that states with budget stabilization funds have greater total savings than states without the fund. In contrast, Wagner (2003) finds that the BSF is substitutable with GFB, having a substitution effect of up to 60%. Meanwhile, Hou and Brewer (2010) find that substitution of the GFB by the BSF is only 15 cents per dollar of the BSF (15% substitution effect).

CONCEPTUAL FRAMEWORK

This research attempts to integrate and classify budget-balancing strategies, stemming from cutback management, budget gimmicks, CCFC, and fiscal slack, discussed in the literature review earlier. This integrated framework will be used to examine the impact of fiscal reserves, such as BSF and GFB, on fiscal transparency, budget cuts, and revenue actions. The main advantage of this framework is to explain why certain budget actions are preferred to others by state governments. Moreover, this framework enables us to empirically identify which budget actions are more frequently used relative to others or interchangeably used with other budget actions.

The use of GFB and BSF comes from CCFC and the fiscal slack model (Hendrick, 2006, 2011; Hendrick & Hu, 2020; Hou, 2004; Hou & Moynihan, 2008; Marlowe, 2005, 2011; Simon, 1969). Cutback strategies, including organizational retrenchment (e.g., hiring freezes, early retirements, furloughs, layoffs, reorganizing agencies, and privatization) and spending cuts (e.g., across-the-board cuts and targeted cuts), are derived from the literature on cutback management (Levine, 1978; Levine et al., 1981a, 1981b). The literature on budget gimmicks presents various budget maneuvers, including the use of federal funds, deferred payments, underfunding pension or OPEB, debt structuring and refinancing, asset sales (Bifulco et al., 2012; Conant et al., 2012; Levine et al., 1981a, 1981b; Mikesell, 1986), and sweeping funds (Dye et al., 2011; Hudspeth et al., 2015).

To classify the aforementioned budget actions, I propose three dimensions of budget actions, including resource

3 (30 ILCS 105/) State Finance Act. https://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=470&ChapterID=7

4 Florida, New Mexico, New York, and Tennessee created their budget stabilization funds in 1959, 1966, 1946, and 1972, respectively (s. 215.32, F.S.; N.M. Stat. Ann. § 6-4-2.1; NY CLS St Fin § 92; Tenn. Code Ann. § 9-4-211).

Accessibility / Levels	More accessible		Less accessible
Accounting level	**Budget gimmicks** Sweeping funds, Pension/OPEB adjustments, Deferred payments	**Debt financing** Long-term debt	**Asset sales** Selling or converting assets to cash
Organizational level	**Spending cuts** Hiring freeze or eliminating vacant positions	**Spending cuts** Early retirement, furloughs, layoffs, cut benefits	**Reorganization** Reorganizing agencies, privatization
Public service level	**Spending cuts** Across-the-board cuts or targeted cuts in agencies' budgets or programs	**Spending cuts** Reductions in education funding, Medicaid funding, and social service funding	**Revenue increases** Tax, fine, and fee increases

More visible and riskier

Figure 1. Classification of budget actions

Source: Author's classification of budget actions found in the literature. A diagonal line represents the degrees of visibility of budget actions. The term "visible" budget-balancing strategy comes from the literature on cutback management (Levine, 1980; cited in Hendrick & Hu, 2020, p. 109).

availability, levels, and accessibility of budget actions. Resource availability represents available fiscal reserves that governments have, such as BSF or GFB. If state governments do not have sufficient slack resources to close their budget gaps, they need to use other budget actions organized by *level* and *accessibility*, as shown in Figure 1. The level of budget actions indicates the level at which budget actions take place, classified into 1) accounting level, 2) organizational level, and 3) public service level. The accessibility refers to easily accessible or available budget-balancing strategies that face the least legal, political, and time constraints.

Budget actions at the accounting level

Budget actions at the accounting level refer to accounting maneuvers or gimmicks to conceal budget deficits. It includes *1) sweeping funds (or shifting expenditures from the general fund to special funds), 2) delaying payments to the future, 3) pension/OPEB adjustments, and 4) selling assets or converting financial assets to cash* (Bifulco et al., 2012; The Volcker Alliance, 2017). Although such accounting maneuvers conceal budget deficits in the short run, they are hard to use in the long run (Poterba, 1994).

To distinguish accounting level budget actions from others, it is necessary to understand what accounting is. A basis of accounting is the timing of transactions or recording when a revenue item is received or expenditures are made (Lee et al., 2013). For example, interfund transfers or deferred payments make a government's financial condition look better "at a point in time" rather than its actual financial condition (Lee et al., 2013). Pension/OPEB adjustments are not "organizational retrenchment" but are instead an "accounting maneuver." These tactics do not reduce public employees' benefits but increase the demands on future resources, as the state does not make the annual required contribution to pension/OPEB for the current fiscal year (Bifulco et al., 2012).

Among the aforementioned strategies, asset sales are less accessible than other accounting maneuvers because it takes significant time to pass a bill authorizing the sale of assets and to find a buyer. For example, in 2007, former governor of the state of Illinois, Rod Blagojevich, proposed selling the James R. Thompson Center to close a budget gap; however, the proposal was subjected to criticism as it was deemed "unconstitutional."[5] In 2019, a law approving the sale of the Thompson Center was finally enacted. The case of the Thompson Center shows that selling assets is not an immediately available strategy for balancing a budget.

