ABSTRACT

Title of dissertation: STATE FISCAL INSTITUTIONS: AN EVOLUTION

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This dissertation considers two aspects of the study of fiscal institutions: the importance of understanding their evolution and the need for analyzing their specific form. Chapter 1 addresses the tension between commitment and flexibility in the design of institutions and stresses the importance of using a comprehensive approach when studying them.

Chapter 2 explores the history of constitutional debt restrictions, using a new dataset that allows us to follow their evolution and construct a proper classification. In this chapter, we find that the importance of limits on debt has been overstated. Procedures regulating debt issuance are the most important aspect of the provisions. In addition, modification procedures and debt itemization play an important role in the actual limiting

of debt at the state level. Second, the analysis shows a long process of "recursive institutional change," culminating in a move towards greater flexibility in the 1960s and 1970s. This new perspective provides a framework for understanding the appearance of new agents in debt issuance, the rise of many different forms of financing, and the creation of tools and fiscal institutions that today are basic elements in the budgeting practices of the states.

Chapter 3 investigates the determinants of the configuration of one of the latest of such institutions. Using multinomial discrete techniques and introducing the ordered nature of the requirements in the analysis, this chapter investigates the reasons that have led to the adoption of weak or more stringent budget stabilization funds (BSFs). We find that economic factors (such as tax effort, volatility of spending and tax revenue) and political factors (like the size of the senate and the fractionalization of the lower house) have had a significant impact on the way states have chosen to configure their BSFs (or "rainy day funds" as they are often called). Nevertheless, the specific form of these funds cannot be properly explained if we ignore the set of other institutions that exist in the states. We find that balanced budget requirements, the scope of tax and expenditure limitations, and the appointment method of the state's supreme court influence the design of BSFs.

STATE FISCAL INSTITUTIONS: AN EVOLUTION

By

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Dedication

A mi familia.

No podría haber elegido mejor a los once que me tocaron,

y los dos que escogí han sido un regalo.

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1.1. Introduction

State budget deliberations are usually conducted within the framework of requirements and limits that seek to provide a consistent background for decision-making. Within these limits, public decisions are transformed into policy. Since fiscal results are not independent of the budgetary process, fiscal institutions play an important role in the economic outcomes of states. Moreover, beyond their real effects on fiscal outcomes, tools that aim at improving the fiscal health of the state –even at the cost of restricting the freedom of officials- may send a signal to the market of the long-run intentions of officials and policy objectives.[1]

Fiscal institutions are the consequence of the economic circumstances and overall institutional framework in which they were created, and are meant to establish guidelines for making choices in a situation that is expected to recur. They are created to address problems that policy makers expect to face again (potentially several times) in the future, and they are concerned that their response to these problems may not be optimal. As a result, many fiscal institutions represent constraints on the ability of future policy makers to choose policies.

Frequently, when using fiscal institutions in analysis, researchers take a narrow view. This "narrow view" has two characteristics. First, institutions may be considered only on the basis of whether they exist in a particular state or not, and often we see institutions represented by a dummy variable that takes the value of one if the institution exists and

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[1] Lowry and Alt (2001), for example, find that strict balanced budget rules help investors extract information about officials' attitudes towards deficits.

zero if it does not. This approach ignores the various forms that an institution can take; it may cause the grouping under the same name of very different rules, only because their object of interest is the same.

The second aspect of this narrow view is considering institutions exogenous and immutable. The complications associated with modifying complex rules, which often include the amendment of statutes or constitutions, result in a certain bias towards the status quo. However, the fact that institutions are difficult to modify does not mean that they are immutable. Understanding how institutions evolve is critical to evaluating how they affect economic outcomes, directly or in conjunction with other rules.

This static vision constrains our view of the effect of regulations and has two main consequences. First, it is in part responsible for a certain feeling that some of the institutions "don't work." As Wallis and Weingast (2006) put it "scholars regularly find that balanced budget provisions do not produce balanced budgets; debt restrictions do not restrict debt issue; tax and expenditure limitations limit neither taxes nor expenditures; and budget stabilization funds fail to provide budget stabilization."[2] In addition, it can contribute to the blurring of the interactions of institutions, since ignoring the way they change can lead us to overlook the impact these changes have on the form of other institutions and economic outcomes.

This dissertation concerns itself with these two aspects of what we have called the "narrow view of fiscal institutions." Three common themes are present throughout the discussion. First is the tension between commitment and flexibility that gives rise to the existence and configuration of institutions. Second, several types of rules and limitations may exist under a similar name because their object of attention is the same, but

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[2] Wallis and Weingast (2006), page 1.

considering an institution only from the point of view of whether it exists or not may not be very informative when trying to understand its effects in the larger context. Lastly, institutions do not appear or evolve independently of the economic and political history of the state, and without this historical perspective we are unlikely to understand fully their objectives and effects. Institutions interact with each other beyond their relationship through their stated object of interest: the effects of a rule may create incentives for the enactment of a new institution, it may serve to overcome the constraints imposed by another, etc.

To recognize the importance of the form of fiscal institutions, it is necessary to describe and understand the variety in fiscal structures. There are different types of fiscal institutions. Some establish procedures that govern the process by which a state adopts a budget, including legislative procedures (such as a budget calendar, or the process for its approval), the assignment of responsibilities and authorities of the agents involved (such as the governor's item veto), or set up direct requirements (like that of a balanced budget). Other fiscal institutions impose constraints directly on fiscal outcomes. Examples of these are the debt, tax, and expenditure limitations, and budget stabilization funds (also known as rainy day funds). Although the principles discussed in this dissertation are applicable to the larger set of state fiscal institutions, in this dissertation we will focus on restrictions on debt and rainy day funds.

Fiscal institutions operate in two main dimensions. First, the rules can limit specific items. For example, restrictions on debt may establish a debt ceiling on total debt outstanding. Tax and expenditure limitations often work in similar ways. Limits can either be expressed as absolute dollar number (absolute limits) or as a percentage of a

relative fiscal magnitude such as assessed property valuation, revenues, or previous years expenditures (relative limits).

Second, rules may govern procedures. These procedures govern the process by which the state government makes specific decisions. Procedural debt restrictions require state governments to follow certain procedures, like holding bond referendums, before debt can be issued. Balanced budget amendments require the *ex ante* construction of a budget that is in balance, while stipulating how the budgetary process must proceed. Procedures often include voter approval or legislative supermajorities. .

The English language is not always helpful in separating the two dimensions. A debt *limitation* of $1,000,000 is a very different kind of constraint on a state government than a debt *restriction* that requires a state to obtain the approval of voters before bonds can be issued. This difference is not trivial, since it has real implications for the potential effects of the constraint; nevertheless, it is frequently overlooked in the public finance literature.

Institutions can establish limits, procedural restrictions, or both. Because the objective of the restrictions may be very similar (for example, to impose controls on debt), procedural restrictions and the limits are often classified under the same name (for example "debt limits"), ignoring the particulars of the constraint. This becomes a problem when using the institution in analysis; if the only parameter taken into account is its existence, we may overlook the features of the measure that have a real impact on economic outcomes. In fact, for some institutions such as rainy day funds or debt limitations, it may be the form rather than the existence that determines if any real effects exist at all, or in what magnitude.

Similarly, the second aspect of the narrow view of fiscal institutions can cause problems. Understanding how institutions evolve is critical to evaluating how they affect economic outcomes, directly or in conjunction with other rules. Fiscal institutions may change in response to many of the changing fiscal outcomes. If, for example, constitutional provisions with respect to state government borrowing change as a result of state debt accumulation, then explaining levels of state borrowing as a function of the presence or absence of a debt restriction is problematic. As this thesis shows, state level fiscal institutions have not been static over the course of American history. Changes in fiscal institutions show definite patterns of change connected with the changing fiscal circumstances of state governments.

We discuss the tension between commitment and flexibility in more detail in section 1. 2, and, in subsequent chapters, use case studies of two actual state fiscal institutions to show the importance of recognizing the endogeneity of fiscal institutions and considering their form. Although the basic issues to consider are the same, the chapters use different approaches for their study. In chapter 2 we consider state restrictions on debt, using a new dataset that comprises the whole constitutional history of debt restrictions in the states. Considering the institution from a historical perspective, we are able to distinguish between the different types of restrictions, which sheds light on the issue of why many observers have noted that debt limits are consistently exceeded. The analysis of the evolution of the institution provides evidence supporting the concept that institutions are endogenous and need to be considered jointly.

In chapter 3 we consider another state fiscal institution, rainy day funds. In contrast to chapter 2, the analysis in this chapter consists of an econometric analysis of the factors

that have affected the choice of deposit and withdrawal requirements embedded in the funds. We find here some evidence of the endogeneity of fiscal institutions.

1.2. Tying the government's hands: commitment v flexibility

Fiscal institutions are aimed, in large part, at constraining the behavior of policy makers. In a sense, they intend to limit the capacity to design and implement policies by establishing a set of rules, or by imposing a set of procedural constraints, that must be followed before a proposal can become policy.

In principle, self-regulation may seem a paradox since unconstrained maximization yields results at least as good as its constrained counterpart. In any one period, the existence of the rule limits the set of available choices and potentially might even preclude the optimal solution (Mas-Colell et al (1995), de la Fuente (2000)). This loss of flexibility is a non-trivial cost of the establishment of rules.

However, because agents might be time inconsistent or myopic, decisions taken at a given point may not be optimal when considered in the longer run.[3] This problem stems from the time dimension of the problem and the non-continuity of the agents in charge of making policy decisions. Limitations on the power of officials to make decisions are

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[3] For example, the existence of different types of groups with asymmetric influence in the decision to elect public officials (such as current vs. future taxpayers, members of a special interest group vs. the general public, etc) can result in non-optimal policies. Because of the costs associated with raising taxes and/or restricting expenditure, officials may be inclined to postpone adjustments during downturns or overspend during booms. These asymmetries also influence the choice of financing mechanisms: for example, using debt instead of taxes for the funding of a project shifts part of the costs to future generations, while the associated benefits may be enjoyed by the present generation, who elects current officials. Even if present-day constituencies do not seek to benefit by shifting the cost of projects or adjustments onto future generations, "debt illusion" could cause excessive borrowing if the voters do not correctly perceive the future tax implications of today's borrowing.

meant as solutions to these problems, establishing general principles that are aimed at providing an overall benefit, even if their constraints become burdensome at times.

The disadvantage of pre-commitment comes from loss of flexibility. Even a rule designed to operate differently under different economic circumstances (such as some of the rainy day funds) cannot provide for all the potential economic conditions.[4] Flexibility is desirable because economic circumstances are mutable and, to some extent, unpredictable. If legislators could perfectly foresee all potential future events, they might (technical possibilities allowing) prepare a response for each contingent situation and include them in the institution. However, because it is impossible to describe every possible circumstance in sufficient detail, the rules have to operate in a wide range of situations with only a certain number of degrees of freedom. Given the dynamic nature of the processes fiscal institutions deal with, this is an important fact to take into account.

On the other hand, excessive flexibility may be used by officials to enact policies directed towards re-election, rather than desired economic outcomes. If the rules are too pliable, they lose their usefulness as a method to commit.

If policy makers feel the need to constrain their future decisions, they are faced with the problem of how to commit, and how much. In choosing how to commit, policy makers have often chosen to make institutions into laws, rather than using promises or

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[4] A notable example of this reasoning exists in the famous statement signed by many economists, among them several Nobel Laureates, claiming that "to keep the [federal] budget balanced every year would aggravate recessions". This statement was made in reference to a proposal for a balanced budget amendment at the federal level, even though the proposal had built-in mechanisms that would allow the budget to become unbalanced when certain requirements were satisfied. The concern, however, was that these escape valves would not provide enough flexibility in times of need. Another example can be found in the replenishment requirements that some states have embedded in their budget stabilization funds. These rules specify a period within which the fund's resources must be replenished, but because these periods bear no relation with the economic cycle, a state may find itself in the obligation to deposit money in the fund while still in a recession.

commitments because of the differences that set laws (statutory and especially constitutional) apart from compromises. First, it would be difficult to achieve the formality of a law through compromise. Second –and more importantly- deviations from the law are more difficult: the breaking of a law typically has higher associated and recognizable costs, and its modification is more complicated. Constitutional provisions have the added benefit of increased credibility. The inclusion of an item in the constitution transmits the perception that the issue is fundamental; and it lends additional stability to the institution, since constitutions are more difficult to amend than regular laws. Buchanan and Brennan (1985) consider the nature of the compromise to be fundamental, and they state *"governments can be induced to take the long view only if they are appropriately constrained by constitutional rules".*[5]

At any point in time, the degree of commitment may seem a given fact rather than a choice. However, over time, policy makers can make decisions regarding the existence and level of stringency of their fiscal institutions. An examination of these choices can provide information on the nature and degree of the commitments. Furthermore, to appraise correctly the degree of commitment derived from the institutional structure of a state, it may also be necessary to take into account the extent to which court decisions have relaxed or tightened the effects of the rule for policy-making, as well as whether other rules or institutions are complementing or undermining its effectiveness.

A possible way for governments to commit is through the creation of institutions that formalize their wish to commit. Although theoretical constructs are possible and even desirable to better understand the mechanics of commitment, the studying of real-world

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[5] Buchanan and Brennan (1985). The word "constitutional" as used by the authors does not necessarily refer to a rule embedded in a Constitution, but rather to a norm that is meant to exist and operate during several periods.

institutions complements this approach by showing how the problems are addressed in practice rather than considering " 'institutions' that not only do not exist, but also cannot easily be mapped into real-world institutions."[6] With this aim, we turn now to the description of some of the tools that have been used in the states to enact commitment in the budget.

1.3. The importance of a comprehensive approach

Because of data limitations or the tractability of using simplified models, empirical and theoretical analyses are sometimes restricted to the study of one or a few institutions. The omission is unlikely to be trivial. Primo (2006) presents a theoretical and empirical model relating the effectiveness in curtailing expenditure to the interaction of spending limits and executive veto. He notes the importance of considering the overall institutional environment when evaluating the effects of any one tool, since "the unintended consequences so often observed after reform may reflect little more than a failure to understand the interplay of institutions."[7]

Institutions may reinforce or undermine each other's effectiveness. A historical perspective that incorporates the interaction of various fiscal institutions is useful, since the creation and modification of institutions is related not only to the economic and political circumstances of the time, but also to the set of constraints in place. The interactions between institutions can create unexpected results, but may have also been planned. For example, rainy day funds can help states achieve the level of equilibrium imposed by balanced budget restrictions, but they may also be a way to avoid the

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[6] Drazen (2000), page 164.
[7] Primo (2006), page 2.

restrictions imposed by TELs. While the first type of interaction would be publicized and widely discussed when the new institution is proposed for enactment, the second set of results is likely to be less obvious to the public. However, if one institution is established as a way to avoid the limitations imposed by another institution, failure to recognize the interaction causes a double problem. On the one hand, the new institution may "not work:" it may not cause the effects officials stated it would achieve. In fact, if one of its (unstated) objectives was to achieve more flexibility for policy makers, it would indeed be achieving its real goal, only not its publicly stated one. In addition, the perceived effects of the original institution are distorted, since the new tool has successfully reduced its effective stringency. Casual analysis of the effectiveness of the original institution may result in a misguided impression of lack of success.

There may be as much risk in overlooking perverse interactions as in overstating them. When a new tool is established, it is difficult to foresee all its possible effects under all circumstances. When economic conditions change, a rule may prove to be too constraining, or unsuitable, to meet budgetary exigencies. New developments need not be political maneuverings around a rule, but simply an adjustment to the circumstances. These can include more than the enactment of new institutions, including the assignment of responsibilities to new agents or even the creation of new agents altogether, changes in how certain tasks are carried out (such as privatization of certain services, new taxing mechanisms…), etc. Moreover, because the results cannot be forecast in advance, the process involves some trial-and-error, with room for mistakes and improvements.

A set of interacting institutions may create difficulties. Because of its complexity, the system may not be very transparent, creating opportunities for manipulation, and

impeding direct control from the citizenry. Indeed, the matter of state finances has become an increasingly professionalized field. However, at least part of this difficulty derives from the long evolution of the institutions involved. This is a complex issue for which there is no simple solution.

On the positive side, the states' freedom to react to new problems allows them the flexibility to respond creatively to their fiscal problems. In a sort of laboratory, states can create or adopt tools that fit their own circumstances, and, in this process, can learn from (and teach) their neighbors.

Institutions are not exogenous. By considering their history jointly, we realize that they have indeed co-evolved, rather than developed independently. Their uses and forms cannot be properly understood when considered separately, and important insights into their functioning arise when taking into account their historical evolution. The difference between limits and restrictions also becomes clearer when considering the evolution of the institutions, as does its importance for empirical and theoretical research.

Rainy day funds (RDFs) provide us with a good example. RDFs are tools meant to provide a fund for the deposit of resources during good economic times so that they are available during depressed times. However, if states were free to run unbalanced budgets or borrow unchecked, the need that RDFs are created to serve would become less pressing. In addition, other institutions, directly part of the design of the RDF, can potentially create incentives that affect the configuration of these funds. Without a comprehensive view of the institutional background in which RDFs are supposed to operate, it becomes difficult to understand why and how they exist and function. A static view of the institutional background would be incomplete as well. Debt restrictions first

appeared in the 1840s as a response to taxless finance, not to forbid debt but to ensure that taxes would be raised. As restrictions on the issuance of debt spread across the states and were modified in response to economic and political changes, other tools have been created. Balanced budget rules, some of which are sometimes confused with debt restrictions, have added an additional level of complication. With the pressures to balance the budget or to finance projects with restricted issuance of debt, concerns were born over the size of government –in particular about the amount of taxes. As tax and expenditure limitations joined the set of rules under which state finances operate, they created an incentive for the existence of separate funds –outside the scope of the limitations.

Rainy day funds are, then, a step in a long process rather than an isolated tool. The history of the evolution of fiscal tools –both in the creation of new instruments and the modifications of existing ones- provides us with the needed background to place each individual institution in the larger framework. Without this perspective, we may risk omitting important information on the choices that led to the creation and configuration of present-day institutions and, consequently, their effects on fiscal outcomes.

In the second chapter of this dissertation, we explore this evolution for a particular class of fiscal constraints. When economic benefits failed to materialize after the heavy investment in railroads and canals in the 1840s, states found themselves facing serious problems in financing their debt. To restrict future uses of taxless finance, states adopted different types of rules on the issuance of debt.

We construct a new dataset, gathered directly from state constitutional provisions on debt. This previously unavailable information describes the creation and modification of the original restrictions on debt, as well as related provisions that affect the ability of the

state to issue debt, even if they do not limit it directly. Unlike previously used data, this dataset allows us to follow the evolution of the constitutional provisions that affect the ability of the state to issue debt, rather than providing a snapshot of the institution, or including only some of the relevant provisions. Our first finding has to do with the proper classification of debt restrictions. By ignoring some of the provisions regulating debt issuance, previous studies overstated the importance of limits. We show that, in fact, procedures regulating the issuance of debt are the most important aspect of provisions regulating debt. In addition, modification procedures and debt itemization –so far largely ignored- play an important role in the actual limiting of debt at the state level.

Secondly, our analysis shows that a long process of recursive institutional change ensued, and these debt restrictions underwent changes and modifications. The process culminated in the nineteen sixties and seventies, with a move towards greater flexibility in the issuance of debt at the state level. This (previously unaccounted for) change provides a new perspective for understanding the recent introduction of other fiscal institutions for fiscal restraint and stability. In short, the evolution of these norms has contributed to the appearance of new agents in debt issuance, the rise of many different forms of financing, and the creation of a number of tools that today are basic elements in the budgeting practices of the states.

In the third chapter we investigate the determinants of the configuration of one of the latest of such tools. Using econometric techniques, this chapter investigates the reasons that have led to the adoption of weak or stringent BSFs. The investigation of the factors that have had a significant impact on the adoption choices of RDFs suggests that some economic and political characteristics are relevant. In particular, among the economic

characteristics, we find that states engaged more heavily in highly volatile spending are more likely to choose weak RDFs. In contrast, a high proportion of tax revenues coming from volatile sources decreases the probabilities that a state adopts a weak RDF. In addition, states that exert high levels of tax effort are more likely to establish strict RDFs.

Among the political variables, we find that states with larger senates are more likely to adopt weak RDFs, and increases in the level of fractionalization of the lower house reduce the probability that states choose strict requirements. Nevertheless, the configuration of these tools cannot be properly explained if we ignore the set of other institutions that exist in the states. States with stricter balanced budget requirements are less likely to adopt strict deposit requirements, and states where the scope of tax and expenditure limitations is wider are more likely to adopt weak deposit requirements. Also, states that have appointed supreme courts are more likely to adopt strict requirements. In chapter 3, we shall explain the rationale for these findings.

Lastly, chapter four concludes and proposes some future venues of research derived from this dissertation. First, the method developed here can be extended to other areas. In particular, the framework used to investigate debt restrictions could be applied to other fiscal institutions, where existence rather than form may have been the focus until now. The analysis of local debt restrictions has suffered from the same limitations as its state counterpart, and constitutes an open area for future work. A second major venue for research would consider applying the new dataset on debt restrictions to gain a better understanding of the effects of debt restrictions on fiscal outcomes, the proliferation of public authorities and special districts and the use of revenue bonds. Rainy day funds and debt restrictions play an important role in the fiscal activity of the states. Considering

their evolution and paying due attention to their form, we can study the role of learning and diffusion in the changes of state institutions, in the fashion of a "laboratory of fiscal federalism."

Chapter 2. Debt Restrictions: Classification and Evolution

2.1. Introduction

Budgetary institutions are often assumed to be exogenous. However, what Richard Briffault calls "the byzantine structure of state finances"[8] is the result of a long historical process involving constitutional amendments, politics, court decisions, tradition, and a myriad of other intermingling elements. In what might be considered a process of trial and error or learning-by-doing, legislators draft policies and create institutions to solve the financing issues that states face. Often, their choices have unexpected consequences. Those consequences may later force new rounds of changes, and these new rules and instruments are created on the base of the pre-existing institutions. These changes happen in a coherent and almost systematic way, which allows us to draw conclusions about the way institutions evolve. To understand this process of what we call "recursive institutional change," it is useful to separate the history of institutions into stages. It then becomes clearer how a certain stage creates the conditions for the next one.

The rules written into the state constitutions regarding debt restrictions are a good example of this involved process. Debt restrictions first appeared in the constitutions as a response to a very concrete economic and political problem in the 1840s, resulting from the crisis created by failed investments in infrastructure and banking. As time passed and needs evolved, state and local legislatures amended, avoided, and legislated around the limits. The introduction of debt restrictions addressed a real problem, but unexpected developments created other issues and gave rise to additional rules, institutions, and

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[8] *Balancing Acts: The Reality Behind Balanced Budget Requirements*, R. Briffault 1996.

practices. There was another round of constitutional changes from 1877 to 1920, a third round during the Great Depression and World War II, and a fourth round of changes in the 1960s that affect the way in which governments conduct their business today. For the most part, the various types of restrictions on debt are not aimed exclusively, or even largely, at preventing borrowing. Restrictions may establish a limit to the issuance of debt, but frequently the limit is accompanied by a provision that allows the state to borrow without being constrained by the limit if certain procedures (usually voter or legislative approval) are satisfied. Concerns about the functioning of the political system, the possibility of corruption, the selection and financing of worthy infrastructure or other projects with the potential to benefit the community beyond their cost were also considerations in the drafting of the regulations.

States are not, however, the only governments involved in this process. Lower levels of government and other governments, such as public authorities, have become active in debt issuance at the subnational level. Their relative importance has not remained constant, and the creation and increased involvement of these sub-state institutions in borrowing play an important role in determining the effects of constitutional limits to state debt. In section 2.2 we present an overview of the main sets of governments involved in this process, as well as the different types of debt used.

Because restrictions on debt come in several forms and this variation results in very different effective levels of constrains on issuing debt, it is important to understand the structure of debt restrictions. These restrictions are often misinterpreted when observers fail to account for the channels that allow states to issue debt beyond what appears to be the limit. These other options are not "tricks" to avoid the restriction, but actual

provisions in the constitutions designed to allow debt issue. Ignoring them results in a distorted view of debt restrictions. In fact, after considering their nature from the perspective of their form, rather than simply the existence of any kind of provision dealing with debt, it becomes obvious that the substance of the restrictions concerns procedures, rather than limits. We discuss these differences and present a system to properly classify state constitutional debt restrictions in section 2.1. In addition, careful classification and consideration of the restrictions is useful in disentangling their relationships with other institutions. By analyzing in detail debt provisions, we can observe how their close link to balanced budget rules has led to confusion between the two.

Unlike the federal government, states deal with financial matters, such as taxing, spending, and borrowing in their constitutions. In particular, almost every state has a constitutional provision on balanced budgets[9] and restrictions on debt issue. Many state constitutions include a whole article on "state finance," often spelling out clear limitations on the amount and type of debt that can be issued, how debt creation must be authorized by the various levels of governments, and specific procedures and timelines to do so. These rules are accompanied by statutory provisions, court interpretations and guidelines, and policies at state and local levels, but their explicit inclusion in the constitutions reflects the importance legislators and the public place on these provisions.

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[9] According to the Advisory Commission of Intergovernmental Relations, the only exception is Vermont. However, as presented in table B.7, once the provisions that refer to debt or that do not deal directly with budget processes are classified appropriately, the picture changes considerably. Still, this does not mean that states do not aim to balance their budgets: the "sense" that the budget needs to be balanced may have already surpassed the written provision and be part of the policy making process on its own. For more on balanced budget requirements see Briffault (1996) or Rodriguez-Tejedo (2006).

Their constitutional nature may respond to more than their perceived importance: constitutional rules result from the realization that systematic features of the incentive structure or decision making of the legislature are likely to bring about problems. If voters were convinced that a problem was caused by the decision taken by an elected official, they would likely resort to the replacement of the official in the next election. In contrast, if voters feel that the problem stems from the structure of the government process, then the solution is to enact a constitutional provision that changes the procedures of government decision making. Constitutional provisions are a consequence of the perception of a systematic problem in government process that cannot be properly addressed through regular unrestricted legislative action. As this chapter shows, the substantive part of most debt restrictions is *not* to limit the amount of debt that can be issued but to stipulate the procedures that state and local governments must follow to authorize borrowing.

Constitutions are difficult, but not impossible, to modify. Provisions regarding debt limits have been altered in response to changing circumstances or in pursuit of a better rule. Often, however, researchers take debt provisions as immutable and consider only their present state when analyzing them or their effects on other economic variables. This chapter examines how state debt restrictions change over time and places those changes in the context of other fiscal institutions adopted by states.

The main data sources are the constitutions themselves. From 1776 to the present, constitutions have been amended and some have been superseded by new ones (for example, the state of Louisiana has had twelve active constitutions). An appendix containing the actual wording of constitutional limitations on state and local debt and

their evolution is available from the author by request. The appendix provides a comprehensive recount of these provisions, including amendments, based on information provided by the NBER/MD Constitution Project website.[10] From this information we have constructed a dataset that spans the whole constitutional history of debt restrictions at the state level. Unlike previous data, the dataset considers not only the original and/or present restrictions on debt; it provides us with a panel that includes the date and nature of any modifications to the restrictions since their creation. In addition, it includes information that had previously been overlooked because only provisions that directly included the terms "debt" or "debt limit" were included. To take into account provisions that affect the issuance of debt, even if they are not contained in the article that directly imposes a limit, we reviewed the sections of the constitutions that dealt with state finances. This dataset, then, addresses two limitations of the previous information. First, it covers the complete constitutional history of debt restrictions over time, providing a record of the evolving rules over time and across states, rather than a series of congealed pictures corresponding only to the rules originally written in the constitutions or a snapshot of regulations at a point in time. Second, it expands coverage to the full set of the restrictions that affect debt issuance.

Originally, limits on the actual amount of casual debt were the dominant form of restriction. These limitations were usually accompanied by procedural requirements to obtain voter approval to issue debt beyond the casual limit amount. *Casual debt* is debt used to cover deficiencies or shortages in revenue (as opposed to debt for the financing of a project over a long period of time). To be clear, we define debt *limits* as restrictions on the absolute dollar amount of debt allowed or a dollar amount determined by a relative

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[10] Online at < http://www.stateconstitutions.umd.edu/ > [Last accessed on June 25th 2007.]

measure (e.g, 2 percent of assessed property value). We define *procedural restrictions* as the stipulations constitutions place on the process used to authorize debt.

Over time states tended to move away from absolute limits into relative ones (determined either by a percentage of income or property values). They also tended to alleviate the effect of limits by periodically raising the limit, or by itemizing debt issues for specific functions, like highways or water systems, that were not subject to the limit on general debt. The raising of limits, and the widening of debt itemization as a way to issue debt beyond the limit, have combined with the procedural restrictions which usually allow any amount of debt to be issued as long as it is authorized by the right procedure. This led states in the nineteen-sixties and seventies to significantly ease debt restrictions and replace them with simpler and more flexible rules like legislative super-majorities without voter approval. The easing of debt restrictions in the nineteen sixties and seventies has not been recognized previously in the literature on balanced budget amendments, tax and expenditure limitations, and rainy day funds. Our investigation of the evolution of debt restrictions provides new insights for the analysis of other institutions created in the last part of the twentieth century.

Debt at subnational levels is not, by any means, insignificant. In fact, the subnational debt market in the United States is the largest in the world.[11] According to figures published by the Census of Governments, states' overall total debt outstanding per capita at the end of the fiscal year grew by almost 30% in real terms between the years 1977 and 2000. Brecher, Richwerger and Van Wagner (2003) show the increasing importance of debt in state finances, noting that the gross amount of outstanding debt tripled from $72 billion in 1975 to $212 billion in 1985, and reached more than double that amount in

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[11] Liu and Wallis (2007)

2000. Table A.1 provides an overview of the evolution of debt by level of government, both in amount and as percentage of the total. Although there is a gap in the table between 1841 and 1870 due to data unavailability, we can see a pattern in the distribution of government debt. In the early years, states issued over six times as much debt as the federal and local governments combined. Later on, states were replaced by local governments, whose share had risen to over half of the overall debt at the turn of the twentieth century and 70% of total government debt in 1913. Another shift occurs when local governments are displaced by the federal government as main issuer of debt, mostly because of war-related debt.

Restrictions on the issuance of debt are put in place because the public or policy makers consider that, if unchecked, too much debt would be issued. However, the question remains as to what kind of impact these institutions have, and whether formal restrictions have real effects.[12] One can consider several potential outcome effects, such as the amount and kinds of debt issued, the issuers involved in the process, the interest rate associated with borrowing and the impact of debt restrictions on the overall set of institutions of states.

The most immediate effect is, of course, on the actual amount of debt issued. There is no consensus on whether these restrictions really curtail debt, and some studies find that the amount of state long-term debt is not significantly affected by the constitutional

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[12] Poterba (1995) reports that studies on the impact of fiscal institutions on budget outcomes find that strict anti-deficit rules induce lower deficits and faster adjustments when these rules are coupled with anti-borrowing regulations. Brecher, Richwerger and Van Wagner (2003), on the other hand, draw attention to the fact that this effect disappears once other economic, political and service demand factors are taken into account –leaving the shift towards different forms of debt as the main consequence of debt limits. Fatás and Mihov (2006) find that limits make fiscal policy more pro-cyclical, but they argue that fiscal constraints have their benefits in terms of reduced budget deficits, sustainable budgetary plans and decreases in discretionary changes in fiscal policy, suggesting that the benefits derived from fiscal rules outweigh their costs.

restrictions that aim at limiting it,[13] while others claim that some debt limits may have the potential to reduce debt.[14]

This kind of effect is complicated further by the fact that there is not a definitive list of debt instruments. Even if the use of a particular type of debt declines because of the introduction of the rules, it is possible that another form may become more widespread. In particular, states with limits on general obligation debt may turn to the issuance of non-guaranteed debt for their financing needs,[15] but some studies suggest that the importance of this effect may be overstated.[16] Table A.2 depicts the evolution of general obligation and revenue debt in the twentieth century. Because of data availability, there is a gap between 1937 and 1966, but we can see a large increase between these dates in the share of revenue bonds relative to that of general obligations bonds. The share of revenue bonds in the total remained at about a third until the early nineteen seventies, when it started increasing again. Graph A.1 depicts the relative shares of revenue bonds and general obligation bonds issued by municipal governments. The figure shows a continuous increase in the share of revenue bondsuntil the mid-nineteen eighties when

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[13] Mitchell (1967), Pogue (1970), McEachern (1978) and Clingermeryer and Wood (1995) find that the amount of state long-term debt is not significantly affected by constitutional restrictions on debt.

[14] Kiewiet and Szalaky (1996) find that states that prohibit debt or require voter approval for its issuance have less guaranteed debt than those who are allowed to issue debt based on legislative approval or that have revenue-based limitations

[15] In fact, Regens and Lauth (1992) report an increase of almost sixty percentage points in the amount of non-guaranteed debt issued by the states in the period 1950-1989, and Hackbart and Leigland (1990) describe how during the 1977-1987 period the importance of full faith and credit debt changed from representing roughly the same amount as non-guaranteed debt to being only a third of the latter in 1987.
Bradford and Constantine (2005), Bunch (1991), Nice (1991), and Von Hagen (1991) find evidence of the substitution between these types of debt and consider that debt restrictions do not reduce the overall amount of debt. However, Bahl and Duncombe (1993) find that constitutional debt limits reduce both general obligation and non-guaranteed debt, although they find evidence suggesting that these two types of debt may be substitutes

[16] Kiewiet and Szalaky (1996) do not find evidence supporting the theory that debt limits encourage the issuance of non-guaranteed debt. At the local level, Farnham (1985) finds that state-imposed limits on local borrowing reduce the amount of both guaranteed and non-guaranteed debt, even if there is some substitution away from full faith and credit debt to non-guaranteed debt

new issues of these bonds started decreasing in response to the enactment of the Tax Reform Act (TRA) of 1986; this Act limited the number and types of bonds exempted from federal taxation. A concern usually associated with this shift is the higher cost of non-guaranteed debt, although some studies have focused on the impact of these limitations on the price of general obligation debt.[17]

Another effect has to do with shifts in issuance among levels of government. We have already discussed the shift away from state debt to its local counterpart, as reported by table A.1, but other shifts have also taken place. Because the restrictions are written to control state and (later on) local debt, many courts have considered debt issued by public authorities (PAUs) and special districts to be outside the scope of these provisions. This is the reason why some authors link the proliferation of PAUs and special districts to debt restrictions,[18] although others suggest alternative explanations.[19] Two main views on the implications of the growing number of PUAs and special districts have been hotly debated. On the one hand, some argue that this proliferation may result in a decreased

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[17] Bayoumi et al (1995) find that (at average levels of debt) the existence of fiscal controls lowers interest costs by 50 basis points, a result similar in spirit to that of Poterba and Rueben (1997), who find that states with stricter limits on the legislature's ability to issue debt have lower bond interest rates.

[18] Bunch (1991) uses cross-sectional data from the eighties to test the impact of constitutional debt limits on the number of public authorities, the scope of their activities, the existence of a public building authority, and the state's reliance on PAUs to issue debt to build infrastructure. She finds that states with a constitutional debt limit that encompasses both general obligation and revenue bonds have a higher number of PAUs and more activities fall under the power of PAUs, although such results do not exist if the limit applies only to general obligation debt. States with debt limits of either kind are also more likely to have a public building authority and to finance their public infrastructure debt through PAUs. Hackbart and Leigland (1990) report an increase in the number of state-level entities that issue revenue-backed debt of almost sixty percentage points, and Leigland (1994) finds support for the use of PAUs as a way around debt limits in his finding that a high amount of PAUs is usually associated with low levels of full faith and credit debt. However, Trautman (1995) remarks that limits on general obligation debt alone don't have a significant impact on the number of public authorities; the combination of limits on state general obligation and state revenue-backed debt increase the number of public authorities by almost a third.

