LOCAL FISCAL BEHAVIOR UNDER STATE PROVISIONS:

Do Local Governments Smooth Revenue from Booms across Busts?

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ABSTRACT

In the study of state-local relations, interactions between the two layers in fiscal policy are an important area. States direct and exercise oversight over local governments, also provide substantial financial assistance. These have played into the state-local interactions in their fiscal policy. Research in this area has been increasing but inadequate, especially in regard to local policy options during a downturn. Localities are assumed or expected to adopt a counter-cyclical fiscal policy (CCFP) and practices. The questions are: Do they, can they? There has been an increasing literature on CCFP at the state level, but a much smaller one on the local level, especially in state-local interactions in this policy area. This paper is an attempt to move closer to consensus on the determinants of local savings and the effects of the savings. This paper uses the longest available, nationwide annual series county level data set for empirical analysis. The most important findings are: Localities save for future liabilities not recessions; they do not smooth from booms across busts; and state level fiscal institutions cast real impact on local finance. These findings shed light on local policy making and add to existing evidence for state level policy design.

Key words: state-local fiscal relations, counter-cyclical fiscal policy, local government, service provision, revenue, boom and bust

1. **INTRODUCTION**

In the study of state-local relations, interactions between the two layers in fiscal policy are an important area. On the one hand, local governments as creations of the state (Dillon's Rule) fall under state direction and oversight, as is stipulated in statutes and administrative provisions of each state. These laws and provisions started in history from defaults and malpractices of localities (Coe 2007), have remained strong in general. On the other hand, there have been waves of local requests for more discretion, called "home rules", by localities in the past century (Krane, Rigos, and Hill 2001). Over time state legislatures have granted varying degrees of autonomy to localities, especially in functional areas, personnel and forms of government (Stenberg 2001). However, home rule practices in the past few decades have not fundamentally relaxed state supervision of local financial affairs (Zimmerman 1981). At the same time, states began to provide substantial financial assistance in various forms of project grants and aids (to school districts in particular). Both sides have played into the state-local fiscal relations. Research in this area has been increasing but remains inadequate, especially in regard to local policy options during a downturn when states face revenue shortfalls and often have to reduce grants and aids to local governments, thus leaving localities relying to a large extent on themselves.

While most states (45 out of 50) have adopted formal savings devices like the budget stabilization fund (NASBO 2007) as a counter-cyclical fiscal instrument, such formal savings mechanisms are still rare among local governments (Wolcoff 1987; GFOA??). There has been an increasing literature on counter cyclical fiscal policy (CCFP) at the state level, [1] but a much smaller one on the local level, [2] especially on local fiscal behavior across the boom-bust cycle of tax revenues. How do localities cope with revenue shortfalls during a downturn under various

[1] For example Gramlich 1987, 1991; Hou 2003, 2005; Hou and Duncombe 2008; Hou and Moynihan 2008; Knight and Levinson 1999; Pollock and Suyderhood 1986; Sobel and Holcombe 1996; and Wagner 2003, 2005.
[2] For example Wolcoff 1987; Marlowe 2005; and Hendrick 2006. Details are in section 4.

state-set constraints? Do they have the means – accumulated savings from boom years – to counter the revenue bust from the economic cycle? If they have saved some revenue during the boom years, do they spend these savings to stabilize service provision in the bust years? This paper will examine the fiscal behavior across the boom-bust years of local governments under state provisions; the study will contribute to the fiscal policy and fiscal federalism literatures.

This paper asks two basic but important questions, both in the context of strict state oversight over local fiscal affairs: What determines the size of savings at the local level and what impacts do these savings exert on local expenditure in shortfall years. Reliable empirical answers to these two seemingly simple questions may help clarify our understanding of two important issues in public finance theory: First, whether there is an optimal size of savings which can be from formal and/or informal devices; and second, whether localities use past savings to counter cyclical revenue shortfalls. This paper will use a panel data set of counties nationwide over three full economic cycles and two half cycles to conduct empirical tests.

The paper is organized as follows. The next section discusses state-local fiscal relations, discussing the county as the unit of analysis, the role of local governments in public service provision, and tax-expenditure limitations. Section three reviews the existing literature on what we have learned about state and local fiscal behavior over the economic cycle. It deliberates on the need to stabilize service provision when citizens especially need them in a recession. Section four examines localities' saving and patterns, analyzing the cyclical features of local fiscal behavior, the composition of savings, savings devices, and the existing evidence on the effects of local savings. Section fine offers an analytical framework for the modeling of local fiscal behavior. Section six covers data and methods for this study. Empirical results are presented in section seven. The final section concludes with some over-arching lessons learned.

2. STATE-LOCAL FISCAL RELATIONS

2.1 The County as Unit of Analysis

This paper chooses the county as the object of examination because the county is the dominant form of local government as provider of basic services in most parts of the country. The US constitution makes no mention of county or city governments. Historically, counties were established "as administrative subdivisions of the state, for the convenience of the state", which was very different from municipalities which were "created at the behest of the people" (Coppa 2000, 4). States keep the legal authority to establish or abolish counties (Coppa 2000), with the state constitution setting up the basic powers of counties (Duncombe 1977). As such, counties "operate within the parameters of their state constitutions, statutes, and court decisions" (ibid). A 19th century court decision (Dillon's Rule) established the formal legal position for the county government. According to the Iowa Supreme Court, counties could only exercise (a) powers expressly delegated by the state; (b) powers necessary and incident to execution of expressed powers; and (c) powers absolutely necessary to discharge the express powers. Sydney Duncombe pointed out a long time ago:

> "The effect of the Dillon Rule is to greatly reduce the discretion of [city and] county officials in exercising their powers and make them dependent upon authority conferred in specific terms by state laws, implied by these laws, or essential to the operation of local government" (1977, 107).

That was why some scholar concludes that "[t]he history of strong state control over local affairs has led to meek county governments" (Torrence 1974, 10).

A twist occurred around local power during the Progressive-Era (turn of the 20th century) government reform, which upheld professional management of county governments, created the council-manager type/plan of government, in which a county administrator would be imposed between the elected governing board and the county bureaucracy, and believed in "home rule": power is to be granted by the state to local governments to adopt their own charters and exercise powers of determination. With permission from the state, "Home Rule" for counties is possible (Duncombe 1977).

The total number of counties has been a little over 3,000, with over 2 million in the county workforce. Counties are by no means of merely one type; they in fact present the biggest variation (Warren 1970). For example, southern counties were modeled after the English "shire" (which became county in 1066) to hold all responsibilities as a "strong unit performing a large number of functions" (Benton 2002, 19). Southern states had fewer competing local government structures than in other regions of the country, with the county being the dominant form of local government (Marando 1979: 414). There have been calls for refreshed research on the county about its role in the American federal system (for example, Mentzel et al 1992). A recent study (Benton 2002) reminds us that counties have "become full-service governments" and "are also beginning to rival municipalities as major providers of services that traditionally have been dominated by cities" (466); as such, they "might assume the responsibilities of regional governments" (467). Therefore, our choice of the county as the unit of analysis has historical as well as practical standing.

2.2 Counties as Frontline Government

Before we move on to study the fiscal behavior of county governments, it is necessary to define county governments as FRONT-LINERS in public service provision (Benton 2002, 5). Suburbanization after WWII, especially since the 1960s, "dragged" counties to the frontline of public service provision. Suburbanites, former central-city residents who had opted to move out to the suburbs, still expected to receive "municipal" services that they had been familiar with and grown dependent upon; but now they were already out of the boundary the (urban) municipality into the (rural/suburban) county. Such citizen demands led to a movement of county modernization, which blurred the distinction between the county and municipal governments by abandoning the traditional system of county government as an administrative arm of the state, pluralizing the executive, and emphasizing county home rule. In this role, counties differ fundamentally from the federal (central) and state (sub-central) governments. Frontline governments are the closest among all layers to citizens. They provide key public services on a daily basis; these are the services that residents cannot go without for a decent level of living standards. Besides, many state services and some federal services (and policies) are also implemented or supplemented by the counties with their resources and state/federal grants. The proximity of the county governments to service recipients also put counties under direct oversight, even scrutiny, by citizens. With the most direct, daily contact with and almost real-time information about the efficiency and cleanness of their county governments, service recipients and tax payers can and frequently react in the quickest fashion to local policies. In comparison, state and federal governments are out of reach to local residents.