Budget actions at the organizational level

Budget actions at the organizational level are divided into three categories, according to accessibility: i) hiring freezes, ii) personnel cutbacks, and iii) reorganization (or privatization). A hiring freeze occurs when an employer or agency temporarily stops searching for and hiring employees. Personnel cutbacks indicate reducing the number of public employees through furloughs, layoffs, or early retirement. Reorganization refers to organizational reform that entails a structural change of public organizations. The

5 Pearson, Rick, Kim Janssen, and Monique Garcia. 2015. "Rauner Wants Thompson Center Auctioned off; Sale Would Boost State, Experts Say - Chicago Tribune." Chicago Tribune. October 13, 2015. Retrieved on June 23, 2022, from https://www.chicagotribune.com/politics/ct-thompson-center-bruce-rauner-20151013-story.html.

reorganization includes i) reorganizing agencies, reducing the number of public organizations, and ii) privatization, referring to "the use of the private sector in public management and service delivery" to reduce costs of public services and improve productivity in state agencies (e.g., contracting out or public-private partnerships) (Chi et al., 2003).

The key difference between *hiring freezes* and *personnel cutbacks* lies in the timing of the cutbacks. Hiring freezes or eliminating vacant positions are both regarded as delay strategies because it postpones hiring in the future. However, furloughs or layoffs dismiss *current* public employees to reduce labor costs, which are more visible and riskier than hiring freezes. Privatization (or public-private partnership) is not an immediately available strategy for balancing the budget because it would encounter institutional challenges. To implement privatization initiatives, some states have to clarify constitutional provisions, while others need to remove legal restrictions through legislative measures (Chi et al., 2003). In addition, federal laws (e.g., grant requirements) and regulations (e.g., ban on interstate tolls) pose some impediments to privatization efforts (Chi et al., 2003).

Budget actions at the public service level

Budget actions at the public service level directly affect the cost or the quantity/quality of public service provision. These are also called "procyclical fiscal adjustments," consisting of 1) revenue increases and 2) spending cuts (Alesina et al., 2005). Revenue increases refer to revenue-raising actions, such as increasing tax or fee rates or enacting new taxes, to yield higher revenues. They can be viewed as price adjustments of public services as revenues collected do not match public expenditures. In the literature, revenue increases, such as tax increases, are considered the most visible budget action (Hendrick & Hu, 2020) or long-term measure (Conant et al., 2012). This is because they directly impose a financial burden on a broader population (or a large number of state residents), thereby incurring higher political costs (e.g., political opposition) or facing institutional constraints (e.g., Tax and expenditure limits).

Budget cuts represent reductions in government spending on programs or institutions. Budget cuts are largely divided into *across-the-board cuts* and *targeted cuts*. Across-the-board cuts are reductions in government spending by equal percentages for all agencies or programs; targeted cuts mean that certain organizations or programs have a larger cut than others (Levine, 1985). K-12 and university education, Medicaid, and other social services account for the biggest spending in most states' budgets (Conant et al., 2012). Therefore, spending cuts in these areas may cause stronger political opposition than spending cuts in other areas, as they negatively affect a large number of children and adults (Conant et al., 2012).

HYPOTHESES

Visibility and political costs of budget actions

The diagonal line in Figure 1 represents the degree of visibility of budget actions. In this study, visibility indicates whether the costs (or losses) of budget actions are easily recognizable or detectable in terms of their effects on the quality, quantity, and price of public services. In the literature, "near-term strategies" are easier, faster, and less risky than mid-term strategies (Hendrick, 2011; Levine, 1980; cited in Hendrick & Hu, 2020, p. 109). For example, both accounting maneuvers (except for asset sales) and hiring freezes can be regarded as short-term strategies that delay or avoid the negative effects of fiscal stress on spending and revenue.

In contrast, revenue increases are regarded as a last resort due to the high political costs, as discussed earlier. In other words, one rule of thumb for balancing budget is to adopt strategies that are *more available and less visible* (Hendrick & Hu, 2020). For instance, using fiscal reserves or budget gimmicks is more immediately available than other methods. The prediction from this framework is that state governments prefer to employ more accessible and less visible (or less risky) strategies. Recognizing that the primary purpose of BSFs is to provide emergency funds when fiscal times are tough, one would expect that the availability and governments' use of these funds reduce its reliance on other actions to balance budgets during such times, including budget gimmicks, organizational retrenchment, debt financing, spending cuts, and tax increases.

In this study, we focus on the relationship between fiscal reserves and fiscal transparency (or budget gimmicks) as well as the relationship between fiscal reserves and procyclical fiscal adjustments (e.g., budget cuts, mid-year budget adjustments, and revenue actions). It is hypothesized that *fiscal reserves have a positive impact on fiscal transparency, while having a negative impact on budget cuts and revenue actions because sufficient BSF (or general fund) balance levels decrease the need to use budget gimmicks, budget cuts, or revenue increases*.

The magnitude of the effect of BSF is expected to be greater than that of GFB. This is because general fund surplus rarely occurs in a situation of fiscal stress in which fiscal reserves are urgently needed. In contrast, stringent deposit and withdrawal BSF rules force states to accumulate revenue surplus in boom years (Hou, 2004). This allows state governments to use their accumulated BSFs in times of fiscal stress. However, this relationship is expected to become weaker during an election year. In an election year, myopic and self-interested voters may support incumbents who run deficits to benefit them, by imposing the costs of current benefits on future generations (Alesina & Perotti, 1995).

It is also hypothesized that fiscal reserves have a greater impact on fiscal transparency than revenue-raising actions. This is because both fiscal reserves and budget gimmicks are immediately available and less risky, so they can be interchangeably used. However, budget cuts and revenue ac-

tions are more visible and politically riskier than budget gimmicks, as discussed earlier.

