

County General Fund Balances
An Exploration into the Policies, Requirements, Size and
Purposes of County General Fund Reserves

by

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ABSTRACT

This dissertation establishes a national exploration into the subnational fiscal policies of the United States at the county level of government. This dissertation begins a dialog about county fiscal practices and examines budget stabilization policies of county governments across the country and studies how county governments are codifying the action of setting funds aside for use during times of need. The study moves from the descriptive analysis of counties and explore quantitatively the effects of county government general fund balances and reserve practices over time and documents the reserves, revenue and expenditures of 43 counties across the United States over a five-year period, fiscal years 2012-2016 and utilizes a panel data, fixed-effects model taking into account the political, policy and service-bundles of the counties. Finally, the use of cash rather than debt for capital expenditures also known as pay-as-you-go (PAYGO) is explored through a case study of Maricopa County, Arizona. It examines the theoretical question of intergenerational equity in the funding of capital assets. The study examines Maricopa County's technical, administrative and political pillars of PAYGO, analyzing the financial and budget documents as well as presentation materials given in public meetings regarding the economic and financial condition of both the county government and the county.

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Introduction

The purpose of this dissertation is to explore the undiscovered arena of fund balances and reserves of the general fund in county governments within the United States. Research has begun in the state and city context but little is known about the other level of local government - counties. Counties are not a homogenous group of governments, as the state in which they reside determines much of the scope and authority of the respective counties. Additionally, by virtue of their location, population and other demographics, counties have different characteristics and service bundles across the United States. However, they are similarly all nestled in a space smaller than their state and provide necessary services to regions. Regardless of the form, size or make-up of the county, little has been documented about the fiscal practices of counties with respect to reserves and fund balances.

Citizens of the United States rely on the government to provide valuable services which are especially important during unstable and punctuating events such as wars, recessions and natural disasters. Although all levels of the government (federal, state, county, and city) have different responsibilities and provide varied services, the coordination of the service delivery and fiscal policies is vital to mitigate stress related to fiscal constraints. Subnational governments must ensure they have appropriate tools and policies in place to weather the economic storms and help move their jurisdiction out of fiscal stress. The development, maintenance and guardianship of fund balances and reserves (referred to as 'reserves' through this paper) are important elements to allow the government to fulfill its role during these times.

The concept of reserves is evident throughout history whether the government set aside reserves from the harvest or from taxation to accommodate times of punctuating events such as years of famine or times of war. The theories have changed slightly over

the years, however the basic concept of planning through the good times to ensure continued service provision through the bad times has held constant. While the broader fields of public budgeting, financial management, and fiscal and monetary policy have been well researched and discussed amongst scholars, the topic of reserves within public financial management is relatively new with few scholars working in this arena. The work that has been done has focused primarily on the national and state level. Even though more scholars are considering the topic, there is very little academic work that has been published on counties and their reserve positions.

Research in this field is important for several reasons. First, the country has recently experienced a major recession (the Great Recession of 2007-2009), with a very slow return to pre-recession economic conditions. Opportunities to gather data on events like this do not occur frequently, making research at this time extremely valuable. In addition to the severity and recovery variance experienced by counties across the country because of their geographic and industry impacts, the counties and their ability to recover from the recession is linked to their ability to infuse life into their communities' financial streams. Second, counties are often constrained by budget balancing legislation which requires them to focus narrowly on a 12 or 24-month budget cycle rather than along an economic cycle which may be years in length. Finally, there is a void in the academic literature with regard to counties, fund balances and their relationship to economic cycles. This research will begin filling the void. The dissertation research will answer the following questions: How do counties in the United States manage their fund balances and reserves associated with the general fund? How are county general fund balances and reserves changing over time? Finally, some counties engage in building reserves to fund pay-as-you-go (paygo) capital projects. How are those reserves established, utilized, and maintained?

State, City and County Literature

After World War II, economic scholars considered the fiscal behavior of state and local governments in times of recession and growth. Subnational governments were found to behave cyclically, with growth in expenditures in times of economic expansion and a reduction in spending during recessionary times which exacerbated the fiscal stress (Rafuse, Jr., 1965). As the counter-cyclical role of subnational governments started to be considered, the status quo view of state and local governments behaving like victims of a fiscal crisis was questioned (Gramlich and Gordon, 1991). Researchers began to question the role state and local governments should play in economic downturns and what actions may be necessary to be equipped to properly play that desired role.

The mechanisms utilized by state governments for resiliency during recessionary times were examined, especially rainy day funds also known as budget stabilization funds. "The purpose of a rainy day fund is to help a state maintain its expenditure growth while reducing its need to raise taxes during a recession" (Sobel and Holcombe, 1996, p. 33). For states that had rainy day funds, Sobel and Holcombe determined that simply having the fund did not result in any significant benefit to the state; rather that the power of rainy day funds came from a legal requirement to make deposits into the fund. They also found that states that had grown a balance in the general fund reaped similar benefits as those with a rainy day fund, as long as the fund balance could be maintained until needed.

Despite the growth in the number of states with rainy day funds (from 12 states to 38 states between 1982 and 1989) and the prospective importance of those funds, relatively little empirical research existed regarding their impact on state fiscal stress. Researchers Douglas and Gaddie (2002) concluded that rainy day funds did not provide much relief from fiscal stress during the recession in the early 1990s. While they found

"that having multiple rainy day funds can have a strong influence on the state's ability to cope with economic downturn" (p. 28), their model showed that rainy day fund balances did not insulate states from the recession. Additionally, they confirmed the findings of Sobel and Holcombe (1996) and Joyce (2001) regarding the importance of deposit requirements for rainy day funds to be effective. Therefore, the structure and the policy surrounding the fund is more impactful than simply having a fund established. Policy requirements such as mandatory deposits prevent political agendas from derailing the purpose and growth of rainy day funds.

Hou (2004) asserted that "[e]mpirical evidence from previous studies has shown that budget stabilization fund (BSF) balances accumulated in boom years are an effective means to reduce fiscal stress in lean years; thus it is strategically right and necessary for state governments to maintain a sizeable BSF balance for protection against revenue shocks" (p. 38). Another investigation concluded that some states did not maintain an appropriate balance in budget stabilization funds to effectively smooth the revenue losses encountered by the state. In fact, Hendrick (2006) found that states resorted to substantial spending cuts which included measures that pushed more fiscal stress to local government. Research with the state as the unit of analysis focused mostly on the state's ability to smooth revenues as fiscal shocks were encountered.

As research on state budget stabilization funds continues, scholars are building upon that foundation, and have begun to examine local government with respect to their role in responding to financial crisis. Municipalities are, of course, smaller in scope and scale of services than states. Additionally, they are not as complicated in government process as the state with fewer elected officials working to make decisions and fewer committees involved in the process. These differences result in municipalities being less formal than state governments in some respects. This is true regarding reserves where

many municipalities have reserves, but they are not formalized as budget stabilization reserves. (Marlowe, 2005; Hendrick, 2006). In a study of Chicago area cities, thirty of the governments indicated that reserves would be one of the first sources they would turn to in order to manage a fiscal crisis. "In other words, fund balances buy government time to think about the best ways to manage fiscal stress and adapt to changing conditions, which is especially helpful if they anticipate that solving these fiscal problems will involve more drastic measures later on" (Hendrick, 2011, p. 172). Many also use reserves to fund capital equipment purchases and other capital and infrastructure projects. These cities indicated they would delay or suspend equipment or capital projects during fiscal stress and redirect the fund balance to solving the immediate fiscal crisis. The purchases and projects would continue after the crisis has passed. Finally, there were a few cities that relied heavily on sales tax for most of their operating revenue and indicated they were being pushed by bond rating agencies to keep a large reserve (Hendrick, 2011). There are many reasons why municipalities maintain reserves and why they may not be set up in a formal rainy day fund like the states. On the other hand, there is opposition by some city leaders to maintain reserves because it is funding that could be used on projects or operations. One mayor interviewed by Hendrick indicated that if he ran a surplus, there would be no reason to have taxes. But if he ran a deficit, he could legitimately tax his residents (Hendrick, 2011).

Marlowe (2005) found that many local governments do not have formal methods of accumulating reserves like the state rainy day funds. This is not to say that local governments are lacking reserves, but that less formal methods and techniques are used at the city level than are utilized at the state. Marlowe had to expand the definition of budget stabilization funds in order to conduct empirical analysis on cities. He found that unreserved general fund balances do have counter-cyclical properties, however his

research of Minnesota cities "suggests municipalities do not build up fund balance slack during boom years" (p. 68). Municipalities potentially face a different revenue relationship than states do. Those local governments which lack autonomy with respect to the setting of sales or income tax must plan differently than states that have the control to establish taxes and rates. Additionally, local governments may utilize fund balances to protect against estimation errors, property tax collection delays as well as other revenue issues. Marlowe's research indicates city budget stabilization is important but different from the state scenario.

Snow, Gianakis and Haughton determined "[t]he adoption, maintenance, and prudent use of budgetary stabilization funds have become fundamental precepts of municipal financial management" (2015, p. 304). Although the most fundamental reason for funds of this nature have not changed over time (to stabilize expenditures during shortfalls of revenue), a survey of cities in Massachusetts found some cities use reserves to fund non-recurring expenditures and small capital projects. Others used tax increases to fund city needs rather than a stabilization fund. Some did not use a stabilization fund at all, but had balances in other funds that would be drawn on in time of fiscal crisis. This investigation into Massachusetts cities also found that there were a number of cities that had and maintained budget stabilization funds; however, they preferred to cut expenditures and draw down other fund balances before utilizing the budget stabilization fund (Snow, Gianakis and Haughton, 2015).

Between the state and the city lies the county, which is typically tasked with providing and funding social and public welfare services and is a direct arm of the state and requires specific state directives to act. Cities and counties differ in their area of duty as well as their revenue sources (Stewart, 2009). Property taxes typically assume a greater role in county revenues than in city revenues and are a more predictable source

of income than other forms of taxes. During difficult economic times, states have a tendency to reduce shared revenues with local governments which only places more fiscal strain on counties by reducing the amount of general funds available to support services provided by the counties. Additionally, counties provide services within the criminal justice system such as courts and jails as well as human service programs, which are typically in a constant or higher demand during economic declines. Therefore, counties have a strong motivation for building, maintaining and wisely using budget stabilization funds (Kelly, 2013), even though it may be difficult to accomplish.

Stewart (2009) examined the counties of Mississippi and discovered several interesting facts. Mississippi counties are not allowed to create a formal reserve fund for budget stabilization, however, they are allowed to carry forward funds for cash flow purposes into the new fiscal year which allows the collection of taxes to catch up to expenditures in any given fiscal year. Her research showed that rural and urban counties accumulated unreserved fund balances during years of plenty and drew down those reserves in times of depression or recession. Additionally, they did not cut expenditures in the downturns but were able to maintain a level of service to their constituents. She concludes, "the results revealed that Mississippi counties were strategically building their reserves, while addressing the short-term needs of their residents during a time of relative resource abundance. However, during relative resource scarcity, they were cost-conscious and maintained rather than expanded expenditures" (p. 68). While they did not move the county out of a downturn, the county government was able to enhance any fiscal policy actions coming down from the federal government.

Wang and Hou (2012) examined counties in North Carolina. Similar to Stewart, they found property taxes played a prominent role in the revenue portfolio. The county governments had procyclical tendencies, expanding spending during growth and

reducing expenditures during contraction. They examined the role of the population size of the county and its ability to be a counter-cyclical policy driver. They found that county size does matter, however the amount of the savings that can be generated by a county is small enough that it does not move the counter-cyclical needle alone.

These are the only two county-level empirical studies of which I am aware, leaving the field ripe for additional studies both within other states and across regions or the entire United States. Research focused on counties is essential to determine how they build reserves, how reserves are utilized and the impact of reserves during punctuating events. These topics will be explored in the following essays.

Overview of the Dissertation

This dissertation establishes the beginning of a national exploration in the public administration literature into the subnational fiscal policies of the United States at the county level of government. The dissertation will examine the largest non-consolidated county in each state in the first two essays and the fourth largest county in the country in the third essay. Additionally, each essay utilizes a different research method: qualitative analysis, quantitative analysis and case study.

Essay 1: County Fiscal Reserve Policies.

The first essay of this dissertation will begin a dialog about county fiscal practices answering the question: what are the rules and practices of general fund balance and reserves in county government? This essay examines budget stabilization policies of county governments and studies how county governments are codifying the action of setting funds aside for use during times of need. The scope of this research will encompass the United States and examine the largest, non-consolidated county government in each state (Appendix A), filling a gap in the public administration

literature. Answering this research question through a national lens will enlighten and inspire more specific research in the future.

Essay 2: County Fiscal Reserves in Action

The second essay of this dissertation will move from the descriptive analysis of counties and explore quantitatively the effects of county government general fund balances and reserve practices over time. Specifically, this essay will address the research question: do counties utilize reserves to minimize the effect of economic downturns? To answer the question, this study documents the reserves, revenue and expenditures of 43 counties across the United States over a five-year period (fiscal years 2012-2016) and utilizes a panel data, fixed-effects model taking into account the political, policy and service-bundles of the counties. Revealing the fiscal management behavior of this set of counties provides a foundation for continued analysis over time and opens the door for further research both in counties with specific characteristics and broadly across counties in the United States.

Essay 3: Pay-as-you-Go Capital Project Financing

The final essay of this dissertation is a case study of one of the uses of fund balances: the use of cash rather than debt for capital expenditures also known as pay-as-you-go (PAYGO). It examines the theoretical question of intergenerational equity in the funding of capital assets. This essay will examine Maricopa County's technical, administrative and political pillars of PAYGO, analyzing the financial and budget documents as well as presentation materials given in public meetings regarding the economic and financial condition of both the county government and the county.

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County Fiscal Reserve Policies

A descriptive study of the largest counties across the United States of America

Abstract

This essay examines budget stabilization policies of county governments. It studies how county governments are codifying the action of setting funds aside for use during times of need. Fiscal reserves are important to subnational governments in order to successfully navigate the economic cycles and continue to provide adequate services to their constituents. Through an examination of the largest, non-consolidated county in each state across the United States, this essay will document fiscal policies regarding reserves and associated county characteristics drawing conclusions regarding this little study section of public budget and financial management.

Introduction

Recent history has thrust a handful of counties into the headlines because of fiscal reasons. The 1990s saw three counties in deep financial distress across the country. Orange County in California filed for bankruptcy because of poor investments and fiscal management (Flickinger & McManus 1996). Greene County in Alabama also filed for bankruptcy after suffering as revenue declined sharply in addition to other financial stressors (Deal, Kamnikar & Kamnikar 2009). While not filing for bankruptcy, Nassau County in Long Island, New York reeled from financial disaster amidst large deficits (Nassau County Crisis 1999). Could the various crisis situations have been avoided or at least mitigated?

This essay examines budget stabilization policies of county governments. It studies how county governments are codifying the action of setting funds aside for use during times of need. While the broader fields of public budgeting, financial management, and fiscal and monetary policy have been well researched and discussed amongst scholars, the topic of reserves within public financial management is relatively new with few scholars working in this arena. The work that has been done has focused mostly on the national, state and city levels. Even though more scholars are considering the topic, there is very little academic work that has been published on counties and their reserve policies. In addition to the scholarly void, county leaders and administrators need guidance and benchmarks for developing their own policies and practices for reserve establishment and maintenance.

Fiscal reserves are important to subnational governments in order to successfully navigate the economic cycles and continue to provide adequate services to their constituents. Subnational governments vary in scope, powers, and structure. State governments maintain their own constitutions and typically have executive, legislative

and court branches of government. States also establish the constructs under which the city and county governments operate. Cities and counties differ from each other in their area of duty as well as their revenue sources (Stewart, 2009). Property taxes typically assume a greater role in county revenues than in city revenues and are a more predictable source of income than other forms of taxes. During difficult economic times, states have been known to constrain or divert revenues which flow to local governments which only places more fiscal strain on counties by reducing the amount of general funds available to support services provided by the counties. Additionally, counties provide services, like certain aspects of the criminal justice system and human services, which are typically in a constant or higher demand during economic declines. Therefore, counties have a strong motivation for building, maintaining and wisely using budget stabilization funds (Kelly, 2013), even though it may be difficult to accomplish.

If the county layer of government is so important, why has so little research been done on it? There have been pockets of research on counties, however it has been in context of the counties of Mississippi or the counties of North Carolina, rather than counties across the nation. Part of the reason so little research has been done on counties across the country is that there is less information consolidated on a national level by organizations in general. The National Association of State Budget Officers (NASBO) routinely collects and disseminates information on the states and their financial situation. The International City/County Management Association (ICMA) provides some leverage for collecting and aggregating information across large cities, however financial data is only a portion of the topics considered by the ICMA. Similarly, the National Association of Counties (NACo) collects and combines information on counties on a variety of subjects, although fiscal policies are not an area that has gained attention yet.