Being small in size, local economies are often heavily dependent on a few sectors; thus, the local revenue portfolio is not as diversified as that of higher level governments. The most important local revenue source, the property tax, has long been known as the most hated tax for

its visibility. This visibility in couplet with proximity mentioned above makes it politically very hard for local governments to save in the boom years. The revolts of California tax payers in the late 1970s are not remote memory – the revolts were assumedly triggered, among other factors, by high levels of government surpluses. In the past few decades, other revenues sources like the local sales tax have been added, which increases revenue diversification but reduces revenue stability over the economic cycle (Hou and Seligman 2007). Impossibility of large savings with less stable revenue streams thus has placed local governments in a more difficult situation during downturns than higher level governments.

The set of strategies that local governments use in coping with downturns thus differ from those used by federal and state governments. These front-liners often have to cut services and also increase taxes and fees during a downturn. Though these are also done at the sate level, the local cuts and hikes come more bluntly because the localities have few other choices and these hard and harsh measures can be accepted (bitterly though) by residents.

2.3 State (and Federal)-County Fiscal Relations

Counties fall under strict oversight, regulation, and control by the state via state legislation and regulation, as well as administrative rules. In many cases, "states treat [counties] as irresponsible juveniles" (Torrence 1974, 5) from historical defaults and other irresponsible fiscal behavior as happened in the 1930s in North Carolina (Coe 2007). State control comes through providing for their structure, enumerating their functions, limiting the money they can raise, stipulating the sources of county taxes and limiting tax rates and the amount of indebtedness. Thus, the most important type of state-county relation is in fiscal affairs. Home rule practices in the past few decades have not fundamentally relaxed state supervision of local

financial affairs (Zimmerman 1981). Counties also face the strictest balanced budget requirements, even more so than state itself. States also set up regular and stringent auditing rules on counties; in some cases keeps the power of taking over the management of local financial management, as occurred in New Jersey and New York. In the last four decades of the 20th century, states began to provide substantial financial assistance in various forms of project grants. Since the 1970s and 80s states began to distribute an increasing share of their annual budgets as aids to local schools in an effort to achieve equity in education opportunities.

For the first 150 years in the country's history, the federal government did not interact with localities. In the depth of the Great Depression, the federal government took over provision of health/welfare from states and localities and began providing loans and subsidies for community development projects and thus dealing directly with local governments. In the 1960s, the federal government became even more involved in education, economic development, poverty reduction, and law enforcement that were historically local functions. The most important type of federal-county relationship is fiscal (Duncombe 1977) under "cooperative federalism" (Wright 1982).

Federal and state grants are not free lunch; they come often with mandates and matching requirements as well as stipulation with regard to the purpose and use of transfer money, which "… has brought counties … into closer relationship with national and state governments … tended to diminish the importance of local elected officials" (Duncombe 1977, 100). Counties welcome transfer money but "are not always enthusiastic about the ways it is distributed or the conditions put on its use" because grant dollars enable the federal and state governments to influence local policies, the way of policy implementation and even administrations (Torrence 1974, 173).

2.4 Tax and Expenditure Limitations

Apart from state legislative constraints on localities, citizen initiatives are windows for citizens to impose further restrictions on state and local governments in the rates and growth of taxation and expenditure. Such initiatives have a long tradition in this country's democratic governance structure, dating back to at least the early 20th century (Matsusaka 2000); then from the late 1970s, another wave of such initiatives spread over the country starting from California's Proposition 13 (1978) and Massachusetts Proposition 2½ (1982). Citizen initiated tax and expenditure limitations (TEL) are an intriguing dimension in the state-local fiscal relationship. Empirical evidence shows that these initiatives do not generate consistent effects on the overall size of state or local governments but they do diverge more spending from the state to localities. State spending is down by 4 percent in initiative states but local spending goes up; with this change, redistributive programs are cut the most (Matsusaka 1995, 2000). That is, states push down some service expenses to the local level. As we have show above, states have more diversified economies and revenue portfolios but localities do not; localities are thus much more vulnerable than states are to economic downturns. The shift of outlay responsibilities from state to local governments further exacerbates the latter's difficulty in maintaining smooth services during periods of revenue shortfalls.

A study of TEL effects on the revenue structure of county governments shows that on average these limits substitute property and other taxes with miscellaneous revenues and fees/charges; only very stringent TEL can prevent tax-charge substitution and really lower the overall local tax burden (Shadbegian 1999). This reflects the conundrum encountered by local governments. With more responsibilities, especially during downturns, they must find alternative

sources to make up the gap. They have nowhere to push away the tasks. TEL does not consider the boom-bust cycles of revenue or the increased need for services during downturns. And in face of stringent TEL, they will have no choices left but to cut services in quantity and quality.

Is the last statement true? To summarize empirical and theoretical studies, there have been three main views about the consequences of citizen initiatives and TEL on Public Service. The first is held by public choice scholars like Brennan and Buchnan (1980) and Citrin (1979) who believe such limits would cast positive effects by eliminating waste, with no adverse effects on the quality of public services. In contrast, the common, intuitive perception has been that tax revolts would reduce government services with some empirical support. For example, Stocker (1991) provides evidence that Proposition 13 has cut not only taxes but also public services; Downes and Figlio (1999) summarize the literature and conclude that the imposition of TEL results in long-run reductions in the performance of public school students. The conclusion seems fits our intuition: there is no free lunch. A third view (McGuire 1999) argues that the answer depends on which model of local government behavior is operative: Under the median-voter / benevolent-dictator model (property tax as a benefit tax, so local governments achieve efficiency), then TEL effects can only be negative; but under the Leviathan/budget maximizing-bureaucratic model, then TEL (with an option for local voters to override the limit) has the potential to improve the welfare of local residents. This study will factor in the effects of TEL on the savings and spending behavior of county governments across the boom-bust revenue cycles.

3. THE STABILIZATION ROLE FOR LOCAL GOVERNMENTS

In the mid-1930s John Maynard Keyes (1936) provided the theoretical basis for central governments to actively involve in the macro-economy through compensatory fiscal policy. In

simple words, it is to use large deficits in downturns pull up the aggregate demand so that the economy will recover sooner and the reenergized economy will generate enough tax revenue in the boom to retire the debts. Richard Musgrave theorized this policy in his *Theory of Public Finance* (1959) as the economic stabilization function of government. The theory has been gradually but widely accepted (accompanied with profound debates among macro-economists); but the stabilization function was assumed to be exclusively a role for central governments, because the huge spillover effects of economic stabilization seemed operable only at the national level. Three decades later Edward Gramlich (1987 and 1991) expanded the theory of government stabilization function to the sub-national level. He provided empirical evidence that the migration of labor and capital is not as mobile in the short-run as had been assumed in the Musgrave version of the theory. Therefore, it is theoretically possible for state governments to play a role in the stabilization function. This literature has increased quickly in the past two decades, mainly on fiscal policy and its tools. The impact has been mainly on stabilizing the budget instead of the economy.

Along the same line of argument, some scholars began to pay attention to the local level. This literature has grown steadily, but remains small and inconclusive. The 2008-09 deep recession made it urgent for the research communities of public finance and federalism to re-examine the local public sector and provide empirical evidence on whether localities in the current federal-state-local fiscal relationship network, as analyzed in section two, would implement a fiscal policy against the boom-bust cycle of tax revenues. Since local economies are usually not diversified and governments are small at this level, we would not expect them to be active in stabilizing the economy. However, situated at the frontline in service provision, localities ideally should uphold the policy inclination to go against the cycle because recessions

are exactly the time when citizens with drastically reduced income need the basic services to be reliable so that they can better weather the financial and employment hardships. But given their thin revenue portfolio, strict balanced budget requirements, and political proximity to voters plus tax and expenditure limitations, do localities possess the fiscal capacity, policy tools and political support to save during boom years and then use savings in bust years to stabilize services? When localities have accumulated some savings, do they spend for service stabilization when own-source revenues fall short of forecasts and federal/state governments cut grants and aid? These are important questions that cry for empirical evidence.

4. SAVING AND SPENDING PATTERNS OF LOCAL GOVERNMENTS

This section reviews the empirical literature on the fiscal behavior of localities with regard to their patterns of accumulating savings in boom years and then spending the savings in bust years to stabilize service programs. This literature covers local governments including metropolitans and municipalities instead of merely counties; but it is our starting point to narrow down the focus.