In summary:

1. Fiscal reserves, such as BSF and GFB, have positive effects on fiscal transparency.
   a. The magnitude of the coefficient of BSF is greater than that of GFB.
   b. This relationship becomes weaker in election years.
2. Fiscal reserves, such as BSF and GFB, have negative effects on budget cuts.
   a. The magnitude of the coefficient of BSF is greater than that of GFB.
   b. This relationship becomes weaker in election years.
3. Fiscal reserves, such as BSF and GFB, have negative effects on revenue actions.
   a. The magnitude of the coefficient of BSF is greater than that of GFB.
   b. This relationship becomes weaker in election years.
4. Fiscal reserves, such as BSF and GFB, have a greater impact on fiscal transparency than budget cuts or revenue-raising actions.

DATA

To examine the relationship between BSF, fiscal, socioeconomic, political, institutional, and budget actions, we used a panel data set, consisting of 45 states across the period of fiscal years from 2000 through 2019 to include the national recessions that occurred during the last two decades. The state of Alaska and the state of Wyoming were excluded from the data set because their BSFs are too large to be compared to the BSFs in other states. Specifically, the average BSF balance for the 50-state median over the past two decades is four percent of general fund expenditures. Over the same period, the average BSF balances in Alaska and Wyoming are 122.7 percent and 50.0 percent of general fund expenditures, respectively. Both Kansas and Montana established their BSFs in 2017 and were also removed from the data. The state of Colorado does not have an official BSF, although it has a "required reserve" (National Conference of State Legislators, 2018). Thus, the state of Colorado was also dropped from the data set.

Budget Transparency

As discussed earlier, the use of budget gimmicks makes budgets complicated, thereby decreasing budget transparency (Alesina & Perotti, 1996, 1999; Dye et al., 2011; Hudspeth et al., 2015). Thus, budget transparency is conceptualized as sound budget reporting practices, measured by the share of total expenditures from U.S. states' general funds (as opposed to special funds), following Dye et al. (2011) and Hudspeth et al. (2015). This measure of fiscal transparency allows us to identify states that use budgetary gimmicks (Dye et al., 2011; Hudspeth et al., 2015).

Figure 2 displays longitudinal trends in general fund expenditure share of total expenditures over a period from 2000 to 2019, respectively. General fund expenditures share of total expenditures fell sharply during the Great Recession that occurred in 2007-2009 and have grown since 2010. When calculating the 20-year historical average, Connecticut and Massachusetts have the highest general fund expenditure share of total expenditures, which are 64 percent and 61 percent, respectively, while Michigan has the lowest share of general fund expenditure share, 16 percent.

Procyclical Budget Actions

Procyclical budget actions consist of 1) budget cuts and 2) revenue actions in this study. Budget cuts are narrowly defined as "program reductions" that are enacted during the current fiscal year on the budget adopted last year (Hou & Moynihan, 2008). Budget cuts as a share of total expenditures are the dollar amount of budget cuts enacted in the current fiscal year plus the amount of mid-year budget adjustments, divided by total expenditures. The mid-year budget adjustments indicate mid-year spending increases or decreases. The mid-year budget adjustments represent mid-year spending increases or decreases.

Revenue actions include all revenue-raising measures (e.g., increasing tax, fine, or fee rates and enacting new taxes) and revenue-decreasing actions (e.g., tax cuts), which are expressed as negative numbers (Hou & Moynihan, 2008). Revenue actions share of total expenditures represent the dollar amount of revenue actions divided by total expenditures. The National Association of State Budget officers (NASBO) collects data on states' budget cuts and revenue actions each year.

Fiscal Variables

With a foundation in the literature on substitution and supplementation effects between budget stabilization fund and general fund, we will use two key independent variables: 1) Budget Stabilization Fund (BSF) balance and 2) General Fund balance (GFB) levels. The size of BSF is measured by the total balance of BSF calculated as a percentage of total expenditures. Similarly, the size of GFB is measured by the total balance of GFB calculated as a percentage of total expenditures.

Depending on fund balance levels or borrowing costs, state governments may use fiscal reserves and debt interchangeably; governments need to rely on debt financing when they do not have sufficient fiscal reserves (Gore, 2009; Gorina et al., 2019; Su & Hildreth, 2018). Thus, the variable of debt per capita is included in the models to control for the impact of public debt on budget transparency, budget cuts, and revenue actions. Data on debt per capita is obtained from the State Government Finance series.

As discussed earlier, federal funds for specific purposes (e.g., education, healthcare, and infrastructure) are often used to offset revenue shortfalls (Conant et al., 2012; Dye et al., 2011). To control for the impact of federal funds on our dependent variables, we use federal intergovernmental revenue (IGR), referring to amounts received from Federal governments, including grants and shared taxes (Pierson et al., 2015). The total intergovernmental revenue received from Federal governments is divided by state population.