It is clear that counties are critical with respect to service provision and the importance of county government and county fiscal practices is not diminished despite the lack of already consolidated data. In fact, this study is motivated by the fact that so little information exists on county-level fiscal policy. The research question examined in this essay is: what are the rules and practices of general fund balance and reserves in county government? Through an examination of a county from each state, documentation on county fiscal practices across the country begins and generalizations about county fiscal policies can emerge. The outcome of this study is the beginning of a conversation about counties and their fiscal policies from an across-the-nation perspective rather than examining counties within a state. While there is value in comparing county practices within each state, the goal of this project is to see what generalizations can be made about county behavior and policies across the United States.

The scope of this research will encompass the United States of America and examine the largest, non-consolidated county government in each state, filling a gap in the public administration literature and opening a dialog about the county government fiscal practices. Initial research has shown that counties are not easily compared to one another because they provide very different levels of service. It is my anticipation that I may be able to find trends among fiscal practices with a combination of demographic and service bundle characteristics such that counties with similar demographics will have similar fiscal practices. Following from the Government Finance Officers Association guidance, my expectation is that counties which provide a greater bundle of services will likely have a need for greater reserves to mitigate risk provide for capital, or to mitigate recessions or other shocks. The data and themes revealed through this research will provide a solid foundation for additional research on county fiscal policy.

Background and Literature

Governments prefer to plan and operate in an incremental manner, with only minor changes in services demanded and provided, as well as in revenues and expenditures (Wildavsky, 1984; Joyce, 2001; Kelly and Rivenbark, 2008). Small changes year over year are easier to react to and accommodate than large changes from year to year. While incrementalism is preferred, reality is rarely purely incremental. There may be long periods of time with little or no change, but these periods are interrupted with wars, recessions, natural disasters or other events that fall outside the norm or average expectations (Jones and Baumgartner, 2005). The demand for services provided by governments do not decrease during these punctuating events, rather they are usually amplified, as in the case of natural disasters or extreme weather events where governments are called into action to restore order and respond to the emergency. In order to meet the additional demand for services, and not add to the economic impact of a punctuating event by reducing services or staff, governments must have the ability to draw on financial resources during times of crisis. The federal government provides grants and reimbursements in some situations; however, the resources are typically not available immediately. Local governments may be able to increase revenues through tax increases which is also a delayed mechanism for gaining resources. Therefore, governments must create fiscal reserves to draw on during times of crisis providing immediate financial means. Only through the recognition of fiscal shocks, financial planning through reserves and policies to govern reserves can governments hope to mitigate punctuating events and maintain a smooth and incremental expenditure budget (Joyce, 2001). Further, through planning, budgeting, and fiscal management, governments can be poised for uninterrupted service delivery without the need to make sweeping changes in budgeting from year to year.

Budget Stabilization Funds

The preferred method of budgeting, as well as the provision of services, is through a predictable and incremental approach. Reserves are necessary in order for a government to maintain a stable service delivery model during the downside of the economic cycle. When governments can draw on reserves to maintain service delivery in down cycles and build up reserves while providing the same services in growth cycles, the government is able to maintain a steady service delivery regardless of the economic pressures. Reserves enable this behavior and outcome. Budget stabilization funds are defined as having three aspects: a binding force on those in the budgeting process via legislation, a countercyclical reserve spanning across budget years focusing on the economic cycle rather than fiscal year; and finally, a government-wide funding reserve for general purposes (Hou, 2013). Hou distinguishes budget stabilization funds as being different from other contingency funds or fiscal reserves. However, he acknowledges looser definitions which simply note funds are set aside to reduce the likelihood of service reductions or the need to increase taxes to maintain services.

An issue that has surfaced in the United States is the manner in which budget stabilization funds or fund balances or reserves are reported publicly. In response, the Governmental Accounting Standards Board (GASB) issued clarification on how fund balances were to be reported to ensure consistency and clarity across public entities. GASB's Statement No. 54 makes a clear distinction in several aspects of reserves (fund balances). The organizational level that makes the decision about the use of the fund balance determines if the fund balance is restricted or committed. If the purpose of the balance is directed by statute, constitution, law or some other outside force, the fund balance is considered restricted. However, if an internal group determines that funds should be set aside for a purpose, then the funds must be classified as committed. The

criteria for restricted and committed designation is rigorous which means many fund balances that are set aside for budget stabilization are reported as unassigned balances in the general fund. The conditions which enable the use of stabilization funds may be utilized is also a factor in how the reserve is classified. The more specific and precise the criteria for use increases the probability the reserve can be classified as a restricted or committed fund balance. For instance, if the reserves can be accessed 'in an emergency' then it is not very precise and should be unassigned. Another example is if the reserve can be accessed 'when revenues fall below 10% of the budgeted amount' or if the Governor declares a state of emergency, then the reserves may qualify as restricted or committed (GASB, 2009).

Fiscal reserves are prudent for many reasons including the need to obtain and replace capital equipment as well as to build and replace buildings, technology and infrastructure. Fiscal reserves are also necessary because of punctuating events that interrupt the small growth or reductions from year to year. These events may be seen as opportunities to radically correct operations and/or viewed as a shortfall in revenue that must either be filled from a reserve or a time in which services must be reduced to meet the revenue available. In either case (or both cases) governments must have the flexibility that fiscal reserves provide in order to effectively provide the necessary services to their constituents. By utilizing reserves, the budget can remain incremental from a long-term perspective.

Reserves are important for governments to have in order to accommodate the punctuating events which will be experienced from time to time. In terms of local government, those events might include wildfires or flooding or court orders or a significant issue within a department which requires resources to correct. It is reasonable to expect some area or areas within a government to require financial

resources when a large problem is suddenly revealed. Resolution requires swift and radical change such that the department or agency will not go back to business as usual. For example, the national media coverage of the number of rape kits that have gone unprocessed across the nation created a whirlwind that required a response from various levels of government. Without reserves, officials are faced with limited options to counter the unexpected, the quickest of which is to reduce or eliminate spending in other areas of the government to resolve the issue in the spotlight. Assuming that government is providing necessary services, the need of reserves becomes very clear. Drawing on reserves to address the unexpected is preferred to cutting or eliminating services.

Budget stabilization funds make sense, whether formal or informal, but they are very difficult to build, maintain and use properly. Not only do they typically require some form of legislation to allow creation of a formal fund, but the political pressures by policy makers to not over tax or to spend available funding create strong forces with which to contend. There is also tension within all levels of government to increase economic development and create opportunities for tax reductions (Hou, 2013). There are many forces at work on the budget stabilization fund. Financial managers tend to behave conservatively (underestimating revenues) to create savings. Fiscally conservative policy makers typically believe that government is too big and is taxing too much. These policy makers apply pressure to reduce the balance and taxes. The fiscally conservative policy makers are countered by the less fiscally conservative who see fund balances as an opportunity to spend the reserves (Kelly, 2013). Therefore, the legal structure and surrounding policies are very important to effective budget stabilization funds.

County Governments & Fiscal Reserves

Stewart (2009) examined the counties of Mississippi and discovered several interesting facts. Mississippi counties are not allowed to create a formal reserve fund for

budget stabilization, however, they are allowed to carry forward funds for cash flow purposes into the new fiscal year which allows the collection of taxes to catch up to expenditures in any given fiscal year. Her research showed that rural and urban counties accumulated unreserved fund balances during years of plenty and drew down those reserves in times of depression or recession. Additionally, they did not cut expenditures in the downturns but were able to maintain a level of service to their constituents. She concludes, "the results revealed that Mississippi counties were strategically building their reserves, while addressing the short-term needs of their residents during a time of relative resource abundance. However, during relative resource scarcity, they were cost-conscious and maintained rather than expanded expenditures" (p. 68). While they did not move the county out of a downturn, the county government was able to amplify any fiscal policy actions coming down from the federal government.

Wang and Hou (2012) examined counties in North Carolina. Similar to Stewart, they found property taxes played a prominent role in the revenue portfolio. The county governments had procyclical tendencies, expanding spending during growth and reducing expenditures during contraction. They examined the role of the size of the county and its ability to be a counter-cyclical policy driver. Ultimately, they found that county size does matter, however the size of the savings that can be generated by a county is small enough that it does not move the counter-cyclical needle alone. This study was followed up by another that showed counties did behave counter-cyclically in North Carolina over the period of 2005 to 2012 (Rivenbark, Roenigk & Noto 2015) bringing the researchers to the conclusion that cash reserves provide a way for local governments to mitigate changes in resources throughout the economic cycle.

Counties are an understudied layer of government in the United States. They fill an important gap in services between city and state levels of government typically

providing critical judicial and public safety services. Their specific role varies from state to state, but are nonetheless an important level of government to examine. In the United States of America, only two states have completely discontinued the use of the county layer of government as a standalone entity; those being Connecticut and Rhode Island. Even though the county boundaries still exist, the functions typically provided by counties are provided by the state or cities and there is no provision for county government in the state statutes (Connecticut, 2017; Rhode Island, 2017). Massachusetts has abolished eight of its fourteen county governments providing the county functions via the state government for those counties (Massachusetts, 2017). Some states have allowed the consolidation of governments such that a county and a city or town can combine to provide all the services of the county and the city. In cases where a city and a county have essentially the same borders, synergy can be found in this approach and can save taxpayers money in potentially duplicative services. The consolidation of governments allows the residents of an area the ability to formulate the local government in such a way to provide maximum benefit to the community. In some cases, the consolidation is at a land-mass level. For instance, in the state of Hawaii, the county government is the island government providing a unique government structure that fits the island culture and needs.

Generally, the county layer of government provides value in the governance and provision of services to the state's residents. Counties are typically tasked with social and public welfare issues and are a direct arm of the state and require specific state directives to act. Cities are often charter governments and can act on their own terms. Some states allow counties to have charters and operate under home rule such as North Dakota. In contrast, in other states, counties may only do what is expressly granted in statute, whereas cities may do anything that is not prohibited. Regardless of charter or not, this

mid-level, subnational layer of government is vital to service delivery. Let's turn now to the question at hand: what are the rules and practices of general fund balance and reserves in county government?

Data and Methods

Data. As was discussed above, the unit of analysis for this study is counties; more specifically the largest, non-consolidated county government in each state in the United States of America. The largest county was selected for two primary reasons. First, the most populous county in each state will provide the maximum array of services which represent the authority granted to the counties from the state. Second, the largest would also be most likely to publish financial statements, budget and policy documents simply due to the amount of resources larger jurisdictions have compared to smaller jurisdictions. These documents are needed to determine what the fiscal reserve policies are for the county.

There are 50 states, and for reasons already discussed, three of the states will be excluded from the study (Connecticut, Hawaii and Rhode Island). Therefore, one county from each of the 47 states will be examined through this study. I utilized the 2010 census data (United States Census Bureau, 2017) to determine which county was the most populous in each state. I examined each of the counties to determine if it was a consolidated government or solely a county government. Appendix A contains the final list of states and their county that became the focus of this study. The list in Appendix A also displays a notable city within the county for reference purposes as well as the 2010 Census population.

The research question focuses on the actual policies and practices in place for each of the counties. In order to develop generalizations and discover patterns of county fiscal policies, I researched county documents to find the answers to two sets of

questions. The first set of questions were developed to understand what policies are in place and publicized regarding reserves and indirect policies that may impact reserves. Table 1 contains the questions that were researched for each county to determine what their current policies regarding reserves and budget stabilizations funds.

Table 1

County Fiscal Policy Questions

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| <ul style="list-style-type: none"> ➤ Presence of State laws impacting the county's ability to carry fund balances in the General Fund ➤ Regarding the Budget Reserve Policy of the county: <ul style="list-style-type: none"> ➤ What does the policy specify? ➤ Is there a target or goal amount of reserve? ➤ Is there a requirement or authority in the policy to fund the reserve? ➤ Is there a requirement or authority in the policy to draw down on the reserve? ➤ What is the primary purpose of the reserve? ➤ How is the reserve classified via the GASB 54 directives? ➤ What other policies exist that impact reserves? <ul style="list-style-type: none"> ➤ Is a structurally balanced budget required? ➤ If so, how is 'structural balance' defined? |
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Additionally, I wanted to determine if there were demographic trends or commonalities among the counties and their fiscal policies. Therefore, I gathered data on the following demographic questions for each of the counties (Table 2):

Table 2

County Demographic Questions

- Governing Board Title and Number of Members
- The Board Member's length of term and if the members' terms were staggered or not
- The County's Form of Government
- If there was a County Executive, and if were they elected or appointed
- If there were other Elected Officials and if they were Constitutional Officers or not
- Current Population
- Area
- Whether or not the county provided these services:
 - Water Delivery
 - Waste Pickup/Handling
 - Education/Schools
 - Airport/Ports
 - Fire Protection
 - Law Enforcement
 - Public Health
 - Food/health inspection services
 - County Hospital for physical health
 - County Hospital for mental health
 - Roads/Transportation
 - Flood Control

These characteristics of the county government and leadership makeup were selected as they represent significant ways in which counties may be organized and therefore have certain tendencies to have particular fiscal policies. For instance, do larger governing boards tend to have published reserve policies compared to smaller boards? Does the population of a county and/or the land area influence the fiscal policies of the county board?

The Government Finance Officers Association (GFOA) issued a best practice/case study report based on Colorado Springs, Colorado regarding the purpose of the city's reserve and its recommended size which also applies to counties (Kavanagh, 2013).

"Reserves are the cornerstone of financial flexibility. Reserves provide a government with options for responding to the unexpected issues and a buffer against shocks and

other forms of risk" (p. 4). GFOA's recommendation to meet this need is a minimum of two months general fund operating expenditures plus an amount sufficient to mitigate risks. Quantifying risk mitigation is not quick and simple. It requires a fair amount of research, analysis, calculation and executive buy-in on the characteristics, probabilities and overall risk-aversion philosophy (Kavanagh, 2013).

If risk is a factor in the need and size of reserves required for good fiscal management, then a basic understanding of the services provided by the county will help develop a picture of some of the risk factors. Certainly, it will not capture all, however; hypothetically, if there were two counties that are essentially the same but one operates a hospital and the other does not; then we could presume the one that operates the hospital is exposed to greater risk because it offers more services.

The primary source of data to answer the questions in Table 1 and Table 2 was the county's most recent Comprehensive Annual Financial Report (CAFR). Many counties provide a County Profile section as well as discussing the relevant financial policies either in the Transmittal Letter, Management Discussion and Analysis (MD&A) section or through the Notes to the Financial Statements. Secondary sources of data included the county's budget documentation which also can include a County Profile section and financial and budgeting policies. After those two sources were scrutinized, additional searches of the county's official website often provided missing information. As an example, the County Assessor or Treasurer's page would include either a statement or a report which would provide the number of parcels in the county. The Board of Commissioners page or an About Us county page would sometimes fill in the missing data regarding election cycles and terms of the commissioners and other elected officials. The county's home rule charter or administrative code published on their web page also

provided data to complete the profile of each county. Additionally, state statutes were consulted if the county's documentation did not provide enough data.

Finally, the National Association of Counties (NACo) has collected data (such as type of government, number of elected officials, and elected or appointed county executive) on most counties in the United States and provides that data through an interactive county explorer space. This information was consulted as a source of validation for information, but also to fill in the gaps when the county itself did not provide much information. The NACo explorer space was also utilized to provide consistency of the number of constitutional elected officials from other elected officials. When looking at the documentation of each county, it was not always clear whether the elected officers were constitutional officers or other elected officials. Many counties elect judicial representatives like judges or justices of the peace which are important to the function of the county, but are often controlled more directly by the state. Using the single source of data provided a consistent definition of constitutional officer to that set of data. Each of the documents and web pages can be hundreds of pages long, as such, the relevant pages of information were captured and notated for validation and reference.

In summary, the systematic approach to answering the questions about each county started with the CAFR and budget documentation provided, then searching the official web page for other sources to answer the question, then a search of the state online documentation. The NACo data was consulted as was the state chapter of the Association of Counties as a final step to gathering data on each county.

Descriptive Information on Counties and Service Provision

The counties are distributed across the four US Census Districts as follows: 9 in the Northeast, 12 in the Midwest and West; and 14 in the South. As a side note, the three

excluded states would have added two to the Northeast and one to the West. Current populations ranged from 97,121 (Laramie County, Wyoming) to 10,255,168; with the top four largest counties being Los Angeles County, California (10,255,168), Cook County, Illinois (5,238,216), Harris County, Texas (4,500,000) and Maricopa County, Arizona (4,137,076). The mean population of the remaining counties was 764,561. Utilizing groupings to break the counties into somewhat evenly distributed sections and utilizing natural gaps in the population, the county population distribution is shown in Table 3.