4.1 Cyclical Features of Local Fiscal Behavior

In the late 1980s public finance scholars began to check local fiscal behavior during downturns, their financial capacity, policy tools and performance of these tools. Wolcoff (1987) surveys large cities on their revenue fluctuations and finds that the traditional local reliance on property taxes was broken by tax revolts. To make up for revenue losses from tax limitations, these cities shifted, under the name of “diversification”, towards sales taxes, fees and charges localities that are more sensitive to the business cycle than the property tax. Such revenue

portfolios render localities more vulnerable to cyclical fluctuations. Wolcoff summarizes four features of local fiscal behavior. First, proximity to tax payers deters high savings; the political constituency does not exist to support saving for revenue shortfalls. Second, local politicians assume short horizons in their decision matrix because they do not have the need to look far. Third, on the revenue side, local governments rely on very limited sources and often have little to put aside for downturns. Finally, when downturns do occur, local officials tackle the revenue shortfall by cutting programs and delaying capital projects. These features still hold during the 2008-09 recession according to a most recent survey of budgeting practices by California counties (Sun 2010). As long as these features persist and the current state-local fiscal relations matrix does not drastically change, it is predictable that local governments may not have the incentive to adopt formal stabilization funds to save for service stabilization. Hou (2002) reports that the State of New Jersey even prohibits its localities from setting up stabilization funds; it is a measure to prevent possible abuse of stored resources by corrupt local officials. Conant (2003) studies local political environment of Wisconsin municipalities; he provides descriptive evidence that saving for out-years instead of providing current services or cut taxes is a hard sell. This picture looks dire: So long as these descriptions remain unchanged, we can only expect local fiscal behavior to ride the cyclical wave – provide more services when revenues are abundant and cut services regardless of citizens' need when revenues fall short. In other words, local governments do not play any role to stabilize public services.

4.2 Understanding the Composition of Government Savings

There has long been misunderstanding, even confusion about government savings among the public and researchers. This sub-section will comb through and clarify the key concepts

related to state and local government savings, which will be the springboard for the empirical work in the next section. “Governmental savings” is an encompassing concept; it can and should be decomposed into four blocks that build from the lowest to the highest level. We can use a four-layer cake as analogy for illustration. The four blocks or layers are derived from varying perspectives via different managerial, administrative, and political mechanisms, each serving different purposes and uses. All of the four blocks are not available for use as counter-cyclical stabilizers; thus they are not real savings. Misunderstanding occurs about government savings because the four layers are confused as one same thing.

The bottom block is “budget balance”, as defined in Hou (2006). State-imposed balanced budget requirement holds tight on the financial operation of all local governments; it can be taken as a “hard budget constraint” that localities must satisfy throughout the boom-bust cycle. The “balance” is not zero (revenue = expenditure) but positive year-end balance. The budget balance requirement disallows deficits; actual operations will not end a fiscal year in exact zeros; thus a positive balance is the result, which, however, is not savings. The lower-middle block is “personnel operation” that demands some redundant resources because benefits and other liabilities lie anywhere and under employment laws personnel are not all subject to fire when the revenue falls. Such redundancy is to keep the government door open but not real savings either. The upper-middle block is “working capital” that is required for the continuous operation of service provision; after all service programs must not stop to wait for tax dollars to come. In the financial reports of governmental entities such working capital of a small size is common; but this part is not savings either because they are needed even when a government falls in deficits. After all the above three blocks have been built up, real savings are possible on the top which we call “real savings” that can serve the counter-cyclical stabilization function. These are resources

to fill in gaps in tax collections during a bust year. By now it is clear that only the top of so-called “total balances” are real savings.

At the local level, the bottom block is required by state laws. The middle two blocks are sometimes subject to state provisions as well; if so, they are also required. Our concern is with the top block. Given the proximity and cyclical feature of local fiscal behavior analyzed in section three, whether localities can manage to save in boom years is a question to test. Once a locality has successfully accumulated some real savings from boom years, whether it will use the savings counter the revenue bust and how the savings can be used under state provisions and voter oversight is an open issue that we want to test.

4.3 Formal and Informal Savings

Given the tax and expenditure limitations and spending pressure from electoral politics as discussed in sections 2.4 and 4.1, it has turned out to be difficult for state and local governments to save. What they have usually done is to cut taxes and expand programs in booms then raise taxes and cut services in downturns (Hou and Moynihan 2008). Scholars have long ago identified such procyclical patterns of the state-local sector (Rafuse 1965). To circumvent the spending pressure in boom years as a precaution for revenue shortfalls, a formal savings device was invented over six decades ago by the state of New York (Hou 2003a): It is the budget stabilization fund (BSF), popularly called “rainy day fund”. It works through legislation that provides for depositing year-end surpluses into the budget stabilization fund, to be withdrawn only for revenue shortfalls (Hou 2003a, 2004). Such savings belongs to the top block of savings defined above. As of now, most states have established this fund as a counter-cyclical fiscal instrument. However, states vary widely, based on their tradition, state-local relations, and record

of local government fiscal performance, in whether or not they allow local governments to create local level budget stabilization funds. Some states do, like Massachusetts (Gianakis and Snow 2007); others do not, like New Jersey (Hou 2001). Therefore, stabilization funds are not as widely used at the local level as by the states (Hou 2008); they are "an alternative rather than a unique mechanism for local governments to deal with cyclical changes" (Wolkoff 1987, 62).

In the absence of formal saving devices, an informal, implicit vehicle has long been in use: It is the year-end balance accumulated in the general fund, called "general fund balance" (GFB). [3] The overall pattern of such balances has been to grow with booms and to decline with busts (Rafuse 1965; Fisher 2984). Since financial resources are fungible whatever funds they are stored in, other informal devices also exist. At the state level, various contingency funds exist (GAO 1995) that are set for specific purposes, stored in different forms. A recent study (Marlowe 2005) finds that local governments also save "slack" resources in various funds; when occasions arise, most of these slacks are useable one way or another to fill in holes during a revenue bust. Since some states prohibit local stabilization funds, localities rely more on these informal savings (Gianakis and Snow 2007; Hendrick 2006; Marlowe 2005; Wolcoff 1987; Tyer 1993).

When the state allows localities to create their own stabilization funds, the choice between the formal versus informal savings becomes a matter of preference related to local political values and financial management strategies (Gianakis and Snow 2007). For municipalities in Massachusetts, savings in their stabilization funds may be used for any lawful purpose, not just for revenue shortfalls in a downturn because the collective decision to save

[3] In governmental accounting, balances of the general fund are further divided into reserved and unreserved, designated and undesignated. In this paper, the term of general fund balance refers to unreserved balance unless otherwise specified.

when revenues are abundant is part of their "financial strategies" (ibid. 103). [4] As discussed in the section 4.2, positive balance in the budget and working capital are regular requirements of operations; fund balances are expected in the presence of stabilization funds. Therefore, savings of a government entity is the sum of its total formal and informal accumulated slack resources. When two saving instruments co-exist, a question arises on whether the two devices substitute or supplement each other. There have not been studies at the local level. At the state level, Knight and Levinson (1999) show a 1to1 supplementation effect; Wagner (2003) reveals a substitution effect of up to 60 percent; Hou and Brewer (2010) go further on detail to show the overall effect to be mostly supplementation (about 85 percent) with some substitution (about 15 percent). The research community and practitioners have been discussing the "optional size" of governmental savings without making any distinction between the four blocks of savings. [5]

4.4 Effects of Savings on Expenditures

Studies of state level counter-cyclical fiscal behavior have provided almost conclusive evidence that savings accumulated in boom years help maintain trend level spending in downturn years (Hou 2003b, 2005; Sobel and Holcombe 1996; Wagner 2005). Studies about the role of local governments in stabilizing services have obtained some preliminary results. Marlowe (2005) finds some evidence that savings do help maintain trend level spending in downturns; but he cautions that it is not conclusive. Hendrick (2006) finds the size of unreserved balances is negatively related to total expenditure. Her work focuses more on determinants of fund balances level instead of their effects on expenditure. Gianakis and Snow (2007) also look at fund balance

[4] Local governments also resort to other strategies in coping with revenue shortfalls. These include delaying capital spending (Levine, Rubin, and Wolohojian 1981; Dougherty, Klase, and Song 2003), reducing pension contribution in defined benefit systems (Peng 2006), and "borrowing", against state restrictions and professional best practices, from enterprise funds to finance the operation of current programs (Hendrick 2006; Petersen 2003; Tyer 1989).
[5] The optimal size of government savings is by itself a large topic, beyond the scope of this paper.

determinants but their results do not provide a direction. Two more recent studies concentrate on the questions as raised by this paper. Hou (2008) uses annual budget data from the Georgia Department of Revenue about all their 159 counties from 1985 to 2006 to test the determinants and effects of savings in the general fund. Wang and Hou (2009) continue on this topic, using data on all 100 North Carolina counties from 1990 to 2007. Both of these data sets cover two most recent business cycles (1990-2001; 2001-07). Empirical evidence derived from these two states does not support the claim for a local role in stabilizing public expenditure; their evidence, however, is not enough to draw conclusions about the whole country. In sum, it remains an open question whether localities can and do play an active role in going against the revenue cycle. This study is an attempt to help move towards some consensus.