[19] For example, Bourdeaux (2005) finds that it is not only financial concerns that bring about the creation of a PAU; politically competitive environments are also a relevant factor. In addition, when Frant (1997) fails to find a relationship between debt restrictions and either the number of PAUs or their issued debt, he hypothesizes that they may have other features that explain their existence. Kimball (1976) suggested that the increase in the number of PAUs may be partially due to a "laboratory" effect, where states learn from their own successes and those of neighboring states.

transparency and loss of control by citizens and even by the state legislators themselves. An alternative (or complementary) view holds that part of this fragmentation process may correspond in some instances to the improved match between those who pay for the debt and those who enjoy the derived benefits.[20]

Section 2.2 discusses the concepts necessary to provide a clear picture of the nature and evolution of restrictions on debt. We discuss the different types of restrictions, emphasizing the difference between limits to casual deficit, absolute and relative limits to debt, and procedural restrictions. We also call attention to the often overlooked need for considering these restrictions jointly with other provisions that allow states to issue debt beyond the limit, and the ways in which constitutions themselves can be modified. The rest of section 2.2 discusses the issuers of debt as well as the types of debt. Section 2.3 presents an overview of the evolution of these limits since the time of their creation: here we find that debt restrictions have indeed evolved and are not –as often assumed- exogenous. On the contrary, they may have been an important factor in the creation of other institutions towards the end of the twentieth century. Section 2.4 summarizes the findings of the chapter and discusses future venues for research.

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[20] Wallis and Weingast (2006) explore the possibility that some PAUs may be a natural result of the limits to local borrowing paired with an evolution of financing needs and a better alignment of the payers and beneficiaries of projects. A piece of evidence that supports this claim can be found in the evolution of special districts. As Pagano and Perry (2006) point out, the emphasis on these districts has increasingly been on financing infrastructure through the actual users, rather than the entire community itself, and creations such as Downtown Development Districts, and Industrial Development Parks have been formed within cities, going in numbers from about 6000 to around 14000 between 1962 to 1992.

2.2. A framework for understanding debt restrictions

Debt creation and management is a multi-faceted process. The process for authorizing debt issues depends on the level(s) of government involved, the type of debt instruments used, and the fiscal institutions in place.

The elements that can configure a debt restriction are sometimes the source of confusion. At its most basic, a debt restriction can be constituted by limits (absolute or relative, depending on whether the limit is given as an actual amount or as a percentage over some variable, such as property value) or procedural restrictions. We assign the general name of "debt restriction" to refer to any and all of these forms, and reserve the term "debt limit" for those provisions that establish an actual maximum amount of debt that can be issued. "Procedural restrictions," on the other hand, require the state to follow certain procedures to issue debt, but establish no maximum on the total amount of debt, as long as the procedures are followed. The line between these debt limits and procedural restrictions can become blurry, because many debt limits have an associated procedural restriction. In addition, constitutional debt restrictions can be modified by amending the constitution through upward revision of the limit, debt itemization or by the direct modification of the constitutional provision. We refer to these as "modification procedures".

But beyond the actual configuration of the provision, debt restrictions operate on a variety of levels and they are often misunderstood when a limit on one dimension is accompanied by a method for modifying the limit on another dimension. Diagram 2.1 and table 2.1 present some of the dimensions that need to be taken into account. We discuss them in more detail in sections 2.2.1, 2.2.2, and 2.2.3.

Diagram 2.1. Dimensionality of debt restrictions


```
                                              ┌ State
                                     ┌ Level ─┤ Local                ┌ Special districts
                          ┌          │        └ Other ───────────────┤
           Applicability ─┤          │                               └ Public authorities
                          │          │                               ┌ General obligation
                          │          └ Types of debt ────────────────┤
                          │                                           └ Limited obligation
                          └ Nature of the debt restrictions
                               (see table 2.1)
```
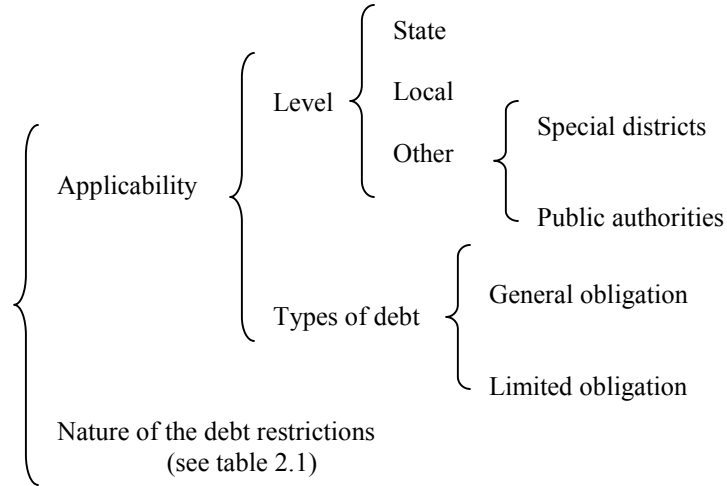
Table 2.1. Nature of debt restriction

Limits		Procedural restrictions
Scope	*Modification procedures*	*Methods*
Absolute	Upward revisions	Voter approval
Casual debt	Debt items	Legislative majority
Long term debt		
Relative (% of)		
Some measure of income		
Property value		

Reading diagram 2.1 from right to left, debt can be issued by state or local governments, and within local governments by county, municipal, or other governments. Special districts and public authorities are often created specifically to use debt finance to provide a public service or interjurisdictional public goods. Special districts and public authorities can be created by state or local governments.

The type of debt issued also varies. General obligation debt obligates the issuing government to service and repay debt from all of the revenue sources available. Revenue bonds are debts payable from specific revenue sources, and only from those sources. General obligation bonds and revenue bonds are not exclusive categories; some bonds mix features of both general obligation and revenue bonds.

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Both the level of government and the type of debt that can be issued are regulated by provisions in state constitutions, and we briefly review them later in this section. However, the aspect that is most often misunderstood is the nature of the debt restrictions themselves. We turn now to their description and present a classification that tries to take into account the different kinds of restrictions and provides us with a framework to explain why debt limits are seemingly exceeded so frequently among states.

2.2.1. Debt limits and procedural restrictions

In general, these provisions are called debt limitations, but their structure is more complicated. Debt *limits* establish an actual limit on the amount of debt that can be issued. The limit can be an *absolute* limit stating a specific dollar amount, imposing a cap on total debt[21], fixing the maximum level of annual debt service payments[22] or even banning debt altogether[23]. Limits based on absolute maxima of total outstanding debt or on the amount of debt service are sometimes very small in real terms, and states that have these kinds of limits and have not updated them may end up facing a de facto near prohibition of debt. Alternatively, we also observe *relative* limits that limit debt issues to a percentage of revenues or assessed property value.[24]

Procedural restrictions, in contrast, do not limit the amount of debt that can be issued, but require the government to follow certain procedures for authorizing debt issues, such

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[21] Arizona and Nebraska are examples of states that have this kind of "maximum dollar amount" limit.
[22] Although Louisiana's ability to issue large amounts of debt is dependent on referenda, its constitution allows the legislature to contract debt without voter approval as long as total debt service is kept under 6% of the total estimated general fund and dedicated funds
[23] Such as Arkansas and West Virginia.
[24] Georgia and Hawaii, for example, have limits related to the amount of revenue, while Nevada and Utah provide examples of states where the maximum admissible borrowing is constrained by the value of taxable property.

as requiring the approval of a majority of voters[25] or the inclusion of super-majority provisions for debt approval in state or local legislatures.[26] An example of such a restriction on debt can be found in appendix A.2.2.

Most constitutional debt provisions really have two parts. The first part is a limit that creates a maximum allowable amount of debt that the legislature can create freely; and the second part allows the state to issue debt beyond the amount established by the limit if certain conditions are met. The two parts usually exist in the same article.

For example, the text of the first complete debt restriction was in Article 4, section 6 of New Jersey's constitution of 1844; it states that:

> "The legislature shall not, in any manner, create any debt or debts, liability or liabilities, of the State which shall, singly or in the aggregate with any previous debts or liabilities, at any time exceed one hundred thousand dollars, except for purposes of war, or to repel invasion, or to suppress insurrection, unless the same shall be authorized by a law for some single object or work, to be distinctly specified therein; which law shall provide the ways and means, exclusive of loans, to pay the interest of such debt or liability as it falls due, and also to pay and discharge the principal of such debt or liability within thirty five years from the time of the contracting thereof, and shall be irrepealable until such debt or liability, and the interest thereon, are fully paid and discharged; and no such law shall take effect until it shall, at a general election, have been submitted to the people, and have received the sanction of a majority of all the votes cast for and against it, at such election; and all money to be raised by the authority of such law shall be applied only to the specific object stated therein, and to the payment of the debt thereby created. This section shall not be construed to refer to any money, that has been, or may be, deposited with this State by the government of the United States."

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[25] Such as Florida and Rhode Island.
[26] This kind of provision exists, for example, in Pennsylvania and Massachusetts.

The opening clause states the limit: "The legislature shall not, in any manner, create any debt or debts, liability or liabilities, of the State which shall, singly or in the aggregate with any previous debts or liabilities, at any time exceed one hundred thousand dollars," and then follows it with the procedural restriction "unless the same shall be authorized by a law for some single object or work…." The language of the New Jersey constitution thus creates an absolute limit on debt of one hundred thousand dollars. However, the provision continues to allow debt beyond this limit if voters give their consent to a law that allows debt for a single, distinctive object, and provides ways and means for the repayment of principal and interest.

Limits and procedural restrictions are the main types of debt provisions, but both types are affected by other modifying provisions. A key element has to do with the purpose and the time period of the debt issued. Because some debt is issued to cover deficiencies or shortages in revenue, rather than to finance of a project over a long period of time, many states allow the legislature to issue "casual debt" up to a fixed amount. Casual debt is typically authorized to meet "temporary deficiencies in revenue" (or similar language, an example of such a restriction can be found in appendix A.2.3). If a limit on debt is coupled with a procedural restriction that allows an unlimited amount of debt to be issued if it is financed by higher taxes approved by the voters, then the debt limit is only binding in the sense that the legislature must go to the voters to borrow.

Graph 2.1 depicts the time patterns in the adoption of the different types of debt limits. The height of the bars represents the number of constitutional provisions dealing with debt limits (exclusively) that take place in each decade. It is important to note that this graph does not include any procedural restrictions associated with the limits; rather it

is meant to provide an overview of debt limits, both to provide an image of the patterns and to illustrate what constitutional restrictions on state debt would look like to an observer who reads only the absolute limits without considering procedural restrictions and modification provisions.

Graph 2.1 - Introduction of debt limits, by type

X axes: decade (starting year)
Y axis: incidence (number)

	1830	1840	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970
☐ Absolute amount	0	6	3	2	0	0	0	1	3	0	0	0	2	0	0
■ Casual deficit	1	4	6	0	3	5	1	1	2	1	0	0	1	1	1
☐ no debt	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
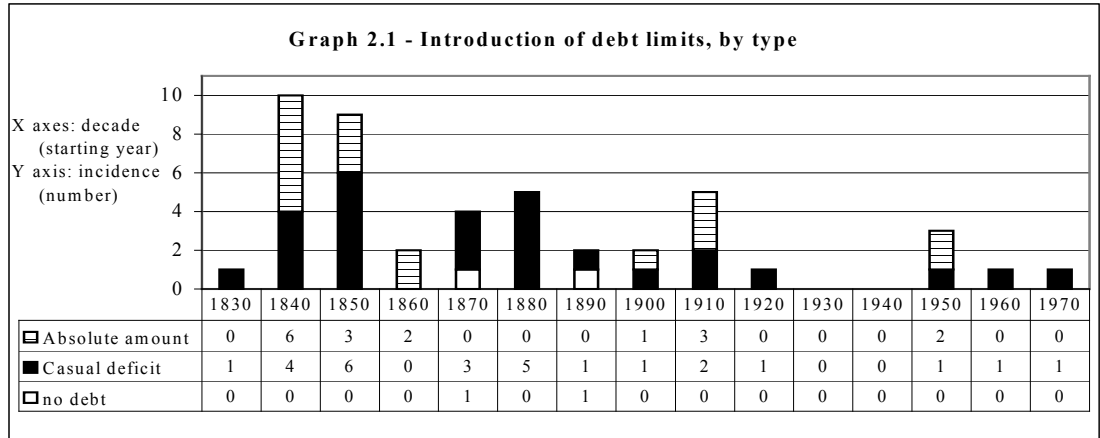
Other types of debt are also allowed as exceptions to restrictions. Most states allow debts to be issued to "repel invasion, suppress insurrections, etc." Debt issued for this purpose is not subject to limits. In a similar way, states may authorize debt for specific purposes, like highways, education, or public buildings. We call these "debt items"; such debt items may be subject to a limit or they may not be.

Finally, all of the limits and procedures are subject to modification through the process of constitutional amendment. Absolute and relative debt limits can be raised, new debt items can be authorized, and new procedures put in place. As we discuss later in the chapter, almost all of the states that started with simple absolute limits on debt have modified their constitutions in one way or another to make their limits more flexible.

Of the 24 instances[27] in which a state constitution includes an absolute limit (not tied to casual deficits, but rather for overall debt), in only three cases is there no constitutional record of some type of modification, either explicit,[28] and/or implicit.[29] It is important to note that sometimes these modifying provisions are present in the same constitution (for example, in all six cases where the limit was revised upwards other types of procedural restrictions existed). A similar result can be observed when examining the relative limits to the issuance of debt.[30] In short, the real constraint to debt appears to be the procedural restrictions, rather than the actual debt limit.

Graphs 2.2 and 2.3 present the distribution of modification provisions for the absolute (applying to long term debt, rather than debt for casual deficits) and relative limits that have been included in the states' constitutions during their whole period of existence[31].

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[27] These may include the same state with two separate constitutional provisions at different points in time. Also, because of data restrictions, no information is available for Vermont, Nebraska, Missouri, Georgia and Tennessee.

[28] Six states allow modification if approved by voters, three if approved by the legislature, two more accept either method, and in three instances both approvals are required.

[29] These implicit modification procedures are the inclusion in the constitution of itemized debt (which happens in nine of the twenty-four cases) or the upward revision of the limit (which we find in five cases).

[30] A table with a summary of the limits and the modification procedures can be found in the appendix (table B.3).

[31] It is worth noting that relative restrictions are often created with reference to concepts such as taxable property, whose definition may be in control of the legislature. This "built-in" flexibility may be the reason for the slightly higher number of "no modification provisions" among relative restrictions.

Graph 2.2:
Absolute debt limits:
Provisions for modification

9%
23%
17%
11%
31%
9%

☐ Voter approval
☐ Legislative supermajority
▥ Voter and legislative approval
▤ Debt itemization
▨ Upward adjustment
■ None

Graph 2.3:
Relative debt limits:
Provisions for modification

18%
23%
18%
12%
23%
6%

☐ Voter approval
☐ Legislative supermajority
▥ Voter or legislative approval
▤ Debt itemization
▨ Upward adjustment
■ None

The opportunity to modify debt restrictions by constitutional amendment may or may not be more difficult than actually authorizing debt through an existing procedural restriction. For example, suppose a constitutional amendment requires a majority vote of both houses of the legislature and approval by 50% of the voters. Suppose, moreover, that a new bond issue requires a majority vote of both houses of the legislature, the imposition of a higher tax rate to fund the bonds, and approval of 50% of the voters. Then it isn't clear whether it is politically more costly to amend the constitution to approve an increase in the debt limit for a specific function or to get voters to approve a bond issue that raises taxes.

How difficult it is for a state government to issue debt depends on more than the procedures and limits provided in the constitution; it also depends on the difficulty of amending the constitution itself. As a result, debts limits are more complicated than they seem at a first glance.

2.2.2. Issuers of debt

In a decentralized system, the structure of government itself becomes an important part of debt issue. Regulations at one level may shift the issuance of debt to others, and mandates or transfers can affect the necessity to finance projects through future revenue and/or the capacity of the government to sustain debt payments. In addition, the various levels of government serve different purposes. In some instances, it may be easier to reach an agreement on debt issuance at the lower level, where citizens' preferences are likely to be more homogeneous. Alternatively, some projects have an impact over a large area, and a higher level of government is better fitted to provide for its financing.

Considering a rule that establishes limits to debt issuance at the state level without taking into consideration the activity of other levels can be misleading, since often they are deeply interrelated. An example can be found in Oregon's Irrigation and Drainage District, created by a constitutional amendment in 1919. Although article 11, section 7, of Oregon's constitution establishes that the state's liabilities are not to exceed 50,000 dollars –allowing for an additional issuance of debt equivalent to a certain percentage of the value of the property in the state- the amendment allows the state to pay the interest on debt issued by the district issuing general obligation bonds under the name of "district interest bonds."

The number and identity of government units that issue debt has not remained constant over time, and neither has the distribution of debt among the different levels (see table A.1). The type of activities that each government performs and how they are related to citizens and other levels of government has also undergone a continuous process of change. In fact, not even the types of governments with the legal authority to

borrow has remained constant. Their geographical distribution is not straightforward either: some of these governments exist and act within political boundaries, but others cross or supersede them, encompassing several states or restricting their field of action to a particular piece of infrastructure, such as a bridge or a toll-road. However, they differ more than just in size: their forms of government and the need for financing vary, and so do their legal ability and economic capacity to issue debt vary (and hence the amount and price at which they are able to borrow).

Besides the federal government, which we do not consider here, we distinguish between states, local governments, special districts and public authorities.[32]

2.2.2.1. States

States are intrinsically different from the other governments because states are sovereign entities. For debt purposes, sovereignty translates into the ability to create debt and to disallow being sued by individuals if the state defaults on its debts, since states are immune to suit without their consent.[33] They also tend to be more complicated in their organization since, as Mikowski (1993) points out, states have legislative, executive and judicial branches, all involved in the creation and administration of debt.

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[32] This classification is not universal. The Census, for example, considers five types of local governments: counties, municipal governments, townships, special districts and school districts. School districts are out of the scope of this study; and counties, townships and municipal governments –which all share the feature of providing general government services- are lumped together under the general name of "local government" or "municipal government"

[33] Amendment XI of the United States constitution states that *"The judicial power of the United States shall not be construed to extend to any suit in law or equity, commenced or prosecuted against one of the United States by citizens of another state, or by citizens or subjects of any foreign state."* There is some argument over whether states have waived their immunity regarding bankruptcy laws (in *Central Virginia Community College v. Katz (2006)* the Supreme Court rejected the claim in favor of the state's sovereignty immunity). This topic is, however, out of the scope of this study and is not pursued further here.

On the other hand, states have wider tax bases and more diverse sources of revenue, which make them less vulnerable to specific shocks, and hence more attractive to risk-averse investors. In addition, they usually have at their disposal a wider set of technical and human means to design and manage their debt policies.

States are also unique in their relationships with the other levels of government: Through their relations with the lower and higher tiers, they have obligations and receive revenues. They can receive mandates that result in required expenses from the federal government, and may also impose similar demands on local governments.

2.2.2.2. Local governments

Commonly understood to include counties, cities, towns, townships and villages, this group includes a wide variety of governments, including very disparate issuers of debt, such as cities, school districts, American Indian tribes, territories of the United States, etc. Special districts and public authorities are sometimes also considered a type of local government, even though they can cover several states or cross state lines, but we consider them separately here because of their special nature regarding debt issuance.

Not every state has the same local government organization, and within states local governments vary enormously in size, population, attributes, and powers.[34] Here we refer to local governments or municipalities interchangeably.

For the purposes of debt issuance, municipalities often find their overall capacity to issue debt constrained by rules at the state level, which impose maxima or demand

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[34] Local governments are, in a way, creatures of the state and often the rules for their creation and management are embedded in state constitutions. According to the Tenth Amendment of the constitution, local governments are a state matter rather than a federal one. However, local governments typically have considerable discretion in the organization of their activities, with home rule being a staple of their independence.

referenda. However, this is not done in a uniform fashion: some states limit debt at the local level in very specific ways, while others do so in general terms. The reality of issuance of debt at the local level is complicated and goes beyond the set of borrowing constraints, including a wide range of purposes and instruments.

2.2.2.3. Special districts and public authorities

Because constitutional restrictions on debt issuance are usually restricted to the state (and local) governments, debt restrictions may or may not apply to new governments that state and local governments create. It is because of this that the proliferation of special districts and public authorities is often attributed to the creation of state and local debt restrictions.

Special districts have a long history in the United States, with the first example appearing in Rhode Island in 1797.[35] The distinctions between special districts and other governments are often blurry, and they are frequently confused with school districts (which are, in a way, special districts, but are usually treated as a separate category because of their homogeneous nature) and public authorities. There is, indeed, no clear definition of what constitutes a special district. They serve a wide range of purposes, and can vary significantly in size. Florida, for example, lists a total of 1529 special districts, divided across sixty-two functions,[36] while the U.S. Census reports only 14 for Alaska and 45 for Louisiana.[37]

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[35] Haas (1996, page 441)
[36] Information from Special District Information Program, part of the Florida Department of Community Affairs, online at < http://www.floridaspecialdistricts.org/ > [Last accessed May 21st 2007]
[37] The comparable number for California is 2830. The difference between the two numbers in California could be due both to the difference in the reporting year and the fact that no clear definition exists for special districts.

As we will see, there is no exact definition of what constitutes a special district, and it is equally difficult to categorize these units following a uniform criterion, since several classifications are possible and none identifies uniquely all types. Table A.3 presents some of the possible classifications, based on their relationships to the government that created them, their geographical area of influence, their purpose, and their mode of financing.

Different authors have concentrated on various defining characteristics, having to do with the act of creation of special districts, their purpose, and their organization –both in terms of their operation and management. Special districts are very much like local governments, except that where municipalities provide general public services, special districts are narrower in their competences, making the purpose of the entity its differentiating feature. Based on the definition provided by the Florida Department of Community Affairs, special districts are characterized by operating within a specific geographic area, having a governing board with the ability to make policy decisions, and being created by a legal act.

When it comes to telling special districts and public authorities apart, the defining characteristics have more to do with organization than with purpose. According to the Handbook of Local Government Administration, the key characteristic that sets special districts apart from public authorities is that the latter have no elected governing board, and often lack taxing power. Leigland (1993) adds to the list of differences the fact that special districts are usually smaller and do not use money markets as often.

The US Census states that special districts "are established to provide only one or a limited number of designated functions and having sufficient administrative and fiscal

autonomy to qualify as independent governments."[38] According to the 2002 Census, total expenditure by special districts (as defined by the Bureau) totaled over one hundred twenty-two billion dollars, with the largest portion being devoted to utility expenditure (almost fifty billion dollars)[39]. However, it is possible that this number misrepresents the actual size of the activity of special districts in the states, since the Census classifies as subordinate governments those that identify themselves as districts (Leigland 1993, page 393).

Under any classification, it remains a fact that while the number of state, county and sub-county governments has stayed roughly the same in the second half of the twentieth century, the number of special districts has risen. Graph 2.4 presents the evolution of these types of governments over the last half of the century according to the classification of the US Census.

Graph 2.4: Number of Governments

Source: US Census

Legend: Counties, Municipal governments, Towns, Special districts, School districts; years 1952, 1962, 1972, 1982, 1992, 1997, 2002; vertical axis 0 to 80000.

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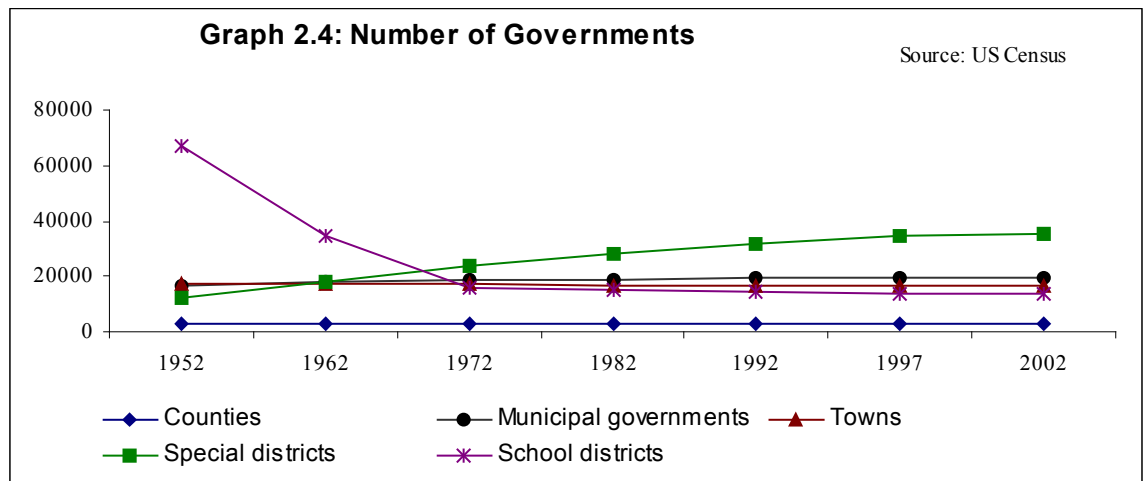
[38] US Census, Chapter 3 (Framework of Census Statistics on Governments) of the "Federal, State, and Local Governments Government Finance and Employment Classification Manual" available online at < http://www.census.gov/govs/www/class_ch3.html > [Last accessed May 12th 2007]
[39] Census' information on expenditure of Special District Governments by Function, Character and Object, 2001-02.

The distinction between special districts and public authorities (PAUs) is not clear, and it is not even commonly agreed that they should indeed be treated differently. Leigland (1994) provides an overview of the different views taken on the issue. In general, corporate status is considered the defining major characteristic of public authorities. It is sometimes added that PAUs have appointed boards, possess the ability to raise money (though not through taxation),[40] and ought to be self-sufficient.[41] The reader is referred to Leigland (1993) for an overview of the different types of PAUs, their purposes and roles in financing public projects, their relationships with the various levels of government, and their methods of financing.

By virtue of their corporate status, PAUs "separate" themselves from the state or local government that creates them and can raise revenues or issue debt independently. This act has several consequences, among the most notable the disjointing of the government that created the PAU from its liabilities, the increased flexibility in the conduct of businesses that comes from disassociating the PAU's operation from the procedures of a state agency, and its exclusion from certain limitations imposed by law.

However, the bonds issued by these authorities are often tax-exempt, sharing the benefit of those bonds issued directly by municipalities. This has not always been uncontested. As early as 1941, the Treasury Department tried to collect taxes on interest from debt issued by the New York Port Authority, claiming that the authority was not a political subdivision and hence its debt was taxable, an argument later rejected by the Tax Court (Pryde, 1993).

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[40] This is not a defining characteristic, since often public authorities are conferred taxing power.
[41] Again, this is not a clearly defining characteristic, since public authorities display various degrees of dependence from their respective creating government.

2.2.3. Types of debt

States and municipalities borrow both for the short and the long term. Since many revenues accrue at specific times, and not in a continuous fashion, governments borrow to manage their cash flows. This type of borrowing, such as that embodied in notes for tax anticipation, revenue anticipation, bond anticipation or tax and revenue anticipation, is not however meant to finance long-ranging spending or to supply financing for large projects, such as infrastructure. Limits to debt in its many forms are meant to regulate the issuance of debt for the longer run, and we do not consider instruments for short-term borrowing any further.

Borrowing can be classified in light of who issues debt: states are sovereign to create debt, limited primarily only by their own regulations and policies. At lower levels, governments and agencies may be constrained by the rules imposed at the state level but, as discussed previously, these constrainys are not uniform. Municipal bonds (sometimes known as "munis") are issued by governments at any sub-state level. Not only cities, but also the debt issued by special districts and public authorities is usually considered to fall in this category, which can include both general obligation and revenue bonds and may or may not be tax exempt at the federal and state level. Often, the funds raised with these bonds are restricted by law to be used for a certain purpose (frequently a capital project), but sometimes other uses are allowed.

An alternative classification looks at bonds from the vintage point of the security level they provide, based on the sources committed to the service of the debt and the extent of the associated guarantee. Debt limits apply often to some –but not all- of these

bonds, and the difference is often created by the type of security they carry, making it an important characteristic for our purposes.

General obligation bonds (GOs) carry the full faith, credit and taxing power of the issuer, who commits its available resources for repayment of principal and interest. The projects financed with GO debt are usually meant to benefit the community as a whole, and many do not generate revenue. Often, the issuance of these bonds is accompanied by the levying of a tax to service the debt (at the state level these taxes are typically sales and income taxes, while the local governments use property taxes); in many instances voter approval is required before issuance, and frequently the debt has a maximum maturity period established by law, although none of these are consistently present across all GOs.[42]

Revenue bonds, also known as limited obligation bonds, are supported from specified revenue sources, usually –although not exclusively- those deriving from a particular project with which the bond is associated. They may also be financed from grants, excises or other non-ad-valorem taxes, etc. Henceforth, the general credit of the government who issues the bond cannot be called upon to repay the principal and/or interest. Unlike GO bonds, revenue bonds rarely require voter approval prior to issuance. While other types of debt issuance tend to be generic in the ways in which they are presented and paid, revenue bonds are usually very specific in the way they are financed. Complicated contracts are sometimes built around them, in part because of the greater

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[42] Two subcategories of general obligation bonds exist: *Unlimited tax GOs* are not subject to any (usually constitutional) tax millage limit, while *limited tax GOs* can only pledge the taxing authority up to a limit. Sometimes, a separation is made between GOs and full faith and credit bonds, although the two are very similar and in many instances are not considered as separate categories. Full faith and credit bonds are backed by all funds that are legally available to the issuing authority and are paid out of the general fund, although they are not necessarily backed by ad-valorem taxes. In our analysis, we use the terminology general obligation bonds and full faith and credit bonds interchangeably.

risk to lenders since they are tied to a particular stream of revenue. If that revenue proves insufficient to service the debt, the debt holder cannot make a claim against all the assets of the state.[43]

The risk associated with a particular revenue bond depends on the committed revenue source (net of costs, if the revenue is available after operating costs are paid); some may be very robust, such as those tied to essential services, while others can be riskier. In general terms, issuers of revenue bonds usually have to pay higher interest costs than if the debt were financed through general obligations. According to Ambler et al (1993) only 0.6% of revenue bonds received Aaa or Aa1 ratings (while 2.2% received ratings below Baa) in Moody's Investor Services ratings,[44] compared to the 3% of Aaa and Aa1 (and 0.8% below Baa) of general obligation bonds.[45]

On occasion, the distinction between GO bonds and revenue bonds is so fine as to be invisible. Individual bond issues combine elements of general obligation and revenue bonds along a continuum. Some bonds do not pledge the full faith and credit of the state, but go beyond using a stream of revenue as their guarantee.[46]

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[43] Several types of revenue bonds exist, depending on the guarantee provided or their purpose. In the first group we find, for example, *limited tax bonds* and *special tax bonds* -secured by the pledge of a specific tax or category of taxes; and *special assessment bonds*, which are payable from revenues derived from a special assessment.

[44] Moody's rating system assigns grades Aaa to bonds considered to carry minimal risk; followed by those assigned Aa1, Aa2 and Aa3. A ratings (either 1, 2 or 3) are consider to be of upper-medium quality; and together with the previous two and the Baa (1, 2, and 3) complete the group known as "investment grade". The speculative grade is comprised of the ratings Ba, B and Caa (in their three scales, corresponding to substantial, high and very high credit risk respectively), and Ca and C –which carry the presumption of potential default.

[45] However, these differences may in fact be rather small, since about the same proportion of both types of bonds (approximately 9%) were reported to have a rating of Aa. The authors point out that, on occasion, revenue bonds actually fare better than full faith and credit bonds, and point to their insulation from political pressures, and the fact that the committed revenue streams may be more readily available than taxes in the short term due to stronger payment enforcement.

[46] One such example can be found in *moral obligation bonds*, which are usually used to finance a revenue-producing facility. The principal source of payment for the bonds is the revenue derived from the exploitation of the facility, but the bonds are secured by an agreement that states that if the need arises, the proposed budget will include a recommendation to cover the shortfall. However, the legislature is under no

In terms of the purpose they serve, bonds can be issued for a variety of ends, and a complete inventory is beyond the scope of this study.[47] There is not a simple correspondence between the purpose and the type of associated guarantee, as debt for the same purpose may be backed by the full faith and credit of the government, or by a committed stream of revenues (for example, debt for affordable housing is issued under both types of guarantees).

This is not an exhaustive list of the types of bonds used by governments, special districts and public authorities. It is also important to note that not all types of bonds were available at any given point in time. As needs and restrictions evolved, so did the types of debt used. A very simplified examination of their evolution over time suggests a reduction in the importance of full faith and credit in the overall composition of debt (see table A.2 and graph A.1), and an expansion in the types of sources used to fund revenue bonds. Combined with the increased importance of non-traditional issuers of debt, the matter of debt issuance has become a complicated one indeed.

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obligation to honor the recommendation and so the appropriation may not be enacted. *Double-barreled bonds* are guaranteed by the revenues generated from a certain project, but if these are not enough the debt is serviced by the general tax revenue of the issuing government. Because tax revenue can be called upon for payment of these bonds, they are considered GO bonds.

[47] Other types of bonds are closely tied to private activity or involve the direct engagement of the government with the private sector. Some examples of these are *lease rental bonds*, *industrial development bonds* (often known as *industrial revenue bonds*) and *mortgage revenue bonds*. Lease rental bonds are issued to build a facility that is leased to the bond issuer, and the amount of the lease used to service the debt. Industrial development bonds (IDBs) are public bonds used to help private enterprises to establish or update their equipment. Originally fully tax exempt, they were heavily used in the mid-twentieth century, although public voices claimed that the benefit of foregone taxation fell into private hands. Pryde (1993) goes over the numerous attempts at curtailing these and other types of tax-exempt municipal bonds. As she explains, the Revenue and Expenditure Control Act 1968 restricted issuance of public debt for private purposes, making municipal bonds taxable if more than a quarter of the funds were to be used for private benefit (this provision would be substituted by state caps in the Tax Reform Act of 1986). Debt for some purposes was exempt from this regulation, but for others tax-exempt debt was banned (and this list would be expanded over the years). Mortgage revenue bonds were used to finance assistance to first-time low-income homebuyers (these were restricted by The Mortgage Subsidy Act of 1980) and multifamily bonds are used to finance rehabilitation of buildings under the condition that certain percentage of the units are reserved for rent by low-income families. The primary sources for debt service of these bonds are the mortgage and rental payments derived from the housing units, but some of the bonds issued for multi-family mortgage funding are ultimately backed by the federal government.

Restrictions on the state officials' capacity to issue debt are frequently presented as fixed, and often the argument is made that they have existed in the original constitutions of the states –unchanged- since the time these states entered the Union, or that restrictions to debt appeared rather suddenly and homogeneously across states to limit directly the amount of debt a state could issue or have outstanding at any given point in time. These ideas suggest a disassociation of debt restrictions from other fiscal institutions that developed later. Balanced budget requirements, tax and expenditure limitations and rainy day funds all acquire a new perspective when put in the context of the different types of debt restrictions. The commonly used definition of balanced budget rules includes provisions that, when investigated more closely, refer to debt rather than balanced budgets themselves. Because these institutions are often considered exogenous and independent of debt restrictions, this relationship is often overlooked.

However, as we can see in graph 2.5.A, the history of constitutional debt provisions does not reflect this static view. The graph presents the introduction of debt restrictions in state constitutions over time. To avoid overcrowding of the graph, every point in the horizontal axis represents a decade (noted in the graph by its starting year). Debt restrictions are grouped in five categories. From left to right, the white bars represent the "absolute" debt limits (independently of whether there is an associated procedure or modification provision), and include cases where the limit is set at zero (no debt is allowed). The second bar, with a checkered pattern, counts the cases in which limits on debt for casual deficits were introduced (without considering associated procedures or modification provisions). The third category (represented with a bar crossed by horizontal

lines) includes the cases in which a "relative" debt limit was established (again, ignoring for the time being, whether there is an associated procedure or modification provision). The fourth bar (crossed by sloping lines) counts provisions that consist of a procedural restriction (whether the procedure requires voter and/or legislative approval). The last group is represented with a black bar, and includes the number of states that started allowing itemized debt in that decade. Less than five bars appear if there were no introductions of a certain type of restriction in the corresponding decade.