Table 3

County Population Distribution

Population Groups	Number of Counties
2,000,000 and over	7
1,000,000 - 1,999,999	9
750,000 - 999,999	6
500,000 - 749,999	7
250,000 - 499,999	8
249,999 and under	10
	47

Another attribute of size is the area that a county covers and was included in the county profile in square miles. The area ranged from Kenton County, Kentucky at 164 square miles to Maricopa County, Arizona at 9,224 square miles. Again, the counties were grouped by area to gain a fairly even distribution and utilizing natural breaks in the data to facilitate analysis. The area distribution is summarized in Table 4.

Table 4

County Area Distribution

Area Groups*	Number of Counties
2,000 and over	9
1,000 - 1,999	6
750 - 999	10
500 - 749	12
499 and under	10
<hr/>	
* in square miles	47

The population per square mile, provides a different comparison of the ‘size’ of a county and is summarized in Table 5. Kenton, Kentucky, the smallest in area, falls to about the middle of the counties in population per square mile at 1,005.5 people per square mile. The range goes from 13.4 people per square mile in the Fairbanks-North Star Borough, Alaska (7,361 square miles, 98,645 people) to 5,537.2 people per square mile in Cook County, Illinois (946 square miles, 5,238,216 people).

Table 5

County Population/Square Mile Distribution

Population/Square Mile	Number of Counties
2,000 and over	11
1,000 - 1,999	13
300 - 999	12
299 and under	11
<hr/>	
	47

Form and Size of County Government

Eighteen counties had a Council and an Elected Executive which functioned much like the legislative and executive branches of many state governments. Twenty-one counties had a council or commission or board that appointed a county manager or administrator

to oversee the operations of the county. These are notated as “Board-Manager” forms of government. Finally, seven counties had only a Commission where the department directors reported directly to the commission rather than having an administrator or elected official managing the county operations. The form of government was not as regionally driven as I had anticipated, the breakout is provided in Table 6.

Table 6

County Form of Government

Census Region	Commission	Board - Manager	Council - Elected Executive	Total
Midwest	1	6	5	12
Northeast	3	2	4	9
South	1	7	6	14
West	3	6	3	12
Total	8	21	18	47

In the Midwest and the West, 50% of the counties are utilizing the Board-Manager form of government. The Northeast had just under 50% of the counties utilizing the Council-Elected Executive form. The South was split almost equally between the Board-Manager and the Council-Elected Executive.

The number of board members varied somewhat with the form of government. The Commission Only form of government had smaller boards. The Board-Manager tended to have five or seven members, however there were some counties with more. The Council-Elected Executive had the widest distribution of the number of board members ranging from three up to eighteen. Table 7 illustrates the variety of board sizes across the forms of governments. Surprisingly, 77% of all the counties had board members with a four-year term. However, the Board-Manager form has 90% of counties using a four-year term, whereas the Council-Elected Executive counties had only 67% utilizing a four-

year term. The Council-Elected Executive form utilized a two-year term more than the others at 22%.

Table 7

County Form of Government and Board Size

Board Size	Commission	Board - Manager	Council - Elected Executive	Total
2	1			1
3	6	1	1	8
5	1	11	1	13
7		5	3	8
9		1	4	5
10		1		1
11			1	1
12		1		1
13		1	2	3
15			3	3
17			1	1
18			2	2
Total	8	21	18	47

The use of staggered terms varied widely between the forms of government. The Board-Manager form of government used the staggered terms more heavily than the Council-Elected Executive form of government. However, none of the counties with two-year terms used staggered board member elections for any of the forms of government.

County Government Services

The scope of services that are provided by the counties were determined in a number of ways. Some services are noted specifically in the CAFR through the MD&A section or by fund name or by the fact that an elected official with a description of their duties was provided. Most CAFRs have a statistical section which have a variety of charts, some jurisdictions include a list of operational statistics provided by their county. This worksheet provided additional information on the services provided. Similarly, the budget documentation often provided additional details on the services provided by the

county. From the initial list of service questions, most were definitive. Whether the county provided public health inspections was fairly obscure in the data, so I have excluded it from the weighting of services provided by the county. A summary of the services provided by counties is provided below in Table 8. In looking at the services that were unevenly split between ‘yes’ and ‘no’ I could not find anything that is a common trend among the other profile elements that would indicate that counties similarly structured would include or exclude the services.

Table 8

County Services Provided

Service	Yes	No
Airport/Port	12	35
Education	6	41
Fire Protection	17	30
Flood Control	9	38
Hospital	16	31
Law Enforcement	43	4
Mental Health Hospital	15	32
Transportation/Roads	39	8
Waste Management	22	25
Water Delivery	10	37

An exception to this is with regards to Commission only governments, which did not provide airport/ports, education, fire protection or flood control services. Another way of looking at the services provided by counties is to give a value of “1” for every service that the county provides, then add the number of services. In total, there were ten services cataloged in the county profile. In Table 9, the results show that the Northeast Census region had the only instances where the county provided none (Bristol, Massachusetts) or only one of the services (law enforcement). Every Midwest county provided law enforcement and transportation/road services. Both the West and the South had no patterns in their service provision.

Table 9

County Services Provided by Region

Count of Services	Midwest	Northeast	South	West	Total
0		1			1
1		4			4
2	1		2	2	5
3	3		4	2	9
4	3	1	2	4	10
5	3	2	1	1	7
6	2		3		5
7			2	1	3
8		1		1	2
9				1	1
Total	12	9	14	12	47

Descriptive Information on Counties and Reserve Policies

The beginning of the essay touched on the importance of reserves in maintaining the services that a county must provide as well as accommodating fluctuations in revenue or potential catastrophic events (natural or manmade disasters, judgements and economic crisis). Let us look to the counties in this study to determine if and how reserves are being utilized in county government. In this sample of counties, over 55% (26 of the 47) of the counties indicated having a reserve policy. However, an additional five counties indicated they had a reserve even though no reserve policy was formalized, bringing the total utilizing reserves to 31, or 66% of all counties. In answer to the question, do counties have reserves and reserve policy, the answer is a yes by two-thirds of the counties. This provides some insight into the fact that reserves are regarded and acted upon as important by two-thirds of the counties, however; only 55% have formalized the reserve concept into a policy. Whether by policy or by action alone (meaning a reserve was designated in public documentation) creating and maintaining reserves was accomplished by two thirds of the counties thereby indicating a recognized need for reserves, or else they would not designate them.

Statistical Tests to Explore Relationships Between Counties and Reserve Policies

The type of government and if there is a reserve policy as well as if the county has indicated they have a reserve is broken out in Table 10. The result is that the governments which have an Executive (elected or appointed) have more counties with reserves than without.

Table 10

Reserves and Reserve Policy by Form of Government

Form of Government	Have Reserve Policy	Total Counties		Have a Reserve	Total Counties	
Commission	1	8	12.5%	3	8	37.5%
Board - Manager	14	21	66.7%	15	21	71.4%
Council - Elected Executive	11	18	61.1%	13	18	72.2%
Total	26	47	55.3%	31	47	66.0%

I conducted a univariate analysis of variance and the Wilks' lambda statistics with reserve policy as the dependent variable and the forms of government as the independent variables was examined. Table 11 outlines the statistical results.

Table 11

Statistical Analysis of Form of Government and Reserves and Reserve Policy

	Test	Test Statistic	Standard Error	P-value	F statistic
<i>Dependent Variable = Reserve Policy</i>					
Form of Government	Wilks' Lambda	0.811		0.0208	F(2,37) = 4.31
Commission Only	t-test	-2.9	0.167	0.0062	
<i>Dependent Variable = Reserves in use</i>					
Form of Government	Wilks' Lambda	0.926		0.1841	F(2,44) = 1.76
Commission Only	t-test	-1.896	0.183	0.0644	

The form of government is statistically significant in determining if the county will have a reserve policy with a statistic the results of F(2,37)=4.31 and a P-score of .02. A t-test based on if the county has an executive (appointed or elected) compared to not having an

executive provides an even stronger result of significance with a t-statistic of -2.9 and an associated P-score of .006. However, when looking at if a reserve utilized (without regard to if a policy was in place), the form of government is no longer statistically significant. The t-test returns a t-statistic of -1.9 and an associated P-score of .06 just outside the 95% level of significance. Likewise, the Wilks' lambda results in an F-statistic of $F(2,44)=1.76$ and a P-score of .18. The results indicate that the formalization of a reserve policy is influenced by the form of government, whereas the practice of having a reserve is not influenced by the form of government.

Researchers of state stabilization funds have found that having a stabilization fund is important, but to be effective, the states needed to have a requirement to deposit into the fund (Douglas and Gaddie, 2002; Sobel and Holcombe, 1996 and Joyce, 2001). Counties provided a look into their requirements and policies regarding the funding of the reserves in their publications. There is a difference between having a policy that says a county will have a reserve, and a policy that indicates how much the reserve should be or where the funding for the reserve will come from. Just over 50% of the counties with reserves actually had a requirement to fund them. Having a reserve policy in effect does not seem to deter or encourage the use of reserve targets among counties. However, most of the counties with reserves do have a target of reserves they strive to attain; 25 of 26 counties with reserve policies have a target amount established; 29 of 31 counties who have a reserve also have a target amount established. The form of government does not have a statistically significant influence on the use of target amounts with Wilks' lambda providing a result of $F(2,31)=2.60$ and an associated P-score of .09. However, if the county has an executive (appointed or elected), it does have a statistically significant impact on reserve target establishment with a t-statistic of -2.21 and an associated P-

score of .03. Similar to having a reserve policy in place, the use of a county executive appears to influence the use of target amounts.

Reserve Targets

Targets for reserves can come from multiple sources depending on the perceived triggers for a county's risk. For instance, if the purpose of the reserve is budget stabilization or revenue stabilization, then the reserve target may be based on revenues to ensure that a level revenue stream is available when the reserves are needed. If the reserve is based on maintaining cashflow or having the ability to maintain operations for some time, then the target may be based on expenditures, such as two months average operating expenditures. Another approach to setting targets is by establishing an amount that is not based on revenue or expenditure values. This approach may be utilized if the county needs to be prepared for certain events such as natural disasters that would not be specifically economically induced. The other approach in setting a target is to establish a certain percent of the available fund balance as reserve. Table 12 outlines the source of the reserve target. Most counties based their reserve target on some variety of their expenditures: prior year actuals, budgeted amounts, operating, or an average of expenditures. In the case of expenditures, a quarter of the counties utilized a number of months of expenditures as the target (i.e. two months of the mean expenditures), while the other 75% utilized a percentage as the target. Many chose instead to base their targets on revenues in total or on some subset such as local revenues, property taxes, or net revenues.

Table 12

Reserve Target Base

Reserve Target Based on:	Have Reserve Policy	Have a Reserve
Revenue	9	10
Expenditures	13	16
Fund Balance	2	2
Fixed	1	1
Total	25	29

Those who utilized revenue always utilized a percent of revenue as the target (i.e. 28% of actual revenue). Two counties used fund balance as the basis for the target. One (Cumberland, Maine) because the state statute regarding the reserve was written that way; and the other (Suffolk, New York) because it was recognizing a portion of discretionary fund balance that needed to be moved specifically to a tax stabilization reserve fund. Finally, one county (Polk, Iowa) had a strict amount that was to be retained as the reserve plus an inflation factor plus one payroll's value of expenditure. Further research will need to be done to determine if the targets are considered policy to be acted upon, or a lofty goal that the county hopes to be able to achieve someday.

Reserve Purpose and Designation

Counties gave a variety of reasons for their reserves in the publications. In examining the justifications or reasons for maintaining reserves, if the county listed more than one reason (for example, budget stabilization and cashflow), then the first reason listed in the explanation of their reserves was considered the reason for the reserves to avoid double counting. In exploring the reasons for reserves, just under 50% (15 of 31 counties) indicated that stabilization was the primary purpose of the reserves. Stabilization of revenues during economic downturns as well as operational stability were noted in the reasons. Approximately a third of the counties indicated that cashflow

was the primary purpose, this often had to do with the timing associated with the receipt of revenues (timing of property tax receipts) or seasonality of their revenues. But there were also explanations revolving around the continued operations and provision of services. Along the same lines as stabilization and the continuity of services, three counties outlined protection from emergencies as the first reason for their reserve. Two counties called out good management practices as the primary reasons which could be interpreted as all of the above reasons, especially if one utilizes recommendations from the Government Finance Officers Association (GFOA) which align stability, risk mitigation and cash flow in their recommended practices. Many of the counties gave multiple reasons, such as cashflow and stability. In performing the above analysis, I considered the first reason given. Only one county did not indicate a reason for the reserves. Miami-Dade, Florida did not specify a reason for the reserves, but indicated in their documentation that they were following the state statutes regarding the allowance for reserves.

Given the guidance from GASB 54, how are counties classifying their reserves? Most (21 of the 31 counties) are using an Unassigned designation which provides the most liberty and ease of action in fund utilization. Five are showing funds as Committed and two utilize the Assigned fund balance designation. One simply labeled the reserved as “Unspendable” and two other counties utilized multiple classifications. The Committed designation was used across the country (two in the Midwest, and one each in the other three regions). However, Assigned fund balance was only used in the West (Maricopa, Arizona and Laramie, Wyoming). The purpose of the reserve did not seem to determine to the classification. Assigned fund balances were both for cashflow and stabilization. Committed fund balances were also for cashflow, stabilization, but also for emergencies.

Balanced Budget

A balanced budget, while a different topic from a reserve, is key to maintaining a reserve of any kind. In the plainest language, a balanced budget is having sufficient revenues to pay for the anticipated expenditures. In all of the counties examined, 33 of the 47 (63.8%) indicated that a balanced budget was required either by the county or by the state. In the subset of counties that carry a reserve, 25 of the 31 (80.6%) counties required a balanced budget. The definition of balanced budget throws this apparent overwhelming use of balanced budgets into question. There were two technical definitions of “balanced budget” used by counties. Balanced budget in the strictest form indicated that current or operating revenues must be sufficient to cover the current or operating expenditures. In other words, use of reserves, carryforward or fund balances are not permitted to pay for current operations. Utilizing this definition only 11 counties of the 47 subscribed to a balanced budget; however, 10 of those counties also indicated having a reserve. When the definition of a balanced budget is loosened to include all revenues, carryforward dollars, reserves and fund balances to offset expenditures, an additional 19 counties of the 47 utilize a balanced budget. Sixteen of those counties also have indicated having a reserve. The remaining five counties with a reserve did not indicate if a balanced budget was required or not.

Counties are both a geographical area and the boundaries of a government. I would expect the counties in close proximity to one another to have similar characteristics and rules simply due to diffusion and because they would likely have similar populations, weather and economic conditions. In examining the use of a balanced budget, a look at the nation as a whole as well as the geographic regions ought to provide insight into the patterns of county government operations. The counties that cited having to have a balanced budget comprised nearly two thirds of the counties

compared with those who either did not report the requirement or indicated a balanced budget was not required. Table 13 summarizes the following results regarding balanced budgets and regions.

Table 13

Budget Balancing

Reported 'Balanced Budget'	Midwest	Northeast	South	West	Total
n/a	6	4	2	3	15
No		1	1		2
Yes	6	4	11	9	30
Total	12	9	14	12	47

Operating Balanced Budget	Midwest	Northeast	South	West	Total
n/a	6	4	2	3	15
No	5	3	8	5	21
Yes	1	2	4	4	11
Total	12	9	14	12	47

Change	Midwest	Northeast	South	West	Total
n/a	0	0	0	0	0
No	5	2	7	5	19
Yes	-5	-2	-7	-5	-19

The Midwest region was split between those counties reporting that a balanced budget was required and those providing no indication at all. The West and the South predominantly required balanced budgets. The Northeast was more like the Midwest in that it was split between required balanced budgets and those providing no indication if a balanced budget was required, although one county's documentation indicated a balanced budget was not required. When the definition of "balanced" is made stricter to require operating or current revenues to fund operating or current expenditures; nineteen counties moved out of the "yes it's required" category. This shift in definition has a potentially major impact on a county's reserves. If any revenue source (one-time or

operating) as well as reserves and fund balances can be used to fund expenditures (which could also be one-time expenditures); then the pool of resources has the ability to drain reserves and fund balances. There is some vagueness that must be taken into account, in that there could be one-time expenditures in the mix of the less stringent balanced budget. However, without the stipulation that operating revenues must be the sole source of funding for operating expenditures, the door has been opened to utilize reserves, fund balances and one-time revenue sources to fund operations.