5. MODELING LOCAL FISCAL BEHAVIOR – AN ANALYTICAL FRAMEWORK

Based on the analyses done in the above sections, this paper develops an analytical framework for examining the fiscal behavior of local governments across their revenue boom-bust cycles. The reason I call it the "revenue boom-bust cycle" is several fold, from the afore-mentioned analyses. First, local revenue portfolios are thin and heavily dependent on some sectors so that localities do not possess the fiscal capacity to weather drastic fluctuations. Second, the thin revenue structure has been further sliced in recent decades by the introduction of more volatile revenue sources like the local sales tax against the background of tax and expenditure limitations that have reduced the share of more stable revenue from the property tax. Third, the proximity of local governments to voters/taxpayers makes it especially difficult for local officials to save surpluses when revenues are plenty. Finally, the government stabilization role at the local level is an open question; localities focus more on routine service provision rather than any

macro policy; so I do not extend the examination across the business cycle. Therefore, the budget cycle is probably the most appropriate window for the empirical modeling and testing. [6]

The analytical framework has three components. The first component includes features of the state that the localities are situated in; the second component refers to parameters of financial operation that the state has set for local governments; and the final component further specifies parameters of operation that are set locally through administrative or political procedures. Thus, if there is local counter-cyclical fiscal policy (CCFP) in effect then it is a function of the three component parts:

Local CCFP = f (S, E, I),

where *S* stands for state features; *E* are state-set operating parameters that can be taken as exogenous to local policy making; and *I* are locally set parameters that are endogenous. These three components co-determine whether a locality will, and to what extent if it will, smooth revenues from booms across busts.

Among the state features three are of particular interest to my topic. The first is state ideology, culture or tradition. This is a heterogeneous, hard to specify set of, rather than any single, variables. The liberal or conservative inclination in state politics and fiscal policy, the region the state is in (the North, South, Midwest or West) and historical heritage all fall in here. In general, northern (New England and Mid-Atlantic) states tend from their tradition to be more liberal, whereas southern states are inclined towards being more conservative. Midwestern and western states are either in between or more liberal. A second factor, somewhat endogenous with the first one, is the economic composition of the state. The consensus is that more industrialized states lean towards granting their localities more autonomy; in contrast, states with a larger rural

[6] Needless to say, local budget cycles are of different lengths, from one to two and three years. But the annual budget is by far the most widely adopted window.

portion or agricultural sector choose to control more of their localities. The third is, related to or derived from the first, whether the state has adopted and implemented an explicit counter-cyclical fiscal policy, which at the state level typically occurred in the past three decades (Hou 2003). Presumably whether the state has taken on the role of stabilizing public expenditure in the downturn exerts profound impact on localities. Further, whether there have been tax and expenditure limitations for the state also influences how the state sets up its fiscal relations with its localities.

Among the parameters that the state has set for local financial operations, this study looks into the following. The first is whether the state has granted and thereby allows local discretion in policy adoption. The second, derived from the first, is whether the state allows or prohibits localities from creating their own formal fiscal savings instruments like the budget stabilization fund, given (whether or not) the state has created such a fund for itself. This factor determines the form and composition of local savings when saving in boom years is fiscally and politically possible. Total local savings level allowed under BBR can be expressed as three scenarios. In the first, total savings = BSF + GFB, if BSF is allowed. In the second, total savings = GFB (+ other contingency funds), if BSF is prohibited. A third scenario is the possibility of the existence of a separate fund or amount for working capital, beside the GFB. All three are usually subject to the benchmark as informal best practice of 15 percent rule (total savings as percent of previous year's expenditures). The third state-set parameter concerns the revenue portfolio of the county government – property tax, non-property tax (the local portion of the general sales tax), miscellaneous revenue, fees and charges, as well as federal and state grants.

Among operating parameters locally set, I like to control for local fiscal practice under two variables: whether local officials has discretion over the use of savings in bust years, which

is closely related to the structure of local government: professional managers tend to be more free than elected council members from local politics in financial operations. If the locality saves and spends across boom-bust years via formal or informal means, then we expect such practices to be closely related to professionalism of the county government. Thus, the full model is:

Local CCFP = f (***S***[ideology, economy, policy, TEL], ***E***[discretion, saving, revenues], ***I***[professional]), where *S* and *E* are exogenous variables to local fiscal operations; *I* are endogenous variables.

6. DATA AND METHODOLOGY

6.1 Data

This study takes advantage of a panel data set made available by the Census. The Census Bureau surveys county governments in all 50 states, starting in 1957 in every fifth year; then the Census began publishing the annual *County Government Finances* series in 1973, which has continued to this day. This series includes variables on major revenues, expenditures and indebtedness. I choose to use the period from 1973 to 2004, for two reasons: Before 1973 the series were interrupted and many variables were missing; after 2005 the coverage of many variables were widened to the extent of being incomparable with prior years. The chosen sample period of 32 years covers three whole business cycles (1975-80; 1980-90; 1990-2001) and two half cycles (1973-75 and 2001-04), which offers a window wide enough till very recent past for reliable estimation. This will be my base set for preliminary estimation of the determinants and effects of local fiscal behavior.

6.2 Dependent Variables

In this study, local government savings are defined as the positive balance accumulated at the end of each fiscal year that is carried over into the next fiscal year (Hou 2006). The census data does not provide direct budget data, with no information about outcome of budget implementation by fiscal year end. This author assumes, with strong reason based upon keen understanding of government financial operations, that each year's total revenues include surpluses carried over from the previous year. The surplus includes balances of the general fund, the budget stabilization fund if it is an allowed mechanism, working capital as well as other contingency funds. In the census data this is the total cash accumulated from previous years. It is an aggregate, with no distinction among the different parts:

SV_cash = total accumulated savings in all accounts for all purposes

This aggregate of total accumulated savings includes, by the Census definition, [7] resources to cover (1) employee retirement liabilities, (2) unemployment compensation, as well as (3) other cash and securities holdings. In fact only the third component can be called real savings; the first two are insurance and trust funds put aside for future liabilities. The Census annual series does not separate the three. I use this total measure in identifying both the determinants and effects of county savings.

To tease out the determinants and effects of real, discretionary savings, I need to obtain the annual contribution towards the total saving, which I calculate as the difference between the total of current year revenue and current expenditure, as follows:

SV_current = total revenue – total expenditure

These are all in real per capita terms with year 2000 as the base; the price indexes are the state-local government implicit price deflator from the Bureau of Economic Analysis. These two dependent variables in couplet will offer adequate revelation about our two research questions.

[7] "User notes" on county area finances data, the Census.

6.3 Explanatory Variables

For state features, state ideology is proxied with entity (county) fixed effects. I believe this is the best way to control for many of the subtle, unobservable effects. On state fiscal policy, whether each state employs counter-cyclical policy with a budget stabilization fund, a dummy is used for years after the state has a BSF in effect, the data source is Hou (2004) and the *Fiscal Survey of the States* series that is published bi-annually by the National Association of State Budget Officers (NASBO), with the year actual BSF balance placed in the fund as 1. This creates variation between states and between *ex ante* and *ex post* years of BSF adoption within each state. To control for the impact of state-level tax and expenditure limitations, a dummy is created for revenue limitations (6 states) and expenditure limitations (23 states) separately; the data source is the National Council of State Legislatures (NCSL 2006).