Graph 2.5.A- Constitutional debt provision, by type
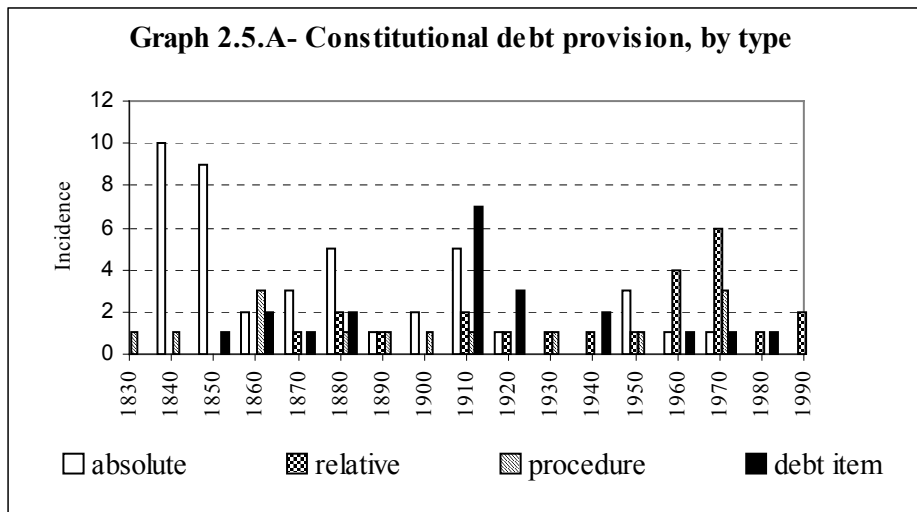
. Even in the reduced form of the graph, we can see that debt provisions were not enacted simultaneously, or even homogeneously, through history. However, graph 2.5.A does not reflect all the subtleties that come into play when we consider that limits may (and most often are) accompanied by procedural restrictions. In graph 2.5.A, a state is classified as introducing a procedure only if it does not have a limit, but many states have limits and procedures. Graph 2.5.B completes the picture presented in graph 2.5.A by providing an overview of the distribution of procedural restrictions and modification

provisions in limits. Every state is counted at most once in every bar, for example, a state that has 3 provisions for absolute limits at different points in time is included as one observation in the corresponding bar. If the state had also a relative limit at some point in time it appears once in the "absolute" bar and the "relative" bar. As we can see from graph 2.5.B, very few states have only limits (either absolute or relative).

Graph 2.5.B. Modification procedures and procedural restrictions qualifying states' debt limits (whole period, by type, not repeats by state)

	Absolute (casual deficit)	Absolute	Relative
□ None	1	2	0
▨ Both	7	4	6
▥ Modification	5	8	5
■ Procedural	3	8	5
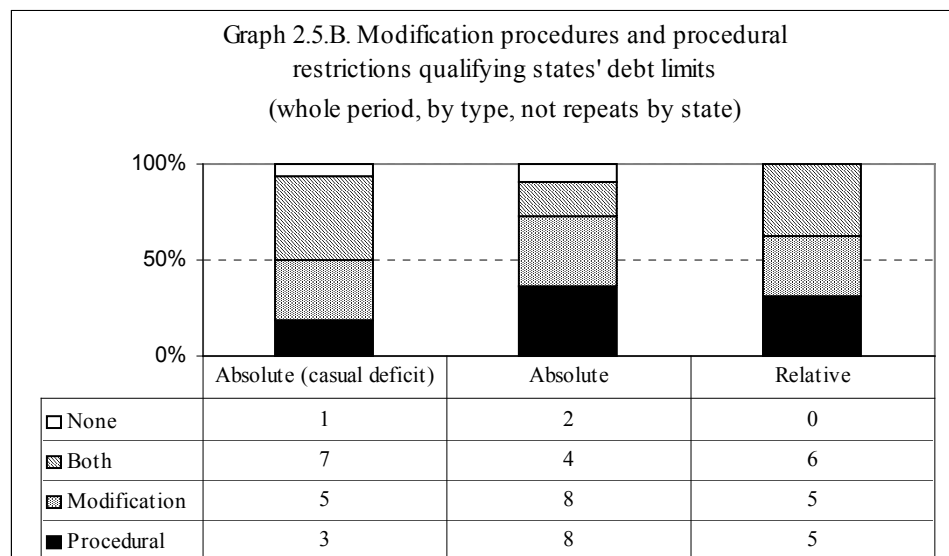
In what follows, we present an evolution of debt restrictions that illustrates several principles. First, today's restrictions on debt are the result of an evolution, rather than a single creation act. The first restrictions on debt were created in response to a specific problem, but were not meant to forbid debt or even to place a fixed maximum on the allowable amount. As we will see, restrictions on debt extended to other states and, as the circumstances changed, took different forms and evolved into the present-day limitations. Secondly, the creation of other fiscal institutions (as well as a change in the composition of the nature of debt and its issuers) is linked to debt limits, both at the state and local

level. The evolution of debt restrictions is a coherent process rather than a series of random changes. This fact does not become obvious through simple description, but requires careful definition of the elements involved and a systematic approach to the investigation of the changes. More than a story, the evolution of debt restrictions is better understood as a series of changes brought about by the pre-existing conditions. For this purpose, separating the history of debt restrictions into a set of distinct stages is useful. By doing so, we can see that changes in debt restrictions happened, in part, as a response to the existing limits, but also as part of an evolution of their own, where problems and opportunities alike surfaced with the new changes.

First regulations on debt at the state level: 1840s to 1879

Debt restrictions first appeared in state constitutions after states defaulted on obligations contracted mainly for investing in financial and transportation infrastructure (Wallis, 2005). Because private investors were unable to underwrite the large costs of constructing railroads and canals that were considered to be fundamental for economic development, state legislatures took positive action to provide such infrastructure. For this purpose, states borrowed directly,[48] and subsidized and guaranteed loans to private enterprises. When these projects failed, states found themselves in a difficult situation, aggravated by the banking crisis of 1839, and many of them defaulted on their obligations.[49] Foreign investment in the United States slowed down, borrowing became

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[48] By 1836, all but eight states had contracted debt for this purpose (Ratchford, 1941; Wallis, 2005, Wallis, Sylla and Grinath, 2004; Sterk and Goldman, 1991).
[49] Maryland, Illinois, Indiana, Michigan, Mississippi, Louisiana, Arkansas, Florida and Pennsylvania defaulted on their bonds, either by repudiating or adjusting their debt.

more difficult in the states that had defaulted, and in some instances excise and property taxes had to be instituted (Kiewiet and Szakaly, 1996).

As a result of this experience, many states considered it necessary to establish rules that would prevent such problems from recurring, while not necessarily forbidding state borrowing.[50] In fact, no constitutional debt restrictions existed before 1839, but twelve states had adopted such rules by the end of the 1850s, and eight more would do so before 1860. Wallis and Weingast (2006) explain this wave of adoptions as a movement away from taxless finance.[51] Under the new provisions, *"voters now had to approve each new debt issue and tax increase prior to new debt issues."*[52] It was precisely states with higher levels of debt that adopted constitutional limits to control borrowing.

With these financial concerns in mind, many states adopted other type of restrictions on their budgets and introduced rules aimed at providing a certain sense of balance in the budget.

The Advisory Commission of Intergovernmental Relations (ACIR), whose data are widely used in empirical analysis, used these constitutional provisions to calculate their measure of stringency of balanced budget requirements. However, these were not balanced budget rules in the precise modern meaning of the term. Because ACIR lumped together what are virtually restrictions on debt and balanced budget requirements, its indexes do not measure correctly the true rules that require balancing of the budget. Also, this misuse provides an incorrect sense of when these instruments were created. Balanced

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[50] The exception is Arkansas, where prohibition on debt is established in 1874 in article 16 section 1 of the constitution.
[51] Very simply put, this mechanism tries to pay for projects without raising taxes by issuing debt to be repaid from the revenue generated by the project. However, if the project does not generate enough revenues to service the debt, states have to pay for the debt.
[52] Wallis and Weingast (2006), pages 25-26.

budget rules are often taken to date from this period, while in reality, "true" balanced budget requirements date from a much later time. Table A.7 provides a sense of the difference between rules that are aimed at balancing the budget and rules that deal with debt, classifying these provisions in two main types: true rule and other rules. "Other" rules includes restrictions that dealt directly with an aspect of the budgetary process, by establishing a procedure that had to be followed or requiring equality between appropriations and expenditures: "er" in the table. Other states regulated items that had consequences for the final status of the budget, but did not directly regulate the budget process, such as the requirement that expenditures be kept within the limits of revenues, or debt restrictions: "d" in the table. In contrast, "true" balanced budget rules actually required the state to implement a real budgetary process. One type of true rule required that appropriations not be greater than expected revenues: "ai" in the table. Modern balanced budget rules specify distinct procedures through which the state writes and considers its budget: "p" in the table. Most of the restrictions adopted during this period correspond to the "other" kind of balanced budget provision. As shown in table A.7, it is only towards the end of this period that we see a few rules aimed directly at providing budgetary balance, but the majority (and all minus one of the "balanced budget" constitutional provisions established before 1968) have to do either with debt or a rule linking expenditures to revenues.

As shown in graph 2.6, the first wave of debt restriction adoptions consists mostly of absolute limits to debt issuance, either to casual deficit or overall debt, combined with procedural restrictions. Of the states that adopted debt provisions at this time, several

included procedural provisions to issue debt beyond their stated limit, and four also started itemizing debt during this period.

Graph 2.6. 1839-79: Distribution of new constitutional provisions on debt
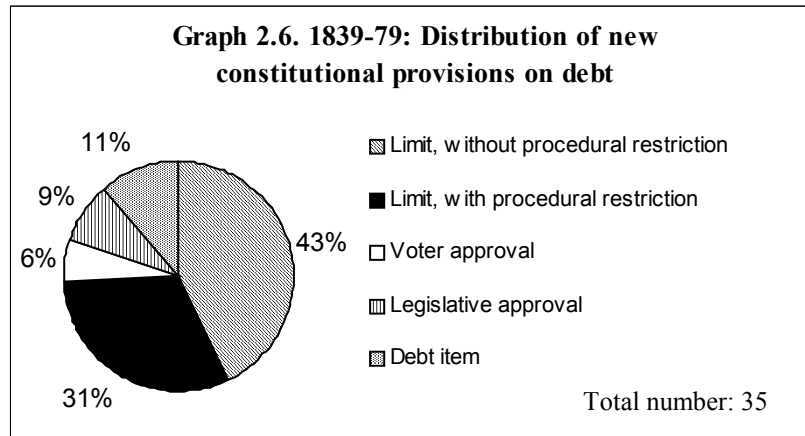
A complete list of state debt limits, with their corresponding procedural restrictions and modification provisions can be found in table A.4. If a state has a limit and a procedural restriction, the procedural restriction is typically part of the same constitutional provision that creates the limit, usually requiring voter approval or some type of legislative supermajority to issue debt beyond the limit they specify.[53] On the other hand, modification procedures are usually to be found in different articles of the constitution, sometimes years after the original limit was put in place. These include the upward revision of the limit and the approval of debt items not subject to the original limit.

The growth in state debt did indeed slow down after the 1840s and, as we can see in table A.1,by 1880 state debt as a share of total public debt had fallen to less than an

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[53] Although not included in table B.4, often these modification procedures include provisions for maturity limits of the debt and the requirement to raise taxes or otherwise provide for the payment of debt. Full classification of these additional "operational" requirements is currently underway.

eighth of its 1838 value. After the Civil War, state debt increased, in part due to costs associated with destroyed infrastructure, damaged capital, and the high human costs that affected the labor force. Recovery was a difficult task, especially among the confederate states. Ratchford (1941) provides a description of the financial difficulties of Southern states at this time, which resulted in large amounts of debt that states had great difficulty repaying. In the 1870s several southern states defaulted on their debts, and in the 1870s and into the 1880s, southern states began imposing debt restrictions.

In this period, the first restrictions on debt are established as a response to a crisis that resulted in defaults in several states. However, their main objective was not to forbid debt, but to avoid what were perceived as systematic problems in the way institutions worked. Many of the new constitutional restrictions on debt called for taxes to be raised for funding debt, and required the voters to approve issuance of new debt. The share of state debt in the total fell sharply; by the end of this period, local government was growing in importance in public finances, a tendency that became stronger in the next period.

1880 to 1929:Modifications of debt restrictions, extension to local governments, debt restrictions extend to the South, and their scope is redefined. Decline of state debt and rise of local debt.

The constraints imposed during the Congressional reconstruction turned out to be insufficient or ignored in practice. When Southern states changed their constitutions in the late 1870s and into the 1880s, many included provisions to constrain debt.[54] Also,

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[54] All the former confederate states (save Arkansas) included provisions for limiting debt in their constitutions (Wallis and Weingast, 2006, pages 32-33)

several states significantly modified the nature of their debt restrictions[55] or altered their rules without changing their nature.[56]

However, states were still in need of financing and, as they became more constrained in their ability to become indebted through full faith and credit debt, they looked for other ways to meet their financing needs. In this period, most of the constitutional activity dealing with debt provisions was to include debt items, or to establish limitations with associated procedures for debt issuance. As we can see in graph 2.7, these two categories together make for more than 70% of all the provisions in this period.

Graph 2.7. 1880-1929: Distribution of new constitutional provisions on debt

18%

42%

29%

4% 7%

☒ Limit, without procedural restriction

■ Limit, with procedural restriction

☐ Voter approval

▥ Legislative approval

▨ Debt item

Total number: 28
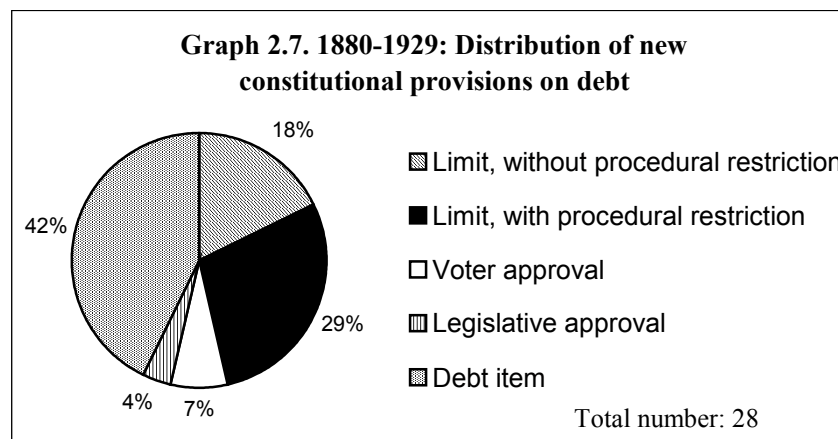
But not only the form of the constitutional provisions on debt was changing. Faced with constraints on debt, legislatures soon started reconsidering and reshaping what

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[55] Louisiana substituted its absolute debt limit (which had a provision that allowed for more debt if the legislature voters approved the debt issuance) for a prohibition on debt, Alabama eliminated the restriction that debt was used to cover casual deficits and increased the overall cap, Virginia adopted legislative supermajority as a procedure to allow debt for casual deficit beyond the established maximum, and North Carolina incorporated the admissibility of debt without voter approval up to a relative limit that could still be surpassed through the voters' consent. Within this period North Dakota substituted its 1889 limit on casual deficit for a relative limit in 1918, while Idaho switched form an relative restriction to an absolute one in 1912, although in both cases the real limit is given by the possibility to issue debt for specific items if a majority of the voters authorizes it; and Utah expanded its 1895 casual deficit limit to allow for debt up to 1.5% of the taxable property of the state

[56] Michigan changed its limit for casual deficit, and Rhode Island did the same for its general absolute limit.

"debt" (as limited in their constitutions) meant, often limiting the application of the restriction to general obligation bonds only. These reviews of the term and its scope were often amended by state courts, which in many instances ruled that bonds payable from resources other than the general fund were not debt in the strict sense, and hence were not subject to the restrictions specified in the constitutions.[57]

States also turned to local and municipal governments to provide the necessary means for the financing of projects. At the same time, increased urbanization and industrialization translated into higher needs for services and infrastructure at the local level, and the combination of these factors led to an increase in sub-state borrowing.[58] If states had been responsible for the provision of most of the public infrastructure previously, local governments became a much more significant actor in public finances in this period. This pattern can be seen very clearly in table A.1, which shows large increases in the share of local debt during this time. It had taken roughly 40 years for the share of local government debt to double, from about 12% in 1838 to roughly 25% in 1880. Within the next 20 years, it would more than double again, with the share of local government in total debt reaching almost 60% in 1902, and rising still further to over 70% in 1913. By this time, the share of local debt is about 10 times its state counterpart, a tremendous change compared to 1838, when the share of state debt was 7 times as large as that of the local governments.

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[57] Since limits applied to debt backed by the full faith and credit of the state, borrowing that was not supported in such a fashion was not to be taken under consideration in calculating the amount of debt subject to limit a state had at any given point in time. Ratchford (1942), however, claimed that in some instances the definition was rather stretched, and payment for these "debentures" or "certificates of indebtness" was to be provided by the revenues of special, separated funds (Ratchford, 1942, page 460), giving rise to the Special Fund Doctrine.

[58] Wallis and Weingast (2006) find that debt limits at state and/or local government reduce the amount of borrowing in their corresponding jurisdiction, and local borrowing seems to be higher where debt limits exist at the state level, although it is not possible to assert the causal relationship unequivocally.

In time, many municipalities made some of the same mistakes that had led to financial difficulties at the state level, and restrictions on local debt were imposed between 1865 and 1880,[59] often tying local debt to the value of taxable property within its jurisdiction and requiring voter approval for debt issuance. As a result, local governments turned to non-general obligation debts not covered by the limits, such as revenue bonds and special assessment debts. An additional response to the constraints imposed by the constitutional rules was the diversification of types of local governments. With the creation of specialized units, a better match between the payers and beneficiaries of a project was possible. This allowed this new type government unit to issue debt when agreement by the relevant voters was required. As we discussed in section 2.2.2.3, these "agencies" are able to separate themselves from the state or local government that creates them and raise revenue or issue debt independently. This has been seen as a way for governments to "get around" the constraints imposed by the state constitutions, especially in the legal literature. While this motive may in part explain the rise of these new issuers of debt, the authors that claim this is the only (or even the main) motive, may be missing part of the picture. The key element to explain the missing part is the difference between debt *limits* and debt *restrictions*. The constitutional provisions that are being "circumvented" did not, for the most part, impose absolute limits on debt, but rather required the appropriate authority generate sufficient electoral support among its constituents to issue debt backed by full faith and credit.

These two trends, the usage of revenue bonds and the new types of governments, can be understood partly as reactions to the restrictions in place, but they also constitute another step in the process of change for the betterment of the system. They both create

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[59] According to Wallis and Weingast (2006), 36 states had adopted some type of local restriction by 1890.

problems (such as loss of transparency) but also new opportunities (for example, the financing of projects that would otherwise not be undertaken). It is in the next period, however, when both the usage of revenue bonds and the expansion of new types of governments fully develop.

The 1930s, 1940s and 1950s: crisis, revenue bonds and involvement of the federal government

With tightening economic conditions, many municipalities started defaulting on their special assessment bonds after 1926. The Great Depression dramatically aggravated the economic problems, and approximately 12% of municipalities with population above 30,000 were in default by 1934 (Lehman (1936)). Ratchford (1936) argued that these defaults *"paralyzed the services of local units and (threw) a staggering load on state and federal government,"*[60] and added that the bad reputation of defaulting governments affected the market for bonds for the rest of municipalities. The associated costs were even higher due to the legal requirement that an agreement by all creditors be reached before any proposed refunding plan could be carried out, which implied that any small investor could effectively block an otherwise agreed-on plan. The Federal Municipal Bankruptcy Act of 1934 tried to facilitate the readjustment by compelling minority bondholders to accept agreements between a majority of the creditors and the debtors under certain conditions, but the Supreme Court declared it unconstitutional[61], considering it undue interference of the federal government in state sovereignty. This

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[60] Ratchford (1936), page 71. The tense of the verb in parenthesis has been altered.
[61] Ashton v. Cameron Company Water Improvement District N.1 (1936). After Congress modified the Act, the Court deemed it constitutional in United States v Bekins (1938).

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problem would be addressed in 1937 with the introduction of a federal law that included provisions to deal with municipal bankruptcy.[62]

Something about these problems merits particular attention. It is the very different way in which they are addressed, compared to the approaches taken before. Rather than being constrained by a new wave of restrictions, subnational governments find that the federal government becomes more involved in state and local finances, financing assistance to poor households, farmers and even actively buying subnational government bonds. States were encouraged to borrow to be able to take advantage of matching grants offered by the national government, and revenue bonds were a convenient way to raise money. Often the need to borrow rapidly made the issue of voter-approved debt (a requirement common in many constitutionally imposed rules for full faith and credit borrowing) impractical, and revenue bonds provided an expedient alternative, accepted for loans both by the Reconstruction Finance Corporation (RFC) and the Public Works Administration (PWA) (Ratchford, 1941).

Local governments kept on issuing debt, increasingly relying on revenue bonds[63] which did not pledge their full faith and credit, and in time special districts and public authorities started issuing debt that was not considered to be under the limit of either state or local limitations. Much has been argued about the suitability of allowing these local entities to borrow. Already Secrist (1914) presented his doubts about the appropriateness of allowing unlimited borrowing power to a corporation only because it was coined as independent, when the purposes of its debt could be easily squared with a political district

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[62] Chapter 9 (Adjustments of Debts of a Municipality) of the United States Code, available online at
< http://uscode.house.gov/download/pls/11C9.txt > [Last accessed on May 5th 2007]
[63] According to Pagano and Perry (2006), page 8, about 5% of the tax-exempt debt in the US was in the form of revenue bonds in the early 1930s. By 1960 near 40% of total local and state debt was non-guaranteed, a percentage that would double to 76% by the mid-nineties.

that would otherwise be issuing debt under the appropriate regulations. He did not, however, argue for the complete prohibition of these entities but rather that borrowing authority *"when it is conferred it should be adequate to the purposes at hand"* (Secrist 1914, page 378).

In 1921 the New York Port Authority was created, and more such authorities followed during the Great Depression (for water, sewer, roads, bridges, housing, etc), encouraged by the favorable treatment granted by the federal government (Pagano and Perry, 2006). Often these public authorities charged for their services and so could issue revenue-backed bonds, or if the charging of fees for services was not possible (such as debt for constructions of jails and office buildings, for example), the public authority could enter into a lease agreement in virtue of which the rent paid by the government to the PAU could be considered a revenue and used to issue revenue-backed bonds.

New types of bonds were also being created during this period, such as the Industrial Development Bonds[64], but this was not a period of high activity in terms of constitutional debt provisions at the state level. Two states modified their debt provisions following the Great Depression: Arkansas (the only state to have defaulted during the Great Depression (Cohen, 1993)) allowed debt issuance with voter approval; and North Carolina required two thirds of the previous year's debt be repaid before issuing additional debt. In addition, New Jersey changed its absolute debt limit for a relative one based on revenues in 1947 –a change that took place in several other states in the following decades. When

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[64] Industrial Development Bonds (IDBs) were first tried out in 1929 in Columbia, Mississippi, where citizens signed promissory notes to guarantee the money necessary to build a factory for Reliance Manufacturing Company, which would in exchange set a plant in the town. The initiative was extended to the whole state under the Balance Agriculture with Industry program in 1936. However, these types of bonds were not to become popular until mid-century, and their rapid increase in popularity would bring about restrictions by the end of the 1960s.

Alaska and Hawaii entered the Union in 1959, both included debt limits in their constitutions. Furthermore, two new states (North Dakota and Ohio) included debt itemization in their constitutions.

As we can see in table A.1, the level of state indebtness leveled off during World War II, due to the concentration of resources on the war effort, but it started growing again after war's end due in part to spending on highways and more state involvement in the financing of education. By the middle of the century, state debt had kept growing, more municipal revenue bonds were issued, and new special districts and public authorities were being created (Pagano and Perry, 2006).

Even though there was only modest constitutional activity regarding debt restrictions in this period, there took place a consolidation of two important trends that will have an impact in the decisions that will be taken in the next stage. First, the use of revenue bonds increased significantly: although table A.2 has a gap in information during the nineteen forties and fifties, but we can see that between 1937 and 1966 the proportion of revenue bonds of total debt expanded sevenfold. Related to this expansion in the usage of revenue bonds, we can observe a sharp increase in the number of special districts and public authorities[65].

Debt issued by special districts and public authorities, or in the form of revenue bonds, is often outside the scope of the constitutional debt restrictions established for state and local governments. As these forms of debt grow in importance, a smaller share of total borrowing falls under the scope of these restrictions. Even if little constitutional activity

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[65] From graph 2.4 we can see that, by 1957, only the number of special districts and municipal governments had increased since they started being counted by the US Census, and the increase in the number of special districts dwarfs that of municipal governments.

happens during this third period, the developments that take place set the stage for the changes that will happen in the next period.

Later part of the twentieth century: increased flexibility, new institutions

In this last period we can observe a distinct shift in the nature of debt restrictions at the state level towards greater flexibility. But this is followed by new measures aimed at restricting their flexibility in budgetary issues. These changes are discussed in more detail at the end of this subsection.

With the economy's continued growth over the fifties and sixties, federal aid on the rise, and increased tax revenues derived from expanded tax bases or even the introduction of new taxes, states had relatively little trouble keeping up with the requirements to balance their budgets. But as revenue growth began to slow down in the seventies and early eighties, states experienced fiscal problems. At the same time state involvement in a variety of redistribution programs -such as Medicaid and AFDC (Aid to Families with Dependent Children, which had been created in 1935) - demanded funding, while aid from the federal government remained stagnant. As we can see from tables A.1 and A.2, although its share in overall debt remained roughly constant, the amount of state debt grew by almost 200% between 1972 and 1982. This increase was not homogeneous across debt categories, since non-guaranteed debt took up the larger part of the total share of states' obligations.[66]

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[66] A new development in local financing come in the form of tax increment financing (TIF), which appeared for the first time in California in 1952 and spread to the rest of the states (they became widespread in the late seventies, and currently all states except for Arizona have adopted TIF) as funds for infrastructure from the federal government diminished and local governments saw their issuance of tax-exempt bonds reduced by the Tax Reform Act (TRA) of 1986 while their responsibilities in these areas increased. As some types of debt, TIFs tap into the future gains of a project to finance it. When the project is completed, it will generate an increase in existing property values and/or new investment, increasing tax

In the mid to late 1980s, a number of factors caused fiscal difficulties for state and local governments. The market for tax-exempt bonds became increasingly complicated with the addition of numerous regulations and standardizing principles (Mikowski, 1993), while the Tax Reform Act (TRA) of 1986 restricted the use of tax-exempt bonds by limiting the number and types of bonds exempted from federal taxation; this increased the administrative and effective cost of borrowing. Several Supreme Court rulings upheld the right of Congress to pass legislation in areas that had previously been considered to be the competence of subnational governments, effectively reducing the fiscal freedom of the states and municipalities (MacManus, 1990).[67] In addition, devolution to states and municipalities of various fiscal responsibilities brought about increased fiscal pressures in the form of unfunded mandates for expenditures, interest rates increases, and federal government reductions in the financing of infrastructure.

In this increasingly difficult setting, local governments resorted to revenue bonds; in addition, tax-exempt debt for private purposes and non-guaranteed bonds became important instruments to attract industry to jurisdictions and fund public endeavors (Bahl and Duncombe, 1993). As we can see from graph A.1, in 1991 about 65% of all municipal debt issued was in the form of revenue bonds. However, the fact that states and local governments have created new forms of debt does not necessarily mean a lack of concern for debt-related matters. In fact, debt management policies are not unusual; many

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revenues. Based on this premise, bonds are issued for the construction of this project, to be repaid out of the tax gains generated. Although TIF was in its origin directed towards promoting the growth of underdeveloped areas its use was later extended to the financing other types of projects since, according to a 2000 study by the National Association of Counties (as quoted by Amt, 2000), more competition for investment has led to the financing of an increasing range of projects through TIF.

[67] McManus cites rulings attributing Congress the authority to regulate the terms of employment subnational governments' employees, conferring it the power to regulate tax-exempt bonds, and limiting the power of these units to contract. (McManus, 1990, page 23)

states have appointed supervisors and boards to oversee debt issuance and insure the debt load is appropriate and sustainable.

Local borrowing kept growing after the crisis of 1991, and both the amount of full faith and non-guaranteed bonds peaked in 1998 before decreasing in 1999 and 2000. However, as pointed out by Cohen (1993), when analyzed in terms of capacity the increase in state debt is not so significant: in the early nineties the ratio of debt to personal income was about the same as in the sixties, and even below that of the seventies.

Decisions on infrastructure involve many governments; local governments have the primary responsibility for the design, construction and maintenance of many infrastructure projects (such as transportation, water, garbage and sewage facilities and systems), but the federal and state governments play important roles in funding and coordination. As we have seen, some of this complexity has been addressed by shifting provision to private hands and by compartmentalizing users to match payment with use, as well as with the use of new debt instruments.[68]

The search for ways to avoid having to raise taxes to pay for all or a major part of the cost of projects has not ceased. For example, since stadiums were taken off the list of purposes admissible for issuing tax-exempt bonds under the form of private-activity

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[68] A somewhat new trend in debt issuance has to do with the use of expected cash from future federal grants to back revenue bonds, expanding the trend to issue debt backed not by the full faith and credit of the government, but by a committed stream of revenues. In this, they are not different from other forms of financing that are in use by subnational governmental units. As with the other revenue-based forms of debt financing, their success depends on whether the expected revenues will realize themselves in a timely manner. Lease-purchase agreements allow municipalities to commit to make appropriations every year from the stream of revenues deriving from taxes for the payment of a lease on a piece of equipment or infrastructure. Certificates of participation are issued, and the lease amounts are used as guarantee. Once the leasing period is over and the certificates are redeemed, the property reverts to the government. With few limitations on this type of arrangement, municipalities can use it freely to acquire buildings and other equipment without increasing the amount of debt capped by their legal limits.

bonds, it had become difficult to finance these projects. In 2006, the IRS ruled that in the case of a stadium in New York its associated revenues were Payment In Lieu Of Taxes[69] (PILOT or PILT): taxes, rather than revenues from private activity, which makes debt issued for this purpose governmental bonds (and hence tax exempt) rather than private activity bonds. A similar arrangement allows the Port Authority of New York to make payments in lieu of taxes for its ownership of the World Trade Center site.

In terms of constitutional provisions on debt, in the late nineteen sixties and early seventies, we can observe a movement to alter what may have been considered obsolete or excessively constraining constitutional restrictions on debt. During this period, Florida (1968, 1970), Illinois (1970), Louisiana (1974), Mississippi (1960), Montana (1973), Pennsylvania (1969), Virginia (1971), Washington (1972), and Wisconsin (1969) modified their constitutions to allow for more flexibility in the issuance of debt by shifting to less stringent restrictions, including supermajority approval as a way to issue guaranteed debt, or explicitly excluding revenue bonds from the debt limit. This pattern is captured in tables A.5 and A.6. We may note that an important characteristic of this shift among several states is the relaxation of the requirement to attain voter approval for debt issuance: public officials are recovering part of the flexibility they had given up with past restrictions. In the three cases that require voter approval before issuing debt, this is done as a way to create a procedural restriction where only a limit existed previously. Graph 2.8 shows the distribution of the changes in constitutional provisions regarding debt, including the appearance of debt itemization in some states.

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[69] PILOTs were original tax compensations from the federal government to local government because of the use of lands (and hence loss of taxes).

The trend towards greater flexibility is important: After over one hundred years of establishing different types of restrictions on debt, states have moved away from rigid rules and have decided to embed more flexibility in the ways in which they allow themselves to issue debt. Moreover, this has taken place in a relatively short period of time.

Graph 2.8: 1960-today: Modifications of debt provisions

- ☐ Change from absolute to relative limit
- ▥ Remove voter approval or subsitute for legislative approval
- ▤ Create modification procedure
- ■ Change from procedural restriction to limit
- ☐ Eliminate limit and retain procedural restriction
- ▨ Debt item

15%
5%
5%
35%
15%
25%

Total number: 20
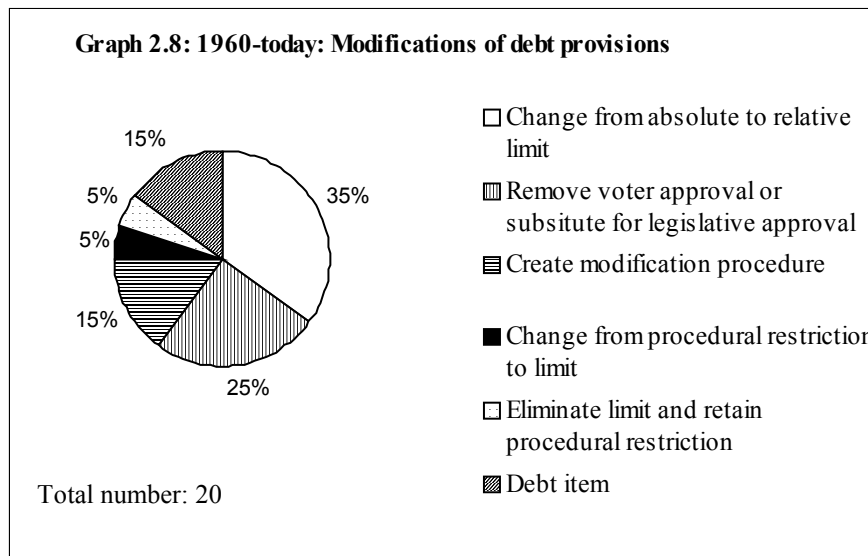
Shortly after these changes, we observe a time of intense institutional activity focused on fiscal matters at the state level. While there was a movement towards relaxation of the provisions that restricted the issuance of debt, other fiscal institutions were created to discipline state finances.

Table A.7 shows the adoption since the mid nineteen-sixties of several constitutional rules that established requisites for some sort of budgetary balance. What makes this wave of adoptions interesting is that, rather than referring to debt or to an equilibrium between expenses and revenues, most of the provisions directly address budgetary

balance. The rules regulate directly a relationship between appropriations and expenditures or establish detailed budgetary procedures aimed at balancing the budget. Of the nine states for which we have data indicating the adoption of a "true" balanced budget requirement (that is, states that include in their constitutions a defined procedure for their budgets or that demand an equilibrium between appropriations and expenditures) in this period, six of them also modify their constitutions to introduce more flexibility in their debt restrictions (see table A.10.)

Tax and expenditure limitations (TELs) were established in this period of economic uncertainty under the premise that they would help constrain the size of the government. The tax revolt that followed the passage of California's Proposition 13 in 1978[70] translated into the adoption of limits to the taxing and spending powers in several states. These limits, paired with the constitutionally imposed restraints on debt and the requirements to present some sort of balanced budget, increased the difficulties of the states in raising enough revenue to meet their spending needs. This trend was further strengthened by the popularization in the nineteen-nineties of supermajority requirements for increases in certain types of taxes.

Starting in the mid-eighties, rainy day funds (RDFs) -also known as budget stabilization funds- became a popular instrument for budget stabilization purposes in the states, although the first rainy day fund had been in place for a number of years.[71] These funds interact with the existing institutions in a variety of ways: the use of accumulated reserves during economic downturns reduces the necessity of increasing taxes (which

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[70] California's Proposition 13 is not often considered a TEL because it only restricted a specific type of taxation, rather than overall tax revenue. See Rodriguez-Tejedo (2006) for more information on TELs.