Conclusion

The study resulted in expected and unexpected outcomes. I anticipated finding diversity among the counties, just as there is great diversity across the states. This was true with respect to variants of size (population, area, and population per square mile) from the very large to the very small. County governments also provide a wide variety of services and have a host of methods for governing themselves. Additionally, I was not surprised that some counties produced formal CAFR reports and some only financial statements - this following from the variation in size and structure. I had anticipated, however, that more counties would be discussing reserves and methods of protecting jurisdictions from another recession similar to the Great Recession of 2008. Hou (2013) documented the adoption of budget stabilization funds by states and found that after the double-dip recessions in 1980-1982 the adoption of budget stabilization funds gained momentum. While county governments have undoubtedly felt similar economic boom and bust cycles as did the states, their move to adopt formal stabilization funds seems to be much slower. There is a divide in the behavior of counties with regards to reserves. While over 50% have some sort of a reserve, a much smaller number seem to formalize the reserves through policy. Perhaps the remaining county governments are behaving more like the municipal governments found by Hendricks (2006, 2011): controlling

operating expenditures, major maintenance, and capital purchases and projects during economic downturns. A more in-depth qualitative examination or a quantitative examination may reveal the actual behaviors of counties.

Counties that were in the practice of maintaining reserves indicated the reserves were for cashflow, stabilization and good management practices. Not surprising was the lack of outward documentation towards the benefit of counter-cyclic economic forces that counties could yield. Yilin Hou (2013) did not see that documentation at the state level, so I was not surprised to see it missing at the county level. The research into municipal reserve practices did not bring out counter-cyclic economic behavior either.

There were several drivers that I anticipated would push county leaders to formalize a reserve policy related to risk. An increase in risk for the government and therefore a need for increased reserves may present itself in the services it provides, the size and density of the population, and perhaps geographical locations related to natural disasters. Surprisingly none of these factors seem to determine whether a county government had formal or informal reserve policies. I had hypothesized that those counties with greater scope in service delivery would have a greater need to maintain reserves; however, this was not the case. I also hypothesized that other demographic markers (population, census regions, area, elected officials, etc.) would have a relationship to the county having a reserve. Again, I found very little in this sample to indicate that is the case. The only exception was the Commission Only form of government, which is less likely than those county governments with an executive (appointed or elected) to have reserve requirements. This finding does not have a counterpart in state government states have an executive (governor). The municipal research did not bring this forward as a finding. Further investigation is required on this finding both on the county and municipal levels. Are Commission Only county

governments handling reserve requirements in a different way than those county governments with an executive? Or is there in fact an absence of reserve requirements in this form of government?

One limitation of this study is that I did not control for the state-level mandates, policies or statutes that impact county government services and policies. The fact that Miami-Dade County was the only one that implied a state mandate, but no other reason for reserves, points out this connection. By examining one county per state and not the relationship between each of the counties and states, this impact of state control is not cleanly examined. In a future study, the data strategy and design will need to include this important relationship.

What can be learned from this study? Counties across the nation are adopting and utilizing reserves regardless of population, area, size of policy board, elected executive or appointed public administrator and the services provided by the county. Commission Only governments seem to be the only designation that has a trend, in that Commission Only counties tend to not have reserves or a reserve policy. The most valuable outcome of this study is that the door has been opened for future research on counties and their fiscal policies, whether case study, empirical or normative. The more questions are posed about county governments, and counties are engaged in study, the better understanding we will have of this subnational government that plays such a vital role in virtually every state.

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County Fiscal Reserves in Action

An empirical study of the largest counties across the United States of America

Abstract

While many articles exist regarding city and state fiscal policies across the United States of America, very few studies of county fiscal policies exist. This essay will explore the effects of county government general fund balances and reserve practices over time utilizing a panel data fixed effect model and seeks to answer the question of whether counties utilize their fund balances to minimize the effect of economic downturns. This study examines the largest, non-consolidated county governments in each state across the United States over a five-year period FY2012-2016. The purpose is to begin a dialog about the fiscal practices of counties and begin filling the gap in public administration literature regarding this subnational level of government.

Introduction

This essay examines stabilization of county government budgets. It studies how governments are utilizing fund balances in the general fund to maintain a steady level of services during the economic cycles. While the broader fields of public budgeting, financial management, fiscal and monetary policies have been well researched and discussed amongst scholars, the topic of reserves within public financial management is relatively new with few scholars working in this arena. The work that has been done has focused mostly on the national, state and city levels. Even though more scholars are considering the topic, there is very little academic work to date that has been published on counties and their reserve position. In addition to the scholarly void, county administrators need guidance and benchmarks for developing their own practices and policies for reserve development and maintenance. These two factors initially sparked a desire for research in this arena.

Research in this field is important for several reasons. First, the country has recently experienced a major recession (the Great Recession of 2007-2009), with a very slow return to pre-recession economic conditions. How counties adopt and enact policies after such an event provides insight into their preparation for the next major economic event. Opportunities to gather data on events like this do not occur frequently, making research at this time extremely valuable. In addition to the severity and recovery variance experienced by counties across the country because of their geographic and industry impacts, the counties and their ability to recover from the recession is linked to their ability to infuse life into their community's financial streams. Second, counties are often constrained by budget balancing legislation which requires them to focus narrowly on a 12 or 24-month budget cycle rather than along an economic cycle which may be years in length. Generating an understanding of the impact counties can have on the

recovery from economic hard times will provide valuable insight to state policy makers who are in a position to enact changes to the current restrictions. Finally, there is a void in the academic literature with regard to counties, fund balances and their relationship to economic cycles. Counties vary in their mandates and characteristics between states and even within states, additionally the number of counties within the United States dwarfs the number of states. While there are many more cities than counties or states, cities often provide similar services and have many similarities between cities of like populations and are therefore relatively easy to compare in terms of structure, scope and operation. I believe the uniqueness of the county-level of government along with the diversity has led to relatively few studies of them. There are a handful of studies about counties within the same state, but a cross-state analysis is missing. This research will begin filling the void. The body of research started here will lay the foundation of knowledge for a body of literature to emerge in general and provide insight into county fiscal practices prior to the next large quake in the economy.

Specifically, this essay will address the research question: do counties utilize reserves to minimize the effect of economic downturns? To answer the question, this study documents the reserves, revenue and expenditures of 43 counties across the United States over a five-year period, fiscal years 2012-2016 and utilizes a panel data, fixed-effects model taking into account the demographic characteristics of the counties. This essay is organized as follows: first, it provides an overview of the literature regarding reserves research; this is followed by a background on county governments across the United States; next, the essay examines the data, variables and methods used in the study; and finally, the results of the analysis will be discussed and concluding thoughts offered.

Literature

National fiscal policy captivated researchers through the second world war. After World War II, economic scholars considered the fiscal behavior of state and local governments in times of recession and growth. Subnational governments were found to behave cyclically, with growth in expenditures in times of economic expansion and a reduction in spending during recessionary times which exacerbates the fiscal stress (Rafuse, Jr., 1965). During the recession of the early 1990's, the theories regarding subnational reserves proposed that state and local budgets would have one of three characteristics over the life of a business cycle: neutral, perverse and stabilizing (Gramlich and Gordon, 1991). First, the budgets could be neutral toward economic downturns. Neutrality is characterized by subnational governments budgeting like private industries, lowering expenditures when revenues fall and increasing expenditures when revenues return. In this behavior, subnational governments do not engage in any counter-cyclical policy or action. Second, the budgets can be perverse, focusing on budget balancing on the current year, rather than by budget cycle. In this instance, subnational governments would increase taxes or cut spending during recessions and provide tax reductions or increased spending during boom or growth years. Finally, the budgets can be stabilizing. Here, subnational governments are strategic in amassing reserves during growth years and utilizing the reserves in lean years. Additionally, tax increases and/or cuts in spending would occur in boom years, and tax reductions and increase spending would occur during times of recession. As the counter-cyclical role of subnational governments started to be considered, the status quo view of state and local governments behaving like victims of a fiscal crisis was questioned (Gramlich and Gordon, 1991). Researchers began to question the role state and local

governments should play in economic downturns and what actions may be necessary to be equipped to properly play that desired role.

Research on reserves has focused mostly on the role of the state during a fiscal crisis for several years. The mechanisms utilized by state governments for resiliency during recessionary times have been examined. "The purpose of a rainy day fund is to help a state maintain its expenditure growth while reducing its need to raise taxes during a recession" (Sobel and Holcombe, 1996, p. 33). For states that had rainy day funds, Sobel and Holcombe (1996) determined that simply having the fund did not result in any significant benefit to the state. Through their statistical analysis they determined that the power of rainy day funds came from a legal requirement to make deposits into the fund. This focus on mandated deposits was even more significant than any legal requirement or restriction on when funds could be withdrawn. They also found that states that had grown a balance in the general fund reaped similar benefits as those with a rainy day fund, as long as the fund balance could be maintained until needed.

Rainy day funds and budget stabilization funds are terms that are generally interchangeable at the state level and characterized by formal legislative creation along with policy guidance on deposits into the fund, withdrawals from the fund and also the maximum allowable balance. Rainy day and budget stabilization balances can be separated from other fund balances in the general fund if certain criteria are met. The Governmental Accounting Standards Board (GASB) issued clarification on how fund balances were to be reported to ensure consistency and clarity across public entities. GASB's Statement No. 54 (2009) makes a clear distinction in several aspects of reserves (fund balances) utilizing the following categories as designations of fund balances: assigned, restricted, committed and unassigned. The organizational level that makes the decision about the use of the fund balance determines if the fund balance is restricted or

committed. If the purpose of the balance is directed by statute, constitution, law or some other outside force, the fund balance is considered restricted. However, if an internal group determines that funds should be set aside for a purpose, then the funds must be classified as committed. The criteria for restricted and committed designation is rigorous which means in practice many fund balances that are set aside for budget stabilization are reported as unassigned balances in the general fund. The conditions which enable the use of stabilization funds may be utilized is also a factor in how the reserve is classified. The more specific and precise the criteria for use, the more it increases the probability the reserve can be classified as a restricted or committed fund balance. For instance, if the reserves can be accessed 'in an emergency' then it is not very precise and should be unassigned. Another example is if the reserve can be accessed 'when revenues fall below 10% of the budgeted amount' or if the Governor declares a state of emergency, then the reserves may qualify as restricted or committed (GASB, 2009). Additionally, jurisdictions may have other funds with balances that may be utilized in certain circumstances (i.e. special legislation or action that make the special revenue fund balances available for a more general use).

Despite the growth in the number of states with rainy day funds (from 12 states to 38 states between 1982 and 1989) and the prospective importance of those funds, relatively little empirical research existed regarding their impact on state fiscal stress. During the recession in the early 1990s, researchers Douglas and Gaddie (2002) concluded that rainy day funds did not provide much relief from fiscal stress. This recessionary period also occurred as rainy day funds were coming into popularity and guidance with regard to the optimal size of fund balances was still being discussed, which may have influenced the results. While they found "that having multiple rainy day funds can have a strong influence on the state's ability to cope with economic downturn" (p.

28), their model showed that rainy day fund balances did not insulate states from the recession. Additionally, they confirmed the findings of Sobel and Holcombe (1996) and Joyce (2001) regarding the importance of deposit requirements for rainy day funds to be effective. Therefore, the structure and the policy surrounding the fund is more impactful than simply having a fund established.

Hou (2004) asserted that "[e]mpirical evidence from previous studies has shown that budget stabilization fund (BSF) balances accumulated in boom years are an effective means to reduce fiscal stress in lean years; thus it is strategically right and necessary for state governments to maintain a sizeable BSF balance for protection against revenue shocks" (p. 38). Another investigation concluded that states did not maintain an appropriate balance in budget stabilization funds to effectively smooth the revenue losses encountered by the state. In fact, Hendrick (2006) found that states resorted to substantial spending cuts which included measures that pushed more fiscal stress to local government. Research with the state as the unit of analysis focused mostly on the state's ability to smooth revenues as fiscal shocks were encountered rather than on the state's ability to impose fiscal or monetary policy.

The need for budget stabilization funds at the state level has been generally accepted, however the effectiveness of the funds varies. The Pew Charitable Trust (2014) released guidance for states with the intention of helping states "set aside money for general purposes [that will] smooth budgets over multiple years and across different phases of the budget cycle" as states manage shocks to the economy (p. 2). Pew recognizes that states should utilize budget stabilization funds to not only deal with forecasting errors and minor swings in revenue, but they also will assist the states in maintaining services and feeding the economy during extreme events. (Pew, 2014). While most literature is aimed at state governments, counties must also have the ability

to handle variations in revenues and forecasting errors while providing needed and mandated services to its constituents.

Background

Counties fill an important gap in services between city and state levels of government, typically providing critical judicial and public safety services. Their specific role varies from state to state, but is nonetheless an important level of government to examine. In the United States of America, only two states, Connecticut and Rhode Island, have completely discontinued the county layer of government utilizing city/town and state governments to provide necessary services (Connecticut, 2017 and Rhode Island, 2017). Some states have allowed the consolidation of governments such that a county and a city or town can combine into one governmental entity to provide all the services of the county and the city. In cases where a city and a county have essentially the same borders, synergy can be found in this approach and can save taxpayers money by eliminating potentially duplicative services. The consolidation of governments allows the residents of an area the ability to formulate the local government in such a way as to provide maximum benefit to the community. In some cases, the consolidation is at a land-mass level. In the state of Hawaii, the county government is the island government providing a unique government structure that fits the island culture and needs. Outside of the situations just described, the county layer of government provides value in the governance and provision of services to the state's residents as a unique governmental entity. Counties are typically tasked with social and public welfare issues and are a direct arm of the state, requiring specific state directives to act. Cities are often charter governments and can act on their own terms. Some states allow counties to have charters and operate under home rule, such as North Dakota. In contrast, in states like Arizona, counties may only do what is expressly granted in statute, whereas cities may do

anything that is not prohibited. County governments generally have the authority to levy taxes on property and provide law enforcement services.

Data and Methodology

The focus of this study is counties and more specifically the largest, non-consolidated county government in each state in the United States of America with three exceptions. Connecticut, Rhode Island and Hawaii were omitted from the study for the rationale provided in the background section, therefore a county from each of 47 states served as the initial starting ground for this research. I utilized the 2010 census data to determine which county was the most populous in each state. I examined each of the counties to determine if it was a consolidated government or solely a county government. A full list of the counties that became the focus of this study their state, a notable city within the county (for reference purposes), the population and form of government is given in Appendix B.

Utilizing the methodology of Yilin Hou's analysis of state budget stabilization funds (2013) as a model for my research, I gathered information about each county's general fund revenue, expenditures, fund balances and designations. The source of data was each county's published financial statements which in most cases was a Comprehensive Annual Financial Report (CAFR). Some of the counties produced financial statements in other formats that provided the pieces of information required. The financial statements were available publicly via the internet without the need of special public records requests. Specifically, the data is from fiscal year (FY) 2012 through 2016 regardless of the actual start/end dates of the fiscal year (fiscal years vary in start date such as January to December, October to September or July to June). Four counties have been excluded due to the fact that financial statements were not publicly available; these counties are: Pulaski, Arkansas; Cumberland, Maine; Bristol,

Massachusetts and Chittenden, Vermont. One county, Lake County, Indiana, was included in the data set although it was the only county that did not have the full set of data available; the FY2016 financial statements have not been released by the State of Indiana at the time of the analysis. It is the only county without all 5 years of data. Diversity of size and services is a challenge with this data set. In order to minimize the impact of volume, the data was normalized by transforming all values from raw numbers into a per capita value. Additionally, the data was made constant into 2016 dollars to relieve the data of noise due to inflation. Finally, some of the descriptive information collected for the first essay of this dissertation was utilized and will be further discussed below.

The empirical method is a panel data, fixed-effects model. The panel consists of 43 counties from 2012 to 2016 (5 years) and including revenue and expenditure detail for 2011 as the prior year values for 2012. This time period was chosen due to the availability of data and to provide as much of a balanced panel as possible. The dependent variable is the general fund's spendable fund balance per capita. Counties designate their reserves in a variety of ways including restricted, committed, assigned and unassigned fund balance. Some call out their reserves specifically within the supplemental notes of the CAFR. This lack of standardization requires a subjective assessment in order to determine the amount of fund balance set aside as budget or revenue stabilization funds. Given the findings of Sobel and Holcombe discussed above and the subjectivity in determining stabilizing reserves from the full general fund balance, I utilized the spendable fund balance in this study. As the use and popularity of budget and revenue stabilization funds in county government increases, perhaps this specific balance can be utilized instead of the spendable fund balance. The non-spendable fund balances are generally inventory or other categories that show as equity

in the equation of assets = liabilities + equity. They are not liquid and do not have the purposes of being converted to cash for reserve, expenditure or fund balance use. Thus, the most complete and consistent way to measure county fund balance at this time is defining it as the total general fund's fund balance less the non-spendable fund balance resulting in the spendable fund balance. The spendable fund balance descriptive statistics are provided in Table 14.