For state-set parameters for local financial operations, I use binaries for home rule to indicate the state allows local discretion in policy adoption; the source is Krane et al (2001). This source provides detailed information so that I can construct three binaries, by state and year, on home rule at the county level: They are "fiscal" (11 states), [8] "functional" (19 states), and "structural" (27 states), respectively. In most cases, when such home rules are granted, they apply to all counties. Fiscal home rule is by far the smallest proportion at 20 percent of all states covering revenue, expenditure, grants, and state mandates. As the number (11) indicates, local fiscal affairs remain under most restrictive control of the state. This variable is the most relevant to the current study. Structural home rule broadly refers to structural features of localities; over half of the states (27) have granted this power to their local entities. I will use this variable to

[8] These include states that grant "fiscal" home rule only (1), "fiscal" with "structural" (3), "fiscal" with "structural" and "functional" (5), and "broad" home rule (2).

proxy local discretion and professionalism in management. Functional home rule refers to the programs or services that the local levels are able to choose for public provision. By the 2001 survey done by experts on each of the 50 states, county government functions in general include public safety, public health, public works, social services, economic development, physical environment, culture and recreation, and general government (Krane et al 2001, 484-5). County expenditure in these program areas, together with the functional home rule binary, will be my key variables in estimating the effects of savings on expenditure during busts.

A dummy is also used to indicate a local level tax and expenditure limitation is in place; the source is Shadbegian's (1999 NTJ) study, with two modifications. Tax growth limits at and above 10 percent (4 states) [9] are not included because an annual rate of 10 percent is high; and only TEL that applies to the county is coded. This binary will help capture differences between the presence and absence, the *ex ante* and *ex post*, effects of the adoption of TEL. For presence of formal local budget stabilization funds allowed or prohibited, I also created dummies. Unfortunately few states so far have explicitly allowed / encouraged their localities to create formal counter-cyclical fiscal instruments like the BSF. Massachusetts may be an exception in adopting this measure since 1933 (Gianakis and Snow 2007, 87). Thus, this variable may drop in estimation.

Local revenue portfolio is composed of county revenues from each of the majors sources, including taxes, charges, and federal/state intergovernmental transfers. For better control, long-term debt issued is used in identifying the determinants of savings; short-term and long-term debt are both included in estimating the effects of savings on program outlays, which is a standard practice in such studies. Local government services are proxied as county expenditures in each of

[9] These are Arizona before 1980, Delaware (15%), Indiana after 1979, and Mississippi.

the major programs. All these are in real per capita year-2000 terms. The data sources of these variables are the Census surveys and the annual series.

Unfortunately, I have not been able to obtain time series data for the financial operations parameters that are locally set, mainly professionalism of the county government and whether the professional manage or the mayor/council chairperson can use accumulated savings during recessions with discretionary; the closest is a proxy by the binary of structural home rule. This latter parameter and whether the county practices formal or informal CCFP are what we are to test in this study. Control variables like population, large county (metropolitans) and so on are available for the sample years from the Census Survey or the Bureau of Economic Analysis. Summary statistics of variables used are listed in table 1.

[Table 1 about here]

6.4 Empirical Methods

This study will use panel data estimators. The Prais-Winston estimator will be used to correct for serial auto-correlation. In all models, year- and entity- (county) fixed effects will be included. Lag commands will be employed to test effects of revenue portfolio and programs/services in the past on current savings, and vice versa accumulated savings on current programs. I choose to use five year lags, for two reasons. First, this length is beyond the average, normal terms of almost all local politicians. Second, it is close to the average length (eight years) of business cycles from the mid-1970s to the present and it is also somewhat the actual length of boom periods in the late 1970s (1975-80), 1980s (1984-89), and 1990s (1993/4-1999).

7. RESULTS AND DISCUSSION

7.1 Determinants of Savings Levels

The total cash accumulated is an aggregate of resources laid aside for many purposes and uses; it is the best we can get data for. Current year surplus between revenue and expenditure is a more real reflection of the operations outcome; savings thus made will contribute towards the accumulated total savings. I will use these two together to seek a more reasonable answer than otherwise obtainable. The 1973-2004 panel set contains data for 3057 counties but it has many gaps (unbalanced panel). I first use regress the above two measures against revenue sources and control variables plus year effects, for a rough estimate for the signs and magnitudes of the regressors on the savings. Methodologically, this is potentially problematic with simultaneity and endogeneity; but I will go further from here for finer analysis. The Prais-Winsten estimator is used to correct for first-order serial autocorrelation. The transformed Durbin-Watson statistic shows that the AR(1) is corrected and the adjusted R-squared are in the reasonable range.

The results reveal the following hints. First, among the revenue sources, the property tax, miscellaneous revenues are major contributors to savings; utility and liquor store revenues erode savings. Fees and charges contribute little. Long-term debt issues in the current year are mostly spent. Grants, especially federal grants add a lot to savings; but this may be due to the fact that grant dollars arrive by the federal fiscal calendar which is late according to the local fiscal year so that money is not yet spent by the time of the survey. Usually we expect grants to be mostly spent without much slack left. Second, all the other three regions lay aside less resource than the north. The south keeps the least total cash, followed by the west. The Midwest keeps the second most resources. But the pattern for the current year is different: The north saves the least in current operations; the west saves the most, followed by the south. Third, size matters. Large counties (metro area, with large populations) tend to save more. We do not see a scale economy.

Finally, counties tend to save less when their state has a BSF in place. These hints will be further dissected in the following.

To solve the serial autocorrelation problem, I tease out counties with gaps in their data, which leaves me with a completely balanced panel of 651 counties, with 20832 observations. The total number of entities is much smaller than the whole set but it remains representative of the country, with samples from 47 states (only Connecticut, Vermont and Rhode Island are excluded). With this balanced panel, I can fully exploit lag operations: On both dependent variable, I use lag 1 to lag 5 year regressors of the revenue sources, (entity and year) fixed effects estimator with robust standard errors. Results are presented in table 2.

[Table 2 about here]

The property tax adds to total savings, with each previous-year dollar contributing 64 cents; this source however, does not add to current year savings. Dollars of property tax are spent on operations. Thus, we have reason to assume that the 64 cents put aside may be for liabilities; they are not real savings. Non-property tax (mainly sales tax at the local level) does not add to total savings; but they contribute 15 cents per last-year dollar to operational surplus. This makes intuitive sense because while the property tax is very political, subject to strict citizen scrutiny, the sales tax is much less so, granting discretion to local policy makers. Federal and state grants do not add to operational savings because by stipulation such money must be spent on projects within prescribed time frame. However, they add to total savings; i.e., grant projects leave behind them liabilities such that some money has to be laid aside to cover the responsibilities. The magnitude of federal grant is almost dollar for dollar; coefficients for lag 3 and lag 4 years are still as large as 40 and 50 cents per dollar, suggesting that federal grant projects may have been expensive to implement, in the sense that liabilities as proxied by total savings accumulate

substantially; however, given the data limits we do not know exactly how much of such savings is from own source and how much from federal dollars. In contrast, state grant projects add to total savings at a much smaller extent, about 20 cents each of lag 1 and lag 2 years. Results on current year savings do reveal that neither federal nor state money contributes to current year surpluses, which fits the intuition that grants come with mandates and have to be used on pre-planned projects.

Liquor store revenues do not add to either savings, probably because they are not a major source at the county level. In contrast, miscellaneous revenues do increase savings, by 24 cents and 6 cents per lag 1 year and lag 2 year dollars respectively to current year surplus and by $1.44 to total savings, that is, use of this revenue adds to liabilities. Fees and charges also increase savings, by 9 cents and 27 cents per lag 1 year dollar to current and total savings, respectively. Likewise, revenue from county-run utility like water and power adds savings at a higher level, by 55 cents to current savings and by $1.41 to total savings per lag 1 year dollar. This source has momentum: even a lag 4 year dollar adds 31 cents to current savings and 80 cents to total savings. These results confirm the long-held belief that running utilities increases discretionary revenue to local governments; they also reveal, meantime, that utility revenue for discretionary use adds substantial liabilities to county governments most probably because once the revenue is part of the annual expected inflow, programs and thereby personnel are added which convert into more liabilities for the future. Long-term debt issued in each of past five years does not increase either type of savings, because debt proceeds are exclusively for capital projects; state laws prohibit use of debt for operations.