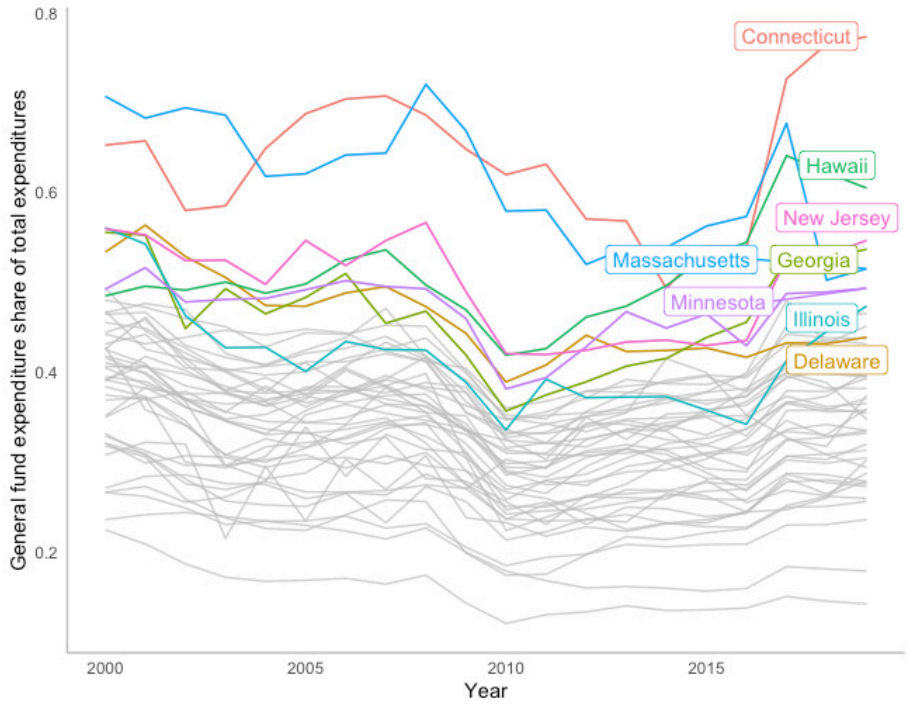

Figure 2. General Fund Expenditure Share of Total Expenditures

Fiscal Stress

In the study of Hudspeth et al. (2015), fiscal balance as a share of total expenditures is used as a measure of fiscal stress, representing whether a state has a budget deficit or surplus for each fiscal year. The fiscal balance is different from the general fund ending balance (GFB) because it is calculated by subtracting total expenditure from total revenue. Total revenue covers various revenues (e.g., utility revenue, liquor store revenue, and social insurance trust systems revenue) other than general revenue, coming from taxes, intergovernmental revenue, and charges; total expenditure consists of direct expenditures (e.g., current operations, interest on debt, assistance and subsidies, insurance benefits and repayments, and capital outlay) and intergovernmental expenditure (U.S. Bureau of the Census, 2006).

However, a state's fiscal balance may not be a reliable measure of fiscal stress when it is influenced by other factors, such as budget forecasting techniques, forecasting practices, or politics (Williams & Calabrese, 2016). To assess state economic conditions or long-term fiscal stress, this study uses the State Coincident Indexes. The coincident indexes integrate four state-level indicators, including nonfarm payroll employment, average hours worked in manufacturing by production workers, the unemployment rate, and wage and salary disbursements deflated by the consumer price index, to measure economic conditions in a single statistic (Federal Reserve Bank of Philadelphia, 2022).

Sociodemographic Variables

Sociodemographic variables, such as personal income and population, will be used in the empirical analysis because they reflect demand for public services and affect tax revenues and spending needs (Poterba, 1994). Per capita personal income captures a state's wealth and economic activity. Thus, it is positively associated with tax revenues and BSF balances. Data on population is obtained from the State Government Finance series. Data on per capita personal income is taken from the Bureau of Economic Analysis database. The population may have a positive effect on total expenditures as state governments provide their residents with public services.

Political Variables

Politics is crucial for understanding state government's spending behavior (Alt & Lowry, 2010; Poterba, 1994). The political factors are divided into four categories: 1) gubernatorial election years, 2) Democratic share of legislature, 3) divided government, and 4) political ideology. First, election years may influence fiscal policy because politicians are likely to increase spending while avoiding taxes increases, especially in election years, known as a "political business cycle" or "political budget cycle" (Lucas, 1976; Rogoff, 1990; Rose, 2008). To circumvent unpopular measures, such as tax increases and spending cuts, politicians can use fiscal reserves to balance the budget, particularly when an election is upcoming (Rose, 2008). Election year is a dummy variable that takes on a value of 1 when it is an election year in state i in year t and 0 otherwise.

Second, political partisanship is viewed as an important factor that may affect public spending on government pro-

grams. Clark and Ferguson (1983) argue that a Democrat-leaning political culture leads to an expanded government, while a Republican culture favors the fiscally conservative government. Alt and Lowry (1994) also note that Democrats have a higher (and Republicans a lower) "target share of personal income for state spending." Brown (1995) found that the Democratic Party control leads to more liberal policies, resulting in greater welfare efforts. However, Barrilleaux et al. (2002) suggest that the impact of a party on state welfare expenditures depends upon the competition of the state's electoral environment: Democrats who were elected under competitive elections put greater welfare spending efforts than Democrats who were elected under less competitive elections (Barrilleaux et al., 2002; Berry et al., 1998; Brown, 1995; Erikson et al., 1989).

Third, a difference in *party affiliation* of the governor and the majority in the state legislature is also used to detect any effects of the confrontation or gridlock between the executive and the legislative branches on public expenditures (Niskanen, 2003). Political friction between the branches is expected to frustrate executive proposals, while a governor can veto a spending bill for a local project for legislators' districts (Hou, 2003). By contrast, the absence of such division may enable governments to increase public spending, or they try to make compromises to spend more (Gorina et al., 2019). Such gridlock does not enable governments to respond to fiscal stress promptly, thereby spending less and saving more funds. The empirical evidence of the gridlock hypothesis is mixed. Hou (2004) observes that political party division between the governor and legislature increases the BSF balance level. In contrast, Gould (2009) finds that political division within government increases per capita expenditures.

The dummy variable of divided government is used to measure divided government between the two branches where 1 indicates different party affiliation between a governor and the majority in the legislature and 0 otherwise. To measure legislative party control of state government, we use the Democratic share of the legislature, indicating the dominance of the Democratic party in the state's legislative chambers (Pallay, 2013). The Book of the States series provides election years and the party affiliations of the legislators and governors.