Table 14

Spendable Fund Balance Descriptive Statistics

Spendable Fund Balance				
Year	Mean	Std. Dev.	Min	Max
2012	102.265	119.726	(233.111)	464.555
2013	112.799	126.375	(157.588)	479.649
2014	129.732	145.235	(167.971)	575.033
2015	121.435	126.123	(192.367)	495.639
*2016	129.206	121.100	(151.493)	462.096
Prior Year Expenditures				
Year	Mean	Std. Dev.	Min	Max
*2012	497.291	520.906	73.474	2,462.880
2013	484.489	519.190	68.733	2,530.071
2014	543.901	605.181	64.417	2,647.527
2015	516.033	568.390	67.095	2,722.361
*2016	537.137	592.850	69.364	2,822.630
* years with 42 observations rather than 43				

In keeping with the previous research on reserves and the economy, the explanatory variables will be the prior year expenditures per capita, a dummy variable indicating if the revenue increased or decreased from the previous year, and a dummy variable indicating if the county has an explicit reserve policy. The research question at hand is whether or not counties utilize reserves to minimize the effect of economic downturns. In terms of fund balance, does the spendable fund balance decrease while expenditures maintain or increase when revenue is not in an upward trend? Another way of looking at the question is determining the impact on reserves when revenue increases indicating if

the county is using a boom time to build up reserves for use in a time of economic recession. The primary explanatory variable is the prior year expenditure per capita. It is lagged one year to the spendable fund balance. A second explanatory variable is a dummy variable representing if the revenue for the general fund increased or decreased from the previous year (1 is an increase, 0 is decrease). These two variables will provide a picture of what counties are doing with their fund balances. If revenue increases, and expenditures hold constant, the fund balance should increase if the county is building a reserve for future use. Likewise, if expenditures increase, and revenue is held constant, the fund balance should decrease to have accommodated the additional expenditures. The final key variable is if the county had a reserve policy or not, which is represented by a dummy variable where 1 indicates there is a policy and 0 that there is not.

An initial examination into county governments, their government structure, policies and procedures, and demographics revealed the only strong trend between counties and their reserve policies was found in the form of government. There were three general forms of government considered: Council-Elected Executive; Council-Appointed Executive; and Commission Only. If a county had a Commission Only form of government, meaning no elected executive or appointed county administrator/manager, then one could expect them to also not have a reserve policy. Because of this finding in the first essay of my dissertation, I have included a dummy variable in this model indicating a 1 if the county has a Commission Only form of government and a 0 if there is an executive (elected or appointed).

In studies of the state budget stabilization funds, Hou utilized a variable regarding the majority party being Democrat or not and was able to get that data from the *Book of States* series (Hou, 2013). Comparable data was not available for counties. Instead, I utilized the National Association of Counties explorer data set to locate the

majority party of the registered voters and used this information rather than the majority party of the elected officials directly. Data was available for 51.4% of the counties. Given the large gap in information and to avoid introducing any bias due to partial information, I have omitted this variable from this initial analysis. Additional variables were included to capture the impact of political and socio-economic factors: if the county practices biennial budgeting, poverty rate, unemployment rate and gross domestic product of the county. Biennial budgeting is practiced by 11.68% of the counties and this characteristic was included as part of the political factors of demographic data. The remaining data for the socio-economic factors were collected either directly from the county CAFR or from the US Census Bureau, the US Department of Commerce or the US Department of Labor. An interactive term was created for the socio-economic factors by multiplying the terms together. This process was utilized to reduce the impact of related variables and possible duplication of measurement.

Finally, an index was created of the services provided by the county, which was constructed as the sum of dummy variables for the following services: water delivery, waste management, education, airport or ports, fire protection, law enforcement, hospital, mental health hospital, road and flood control. The model includes fixed-effects for the county as well as for the year. With the fixed-effects model, year dummies capture the impact of cross-sectional effects of time across all counties. Likewise, the county dummies capture the impact of the county variations that are consistent across each year. There are 213 observations total.

There are a variety of challenges with panel data. Non-stationarity among time series financial values is common. Normalizing the data initially to a constant-year dollar and to a per capita value were performed to alleviate this issue. Another potential concern is serial-correlation which again is typical with panel data sets. I have used the

one-year lagged per capita expenditure explanatory variable to mitigate this issue. Additionally, the Prais-Winsten model with county and year fixed effects were used for autocorrelation correction.

Another challenge with the model is that it is not a random sample. These counties were selected for a specific reason as described earlier and therefore many of the statistical assumptions are challenged. Because it is not a random sample, the traditional method of utilizing the t-score and associated P-values for significance testing are not as appropriate as considering the coefficients and the signs to the expected values and signs. While the Prais-Winsten regression modeling was utilized to reduce collinearity, and an examination of the assumptions of ordinary least squares regression was performed, there are limitations with the model testing simply because of the method of selection and panel data selected.

An evaluation of the classical assumptions of ordinary least squares started with a test of linearity. The spendable fund balance and the prior year expenditure variables were not linear initially. However, upon logging the prior year expenditure variable, the relationship becomes more linear. The other primary independent variables are dummy variables and therefore will not have a linear relationship. The socio-economic interactive variable was also logged to create a more linear relationship to the dependent variable. The expected value of spendable fund balance along with the residuals were plotted to determine if a relationship existed. The plot was generally randomly distributed, although it had a tighter density around zero. The Prais-Winsten model is utilized to reduce the collinearity. Additionally, fixed effects were utilized to manage the impacts due to the year as well as the variations due to the county uniqueness. A robust model was also used to minimize the heteroskedasticity issues.

The following diagram (Figure 1) denotes the framework for the relationships and outcome being examined.

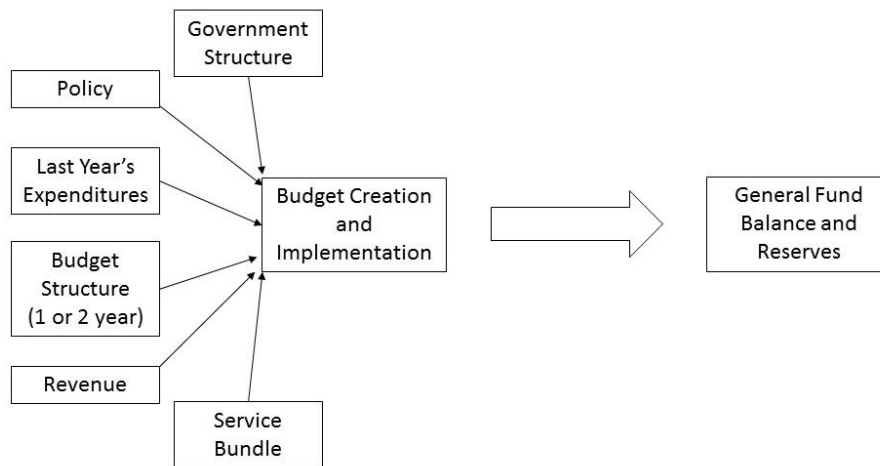


Figure 1. Reserves Framework

The structure of the county government, its policies, the quantity of services it provides, its budget structure, and expenditures in the previous year all have an impact on the process of creating a budget and the implementation of that budget. The decisions made regarding the budget, including the level of service it will provide, create an anticipated level of fund balance for the upcoming fiscal year. Working under the assumption that public administrators prefer incrementalism in budgeting and service provision, increasing revenues ought to be preserved for use in times of decreasing revenue streams in order to maintain a consistent level of services; therefore an increase in the expenditures last year ought to decrease the fund balance. A requirement to maintain a reserve (noted as policy in the diagram) as found in my earlier research is most often tied to another component such as expenditures which we would anticipate to increase slightly over time, thereby creating a positive impact on the fund balance. Reserves are utilized to mitigate risks and punctuating events such as unanticipated increases in costs

or decreases in revenues. Counties with increased opportunities for risk should increase their fund balance to counteract the risk. Those counties that must plan two years of budget at a time are exposed to more risk by the increased forecasting required to plan for two years rather than one at a time. Additionally, those counties providing a larger bundle of services will be exposed to more opportunities for punctuating events to occur. Therefore, counties utilizing biennial budgeting ought to have an increase in fund balance, and as the number of services increase, the amount of fund balance should also increase. My previous analysis of county governments revealed that the structure of the government was significant in a negative perspective: those counties with Commission Only governments did not have policies requiring reserves and therefore I would anticipate them to have a decreased fund balance comparatively to governments with an executive.

The conceptual model is represented as follows, including a lag of the expenditures and a dummy variable for revenue increasing in the previous year (1) or revenues staying the same or increasing in the previous year (0):

$$\begin{aligned}
 Y(\text{spendable fund balance})_{it} = & \beta_0 - \beta (\text{expend})_{it-1} + \\
 & \beta (\text{revenue increase})_{it-1} + \beta (\text{reserve required})_i - \\
 & \beta (\text{government form})_i + \beta X_{it} + \alpha(\text{county})_i + \lambda(\text{year})_t + \varepsilon_{it}
 \end{aligned} \tag{1}$$

i = counties (43 assumed), t= number of years (5 assumed),
X is the matrix of control variables

An increase in expenditures from the previous year should result in a decrease in the spendable fund balance. A revenue increase should increase the spendable fund balance. In the control variables, the presence of a reserve policy should increase the fund

balance, and the Commission Only form of government should decrease the fund balance because they had no policy to require reserves. The additional county factors captured as “X” include biennial budgeting and the services provided. Biennial budgeting is burdened with more risk in forecasting and planning for two years at a time rather than just one which would require additional reserves, or a positive impact to fund balance. The more services a county provides, the more risk associated with the county will increase. Therefore, it is anticipated that a county with more risk will have more reserves.

Results and Discussion

Utilizing the Prais-Winsten fixed effect model, four counties were omitted because of collinearity. The estimated model is represented as follows, including a lag of the expenditures and a dummy variable for revenue increasing in the previous year (1) or revenues staying the same or increasing in the previous year (0):

$$\begin{aligned}
 Y(\text{spendable fund balance})_{it} = & -1,238.846 + 148.09 (\ln \text{expend})_{it-1} - \\
 & 5.49 (\text{revenue increase})_{it-1} + 266.521 (\text{reserve required}) + \\
 & 175.439 (\text{gov form}) + 90.527 (\text{services}) - 568.663 (\text{biennial budget}) + \\
 & 0.778 (\text{socio-economic}) + \alpha(\text{county})_i + \lambda(\text{year})_t
 \end{aligned} \tag{2}$$

i = counties (43 assumed), t= number of years (5 assumed)

The full panel results are shown in Appendix C

Table 15 is a summary of the variables, the coefficients and significance. As was discussed in the methods section, due to the lack of a random sample, this data is provided for reference purposes as the tests of significance are not as important as a random sample result would be.

Table 15

Regression Summary

Variable	Prais-Winsten	
	Coeff	Std Err
Expenditure - Prior Year	148.091	17.367 **
Revenue - Increase (1)	-5.49	4.362
Reserve Policy - Yes (1)	266.521	35.361 **
Form of Gov't - Comm (1)	175.439	62.069 **
Biennial Budget - Yes (1)	-568.66	164.211 **
Services	90.527	29.705 **
<i>Socio-Economic</i>	0.778	14.781
N	213	
F	(49 , 163)	
	161.22	**
R-Squared	0.931	
Durbin-Watson - original	0.982	
Durbin-Watson - transformed	1.22	

The results show that for this data set, every one percent increase in per capita expenditures in the previous year will result in a corresponding increase in the spendable fund balance of \$1.48 per capita holding all other variables constant. The sign on this coefficient reveals that even as spending increases, so does the county reserves. Additionally, if the revenue increased from the previous year, the spendable fund balance decreased by \$5.49 per capita. This coefficient indicates that counties are spending in boom years rather than adding funds to the reserves. The revenue variable was not significant in the model and removing it from the model did not have an impact on the other key variables.

Both the expenditure and the revenue coefficients were opposite of the anticipated action of decreased fund balance with increased spending and saving in the good times with increased fund balance with increased revenues. Given the timing of the data samples, there could be a reactive and rebounding action going on with the counties. The data points to typical cyclical behavior in counties - spending more in the times of revenue growth and reducing spending in times of recession. This behavior would lead us to believe there are likely lists of maintenance or capital items that were deferred during the recession. Now, coming out of the recession, there is a desire to both address things that may have been neglected during the recession, hence a spend-down of the fund balance even though revenues are increasing, as well as proceeding with projects to address emerging needs. There may also be an offsetting action which recognizes the need for reserves in the future, such that even though expenditures may be increasing, there is an action to also ensure fund balances are being rebuilt. As the panel set expands with years of data, it will be interesting to observe whether these signs return to the anticipated signs over time.

The presence of a reserve policy was significant in the model and had the expected positive sign. If the county has a reserve policy, the fund balance is \$266.52 per capita more than a county without a reserve policy. In addition to the statistical significance of this finding, 58.41% of counties in the sample had a reserve policy. This is significant because it shows that counties are not simply creating a reserve policy for the sake of having a policy, but are acting upon that policy and having a positive impact on the fund balance. Because of the definition of fund balance used in this study which takes into account all liquid reserves, we cannot presume that the increase in fund balance is being set aside for the purposes indicated in the counties' reserve policy; however, the outcome of the model is compelling. This finding would be enhanced with standardized

methods of showing specific reserves rather than spendable fund balance, but remains intriguing.

The form of government produced results different than anticipated. Even though Commission Only forms of county government did not formalize reserve policies and procedures in public documents, the data indicates that a county with a Commission Only form of government has a \$175.44 per capita larger reserve than those counties with executives. The descriptive analysis presented earlier in the dissertation showed that Commission Only forms of government were utilized in counties which were diverse and of varying sizes and complexity. Perhaps this form of government also holds to more conservative fiscal philosophies even if they are not formalized and/or publicized. Another possibility is that there could be another characteristic which is masked by the form of government. Looking at the counties from another perspective or with a more elaborate data collection model may reveal an underlying element not revealed in this study.

The control variables showed a mixed result from expectations. The index representing the bundle of services had the expected positive sign and displays an increase in fund balance of \$90.53 per capita for every increase in service type taken on by the county compared to other counties and was statistically significant. Said differently and as an example, comparing two counties that are the same except that one provides three services in the index compared to the next county that provides four services, the four-service county would be expected to have a larger fund balance per capita of \$90.53. The Government Finance Officers Association (GFOA) issued a best practice/case study report based on Colorado Springs, Colorado regarding the purpose of the city's reserve and its recommended size (Kavanagh, 2013). This best practice has been utilized by counties as well as cities to help determine reserve position. Kavanagh

asserts that one of the elements to consider in determining fund balance is the exposure to risk but also regular operating expenditures and creating the ability to maintain operations. While not all services are equivalent in scope or cost, and the earlier research on counties only found little consistency among services provided, it follows logically and is supported by this model that the more services provided by a county, ought to result in an increase in fund balance.

The counties who have a biennial budget process had a smaller fund balance compared to those with an annual budget process of \$-568.66 per capita and was significant. The biennial budget sign is unexpected, but could actually indicate that those counties with a biennial budget are more likely to utilize their fund balance to maintain services than those without. The original expectation was that there was more risk in biennial budgeting and therefore a larger fund balance should exist. However, without delving into the full budget practices of these counties, it is plausible that the fund balance is built and reduced each year to meet the ongoing and unforeseen needs.

The socio-economic interactive term was insignificant in the model, with a coefficient indicating a one percent increase in the term resulted in an increase in the fund balance of \$.0078 per capita. Because this term not be significant statistically speaking or very large in value, it begs the question of how much of the socio-economic factors (unemployment, per capita income, etc.) are already captured in the county's revenue streams given that most of the counties had property taxes and sales taxes as a major source of revenue. The interactive term remained in the model for this round of research but may need to be evaluated with future studies.

Each of the variables in this model have expanded our knowledge regarding county fund balances, some expected, some not; however, each have provided valuable insight into the fiscal behavior of this level of government. Due to the selection of the

counties rather than a random sampling, the findings are not readily generalizable to the entire population of counties; yet they provide a good foundation for understanding county fiscal behavior and further research.

Conclusion and Future Research

The research question posed in this study revolved around whether counties were using their fund balance to continue services in times of revenue decline. If this behavior is true, we would anticipate fund balance to decrease when revenues decrease; or conversely, if revenues increase, then fund balance should also increase. The result of this study, however showed that counties were not increasing their fund balances when revenues were increasing; and in fact, as the revenue was increasing, the fund balance was decreasing. It is uncertain if this behavior is in reaction to the depth and breadth of the Great Recession of 2008, or if this behavior will continue through the next economic cycle. Conceivably, counties constrained expenditures during the recession and, having made slow but steady recovery, are now starting projects that were scheduled to commence during the recession. This behavior would account for the increase in revenues, but also the decrease in fund balance. Interesting and significant, however, is the action of increased expenditures having a positive impact on the fund balance. Does this indicate that county leaders are now concerned with growing their fund balance along with supporting their normal expenditures? The data at this point does not answer that question, but it is clear that the recorded behavior between FY2012-2016 does not follow the behavior of saving during boom years and spending during downturns.