[71] New York adopted the first rainy day fund in 1945, but the second RDF adoption did not come in almost 15 years (1959, Florida). The rest of the existing RDFs were all adopted during this period, furthermore the bulk of them were enacted in the mid-eighties.

may be problematic in the face of TELs) or otherwise raising revenue to meet the requirements of a balanced budget. States that had built demanding RDFs were able to deal better with the fiscal stress associated with the crisis of 1991 (Sobel and Holcombe, 1996) and even though they "are unlikely to bail out a state in serious fiscal difficulty … they can serve as a stop-gap measure to buy time."[72] Table A.9 relates the dates of adoption and main characteristics of RDFs[73] to the type of state constitutional debt provisions. From table A.9 we can see that, within the group of states that modified their constitutions to introduce greater flexibility in their debt restrictions during this period, a higher percentage of states adopted RDFs with strict withdrawal requirements (about 40% compared to 24% in the group where not such changes took place.)

The debt restrictions that were established in the 1840s were quite different from those present in states today. In the fashion of what Wallis refers to as *"recursive institutional change",* the evolution of debt restrictions has caused, and been caused by, changes in the levels of government involved and the types of debt. Frequently, casual observers see only one direction in this process: restrictions on debt have caused the proliferation of PAUs and special districts, and have favored the creation of a large variety of types of non-guaranteed debt. It is rarely mentioned that, because of these changes and the economic and political circumstances of the states, debt restrictions themselves have evolved. In the second half of the twentieth century, the proliferation of issuers of debt and types of bonds is so large that some argue that debt restrictions do nothing to limit debt.

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[72] Fundamentals of Sound State Budgeting Practices, NCSL 1995, page 13.
[73] The structure of RDFs and their characteristics are described in more detail in chapter 3 of this dissertation.

And yet, rather than hardening debt restrictions, we can see state constitutions increasing the flexibility of their constitutional provisions regarding debt in this stage. This is not, however, the only institutional activity happening at the end of the 20th century. Other institutions aimed at restricting the fiscal activities of the state (tax and expenditure limitations, and balanced budget requirements that directly deal with particular aspects of budgeting) have been put in place. This is the most recent step in a process that requires both the clear definition of the types of debt restrictions and a relatively long perspective on their evolution. The changes we observe are responses to the set of circumstances created by the economic and political make-up of the states, and by the conditions brought about by previous institutional choices.

2.4. Conclusions and further work

Restrictions on debt are not exogenous or immutable; they did not appear at the same time or in a homogeneous form in all states; nor were they in general created to ban or even limit debt with absolute rigidity. The constitutional provisions that create them are sometimes misinterpreted by concentrating only on the part that mentions a limit and leaving out procedural restrictions or by ignoring other parts of the constitution that enable states to issue debt outside the scope of the limitation.

We have tried to provide a comprehensive treatment that takes all the aspects that constitute a debt restriction into account to facilitate the description and understanding of these rules.[74] Besides the distinction between debt for casual deficits and debt for the

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[74] Arguably, two additional aspects are sometimes present in the qualification of debt limits: the maturity limit of the debt and whether a requirement exists to provide for funds to finance the debt. The larger

longer run, we make a separation between limits (that create a maximum allowable amount of debt, defined either in absolute or relative terms) and procedural restrictions (that establish a set of requirements that need to be satisfied to issue debt but do not impose a maximum on the amount of debt that can be issued). In addition, we have examined modification procedures, such as those that increase the limit, and the authorization of debt for certain items that allow a state to issue more debt than originally permitted by the limit. Ultimately, debt restrictions –like any other constitutional provision- can be altered by modifying the constitution. Changes have indeed taken place, and some of them would not be evident if we restricted the definition of "debt restriction" to the dichotomy of whether a provision of any kind exists regarding debt issuance in the state or ignored the modification procedures associated with debt limits.

The creation of the first constitutional provisions restricting debt is concentrated in time around a very specific economic occurrence in the 1840s. Towards the end of the 19th century, states start including debt itemization in their constitutions. The restrictions spread to other states, reaching many of the Southern states in latter part of the 19th century. States continue to borrow, but the late 19th century saw a marked increase in local borrowing. States responded by extending debt restrictions to local governments, beginning in the 1870s. Local governments responded to the new restrictions by developing the revenue bond and more extensive use of special districts and public authorities.

At the beginning of the 20th century, states began modifying debt limits by explicitly allowing debt for certain purposes. Debt itemization, the use of revenue bonds, and the

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dataset includes these variables, but their coherent incorporation into a system to interpret debt restrictions is still underway.

creation of special districts gave state governments a great deal of latitude in borrowing, even if the state constitution contained what appeared to be a strong limit on debt creation. In response, several states in the nineteen sixties and seventies modified their constitutions to allow legislatures a considerably greater degree of flexibility, either on the limit itself or in the modification procedures.

The evolution of state debt limitations plays a role in other areas as well. We have presented a brief discussion of the proliferation of revenue-backed bonds, and include some discussion of the increased role of sub-state governments in the issuing of debt. But this remains an area for further study. A detailed investigation of debt provisions at the local level, using the history of the relevant constitutional provisions, is underway to complement the study of the evolution of state debt limits.

An additional conclusion from this study is that debt restrictions cannot be taken to be independent from the rest of the institutions and the circumstances of the state. This becomes clear when a historical perspective is applied to the problem. In fact, as Cohen (1993) states, "these [debt] restrictions generally reflect a reaction to some adverse event in the past. The limit, while designated to address the past failure, will likely become obsolete, representing an obstacle to be surmounted by creative interpretation."[75] This often-creative restructuring of debt restrictions is driven by the set of economic circumstances present (such as the possibility to hand down responsibilities to local governments, increase tax bases, raise tax rates or the economic need for financing) as well as the general political situation (spending pressures from the federal government, enactment of laws, interpretations by the Courts, etc) and even restricted by the available "technology" (for example, the ability to charge fees to the users of a project and commit

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[75] Cohen in "The Handbook of Municipal Bonds and Public Finance", page 131. Word in brackets added.

the expected stream of revenues to the issuance of revenue bonds, or to identify similar governments who may benefit from the debt issued by a public authority or special district and bond them to a payment scheme).

During good economic times, states have been able to operate within the restrictions imposed by balanced budget requirements and debt restrictions, but when expectations of future revenue are not met or the economic circumstances deteriorate, governments find themselves in complicated situations and their reactions are constrained by their past institutional choices. These reactions are not illegal or even necessarily undesirable, and although they sometimes contribute to the diffusion of responsibilities and make the financing of public endeavors less transparent, on other occasions they have created new fiscal institutions and institutions that allow the market to function more efficiently. For example, bonds that are not backed by the full faith and credit of the state may be issued as a way to incur debt outside the limits mandated by the constitution or statutes, and this may have its benefits[76]. Moreover, as the pressure brought about by restrictions increased, other ways of financing long-ranging projects developed,[77] and it has often been up to the Courts to decide the extent of the constitutional rule.[78]

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[76] Several problems could arise because of the increase use of revenue bonds. First, it could diminish the clarity and control over the amount of debt, conditions and purposes of debt. In addition, it could result in larger debt service for an equal amount of borrowing derived from higher interest costs, which could increase the strain on government finances. Lastly, revenue bonds can be considered a violation of the spirit that drives the limit or the procedures embedded in the state's constitution. On the other hand, revenue bonds may allow for the provision of development-promoting infrastructure and services, which would otherwise be unavailable to states and municipalities. They would then be means to finance a project from service charges or increased tax collection. Similarly, states have contracted the construction of projects and agreed to enter in a long-term lease with the promoter, so instead of debt payments the rental fees are considered current expenditure of each year.

[77] States have created special funds to repay the costs of projects, and Courts have often interpreted that the debt to be repaid out of these funds does not count towards the state's limit –since the payments are to be derived from the revenues of the project, and not from the general funds of the state

[78] Sterk and Goldman (1991) provide an overview of how Courts have addressed issues regarding debt limits in several states. For example, they discuss how Ohio's Courts have upheld a tight interpretation of the state's debt limit, while the loose interpretation of New Jersey's rules has watered down the meaning of

Another development in state financing that is often considered a reaction to state debt limits is the proliferation of public authorities and special districts.[79] Table A.8 lists the states that have more special districts and sub-county general-purpose governments than the national average for the period in which such data are available, and provides an overview of the constitutional restrictions to debt at the state level in those states.

The relationship of debt restrictions with other institutions has received less attention. Balanced budget rules are closely tied to debt restrictions, and this becomes particularly clear when systematically classifying debt restrictions. Indeed, we often observe confusion between the two, since constitutional provisions that are often taken as balanced budget rules are in fact restrictions on debt.[80]

Similarly, RDFs can be construed as a way to evade TELs, but they may also serve as fiscal protection against economic downturns in a setting where constitutions and statutes restrict debt issuance and require some degree of budget balance, especially if unpopular tax increases may be subject to voter approval. All except two of the RDFs were adopted in the last period of modifications to debt restrictions, coinciding with a time when legislators were changing their constitutions to incorporate more flexibility into their debt restrictions.

The search for an institutional framework that would combine flexibility with stability has resulted in transformations in debt restrictions that–far from being exogenous- have

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its limit. Briffault (2003) argues that "there is an enormous gap between the written provisions of state constitutions and actual practice*" (page 3).

[79] These might be a subterfuge for politicians who wish to enjoy the political benefits of higher spending without paying the associated cost of financing the projects, but they may also be a response to the fragmentalization of interests and the possibility of better identifying benefits with costs. In a set-up where lower levels of government -such as municipalities- are more than administrative extensions of the central authority, borrowing at the local level has the potential of realizing local needs that would not be provided for adequately at higher levels.

[80] Table B.7 presents the states' balanced budget requirements, as well as a list of the states whose provisions are not aimed directly at regulating the budget.

been both the cause and result of economic changes. Furthermore, they have contributed to the creation and shaping of other budgetary institutions at the state and local levels. A proper understanding of the real nature of debt restrictions is the first step in incorporating these rules into the theoretical and empirical analyses of state finances.

Chapter 3. The Determinants of the Structure of Rainy Day Funds

3.1. Introduction

State legislatures have constrained themselves through history to prevent the functioning of a democratic system from negatively affecting finances in the presence of an ever changing and, to some extent, unpredictable environment.[81] Examples of these self-imposed constraints can be found in the limits and rules imposed on state budgets, such as balanced budget provisions, tax and expenditure limitations, debt restrictions, etc. These rules are aimed at preventing politicians from starting projects and incurring excessive expenditures –whose consequences would become evident later, when the officials may no longer be in office. However, they also diminish the state's ability to deal with crises,[82] a problem that is aggravated due to the fact that state finances tend to be pro-cyclical: in times of prosperity, states receive moneys from expanded tax bases, and the number of people who qualify for state assistance diminishes. Conversely, when the economy is in recession, revenues fall while spending needs increase.

Budget stabilization funds (BSFs henceforth), also known as rainy day funds (RDFs), are a relatively new addition to the set of tools states have at their disposal to face the fiscal pressures brought about by business cycles. BSFs can help states smooth their consumption by serving as receptacles for savings to be used in times of economic distress. As Poterba (1995) points out in his study of the real effects of capital budgets in

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[81] Wallis (2005) presents the case of states constraining themselves not to undertake large projects without a sound plan for repayment, as a consequence of the experience with canal and railroad construction, where failed projects imposed a heavy burden on states.

[82] Lowry and Alt (2001) note that there are costs associated with adjusting a budget and it is impossible to guarantee that the benefits from fiscal discipline will compensate for the loss of flexibility in state policy that comes with reducing the state's ability to run deficits.

the states "since…fiscal institutions have important effects on policy outcomes, it is important to understand the factors that lead to changes in these institutions."[83] This is true of RDFs, since their structure, in terms of the rules that control the deposit and withdrawal of funds from the fund, has important consequences for their effectiveness.[84] The choices states make regarding the configuration of their BSFs are, therefore, not innocuous. Despite its relevance, the literature has so far overlooked the factors that determine the adoption of a particular set of regulations for state BSFs. We use a categorization based on the stringency of the rules that dictate how funds in the RDF enter and leave the fund to analyze why some states adopt very demanding RDFs in terms of the rules for deposit and withdrawal, while others prefer more relaxed regulations.

Using multinomial and ordered econometric methods, we analyze the effect of various economic, political and institutional factors in the RDF configuration decisions of the states. With this method, we find that states with larger Senates are more likely to adopt weak rules, and lower levels of fragmentation in the lower House reduce the odds of adopting strict requirements. Also, states with appointed supreme courts are more likely to establish demanding rules, as are states whose RDFs are constitutional in nature. Finally, we find evidence that states with higher volatility in their tax revenues or that exert more tax effort are more likely to establish strict RDFs.

RDFs are just one of the tools states have at their disposal to reduce the negative effects of economic downturns, but their importance becomes apparent once we examine the alternatives closely. R. Holcombe and R. Sobel (1997) conclude that cyclical

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[83] pp 185.
[84] Sobel and Holcombe (1996), Douglas and Gaddie (2002), Zahradnik and Ribeiro (2003).

variability of state revenues (as opposed to expenses) takes the larger share in the responsibility for state government financial crises. Their analysis indicates that there is no simple recipe to reduce revenue variability, and they propose that states concentrate instead on smoothing their resources over the business cycle. The set of tools available for state consumption smoothing is, however, more limited than its household counterpart. The same institutions that are meant to stimulate responsible fiscal behavior restrict the usage of debt for business cycle smoothing,[85] leaving four main options open to state officials: increasing taxes to match spending needs, reducing spending in accordance with the decrease in means, using fiscal gimmicks, and depleting previously stored resources.[86] The use of moneys from BSFs falls in this last category. Before describing these funds in detail, we briefly review the reasons that make the other policy venues unattractive or unsatisfactory to fully solve the financial problems states face during crises.

Holtz-Eakin, Rosen and Tuller (1994), using data on aggregate local and state expenditure, find that nearly all expenditure is driven by current resources. In this spirit, the first of the four solutions mentioned above calls for increases in taxes to meet spending demands. However, as the results in Sobel (1998) indicate, raising tax rates to face increasing spending needs is not an option welcomed by voters: politicians who use this kind of policy are significantly more likely to be voted out of office, making this solution unattractive to election-bound officials. In addition, some states have enacted tax

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[85] States do borrow (see Brecher et al (2003)), but it is rare to find states that use long-term rate debt to finance current expenses (Snell (2004)). For a more in-depth review of debt limits and their impact on state economies the reader is referred to Rodriguez-Tejedo (2006).

[86] McGranahan (2002) in her analysis of the 2001 crises analyzes "the combination of cyclical revenues with acyclical or even counter cyclical obligations and institutions that are not permitted to use financial markets to deal with this disjoint", pp 20.

limitations, which reduce the potential of this venue in times of crises.[87] On the other hand, spending cannot be easily downsized to match decreased revenues: states have become increasingly responsible for the provision of care for needy citizens, and these obligations only grow during economic hardships; moreover, reduction of state spending in such times can also impede the recovery of the economy.[88]

Fiscal gimmicks and one-time cash solutions can temporarily correct budget problems, but they do not address the problems behind the deficits. An early compilation of these strategies can be found in Kirkland (1983) who argues that they likely indicate the state officers' belief that the adjustments are meant to weather recessions while keeping an otherwise well planned and well functioning budget. Poterba (1995) and Briffault (1996) also describe some of these strategies and draw attention to their worrisome long-term consequences. Furthermore, these tricks become scarcer as time goes on and are always cosmetic operations, not fit as long-term solutions.[89]

Since the restrictions governments face in terms of balanced budget rules are stock in nature, states are not required to maintain spending and revenues at the same level at all times, leaving savings (such as those stored in BSFs) as a viable alternative (or complement) to smooth out consumption over the business cycle. States can save in other funds aside from the BSF, and in the next section we discuss the factors that set apart these funds from the general fund.[90] As we will see, the differences between the general

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[87] With regard to these limits, Poulson (2005) raises the issue of the tradeoff between controlling the government's size versus diminishing the capacity to smooth out fiscal activity over the cycle.

[88] Lav and Berube (1999) describe in some detail the dynamics of the crisis in the early 1990s, providing examples of these issues.

[89] More on accounting gimmicks and how they interact with other budget policies (such as balanced budget requirements) can be found in Briffault (1996) and Rodriguez-Tejedo (2006).

[90] Hou (2001) finds that BSFs have taken the lead in counter-cyclical effects of savings, while the general fund surplus has been relegated to a second place. Hou (2005) further suggests general fund surpluses may have ceased to be used for expenditure smoothing after BSFs were adopted.

fund surplus and a BSF (and across BSFs) are relevant for their effectiveness in helping states cope with recessions. These differences can turn BSFs into relatively ineffective policy tools or significantly increase the state's capacity to weather adverse economic conditions.

Section 3.2 describes the characteristics of the funds; Section 3.3 presents a series of potential determinants for the choice of configuration of the BSFs; Section 3.4 discusses the empirical strategy and the results and Section 3.5 concludes.

3.2. Characterization of Budget Stabilization Funds

BSFs are simply a separate account for savings where funds can be stored during good times to withdraw them in times of need. However, what constitutes a BSF may not be unambiguously clear, as the disagreement over the nature of some funds demonstrates.[91] The definition we use in this paper runs parallel to that most commonly used in the literature:[92] in rough terms, BSFs are institutionalized budgetary tools that allow for the accumulation of funds during expansions for use during recessions. According to this definition, there are currently five states without an RDF: Alabama,[93] Arkansas, Colorado,[94] Montana and Oregon.

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[91] Two clear examples are *Alabama's Education Proration Prevention Fund* (noted as a rainy day fund by the National Association of State Budget Officers, but not by most of the literature due to its restrictive scope) and Colorado's *Required Reserve* (considered as a rainy day fund by both NASBO and several authors in the literature, but not by policy makers in Colorado, who repeatedly initiate petitions to amend the state's Constitution to provide for a rainy day fund).

[92] The point where we deviate from the literature is excluding Colorado from the list of states with BSFs. The reasons for this elimination are the exchanges with officials and policy analysts in Colorado who consider the state as lacking such funds, and the careful study of state documents regarding the Required Reserve.

[93] Alabama set up a reserve fund, but its resources can only be used for education so it is not considered a budget stabilization fund by most of the literature.

[94] Colorado has only a small emergency fund that cannot be accessed to meet economic downturns since it is reserved mainly for natural disasters. State Treasurer Coffman and Dr Poulson, among others, are

As shown in table B.1.1 in appendix B, BSFs did not become commonplace until after the mid-1980s, although dates of adoption vary substantially. Earlier studies of BSFs placed much emphasis on the "lesson effect" of the crisis of the 1980s, often thought to be the cause of the cascade of BSF adoption. However, more recent research (Wagner and Sobel (2006)) suggests that this explanation may be too simplistic and overlook other factors, such as the changes in the set of restrictions and fiscal tools available to states that occurred during that period.

By establishing and funding a BSF, states may increase the amount of assets at their disposal during a crisis,[95] providing a cushion that can be used as an alternative or complement to other fiscal strategies. However, this basic explanation misses the complexity of the process of saving and withdrawing embodied in the their everyday operation: Not all funds are born equal and, in fact, BSFs have diverse characteristics that introduce widely varying elements that make their operation intrinsically different from the general fund surplus.[96]

There is strong evidence of the importance of the configuration of BSFs. Navin and Navin (1994), through the study of BSF characteristics in the context of economic indicators, concluded that BSFs acted as countercyclical tools in only three of the Midwestern states. Sobel and Holcombe (1996) and Douglas and Gaddie (2002) consider the ability of a BSF to reduce fiscal stress during crises, and conclude that the structure of

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making strong calls for a significant BSF in Colorado that would fit the state's special framework, ruled by the presence of Colorado's Taxpayer's Bill of Rights (TABOR). See *A Rainy Day Fund for Colorado, Treasure E-notes, January 2003.*

[95] Knight and Levinson (1999) find that states with BSFs have more savings than those without funds and, furthermore, they save more after the adoption of these funds than they did previously.

[96] "Budget Stabilization Funds should not be combined with general fund ending balances because these funds serve two different purposes and they generally are not interchangeable… Nevertheless, both serve a similar purpose and should be reported as resources available to a state*"* Fiscal Survey of the States (NASBO, July 1985), pp 18.

the BSF is crucial for its effectiveness –while the mere existence of a BSF has no real effects.[97] McGranahan (2002) and Zahradnik and Ribeiro (2003) find that the existence of BSFs helps states weather recessions, but remark that an appropriate configuration could significantly improve their effectiveness.

Studies also exist regarding more particular venues through which states may benefit from stringently-configured funds: Gonzalez and Paqueo (2003) conclude that funds ruled by stringent requirements accumulate higher balances and reduce social sector expenditure volatility, and Knight and Levinson (1998) and Wagner (2003) find evidence suggesting that states with funds that operate under strict rules save more and receive better bond ratings, which makes future borrowing less costly for the state.

In sum, the configuration of BSFs is a very important choice that significantly impacts the fund's effectiveness. This is not surprising, since there is wide evidence that the structure of fiscal tools (such as balanced budget requirements, tax and expenditure limitations etc) is a significant factor determining their impact on state fiscal outcomes.

There are four elements in a budget stabilization fund: deposit mechanisms, withdrawal rules, caps, and replenishment requirements. Each of them regulates the operation of a BSF in a different way, although they do not have the same importance in terms of determining their fund's effectiveness. Because of their prevalence and their particular importance for the operation of the BSF, the deposit and withdrawal requirements are the most important characteristics embodied in the fund. Being the "gates" of the resources as they move in and out of the fund, they are key in determining its success as a stabilizing tool and we examine them in more detail now. A description of

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[97] Hobel and Solcombe (1996) find that BSFs with strict deposit requirements reduced fiscal stress, while the effectiveness of BSFs was not affected by the nature of its withdrawal requirement.

the other two rules (caps and replenishment requirements) can be found in appendix B.2, and tables B.1.2 and B.1.3 contain information on the deposit and withdrawal requirements of the funds in each state.

3.2.1. Deposit requirements

Rules to control the incoming flow of money into the fund are often written in the constitutional or statutory rule that establishes the RDF as part of the budgetary structure of the state, although in some cases no specific provision is made and deposit is left to the discretion of the policy maker.

These rules vary in the degree of freedom given to policy makers in their deposit decision. For example, very weak deposit rules do not require contributions to be made to the fund and leave the time and amount of deposits up to discretion of the policy maker. In contrast, other RDFs explicitly present regulations that specify the circumstances in which deposits ought to be made to the fund as well as the specific amount to be contributed. For example, Arizona's Statute regarding its Budget Stabilization Fund states "In a calendar year in which the annual growth rate exceeds the trend growth rate, the excess growth when multiplied by total general fund revenue of the fiscal year ending in the calendar year determines the amount to be appropriated by the legislature to the budget stabilization fund in the fiscal year in which the calendar year ends."

Wagner (2004) classified deposit requirements according to the strictness of the rule from one to four, with higher numbers depicting stricter requirements, as follows:

1) Deposits made through appropriation, at the discretion of the policy maker. Under this configuration, BSFs look a lot like the general fund and many elements of substitutability between the funds are introduced.

2) Deposits happen if there is a surplus in the budget. In practice, this option may be very similar to the previous one, since the existence of surplus in the budget is a decision largely in the hands of budget crafters.

3) Fixed deposit, based on formulae tied to different parts of the budget (the most popular are linked to percentages of revenues or spending).

4) Deposits based on rules tied to economic growth (usually regarding the portion of the excess in the general fund to be deposited).

Deposit rules based on formulas guarantee that the fund will actually receive revenues, forcing officials to plan on savings while drafting the budget if the conditions established by the formula are met. However, this does not imply that the state will necessarily save more than it would in absence of the BSF, because it could simply decide to put into the budget stabilization fund what would have otherwise been deposited in other funds. However, this is only true if the legislature had planned on saving at least as much as the formula requires; if this were not the case, the rainy day fund is effectively increasing the amount of savings made by the state.

3.2.2. Withdrawal requirements

Withdrawing resources from the fund can also be done in a variety of ways, ranging from discretionary appropriation by the legislature to restrictive formulae that will only allow withdrawals if the economic circumstances are severe.[98]

As with deposit requirements, withdrawal rules are indexed from least to most stringent, again following Wagner:

> 1) Withdrawals are possible through appropriation, at the discretion of the policy maker. A BSF where legislatures can access funds freely is as open to political raid as the general fund, and in this respect constitutes only a formal distinction between the two.

> 2) Withdrawals are permitted in the event of a revenue shortfall. Although more restrictive than the previous requirement, this rule permits access to funds whether or not there is serious fiscal stress since revenue shortfalls can be triggered in a variety of ways, including cuts in taxes.

> 3) A supermajority approval is required for withdrawal.

> 4) Withdrawal is conditional on formulas tied to economic decline.

Arizona's Statute, for example, provides detailed information regarding the time and amount of the withdrawal appropriation stating that "In a calendar year in which the annual growth rate is both less than two per cent and less than the trend growth rate, the difference between the annual growth rate and the trend growth rate when multiplied by

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[98] Strict withdrawal requirements have real effects on fiscal outcomes. The reason follows the logic presented by Manuel Amador (2003) in the context of political economy models of government savings: "illiquidity is a useful characteristic because it reduces the temptation of current governments from overconsuming."

the total general fund revenue of the fiscal year ending in the calendar year determines the amount to be transferred by the legislature from the budget stabilization fund to the state general fund at the end of the fiscal year in which the calendar year ends. The transfer calculated pursuant to this subsection shall not exceed the available balance in the fund, nor shall the legislature transfer an amount which exceeds the amount sufficient to balance the general fund budget." It is therefore classified as having a withdrawal requirement of type 4. On the other hand, Rhode Island's State budget reserve and cash stabilization account is classified as having a type 2 requirement, since it allows for withdrawals "upon notification by the budget officer that it is indicated that total resources which are defined to be the aggregate of estimated general revenue, general revenue receivables, other financing sources and available free surplus in the general fund will be less than the original estimates upon which current appropriations were based."

It is worth noting the disagreement in the literature over whether certain funds, reserved for certain purposes (such as education or natural emergencies), can be considered real BSFs.[99] In general (and for our purposes as well) funds that are not available for the reduction of fiscal stress during crises are not considered to be BSFs.

3.3. Factors influencing the choice of BSF configuration

This section presents several factors that may be relevant in the state's choice of the structure of a BSF and how they approximate or interact with what seem to be the three

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[99] For example, Hou (2001), repeatedly advocates a much more restrictive definition of what constitutes a BSF than the one usually admitted by the literature. These discussions serve to illustrate the wide range of strictness in the withdrawal requirements.

most important factors in the decision to configure a BSF: the uncertainty derived from the difficulty in obtaining good forecasts of future economic circumstances, the embedded uncertainty of election-driven state politics, and the existence of regulations on the budget that limit the policy maker's ability to control state finances. We briefly discuss each of them and present the associated indicators we have considered in the regressions. A more detailed description of the variables can be found in Appendix B.3.

The regression equations can be presented in compact form as $Y = f(X_{1i}, X_{2i}, X_{3i})$, where Y is the discrete variable that represents the deposit (or withdrawal) requirements, the vector X_1 includes the economic variables, X_2 includes the political variables, and X_3 includes the variables regarding institutional structure.

Uncertainty about the future of the economy is at the core of the decision to establish a BSF: if perfect forecasting of cycles were possible, state officials could plan accordingly and smooth out consumption by saving in good times and running their reserves down during perilous times. This would not be politically taxing because it would be easy to justify both behaviors to the public under the light of the predictable nature of the state's economic cycle. However, even with state budget officers devoting much effort and resources to getting good forecasts of revenues and expenditures, these are at best good approximations that tend to get worse as the time horizon is extended and usually fail to foresee sharp downturns in state finances. In the specific economic factors we discuss below, increased income volatility, uncertainty or need may raise the optimal level of savings for the state, everything else constant, making it more desirable to establish a strict BSF.

The second source of uncertainty comes from the political process. Even politicians who are not purely self-interested need first to be (re)elected to ensure that their preferred policies will be enacted.[100] The desire to remain in office, paired with the fact that state budgets often finance targeted public policies, translate into an effort to please voters at the cost of shortsighted policies, or the conscious effort to set up an unfavorable environment for the successor if he happens to be of the opposite party. In either case, these non-economic objectives have the potential to create incentives for suboptimal fiscal choices.[101]

For the choice of BSF configuration, then, economic uncertainty calls for increased savings in the spirit of life-cycle models, which –in the presence of incentives for overspending- may make institutionalized forms of savings attractive. In addition, political uncertainty creates incentives for policy makers to consume resources while in power in a common pool problem fashion. If those who draft BSF-like funds want to reduce the effects of political uncertainty, strict rules are an attractive feature.[102] On the other hand, weak RDFs may be used as a means to accommodate political needs, making weak funds more enticing.

Other factors, such as the socio-economic configuration of the state and the existing set of institutions can strengthen or weaken either motive.[103] For example, BSFs could be used as means to avoid the budget rigidities imposed by other restrictions, such as balanced budget requirements or tax and expenditure limitations. It is important to

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[100] Poterba (1994) finds that in gubernatorial election years states enact less tax increases and expenditure reductions.

[101] Velasco (2000) present a model in which government resources are viewed as common property and find that fiscal deficits and excessive debt emerge.

[102] Mody and Fabrizio (2006) find, when studying countries in the EU, that budgets are often an expression of political rather than economic priorities, but also that budget institutions and rules have significant value in alleviating these problems.

[103] See Rodriguez-Tejedo (2006) for an overview of the interactions between several institutions and BSFs.

consider the effects other institutions may have had in the decision to establish a certain type of BSF, since "the various institutions interact with one another in complex ways,"[104] and an analysis that omits these interactions is likely to provide an incomplete, or even misleading, picture.

The choice of BSF structure can be understood in terms of a standard random utility model. Under every possible fund configuration, we consider the legislature's utility, which would be a (not necessarily linear) function of the funds' characteristics, as well as the particularities of the state. A state will choose a particular configuration if its associated utility surpasses that of all the other possible configurations (and is also greater than the utility associated with not establishing a BSF at all).

To analyze this decision empirically, we use a panel dataset with information for all states that adopted such funds in the period 1951-2000 (the last year in which an adoption occurred). Since our primary focus is to investigate the determinants of the configuration choice, we include only states that adopt a BSF during our sample period. After a state adopts a fund and establishes its preferred configuration, no further observations from the state are included in the sample.[105] The results are conditional on the state adopting a BSF for the first time; the model seeks to explain the factors leading to adoption (rather than adoption and retention) of the chosen structure. Seven states are excluded from our sample: Alabama, Arkansas, Colorado, Montana and Oregon (because they do not currently have a BSF), Alaska (due to the very particular nature of its BSF) and New York (which adopted its RDF before 1951).

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[104] Knight and Levinson (1998), pp 3.
[105] This simplifies the empirical analysis, since it prevents the potential simultaneity bias that would occur if we were to include after-BSF years, when some of the regressors may be affected by the existence of the fund. The assumption does not stray far from reality, since only Ohio has changed the requirements of its BSF, and the procedures to change the configuration of a BSF can be quite cumbersome.

The data used to approximate the elements that we postulate may have had an effect on the process of adoption of these BSFs are listed in table 3.1 at the end of this section, grouped in three main categories: political, socio-economic, and institutional factors. Appendix B.3 contains detailed descriptions of the construction of the data,[106] as well as some alternatives and the reasons for the choice of the variables included in the analysis.

The political science literature suggests several variables that may be of importance among the first set mentioned above. In the legislative branch, the finding that larger upper houses spend more could translate into a desire for weakly configured BSFs, so funds are easily accessible. On the other hand, there is no clear result that links partisan composition to spending, leaving the relationship between the composition of the houses and the nature of BSFs as a matter open for empirical investigation. There is, however, evidence suggesting that the political affiliation of the governor (independently and jointly with the legislature's) and the existence of term limits for governors have real fiscal effects. Lastly, appointed State Supreme Courts are thought to be more lenient, because appointed judges may be more amenable to deviations from the rule, which would make strict BSFs rules less demanding in real terms and hence less politically constraining.

Among the socio-economic variables, we use the yearly deviation from the national mean of per-capita personal income as a measure of the state's general economic condition. To investigate the effects of the sector composition of the state, we introduce the proportion of total earnings in construction, farming, manufacturing, mining and

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[106] We discuss, among others, the correction of the data for the balanced budget requirement in Tennessee, the consideration of an additional measure for savings that takes into account the Census' warnings regarding the construction of series on savings and different measures for volatility. The expected effect of the variables in this context is also discussed further in this appendix.

services. The effects of state's population density are unclear: a state that has to cover the public expenditure demands of a larger population may find BSFs more attractive, an effect reinforced by the public-good component of savings in the RDF. However, larger states have been found to have less volatile business cycles, so they may find strict BSFs less appealing. Beyond their income and population, we expect states engaged in volatile spending to be in greater need for easily accessible savings, a fact that may be reflected in the type of BSF they adopt. We consider each spending type's mean standard deviation and classify the six types of expenditure in three categories (high, medium and low volatility[107]). On the other hand, we might expect states with volatile tax revenues to be more inclined to establish strict funds. As with spending, we include tax collection by grouping the different types of taxes according to their levels of volatility.[108]

Tax collections are the most important source of income for states (although their share has decreased), followed by intergovernmental revenue (IG). IG revenues include local and federal transfers (with the latter making up about 95% of the total[109]) and are mostly outside of state control. IG revenues are likely to decrease during periods of crises, when states need resources the most. IG finances are included in the analysis by calculating the deviation from the national mean of the per capita net IG transfers (revenues minus expenses).

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[107] After applying the GDP deflator and calculating the overall average standard deviations, we can see that the magnitudes of the standard deviations are similar within groups and considerably different across groups, so the choice of three groups with two components seems reasonable. Education and welfare spending are the most volatile group, while expenditure in highways and health and hospitals fall in the middle category, and unemployment compensation and spending in natural resources are the relatively least volatile expenses. Although it may seem counterintuitive that education belongs in the most volatile group, we must note that capital spending in education is included in this category, which explains its variability.

[108] The percentages of tax income that come from severance and property taxes are grouped in the "most volatile" category, while the percentages received from sale and individual income taxes form the "least volatile" category. The percentage of tax revenues derived from corporate income taxes corresponds to the "middle volatility" group, which is used as baseline.

[109] As opposed to IG expenses, where local IG spending makes for most of the total expenditure.

Beyond the effects of current sources of income, states can use savings in face of a recession. It is likely that states that maintain easily liquefiable resources will consider the need to establish a stringent fund as less pressing. On the other hand, it may be possible that states that decide to have more savings in the form of cash and securities have a preference for sound savings, and would be more inclined to establish strict funds. Since it is difficult to establish, intuitively or theoretically, a predicted sign for the relationship between other savings and the nature of BSFs, it remains a question best answered empirically. Aside from using reserves, states can increase the resources they raise from taxation. However, states that exert higher levels of tax effort will have less room for tax increases, making meaningful BSFs more attractive. On the other side of the spectrum, our a priori expectation is that states with higher levels of debt will be, all else constant, more inclined to establish demanding BSFs, since it would be relatively more costly for them to go further into debt. However, high levels of per capita debt may be correlated with a higher tolerance for debt in the state, which could offset the aforementioned effect. The final effect of indebtness on BSF rules is then left to empirical investigation.