To control for the political ideology of states, we used the measures for citizen ideology and state government ideology. Berry et al. (1998) developed a measure of the ideology of the citizens of each Congressional district, using the voting scores of state congressional delegations, their election opponents' scores, and the results of congressional elections. They then created a state-wide measure, by taking the average over all Congressional districts. To construct a measure of government ideology, Berry et al. (1998) also assigned the scores of the members of Congress from their party to the governor and major party delegations in the legislature.

Institutional Variables

Based on the literature on the effects of fiscal institutions on state fiscal behaviors, we include Budget Balancing Requirements (BBR) and Tax and Expenditure Limits (TEL) in the models. BBR is a dummy variable that takes on a value of 1 if a state cannot carry over deficits into the next fiscal year and 0 otherwise. This is because deficit carryover restrictions are deemed the strictest requirement that reduce budget deficits (Hou & Smith, 2006). The Book of the States presents the data on BBR.

Tax and Spending Limits (TEL) refer to restrictions set by state governments to limit the amount they can tax or spend (Rueben & Randall, 2017). The variable of TEL represents the stringency of state-level TEL, using the data collected by Laffer et al. (2018). The stringency of TEL is measured on a scale from 0 to 3, with zero indicating no TEL, and a value of 1 being added to the indicator for each of the following limitation types: i) expenditure limit, ii) mandatory voter approval of tax increases, and iii) supermajority requirement for tax increases (Laffer et al., 2018).

METHODS AND RESULTS

To test the relationship between fiscal reserves and fiscal transparency, we estimate panel models with state- and year-fixed effects.[6] Given the clustered nature of the data, all reported standard errors were computed by using double-clustering robust covariance matrix estimators (Cameron et al., 2011; Cameron & Miller, 2015; Millo, 2017). General fund expenditure share, budget cuts share of total expenditures, and revenue actions share of total expenditures are regressed on the independent variables described in Tables 1 and 2. Table 3 shows results for six model specifications. We re-ran our analysis with multiple lags and found no substantial changes in our results.

The NASBO reports leave some observations on budget cuts, including Illinois in 2003 and 2004, Kentucky in 2001, Louisiana in 2002, Oregon in 2001, Rhode Island in 2007, and Texas in 2020 and revenue actions, such as Illinois in 2016 and Pennsylvania in 2016, as missing. Data on citizen and government ideology from 2015 to 2019 are also not available. These missing values are imputed by using a k-nearest neighbor (KNN) model, which is known to outperform other imputation methods for missing data (Batista & Monard, 2002). The KNN model finds the samples in the training set nearest to it and averages these nearby points to fill in the values (Kuhn & Johnson, 2013). We re-ran the analysis by excluding cases with missing values and found no significant change in our results.

Effects of Fiscal Reserves on Fiscal Transparency

Models 1 and 2 in Table 3 show the effects of fiscal reserves and budget actions on fiscal transparency, measured

6 Hausman test shows that the p-value is significant (p-value < 0.05).

Table 1. Operationalization of Variables and Data Source

Variable	Measure	Source
Dependent variables		
General fund expenditure share	General fund expenditure/Total expenditure	NASBO Fiscal Survey of States; U.S. Census
Budget cuts share	The sum of the dollar amount of budget cuts and mid-year budget adjustments/Total expenditure	NASBO Fiscal Survey of States
Revenue actions share	The dollar amount of revenue that a state plans to increase or decrease in the next fiscal year/Total expenditure	NASBO Fiscal Survey of States
Fiscal variables		
BSF	Budget Stabilization Fund (Rainy Day Fund) balance/Total expenditure	NASBO Fiscal Survey of States
GFB	General Fund ending balance/Total expenditure	NASBO Fiscal Survey of States
Debt per capita	Total outstanding debt/State population	U.S. Census, State Government Finances
Federal IGR	Total intergovernmental revenue received from Federal governments/State population	U.S. Census, State Government Finances
Fiscal stress variables		
Fiscal balance as share of total expenditure	(Total revenue – total expenditure)/Total expenditure	U.S. Census, State Government Finance
Economic conditions	Coincident Indexes that summarize current economic conditions by combining state-level economic indicators	Federal Reserve Bank of Philadelphia
Sociodemographic variables		
Population	Total state population in millions	U.S. Census, State Government Finances
Personal income	Per capita personal income	Bureau of Economic Analysis
Political variables		
Election	Gubernatorial election years, measured by a dummy variable: 1 for an election year and 0 otherwise	Book of the States
Democrat share of legislature	Share of legislatures that are Democrats	Book of the States
Divided government	Divided government, measured by a dummy variable: 1 for different party affiliation between a governor and the majority in legislature and 0 otherwise	Book of the States
Citizen ideology	State citizen ideology, measured on 0–100 scale with 0 = most conservative and 100 = most liberal	Berry et al. (1998)
Government ideology	State government ideology, measured on 0–100 scale with 0 = most conservative and 100 = most liberal	Berry et al. (1998)
Institutional variables		
BBR	Budget balancing requirements, measured by a dummy variable: 1 for a state that cannot carry over deficits into the next fiscal year and 0 otherwise	Book of the States
TEL	Tax and expenditure limits, measured on a scale from 0 to 3: 0 = no TEL, 1 = expenditure limit, 2 = mandatory voter approval, and 3 = supermajority requirement for tax increases	Laffer et al. (2018); State Statutes or Constitutions

by general fund expenditure share of total expenditures. BSF and GFB are expected to promote the use of transparent fiscal practices. In other words, states with sufficient fiscal reserves are less likely to rely on budget gimmicks (e.g., the use of special funds, federal funds, local aid, pension/OPEB funds, deferred payments). Similarly, budget cuts and revenue increases are expected to exert positive influence on the dependent variable. Regression results as displayed in Table 3 confirm that all coefficients of the key variables present the positive sign.