The data did indicate that those counties with a requirement to have a reserve did have a larger fund balance. This result was expected and on the surface, appears to mimic similar findings on the state level. It took several years for the majority of the states to adopt stabilization funds. I would expect that the percentage of counties with a

specific reserve policy will increase over time. Additionally, as the adoption of stabilization funds increases, hopefully a standardization of reporting those funds will emerge to facilitate both scholarly research as well as benchmarking and best practices in the field.

Further research needs be conducted on those counties utilizing a biennial budgeting process. The use of fund balance in those counties compared to those with annual budgeting was significantly different than anticipated. Is the difference due to a willingness to use and availability of fund balances or the increased risk of the unknown when preparing and adopting a two-year budget? Likely another research method, such as case study, as well as additional time spent with the administrators in these counties to understand the philosophies and practices of biennial budgeting and the relationship to the reserves and perhaps budgeting contingencies will be required to unravel the unexpected result of this study.

Another area which requires additional information and research is the role of the political party either of the majority of the county commission or council, or the prevailing political party among voters in the county. The data from the National Association of Counties was only available on a little over half the counties and therefore was not utilized in this study. Because this fact was an important element in Hou's state studies, this begs the question of further county research to see if the data were available on all the counties, would the inclusion be significant with county level data?

As Hou unraveled the details on budget stabilization funds and policy, so this study has laid the foundation for continued studies of county fiscal behavior. There are many questions yet to be answered and as this panel data set grows over the years, more answers and more questions will surface. A more detailed and broader study of county fund balances is reserved for future work. As the country places more demands on local

governments for transparency and accessibility to data, more aspects of county government will also emerge, lending itself to further study.

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Pay-as-you-Go Capital Project Financing

Case Study of Maricopa County, Arizona

Abstract

Capital programs and major purchases are one purpose for fund balances and reserves. This case study analyzes the public administrators and Board of Supervisors at Maricopa County, Arizona, which could have utilized debt or taxation to fund their capital improvement program; but opted instead to use their cash reserves. The case examines how this county created and preserved the cash required for their capital improvement needs as well as looking at the political climate the county experienced. It also addresses one jurisdiction's approach to the equity question of paygo versus payuse. This case study will examine the three areas that have allowed Maricopa County to utilize cash for financing their capital projects: administrative methods of budgeting to create fund balance; technical means of preserving funds; and the political environment.

Introduction

The traditional study and practice of public budgeting and finance with respect to capital projects such as buildings, roads, and technology espouse that governments ought to tie payment for those items with their use or consumption. Additionally, leveraging debt and bonding are the typical mechanism for procuring funding for such items. There are some governments that are too small to have reasonable accessibility to debt, and must therefore utilize taxes (and perhaps tax increases) to cover the cost of their capital projects. The research question examined in this case study is two-fold. First, can a government with access to debt funding sources for capital improvements choose to utilize reserves rather than debt to pay for capital projects? Secondly, what processes and actors must be in place in order to accomplish the use of reserves for capital improvements? This case study provides a descriptive analysis of the non-traditional funding known as pay-as-you-go or paygo. The answer to the first part of the research questions is yes, a jurisdiction with access to traditional funding sources may and can select to utilize reserves to utilize paygo as a method for funding capital projects. Maricopa County was selected as the subject because it is a large local government which has access to debt and bonds, as well as the ability to increase taxes; however, it has made the conscious decision to create a cash base to fund its capital improvement program.

This case study is interesting on many levels; however, it is a particularly compelling argument for utilizing cash as the funding base for capital projects rather than debt or bonds and it challenges the notion of pay-as-you-use with paygo and a sense of leaving financial freedom to the generations to follow. In order to achieve this fiscal philosophy, Maricopa County had to implement mechanisms to create and sustain cash flows and reserves as well as disentangle itself from indebtedness already incurred. The

county leadership then embraced fiscally conservative values, maintained control over tax rates and utilized its general fund reserves to not only pay for capital programs, but also continue capital improvement projects during the Great Recession of 2008. This study will provide an overview of Maricopa County and then examine the three processes and actors that allowed Maricopa County to build and maintain a fund balance to utilize cash for their capital projects: 1) administrative methods of budgeting to create fund balance; 2) technical means of preserving funds; and 3) the political environment. Finally, lessons from this case study will be stated and questions for further research proposed.

Literature

Every local government has capital needs whether it is road construction, building construction, information technology infrastructure, police cars, fire trucks or airplanes. While each government's needs may be slightly unique, the funding of such items essentially funnels down to the same four choices for any government: increase revenues, increase debt, obtain grant funding from another agency or level of government, or fund from savings. Public financial management textbooks are filled with taxation (increase revenues) and debt (increase debt) material as those are the traditional, tried and true methods for resolving capital needs (Fisher 2007, Finkler 2010, Marlowe, Rivenbark & Vogt 2009, Mussell 2009, Mikesell 1991, Ramsey & Hackbart 1999). Grants are a prized treasure that governments seek with the hopes of obtaining the elusive funding that does not require repayment or a resource shift from another program and may not have an impact on expenditure limitations. Perhaps because few large governments practice it or because debt is so prevalent in current society, funding capital from savings is the option that receives the least attention in academic literature and textbooks compared to the other options.

Capital expenditures and capital projects carry several definitions in literature and practice. There are two components that typically help categorize an expense as capital or not: time and money. Capital expenditures have an element of longevity associated with them, usually several years (5 to 30 or more years) of useful life. From an accounting perspective, any expenditure over a value defined by the jurisdiction (typically \$1,000 or \$5,000 or \$10,000) is a capital expense. The focus of this study is on capital projects: construction and/or software implementations that carry large costs made up of various types of expenditures from an accounting point of view (personnel, supplies, services, and capital outlay). As an example, and for clarification: rather than considering the purchase of a firetruck, which qualifies as both expensive and a capital outlay with a long useful life, this study would focus on the capital project of building a fire station which will include land purchase, supplies, and personnel or contractors to construct.

Pay-as-you-go (paygo) funding has many definitions in academic literature. While they generally agree that paygo is the opposite of pay-as-you-use (payuse) or debt funding, there are differences in language that are significant. Mikesell (1991) uses the terminology “paying for a project out of current revenues at the time of the expenditure” (p. 174). Hou (2013) defines pay-go financing as “allocating general fund revenues for capital projects” (p. 248). Smith (1996) explains that paygo “means simply that capital works are paid for from the government’s current revenue base and that the municipality does not take the more usual approach of issuing bonds and then repaying the bonds over time” (p. 363). Finkler (2010) indicates that paygo means the full cost of the construction must be raised in one year, typically by raising taxes to meet the financial need. Marlowe, Rivenbark and Vogt (2009) explain that paygo “financing depends on the creation of capital reserves and the commitment of annual revenues, excess fund

balances or other sources to fund them” (p. 123). While all definitions are similar, the element of the timing of the raising of the funds to pay for the capital is described differently. Maricopa County operated with a definition closest to that of Marlowe, Rivenbark and Vogt’s definition, meaning having the cash, reserves or fund balance available to spend at the time a project is approved by the governing board, which is the definition that will be utilized in this essay.

A discussion of pay-as-you-go funding cannot by pass a look at the equity question: who should pay for items (capital projects) which create a benefit? In the paygo scenario, the taxpayers preceding or at the time of construction pay for the capital project which will provide a benefit for years to come. In this way, paygo creates a sort of endowment to future generations, creating an environment where the next generations have facilities and roads that they need without being encumbered with debt for those items. Conversely, in the payuse scenario, the immediate expense of the capital project is paid for with borrowed funds that are repaid by the taxpayers after construction at the time of use and over the life of the asset. The payuse method creates what is known as intergenerational equity which more closely ties the generation receiving the benefit of the assets (facilities, roads, etc.) with the generation that will pay for the construction of the assets.

Payuse has long been considered the standard practice for governmental financing of capital projects due to the ability to smooth out expenditures year over year as well as being able to tie the payment for a benefit with the recipients of the benefit (Justice & Miller 2011, Wang, Hou & Duncome 2007, Chung 2013, Fisher 2007, Finkler 2010, Marlowe, Rivenbark & Vogt 2009, Mussell 2009, Mikesell 1991, Ramsey & Hackbart 1999). Some jurisdictions, particularly those that are smaller, do not have ready access to the marketplace for bond issuance, and therefore find that paygo

provides the best solution for their constituents. Additionally, many jurisdictions provide for large capital projects with a combination of cash or reserves and debt (Marlowe, Rivenbark & Vogt 2009). Justice and Miller (2011) provide a reminder of a solid foundation for evaluating the proper method(s) by going back to the basic 4 E's of public administration: economy, efficiency, effectiveness and equity. The actors in the following case study considered the 4 E's of public administration and specifically the intergenerational equity issue. They determined the savings achieved through paygo and the flexibility to meet current needs outweighed the need to burden future tax payers with a payment for the benefits they received from capital projects completed. Their story also portrays a systematic method to savings such that no explicit tax burden was placed upon current taxpayers.

Methodology

In this case study, I have used one jurisdiction to illustrate how a county can utilize paygo to fund capital projects, exploring the processes and actors required to maintain paygo as a consistent method of funding. This case study is not intended to produce generalizable results which would require a larger and random sample. However, it is intended to describe the use of paygo in the context of a real organization with ordinary needs and constraints. The development of this case study followed traditional steps in gathering data from the organization, conducting analysis and following up with members of the organization to ensure the accuracy of the case (Yin 1981 and Noor 2008). Additionally, I am a participant observer in this case study which is more fully discussed below (Iacono, Brown & Holtham 2009, Guest, Namey & Mitchell 2013).

The study's data has been collected from Comprehensive Annual Financial Reports (CAFR) from Maricopa County representing Fiscal Years (FY) 1996 through

2015, as well as Annual Business Strategies reports (annual budget documentation) from FY 2000 through FY 2017 and publicly available presentations to Maricopa County leadership from the Office of Management and Budget as well as their economists. These artifacts provided data regarding general fund revenues, expenditures, reserves, capital projects as well as documentation regarding the methodology and reasoning behind actions that were taken. Policy documentation was also available in the budget books, which enforced the narrative documentation. While budget documentation is provided to the county leadership and the public without an external guarantee of accuracy, the CAFR statements are audited and declared accurate by a reputable, external auditing agency. Most numerical data and fund balance data came from the CAFRs, the budget documentation provided more narrative and detail regarding budgeted and reserved dollars than the CAFR.

My role in the case study is as a participant observer. I worked in Maricopa County's Office of Management and Budget as a budget analyst, supervisor and as a strategic planning administrator between November 2006 through March 2017. One of my areas of responsibility was the capital improvement program, which has enhanced my ability to find and interpret publicly available data regarding the county's budget and financial statements. This case study is specifically focused on facts, documented reasoning and policies. While I have been exposed to a variety of opinions about the county's practices and philosophies, this case study's intent is to bring to light Maricopa County's actions and philosophies, without judgement or opinion, because the facts alone provide insight into an unorthodox method of capital spending in government. Statements in public documents and presentations share some insight into the opinions of the actors in the case study, however, the intention of the case study is not to say that paygo is good or bad; merely that Maricopa County has utilized this funding method and

to expound upon some of the environment and methods that allowed them to be successful in this funding method over time. In exploring the methods of how the county used paygo, my role as participant was helpful in determining the methods, but the role of observer was used to document the actions and build the case study. As a participant, I was an employee and an actor in the budget office which provided an understanding to the Maricopa County story and processes. I was not in a position to influence or change the decisions Maricopa County made with regard to capital funding, which simplified my participant observer role.

My work on this research was made known to the Budget Director and Deputy County Manager, who shared the information with the appropriate people. I had two Maricopa County employees, one from the budget office and one from the policy group, read the initial case study to ensure the overall facts and perspectives were accurate. The budget office reader was selected because of her general knowledge of the county, its methods, and familiarity with the data, policies and processes. The policy group reader was selected because of his ability to distill situations down to the facts and present facts of a situation without opinion or emotion. The use of the documents as the source of data and the independent reviewers were intended to reduce bias that I might introduce as a participant observer.

Overview of Maricopa County

Maricopa County is the 14th largest county in the United States by area covering 9,225 square miles, which is larger than seven states. Phoenix, the state's largest city, is the county seat and the state capital. In 1980, only 624 square miles of the county (6.8% of county land) were incorporated within city boundaries (Maricopa County, 1981). This area of incorporation nearly quadrupled by 2015 to 2,148 square miles (23.3%), which reduced the county's obligation to provide certain services to those residents directly, but

is also indicative of the population and housing growth that occurred within the county as a whole (Maricopa County, 2015c). The county provides services to both incorporated and unincorporated residents in the county boundaries. Many city services were provided by the county via intergovernmental agreements during these years of intense growth. The county partnered with city governments in meeting the needs of the residents such as through the creation and transition of library services from the county to the cities. The intense growth also impacted the services that the county alone provides such as permitting for grocery stores and restaurants for food safety, as well as permitting for gas station, dry cleaners and construction for air quality.

The development within the unincorporated area of Maricopa County increased similarly to the incorporated areas causing the demand for services from the county to increase substantially alongside the other cities and towns within the county. According to the United States Census Bureau the county only had a population of 2.1 million in 1990. This grew to 3.1 million in 2000, cresting at 4.0 million in 2009 before decreasing in 2010. The county had approximately 4.0 million people in 2015, making it the fourth largest county by population in the United States and it holds approximately 61% of the state's population.

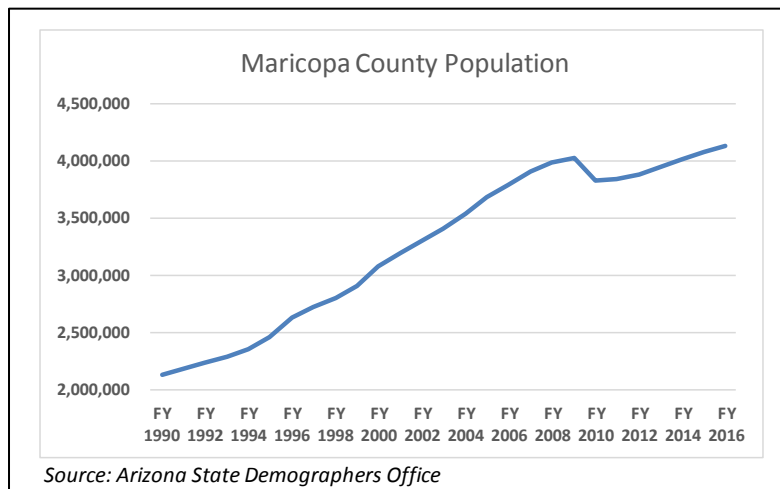


Figure 2. Maricopa County Population

The expenditure budget of the county has grown as one might anticipate with the population growth. The CAFR for Fiscal Year (FY) 1996 reported the general fund expenditure budget at just over half a million dollars. In FY 2017, the County Government budgeted for over 14,200 regular positions, had an operating expenditure budget of \$1.8 billion and a total expenditures budget of \$2.3 billion, which includes the FY 2017 expenditure portion of non-recurring and capital project budgets. The general fund operating expenditure budget for FY 2017 was \$1.3 billion, increasing to \$1.4 billion including non-recurring expenditures (Maricopa County 2016).

Expenditure and Revenue Limitations

The revenue and expenditure limitations in Arizona are areas of budgeting and financial management that plays a key role in the processes of budgeting for Maricopa County. The State of Arizona enacted expenditure and tax limitation laws in the 1980s through voter approved constitutional changes which continue to rule local government revenue and expenditures across the state. The premise for both are ensuring the government does not increase taxes, fees or fines simply to increase spending. On the

expenditure side, the Arizona Constitution Article 9, Section 20 outlines the constraint. The base of the expenditure limitation calculation is the FY 1980 actual expenditures adjusted for changes in population, inflation (as measured by the Gross Domestic Product Price Deflator) and voter or legislative approved adjustments. Exceptions to the expenditure limitation include expenditures that are from grant revenue sources, payments to other governments and debt (Maricopa County 2016). In Arizona, the need to increase expenditures has an assumed tie to the Gross Domestic Product Price Deflator, population changes and inflation. The use of fee revenue is included in the expenditure limitation, which is important to recognize in a growing state because agencies that collect fees to fund the services they provide, such as planning and zoning or restaurant permitting and inspecting, which may have increased demand for services prior to the reported population influencing a change in the expenditure limitation. Simply having the revenue or fund balance available does not mean that the government has the authority or capacity to spend it because of the expenditure limitation constraints. Therefore, planning for the expenditure limitation is a primary concern for county leadership, especially in a county that has experienced tremendous growth in recent history or is anticipating growth.