Among the control variables, coefficients of population and its quadratic term are not significantly different from zero, probably because the effect has been picked up by the large

county dummy: Metro counties are usually large with heavier public service burdens so that their current year surplus is lower than an average county by $20 per resident and their total savings lower by $205. The lower current savings can be explained on two sides: Economies of scale are present on the expenditure side so that metro counties do not need to save as much as other counties; on the revenue side, however, such counties may have some problem. The lower total savings do point to potential problems – metro counties shoulder huge service programs that come with long-term personnel liabilities. Inadequate savings indicate unpreparedness for busts of revenue during downturns. Fiscal home rule increases local discretion which is incentive to improve professionalism in financial management: It adds on current year surplus by $25.54 and reduces total savings by $191, indicating a major reduction of long-term liabilities. Presence of local tax and expenditure limitations requires extra precaution so an average county increases current year operating surplus by over $8; but it has no effect on total savings. Adoption of local budget stabilization funds drops out of the regression; but use of the stabilization fund by the state reduces total county savings by nearly $58, with no observable effect on current year saving. When the state faces revenue limitation, local total savings also drop by a substantial $129, for which I have not a ready explanation.

7.2 Effects of Savings on Current Expenditure

Now I turn to testing the effects of savings on current expenditure on programs, which are the dependent variables. The choice of categories of expenditures is based on the functions of county governments in a recent authoritative study by experts on local governments in the 50 states (Krane et al 2001). I put these into three groups: (1) general government covers total expenditure, current expenditure, current operating expenditure, salary and wages (i.e., personnel

only), and county grants to municipal governments; (2) Basic services include public safety, public health, education, culture and recreation, and social services (welfare); and (3) other public services refer to those that counties do but at a relatively lower priority than basic services. These are physical environment (natural resources), public works (highways), utilities and long-term debt retirement (economic development). Total and current savings are used as regressors, in lag 1 to lag 5 years. Controls include short-term debt, long-term debt outstanding by the end of fiscal year, county size (population and metro status), functional home rule, structural home rule, local and state use of stabilization fund, local tax and expenditure limitations, and state expenditure limitations. County and year fixed effects are controlled for, with robust standard errors. Results are presented in table 3, in three panels for the three groups. Local stabilization fund dummy drops out in the estimation; otherwise, the specification works well. In the following I will interpret the results by the three outlay groups.

[Table 3 about here]

7.2.1 General Government Outlays

Panel 1 of table 3 reports the effects of savings on general government expenditures. Total accumulated savings in the past two years tend to exert a statistically significant, positive, but very small effect on total, current, and operating expenditures, at 5, 4, and 3 cents per saved dollar. The effect on salary and wage is not significant; the effect on local grants is significant at the 10 percent level, negative for lag 1 year and positive for lag 2 year, both below 1 cent per save dollar. Previous years' operating surplus presents a sporadic positive effect on total and current expenditures at the 10 percent significant level, with the magnitude between 4 and 9 cents per dollar. Thus, it seems we can conclude that savings of either type do not go across

revenue cycles; in other words, county governments do not conscientiously implement a fiscal policy to go against the boom-bust cycle.

Short-term debt has not observable effect; long-term debt does cast significant positive effect, ranging from 1 to 12 cents per dollar. Population shows scale economy: per capita expenditure falls by 7 to 14 cents for every thousand more residents; the only exception is with county-to-municipality grants that go up by 3 cents per capita. Such economy is not linear though, the quadratic term shows growth on current and operating expenditures. Functional and structural home rules in general present negative signs, significant at the 10 percent level for current and operating expenditures, suggesting that home rules may lead to reduced size of local expenditures. The only exception is county-to-municipal grants: presence of structural home rule increases these grants by almost $7. Tax and expenditure limitations on localities reduce county expenditures in all the five measures, ranging from $80 on total outlay to $16 on salaries and wages. When the state uses a budget stabilization fund, the signs of the coefficients are negative though it is significant only on local grants at the $5 level. Among the most interesting results is the strongly significant, large effect of state expenditure limitations: when the state faces such restraints, the outlay responsibilities are pushed down to counties so that local expenditures fill in the hole left by the state. The magnitude of this effect is large, at over $100 per capita on total expenditure and about $45 per capita on salaries and wages.

7.2.2 Basic Public Services

Panel 2 of table 3 reports the effects of savings on basic public services. Neither total nor current savings have any effect on police expenditures. Accumulated savings have significant but negligibly small (less than 1 cent) effect in the lag 1 and lag 3 years; even this marginal effect is not seen with current surpluses. Savings accumulated do not shown any effect on education

outlay; current surpluses even show significant negative though small effect (5-6 cents) in lag 1 and lag 5 years. Total savings shows negligible effect (0.2 cents) on parks and recreation outlays in lag 1 year; even this is not seen with current surpluses. Finally, no positive effect is observable on welfare programs with either type of savings. Thus, we can conclude that county governments do not seem to use savings to smooth outlays on basic public services either.

As for effects of the control variables, long-term debt shows marginal positive effect; scale economy still has some sporadic indication. Home rules in general keep their significant negative sign; the functional home rule, however, shows a significant positive sign at $17 for public health. Local tax and expenditure limitations are negative at significant levels. State use of budget stabilization funds pushes down local program outlays; but this policy pushes up county outlay on education by $26 per resident. Again, state expenditure limitations seem to crowd spending down to the county level.

7.2.3 Other Public Services

Panel 3, table 3 reports the effects of savings on other public services. Total accumulated savings do not present a significant, positive effect on any of these five services; current surplus shows positive signs significant at the 10 percent confidence level in the lag 3 year only on highways (1 cent) and debt service (7 cents). Again these result lead to the conclusion we have reached: Counties do not save and spend across boom-bust cycles in an effort to stabilize services. The control variables do not present surprises from those in the other two outlay groups.

8. CONCLUSION

This paper has examined the fiscal behavior of local governments, as represented by county governments, under state provisions. Specifically, I examined whether counties smooth

revenues from boom years across bust years and how the parameters of financial operation that are set by the state and by localities have affected such behavior. This study has contributed to the literature in several ways.

First, this paper has attempted to provide an answer, more convincing than offered in the past and recent research, to the question of whether local governments operate their finances against the boom-bust cycle. The stabilization function of government as formulated by Richard Musgrave may mean different policy orientation with very different tools at different levels. To the federal government, it is economic stabilization at the macro level, with monetary as well as fiscal policy, with almost unlimited debt capacity. At the state level, which is quite autonomous politically in the American federalist structure, stabilization is more a combination of economic stimulus and maintaining trend outlay level, with formal and informal stabilization funds, limited debt capacity and balanced budget requirement. In contrast, localities as service deliverers with a thin economy and revenue portfolio, strict balanced budget requirement have few alternatives other than coping. If they have any formal and/or informal savings, they can merely use them to reduce the magnitudes of program cuts and tax hikes. As evidence from this study suggests, when local governments lay resources aside, it is more for liabilities that they incur in the course of providing services than pure "saving" surpluses; with resources available, localities tend not to use them in bust years to increase spending – the effect of such smoothing is minimal at best on overall government spending; it is not consistent on basic public services (with minuscule effect on two services only), not observable on other public services. Thus, we can conclude that as of now the local level do not save for, or use resources against, recessions. The case is closed.

Second, this study has placed the examination of local fiscal behavior in the context of state provisions for local financial as well as overall operations. As creations of their state,

localities must abide by state stipulations, respond to them, and act in accordance. Results from this study show that with fiscal home rule, counties tend to practice professionalism in financial management, as represented by an increase in their current year, operational surplus but a lower total savings level. State use of the budget stabilization fund and presence of revenue limitations both negatively affect local total savings, indicating that when the state is in a more secure position, localities may not need to keep as much precautionary savings as before. Further, this study provides solid evidence that expenditure limitations on the state add to local outlays; that is, limitations have not necessarily reduced the size of state governments but pushed outlay down to lower levels.

This study has gone a step beyond the flyer-paper effect literature, with evidence to show that grant dollars from the federal and state governments are at most partially free lunch: Such money not only comes with strings but also adds to future liabilities, such that grants do not lead to current year operational surpluses but to accumulated savings; federal grants in particular add to substantial future liabilities. Besides, this study has also provided evidence that neither current year surpluses nor accumulated total savings lead to more grants by the county to municipalities. County savings are simply broken off from local grants. This finding is not seen in previous research. Thus, we can conclude that counties as the front liners in public service provision have fewer, if any, alternatives than higher level governments when they confront the bust phase of a revenue cycle, which is the reason why they have been simply riding the cyclical tide.