BSF has the largest effects in models 1 and 2. In model 1, a one unit increase in BSF as a share of total expenditures is predicted to increase the general fund share of total expenditures by 0.59, on average, holding all other variables constant. The empirical evidence suggests that the availability of BSF improves fiscal transparency. Model 2 shows that the effect of GFB depends on the election year. GFB as a share

Table 2. Descriptive Statistics for Variables in the Analysis

Variables	Obs.	Mean	Std. Dev.	Min	Max
General fund share of total expenditures	900	0.358	0.103	0.12	0.773
BSF balance share of total expenditures	900	0.017	0.017	0	0.1
GFB share of total expenditures	900	0.02	0.025	-0.059	0.21
Budget cuts share of total expenditures	900	-0.006	0.029	-0.429	0.055
Revenue actions share of total expenditures	900	0.001	0.012	-0.221	0.056
Fiscal balance share of total expenditures	900	0.019	0.146	-0.763	0.608
Debt per capita	900	3.36	2.096	0.577	12.08
Federal IGR	900	1.637	0.547	0.495	3.488
Economic conditions (thousands)	900	0.103	0.015	0.076	0.15
Personal income per capita (thousands)	900	40.361	9.593	21.681	75.794
Population (million)	900	6.581	6.974	0.61	39.438
Election	900	0.252	0.435	0	1
Democrat share of legislature	900	0.498	0.164	0.114	0.934
Divided government (0, 1)	900	0.344	0.475	0	1
Citizen ideology	900	51.775	15.723	8.45	95.972
Government ideology	900	45.9	16.294	17.512	73.619
TEL	900	0.97	0.835	0	3
BBR (0, 1)	900	0.78	0.414	0	1

of total expenditures has a positive effect on fiscal transparency in a non-election year. In an election year, however, the positive effect of GFB on fiscal transparency drops by 0.18, while the effect of BSF on fiscal transparency increases by 0.20.

The greater magnitude of the coefficient of BSF than that of GFB indicates that *the BSF is more effective in improving sound financial management practices than GFB*. CCFC treats strict constitutional or statutory requirements regarding BSF deposit and withdrawal as effective enforcements that can ward off spending pressures and restrict inappropriate use of financial resources (Hou & Moynihan, 2008). In other words, the stringent BSF rules help governments to save more funds, thereby improving "countercyclical fiscal capacity" (Hou & Moynihan, 2008). Unlike BSF, GFB is not subject to legal restrictions, but can be used at the discretion of policy makers (Hou & Moynihan, 2008). From this logic, it is expected that GFB is more vulnerable to political pressures than BSF, especially in election years.

This finding also supports the argument that myopic and self-interested voters may support incumbents who run deficits to benefit them through program expansion (Alesina & Perotti, 1995). In other words, public officials and politicians are more likely to increase public spending in election years, resulting in budget deficits. Thus, general fund surpluses are less likely to occur in an election year, thereby reducing the positive effect of the GFB on fiscal transparency.

Both budget cuts and revenue actions have significant and positive associations with general fund expenditure's share of total expenditures in models 1 and 2. This finding tells us that states which cut their expenditures or increase revenues are less likely to rely on budget gimmicks, thereby enhancing fiscal transparency. Specifically, a one unit increase in budget cuts share of total expenditures is predicted to increase the general fund share of total expenditures by 0.26 in model 1 and by 0.27 in model 2, respectively on average, holding all other variables constant.

A one unit increase in revenue actions share of total expenditures improves the general fund share of total expenditures by about 0.14, on average, holding all other variables constant in models 1 and 2. Budget cuts appear to provide greater leverage against budget gimmicks than revenue actions. One possible explanation is that budget cuts are more frequently used strategies than revenue increases thanks to their greater accessibility and lower political costs than revenue increases, as discussed before.

Effects of Fiscal Reserves on Budget Cuts

Consistent with our hypothesis 2, BSF has the negative effect on budget cuts in models 3 and 4. However, GFB has no significant impact on budget cuts. A one unit increase in BSF as a share of total expenditures is expected to decrease the amount of budget cuts as a share of total expenditures by 0.25 in model 3, on average, holding all other variables constant. This result is consistent with the finding of Hou and Moynihan (2008) that BSF reduces the need for budget cuts in the current fiscal year.

However, the magnitude of the effect of BSF on budget cuts is less substantial than that on fiscal transparency. Revenue actions are expected to decrease the amount of budget cuts by about 0.07 in models 3 and 4, but they are not statistically significant. Fiscal transparency, measured by general fund share of total expenditures, has no signifi-