Among the institutional constraints, tax and expenditure limitations (TELs) restrict the state's ability to cope with recessions through direct action, which may make meaningful BSFs more attractive. Alternatively, RDFs may be seen as a way to put funds outside of the scope of the TELs, allowing for wider discretion in spending decisions, a proposition for which Wagner and Sobel (2006) find supporting evidence. We have explored different alternative measures of TELs, using dummies for the existence of each of these limitations as well as Poulson's (2005) indexes of TEL strictness. Another important

institutional constraint is given by the existence of balanced budget requirements (BBR). States with demanding BBRs enact more restrictive spending policies (Poterba (1994)), fare better in deficit control (Alesina and Bayoumi (1996)), are more likely to enact tax increases and spending cuts during recessions (Alt and Lowry (1994)) and tend to save more (Bohn and Inman (1996)). But strict BBRs also introduce rigidities in fiscal policy (Alt and Lowry (2001)) and may exacerbate business cycle volatility (Levinson (1998)). Demanding BBRs make meaningful BSFs more appealing, since intertemporal smoothing becomes more difficult. The last institutional factor is embedded in the BSFs themselves. Their legal nature (statutory or constitutional) can also play a role on the configuration of deposit and withdrawal requirements. Constitutionally established budgetary tools allow decision makers less freedom when establishing the particulars of the law and have been shown to have stronger effects on fiscal policy than their statutory counterparts.

Table 3.1. List of control variables

Variable	Source
X₁ – Political variables	
Number of seats in upper House	ICPSR study #0016, Statistical Abstracts of the US, Minnesota Legislative Reference Library.
Number of seats in lower House	
% seat gap between main parties (Upper House)	
% seat gap between main parties (Lower House)	
Democratic Governor (dummy)	
Appointed Supreme Court (dummy)	Bohn and Inman (1996)
Limit for governor's tenancy (dummy)	Council of State Governments
Citizens' ideology	Berry, Ringquist, Fording, and Hanson (1999)
Governments' ideology	
X₂ – Socio-economic variables	
Deviation from average per capita personal income	Bureau of Economic Analysis
Percentage of earnings – by sector	Bureau of Economic Analysis
Deviation from average per capita savings	US Census Bureau
Percentage of tax revenue – by degree of volatility	Census of Governments and the Historical Statistics of the United States.
Percentage of expenditure - by degree of volatility	
Deviation from average per capita net intergovernmental revenue	
Tax effort	ACIR and Tannenwald (2000)
Deviation from average per capita debt	US Census Bureau
Population density	Statistical Abstracts of the United States

X_3 – *Institutional variables*	
Constitutional BSF (dummy)	Wagner (2001)
Expenditure limitation (dummy)	Rueben (1995), Waisanen (2005) and Poulson (2005)
Stringency of the balanced budget rule	ACIR, NASBO, personal communication with Tennessee's Department of Finance and Administration

3.4. Empirical strategy and results

Since the dependent variables are not continuous, the estimation of the coefficients with an OLS regression would not be legitimate.[110] Since the actual "distance" between two consecutive numbers is unknown and is likely to be different, more appropriate estimation methods are considered below. Our characterization of the dependent variables (rules for deposit and withdrawal) allows us to use multinomial and ordered techniques that provide new insights into the rationale for the configuration of BSFs. The final choice between the explanatory variables is conditioned by the constraints posed by data restrictions, which limit the number of parameters that can be estimated.

An important characteristic of the deposit and withdrawal requirements is that they can be classified according to their level of stringency. That is, we can classify funds according to how easy or difficult it is to control the moneys that go in or out of the fund and assign numbers to each characteristic to reflect this fact. For that purpose, we assign numbers one to four for the deposit and withdrawal requirements embodied in each BSF.[111] The actual values are irrelevant beyond reflecting that outcomes with larger values correspond to "stricter" requirements. We can take advantage of the ordinal multinomial nature of the data by estimating ordinal logistic regressions. The structural

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[110] OLS equivalents of the models were calculated for comparison purposes, and are available upon request. As expected, all the models considered performed better than their OLS counterparts.

[111] Meaning that requirements of type "four" are stricter than those of type "three", "two" and "one", requirements of type "three" are stricter than those with values "two" or "one" and so on.

model for an ordered logit (or proportional odds model) is given by $y^*_{it} = x_{it} \beta + \varepsilon_{it}$, where i indexes the state, t the year and ε is a disturbance with the logistic distribution. In the most general case we consider (with four possible categories), the model can be expressed in terms of probabilities as:

$$\text{logit} (p_1) = \frac{p_1}{1 - p_1} = \alpha_1 + \beta' x \, ,$$

$$\text{logit} (p_1 + p_2) = \frac{p_1 + p_2}{1 - p_1 - p_2} = \alpha_2 + \beta' x \quad \text{and}$$

$$\text{logit} (p_1 + p_2 + p_3) = \frac{p_1 + p_2 + p_3}{1 - p_1 - p_2 - p_3} = \alpha_3 + \beta' x \, ,$$

with $p_1 + p_2 + p_3 + p_4 = 1$ and $\alpha_1 < \alpha_2 < \alpha_3 < \alpha_4$.

The ordered logit (OL) assumes that all the coefficients on the independent variables are equal for every category of the dependent variable, so the slopes of the estimated equations are identical. This is known as the parallel equation assumption (or proportional odds assumption, because the odds ratio of $Y \leq j$ is the same for all categories). The assumption can be tested using a Brant's test[112] (Brant (1990)) or a likelihood ratio test, which provide evidence suggesting that the parallel regression assumption is violated. This is not a rare occurrence, since the proportional odds assumption is often violated (Long and Freese (2006)) even with large samples and no a priori reason that would justify the violation.[113] It is in the spirit of this literature that we

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[112] Formally, the Brant test's null hypothesis is that the coefficients remain the same across categories. A p-value lower than 0.005 indicates that the impact of the independent variables is different across categories, and the violation of the proportional odds assumption.

[113] Williams (2006) cites Sarah Mustillo saying "neither of us [referring to herself and a colleague] has ever run an ologit model that DID NOT violate the proportional odds assumption. My models always fail the Brant test".

report the OL results even when the proportional odds assumption seems to be violated, but keeping in mind that the estimates may be misleading.

The results of some relevant models appear in tables 3.2 and 3.3.[114] Because regression outcomes of ordered logits are difficult to interpret and do not correspond to the numbers most frequently used for the interpretation of regression results, the tables report the marginal effects of each independent variable (holding the others at their means) rather than estimated coefficients.[115] Tables 3.2 and 3.3 then report the partial derivatives with respect to the explanatory variables of the probabilities of choosing each outcome. Following the same logic as the results of a binary logit, they indicate the estimated change for each outcome individually. The results indicate the changes in probability of a state adopting a weak (leftmost column in each specification) or a strict requirement (rightmost column) given a marginal change in the independent variable, and keeping every other variable at its mean. From these tables we can see that an increase in the number of seats in the upper House significantly increases the probability of adopting a weak or strict deposit requirement, but the increase in probability of adopting a weak deposit outweighs the increase in probability of adopting a strict deposit. Similarly, increases in the percentage gap in the number of seats held by the two main parties in the Lower House reduces the likelihood of establishing demanding requirements. These effects persist even when controlling for various other political circumstances. Our results

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[114] Following Long and Freese (2006) we report the McKelvey and Zavonia's R^2, which has been shown by Hagle and Mitchell (1992) and Windmeijer (1995) to be closest to the R^2 of a linear model estimated using the underlying latent variable.

[115] It is important to note that the marginal changes expressed in the tables cannot be directly used to consider the effects on the left hand side variable of an arbitrary increase in any of the independent variables. For example, because the probabilities are not linear, we would need to calculate directly what the effect on the probability of adopting a strict deposit requirement of a 10% increase in the percentage of tax revenue that is derived from the least volatile category, rather than simply multiply the reported marginal effect by 10.

run parallel to Matsusaka's (1995), who concludes that larger upper houses (but not lower houses) are significantly associated with higher spending but does not find such effects for the existence of divided governments. Other results (not shown) also fail to find any significant relationship between the affiliation of either the legislative or executive branches and the configuration of a BSF. In addition, there seems to be some weak indication (regressions not shown) that more liberal governments are more likely to adopt weak withdrawal requirements. Among the group of economic characteristics, states that spend comparatively more on high-volatility spending appear to be more likely to establish weak rules, while states with higher levels of debt are less likely to establish weak withdrawal requirements. Within the institutional data, our results suggest that constitutionally configured BSFs are more likely to include strict operating rules.

However, it is plausible that we are indeed facing a true violation of the parallel equation assumption. Aside from modifying the model, other solutions exist. For example, we can ignore the ordinal nature of the dependent variable and restrict the analysis to multinomial logits, or we can use generalized ordered logits, that allow the effects of the explanatory variables to vary with the point at which the categories of the dependent variable are dichotomized.

Ignoring the ordinal nature of the dependent variable does not bias the coefficients, although it may lead to loss of efficiency. Two logit models are commonly used: the multinomial logit (or generalized logit model) and the conditional logit.[116] For the more disaggregated case, the probabilities of adoption in the multinomial case can be expressed as: $P(y=i) = \exp(\beta_i * x) / \Sigma_{j \neq i} \exp(\beta_j * x)$ for i=1,2,3,4. As usual, for the system to be

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[116] We choose the multinomial logit as opposed to the conditional logit model, because the former is used when the independent variables refer to characteristics of the units, while the second one is usually employed when the independent variables are characteristics of the choices.

identified, we need to set one of the coefficients equal to zero and compare the results to the baseline group. The coefficients on the other (non-reference) groups can then be interpreted as log odds of being in a particular group as compared to being in the reference group.

A potential for bias in the estimation of the multinomial logit (MNL) exists, brought about by the independence of irrelevant alternatives (IIA) assumption (or the independence in competing risks assumption). In our case, the IIA translates into a risk for bias if we include BSF configuration alternatives that are not available to legislatures, or if we are presenting as different choices configurations that are in reality very close substitutes. The latter could be a problem if in fact some of our four categories are close substitutes. Reducing our classification from four to two and three categories will provide some rough idea on whether this is actually a serious problem.[117]

As with the ordered logits, the partial derivative of the probability of a given choice does not correspond to the associated regression coefficient, so caution must be used when interpreting the results. As with any multi-output regression, there are several equations and potential comparisons. Again we report the effect of a unitary change in the independent variable on the probability of adopting a weak (or strict) requirement, keeping the rest of the independent variables at their means. Examination of tables 3.4

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[117] The Hausman-McFadden (1984) test for IIA in the four-category case suggests that independence may actually exist. However, there are known problems with this test that make its validity questionable. A more reliable test (the Small-Hsiao (1985) test) produces mixed results that suggest that the IIA assumption may be violated. When we restrict our characterization of the deposit and withdrawal requirements to two categories ("strict" vs "lax") both the Hausman-McFadden and the Small-Hsiao test indicate that the IIA assumption holds. With the three categories split, again we find the same discordance between the Hausman-McFadden and the Small-Hsiao tests as we did in the four-category case.

Although Wald tests for the possibility of amalgamation of the categories suggest that none is possible, the associated chi square values for the test for the reduction of categories 1 and 2 into a single group is much smaller than the rest, suggesting that categories 1 and 2 may be much more similar than the others (as we expected them to be). In addition, the likelihood ratio test suggests that categories 1 and 2 may be indistinguishable.

and 3.5 reveals similar results to those of the ordered regressions in terms of the political variables: states with bigger senates are more likely to establish weak rules[118]; less fragmentation in the lower House reduces the probability of adopting strict requirements;[119] and states with more liberal institutions seem to be more likely to establish weak requirements. The effect of the size of the lower house is barely significant and very small in quantitative terms.

The MNL results suggest that additional factors may be of relevance: states with appointed supreme courts are more likely to establish strict deposit rules, providing some support for the possibility that deviations from the rules may be easier under this type of Supreme Court, reducing the cost of adopting stringent requirements. As before, the results indicate that constitutional RDFs are more likely to have more demanding rules. In particular, the results from table 3.4 suggest that although the increase in probability of adopting a 'strict' deposit requirement from having a constitutional RDF is small in magnitude, it is highly significant.

Among the economic variables, we still find a significant increase in the odds of adopting weak rules for states with relatively large shares of highly volatile spending or whose earnings are comparatively more dependent on agriculture. If the proportion of state expenditure that falls in the most volatile category were to increase by just one unit (from the average, ceteris paribus), the results predict an increase in probability of the

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[118] An alternative way of interpreting the results is by introducing odds ratios (calculated, not shown). If we compare the effect of the size of the upper house on the odds ratio of adopting a strict or lax deposit requirement, we find that a unit increase in the size of the upper house increases the odds of adopting a weak deposit requirement by almost twenty percent.

[119] Our results are consistent with Wallis' assertion that "states where politics were the most competitive, where both parties were most responsive to voters' concerns, were the states more likely to adopt new constitutional provision." (Wallis (2005), pp 29).

state adopting a weak deposit requirement of between seven and nine percentage points, depending on the specification of the model.

In addition, the MNL results suggest that states with higher levels of tax effort may be more prone to establishing strict deposit rules. The results indicate that a one percentage point increase from the average value of tax revenues coming from this category decreases the estimated probability of adopting a weak deposit requirement by almost two percentage points. In the tax structure, higher reliance on volatile tax sources seems to increase the odds that a state will choose a strict deposit requirement.

Other alternatives, besides the usage of MNL, to solve the problem of violation of the parallel equations assumption exist. The proportional odds assumption is violated if some (or all) of the coefficients in the J-1 regressions are found to be statistically different, so that the estimated lines are not parallel. The generalized ordered logit (GOL) model solves this problem by allowing the coefficients to differ across categories. Although promising, this method is problematic in our case due to the high number of parameters that need to be estimated, which may render the estimation of the generalized ordered logit model difficult.[120] An intermediate solution is presented in Bercedis and Harrell (1990) and Williams (2006): they propose the estimation of a generalized ordered logit where some of the coefficients are fixed across equations while others are allowed to vary. We still need to explore this method; given the nature of our data, it might prove to be useful. The stereotype ordered model is a compromise between the MNL and the ordered logit, which can be used in a case like this when there is some indication that

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[120] Indeed, many of our generalized ordered logit regressions have difficulty converging.

some alternatives are very similar.[121] Other non-ordered alternatives to multinomial logits yet to be explored are the multinomial probit (MNP) model and nested logit model (NL). MNPs, while being similar to MNLs, have the advantage of assuming an arbitrary covariance structure for its multinomial normal distribution, allowing arbitrary correlation between the utilities of each choice. However, the large number of parameters that have to be estimated may make this method unattractive in our case. NLs create a hierarchical structure, grouping choices into categories within which the IIA is assumed to hold. However, two problems exist with this approach: the number of parameters to estimate may be too high for our problem, and it is not clear how to group the four levels of stringency in such a way that the IIA will hold (the best option, which is the one we present here, may be to collapse categories 1 and 2 in a single group, and 3 and 4 in another). Alternatively, the NL model is a potential solution to bring into the analysis states without BSFs, making the choice of establishing a BSF into the first decision nodule and considering the decision about the type of fund a second-level choice.

It is not a priori clear what the preferred model for our problem may be. In theory, given the ordered multi-dimensional nature of the deposit and withdrawal requirements and the evidence suggesting that the parallel equation assumption may not be satisfied, a generalized ordered logit may be the best fit. However, we run into the problem of having to estimate too many parameters. The partial generalized ordered logit could be a solution to this problem and needs to be considered. Alternatively, multinomial logits ignore the ordered nature of the deposit and withdrawal requirements, but capture the multidimensionality of the requirements.

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[121] Lunt (2001) presents the stereotype ordinal regression model as a method to impose "ordering constraints" in a MNL.

According to the measures of fit, there seems to be some indication that MNL may provide a better fit than the OL for the problem at hand. More support for this claim can be found in the plots of the predicted probabilities of the OL and MNL models: there is a sudden truncation of the ordered logit model's distribution that seems unrealistic, suggesting that the multinomial logit may be a better model for the data.[122] However, preliminary work with intermediate techniques suggests these may provide better fits for the model while taking into account the ordered nature of the data.

Beyond the search for the best fit, there is an inherent usefulness in the comparison of various plausible models. It allows us to see the data under different alternatives, with various specifications and a diverse set of assumptions and provides, in its own way, checks for robustness of any estimated coefficient.

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[122] The correlations between the sets of predictions for ordered logits and multinomial logits are not very high (about 0.6 [0.4] for lax [strict] deposit requirements and 06 [0.7] for lax [strict] withdrawal requirements).

Table 3.2. Ordered logits. Dependent variable: deposit requirement

Description of independent variables	weak	strict	weak	strict	weak	strict	weak	strict
Number of seats in upper House	8.55E-05 ***	2.51E-05 ***						
Number of seats in lower House	-5.56E-06	-1.63E-06						
% seat gap between main parties (Upper House)			2.62E-05	8.07E-06	2.28E-05	7.02E-06	3.44E-05	1.06E-05
% seat gap between main parties (Lower House)			-1.29E-04	-3.98E-05	-1.30E-04	-3.98E-05	-1.24E-04	-3.80E-05
Democratic Governor							-1.26E-03	-3.88E-04
Appointed Supreme Court					-1.74E-03	-5.33E-04		
Limit for governor's tenancy							-3.02E-03	-9.28E-04
Deviation from average per capita personal income	-1.06E-06	-3.10E-07	-1.88E-06	-5.80E-07	-1.90E-06	-5.83E-07	-1.93E-06	-5.94E-07
Percentage of earnings - farming	-6.56E-02 **	-1.92E-02 **	-5.55E-02 *	-1.71E-02 *	-5.67E-02 **	-1.74E-02 **	-5.93E-02 **	-1.82E-02 **
Percentage of earnings - construction	-1.09E-01 *	-3.19E-02 *	-9.70E-02 *	-2.99E-02 *	-9.00E-02 *	-2.77E-02 *	-1.04E-01 **	-3.20E-02 **
Percentage of earnings - manufacturing	-3.73E-02 *	-1.09E-02 *	-3.25E-02 *	-1.00E-02 *	-3.19E-02 *	-9.81E-03 *	-3.63E-02 **	-1.12E-02 **
Percentage of earnings - mining	-4.44E-02	-1.30E-02	-3.53E-02	-1.09E-02	-3.83E-02	-1.18E-02	-3.77E-02	-1.16E-02
Percentage of tax revenue - most volatile	-1.64E-02	-4.81E-03	-5.53E-03	-1.70E-03	-7.57E-03	-2.33E-03	-7.44E-03	-2.28E-03
Percentage of tax revenue - least volatile	-2.09E-02	-6.13E-03	-1.64E-02	-5.04E-03	-1.69E-02	-5.20E-03	-1.51E-02	-4.62E-03
Percentage of expenditure - most volatile	8.14E-02 ***	2.39E-02 ***	8.13E-02 ***	2.50E-02 ***	7.80E-02 ***	2.40E-02 ***	7.83E-02 ***	2.40E-02 ***
Percentage of expenditure - least volatile	6.58E-03	1.93E-03	1.07E-02	3.30E-03	7.49E-03	2.30E-03	1.43E-02	4.40E-03
Deviation from average per capita savings	1.28E+00	3.76E-01	8.40E-01	2.59E-01	8.95E-01	2.75E-01	6.78E-01	2.08E-01
Tax effort	2.30E-05	6.75E-06	9.24E-06	2.85E-06	2.09E-05	6.43E-06	-4.96E-05	-1.53E-05
Expenditure limitation	5.00E-03	1.47E-03	5.49E-03	1.70E-03	6.02E-03	1.86E-03	4.19E-03	1.29E-03
BBR stringency	-5.30E-05	-1.55E-05	2.34E-05	7.21E-06	7.41E-05	2.28E-05	1.96E-04	6.02E-05
Deviation from average per capita debt	-7.54E-06	-2.21E-06	-4.22E-06	-1.30E-06	-4.61E-06	-1.42E-06	-3.55E-06	-1.09E-06
Population density	1.15E-06	3.39E-07	5.08E-06	1.57E-06	6.00E-06	1.84E-06	5.92E-06	1.82E-06
Constitutional BSF	6.15E-03	1.82E-03	6.77E-03	2.10E-03	7.70E-03	2.39E-03	7.43E-03	2.30E-03
Deviation from average per capita net IG revenue	1.32E-02	3.86E-03	7.18E-03	2.21E-03	8.88E-03	2.73E-03	7.26E-03	2.23E-03
Log Likelihood	-182.09951		-179.69465		-179.55244		-178.95421	

*** Significant at 1%, ** Significant at 5%, * Significant at 10%

The dependent variable equals zero in years prior to BSF adoption, in the year of adoption it equals 1 if the adopted deposit requirement is lax and 2 if it is strict

Table 3.3. Ordered logits. Dependent variable: withdrawal requirement

Description of independent variables	weak	strict	weak	strict	weak	strict	weak	strict
Number of seats in upper House	8.63E-05 ***	2.53E-05 ***						
Number of seats in lower House	-5.19E-06	-1.52E-06						
% seat gap between main parties (Upper House)			1.88E-05	5.74E-06	1.43E-05	4.36E-06	2.88E-05	8.80E-06
% seat gap between main parties (Lower House)			-1.36E-04	-4.16E-05	-1.36E-04	-4.15E-05	-1.30E-04	-3.98E-05
Democratic Governor							-1.40E-03	-4.28E-04
Appointed Supreme Court					-2.16E-03	-6.57E-04		
Limit for governor's tenancy							-2.91E-03	-8.87E-04
Deviation from average per capita personal income	-1.16E-06	-3.41E-07	-2.09E-06	-6.38E-07	-2.11E-06	-6.42E-07	-2.11E-06	-6.44E-07
Percentage of earnings - farming	-6.53E-02 *	-1.91E-02 *	-5.41E-02 *	-1.66E-02 *	-5.57E-02 *	-1.70E-02 *	-5.77E-02 *	-1.76E-02 *
Percentage of earnings - construction	-1.13E-01 *	-3.30E-02 *	-1.00E-01 *	-3.07E-02 *	-9.16E-02 *	-2.79E-02 *	-1.06E-01 *	-3.23E-02 *
Percentage of earnings - manufacturing	-3.80E-02 *	-1.11E-02 *	-3.32E-02 *	-1.01E-02 *	-3.25E-02 *	-9.91E-03 *	-3.70E-02 *	-1.13E-02 *
Percentage of earnings - mining	-4.62E-02	-1.35E-02	-3.69E-02 *	-1.13E-02 *	-4.11E-02	-1.25E-02	-3.95E-02	-1.20E-02
Percentage of tax revenue - most volatile	-1.48E-02	-4.32E-03	-2.70E-03	-8.24E-04	-4.99E-03	-1.52E-03	-4.82E-03	-1.47E-03
Percentage of tax revenue - least volatile	-1.48E-02	-4.32E-03	-1.63E-02	-5.00E-03	-1.70E-02	-5.18E-03	-1.51E-02	-4.62E-03
Percentage of expenditure - most volatile	8.20E-02 ***	2.40E-02 ***	8.08E-02 ***	2.47E-02 ***	7.67E-02 ***	2.34E-02 ***	7.81E-02 ***	2.38E-02 ***
Percentage of expenditure - least volatile	5.34E-03	1.56E-03	9.14E-03	2.79E-03	5.36E-03	1.63E-03	1.30E-02	3.98E-03
Deviation from average per capita savings	1.22E+00	3.57E-01	6.81E-01	2.08E-01	7.42E-01	2.26E-01	5.38E-01	1.64E-01
Tax effort	2.26E-05	6.62E-06	6.46E-06	1.98E-06	2.07E-05	6.31E-06	-4.92E-05	-1.50E-05
Expenditure limitation	5.41E-03	1.59E-03	6.26E-03	1.93E-03	6.97E-03	2.14E-03	4.77E-03	1.46E-03
BBR stringency	-5.60E-05	-1.64E-05	2.48E-05	7.60E-06	8.78E-05	2.67E-05	1.94E-04	5.92E-05
Deviation from average per capita debt	-7.18E-06 *	-2.10E-06 *	-3.56E-06 *	-1.09E-06 *	-4.07E-06 *	-1.24E-06 *	-2.94E-06	-8.96E-07
Population density	1.24E-06	3.62E-07	5.68E-06	1.74E-06	6.81E-06	2.08E-06	6.47E-06	1.97E-06
Constitutional BSF	6.27E-03	1.85E-03	7.41E-03	2.28E-03	6.81E-06	2.08E-06	7.88E-03	2.43E-03
Deviation from average per capita net IG revenue	1.38E-02	4.03E-03	8.26E-03	2.53E-03	1.04E-02	3.17E-03	8.18E-03	2.49E-03
Log Likelihood	-182.0834		-179.35376		-179.13407		-178.61558	

*** Significant at 1%, ** Significant at 5%, * Significant at 10%

The dependent variable equals zero in years prior to BSF adoption, in the year of adoption it equals 1 if the adopted withdrawal requirement is lax and 2 if it is strict

Table 3.4. Multinomial logits. Dependent variable: deposit requirement

Description of independent variables	weak	strict	weak	strict	weak	strict	weak	strict
Number of seats in upper House	3.79E-04 **	-8.41E-11						
Number of seats in lower House	3.87E-06	-3.09E-11 *						
% seat gap between main parties (Upper House)			-1.20E-06	6.94E-11	-5.17E-06	9.09E-12	9.47E-06	3.46E-11
% seat gap between main parties (Lower House)			-1.23E-04	-9.74E-11	-1.26E-04	-9.77E-12	-1.10E-04	-4.98E-11 *
Democratic Governor							-2.34E-03	-2.33E-10
Appointed Supreme Court					-2.98E-03	1.29E-09 *		
Limit for governor's tenancy							-3.22E-03	4.63E-10
Deviation from average per capita personal income	-7.53E-07	-1.40E-13	-1.67E-06	-1.16E-12	-1.62E-06	-1.15E-13	-1.73E-06	-5.16E-13
Percentage of earnings - farming	-3.73E-02 *	-5.73E-08	-2.17E-02	-1.39E-07 ***	-2.44E-02	-1.26E-08 ***	-2.58E-02	-6.59E-08 ***
Percentage of earnings - construction	-4.39E-02	-2.62E-08	-5.00E-02	-8.40E-08 *	-3.71E-02	-6.75E-09	-5.46E-02	-4.12E-08 *
Percentage of earnings - manufacturing	-2.78E-02	2.86E-09	-1.64E-02	6.91E-10	-1.50E-02	1.08E-09	-2.14E-02	2.50E-10
Percentage of earnings - mining	-2.63E-03	-6.12E-08 **	3.39E-03	-9.80E-08 *	-2.72E-04	-6.01E-09	-4.59E-04	-4.36E-08
Percentage of tax revenue - most volatile	-2.51E-02	5.75E-09	-8.82E-03	1.33E-08	-1.20E-02	2.59E-09	-1.23E-02	3.33E-09
Percentage of tax revenue - least volatile	-2.10E-02	1.21E-08	-1.74E-02 *	2.72E-08	-1.82E-02 *	2.88E-09	-1.57E-02	1.26E-08
Percentage of expenditure - most volatile	7.35E-02 **	1.60E-08	9.11E-02 ***	2.22E-08	8.47E-02 ***	4.31E-09	8.58E-02 ***	9.81E-09
Percentage of expenditure - least volatile	2.29E-02	1.20E-08	2.36E-02	1.12E-08	1.73E-02	3.03E-09	3.16E-02	4.12E-09
Deviation from average per capita savings	1.09E+00	-9.08E-07	6.24E-01	-7.52E-07	6.82E-01	-1.94E-07	3.97E-01	-3.60E-07
Tax effort	-1.77E-04	3.94E-11	-1.35E-04 **	1.66E-10 **	-1.15E-04 *	1.29E-11 **	-1.84E-04 **	8.81E-11 *
Expenditure limitation	9.01E-03	-5.71E-11	7.17E-03	1.89E-09	8.12E-03	1.20E-10	5.41E-03	9.10E-10
BBR stringency	1.49E-04	-8.32E-10 ***	2.15E-04	-2.34E-09 ***	2.91E-04	-2.83E-10 ***	3.81E-04	-1.11E-09 ***
Deviation from average per capita debt	-3.17E-06	-6.35E-12 ***	-4.00E-07	-1.48E-11 ***	-9.88E-07	-1.28E-12 ***	4.63E-07	-6.83E-12 ***
Population density	4.31E-06	-1.21E-11 ***	8.85E-06	-2.92E-11 ***	1.04E-05	-2.50E-12 ***	9.04E-06	-1.46E-11 ***
Constitutional BSF	-3.59E-03	1.19E-05 ***	-3.15E-03	8.39E-05 ***	-2.60E-03	2.87E-06 ***	-2.33E-03	6.38E-05 ***
Deviation from average per capita net IG revenue	1.48E-02	5.48E-09	8.87E-03	-6.48E-09	1.16E-02	-1.52E-09	8.01E-03	-3.23E-09
Log Likelihood	-153.05429		-155.28692		-153.23644		-154.11043	

*** Significant at 1%, ** Significant at 5%, * Significant at 10%

The dependent variable equals zero in years prior to BSF adoption, in the year of adoption it equals 1 if the adopted deposit requirement is lax and 2 if it is strict

Table 3.5. Multinomial logits. Dependent variable: withdrawal requirement

Description of independent variables	weak	strict	weak	strict	weak	strict	weak	strict
Number of seats in upper House	2.77E-04 *	4.23E-06						
Number of seats in lower House	4.22E-06	-4.04E-06						
% seat gap between main parties (Upper House)			1.10E-04	-1.35E-06	1.06E-04	-1.20E-06	1.14E-04	-4.51E-07
% seat gap between main parties (Lower House)			-1.01E-04	-4.22E-06 ***	-1.02E-04	-3.62E-06 ***	-9.26E-05	-1.69E-06 ***
Democratic Governor							-1.19E-03	-3.52E-05
Appointed Supreme Court					-1.45E-03	-5.38E-05		
Limit for governor's tenancy							-5.09E-03	-1.02E-05
Deviation from average per capita personal income	-1.13E-06	-7.62E-08	-9.52E-07	-5.31E-08 *	-9.60E-07	-4.91E-08 *	-1.02E-06	-2.29E-08 *
Percentage of earnings - farming	-4.49E-02 *	-1.28E-03	-4.65E-02 *	-1.61E-04	-4.69E-02 *	-2.52E-04	-5.24E-02	-6.40E-05
Percentage of earnings - construction	-3.39E-02	-1.22E-02 ***	-4.78E-02	-3.65E-03 ***	-4.35E-02	-3.09E-03 ***	-6.47E-02	-1.34E-03
Percentage of earnings - manufacturing	-3.68E-02 *	-8.53E-04	-3.00E-02 *	-3.55E-04	-2.97E-02 *	-3.17E-04	-3.70E-02 **	-1.52E-04
Percentage of earnings - mining	-3.90E-03	-6.70E-03	-4.44E-03	-1.66E-03 ***	-5.84E-03	-1.77E-03 **	-1.01E-02	-6.38E-04 ***
Percentage of tax revenue - most volatile	-4.27E-02 *	1.42E-03 *	-3.73E-02 *	5.95E-04 **	-3.88E-02 *	4.75E-04 *	-3.95E-02 **	2.45E-04 *
Percentage of tax revenue - least volatile	-2.11E-02	-4.86E-04	-2.42E-02 *	-1.22E-04	-2.47E-02 *	-1.29E-04	-2.05E-02	-5.41E-05
Percentage of expenditure - most volatile	6.49E-02 **	5.12E-03	8.42E-02 ***	1.64E-03 **	8.18E-02	1.37E-03 *	7.55E-02 ***	6.92E-04 **
Percentage of expenditure - least volatile	-2.51E-03	2.60E-03	3.37E-03	5.07E-04	3.88E-04	4.65E-04	6.10E-03	2.30E-04
Deviation from average per capita savings	1.12E+00	-1.40E-02	1.21E+00	-1.39E-02	1.25E+00	-9.67E-03	8.61E-01	-5.33E-03
Tax effort	-4.08E-05	-8.43E-06	1.79E-05	-1.98E-06	3.05E-05	-1.87E-06	-8.33E-05	-7.42E-07
Expenditure limitation	6.65E-03	4.92E-04	4.00E-03	2.88E-04 *	4.54E-03	2.77E-04	2.10E-03	9.75E-05 *
BBR stringency	-3.06E-04	-4.14E-05	-1.52E-04	-5.08E-06	-1.30E-04	-1.32E-06	1.39E-04	-1.09E-06
Deviation from average per capita debt	-7.03E-06	-3.23E-07 *	-6.63E-06	5.32E-09	-7.02E-06	-8.91E-09	-5.53E-06	1.86E-09
Population density	4.72E-06	-5.77E-09	3.16E-06	1.72E-07	4.09E-06	1.66E-07	4.50E-06	8.93E-08 *
Constitutional BSF	-1.45E-03	5.63E-03 **	-1.25E-03	3.46E-03 ***	-8.34E-04	4.56E-03 **	-9.49E-04	3.18E-03 **
Deviation from average per capita net IG revenue	1.09E-02	1.49E-03 **	5.31E-03	2.78E-04	7.01E-03	2.96E-04	6.17E-03	1.20E-04
Log Likelihood	-169.88079		-164.80986		-164.37042		-162.30124	

*** Significant at 1%, ** Significant at 5%, * Significant at 10%

The dependent variable equals zero in years prior to BSF adoption, in the year of adoption it equals 1 if the adopted withdrawal requirement is lax and 2 if it is strict

3.5. Conclusions

BSFs have become popular among states as tools to help them weather recessions and other adverse conditions. However, they are very disparate in nature, and the differences in terms of deposit and withdrawal requirements have a significant impact on their effectiveness. This chapter has investigated the factors that determined the choice of BSFs' configuration, using data from the second half of the twentieth century and extending or modifying the set of indicators used in the previous literature. In particular, we corrected the figure for the stringency of Tennessee's BBR, considered a new measure of the resources easily available to the states (proposing an alternative to the measure of savings that had been previously used, which is advised against by the Census), introduced additional indicators of the political, economic and institutional particulars of the state, and proposed new methods that incorporate the ranked nature of the two requirements that have been proved to significantly affect the effectiveness of these funds: deposit and withdrawal rules.

Our results provide several insights: one suggests that the two most lax categories of deposit and withdrawal requirements may be indistinguishable, so the possibility of collapsing them when analyzing BSFs should be considered. A second result has to do with the methodology used: intuitively, ordered techniques should be employed when analyzing these funds, but the violation of the proportional odds assumption makes the OL model unreliable. Tentative work with generalized ordered logit suggests this option may be superior to MNL, and further investigation is under way to apply intermediate techniques that would incorporate a sense or ordering into the analysis without imposing

excessively restrictive assumptions. A lesson to be drawn from this is that we must consider carefully the ordered nature of the requirements and the assumption of proportional odds.

Turning to the investigation of the factors that determined the decision to configure these funds,[123] we find indications that bigger Senates are conducive to laxer deposit requirements and that more fragmented lower houses (which generally have high levels of control over the budget and more members) may be correlated with less stringent BSFs.[124]

Among the economic variables, we find some evidence suggesting that states with higher levels of debt are more prone to establish weak deposit requirements but stricter withdrawal rules, and that the state earning's composition may be a factor to take into account.[125] In addition, we find evidence that states which receive higher percentages of their total tax revenue from relatively more volatile sources show some inclination to establish funds with stricter deposit requirements, as do states with higher levels of tax effort. Both effects provide some indication in favor of the hypothesis that states adopt these funds to accumulate resources in order to weather recessions. However, states that spend a higher proportion of their budgets on volatile spending categories are more likely to establish weak funds.

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[123] We do not have enough data to allow us for clustering by year. We have, however, run our regressions with clustering by economic cycle using the business cycles data reported by NBER. The resulting estimates are smaller in magnitude but none of the significant coefficients switches signs.

[124] Besley and Case's (2001) finding that fiscal cycles exists in states where limits to governor tenure are binding may help explain why we find weak and scattered indications linking the existence of these rules with increases in the likelihood that a state will institute strict requirements for its BSF.