The expenditure limitation excludes certain uses of funds, with debt being of primary interest for this case study. Payments on debt are excluded from the expenditure limitation as are the expenditures from the proceeds of that debt. Maricopa County's paygo philosophy is truly a modified paygo approach as it utilized various debt instruments (primarily certificates of participation) to control expenditures for the expenditure limitation computation, but they have always set aside the cash to fully pay the debt as soon as it made fiscal sense to dissolve the debt. The determination to dissolve the debt depends on many factors including the impact to the expenditure

limitation, the cost of the debt (how much is being paid in interest) as well as the interest income earned on the cash set aside to repay the debt. If the interest being earned on the savings is significantly higher than the interest being paid on the debt, it may make sense to retain the debt until the debt term concludes rather than paying it off early; assuming there are no other determining factors from the expenditure limitation perspective.

The revenue limitation is also set in the Arizona Constitution and is found in Article 9, Section 19 which states the property taxes levied may not increase by more than two percent in a year. A property tax levy is the dollar value owed by a property owner and is calculated as the tax rate times the property value. The county aggregates all the property tax levies to determine if the levy will meet the constitutional requirements rather than considering the property tax levied on each property individually. The property tax rate is set by the Board of Supervisors, and the value of the properties is determined by the County Assessor. In Maricopa County, property taxes are based on property values that are two years in arrears such that taxes paid this year are based on the property's value two years ago. An important exclusion in the constitution is that tax levies may grow unrestrained by the value of new property or property improvements. This is an important exclusion for a fast-growing county like Maricopa County because the housing and commercial development which accompanies the population growth can increase the property tax levy without any constraints, allowing substantial revenue growth without an increase in property tax rates.

The expenditure and revenue limitations are important to this case study because the expenditure limitation constrains expenditures. The revenue limitation provided a mechanism for the county to obtain revenue to compensate for the growth in population. However, utilizing paygo and experiencing growth in expenditure to provide services to a growing community created tension that needed to be reconciled. The expenditure

limitation provides exclusions from the limit for debt payments which would be a reason for Maricopa County to simply utilize debt and bonds rather than paygo. This reason is in part why the county adopted a modified paygo approach in which they had sufficient reserves to pay for the capital projects with cash, but used short term debt in order to best negotiate the constraints of the expenditure limitation.

Maricopa County's Financial History

During the early 1990s Maricopa County reached a fiscal low. The FY 2001-02 CAFR included a ten-year history of fund balances (p. 235) which was combined with CAFR data through FY 2015. The General Fund information is found in Table 16 and shows Maricopa County had a negative fund balance at the end of 1993. The small recession of 1991-92 was not to blame for the fiscal woes, rather, management and fiscal practices had led the county to a having a negative general fund balance. Fitch, the bond rating firm, published their findings on Maricopa County's financial situation indicating that the downward trend started around 1990 and continued sliding due poor financial and budget policies, ineffective and misleading communications and reports as well as some business practices that caused concern and questioning (Chard & Fusaro, 2014).

Table 16

Maricopa County Fund Balance History

Fiscal Year	General Fund Ending Fund Balance
1993	(4,330,990)
1994	11,197,676
1995	21,519,184
1996	60,884,599
1997	81,520,328
1998	119,759,685
1999	145,038,481
2000	160,804,655
2001	161,202,389
2002	254,122,264
2003	292,657,135
2004	318,305,892
2005	431,277,454
2006	565,179,124
2007	471,467,578
2008	533,590,840
2009	430,965,221
2010	509,523,800
2011	429,402,403
2012	302,935,091
2013	277,830,627
2014	140,973,059
2015	116,401,095

The result of these years of mismanagement left the county with depleted reserves.

Although the precise General Fund ending balances prior to 1993 could not be located in publicly available documents, the result of the reserve depletion of the early 1990s was an ending 1993 fund balance of over negative \$4million.

A new county manager, David Smith, started in 1994 precisely because of his known abilities to make a financial turnaround in organizations. He was recognized less than a decade later as one of the best county managers in the nation by *Governing* magazine. In *Governing*'s article about him, they described Maricopa's low point as follows: "Arizona's largest county was \$65 million in the red and could scarcely be said

even to possess a budget – individual departments mostly just spent what they felt like spending” (Walters 2001). Once hired as the County Manager, Mr. Smith quickly began preaching the importance of fiscal responsibility and the value of budgeting and the integrity of a budget. Many policies were developed over the course of the next few years. These policies laid the foundation that created and enabled the county’s paygo philosophy to become a practical and preferred way of conducting business. The impact of sound financial policies, expenditure reductions and good budgeting are evident in Table 16 which displays the ending General Fund balance from 1993 through the remainder of the 1990s when Maricopa County was restoring fiscal order in the organization.

Table 16 not only displays the dismal state of county funds in 1993, but also shows the accumulation of sufficient fund balances to begin utilizing a modified pay-as-you-go financial policy. The FY 2000 Annual Business Strategies (Maricopa County’s annual budget book) presents the change of strategy toward saving for capital and reducing the tax rate. Mr. Smith discussed the move to the paygo strategy in his budget transmittal letter which announced to the Board of Supervisors that the tax rate reduction planned was a direct result of debt retirement. Additionally, the Board could anticipate further tax rate reductions as the general obligation debt was retired over the following five years. The FY 2000 budget also set the policy for primarily utilizing cash for several capital projects including detention facilities, medical and administrative buildings and courts totaling \$890.8 million over a five-year period. The transmittal letter goes on to justify the use of cash by estimating a cost savings of \$311.1 million of tax payer funds on the projects proposed in that year’s budget (Maricopa County 1999a).

As predicted by Mr. Smith in 1999, the last general obligation bond was paid off in 2004. Since that time, Maricopa County has not issued general obligation debt. It

does, however, utilize debt instruments when it makes financial sense. The county has utilized Lease Revenue Bonds and Certificates of Participation when borrowing interest rates are low and investment returns are high, or when required to mitigate the expenditure limitation. However, the county has the cash in its reserves to liquidate the debt when it is financially appropriate to do so (Maricopa County, 2012a). This overview of Maricopa County sets the stage for an examination of the three areas required to build and maintain the paygo capital strategy: administrative practices, technical mechanisms and political environment.

Administratively Creating a Fund Balance

Three practices have allowed Maricopa County to administratively build sufficient cash reserves to fuel their modified paygo approach to capital projects: 1) development of a revenue forecast which then constrains the expenditure budget creation; 2) conservative revenue forecasting; and 3) use of operating and non-recurring contingencies annually.

There are two starting points when building a budget: the estimation of revenue availability or the estimation of expenditure needs. Depending on the government's environment and laws, one method may be preferable to the other. In a relatively stable environment without large changes in volume of service delivery or in revenue streams, determining a government's resource usage first may be most appropriate. In this case, a county can determine what their expenditure needs are for the current and upcoming year and then find the resources to fund those needs. Often county governments have been granted authority to adjust property tax rates to accommodate the resource needs. There are also many tools in a government's budgeting toolbox to show revenue on paper or delay expenditures to fill the gap created by a resource gap.

On the other hand, the county can determine their expected revenue for the current and upcoming period and constrain spending to that level. This is a particularly useful method in situations where the county experiences high volatility in revenue expectations, or if the political or legal climate does not allow for ease in revenue increases.

Maricopa County utilizes the second method of budget development: estimating the revenue for the current and upcoming year which then established the limit for expenditures. This methodology was started as part of the enactment of sound financial and budgeting policies during the late 1990s. Additionally, consideration is given to those cost increases that are non-negotiable, such as increased costs for retirement contributions or mandated increased payments to the state. The estimated recurring revenue less the expected recurring cost increases determine the budget availability for operating expenditures. If revenue estimations remain consistent and the expected cost increases are minimal, then there is an expectation for flat expenditures and budgets in the upcoming year. Maricopa County's revenue sources for the general fund are primarily from property and sales taxes. Table 17 outlines all of the operating revenues by source type for FY 2017. Property taxes and state shared sales taxes comprised 40.5% and 41.3% of the total sources of revenue budgeted respectively (Maricopa County 2016).

Table 17

FY 2017 Maricopa County Operating Revenue Distribution

Revenue Source	Revenue	Percentage of Revenue
Property Taxes	507,667,062	40.5%
Licenses and Permits	2,329,936	0.2%
Payments in Lieu of Taxes	13,659,917	1.1%
State Shared Sales Tax	516,863,039	41.3%
State Shared Vehicle License Tax	149,955,458	12.0%
Other Charges for Services	26,108,202	2.1%
Intergovernmental	21,017,637	1.7%
Fines and Forfeits	10,372,054	0.8%
Interest Earnings	2,400,000	0.2%
Miscellaneous	2,504,000	0.2%
Total Operating Revenue	1,252,877,305	

Maricopa County has also utilized a conservative approach to revenue forecasting, the second practice of administratively creating a fund balance. During the budget development process, the Board of Supervisors for Maricopa County set the rules of engagement for the budget preparation cycle. These budget guidelines are formally adopted at a public meeting and include guidance on how the property tax revenue should be budgeted, any acceptable changes to departmental budget targets (baseline budgets), major items of change and how requests for new funding are to be handled. Prior to the adoption of these guidelines, the Board is usually briefed by an economist about the condition of both the national and local economy, and also providing forecast data on property values, sales tax revenue, vehicle tax license revenue, and highway user fund revenue. Additionally, county staff provide information on their own revenue forecast and expected expenditure increases that cannot be negotiated. The emphasis on setting revenue expectations from the beginning is consistent and is directed through the Budgeting for Results Accountability Policy which explicitly directs departments to

adjust expenditures if revenues are anticipated to be less than budget (Maricopa County 2001a).

Staff rely upon professional economists' forecasts to build the revenue expectations for the upcoming budget year. They provide three variations of the forecast: optimistic, pessimistic and most likely scenarios. In accordance with the conservative philosophy of the Board of Supervisors, the pessimistic or sometimes below the pessimistic forecast is utilized by the budget office to develop revenue expectations for the current and upcoming year. In the FY 2013 Annual Business Strategies, the County Manager expounded on the revenue outlook process, "Maricopa County has a philosophy of budgeting revenues very conservatively. This approach has allowed us to maintain fiscal stability, structurally balance the budget, and fund new capital and technology without incurring debt" (p. 4).

The policies and conservative philosophies were not merely documents sitting on a shelf. An example of how the county actively embraced and put those policies into action occurred on October 14, 2008, in a FY 2009 Budget Status presentation to the Board of Supervisors. Staff presented data indicating that the revenue was falling short of the pessimistic projection of the economist for the third year in a row (p. 13) and expectations for meeting the below pessimistic revenue forecast was bleak. This particular presentation was given in response to declining revenues at the beginning of the Great Recession and serves as another indicator that Maricopa County utilized the revenue forecast to constrain expenditures throughout the year. The presentation concludes with these two bullet points:

"We need to make structural changes NOW

Budget Reduction Recommendations will be coming in November" (p. 21)

The County took action to reduce expenditures mid-year to accommodate a forecasted shortfall in revenue in the same year. They constrained the next year's expenditures by the expected depressed revenues for FY 2010. During the Great Recession, this method allowed the County to meet revenue budget expectations. In the years preceding the recession, when the Phoenix metropolitan area's population was expanding, maintaining a pessimistic revenue budget allowed for growth in fund balance.

The third administrative mechanism employed by Maricopa County was the inclusion and increased value of budgeted contingency expenditures on both the operating and non-recurring sides of the budget. The purpose of the contingency budget is to provide for unexpected needs, mandates and other expenditures which may arise through the year. An operating contingency item may be an amount set aside for a pay for performance increase for general funded employees or the estimated utility and operating costs of a building set to be opened in the upcoming fiscal year. A non-recurring contingency item example is amounts set aside to handle a one-time significant increase in number of assessment appeals in a given year. The political landscape of the county, which is discussed in more depth later in this article, includes the relationship Maricopa County has with the State of Arizona. The county is a subsidiary of the state and does not have a charter, therefore the county provides services at the will and direction of the state. It is not unusual for the state budget to include a shift of responsibilities to the county or require additional payments from the county to the state, a practice which was popular throughout the Great Recession. It is also not unusual for Maricopa County's budget to be approved by the Board of Supervisors prior to the Legislature's and Governor's final approval of the State budget even though they share the same fiscal year. The contingency budget allowed the Board of Supervisors the

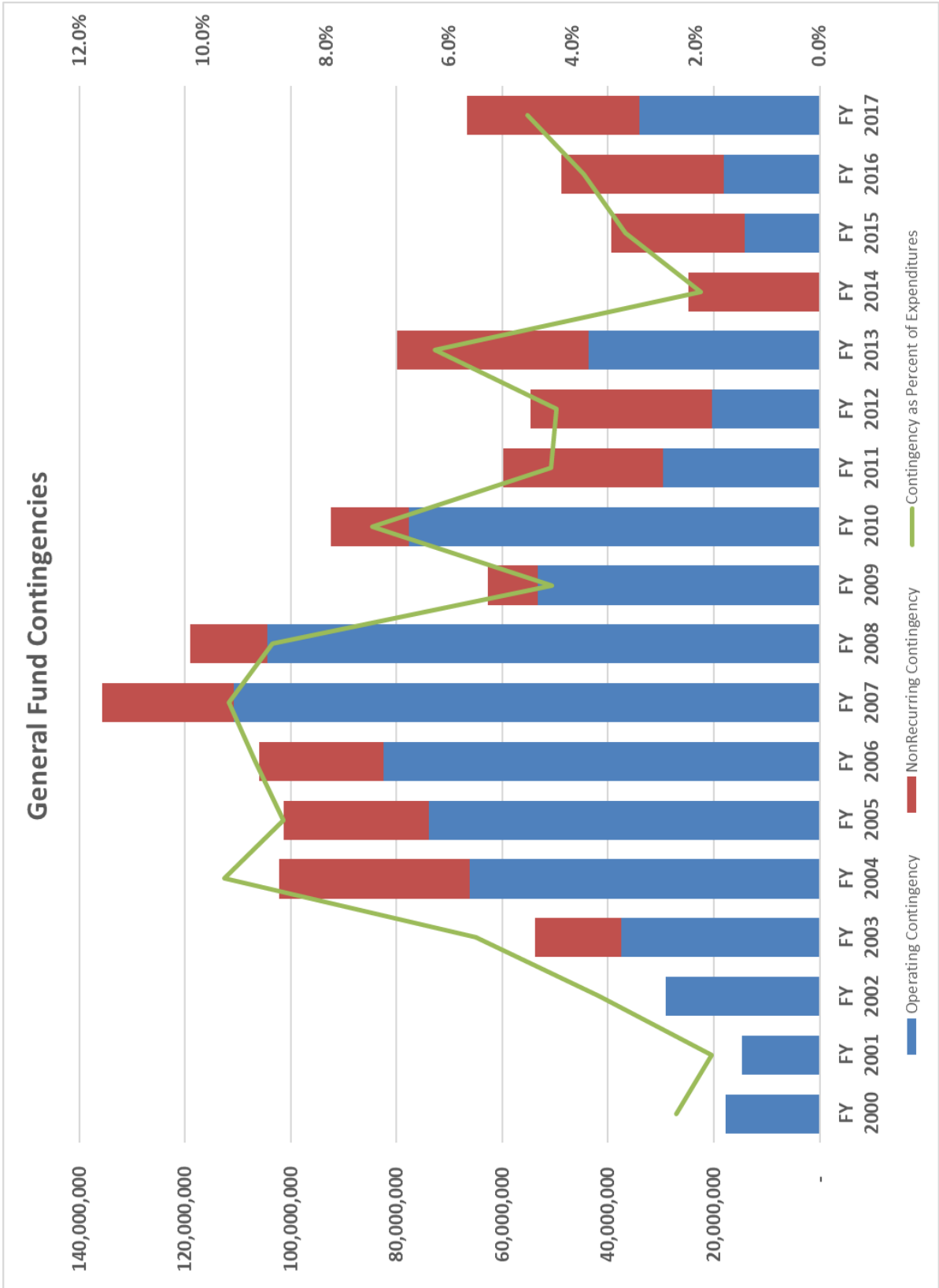


Figure 3. General Fund Contingencies

freedom to handle these shifts without needing to reduce the budgets of departments mid-year, as well as address other issues that may arise throughout the year.

The contingency (reserved and unreserved) history from 2000 to 2013 is compared in Figure 3 and shows that the longer Maricopa County utilized contingencies in the annual budgeting process, the greater the contingency values became through FY 2008. The mean operating contingency amount for this period was \$54.4 million, with the non-recurring contingency mean of \$24.3 million. Additionally, the total contingency budget (operating and non-operating) compared to the total expenditure budget increased during the same period, but remained high in the recession timeframe compared to the budgeting of contingency in FY 2000, averaging just over six percent from FY 2000 to FY 2013. During the Great Recession of 2008 which impacted Arizona heavily from 2008 through 2010, the budgeted operating contingencies were not eliminated but, were reduced to provide budget dollars for departments to reduce the impacts of the recession of them.