Table 3. Effects of Fiscal Reserves on State Budget Actions

	General fund expenditure share of total expenditures$_t$		Budget cuts share of total expenditures$_t$		Revenue actions share of total expenditures$_{t+1}$	
	(1)	(2)	(3)	(4)	(5)	(6)
BSF as a share of total expenditures	0.594***	0.542***	-0.253**	-0.235**	-0.025	-0.013
	(0.133)	(0.131)	(0.124)	(0.115)	(0.052)	(0.059)
GFB as a share of total expenditures	0.130	0.183**	0.011	-0.029	-0.026	-0.035
	(0.083)	(0.077)	(0.042)	(0.045)	(0.024)	(0.027)
Budget cuts share of total expenditures	0.264***	0.266***			-0.032	-0.033
	(0.060)	(0.059)			(0.021)	(0.021)
Revenue actions share of total expenditures	0.142**	0.144**	-0.071	-0.075		
	(0.063)	(0.067)	(0.048)	(0.048)		
General fund expenditure share			0.268	0.271	0.033**	0.035**
			(0.178)	(0.179)	(0.017)	(0.017)
Fiscal balance share of total expenditure	0.074***	0.074***	-0.035	-0.035	-0.005	-0.005
	(0.024)	(0.024)	(0.023)	(0.024)	(0.005)	(0.005)
Federal IGR	-0.039***	-0.039***	0.012**	0.012**	-0.000	-0.000
	(0.007)	(0.007)	(0.006)	(0.006)	(0.002)	(0.002)
Debt per capita	-0.003	-0.003	-0.003	-0.003	-0.001	-0.001
	(0.004)	(0.004)	(0.002)	(0.002)	(0.001)	(0.001)
Personal income per capita (thousands dollar)	0.004***	0.004***	-0.002	-0.002	0.000	0.000
	(0.001)	(0.001)	(0.002)	(0.002)	(0.000)	(0.000)
Economic conditions (thousands)	-0.160	-0.148	-1.153**	-1.157**	-0.064	-0.066
	(0.304)	(0.303)	(0.488)	(0.486)	(0.107)	(0.107)
Population (million)	-0.009***	-0.009***	0.008**	0.008**	0.000	0.000
	(0.003)	(0.002)	(0.004)	(0.004)	(0.001)	(0.001)
Election	0.001	0.001	-0.002	-0.004**	-0.001	-0.001
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)
Democrat share of legislature	0.002	0.002	0.039**	0.039**	-0.002	-0.002
	(0.029)	(0.029)	(0.016)	(0.016)	(0.005)	(0.005)
Divided government	-0.003	-0.003	-0.001	-0.001	-0.001	-0.001
	(0.003)	(0.003)	(0.003)	(0.003)	(0.001)	(0.001)
Citizen ideology	-0.000	-0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Government ideology	0.000	0.000	-0.000	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
TEL	0.012***	0.011***	-0.016**	-0.015**	-0.003**	-0.003**
	(0.004)	(0.004)	(0.007)	(0.007)	(0.001)	(0.001)
BBR	-0.008	-0.008	0.016***	0.016***	0.002	0.002
	(0.009)	(0.009)	(0.006)	(0.006)	(0.002)	(0.002)
BSF share of total expenditures*Election		0.195*		-0.053		-0.055
		(0.108)		(0.108)		(0.050)
GFB share of total expenditures*Election		-0.184***		0.138**		0.032
		(0.063)		(0.067)		(0.028)
Summary statistics						
R^2	0.335	0.340	0.154	0.158	0.016	0.017
Num. obs.	900	900	900	900	900	900

Note: Double clustered-robust standard errors in parentheses.
Significance indicated by: ***p < 0.01; **p < 0.05; *p < 0.1

cant impact on budget cuts in models 3 and 4. This result is in contrast with the significant impact of budget cuts share of total expenditures on fiscal transparency.

Effects of Fiscal Reserves on Revenue Actions

The R-squared values of models 5 and 6, which examine the impact of fiscal reserves on revenue actions share of total expenditure, are relatively low, compared to other models. The low R-squared value indicates the lower proportion of the variance for revenue actions share of total expenditures explained by independent variables in the model. Data on state tax rates, tax structures, and revenue volatility, which are not included in our models, may be needed to account for variations in revenue actions.

The significant coefficients, however, still indicate the mean change in revenue actions share of total expenditures for one unit change in the independent variable. A one unit increase in general fund expenditure as a share of total expenditures increases revenue-raising actions as a share of total expenditures for the next fiscal year by 0.03 in model 5 and 0.04 in model 6, on average, holding all other variables constant. This result suggests that states with sound budget reporting practices are more likely to take visible budget actions, such as tax increases, for the next fiscal year.

Our key independent variables, BSF and GFB, have negative effects on revenue-raising actions, but they are not statistically significant. This result seems to support hypothesis 4 – fiscal reserves have a greater impact on fiscal transparency than revenue actions. Nevertheless, further investigation and empirical evidence are needed to confirm whether fiscal reserves have a greater impact on fiscal transparency than revenue-raising actions.

Control Variables

All models in Table 3 include control variables to account for fiscal, socioeconomic, institutional, and political factors. Consistent with the finding of Hudspeth et al. (2015), fiscal stress, measured by fiscal balance as a share of total expenditures, is significantly associated with fiscal transparency. However, the magnitude of the coefficient of the fiscal balance, about 0.07, in our study is much smaller than that, 0.22, in the study of Hudspeth et al. (2015). The fiscal balance as a share of total expenditures does not have a significant impact on budget cuts and revenue actions in models 3, 4, 5, and 6. Federal IGR reduces fiscal transparency by 0.04 in models 1 and 2, on average, holding all other variables constant. This finding suggests that states, relying more on federal funds, are less likely to use their general funds. In contrast, federal IGR increases the amount of budget cuts as a share of total expenditures by 0.01 in models 3 and 4. Meanwhile, it is not significantly associated with revenue actions as a share of total expenditures.

Personal income per capita has a positive impact on our measure of fiscal transparency, while it is not significantly associated with both budget cuts and revenue actions as a share of total expenditures. Population decreases fiscal transparency by 0.01, while increasing the amount of budget cuts by 0.01, on average, holding all other variables constant. The significant coefficient of personal income per capita suggests that richer states can afford to maintain sound fiscal practices, while poorer states lack the revenues to do so. The negative association between population and fiscal transparency suggests that larger populations tend to increase budget complexity. State economic conditions have no significant impact on fiscal transparency, while having a negative impact on budget cuts. This finding suggests that good economic conditions (e.g., high employment rate, GSP, retail sales, etc.) reduce the need for budget cuts. Debt per capita is not significantly associated with the dependent variables of all models.