[125] To take into account the possibility of regional effects, we run our regressions clustering using the BEA-defined regions and included regional dummies. When including regional dummies, the variables representing the New England states (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont) and the South Atlantic states (Florida, Georgia, North Carolina, South Carolina, Virginia) were significantly more likely to adopt weak funds.

Other state institutions are relevant in the configuration decision, in line with Poterba's (1994) suggestion that fiscal tools should not be studied individually. Firstly, states with stricter balanced budget requirements seem to be less likely to establish demanding deposit requirements (although no such result appears regarding withdrawal requirements). Also, although the mere existence of tax and expenditure limitations is not a significant factor in the configuration choices of states' RDFs, the part of the budget to which they apply is. In particular, the existence of more comprehensive TELs increases the likelihood that states will adopt weak deposit requirements, which suggests RDFs may be an attempt to avoid the restrictions imposed by these limits. Additional support for this idea comes from the results suggesting that BSFs that were not established by the legislature, but rather by voters, and that those embedded into the state constitution are more likely to have a strict configuration.

Further work includes the investigation of the simultaneous choice of deposit and withdrawal requirements, with measures of the overall level of stringency of the fund and simultaneous estimation of deposit and withdrawal choices. Also, additional work on the importance of the ordered nature of these rules is needed. Alternative methods were briefly discussed that take into account the fact that the trade-off between the number of parameters to estimate and potential explanatory variables is of great importance and needs further consideration.

The results of this study provide a stepping-stone to the discussion of this rather recent fiscal tool. BSFs have been found to have the potential to significantly reduce fiscal stress, but only if they are properly configured. Their impact on budget stabilization takes many forms: adequately designed BSFs improve the state's credit rating, reduce the need

for hurried solutions to cash shortages (such as unplanned tax increases or cuts in spending) and significantly reduce the volatility of expenditure –in particular, social spending.

Our results suggest that fiscal characteristics, such as the levels of tax effort or volatility of state spending, are important factors for the choice of the form of these funds. However, we have gathered some evidence that indicates that factors other than budget stabilization may help explain the weak –and less effective- configuration of many funds. Political factors, as well as other institutional constraints, also provide incentives that explain the configuration of the funds.

Given the importance of these rules, states reconsidering the nature of their funds may benefit from rethinking the reasons that led to the actual configuration and include them in their discussions about the possibility of reform. These lessons may also be valuable for other countries, where increased subnational government fiscal responsibilities could make instruments for budget stabilization at these levels an attractive option. As with the U.S. experience, the institutional details of these funds are likely to be of major importance. Others who may consider establishing funds like these could benefit from the awareness of considerations other than the purely economic reasons that have impacted the choices embedded in BSFs.

Chapter 4. Conclusions and Research Prospects

States have created a wide array of institutions to address fiscal matters and the ways in which these institutions affect policy outcomes are not easy to disentangle. Often, fiscal institutions are considered in a relatively short time frame, either because data becomes scarcer and less reliable as we go back in time or because changes in institutions may take place over a long period of time. This gives the appearance that fiscal institutions are immobile. As a consequence, fiscal institutions –in particular those that have been in existence for a long period of time- are frequently considered as exogenous in economic research. A historical perspective helps us understand the origin and evolution of fiscal institutions and clarifies their effects on and relationships with other fiscal institutions.

The specific details of the configurations of fiscal institutions are another feature that is sometimes ignored, despite its relevance. Indicator variables, that concentrate only on the absence of presence of a particular institution, rather than focusing on the form of the institution can produce misleading interpretations of the evolution of an institution. A clear classification of the different types of rules that can coexist under the same name is necessary before we can proceed to study their evolution and effects.

This dissertation illustrates the need for a comprehensive treatment of fiscal institutions. The creation, configuration and evolution of fiscal institutions are affected by the economic and political circumstances in which they operate, but also by other institutions. In fact, the discussion suggests that fiscal institutions, far from being exogenous and independent of each other, co-evolve.

Chapter one considered the issue of the creation of institutions under the light of the government's decision to credibly pre-commit. In particular, the trade-off between the flexibility to address future problems and the advantages derived from tying the hands of future policy makers is at the core of the decision to establish institutions to deal with fiscal affairs. The uncertainty of economic conditions, paired with common pool problems and the incentives associated with the fact that public officials are subject to election, provide incentives to institutionalize the procedures by which certain decisions are made.

The choice of how to commit results in fiscal institutions that are used in all sorts of economic and political conditions. The effectiveness of one rule depends on the restrictions imposed by other rules. This is the reason why a general perspective of some of the states' fiscal institutions is necessary before analyzing any other one in detail. The evolution of debt restrictions provides us with a good example of an institution whose changing nature has been overlooked in favor of a more static view. Careful consideration of the history of the rules, however, provides evidence of what may be called "*recursive institutional change*." After institutions are created and used in the economic and political circumstances of the time, new problems arise. Sometimes it is an economic disturbance, or the unforecasted effects of the interaction of the institution with an existing one, or new developments that cause the revision of the original institution. In turn, this change creates a new set of responses, and even the introduction of new rules. Institutional change becomes then a process of recursive change, rather than a series of unconnected exogenous events.

Chapter two analyzes debt restrictions at the state level. Subnational debt is an important matter in the United States, where the size of the debt market is sizeable, and regulation of state debt issue is constitutional. We gathered data on the full history of the constitutional provisions that regulate debt in the states using the information available in the NBER/MD Constitution Project.[126] This compilation provides previously unavailable data on debt restrictions. It contains information on the original rules created in the constitutions and their subsequent modifications,[127] spanning over a hundred and fifty years and, frequently, several constitutions. The compilation includes provisions dealing with limits to state debt, as well as restrictions and regulations on municipal borrowing, itemized provisions allowing for debt issuance for specific purposes, and regulation of non-guaranteed debt.

This dataset provides us with two main advantages. First, since the data covers the entire history of constitutional debt restrictions, it allows us to consider their evolution rather than a snapshot of the current situation. Secondly, it provides with coherent and comprehensive information on debt restrictions that goes beyond the dichotomy of existence/non-existence of a provision on debt issue. The data set allows us to draw a more complete picture of what debt restrictions really look like. The dataset improves on previously used indicators of debt restrictions because its information is not restricted to one or a handful of provisions related to the limiting of debt, but includes a

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[126] The actual wording of these provisions is available from the author upon request. The assemblage of a full recount of state constitutions is a difficult task. Because this compilation would be severely flawed if only the original and/or last version of the constitutions were recorded it becomes necessary to include the successive amendments that have altered the constitutional texts without causing the creation of a "new" constitution

[127] These texts are often not readily available and making sense of the string of modifications can be a difficult task. As such, the work on the database of historical state constitutions is still underway and because of insufficient information, data are currently unavailable for Vermont, Nebraska, Missouri, Georgia, and Tennessee.

comprehensive review of a more complete set of the constitutional provisions that play a role in the actual regulation of debt issuance. Frequently, the narrow view of debt limits is caused by two factors: considering only the part of the restriction that prescribes a certain amount as limit to debt, without paying attention to the modification procedures that transform the limit into a threshold for a different type of restriction on debt; and the oversight of the fact that regulations of debt may exist over more than one article.

A careful definition of what constitutes a debt restriction involves some terminology. The first distinction separates debt limits from procedural restrictions on debt. Limits establish a maximum for debt (either in absolute or relative terms, or for overall debt or casual deficit). Procedural restrictions do not limit the amount of debt that can be issued, but require public officials to follow certain procedures for authorizing the debt issue.

In addition, we need to consider the existence of multiple provisions that allow for the modification of the restriction and that can, in fact, significantly alter its nature. Most constitutional debt provisions explicitly include modification provisions that allow states to issue more debt than the maximum established by the limit if certain conditions (such as voter or legislative approval) are met. Previous research has often concentrated on the existence of debt limits, ignoring procedural restrictions. Furthermore, the implicit possibility of modifying the debt limit exists, though upward revision of the maximum or the inclusion in the constitution of separate debt items that are explicitly excluded from the list. Amending the constitution is difficult, but it may be easier than complying with the procedure required to issue debt above the limit.

Chapter two discusses the evolution of state debt restrictions in context with the economic changes of the period, the shifting involvement of other levels of government,

and the creation of new types of debt. Overall, debt issues have shifted away from general obligation bonds to revenue-backed bonds, and a pattern of increased involvement of sub-state governments has been widely recognized. Part of these developments are attributable to debt restrictions at the state level, but other arguments can be made involving a better alignment of users with payers of services and the evolution of systems that allow for the identification of revenue sources for the service of debt. The literature, however, has ignored the shift towards flexibility in debt restrictions that occurred in the second half of the twentieth century and its potential implications for our vision of fiscal institutions in the states. This change becomes clear only when debt restrictions are put in perspective and their evolution over the course of their existence is considered.

Debt restrictions appeared in the 1840s as a response to the states defaults in 1841 and 1842. The objective of the new fiscal institutions was not as much to forbid debt but to include mechanisms that addressed the problems of taxless finance, concerns about the functioning of the political system and corruption. The restrictions spread to other states, reaching many of the Southern states in latter part of the XIX century. States continue to borrow, but the late XIX century saw a marked increase in local borrowing. States responded by extending debt restrictions to local governments, beginning in the 1870s. Local governments responded to the new restrictions by developing the revenue bond and more extensive use of special districts an public authorities.

At the beginning of the XX century, states began modifying debt limits by explicitly allowing debts for certain purposes. Debt itemization, the use of revenue bonds, and the creation of special districts enabled state governments a great deal of latitude in

borrowing, even if the state constitution contained what appeared to be a strong limit on debt creation. In response, several states in the nineteen sixties and seventies modified their constitutions to allow legislatures a considerably greater degree of flexibility, either on the limit itself or in the modification procedures.

Immediately following the easing of debt restrictions, states began experimenting with new types of fiscal institutions. Several states incorporated balanced budget rules directed towards establishing procedures to regulate the budget process, and others laid down rules regulating appropriations. Tax and expenditure limitations (TELs) start appearing in the late seventies and were joined by large-scale adoption of budget stabilization funds in the mid-eighties.

A major contribution of chapter two is to show how the accumulating body of debt restrictions in state constitutions, was not in fact producing a more restrictive environment for the creation of state or local government debt. Of the 24 cases where states wrote down absolute limits on the dollar amount of debt the state could incur, only 3 instances actually produced an actual operating limit. In the other 21 cases, states allowed themselves other avenues for authorizing debt issue. This previously unrecognized movement towards flexibility is paired with the creation of institutions aimed at increasing fiscal control, such as TELs and balanced budget rules, and is then followed shortly after by the enactment of rainy day funds, aimed at providing a mechanism to help states cope with some of the effects of these fiscal constrains.

Rainy day funds are the object of study of chapter 3. As one of the latest institutions used in state budgeting, these funds have received a considerable amount of attention and are often regarded as potentially powerful institutions for budget stabilization, if they are

properly configured (that is, if they include stringent rules, especially for deposit requirements). The particular structure of rainy day funds is a crucial characteristic in determining their effectiveness, and the literature has consistently shown that simply considering their existence does not provide accurate measures of their efficiency. Yet, no research has considered the reasons that lead states to adopt rainy day funds in such ways that compromise their ability to reduce fiscal stress. Chapter three takes a step in this direction, considering the choice of the structure of rainy day funds from an empirical perspective.

In particular, the rules that regulate the ways resources are deposited into and drawn from the fund play an important role in determining the effect of rainy day funds. Both deposit and withdrawal requirements can be classified according to their stringency, which is inversely related to the degree of flexibility policy makers have in making decisions about the funds' finances. Chapter three describes in greater detail the deposit and withdrawal requirements, and how the various options within each category are ranked, concentrating on their ordered nature. It then goes on to discuss the potential empirical strategies to identify the reasons that lead states to select "lax" or "stringent" rules for their funds.

The notion of an "order" in these rules has existed for some time in the literature on rainy day funds, but little or no empirical work existed previously on the reasons for the specific configuration choices. We fill this niche in the literature and include the ordered nature of the requirements as an element to be explained. For that, we first consider the potential for amalgamation among the rules, as some of them have the potential of being close substitutes. Indeed, our results suggest that when considering the most

disaggregated classification we may take the two laxest levels of both deposit and withdrawal requirements to be very similar, opening the door to a possible collapse of the categories for empirical work.

This discussion adds to the literature of ordered analytical techniques in the econometric analysis. However, care has to be exerted in the application of the simplest ordered methods in this case, since the satisfaction of the proportional odds assumption is not guaranteed. Because of the thinness of the data, more elaborated ordered techniques are difficult to implement, but there is some indication that methods that take into account the ordered nature of the rules may be superior to un-ordered multinomial methods. In general, the use of econometric techniques for research on these types of institutional issues shares the same type of problem, in particular if the object of research is the different configurations of the institution, rather than its existence, which requires an especially careful selection of the econometric technique. Because econometric analysis may be constrained by data availability, a comprehensive vision of the set of institutions and their interactions becomes particularly useful, as they can guide the research, and complement and inform the results provided by the regression analysis.

Last, the empirical model is estimated using the states that adopted a rainy day fund during the sample period (1951-2000) to examine the role of political, socio-economic and institutional factors on the decision to select a particular configuration for the state's rainy day fund. We find evidence suggesting that states with larger Senates are more likely to adopt RDFs with laxer deposit requirements and that more fragmented lower houses increase the probability that the state adopts a less strict RDF. Among the economic variables, high levels of debt may make states more likely to adopt weak

deposit requirements, but stricter withdrawal rules. States with more volatile tax sources, or that exert a higher level of tax effort adopt stricter RDFs, providing support for the hypothesis that states adopted RDFs as a stabilization mechanism. Volatility of spending is also a relevant factor, favoring the adoption of weak RDFs.

Economic motivations were not the only important determinant. We find support for the idea that RDFs need to be considered as part of a bigger set of instruments, rather than individually. States with more stringent balanced budget requirements, as measured by the Advisory Commission of Intergovernmental Relations, are less likely to establish strict deposit requirements. There is also some suggestion in the results that the mere existence of institutions does not provide us with a complete picture of their effect on each other. The presence of tax and expenditure limits does not significantly affect the configuration decisions regarding RDFs, but we find that states with more comprehensive TELs are more likely to adopt weak deposit requirements. Paired with the result of the effect of balanced budget requirements, this provides some indication that RDFs may have been designed to increase the power of decision of legislatures, constrained by other rules. Additional support for this idea comes from the method of enactment of RDFs themselves, since RDFs that were created through voters' approval are more likely to have strict requirements.

Although this dissertation provides some interesting insights and results, there is still much room for future research. A first avenue for future research includes the incorporation of other types of institutions. The institutions considered fall in the legislative arena, but executive control is an important part of the budgetary process. Including the institutions used to regulate this aspect of the process in the analysis would

provide us with a more complete picture of the ways in which institutions interact. In addition, the process has created other, smaller, institutions and instruments such as TIFs (tax increment financing) and PILOTS (payment in lieu of taxes).

A second area for research should concentrate on empirical analysis. A first option is empirical investigation of the kind conducted on rainy day funds for other institutions, such as tax and expenditure limitation or the last wave of balanced budget rules. This could help us further our understanding of the processes that have led to the present nature of the institutions state use for fiscal matters. A second area of empirical work would take advantage of the dataset constructed on debt restrictions to investigate the effects of different types of debt restrictions on fiscal outcomes, and the effects of debt restrictions on other aspects, such as the proliferation of special districts and public authorities and the use of revenue bonds. Unlike much of the previous research, this investigation would be able to distinguish between the different types of debt restrictions and separate the effects of each, and use a longer time period for analysis.

Within the area of debt restrictions, we have yet to analyze the data on debt restrictions at the local level. Because of the absence of a compilation of the constitutional restrictions in all states, most of the research has been centered on the study of particular cases. Given the importance of local borrowing, the effects of local debt restrictions both on debt and on other fiscal outcomes from a larger perspective pose an interesting question. This research could benefit from the distinction between the different types of restrictions in existence at the state level, although an additional layer regarding the type of local government that is subject to the rule would need to be added.

Further work should incorporate statutory restrictions, to complement the constitutional provisions that restrict debt issuance both at the state and local levels.

Last, because of their importance and potential effect on fiscal outcomes, rainy day funds remain an interesting venue of research. The existing research has frequently considered the rest of the other institutions at the state level, but frequently the measures used had to do with their existence and not their configuration. In addition, with a more complete description of debt restrictions, possibilities for better description of both the reasons that led to the adoption of rainy day funds (as well as the time and specific form of their enactment) and their effects on fiscal outcomes exist.

Empirical research and careful consideration of the creation and evolution of fiscal institutions are complementary approaches, and we have much to gain from their integration. While the evolution may happen over extended periods of time, these institutions do change, and their modifications follow patterns that can (and should) inform our empirical questions.

Appendices

Appendix A – Appendix to chapter 2

Appendix A.1. Tables.

Table A.1. Government Debt by Level of Government

Year	Amount (in millions of dollars)			Share of total		
	Local	State	National	Local	State	National
1838	25	172	3	12.5%	86.0%	1.5%
1841	25	193	5	11.4%	86.4%	2.3%
1870	516	352	2436	15.6%	10.7%	73.7%
1880	826	297	2090	25.7%	9.2%	65.0%
1890	905	228	1122	40.1%	10.1%	49.8%
1902	1877	230	1178	57.1%	7.0%	35.9%
1913	4035	379	1193	72.0%	6.8%	21.3%
1922	8978	1131	22963	27.1%	3.4%	69.4%
1932	16373	2832	19487	42.3%	7.3%	50.4%
1942	16080	3257	67753	18.5%	3.7%	77.8%
1952	23226	6874	214758	9.5%	2.8%	87.7%
1962	58779	22023	248010	17.9%	6.7%	75.4%
1972	129110	59375	322377	25.3%	11.6%	63.1%
1982	257109	147470	919238	19.4%	11.1%	69.4%
1992	603920	372319	2998639	15.2%	9.4%	75.4%
2002	1043900	642200	3540427	20%	12.3%	67.7%

Sources: 1838-1992: Wallis (2000), 2002: US Census

Notes: National debt is net debt held by public

Table A.2. Trends in outstanding municipal bonded debt -- by type

	Amount (in millions of dollars)		Share of total	
Year	Revenue Bonds	General Obligation Bonds	Revenue Bonds	General Obligation Bonds
1909	--	3000	1%	100%
1925	63	11638	1%	99%
1931	325	16975	2%	98%
1934	650	17250	4%	96%
1937	1000	17800	5%	95%
1966	3838	7241	35%	65%
1967	4983	9423	35%	65%
1968	6525	9795	40%	60%
1969	3573	8129	31%	69%
1970	6101	11981	34%	66%
1971	8710	16219	35%	65%
1972	9404	14289	40%	60%
1973	10624	13197	45%	55%
1974	9999	13561	42%	58%
1975	14736	15964	48%	52%
1976	17272	18143	49%	51%
1977	28645	18061	61%	39%
1978	30641	17711	63%	37%
1979	30836	12467	71%	29%

Source: Liu, Wallis (2007)

Graph A.1: Trends in New Municipal Bond Issuances, 1975-1999

Revenue Bonds (% of Total)

General Obligation Bonds (% of Total)

Source: Liu, Wallis (2007)
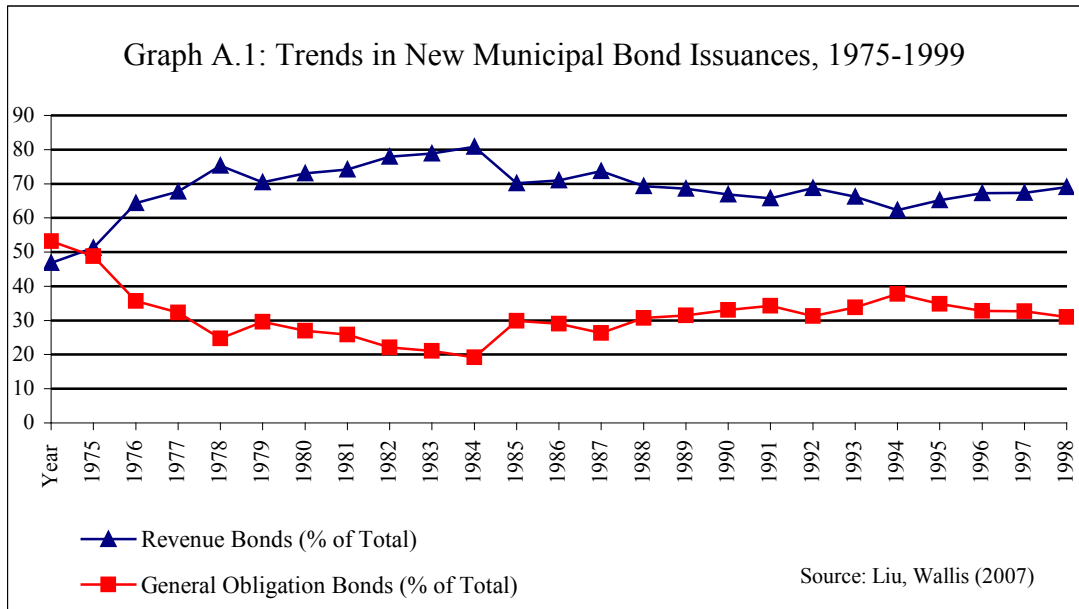
Table A.3. Classification criteria of special districts

Inter-governmental dependence	Geographical scope	Functional specialization	Primary Revenue	Debt Financing
Highly dependent	regional	single purpose	tax-based	general obligation bonds
Highly independent	metropolitan	multi-purpose	non taxed-based	revenue bonds
	urban fringe			
	rural corporation			

Based on Leigland (1993)

Table A.4. State debt limits and associated modification procedures

State	Limit		Procedural restrictions and modification provisions associated with the limit			
	Limit	Year Limit	Procedure restriction	Year PR	Modification provision	Year MP
Alabama	Absolute [cd]	1875				
	Absolute	1901			DI	1922
Arizona	Absolute [cd]	1912	V	1912		
California	Absolute	1847	V	1847		
	Absolute	1879	V	1879		
					DI	1919
			SL	1960		
Colorado	Relative	1876			DI	1920
					U	1993
Delaware	Absolute [cd]	1897	SL	1897		
Florida	Absolute	1868			DI	1875
Hawaii	Absolute	1959	SL	1959		
	Relative	1968				
Idaho	Relative	1890	V	1890		
	Absolute	1912	V	1912		
Iowa	Absolute	1847	V	1847		
	Absolute [cd]	1857	V	1857		
Illinois	Absolute [cd]	1848	V	1848	U	1870
	Relative	1970	V or SL	1870		
Indiana*	Absolute [cd]	1851				
Kansas	Absolute	1859				
Kentucky	Absolute [cd]	1850	SL	1850		
Louisiana	Absolute	1845	V and SL	1845		
	Absolute	1852	SL	1852	U	1852
	no debt	1910			DI	1818
	Relative	1993	SL	1993		

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Table A.4 Cont'd. State debt limits and associated modification procedures

State	Limit		Procedural restrictions and modification provisions associated with the limit			
	Limit	Year Limit	Procedure restriction	Year PR	Modification provision	Year MP
Maine	Absolute	1847			DI	1912
					U	1919
			V and SL	1951		
Maryland	Absolute [cd]	1851			DI	1867
Michigan	Absolute [cd]	1850			U	1909
					DI	1917
			V and SL	1954		
Minnesota	Absolute	1857			DI	1872
Mississippi	Relative	1960				
Montana	Absolute	1889	V	1889		
			SL	1973		
Nevada	Absolute	1864			DI	1924
	Relative	1916			U	1989
New Jersey	Absolute	1844	V	1844		
	Relative	1947	V	1947		
New Mexico	Absolute [cd]	1911	V	1911		
					DI	1921
New York	Absolute [cd]	1846	V and SL	1846		
	Absolute [cd]	1894	V and SL	1894	DI	1894
	Absolute	1938	V and SL	1938	U	1938
North Carolina	Relative	1924	V and SL	1868		
	Absolute	1936	V	1936		
			V and SL	1971		
North Dakota	Absolute [cd]	1889			U	1918
	Absolute	1918			DI	1948
Oklahoma	Absolute [cd]	1975				
Ohio	Absolute [cd]	1851			DI	1947
	Relative	1999	SL	1999		
Oregon	Absolute	1857			DI	1912
					U	1920
Pennsylvania	Absolute [cd]	1839			DI	1918
					U	1874
	Relative	1969	V	1969		
Rhode Island	Absolute	1843	V	1843		
South Dakota	Absolute	1889				
Texas	Absolute	1845			U	1876
	Absolute [cd]*	1876			DI	1917
	Relative	1997				
Utah	Absolute	1895			DI	1997
	Relative	1911				

Table A.4 Cont'd. State debt limits and associated modification procedures

State	Limit			Procedural restrictions and modification provisions associated with the limit		
	Limit	Year Limit	Procedure restriction	Year PR	Modification provision	Year MP
Virginia	Absolute [cd]*	1870	SL	1902		
	Relative	1928			DI	1920
	Relative	1971				
Washington	Absolute [cd]	1889	V	1889	DI	1972
	Relative	1972	V	1972		
West Virginia	Absolute [cd]*	1872			DI	1920
Wisconsin	Absolute	1848				
	Relative	1969	V	1969		
Wyoming	Relative	1889	V			

Notes: This table includes the debt limits, absolute or relative, and the associated modification procedures. Procedural restrictions (that is, voter and legislature approval requirements that are not associated with a limit but are rather self-standing) are not included.

* Indiana, Texas, Virginia, West Virginia establish debt can only be issued to meet casual deficits, but does not establish a limit

Limit: Absolute [cd] (absolute limit for debt for casual deficit) Absolute (absolute limit debt).

Explicit procedure: V (voter approval), SL (legislature approval)

Implicit procedure: DI (debt itemization) U (upwards revision of the limit)

Note: Vermont, Nebraska, Missouri, Georgia, Tennessee NA

Table A.5. Changes to constitutional regulations on debt related to approval method at state level

State	Subdivision	Year of change	Super-majority and voter approval	Super-majority or voter approval	Super-majority	Voter approval
Louisiana	West South Central	1852			x	
Virginia	South Atlantic	1902	x			
New Mexico	Mountain	1911				x
Nevada	Mountain	1916				
North Carolina	South Atlantic	1924				
Arkansas	West South Central	1934				x
New Jersey	Middle Atlantic	1947				x
Maine	New England	1955	x			
California	Pacific	1960	x		x	
Michigan	East North Central	1965	x			
Florida	South Atlantic	1968				x
Pennsylvania	Middle Atlantic	1969				x
Wisconsin	East North Central	1969				
Illinois	East North Central	1970		x	x	
Washington	Pacific	1972			x	
Montana	Mountain	1973			x	
Louisiana	West South Central	1974			x	
South Carolina	South Atlantic	1977		x		
Texas	West South Central	1977				
Colorado	Mountain	1993				x
Idaho	Mountain	1998				x
North Dakota	West North Central	1918/1981				

Note: Vermont, Nebraska, Missouri, Georgia, Tennessee NA

Table A.6. Changes in the limits to the amount of debt states are allowed to issue

<div align="center">Situation after change</div>

	No debt	Absolute limit	Casual deficit	Anticipation of revenues	Percentage of revenue	No restriction on amount of debt †
No debt						Louisiana (1974)
Absolute limit	Louisiana (1910)				Nevada (1916) New Jersey (1947) Washington (1972)	Maine (1955) Michigan (1964)
Casual deficit				Pennsylvania* (1969)	New Mexico* (1911) Texas (1977) North Dakota (1918)	Colorado (1993)
Anticipation of revenues						
Percentage of revenue		Idaho (1912) North Dakota (1981)		North Carolina* (1936)		
No restriction on amount of debt†	Arkansas (1934)			Maine* (1967)	Florida (1968) Wisconsin* (1969)	

(Row label "Original situation" runs vertically along the left side.)

* Denotes this new category was added and did not substitute the previous one

† This does not include procedural restrictions for the issuance of debt (supermajority, voter approval, etc)

Note: Vermont, Nebraska, Missouri, Georgia, Tennessee NA

Table A.7- Constitutional rules on budget balance, by type and date

State	Type	Year	State	Type	Year
Massachusetts	p	1780	Maryland	p	1916
Iowa	d	1846	West Virginia	d	1918
Florida	er	1848	Maine	d	1919
Wisconsin	er	1848	Alabama	ai	1932
Kentucky	er	1850	Arkansas	d	1934
Indiana	d	1851	New York	p	1938
Ohio	er	1851	New Jersey	ai	1947
Kansas	er	1859	Alaska	d	1959
Nevada	er	1864	Michigan	ai	1964
Georgia	ai	1868	California	p	1966
Illinois	ai / p	1870 / 1970	Pennsylvania	p	1969
Colorado	ai	1876	North Carolina	p	1971
Texas	p	1876	Louisiana	ai	1974
Montana	ai	1889	Tennessee	d	1974
North Dakota	d	1889	Hawaii	ai	1978
South Dakota	d	1889	Delaware	ai	1980
Washington	d	1889	Virginia	er	1984
Wyoming	d	1889	Rhode Island	ai	1986
Idaho	ai	1890	Connecticut	er	1992
Utah	ai	1895	Minnesota	--	--
South Carolina	d	1896	Mississippi	--	--
Oklahoma	p	1907	New Hampshire	--	--
New Mexico	d	1911	Vermont	--	--
Arizona	er	1912	Missouri	p	NA
Oregon	er	1912	Nebraska	d	NA

Notes: "True" balanced budget rules: (p) certain procedure must be followed (ai) appropriations shall not exceed revenues | "Other" rules (er) expenditures shall not exceed revenues (d) limit on debt

Table A.8- Debt provisions & Levels of government, ranked by number of units per capita

States with more total sub-county units per capita than national average

State	Limit	Procedural restriction	Modification method
North Dakota	Abs (1918)		DI, U
South Dakota	Abs (1889)		
Kansas	Abs (1859)		
Minnesota	Abs (1857)		DI
Nebraska	NA		
Vermont	NA		
Maine	Abs (1847)	V and SL (1951)	DI, U
Wisconsin	Abs (1848)/Rel (1969)	V (1969)	
Iowa	Abs [cd] (1857)	V (1857)	
Indiana	Abs [cd] (1851)		

States with more special districts per capita than national average

State	Limit	Procedural restriction	Modification method
North Dakota	Abs (1918)		DI, U
Wyoming	Rel (1889)	V (1889)	
Idaho	Abs (1912)	V (1912)	
Nebraska	NA		
Kansas	Abs (1859)		
Montana	Abs (1889)	V (1889)/SL (1973)	
Colorado	Rel (1876)		DI, U
Oregon	Abs (857)		DI
South Dakota	Abs (1889)		
Washington	Abs [cd] (1889)/Rel(1972)	V (1889)/V(1972)	DI
Missouri	NA		
Illinois	Abs (1848)/ Rel (1970)	V (1840) / V or SL (1870)	U
Delaware	Abs [cd] (1879)	SL (1879)	
Arkansas	ND(1874)/VA(1934)		DI
Vermont	NA		

Notes: ND: no debt, VA: voter approval, Abs: absolute limit, Abs [cd]: Absolute limit on casual debt, Rel: relative limit, V: voter approval, SL: legislative approval, DI: debt itemization, U: upward revision. If several provisions existed for the same state, only the relevant ones to the period 1952-2002 are included in the graph

Table A.9. RDF requirements and increased flexibility of debt restrictions

	State	deposit	withdrawal
States that changed their debt provisions to increase the flexibility during 1960-2000	Florida	0	0
	Hawaii	0	1
	Idaho*	0	1
	Illinois	0	0
	Louisiana	0	0
	Mississippi	0	0
	North Carolina	0	0
	Ohio	0	0
	Oklahoma	0	1
	Pennsylvania	0	1
	South Carolina	1	0
	Texas	0	0
	Virginia	1	1
	Washington	0	1
	Wisconsin	1	0
	# of states with strict requirements	*3*	*6*
	% of states with strict requirements	*20%*	*40%*

	State	deposit	withdrawal
States that did not change their debt provisions to increase the flexibility during 1960-2000	Alaska	0	0
	Arizona	1	1
	California	0	0
	Connecticut	0	1
	Delaware	0	1
	Indiana	1	1
	Iowa	0	0
	Kansas	1	0
	Kentucky	0	0
	Maine	0	0
	Maryland	1	0
	Massachusetts	0	0
	Michigan	1	1
	Minnesota	0	0
	Nevada	1	0
	New Hampshire	0	0
	New Jersey	0	0
	New Mexico	0	0
	New York	1	0
	North Dakota	0	1
	Rhode Island	0	0
	South Dakota	0	0
	Utah	0	0
	West Virginia	0	0
	Wyoming	0	0
	# of states with strict requirements	*7*	*6*
	% of states with strict requirements	*28%*	*24%*

Note: includes only states with RDFs. Vermont, Nebraska, Missouri, Georgia, Tennessee NA. Deposit and withdrawal requirements: 1 if strict, 0 if weak

Table A.10- Constitutional rules on budget balance and debt provisions

State	Type BBR	Year	60-00	State	Type BBR	Year	60-00
Massachusetts	p	1780		West Virginia	d	1918	
Iowa	d	1846		Maine	d	1919	
Florida	er	1848	x	Alabama	ai	1932	
Wisconsin	er	1848	x	Arkansas	d	1934	
Kentucky	er	1850		New York	p	1938	
Indiana	d	1851		New Jersey	ai	1947	
Ohio	er	1851	x	Alaska	d	1959	
Kansas	er	1859		Michigan	ai	1964	
Nevada	er	1864		California	p	1966	
Georgia	ai	1868		Pennsylvania	p	1969	x
Colorado	ai	1876		North Carolina	p	1971	x
Texas	p	1876	x	Louisiana	ai	1974	x
Montana	ai	1889	x	Tennessee	d	1974	
North Dakota	d	1889		Hawaii	ai	1978	x
South Dakota	d	1889		Delaware	ai	1980	
Washington	d	1889	x	Virginia	er	1984	x
Wyoming	d	1889		Rhode Island	ai	1986	
Idaho	ai	1890	x	Connecticut	er	1992	
Utah	ai	1895		Minnesota	--	--	
South Carolina	d	1896	x	Mississippi	--	--	x
Oklahoma	p	1907	x	New Hampshire	--	--	
New Mexico	d	1911		Vermont	--	--	
Arizona	er	1912		Illinois	ai / p	1870 / 1970	x
Oregon	er	1912		Missouri	p	NA	
Maryland	p	1916		Nebraska	d	NA	

Notes: "True" balanced budget rules: (p) certain procedure must be followed (ai) appropriations shall not exceed revenues | "Other" rules (er) expenditures shall not exceed revenues (d) limit on debt
Debt provisions: 60-00: X if the state modified its debt provision during the last considered period (1960-2000) Type: type of debt provision (excluding modification procedures, both explicit and implicit), -- "missing"

Appendix A.2. Samples of constitutional provisions on debt restrictions

A.2.1. Example of constitutional absolute limit on debt qualified with explicit modification procedure.

Constitution of New Jersey (1844), Article 4, Section 6, Part 4:

"The legislature shall not, in any manner, create any debt or debts, liability or liabilities, of the State which shall, singly or in the aggregate with any previous debts or liabilities, at any time exceed one hundred thousand dollars, except for purposes of war, or to repel invasion, or to suppress insurrection, unless the same shall be authorized by a law for some single object or work, to be distinctly specified therein; which law shall provide the ways and means, exclusive of loans, to pay the interest of such debt or liability as it falls due, and also to pay and discharge the principal of such debt or liability within thirty five years from the time of the contracting thereof, and shall be irrepealable until such debt or liability, and the interest thereon, are fully paid and discharged; and no such law shall take effect until it shall, at a general election, have been submitted to the people, and have received the sanction of a majority of all the votes cast for and against it, at such election; and all money to be raised by the authority of such law shall be applied only to the specific object stated therein, and to the payment of the debt thereby created. This section shall not be construed to refer to any money, that has been, or may be, deposited with this State by the government of the United States."