Finally, this study has considered the political context of local financial operations and service provision: Does the proximity of local governments to tax payers/service recipients allow the adoption and practice of counter-cyclical fiscal policy? What has been the effect of local tax and expenditure limitations on fiscal operations? Consistent evidence from this study shows that

local such a political environment, as represented by local revenue and spending limits, increases current year surpluses and reduces outlay on overall operation and on basic services. That is, on the revenue side local policy makers choose to end fiscal years with more surplus; on the outlay side their rational decision is to reduce spending on services. These findings add an interesting part to the existing literature.

All the above findings carry timely and important policy implications. State and local governments can use them in designing better policies. The word “better” here refers to policies that should move towards more stable and reliable service provision, which necessarily links to redesign, in a comprehensive way, intergovernmental fiscal relations over the business cycle. That, however, is beyond the scope of this paper, will be the topic of future studies.

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Table 1: **Summary statistics** (T = 32, 1973-2004; Obs = 20832, n = 651)
(All financial figures are in year-2000 per capita terms)

Dependent Variables	Mean	Std. Dev.	Min	Max	Data Source
Savings					Census
Total accumulated savings for all purposes & uses	416.06	918.92	0.00	13622.99	
Current year savings (surplus = revenue - exp)	4.28	93.55	0.00	3561.15	
Expenditures/Functions					Census
Total expenditure	790.98	659.48	1.60	6439.63	
Current expenditure	704.08	587.60	1.60	6388.20	
Current operating expenditure	592.55	516.62	1.60	6107.22	
Salaries and wages (personnel)	292.62	286.66	0.00	2451.78	
County grants to municipalities	29.37	67.30	0.00	1285.74	
Public health expenditure	43.97	52.52	0.00	1164.33	
Parks and reccreations expenditure	12.04	23.46	0.00	478.55	
Total police expenditure	36.56	36.04	0.00	516.75	
Gaol expenditure	27.93	44.59	0.00	1984.33	
Welfare expenditure	87.68	123.37	0.00	1025.73	
Education expenditure	170.48	387.16	0.00	4965.63	
Natural resouces expenditure	7.24	21.96	0.00	1492.92	
Highway expenditure	62.51	62.48	0.00	1360.49	
Long-term debt service	53.67	204.67	0.00	12282.35	
Utility expenditure	15.83	87.29	0.00	3489.48	
Independent Variables					
Revenues					Census
Property tax	123.04	151.44	0.00	2410.91	
Non-proptax	49.26	94.61	0.00	1464.97	
Federal intergovernmental grants	21.34	49.68	0.00	3360.62	
State intergovernmental grants	150.78	237.95	0.00	3271.36	
Liquor store revenue	1.02	7.25	0.00	208.85	
Miscellaneous revenue	43.36	93.31	0.00	4404.08	
Fees and chanrges	102.87	235.00	0.00	3836.87	
Utility revenue	7.61	67.19	0.00	3363.99	
Long-term debt issued	49.82	201.96	0.00	10627.5	
Controls					
Population in thousands	243.69	493.64	3.40	9806.58	Census
The northeast Censsus region, binary	0.14	0.34	0	1	Census
The midwest Census region, binary	0.29	0.45	0	1	
The south Census region, binary	0.38	0.48	0	1	
The west Census region, binary	0.20	0.40	0	1	
Large metro area county, binary	0.07	0.26	0	1	
Home rule allowed over fiscal affiars, binary	0.21	0.41	0	1	Krane et al 2001
Home rule allowed over county functions, binary	0.41	0.49	0	1	
Home rule allowed over county structure, binary	0.58	0.49	0	1	
Local tax & expenditure limitations in effect, binary	0.26	0.44	0	1	Shadbegian 1999
Local budget stabilization fund in use, binary	0.00	0.06	0	1	
State budget stabilization fund in use, binary	0.51	0.50	0	1	Hou 2004
State revenue limitations in effect, binary	0.06	0.24	0	1	NCSL 2006
State expenditure limitations in effect, binary	0.28	0.45	0	1	
Short-term debt outstanding by end of year	12.28	50.28	0.00	1934.75	Census
Long-term debt outstanding by end of year	641.64	1372.40	-0.53	27911.22	Census

Data source is Census *County Government Finance* annual series 1973-2004 unless specified.

Table 2: **Determinants of savings**

County & year fixed-effects, with robust standard errors # of groups = 651

Number of obs = 17577 Obs per group = 27 (1973-2004)

DV (type of savings) =	accumulated/total		current/operation	
Explanatory Variables	Coef.	Std. Err.	Coef.	Std. Err.
Property tax L1.	**0.643** **	0.266	0.082	0.059
L2.	-0.110	0.223	0.040	0.073
L3.	**-0.504** *	0.248	0.014	0.065
L4.	**-0.414** +	0.220	0.005	0.073
L5.	**1.316** *	0.632	**-0.230** **	0.088
Non-property tax L1.	0.580	0.382	**0.153** *	0.076
L2.	0.302	0.310	0.013	0.092
L3.	-0.079	0.335	-0.133	0.105
L4.	**-0.508** +	0.264	-0.186	0.125
L5.	0.036	0.485	0.075	0.160
Federal grants L1.	**0.993** ***	0.182	0.086	0.084
L2.	0.202	0.204	-0.147	0.198
L3.	**0.399** **	0.145	-0.083	0.105
L4.	**0.508** +	0.268	0.205	0.164
L5.	0.396	0.461	-0.077	0.142
State grants L1.	**0.187** +	0.098	0.014	0.046
L2.	**0.225** *	0.097	0.008	0.045
L3.	-0.082	0.061	-0.036	0.055
L4.	-0.111	0.076	0.029	0.050
L5.	**-0.258** *	0.110	-0.001	0.029
Liquor store revenue L1.	3.819	5.792	1.290	1.228
L2.	3.900	3.660	0.954	1.120
L3.	0.350	1.533	0.417	0.459
L4.	-1.109	4.781	-1.241	1.031
L5.	-1.942	3.921	-1.191	0.919
Misc. revenue L1.	**1.442** **	0.524	**0.237** **	0.082
L2.	0.699	0.481	**0.059** **	0.023
L3.	**0.738** +	0.417	0.003	0.035
L4.	**0.893** *	0.403	-0.019	0.021
L5.	**1.561** **	0.493	**-0.195** ***	0.058
Fees and charges L1.	**0.267** *	0.131	**0.087** ***	0.027
L2.	-0.060	0.053	0.001	0.033
L3.	**-0.163** +	0.100	-0.046	0.031
L4.	0.083	0.066	-0.013	0.039
L5.	0.103	0.192	0.030	0.036
Utility revenue L1.	**1.413** +	0.876	**0.551** ***	0.110
L2.	-0.359	0.572	-0.156	0.158
L3.	-0.349	0.462	**-0.484** +	0.264
L4.	**0.800** **	0.288	**0.307** **	0.134
L5.	-0.518	0.762	-0.017	0.087
Long-term debt issued L1.	0.163	0.259	-0.012	0.018
L2.	0.103	0.202	-0.015	0.012
L3.	0.058	0.202	0.009	0.022
L4.	0.009	0.180	-0.006	0.006
L5.	0.003	0.157	-0.011	0.007
Population (,000)	0.413	0.285	0.022	0.023
Population squared	0.000	0.000	0.000	0.000
Large county (metro area)	**-204.953** **	78.513	**-20.168** **	8.778
Fiscal home rule	**-190.936** +	103.575	**25.544** **	11.976
Local tax-expenditure limitations	17.768	44.942	**8.170** **	2.593
State use of stabulization fund	**-57.645** **	27.363	-2.145	3.231
Revenue limitation in effect for state	**-128.274** **	62.143	9.850	7.306
Constant	119.296	148.809	-26.088 *	12.023
R-sq: within	0.46		0.09	
between	0.57		0.06	
overall	0.51		0.07	
Prob > F	0.00		0.00	

Legend: + < 0.10; * p<0.05; ** p<0.01; *** p<0.001

Table 3: **Effects of savings on expenditures/functions**

County & year fixed-effects, with robust standard err # of groups = 651
Number of obs = 17577 Obs per group = 27 (1973-2004)