An election year has no significant impact on general fund expenditure share, while it has a significant and negative impact on budget cuts share of total expenditures in model 4. This finding is consistent with our hypothesis that budget cuts are more visible and politically riskier than budget gimmicks. In other words, public officials and politicians are reluctant to cut spending through program reductions in election years for fear that the spending cuts will have a negative impact on election results. In model 2, however, the election year interacted with BSF and GFB, is significantly associated with general fund expenditure share of total expenditures. Interestingly, the signs of coefficients of BSF and GFB in model 3 are different from one another. The positive coefficient on the interaction term between BSF and election implies that BSF contributes to preventing policymakers from using opaque funds in an election year.

In contrast, the negative coefficient on the interaction term between GFB and election suggests that GFB is not as useful in deterring states using budget gimmicks in an election year as in a non-election year. The positive effect of the GFB on fiscal transparency decreases by 0.18 in an election year compared to a non-election year. The negative effect of the GFB on budget cuts is also mitigated by 0.14 in an election year compared to a non-election year. This is because general fund surplus is less likely to occur in an election year, thereby reducing the negative effect of the GFB on budget cuts.

Democratic share of the legislature increases the amount of budget cuts by 0.04 but has no significant impact on fiscal transparency and revenue actions. The presence of a divided government has no significant impact on our dependent variables in all models. None of the ideology measures, such as citizen ideology and government ideology, are significantly related to the dependent variables.

Among the fiscal institutions, Tax Expenditure Limitations (TEL) (e.g., mandatory voter approval or supermajority requirement for tax increases) have a positive impact on general fund expenditure share of total expenditures, while having a negative impact on budget cuts and revenue actions. In contrast, Balanced Budget Requirements (BBR), deficit carryover restrictions, are significantly and positively related to the amount of budget cuts in models 3 and 4. However, BBR has no significant impact on fiscal transparency and revenue actions.

In terms of the impact of TEL on government fiscal behaviors, there are conflicting arguments and findings in the literature. Some studies argue that politicians may circumvent limitations, by increasing revenue or expenditures through special funds (Alt et al., 2014; Hudspeth et al.,

2015), while others suggest that fiscal institutions effectively enforce budget discipline, thereby encouraging sound or planned financial management practices (Alesina & Perotti, 1996; Johnson & Kriz, 2005). Recently, Ryu et al. (2020) find that states with stricter TEL spend fewer general funds, while saving more BSF especially after elections.

Given the disagreements regarding the impact of TEL on fiscal behaviors, thus, the positive impact of TEL on general fund expenditure share of total expenditures in this study should be interpreted with caution and warrant further investigation. Unlike the negative impact of TEL on budget cuts and revenue actions, the positive impact of BBR on budget cuts suggests that BBR increases the need for budget cuts or mid-year budget adjustments to balance the budget for the current fiscal year. The effects of fiscal institutions may depend upon how the state governments enforce them (Bohn & Inman, 1996).

CONCLUSION

This article examined the impact of fiscal reserves on fiscal transparency, budget cuts, and revenue actions, controlling for other budget actions. Most of the extant empirical studies have focused on the countercyclical effects of fiscal reserves, while the impact of fiscal reserves on financial management practices receives scant attention. Thus, the study addresses the following key questions: Does fiscal capacity, measured by fiscal reserves, affect financial management practices or performance? Do the effects of fiscal reserves depend on the type of budget actions?

In examining these questions, this research presents interesting findings, consistent with our hypotheses: fiscal reserves and visible budget actions (e.g., budget cuts and revenue actions) improve fiscal transparency, measured by general fund expenditure share of total expenditures. This finding indicates that states with sufficient fiscal reserves are less likely to use opaque funds, such as special funds, pension/OPEB funds, and federal funds. More importantly, the greater magnitude of the coefficient of BSF than that of GFB indicates that the BSF is a more critical saving tool than the GFB to enhance sound financial management practices. Our finding also suggests that visible budget actions (e.g., budget cuts and revenue actions) decrease the need to use opaque funds.

The empirical evidence from this study enhances our understanding of the relationship between fiscal reserves and budget transparency as well as the relationship between different budget actions. Although most studies attempt to understand performance in policy areas (Lynn et al., 2000; Meier & O'Toole, 2002; Nicholson-Crotty & O'Toole, 2004), there are few studies that explore performance in the area of financial management (Hou & Moynihan, 2008). In this respect, this study made a theoretical contribution, by linking fiscal capacity measured by fiscal reserves to performance represented by budget transparency.

The classification of budget actions also contributes to advancing financial management theory, as it shows that the political costs of budget actions depend on resource availability, levels, and accessibility. This theoretical framework can be broadly applicable to other countries since most countries, like US states, are grappling with common financial problems, such as decreasing revenue, increasing expenditure demands, and unsound budget procedures. However, institutional contexts, such as fiscal and budget process rules, may vary across countries. Thus, including variation in such rules will increase the depth of the empirical results.

The important caveat of this research is that empirically-observed correlation does not imply a causal relationship. Another limitation is that budget gimmicks are not directly measured in this study. Although the regression results support our hypotheses, there is no direct evidence that public officials and politicians maneuver the state budget before or during election periods when they do not have sufficient fiscal reserves. Thus, the empirical results from this research are tentative, and further investigation with the direct measure of budget gimmicks is needed to confirm the causal relationship between budget stabilization funds and budget gimmicks.

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