A.2.2 Example of constitutional procedural restriction

Constitution of North Carolina (1868), Article 2, Section 16:

"No law shall be passed to raise money on the credit of the State, or to pledge the faith of the State directly or indirectly for the payment of any debt, or to impose any tax upon the people of the State, or to allow the counties, cities, or towns to do so, unless the bill for the purpose shall have been read three several times in each house of the general assembly, and passed three several readings, which readings shall have been on three different days, and agreed to by each house respectively, and unless the yeas and nays on the second and third readings of the bill shall have been entered on the journal."

A.2.3. Example of constitutional absolute limit on casual deficit debt qualified with explicit modification procedure.

Constitution of Illinois (1870), Article 4, Section 18:

[…] "The State may, to meet casual deficits or failures in revenues, contract debts, never to exceed in the aggregate two hundred and fifty thousand dollars; and moneys thus borrowed shall be applied to the purpose for which they were obtained, or to pay the debt thus created, and to no other purpose; and no other debt, except for the purpose of repelling invasion, suppressing insurrection, or defending the State in war (for payment of which the faith of the State shall be pledged), shall be contracted, unless the law authorizing the same shall, at a general election, have been submitted to the people and have received a majority of the votes cast for members of the general assembly at such election."

Appendix B – Appendix to chapter 3

Appendix B.1 - Tables

Table B.1.1. Dates of adoption of states' Budget Stabilization Funds

State	Year of adoption	State	Year of adoption	State	Year of adoption
Alabama	.	Louisiana	1990	Ohio	1981
Alaska	1986	Maine	1985	Oklahoma	1985
Arizona	1990	Maryland	1986	Oregon	.
Arkansas	.	Massachusetts	1986	Pennsylvania	1985
California	1985	Michigan	1977	Rhode Island	1985
Colorado	.	Minnesota	1981	South Carolina	1978
Connecticut	1979	Mississippi	1982	South Dakota	1991
Delaware	1977	Missouri	1992	Tennessee	1972
Florida	1959	Montana	.	Texas	1987
Georgia	1976	Nebraska	1983	Utah	1986
Hawaii	2000	Nevada	1994	Vermont	1988
Idaho	1984	New Hampshire	1987	Virginia	1992
Illinois	2000	New Jersey	1990	Washington	1981
Indiana	1982	New Mexico	1978	West Virginia	1994
Iowa	1992	New York	1945	Wisconsin	1981
Kansas	1993	North Carolina	1991	Wyoming	1982
Kentucky	1983	North Dakota	1987		

Notes: "." indicates the state does not have a BSF.
Source: Wagner (2004) and documents for the state of Colorado

Table B.1.2- Deposit and withdrawal requirements in the BSFs

	Deposit requirements				Withdrawal requirements		
Alabama	.	Montana	.	Alabama	.	Montana	.
Alaska	1	Nebraska	2	Alaska	1	Nebraska	2
Arizona	4	Nevada	4	Arizona	4	Nevada	2
Arkansas	.	New Hampshire	2	Arkansas	.	New Hampshire	2
California	2	New Jersey	2	California	2	New Jersey	2
Colorado	.	New Mexico	2	Colorado	.	New Mexico	1
Connecticut	2	New York	4	Connecticut	3	New York	2
Delaware	2	North Carolina	2	Delaware	3	North Carolina	1
Florida	2	North Dakota	2	Florida	2	North Dakota	4
Georgia	2	Ohio	2	Georgia	1	Ohio	1
Hawaii	1	Oklahoma	2	Hawaii	3	Oklahoma	3
Idaho*	1	Oregon	.	Idaho*	3	Oregon	.
Illinois	2	Pennsylvania	2	Illinois	1	Pennsylvania	3
Indiana	4	Rhode Island	1	Indiana	4	Rhode Island	2
Iowa	1	South Carolina	3	Iowa	1	South Carolina	2
Kansas	3	South Dakota	2	Kansas	1	South Dakota	2
Kentucky	2	Tennessee	3	Kentucky	1	Tennessee	2
Louisiana	2	Texas	2	Louisiana	1	Texas	2
Maine	2	Utah	2	Maine	1	Utah	2
Maryland	3	Vermont	2	Maryland	1	Vermont	2
Massachusetts	1	Virginia	4	Massachusetts	1	Virginia	4
Michigan	4	Washington	2	Michigan	4	Washington	3
Minnesota	1	West Virginia	2	Minnesota	1	West Virginia	2
Mississippi	1	Wisconsin	3	Mississippi	1	Wisconsin	2
Missouri	1	Wyoming	1	Missouri	1	Wyoming	1

Deposit requirements: (1) appropriation (2) genera fund surplus (3) required appropriation (4) formula
Withdrawal requirements: (1) appropriation (2) revenue shortfall (3) supermajority required (4) formula
* Idaho modified its BSF in 1999, making it stricter. Here we record the original requirements as they were established when the BSF was adopted in 1981.
Source: Wagner (2004) and documents of the state of Colorado.

Table B.1.3. Deposit and withdrawal requirements in BSFs

		deposit			
		1	**2**	**3**	**4**
withdrawal	**1**	7	8	2	0
	2	1	10	3	2
	3	2	5	0	0
	4	0	1	0	4

Appendix B.2. Other rainy day fund rules

Caps

5% (usually of expenditure, although other bases exist) is a common number for rainy day fund caps[128] and one that is widely accepted to have spread from a comment by a rating agency executive[129], which is why we are not considering it in our analysis. However, there is wide evidence that for most states 5% would not suffice in the face of an economic downturn[130] (see, for example, Lav and Berube (1999), Joyce (2001), Kriz (2003), and Wagner and Elder (2003)). The question then turns to what this limitation could do to the operation of the fund if it was to be binding and what it signals with respect to the general philosophy that governs the fund. Establishing caps for the RDF balance has the potential to reduce its stabilization ability if the limit was to be binding and the recession deep enough to make desirable the presence of higher balances.[131]

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[128] Caps are most frequently set at 5%, but 7% and 10% are also common figures. The overall average cap is slightly above 6%.

[129] The 5% number was inspired by declarations from Robert H. Mueller who, while being vice assistant to the Standard and Poor Corporation and later vice president of the Morgan Guarantee Trust, referred to it as a "key financial number" and a "good solid number for a state surplus."

[130] A 1999 report by the Center on Budget and Policy Priorities set the overall desirable level for a BSF at a low of 15 percent of a year's worth of expenditures. The Government Finances Officers Association recommends maintaining a minimum of between 5 and 15% of regular general fund operating revenues or no less than one-two months worth of general fund operating expenditures as unreserved fund balance in the state's general fund, although notes are made to clarify that significantly higher balances may be needed for some governments in special circumstances, and that these figures should be placed in a long-term context to avoid putting excessive emphasis on transitory situations.

[131] It seems that the caps have indeed been binding: The National Association of State Budget Officers reported in 2004 that the average total balance for rainy day funds in the period 1979-2003 was 5.2 per cent (*Budgeting Amid Fiscal Uncertainty*, NASBO 2004).

Replenishment requirements

Replenishment requirements call for a refilling of fund coffers within a certain period of time. They have not received as much attention from the literature as the other three rules, perhaps because they are a rare feature among the funds. However, replenishment requirements are often cited in the political and academic circles[132] as being a restriction that can potentially render the fund useless, since the state could decide not to use it in a year of recession under the fear of the obligation of having to replenish the fund in the near future when the situation (far from getting better) may be getting worse. We do not pursue their analysis further due to their relatively low implementation and the fact that states are taking steps towards modifying or entirely eliminating these restrictions.

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[132] See Lazere (2003) and recommendations of the Office of the State Budget Director of Kentucky for examples of arguments against the existence of replenishment requirements.

Appendix B.3 – Description of the data.

Among the political variables, we include measures of House composition and fragmentation,[133] as well as indicators of divided control, affiliation of the executive, appointment method of the Supreme Court and ideology measures.

We expect the size of the Houses to matter in light of the findings that states with larger Houses spend more. This effect can be explained using Tullock's (1959) theory of the tragedy of the commons: government spending typically benefits a small fraction of the population, while the taxes used to fund it are spread among all taxpayers. Weingast et al (1989) formally expressed this issue in the "law of 1/n", where n represents the number of districts. They show that constituents only pay one n^{th} of any public spending they receive, becoming obvious that spending increases with the legislature size. Gilligan and Matsusaka (1999) provide a model that links the ability to alter fiscal policy by gerrymandering with the number of seats. These theories appear to be supported by the data: Gilligan and Matsusaka (2001) find that larger upper houses are associated with higher spending (independently of the composition of the legislature) through the 20th century,[134] this does not, however, apply to the Lower House.[135]

The composition of the legislature has also been shown to be relevant in fiscal outcomes.[136] Poterba (1994) finds that having a divided government slows a state's

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[133] Given its unicameral nature, wherever bicameral measures are computed, Nebraska is excluded from the regressions. Although the choice between bi and unicameralism is potentially relevant in fiscal terms, Heller (1997) shows that bicameralism may lead to higher deficits) the fact that only one state has opted to operate with only one House makes it impractical to consider its implications for BSF choices.

[134] Due to data constraints, the years corresponding to World War II are excluded from their analysis.

[135] Gilligan and Matsusaka (2001) did several robustness checks to investigate the theoretically puzzling effect of the disparity of effects across Houses, the result always remained the same.

[136] Gilligan and Matsusaka (1997) and McCarty (1999) provide brief reviews of theories and empirical applications for the interested reader.

reaction to a fiscal crisis; Crain and Muris (1995) conclude that divided governments spend less, while Gilligan and Matsusaka (1995) fail to find significant effects. Alt and Lowry (1994) provide a theoretical framework to explain the importance of partisan composition for state fiscal policy and, for the period 1968-87, find empirical evidence suggesting that democrats tend to tax and spend more and that divided governments have a reduced capacity to respond when facing revenue shocks. To investigate the extent of the importance of these two factors for the choice of BSF configuration, we consider the number of seats as well as the percentage gap in the numbers of seats held by each of the two main parties.

The affiliation of the governor is also relevant for state budgeting:[137] governors submit budgets, can veto bills, and have in general a wide array of executive powers that can affect state fiscal policy. This effect can be particularly noticeable if the legislative and executive powers are of opposite political parties.[138] To investigate these possibilities, specifications with a dummy taking the value of 1 if the elected governor belongs to the Democratic Party and/or interactions with the polarization measures explained above were included. Also, 36 states currently have a limit on how long governors can serve, since term limits have been receiving considerable attention in the literature as a potential way to limit government and encourage fiscal responsibility (Basham (2001) and New

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[137] Lowry et al (1998) find that gubernatorial electoral effects of an increase in the size of the state budget vary by party: Republican candidates loose votes, while Democrats may be rewarded.
[138] Krause (2000) finds that, during the period 1948-95, ideological divergences across the different branches of the federal government were related with fiscal deficit. At the state level, Alt and Lowry (1994) find that Democrats tax and spend more, and divided governments are less able to react to revenue shocks. Additionally, Alt and Lowry (2000) explain how a governor's budget proposal may be rejected by a legislature of the opposite sign, the budget may then remain in the status quo if the governor decides to veto the legislature's preferred proposal and the opposing party in the legislature is not able to override the veto in both chambers.

(2001)) a dummy variable that takes the value of one every year after a term limit is adopted is also included. Table B.3.1 presents information on gubernatorial term limits.

I have drawn on a variety of sources to construct a long-ranging series of the states' political make-up. The main source for both the numbers of seats held by each party and the affiliation of the governor comes from the Inter-university Consortium for Political and Social Research (ICPSR) study #0016. The data for the period 1838-1868 were compiled by Dean Burnham and later data were added by ICPSR resulting in a unified dataset under the name "Partisan Division of American State Governments, 1834-1985" From this study I have extracted the data for the period 1924-1984.

Table B.3.1. States with Gubernatorial term limits

State	year approved	state	year approved	state	year approved
Alabama	1968	Kentucky	1992	North Carolina	1977
Alaska	1959	Louisiana	1812	Ohio	1992
Arizona	1992	Maine	1993	Oklahoma	1966
Arkansas	1992	Maryland	1947	Pennsylvania	1874
California	1990	Michigan	1992	Rhode Island	1992
Colorado	1990	Mississippi	1890	South Carolina	1980
Delaware	1787	Missouri	1821	South Dakota	1972
Florida	1992	Montana	1992	Tennessee	1978
Georgia	1976	Nebraska	1966	Utah	1994
Hawaii	1978	Nevada	1970	Virginia	1851
Indiana	1851	New Jersey	1844	West Virginia	1872
Kansas	1972	New Mexico	1986	Wyoming	1992

Source: U.S. Term Limits, 2003

In the period 1924-74, the ICPSR dataset reports as missing values the inter-election periods. I have taken the division of seats to remain unaltered between elections, so that – for example- if democrats were reported to hold 34 seats in the upper House in 1968, this number will remain unchanged until new data are reported. This procedure should not introduce serious distortions, since deaths, resignations and other events that may change

the composition are not likely to cause a major change in the division of power within the houses.

For the period 1985-2000, the data come from the elections section of the Statistical Abstract of the United States (various editions), as compiled by the U.S. Census Bureau. However, neither source had information for Minnesota before 1974. We used the data compiled by the Minnesota Legislative Reference Library for party control of both the House and the Senate (the caucus strength data for this period was collected using unofficial legislative directories of the Minnesota Railroads Association) and party affiliation of governor from 1951 onwards, so the series for affiliation of governor and party control in the Senate and the House of Representatives in Minnesota were extended using this information for the period 1951-1973. For most of the years in this period, the Legislative Reference Library provides only one set of seat distribution. However, for the House of Representatives, several figures are presented for the years 1971 (caused by the death of a representative who was substituted via election by a representative from the same party a month later, causing two different possibilities for the seat split in that year) and 1973 (due to the resignation of two representatives and subsequent elections of two additional ones later in the year, which results in five different potential data points). To choose one of them, I take advantage of the overlapping of this series with that provided by ICPSR. In particular, we want the numbers to be as comparable as possible, so ideally we would like to choose the combination that more closely resembles that of the ICPSR dataset. In two out of the three comparable cases the ICPSR reports the earliest information, so this will be the one I will use for 1971 and 1973. A similar problem came up with the data for governor's affiliation in Nebraska for the period 1938-1969 and

1985-2000, which was reported as missing in the ICPSR dataset. The information for the period 1938-2000 comes then from the Nebraska Library Commission, which provides data on name, party affiliation, years of rule and some other details (such as reason for early termination) for Nebraska's governors starting in 1854.

An alternative measure of the political structure is presented in Berry et al's (1999) measures of citizen and government ideology. From their data we can see that, on average, the governments' ideology leans more towards liberalism than the citizens' during most of the period,[139] and it seems to be more volatile - with a standard deviation 50% higher than that of the citizens' index.

Lastly, the appointment method of the State Supreme Court (elected vs appointed) is included due to the fact that judges often enforce fiscal rules. Bohn and Inman (1996) report that elected Supreme Courts are associated with larger surpluses in state budgets, as compared to surpluses in states where courts are appointed. Using their data on the nature of the courts, a dummy variable that takes the value of one if the Supreme Court is elected and zero otherwise is included in the regressions. The cost of establishing a strict BSF (in terms of loss of flexibility for policy making) is likely to be lower if the Court is appointed, because appointed judges may be more amiable to deviations from the rule. Hence, we expect states with appointed courts to be more prone to establishing demanding BSFs. Table B.3.2 presents the method of appointment in the fifty states.

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[139] The only two exceptions are the periods 1967-73 and 1996-02.

Table B.3.2. Method of appointment of the Supreme Court

State	Method	State	Method	State	Method
Alabama	E	Louisiana	E	Ohio	E
Alaska	A	Maine	A	Oklahoma	E
Arizona	A	Maryland	A	Oregon	E
Arkansas	E	Massachusetts	A	Pennsylvania	E
California	E	Michigan	E	Rhode Island	A
Colorado	A	Minnesota	E	South Carolina	A
Connecticut	A	Mississippi	E	South Dakota	E
Delaware	A	Missouri	A	Tennessee	E
Florida	A	Montana	E	Texas	E
Georgia	E	Nebraska	A	Utah	A
Hawaii	A	Nevada	E	Vermont	A
Idaho	E	New Hampshire	A	Virginia	A
Illinois	E	New Jersey	A	Washington	E
Indiana	A	New Mexico	E	West Virginia	E
Iowa	A	New York	A	Wisconsin	E
Kansas	A	North Carolina	E	Wyoming	A
Kentucky	E	North Dakota	E		

E: Elected   A: appointed
Source: Bohn and Inman (1996)

Among the socio-economic variables, we chose to use the yearly deviation from the national mean of per capita personal income[140] as a measure of the state's general economic condition[141] (and, to some extent, the needs of its population) rather than gross state product.[142] The effects of state's population density are unclear: a state that has to

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[140] Calculated using the per capita personal income data from the Bureau of Economic Analysis. An in-detail description of the methodology used for the construction of this measure can be found in their methodology section. Alternatively, we also calculated different moving averages of per capita personal income, but settled for using the standard deviation.

[141] The Advisory Commission of Intergovernmental Relations (ACIR, 1987) pointed out that personal income is a powerful determinant of state fiscal behavior, surpassing in importance the set of budgetary constraints.

[142] We also performed the analysis using yearly deviations from the national GSP mean instead of per capita personal income for the years in which the data is available, with similar results, which is consistent with the BEA's assertion that "GSP and state personal income share the following elements of personal income: Compensation, proprietors' income, and rental income of persons. The measure of compensation used in GSP is based on wage and salary accruals while personal income is based on wage and salary disbursements The difference between accruals and disbursements is typically very small" BEA, Local Area Personal Income and Employment Methodology - Introduction, 2004.

cover the public expenditure demands of a larger population[143] may find BSFs more attractive,[144] an effect reinforced by the public good component of savings in the RDF. However, larger states have been found to have less volatile business cycles, so they may find strict BSFs less appealing. In sum, the effects of population on budgetary outcomes are unclear, as is its impact on BSFs configuration.

Beyond their income and population, we expect states engaged in volatile spending to be in greater need for savings, a fact that may be reflected in the type of BSF they adopt. To investigate the effects of the sector composition of the state, we introduce the proportion of total earnings in construction, farming, manufacturing, mining and services, using the data on earnings provided by the Bureau of Economic Analysis (BEA).[145] In graph B.3.1 we can observe the evolution over the period of the average percentages of each of the categories. Both services and manufacturing have grown in absolute terms but, as we can see from the percentage distribution, the increase in services has occurred mostly at the expense of a decline in the relative importance of manufacturing in the average state economy.

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[143] Sawicky (2003) has proposed a measure for adjusted population that reflects the actual pressure on state finances better than raw numbers on population (adjusting for population in poverty, unemployment rates and the state's fiscal capacity). The data to construct indices of this nature is however not available for our sample period.

[144] Oates (1988) finds evidence in local governments for what he calls the "zoo effect", that is, larger localities may be able to provide a wider range of services.

[145] I would like to thank Dr. Jeff Werling, from the Interindustry Forecasting center (Inforum) at the University of Maryland, for his assistance in acquiring the BEA data.

Graph B.3.1- Average percentage earning distribution
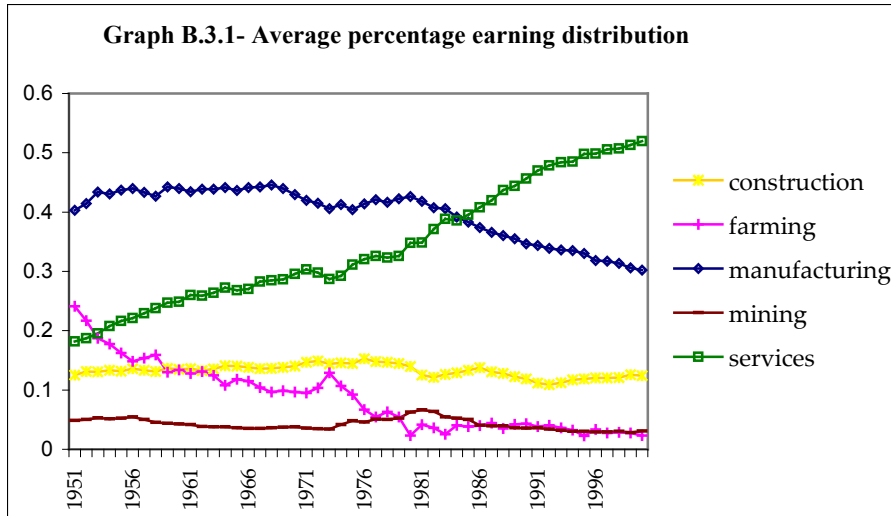

The different types of state revenues and expenses are also included in the regressions as percentages rather than actual levels, grouped according to their level of volatility, which avoids the scale and trend issues that would occur if we included raw dollar amounts. Also, this modification addresses the issue of high multicollinearity between our dependent variables.[146] Furthermore, including these percentages allows us to investigate the effect of spending and taxing compositions on the decision of BSF configuration.

In particular, total spending is not very helpful for our purposes, since not all types of government expenditures behave in the same way during recessions. Some types of expenditure are less under the control of the policymakers, or are more visible to the public (so they may trigger stronger responses if cuts are needed during recessions), providing extra incentives to establish solid BSFs. Since we are interested in the impact of expenditure volatility and to avoid issues of high collinearity between the different

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[146] Since the Variance Inflation Factor suggested high levels of collinearity, principal component techniques were used to reduce the dimensionality of the dataset. However, the decision for maintaining a certain number of eigen-vectors was often not clear-cut, and since a conservative use of the Kaiser and Scree criteria led to relatively small reductions in dimensionality we opted for transformations of the independent variables to avoid obscuring their relationship with the dependent variable.

types of expenditure, we go beyond the functional nature of the different types of expenditure and group them instead with respect to their degree of volatility. We consider each spending type's mean standard deviation, following an approach similar in spirit to the calculations of Lane (2003)[147] and classify the six types of expenditure in three categories according to their volatility[148] (high, medium and low) including in our regression the state's percentages in the most and least volatile categories and leaving the middle group as baseline.[149]

Graph B.3.2 - Average percentage composition of spending

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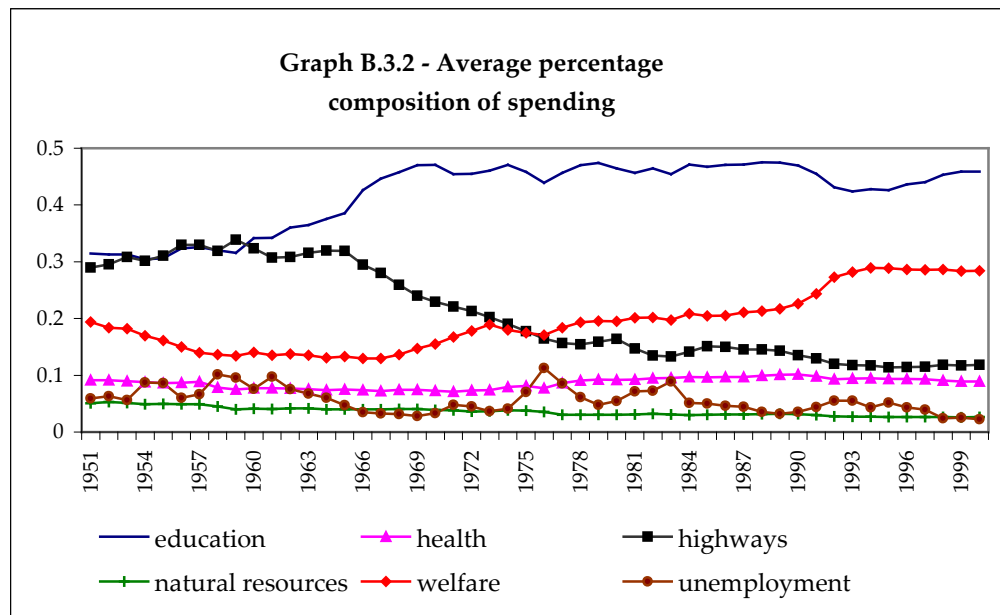
[147] Lane (2003) calculates output volatility measured as the standard deviation of output growth.

[148] After applying the GDP deflator and calculating the overall average standard deviations, we can see that the magnitudes of the standard deviations are similar within groups and considerably different across groups, so the choice of three groups with two components seems reasonable. Education and welfare spending are the most volatile group, while expenditure in highways and health and hospitals fall in the middle category, and unemployment compensation and spending in natural resources are the relatively least volatile expenses. Although it may seem counterintuitive that education belongs in the most volatile group, we must note that capital spending in education is included in this category, which explains its variability.

[149] Alternatively, we followed the method Holcombe and Sobel (1997) developed to generate long-run and short-run variability of state income and calculate each state's yearly deviation from the national mean. The basic equation is given by: $\ln \Delta(\text{Expenditure type}) = \alpha + \beta \ln \Delta(\text{per capita personal income}) + \varepsilon$. Taking the growth rate does not make the series stationary (and β is a measure of the long-run variability), but the series become stationary after detrending it with the augmented Hodrick-Prescott filter making β an indicator of the short-run variability over the sample period.

Although the overall level of tax collection would provide some indication on the state's ability to raise revenue through the cycle (which is likely to be inversely correlated with the necessity of maintaining savings and hence a potential determinant of BSF structure) the intended use of this variable here, however, is not to provide us with a measure of the wealth or fiscal capacity of the state. Firstly, tax collections would provide a flow –rather than stock- indicator and would be in that sense inadequate for our purposes. In addition, revenue collected through taxes yearly is likely to be highly correlated with other explanatory variables in our analysis (such as personal income and tax effort). As with spending, we include tax collection by grouping the different types of taxes (individual and corporate income tax, property, sales and severance taxes) according to their levels of volatility[150]. Graph B.3.3 depicts the evolution of each tax's share over the period.

Tax collections has been a decreasingly important source of income for states,[151] but still is the most important: According to data from the US Census of Governments, tax revenue and intergovernmental (IG) revenue together accounted for about 70% of all state resources in 2001. IG revenues include local and federal transfers (with the latter making about 95% of the total[152]) and are mostly outside of state control. They have grown in importance during our period of observation, although not steadily: In particular, and more importantly for our purposes, IG revenues are likely to decrease during periods of crises, when states need resources the most. IG finances are included in

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[150] The percentages of tax income that come from severance and property taxes are grouped in the "most volatile" category, while the percentages received from sale and individual income taxes form the "least volatile" category. The percentage of tax revenues derived from corporate income taxes corresponds to the "middle volatility" group, which is used as baseline.

[151] Dropping from about 70% in 1950 to around 60% in 2000.

[152] As opposed to IG expenses, where local IG spending makes for most of the total expenditure.

the analysis by calculating the deviation from the national mean of the per capita net IG transfers (revenues minus expenses).

All data on state tax collection, expenditure and IG finances come from the Census of Governments and the Historical Statistics of the United States.[153]

Graph B.3.3 - Avg percentage composition of tax income
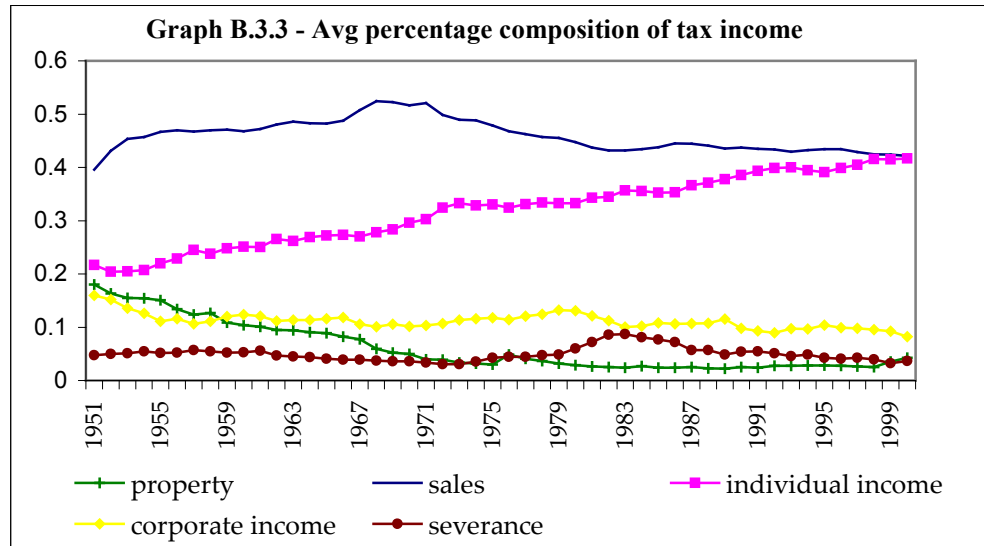
Although funds in BSFs are subject to rules that do not apply to other forms of savings, it is likely that states that maintain easily liquefiable resources (such as cash, short-term deposits and securities*154*) in larger amounts will see the need to establish a stringent fund as less pressing. On the other hand, it may be possible that states that decide to have more savings in the form of cash and securities have a preference for sound savings, and would be more inclined to establish strict funds. Since it is difficult to intuitively or theoretically establish a predicted sign for the relationship between other

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[153] The data series for Alaska and Hawaii start in 1957 and 1955, respectively, due to their late incorporation to the Union.

[154] Examples of items that are (or are not) included in this item can be found in chapter 10 (Cash and Security Holdings) of the Census' *Federal, State, and Local Governments Government Finance and Employment Classification Manual*

savings and the nature of BSFs, it remains a question best answered empirically. The Census only provides data for cash and securities (our measure of other savings) since 1951, imposing the lower time bound for the analysis. Other potential measures of state savings exist in the literature. For example, savings haven been measured using data on general fund balances from the National Association of State Budget Officers (NASBO), but consistent data are not available until rather recently (Hou (2004)). Wagner (2003), among others, calculates savings as current revenues minus current expenditures using Census Data, an approach we have also explored[155] – keeping in mind that the Census discourages this use.[156] However, not-spent revenue may not be available for budget stabilization and, as Gold (1995) indicates, fungible resources available to the state are perhaps the best indicator of the means a state can count on to face a recession, suggesting that cash holdings may be a better measure for our purposes.

Aside from using reserves, states can increase the resources they derive from taxation. However, states that exert higher levels of tax effort will have less room for tax increases, making meaningful BSFs more attractive. We include information on average tax effort (measured as the ratio of actual tax revenue to the tax revenue that would be collected under a hypothetical, uniform tax system) using data provided by the Advisory Commission of Intergovernmental Relations (ACIR).[157] ACIR's staff compiled data on

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[155] In particular, I calculated the deviation from the national average per capita savings. Using this indicator, we find some weak evidence that states with more savings are less likely to establish strict BSFs.

[156] *"Although the original sources of data for these finance statistics are the accounting records of governments, the data derived from them are purely statistical in nature and cannot be used as financial statements or to measure a government's fiscal condition. For instance, the difference between a government's total revenue and expenditure cannot be construed to be a "surplus" or "deficit.""* Census' Government Finance and Employment Classification Manual, Chapter 6 (Overview of Government Finance Statistics.)

[157] ACIR only reports data for years 1967, 1975, 1977, 1979 and 1980 – 1988. Robert Tannenwald from the Federal Reserve of Boston has calculated tax effort for additional years using methodology based on ACIR's. Since inclusion of his data did not significantly affect the results and to avoid introducing

tax burden for the period 1953-64, but unfortunately such information was not published and, to my knowledge, it is not available. The only information available for those years is the overall average and its corresponding standard deviation, presented in table iii. The index was calculated for 1967, 1975, 1977, 1979 and yearly from 1980 to 1988 (except for year 1987). Based on this information, ACIR staff indicated a movement towards equalization of tax burdens across states in the period 1953-64, and a reversal of the tendency since 1964. Tannenwald (1997, 1999, 2002) has calculated tax effort for additional years using methodology based on ACIR's158. Since inclusion of his data did not significantly affect the results and to avoid introducing differences in the tax effort series due to changes in methodology we restrict ourselves to the data provided by ACIR, which is the measure commonly used in the BSF literature. Additionally, the Tax Foundation calculates measures of state and local tax effort since 1970, however, it is impossible to separate the state component from their numbers so their data is not used in this application.

Table B.3.3: Tax burden, 1953-75

	Tax burden			Growth	
	1953	1964	1975	1953-64	1964-75
standard deviation	1.45	1.28	1.46	1.06	1.02
coefficient of variation	0.179	0.128	0.132	0.487	0.987

Source: ACIR (1975)

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differences in the tax effort series due to changes in methodology we restrict ourselves to the data provided by ACIR, which is the measure commonly used in the BSF literature. Additionally, the Tax Foundation calculates measures of state and local tax effort since 1970, however, it is impossible to separate the state component from their numbers so their data is not used in this application.

[158] I would like to thank Dr Robert Tannenwald for his kind assistance.

An alternative measure exists in the form of the Total Taxable Resources (TTR) index[159]. However, to my knowledge, there is no data in TTR or its components dating far back enough in time to be applied in this study.

On the other side of the spectrum, debt could potentially help weather recessions by smoothing out state consumption. Nevertheless, many states face restrictions in their capability to issue debt or require voter approval to issue guaranteed debt. Furthermore, debt is costly for states because it increases the future financial burden and may trigger increases in the future costs of borrowing if rating agencies are not satisfied with the state's amount of savings. There are several potential ways to include the effect of debt on the choice of BSF configuration, such as the amount of interest paid on debt from the Census data (to approximate the effective weight of accumulated debt in the budget), the ratio of total debt to personal income or a set of indicators for the limitations on the emission of debt. We settle for using annual deviations from the national mean of total debt per capita[160] because they are more likely to reflect the real situation of the state in terms of debt than the institutional constraints, which can be avoided in a variety of ways.[161] Our a priori expectation is that states with higher levels of debt will be, ceteris paribus, more inclined to establish demanding BSFs, since they it would be relatively more costly for them to go further into debt. However, high levels of per capita debt may

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[159] The measure was designed in the U.S. State Treasury Department (Sawicky, 1985) as gross state product plus the income the residents earn out of the state, federal transfers, and accrued capital gains minus federal taxes paid and depreciation. The TTR index, as explained by the Treasury Department, can be then understood as the "unduplicated sum of the income flows produced within a state and the income flows received by its residents which a state can potentially tax." (Treasury Methodology for Estimating Total Taxable Resources, page 2)

[160] We also tried the deviation from the national mean of the state's ratio of debt to personal income and the results and find some scattered indications that states with higher deviations may be more likely to establish stricter deposit (although not withdrawal) rules.

[161] A wide literature exists regarding the potential effects of debt restrictions on debt emissions. An interesting suggestion from this literature is that debt limits may have had one of its more important effects on the way states emit debt rather than on how much total debt is actually issued.

be correlated with higher tolerance for debt in the state, which could overcome the aforementioned effect. The final effect of indebtness on BSF rules is then left to empirical investigation.

Among the institutional constraints, tax and expenditure limitations (TELs) restrict the state's ability to cope with recessions through direct action,[162] which may make meaningful BSFs more attractive. On the other hand, RDFs may be seen as a way to put funds outside of the scope of the TELs, allowing for higher discretion in the spending decisions, a proposition for which Wagner and Sobel (2006) find supporting evidence. We have explored different alternative measures of TELs, using dummies for the existence of each of these limitations as well as Poulson's (2005) indexes of TEL strictness.[163] Table B.3.4 presents a list and overview of these indexes.