Panel 1: General government outlays

DV = exp type	Total	Current	Cur. Oper	Salary/wage	Grants
Total savings L1	**0.046** **	**0.038** *	**0.032** *	0.007	-0.006
L2.	**0.020** *	**0.020** *	0.007	-0.002	0.002
L3.	0.005	0.008	0.008	0.005	**0.002** **
L4.	0.019	0.025	-0.002	0.002	-0.001
L5.	-0.031	-0.036	0.000	0.000	-0.001
Short-term debt	0.088	-0.016	-0.061	-0.018	-0.004
Long-term debt	**0.102** ***	**0.086** ***	**0.021** **	**0.010** ***	0.005
Population (,000)	-0.071	-0.134	-0.132	**-0.068** *	**0.032** *
Population squared	0.000	**0.000** *	0.000	0.000	0.000
Large county dummy	30.117	6.165	3.305	12.329	1.468
Functional home rule	-98.283	-103.599	-107.445	-34.647	-6.079
Structural home rule	-17.769	-3.472	5.724	-2.238	**6.996** *
Local tax-exp limits	**-80.476** ***	**-69.765** ***	-31.407	**-16.341** *	**-39.091** ***
State BSF	-17.897	-15.021	-9.053	7.386	**-4.799** *
State exp limits	**108.466** ***	**79.651** **	**73.523** **	**44.745** ***	4.417
Constant	961.694 ***	894.753 ***	828.915 ***	370.728 ***	33.462 ***
Current savings L1	0.015	**0.092** +	0.049	0.042	0.021
L2.	0.089	0.090	0.063	0.016	0.018
L3.	**0.063** +	0.062	0.043	0.002	0.001
L4.	0.007	-0.025	-0.017	-0.027	-0.005
L5.	-0.048	-0.033	-0.023	-0.043	0.000
Short-term debt	0.095	-0.007	-0.056	-0.015	-0.003
Long-term debt	**0.116** ***	**0.098** ***	**0.030** **	**0.011** ***	0.004
Population (,000)	-0.041	-0.105	-0.109	**-0.062** *	**0.031** *
Population squared	0.000	**0.000** *	**0.000** +	0.000	0.000
Large county dummy	18.802	-3.680	-4.465	9.992	2.423
Functional home rule	-72.365	-78.129	**-88.779** +	-30.362	-6.466
Structural home rule	-24.688	-10.690	0.585	-3.337	**6.769** *
Local tax-exp limits	**-79.391** **	**-69.085** ***	**-30.307** +	**-15.964** *	**-39.353** ***
State BSF	-18.809	-15.533	-8.907	7.693	**-4.642** *
State exp limits	**104.602** ***	**76.545** **	**70.781** **	**44.124** ***	4.870
Constant	992.634 ***	924.579 ***	852.895 ***	380.100 ***	30.202 ***

Legend: + < 0.10; * p<0.05; ** p<0.01; *** p<0.001

Table 3: **Effects of savings on expenditures/functions**

Panel 2: Basic public services

DV = exp type	Police	Health	Education	Parks/rectn	Welfare
Total savings L1	0.001	**0.004** *	0.005	**0.002** *	0.000
L2.	0.001	-0.002	0.001	0.000	0.001
L3.	0.000	**0.002** **	0.003	0.000	0.001
L4.	0.001	0.001	-0.005	0.000	-0.001
L5.	0.000	**-0.003** *	0.002	0.000	-0.001
Short-term debt	0.005	0.016	**-0.080** *	-0.002	**0.035** +
Long-term debt	**0.001** **	0.000	**0.014** **	0.000	0.001
Population (,000)	0.013	-0.017	0.048	0.012	-0.016
Population squared	0.000	**0.000** **	0.000	**0.000** +	**0.000** **
Large county dummy	0.468	-5.713	9.072	-0.312	2.047
Functional home rule	**-10.092** ***	**17.074** *	**-18.498** *	-1.109	-4.148
Structural home rule	1.726	**-16.105** ***	**-34.574** ***	-0.477	-4.869
Local tax-exp limits	-0.021	**-16.682** ***	**-27.145** *	-0.918	**-12.291** ***
State BSF	**-4.391** ***	**-3.694** +	**26.270** ***	-1.043	-3.526
State exp limits	-0.084	**12.444** **	**47.513** ***	-0.978	4.287
Constant	55.256 ***	79.510 ***	169.355 ***	14.427 ***	114.907 ***
Current savings L1	0.002	0.000	**-0.046** *	0.001	-0.008
L2.	-0.001	0.000	-0.010	0.004	-0.008
L3.	-0.001	0.000	0.001	0.001	-0.005
L4.	**-0.003** *	-0.002	-0.019	0.001	-0.004
L5.	0.000	0.002	**-0.064** *	0.004	**-0.011** +
Short-term debt	0.005	0.016	**-0.079** *	-0.002	**0.035** +
Long-term debt	**0.002** ***	**0.001** +	**0.016** ***	0.001	0.001
Population (,000)	**0.015**	-0.015	0.050	0.012	-0.016
Population squared	0.000	**0.000** **	0.000	**0.000** +	**0.000** **
Large county dummy	-0.002	-6.383	6.277	-0.498	1.550
Functional home rule	**-9.252** ***	**18.268** *	**-17.891** *	-0.411	-4.485
Structural home rule	1.575	**-16.368** ***	**-33.949** ***	-0.716	-4.548
Local tax-exp limits	0.087	**-16.651** ***	**-26.519** *	-0.919	**-12.191** ***
State BSF	**-4.376** ***	**-3.830** +	**26.027** ***	-1.063	-3.628
State exp limits	-0.256	**12.232** **	**46.640** ***	-1.056	4.154
Constant	55.174 ***	80.382 ***	172.341 ***	15.662 ***	117.077 ***

Legend: + < 0.10; * p<0.05; ** p<0.01; *** p<0.001

Table 3: **Effects of savings on expenditures/functions**

Panel 3: Other public services

DV = exp type	Highway	Nat resource	Gaol	Debt service	Utilities
Total savings L1	**-0.002** +	0.005	-0.001	-0.045	0.000
L2.	0.001	0.002	0.004	0.071	0.003
L3.	0.000	-0.001	-0.001	-0.005	-0.002
L4.	0.001	0.000	-0.002	-0.019	0.000
L5.	-0.002	**-0.002** +	0.000	-0.004	0.002
Short-term debt	-0.005	0.001	0.009	0.011	**0.041** *
Long-term debt	**0.003** **	-0.002	0.002	**0.077** +	0.007
Population (,000)	0.033	0.001	-0.001	0.008	0.016
Population squared	**0.000** +	0.000	0.000	0.000	0.000
Large county dummy	2.187	1.863	4.355	-12.122	-3.873
Functional home rule	-0.943	0.839	-8.587	2.027	-3.697
Structural home rule	0.481	-0.380	3.689	-5.013	**-4.999** *
Local tax-exp limits	**-9.280** *	1.658	-1.758	-3.649	6.131
State BSF	-2.413	0.204	-7.672	10.113	**-4.836** +
State exp limits	-2.800	**-1.885** *	5.811	**12.019** *	1.489
Constant	61.436 ***	7.614 **	54.375 ***	19.641	17.080 *
Current savings L1	0.001	0.016	**-0.008** **	0.243	**-0.010** +
L2.	0.003	0.023	-0.004	0.001	0.005
L3.	**0.008** +	0.019	0.008	**0.069** +	0.007
L4.	0.006	-0.008	0.014	**0.101** +	-0.002
L5.	-0.004	0.009	0.021	**0.132** *	0.003
Short-term debt	-0.005	0.003	0.008	0.010	**0.040** *
Long-term debt	**0.003** **	-0.001	0.003	**0.074** **	0.008
Population (,000)	0.032	0.003	0.000	0.013	0.017
Population squared	**0.000** +	**0.000** *	0.000	**0.000** +	0.000
Large county dummy	2.697	1.526	4.407	-5.589	-4.213
Functional home rule	-1.330	3.390	-7.631	8.960	-2.921
Structural home rule	0.435	-1.451	3.386	-9.539	**-5.186** *
Local tax-exp limits	**-9.435** *	1.483	-1.765	-5.818	6.251
State BSF	-2.428	0.167	-7.758	**10.721** +	**-4.817** +
State exp limits	-2.597	**-1.951** *	5.704	**14.318** *	1.306
Constant	60.205 ***	9.999 **	53.280 ***	1.201	17.415 *

Legend: + < 0.10; * p<0.05; ** p<0.01; *** p<0.001