Table B.3.4. Strictness of TELs

	Method of approval	Extent of the limit	Size	Treatment of surpluses	Provisions for increases and waivers	TOTAL SCORE
mean	2.04	1.96	1.6	1.14	1.56	8.3
std. dev.	1.94	2.14	1.9	1.69	1.72	7.77

Source: Poulson (2005)

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[162] Different views exist on the issue: Elder (1992) finds that TELs are associated with a significant decline in state tax revenues, while Poterba (1996) concludes that TEL-states deal more quickly with deficits by raising taxes.
[163] Poulson (2005) creates indexes that consider the overall strictness of the TEL, whether voter approval is required for certain actions, what part of the budget is covered by the limits, the method of approval of the limitation and the treatment of surpluses. Of these, only the indicator regarding what part of the budget is covered by the TEL seems to have significant effects on the configuration of the BSF. In particular, there seems to be some evidence that the more demanding this feature of the TEL, the more likely states are to establish weak deposit requirements, although no effect is found on the determination of withdrawal rules.

Another important institutional constraint is given by the existence of balanced budget requirements (BBR). States with demanding BBRs enact more restrictive spending policies (Poterba (1994)), fare better in deficit control (Alesina and Bayoumi (1996)), are more likely to enact tax increases and spending cuts during recessions (Alt and Lowry (1994)) and tend to save more (Bohn and Inman (1996)), but strict BBRs also introduce rigidities in fiscal policy (Alt and Lowry (2001)) and may exacerbate business cycle volatility (Levinson (1998)). Demanding BBRs make meaningful BSFs more appealing, since intertemporal smoothing becomes more difficult. All states (except Vermont) have a BBR, although the rules differ in their degree of stringency. We consider the same measure the literature has used: the index constructed by ACIR[164] (1987) and the dummies NASBO derived from it; and, additionally, we follow Poterba (1994) in constructing a binary indicator to classify BBRs as "lax" or "strict."[165]

In most cases the balanced budget provisions were approved before 1970, often when the state entered the Union, and have been in place since. The only exception is Tennessee, where a constitutional amendment was proposed on November 30th of 1977 to establish a balanced budget restriction. Tennessee's citizens approved it on March 7th 1978 and it was finally proclaimed on March 31st, 1978.[166] Before the 1978 amendment,

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[164] The index ranges from zero to ten, where higher numbers indicate stricter BBRs. It consideres the following order of (increasing) stringency: (1) rule requires governor to submit a balanced budget, (2) the legislature must pass a balanced budget, (3) carry-over of deficit is allowed to the next year but it must resolved within the following year, (4) deficit carry-over to the next biennium is not allowed, and (5) deficit carry-over to the next year is not allowed. Additionally, constitutional rules receive additional points.

[165] The advantage of using this binary indicator as opposed to the measure provided by ACIR is that it avoids giving the same relevance to unitary changes at all points in the scale while maintaining the difference between lax and strict rules for budget balancing. To investigate possible spurious effects brought about by the "border" cases, we run the regressions two more times, including all border cases (states that scored 5 or 6 in the ACIR index) first in the lower category and then in the upper category.

[166] Before the amendment, Article II, Section 24 of the Constitution of Tennessee read: "No money shall be drawn from the treasury but in consequence of appropriations made by law; and an accurate statement of the receipts and expenditures of the public money shall be attached to and published with the laws at the rise of each stated session of the general assembly."

there was no balanced budget requirement, although according to state officials Tennessee had been enacting balanced budgets for decades before the requirement was adopted.[167] The existing literature on budget has ignored the fact that Tennessee's regulations regarding balanced budgets -unlike the other states- changed in the recent past and used the measure reported by ACIR in 1987. This becomes especially important for studies like this one, which concern themselves with the set of circumstances that led to the adoption of BSFs, because Tennessee adopted its fund in 1972 –which means that using the ACIR index of 10 to measure overstates the strictness of the balanced budget rule in Tennessee in the years prior to the adoption of the fund.

The last institutional factor is embedded in the BSFs themselves. Their legal nature (statutory or constitutional) can also play a role on the configuration of deposit and withdrawal requirements. Constitutionally established BBRs and TELs are regarded as stricter budgetary tools, because they allow decision makers less freedom when establishing the particulars of the law and have been shown to have stronger effects on fiscal policy than their statutory counterparts. To investigate whether constitutional BSFs are more likely to be endowed with stricter requirements, we include a dummy that takes the value of one if the BSF is embedded in the state's Constitution.

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[167] I would like to thank Mr Bill Bradley, from the Budget Office of the State of Tennessee, for his assistance with the balanced budget requirements of Tennessee.

Bibliography

Abney, G. and Lauth, T. *"The Line-Item Veto in the States: An Instrument for Fiscal Restraint or an Instrument for Partisanship?"* Public Administration Review, Vol. 45, N. 3, May June, 1985

Abney, G. and Lauth, T. *"The Item Veto and Fiscal Responsibility"* The Journal of Politics, Vol. 59, N. 3, August 1997.

Advisory Commission on Intergovernmental Relations, <u>State Constitutional and Statutory Restrictions on Local Government Debt</u>, ACIR, September 1961.

Advisory Commission on Intergovernmental Relations, <u>State Constitutional and Statutory Restrictions Upon the Structural, Functional, and Personnel Powers of Local Governments</u>, ACIR, October 1962.

Advisory Commission on Intergovernmental Relations *"Measuring the Fiscal Capacity and Effort of State and Local Areas"* Washington, D C. ACIR, 1972.

Advisory Commission on Intergovernmental Relations *"Measuring the Fiscal "Blood Pressure" of the States – 1964-1975"* Washington, D C. ACIR, 1977.

Advisory Commission on Intergovernmental Relations, *"Intergovernmental Service Arrangements for Delivering Local Public Services: Update 1983"*. ACIR, October 1985.

Advisory Commission on Intergovernmental Relations. *"Fiscal Discipline in the Federal System: National Reform and the Experience of the States."* Washington, D C. ACIR, 1987.

Advisory Commission on Intergovernmental Relations *"State Fiscal Capacity and Effort"* Washington, D C. ACIR, 1990.

Alesina, A. and Bayoumi, T. *"The Costs and Benefits of Fiscal Rules: Evidence from U.S. States."* NBER Working Paper 5614, 1996.

Alt, J. and Lowry, R. "*Divided Government, Fiscal Institutions, and Budget Deficits: Evidence from the States*" American Political Science Review, Vol. 88, N. 4, December 1994.

Alt, J. and Lowry, R. *"A Dynamic Model of State Budget Outcomes under Divided Partisan Government"* The Journal of Politics, Vol. 62, No. 4, 2000.

Amador, M. *"Savings under Political Compromise"* MIT Mimeo, 2003.

Ambler, D., Burr, J., McManus, K., Mischel, H. and Roswick, D. *"Revenue Bond Credit Analysis"* The Handbook of Municipal Bonds and Public Finance Ed. Lamb, R., Leigland, J. and Rappaport, S. New York Institute of Finance, 1993, pp 143-165.

Amt, W. *"Tax Increment Financing Boosts Local Tax Base"* Economic Development Digest, Vol. 11, N. 4, September 2000.

Bahl, R. and Duncombe, W. *"State and Local Debt Burdens in the 1980s: A Study in Contrasts"* Public Administration Review, Vol. 53, N. 1, 1993.

Bails, D. and Tieslau, M. *"The Impact of Fiscal constitutions on State and Local Expenditures"* The Cato Journal, Vol. 20, N. 2, Fall 2000.

Basham, P. *"Assessing the Term Limits Experiment of California and Beyond"* Cato Institute's Center for Representative Government, No. 143, 2001.

Bayoumi, T., Goldstein, M. and Woglom, G. *"Do Credit Markets Discipline Sovereign Borrowers? Evidence from the U.S. States"* Journal of Money, Credit, and Banking, Vol. 27, N. 4, 1995.

Beckman, A. *"The Item Veto Power of the Executive"* Temple Law Quarterly, Vol. 31, 1957.

Berry, W. Ringquist, E., Fording, and Hanson, R. *"The Measurement and Stability of State Citizen Ideology"* Forthcoming in State Politics and Policy Quarterly, 2006.

Besley, T. and Case, A. *"Political Institutions and Policy Choices: Empirical Evidence from the United States"* Mimeo, 2001.

Bohn, H. and Inman, R. *"Balanced Budget Rules and Public Deficits: Evidence from the U.S. States."* National Bureau of Economic Research Working Paper, No. 5533 Cambridge, MA.

Bourdeaux, C. *"A Question of Genesis: An Analysis of the Determinants of Public Authorities,"* Journal of Public Administration Research & Theory, Vol. 15, N. 3, July 2005.

Bradford, E. and Constantine, R. *"The Debt Ceiling and Executive Latitude"* Harvard Law School, Federal Budget Policy Seminar, Briefing Paper 11, May 2005.

Brecher, C. and Lynam, E. *"New York's Endangered Future: Debt Beyond Our Means"* Citizens' Budget Commission, September 2005.

Brecher, C., Richwerger, K. and Van Wagner, M. *"An Approach to Measuring the Affordability of State Debt"* Public Budgeting and Finance, 2003.

Brennan, G. and Buchanan, J. <u>The Reason of Rules: constitutional Political Economy</u> Cambridge University Press, Cambridge, 1985.

Briffault, R. *"The Item Veto in State Courts*" Temple Law Review, Vol. 66, 1993.

Briffault, R. <u>Balancing Acts: the Reality Behind State Balanced Budget Requirements</u>. The Twentieth Century Fund Press, New York, 1996.

Briffault, R. *"The Disfavored constitution: State Fiscal Limits and State constitutional Law"* Rutgers Law Journal, Vol. 34, N. 4, Summer 2003.

Buchanan, J. and Tullock, G. <u>The Calculus of Consent</u> University of Michigan Press, Ann Arbor, 1962.

Buchanan, J. <u>Public Finance in Democratic Process: Fiscal Institutions and Individual Choice</u> University of North Carolina Press, Chapel Hill, 1967.

Bunch, B. *"The effect of constitutional Debt Limits on State Governments' Use of Public Authorities*" Public Choice 68, January 1991.

Calgary City *"The U.S. Experience with Tax Increment Financing (TIF): A Survey of Selected U.S. Cities"* [online] [Accessed July 3, 2007]

< http://www.calgary.ca/docgallery/bu/corporateproperties/final_report_tif.pdf >

Clarke, W. and Eger, R. *"Special Districts, Authorities, Corporations, and the Bond Market"* Forthcoming in the Municipal Finance Journal.

Clingermayer, J. and Wood, D. *"Disentangling Patterns of State Debt Financing"* American Political Science Review, Vol. 89, N. 1, March 1995.

Coffman, M. *"A Rainy Day Fund for Colorado."* Treasur-E-Notes, Vol. 3, Issue 40, 2002.

Cohen, C. *"Analyzing Governmental Credit"* <u>The Handbook of Municipal Bonds and Public Finance</u> Ed. Lamb, R., Leigland, J. and Rappaport, S. New York Institute of Finance, 1993, pp 127-142.

Congressional Budget Office *"Balancing the Federal Budget and Limiting Federal Spending: constitutional and Statutory Approaches"* CBO, September 1982.

Congressional Budget Office *"The Mortgage Subsidy Bond Tax Act of 1980: Experience Under the Permanent Rules"* CBO Staff Working Paper, March 1982, Washington DC.

Crain, W. and Muris, T. *"Legislative Organization of Fiscal Policy"* Journal of Law and Economics, Vol. 38, No. 2, 1995.

De la Fuente, A. Mathematical Methods and Models for Economists Cambridge University Press, Cambridge, 2000.

Denison, D., Hackbart, M. and Moody, M. *"Evolving Role of Debt Limit Policies"* University of Kentucky, Mimeo, 2005.

Denison, D., Hackbart, M. and Moody, M. *"State Debt Limits: How Many Are Enough?"* Public Budgeting and Finance, Winter 2006.

Dickson, S. *"Civil Wars, Railroads and Road Bonds: Bond Repudiations in the Days of Yore"* The Handbook of Municipal Bonds and Public Finance Ed. Lamb, R., Leigland, J. and Rappaport, S. New York Institute of Finance, 1993, pp 166-173.

Douglas, J. and Gaddie, R. *"State Rainy Day Funds and Fiscal Crises: Rainy Day Funds and the 1990-1991 Recession Revisited."* Public Budgeting and Finance, Spring 2002.

Drazen, A. Political Economy in Macroeconomics. Princeton University Press, Princeton, New Jersey, 2000.

Drazen. A. Political Economy in Macroeconomics Princeton University Press, Princeton, New Jersey, 2000.

Duke Law Journal Editorial Board *"State Administrative Supervision of Local Government Debt: The North Carolina Model Notes"* Duke Law Journal, Vol. 1972, No. 2, June 1972.

Eger, R. *"Casting Light on Shadow Government: An Exploratory Analysis of Public Authorities in the Southern States."* Paper presented at the Association for Budgeting and Financial Management at Washington, DC, January 17-19, 2002.

Elder, H. *"Exploring the Tax Revolt: An Analysis of the Effect of State Tax and Expenditure Limitation Laws,"* Public Finance Quarterly, vol. 20, 1992.

Endersby, J. and Towle, M. *"Effects of Constitutional and Political Controls on State Expenditures"* Publius, Vol. 27, N. 1, Winter 1997.

Farnham, P *"Re-examining Local Debt Limits: A Disaggregated Analysis"* Southern Economics Journal, Vol. 51, N. 4, April 1985.

Fatás, A. and Mihov, I. *"The Macroeconomic Effects of Fiscal Rules in the US States"* Journal of Public Economics, Vol. 1-2, 2006.

Frant, H. *"Reconsidering the Determinants of Public Authority Use"* Journal of Public Administration Research and Theory, Vol. 7, No. 4, October, 1997.

Gillete, C. *"Direct Democracy and Debt"* NYU Center for Law and Business Working Paper Series 03-010, 2003.

Gilligan, T. and Matsusaka, J. *"Deviations from Constituent Interests: The Role of Legislative Structure and Political Parties in the States."* Economic Inquiry, Vol. 33, No. 3, 1995.

Gilligan, T. and Matsusaka, J. "*Fiscal Policy, Legislature Size, and Political Parties: Evidence from State and Local Governments in the First Half of the 20th Century*" National Tax Journal, Vol. 54. No. 1, 2001.

Gilligan, T. and Matsusaka, J. "*Structural Constraints on Partisan Bias under the Efficient Gerrymander.*" Vol. 100, No. 1, 1999.

Gold, S. The Fiscal Crises of the States: Lessons for the Future. Washington, DC: Georgetown University Press, 1995.

Gonzalez, C. and Paqueo, V. "*Social Sector Expenditures and Rainy-Day Funds.*" World Bank Policy Research Working Paper 3131, 2003.

Goodrich, C. "*The Revulsion Against Internal Improvements*" The Journal of Economic History, Vol. 10, No. 2, Nov. 1950.

Government Finance Officers Association (Committee on Accounting, Auditing and Financial Reporting and the Committee on Governmental Budgeting and Management.) "*Appropriate level of unreserved fund balance in the general fund.*" January 30th 2002.

Government Finance Officers Association "*Recommended Budget Practices: Tax Increment Financing as a Fiscal Tool*" GFOA, 2006.

Government Finance Officers Association. "*Debt Management Policy*" GFOA 1995 and 2003.

Government Finance Officers Association. "*Recommended Budget Practices: A Framework for Improved State and Local Government Budgeting*" GFOA 1998.

Government Finance Officers Association. "*Recommended Budget Practices: A Framework for Improved State and Local Government Budgeting*" GFOA 1998.

Government Finance Officers Association. <u>Recommended Budget Practices: A Framework for Improved State and Local Government Budgeting</u>, GFOA 1998.

Gricar, J. *"Municipal Corporations: Circumventing Municipal Debt Limitations"* Michigan Law Review, Vol. 48, No. 7, May, 1950.

Haas, P. *"Managing Single Function Governments: The promise and challenge of special districts"* in <u>Handbook of Local Government Administration</u>, Public Administration and Public Policy, Vol. 62, Ed. Gargan, J., Marcel Dekker, New York, 1996.

Hackbart, M. and Leigland, J. *"State Debt Management Policy: A National Survey"* Public Budgeting and Finance, Spring 1990.

Hagle, T. and Mitchell, G. *"Goodness of Fit Measures for Probit and Logit"* American Journal of Political Science, Vol. 36, 1992.

Hausman, J. and McFadden, D. *"Specification Tests for the Multinomial Logit Model"* Econometrica, Vol. 52, No. 5, 1984.

Heins, A. constitutio<u>nal Restrictions Against State Debt,</u> University of Wisconsin Press, Madison, 1963.

Heller, W. "*Political Denials: The Policy Effect of Intercameral Partisan Differences in Bicameral Parliamentary Systems"* Journal of Law, Economics, and Organization Vol. 17, 2001.

Hildreth, W. *"State and Local Governments as Borrowers: Strategic Choices and the Capital Market"* Public Administration Review, Vol. 53, No. 1, Jan-Feb. 1993.

Hildreth, W. and Zorn, C. *"The Evolution of the State and Local Government Municipal Debt Market over the Past Quarter Century"* Public Budgeting & Finance, Vol. 25, N. 4s, December 2005.

Holcombe, R. and Sobel, R. <u>Growth and Variability in State Tax Revenue: An Anatomy of State Fiscal Crises</u>. Greenwood Press, Westport, 1997.

Holcombe, R. and Sobel, R. <u>Growth and Variability in State Tax Revenue: An Anatomy of State Fiscal Crises</u> Greenwood Press, Westport, 1997.

Holtz-Eakin, D., Rosen H. and Tuller, S. *"Intertemporal Analysis of State and Local Government Spending: Theory and Tests"* Journal of Urban Economics 35, 1994.

Hou, Y. *"Fiscal Reserves and Budgetary Reactions to Revenue Shocks;"* University of Georgia, Mimeo, 2004.

Hou, Y. *"Testing the Effects of Sub-National Counter-Cyclical Fiscal Policies: Budget Stabilization Funds, General Fund Surpluses, and State Total Own-Source Expenditures"* Syracuse University, Mimeo, 2001.

Hou. Y. *"Fiscal Reserves and State Own-Source Expenditure in Downturn Years."* Public Finance Review, Vol. 33, No. 1, 2005.

Jeweler, R. *"Municipal Reorganization: Chapter 9 of the U.S. Bankruptcy Code"* CRS Report for Congress, March 2007.

Johnson, C. and Kriz. K. *"Fiscal Institutions, Credit Ratings, and Borrowing Costs"* Public Budgeting & Finance, Vol. 25, N. 1, Spring 2005.

Joyce, P. *"What's So Magical about Five Percent? A Nationwide Look at Factors that Influence the Optimal Size of State Rainy Day Funds."* Public Budgeting and Finance, Summer 2001.

Kiewiet, R. *"Constitutional Limitations on Indebtedness: The Case of California."* In <u>constitutional Reform in California</u> Ed. Cain,B. and Noll, R. Berkeley, California: Institute of Governmental Studies, 1995.

Kiewiet, R. and Szalaky, K. *"Constitutional Limitations on Borrowing: An Analysis of State Bond Indebtness"* The Journal of Law, Economics and Organization, Vol. 12, N. 1, 1996.

Kirkland, K. *"Creative Accounting and Short-Term Debt: State Responses to the Deficit Threat"* National Tax Journal, Vol. 36, No. 3, 1983.

Kirkland, K. *"Creative Accounting and Short-Term Debt: State Responses to the Deficit Threat"* National Tax Journal, Vol. 36, N. 3, September 1983.

Knight, B. and Levinson, A. *"Fiscal Institutions in U.S. States"* University of Wisconsin, Mimeo, 1998.

Knight, B. and Levinson, A. *"Rainy Day Funds and State Government Savings."* National Tax Journal, Vol. 52, No. 3, 1999.

Krause, G. *"Partisan and Ideological Sources of Fiscal Deficits in the United States"* American Journal of Political Science, Vol. 44, No. 3, 2000.

Kreps, M. *"Ups and Downs of Municipal Bonds' Volume and Yields in the Past Century"* The Handbook of Municipal Bonds and Public Finance Ed. Lamb, R., Leigland, J. and Rappaport, S. New York Institute of Finance, 1993, pp 104-114.

Krishnakumar, A. *"In Defense of the Debt Limit Statute"* Harvard Journal on Legislation, Vol. 42, N. 1, Winter 2005.

Kriz, K. *"The Optimal Level of Local Government Fund Balances: A Simulation Approach"* State Tax Notes, Vol. 27, No. 10, 2003.

Lane, P. *"The Cyclical Behaviour of Fiscal Policy: Evidence from the OECD"* Journal of Public Economics, Vol. 87, No. 12, 2003.

Lav, I. and Berube, A. *"When It Rains It Pours: A look at the adequacy of State Rainy Day Funds and Budget Reserves."* Center on Budget and Policy Priorities, 1999.

Lazere, E. *"Fixing D.C.'s Rainy Day Fund"* D. C. Fiscal Policy Institute, 2003.

Lee, R. *"State Item-Veto Legal Issues in the 1990s,"* Public Budgeting and Finance, Vol. 20, N. 2, Summer 2000.

Lehmann, H. *"The Federal Municipal Bankruptcy Act"* The Journal of Finance, Vol. 5, No. 3, September 1950.

Leigland, J. *"Overview of Public Authorities and Special Districts"* The Handbook of Municipal Bonds and Public Finance Ed. Lamb, R., Leigland, J. and Rappaport, S. New York Institute of Finance, 1993, pp. 375-396.

Leigland, J. *"Public Authorities and Determinants of their Use by State and Local Governments"* Journal of Public Administration Research and Theory, Vol. 4, N. 4, 1994.

Levinson, A. *"Balanced Budgets and Business Cycles: Evidence from the States."* National Tax Journal Vol. 51 no. 4, 1998.

Lewis, W. *"Budgetary Balance: The Norm, Concept and Practice in Large US Cities"* Public Administration Review, Vol. 54, N. 6, December 1994.

Liu, L. and Wallis, J. *"Infrastructure Financing, Debt Restrictions and Subnational Debt Market. Lessons from the United States"* Mimeo, April 2007.

Long, J. and Freese, J. Regression Models for Categorical Dependent Variables Using Stata, Stata Press, College Station, 2006.

Lowry, R. and Alt, J. *"A Visible Hand? Bond Markets, Political Parties, Balanced Budget Laws, and State Government Debt."* Economics & Politics 13, 2001.

Lowry, R. and Alt, J. *"A Visible Hand? Bond Markets, Political Parties, Balanced Budget Laws, and State Government Debt"* Economics & Politics, Vol. 13, N. 1, March 2001.

Lowry, R. and Alt, J. *"A Visible Hand? Bond Markets, Political Parties, Balanced Budget Laws, and State Government Debt"* Economics and Politics, Vol. 13, N. 1, March 2001.

Lowry, R. and Alt, J. *"Divided Governments, Fiscal Institutions, and Budget Deficits: Evidence from the States"* American Political Science Review, Vol. 88, No. 4, Dec 1994.

Lowry, R., Alt, J. and Ferree, K. *"Fiscal Policy Outcomes and Electoral Accountability in American States"* American Political Science Review, Vol. 92, No. 4, 1998.

MacManus, S. *"Financing Federal, State, and Local Governments in the 1990s"* Annals of the American Academy of Political Science, May 1990.

Maco, P. *"Building a Strong Subnational Debt Market: A Regulator's Perspective"* Richmond Journal of Global Law & Business, Vol. 2, N. 1, Winter/Spring 2001.

Maddala, G. Limited-dependent and qualitative variables in econometrics Cambridge, MA: Cambridge University Press, 1983.

Man, J. *"Fiscal Pressure, Tax Competition and the Adoption of Tax Increment Financing"* Urban Studies, Vol. 26, N. 7, 1999.

Mas-Colell, A., Winston, M. and Green, J. Microeconomic Theory. Oxford University Press, New York, 1995.

McCarty, N. *"The Policy Consequences of Partisan Polarization in the United States"* in the 2004 Seminar of Institutions and Positive Political Theory, Berkeley.

McEachern, W. *"Collective Decision Rules and Local Debt Choice: A Test of the Median Voter Hypothesis"* National Tax Journal, Vol. 31, N. 2, June 1978.

McGranahan, L. *"Unprepared for Boom or Bust: Understanding the Current State Fiscal Crisis"* Economic Perspectives, Federal Bank of Chicago, 2002.

McGrane, R. Foreign Bondholders and American State Debts. The Macmillan Company, New York, 1935.

Mikowski, C. *"Organizational Dynamics of State Debt Issuance"* The Handbook of Municipal Bonds and Public Finance Ed. Lamb, R., Leigland, J. and Rappaport, S. New York Institute of Finance, 1993, pp 360-375.

Mitchell, W. The Effectiveness of Debt Limits on State and Local Government Borrowing New York Institute of Finance, September 1969.

Mody, A. and Fabrizio, S. *"Can Budget Institutions Counteract Political Indiscipline?"* IMF Working Papers, Washington DC, 2006.

National Association of State Budget Officers. *"Budget Stability: A Policy Framework for the States."* NASBO, 1995.

National Association of State Budget Officers. *"Budgeting Amid Fiscal Uncertainty. Ensuring Budget Stability by Focusing on the Long Term."* NASBO, 2004.

National Conference of State Legislators *"Fundamentals of Sound State Budgeting Practices"* NCSL, Washington DC, June 1995.

National Conference of State Legislators *"Fundamentals of Sound State Budgeting Practices"* NCSL, Washington DC, June 1995.

Navin, J. and Navin, L. *"An Evaluation of Budget Stabilization Funds among Midwestern States"* Growth and Change, Vol. 25, No. 4, 1994.

New, M. *"Limiting Government Through Direct Democracy. The case of state tax and expenditure limitations."* Policy Analysis, N. 420, Cato Institute, 2001.

New. M. *"Where Term Limits lead to Tax Cuts"*, Cato Institute, 2001.

Nice, D. *"The Impact of State Policies to Limit Debt Financing"* Publius, Vol. 21, No. 1, Winter 1991.

Oates, W. "*An Essay on Fiscal Federalism*" Journal of Economic Literature, 1999.

Oates, W. *"On the Measurement of Congestion in the Provision of Local Public Goods"* Journal of Urban Economics, Vol. 24, 1988.

Oates, W. *"Towards a Second Generation Theory of Fiscal Federalism"* International Tax and Public Finance, Vol. 12, 2005.

Pagano, M. and Perry, D. *"Financing the 21st Century City: How Did I Get Stuck Holding the Bag"* Great Cities Institute, May 2006.

Peters, S., Smith Lovette, S. and Choe, K. T. "*Emerging Borrowing Priorities – Financing Infrastructure*" The Handbook of Municipal Bonds and Public Finance Ed. Lamb, R., Leigland, J. and Rappaport, S. New York Institute of Finance, 1993, pp. 788-806.

Peterson, B. and Harrell, F. *"Partial Proportional Odds Models for Ordinal Response Variables"* Applied Statistics, 1990.

Pogue, T. *"The Effects of Debt Limits: Some New Evidence"* National Tax Journal, Vol. 23, N. 1, March 1970.

Pollock, R. and Suyderhoud, A. *"The Role of Rainy Day Funds in Achieving Fiscal Stability."* National Tax Journal 39(4), 1986.

Poterba, J. *"Balanced Budget Rules and Fiscal Policy: Evidence from the States"* National Tax Journal, Vol. 48, 1995.

Poterba, J. *"Budget Institutions and Fiscal Policy in the U.S. States."* American Economic Review, Vol. 86, No. 2, 1996.

Poterba, J. *"Capital Budgets, Borrowing Rules and State Capital Spending"* Journal of Public Economics 56, 1995.

Poterba, J. *"State Responses to Fiscal Crises: The Effects of Budgetary Institutions and Politics."* Journal of Political Economy 102(4), 1994.

Poterba, J. and Rueben, K. *"State Fiscal Institutions and the U.S. Municipal Bond Market"* Fiscal Institutions and Fiscal Performance, Ed. Poterba, J. and von Hagen, J. University of Chicago Press, Chicago, 1999, pp 181-209.

Poulson, B. *"Creating a Budget Stabilization Fund for Colorado."* Information for Colorado's Advisory Group Members, 2003.

Poulson, B. *"Creating a Budget Stabilization Fund for Colorado."* Information for Colorado's Advisory Group Members, 2003.

Poulson, B. *"Grading the States' Tax and Expenditure Limits."* Americans for Prosperity Foundation, June 2005.

Poulson, B. *"Grading the States' Tax and Expenditure Limits."* Americans for Prosperity Foundation, 2005.

Primo, D. *"Stop Us Before We Spend Again: Institutional Constraints on Government Spending"* Economics & Politics, Vol. 18, N. 3, November 2006.

Pryde, J. *"The Ongoing Battle: Almost 70 Years of Assaults on Tax-Exempt Municipals"* The Handbook of Municipal Bonds and Public Finance Ed. Lamb, R., Leigland, J. and Rappaport, S. New York Institute of Finance, 1993, pp. 836-850.

Raher, S. and Donner, C. *"Debt by Any Other Name is Still Debt"* Independence Institute, Colorado, December 2003.

Ratchford, B. *"A Formula for Limiting State and Local Debts"* Quarterly Journal of Economics, Vol. 51, N. 1, November 1936.

Ratchford, B. *"New Forms of State Debts"* Southern Economic Journal, Vol. 8, N. 4, April 1942.

Ratchford, B. *"Public Debts in the South"* Southern Economic Journal, Vol. 2, N. 3, January 1936.

Ratchford, B. American State Debts, Duke University Press, Durham, NC, 1941.

Regens, J., and Lauth, T. *"Buy Now, Pay Later: Trends in State Indebtness, 1950-1989"* Public Administration Review, Vol. 52, No. 2, March-April, 1992.

Rodriguez-Tejedo, I. *"Requirements and Limits on State Budgets"* University of Maryland, Mimeo, 2006.

Sawicky, M. *"Altered States: How the Federal Government can Ease the States' Fiscal Crisis"* Economic Policy Institute Issue Brief, No. 187, 2003.

Saye, A. *"American Government and Politics: Georgia's Proposed New constitution"* The American Political Science Review, Vol. 39, No. 3, June 1945.

Sbragia, A. Debt Wish: Entrepreneurial Cities, U.S. Federalism, and Economic Development University of Pittsburgh Press, Pittsburgh PAU, 1996.

Secrist, H. *"constitutional Restrictions on Municipal Debt"* The Journal of Political Economy, Vol. 22, N. 4, April 1914.

Simonsen, B., Robbins, M. and Kittredge, B. *"Do Debt Policies Make a Difference in Finance Officers' Perceptions of the Importance of Debt Management Factors?"* Public Budgeting and Finance, Spring 2001.

Small, K. and Hsiao, C. *"Multinomial Logit Especification Tests"* International Economic Review, Vol. 26, No. 3, 1985.

Snell, R. *"State Balanced Budget Requirements: Provisions and Practice."* National Conference of State Legislatures. Article posted in April 1996, updated in March 2004.

Snell, R. *"State Balanced Budget Requirements: Provisions and Practice."* National Conference of State Legislatures. Article posted in April 1996, updated in March 2004.

Sobel, R. *"The Political Costs of Tax Increases and Expenditure Reductions: Evidence from State Legislative Turnover"* Public Choice, Vol. 96, 1998.

Sobel, R. and Holcombe, R. *"The Impact of State Rainy Day Funds in Easing State Fiscal Crises During the 1990-1991 recession."* Public Budgeting and Finance, Fall 1996.

Sobel, R. and Holcombe, R. "*The Impact of State Rainy Day Funds in Easing State Fiscal Crises During the 1990-1991 Recession."* Public Budgeting & Finance, Fall 1996.

Sterk, S. and Goldman, E. *"Controlling Legislative Shortsightedness: The Effectiveness of constitutional Debt Limitations*" Wisconsin Law Review, 1991.

Sutch, R. and Carter, S. (Editors) <u>Historical Statistics of the United States: Millennial Edition</u>, 2007 Cambridge University Press.

Tannenwald, R. *"Fiscal Disparity Among the States Revisited"* State Tax Notes, Vol. 17, No. 15, 1999.

Tannenwald, R. *"Methodology for Estimating Total Taxable Resources"* U.S. Department of Treasury, 2002.

Tannenwald, R. and Cowan, J. "*Fiscal Capacity, Fiscal Need, and Fiscal Comfort among U.S. States"* The Journal of Federalism, Vol. 27, No. 3, 1997.

Temple. J. *"The Debt/Tax Choice in the Finance of State and Local Capital Expenditures"* Journal of Regional Science, Vol. 34, N. 4, 1994.

Trautman, R. "*The Impact of State Debt Management on Debt Activity"* Public Budgeting & Finance, Vol.15, N.2, Summer 1995.

Tullock, G. *"Problems of Majority Voting."* Journal of Political Economy, Vol.67, No. 6, 1959.

Vanberg, V. and Buchanan, J. *"Organization Theory and Fiscal Economics: Society, State, and Public Debt"* Journal of Law, Economics & Organization, Vol.2, N. 2, Autumn, 1986.

Velasco, A. *"Debts And Deficits With Fragmented Fiscal Policymaking,"* Journal of Public Economics, Vol. 76, 2000.

Von Hagen, J. *"A note on the Empirical Evidence of Formal Fiscal Restrains"* Journal of Public Economics 4(2), 1991.

Wagner, G. *"Are State Budget Stabilization Funds Only the Illusion of Savings? Evidence from Stationary Panel Data."* Quarterly Review of Economics and Finance, Vol. 43, No. 2, 2003.

Wagner, G. *"The Bond Market and Fiscal Institutions: Have Budget Stabilization Funds Reduced State Borrowing Costs?"* National Tax Journal, Vol. 57, No. 4, 2004.

Wagner, G. and Elder, E. *"The Role of Budget Stabilization Funds in Smoothing Government Expenditures over the Business Cycle."* Public Finance Review 33(4), 2005.

Wagner, G. and Sobel, R. *"State Budget Stabilization Fund Adoption: Preparing for the Next Recession or Circumventing Fiscal Constraints?"* Public Choice, Vol. 126, No. 1, 2006.

Wallis, J. *"American Government Finance in the Long Run: 1790 to 1990"* The Journal of Economic Perspectives, Vol. 14, N. 1, Winter, 2000.

Wallis, J. *"Constitutions, Corporations and Corruption: American States and Constitutional Change: 1842-52."* The Journal of Economic History, Vol. 65, No. 1, 2005.

Wallis, J. and Weingast, B. *"Dysfunctional or Optimal Institutions?: State Debt Limitations, the Structure of State and Local Governments, and the Finance of American Infrastructure"* Mimeo, 2006.

Wallis, J. *NBER/University of Maryland State constitution Project*, [online] < www.stateconstitutions.umd.edu > [Accessed July 3, 2007]

Wallis, J., Sylla, R. and Grinath, A. *"Sovereign Debt and Repudiation: The Emerging-Market Debt Crisis in the U.S. States"* NBER Working Paper No. W10753.

Weingast, B., Shepsle, K. and Johnsen, C. *"The political Economy of Benefits and Costs: A Neoclassical Approach to Distributive Politics"* Journal of Political Economy, Vol. 3, No. 4, 1981.

Wells, R. *"The Item Veto and State Budget Reform"* The American Political Science Review, Vol. 18, N. 4, November 1924.

Williams, R. *"Gologit2: Generalized Ordered Logit/ Partial Proportional Odds Models for Ordinal Dependent Variables."* Stata Journal, Vol. 6, No. 1, 2006.

Windmeijer, F. *"Goodness of Fit Measures in Binary Choice Models"* Econometrics Review, Vol.14, No. 1, 1995.

Zahradnik, B. and Ribeiro, R. *"Heavy Weather: Are State Rainy Day Funds Working?"* Center on Policy and Budget Priorities, May 2003.

Zahradnik, B. *"Rainy Day Funds: Opportunities for Reform."* Center on Budget and Policy Priorities, March 2005.

Zimmerman, D. "*Tax–exempt Bonds, Professional Sports Stadiums, and Economic Policy"* American Tax Policy Institute, March 2007.