Maricopa County embraced the three administrative principles described above to build and sustain a paygo capital program. The first is the determination of expected revenues which then capped the budgeted expenditures each fiscal year. Second, a conservative revenue estimation philosophy was used, which ensured the County would meet, and likely exceed, its revenue budget. Last, the inclusion of a contingency budget in the general fund provided flexibility to adapt to the ever-changing climate of local government as well as providing a mechanism to ensure expenditure savings each fiscal year. Through a combination of these techniques, Maricopa County systematically developed a fund balance which could be mobilized to fund capital projects with cash. Once the fund balance was built and the mechanism to continue to produce an inflow of

funds over time was in place, Maricopa County needed a way to preserve fund balance and restrain the outflow of funds.

Technical Means of Preserving a Fund Balance

Maricopa County has a handful of technical processes that ensure the preservation of the fund balance until a capital project is ready for approval. The main processes include: 1) limited carry-forward of operating (or recurring) savings and non-recurring, non-capital projects funds; 2) fund transfers from the general fund to capital funds; and 3) use of multi-year budgeting and forecasting to track and preserve funding. Maricopa County prepares an annual budget for all departments which includes the operating budget as well as any non-recurring, non-capital project budgets. Non-recurring, non-capital project budgets may include the procurement of vehicles, software, servers, pilot programs or other one-time events. Although the general fund budget is prepared conservatively, most general funded departments end the fiscal year in a positive budget-to-actual variance, meaning the general fund as a whole has spent less than was budgeted for the year. Figure 4 depicts the actual expenditures and the expenditure savings (budgeted expenditures minus the actual expenditures), as well as the percent of the expenditure budget the savings represents from FY 1996 to FY 2013. Over this 18-year period, the Maricopa County expenditure savings mean was 13.2% with a low point of 2.2% (FY 1996) and the high point of 25.2% (FY 2010).

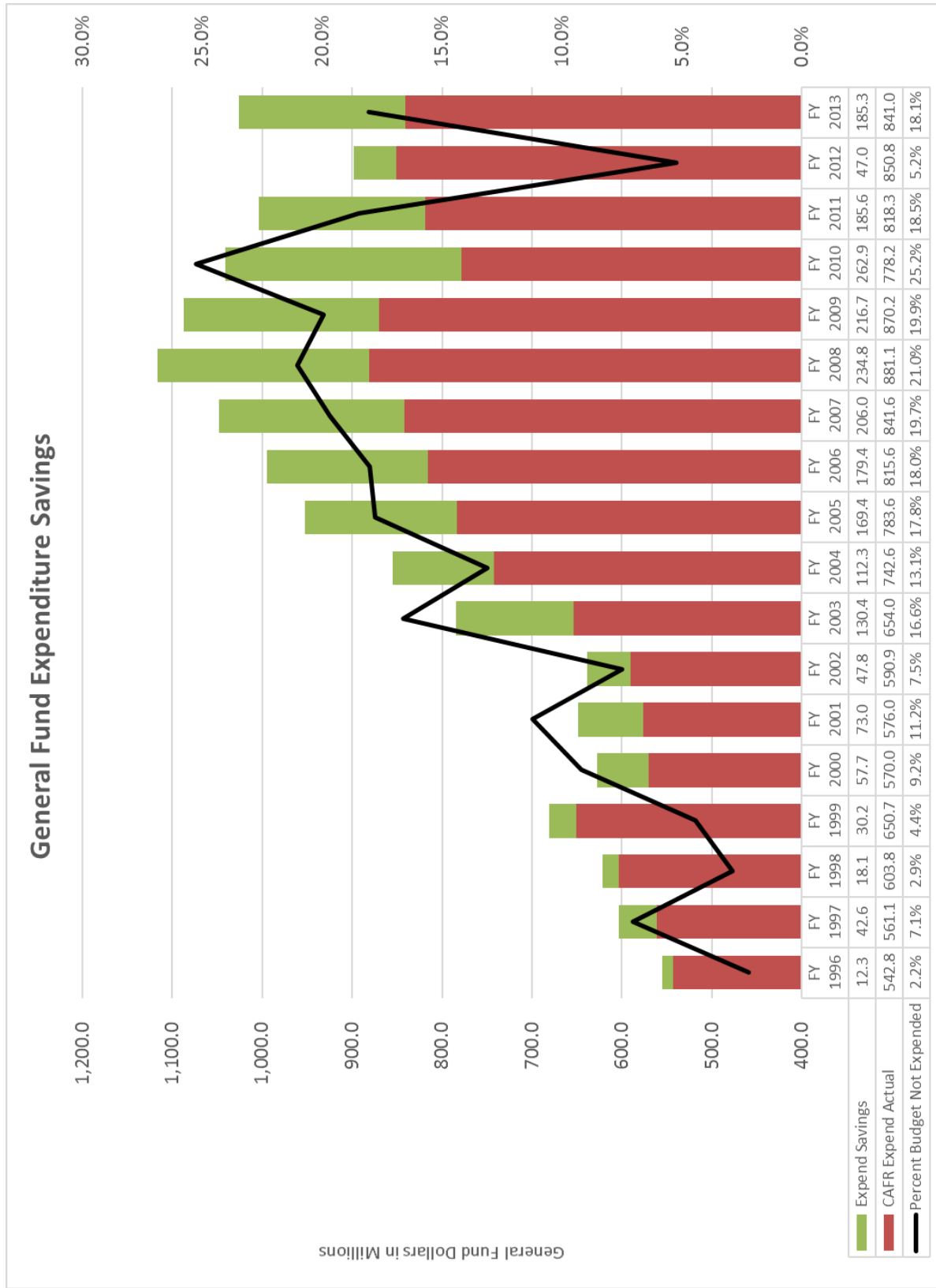


Figure 4. General Fund Expenditure Savings

Most of the county's savings came from one department (named either General Government or Non Departmental depending on the year) which is managed by the Office of Management and Budget and contains the budget for central costs such as facility major maintenance items, annual software maintenance costs, and general fund financed vehicle replacements. It also contains the contingency budget which was discussed in the previous section. The contingency savings (portion of the contingency not utilized in a fiscal year) contributed significantly to the overall general fund expenditure savings. Figure 5 depicts the expenditure savings that the General Government Department realized as a percent of the total county expenditure savings.

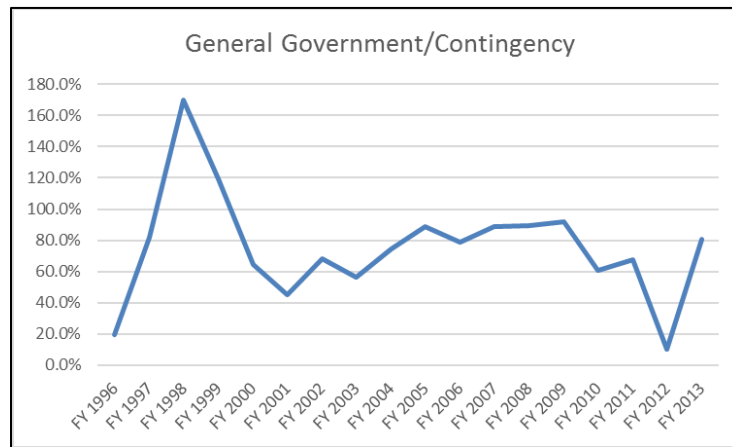


Figure 5. General Government Contingency Budgeting

This department had greater savings than the entire county in FY 1998 and FY 1999 which offset a couple of departments which experienced extreme over budget variances in those same years. Between FY 2000 and FY 2011 the average expenditure savings in the General Government department was 72.9%. When a department's operating budget has a positive variance (realized savings), it is recognized as an increase to the general fund balance for the county as a whole. The department realizing the savings does not have a claim to that savings. The savings is considered a pickup for the general fund and is aggregated and made a part of the general fund savings for Maricopa County.

Like most governments, Maricopa County encountered requests from departments for additional funding from year to year. During each budget cycle, requests for additional funding are considered in accordance with the Board of Supervisors' Budget Guidelines and the County's Budgeting for Results Policy. In the midst of the Great Recession of 2008, preparing for the FY 2010 budget, the Board of Supervisors adopted the budget guidelines directing a continuance of structural balance, budget reduction plans and cost absorptions, as well as indicating no new capital projects or increases to current projects (Maricopa County 2009b). Three years later, in preparation for the FY 2013 budget, the guidelines contained similar direction, noting specifically that requests for additional funding would not be considered (Maricopa County 2012b). Even though the county was successfully controlling budgeted expenditures; the departments were directed to develop budgets without the opportunity to utilize fund balance resources for projects. In years where operational or non-recurring increases were allowed to be requested, the requests had to be accompanied by a sensible, data driven business case explaining what would be accomplished and what result the residents of Maricopa County would experience because of the use of funds.

While non-recurring non-capital project budgets were not carried over from year to year, there were some exceptions. Budgets for non-recurring non-capital projects that are forecasted to be under budget at year end and are not going to be completed may request the fiscal year savings be carried forward to the next fiscal year for completion of the project. An example of this situation would be when a department utilizes non-recurring funding to convert records from paper to digital records that may require more than one year to complete. The carry forward is not guaranteed for non-recurring projects, however the need to complete a project already started is the beginning of a good business case to carry forward any projected savings to complete the project.

Typically, the extension of funding for a project like this did not have a negative impact on the building of funds for capital projects because even though the time frame was extended, the costs were already planned to be spent from a budget office perspective.

Even though Maricopa County utilized a cash base to fund capital projects and had a method of sustaining a substantial cash reserve, not all requested projects were funded. One documented example is in the FY 2008 budget book, which shows two new Justice Centers/Courts on the capital projects tables, however in FY 2009, one of them is no longer present, even though it was supposed to have started in FY 2008. The inclusion and exclusion of capital projects is dependent upon a number of factors including political and administrative priorities, time to project completion, cost of the project and available reserves to fund the project.

Through the use of budget guidelines and rigorous analysis, Maricopa County has been able to limit the use of annual operational savings and fund balances for projects or departmental use that was not in accordance with the county's vision. This is one of the ways in which the county was able to prevent the draining of fund balances. Another method of preserving the fund balance is to transfer the available balance to capital funds, thus moving it out of the general fund.

As was discussed earlier, the first step of the budgeting process for the next fiscal year involves a forecast of the ending position of the current fiscal year, which includes an estimate of both the revenues and expenditures for the general fund. The current year forecast and the extended forecast (five years) provide the framework for the development of budget guidelines and priorities for the budget development cycle (Maricopa County 2013a). Included in the current year forecast are the realized savings and realized revenues in excess of budget from the prior year. Reserves for capital projects, budget shortfalls and cash flow are maintained in the capital funds, allowing

the general fund to represent the typical operating and non-recurring requirements for the general fund. The county, in cooperation with Arizona Tax Research Association, requires the general fund's fund balance at the end of the adopted budget process to be zero. The increase to the general fund's fund balance based on anticipated revenue and expenditures in the current fiscal year, combined with next fiscal year's revenue, operating expenditures and non-recurring expenditures are balanced with transfers to the General Fund Capital Improvement Fund and the Technology Capital Fund and must net to zero. Table 18 outlines the adopted budget's plan for fund transfers out of the general fund and into the capital funds for FY 2009 through FY 2013.

Table 18

Fund Transfers from the General Fund to the Capital Funds

FY 2009	\$ 177,840,504
FY 2010	61,299,990
FY 2011	194,620,837
FY 2012	75,153,351
FY 2013	66,097,004

The multi-year forecast provides insight into the ability of the County to meet future expected obligations given basic economic trending as well as taking into account the funding required to complete capital projects. The County explicitly states in several annual budget documents that the forecast does not assume any policy changes that might be adopted in the future nor any revenues that are not already approved. The Executive Summary for the Forecast in the FY 2012 Annual Business Strategies explains that the County considers the multi-year forecast vital to maintaining a sustainable budget. It is used to estimate not only operational increases and decreases, but anticipated changes in revenues and other economic trends expected to impact the county's financial condition. The multi-year forecast is done on three funds: the general fund, detention fund and transportation fund, which are the three major funds for the

County. This multi-year forecast is particularly important because it helps determine how much revenue will likely be available to meet expected expenditures over a five-year horizon, as well as providing a forecasted value for the amount of funds that may be expected to be transferred to the capital projects funds as was just described above. As one might anticipate, the discussion of which capital projects should be planned for in creating fund balances as well as which projects move off the list of projects to be budgeted are iterative and change often with local government. The multi-year forecasts which are produced in the annual budget documentation are produced based on indexes and economic predictions on line items within the budget at a high level. For example, the economist under contract with the county will provide expectations on the increase or decrease in the variety of taxes collected by the county. Predictions about the changes in health care costs are utilized along with other inflationary factors that would impact the expenditure budgets of the county. Therefore, in addition to the value of predicting the upcoming five-year revenue and expenditures, the budget staff also predicts potential savings that can be utilized for capital projects, although these predictions are not specifically published. The most likely revenue budget compared to actual forecasting was not available for this case study, however as a participant observer, I can say the analysis is done to determine which projects can realistically be funded and what changes to contingency or tax rates or expenditures may be required to fund other projects.

The capital projects associated with the general fund are primarily budgeted in two separate funds, one for technology (Technology Capital Improvement Fund) and one for traditional buildings and capital expenditures (General Fund Capital Improvement Fund). The budget development for the capital projects process utilizes a five-year capital program approach to budgeting. The entire scope of the project is planned out

through budget development processes showing budget requirements for the upcoming fiscal year as well as the next four. The paygo philosophy manifests itself in that all the cash necessary to fully fund each of the proposed projects is contained in that fund. The general fund's traditional capital fund includes a project reserve which includes the cash necessary to repay any debt instruments and funding available for future projects. There may be projects identified that would require immediate funding. In this case, project reserve is budgeted in that fiscal year. The remainder is typically budgeted in the last year of the five-year plan.

Maricopa County has utilized a coordinated effort to technically maintain, track and preserve fund balance available for capital projects through a conservative approach to carry-forward funding requests and use of savings, moving cash to designated capital funds and the use of a five-year forecast and a multi-year capital project budgeting system. These are important techniques used by administrators, however, the political environment provides the authority and power for the continuity of paygo practices at Maricopa County.

Political Environment

Public administrators with training and knowledge in the areas of budget and financial management can create administrative techniques and technical methods for creating and maintaining a cash reserve sufficient to sustain a paygo process of capital funding. However, in order to put such techniques and methods into action, it is the group of elected officials which establish the philosophy and provide the direction to carry out such processes that must embrace paygo in order for its use to be realized. Stability in the political environment and actors as well as a conservative nature of the elected officials are required in order to establish and maintain paygo.

The Maricopa County Board of Supervisors and county management experienced tremendous stability for years. In Maricopa County, the five-member Board of Supervisors are elected every four years, in the same year (no staggered terms). The Annual Business Strategies and Consolidated Annual Financial Reports depict the leadership in each fiscal year. For five years starting in FY 1998 all Supervisors and the County Manager were the same. In 2003, one Supervisor changed and this group of five Supervisors and the County Manager were the same until FY 2013 when the County Manager retired. As was stated in the overview of Maricopa County, the County Manager joined Maricopa County in 1994 and retired in 2012 providing a stabilizing force for nearly two decades. The leadership of Maricopa County had endured both good and difficult times together and had substantial tenure and trust between the elected officials and county administrators. This stability allowed for a political environment that created the financial philosophy discussed above and allowed them to maintain the philosophy and practices for a number of years.

The Supervisors that were elected shortly after the financial tribulations in the early 1990s were determined to set a course that would ensure Maricopa County would never be in the same miserable fiscal condition again. The Republican-majority Board supported fiscally conservative budgets and policies. The Board members believed that the paygo philosophy not only kept Maricopa County financially healthy, but that ultimately this form of budgeting and financing saved the taxpayers money in the short and long term through the avoidance of interest and debt issuance costs (Maricopa County 2005a). During the FY 2012 Recommended Budget presentation, the county acknowledged over \$76 million in tax dollar savings due to the modified paygo philosophy rather than utilizing traditional financing or bonding for capital projects. Additionally, the long-term debt per person was presented as \$85 per person compared

to ten other counties ranging from \$343 per person in Orange County, California to \$1,352 in Clark County, Nevada.

The Board of Supervisors acknowledged that the paygo financing practice placed the funding burden on current tax payers who may or may not benefit from the capital asset procured rather than shifting the burden through bond financing to the beneficiaries of the asset. The benefits of the conservative approach to revenues and expenditures, and the avoidance of additional financial strain and costs from financing, have outweighed this potential downside to paygo financing. Additionally, having been the recipient of the financial burden of their predecessors, the Supervisors chose to leave an endowment rather than a debt for their successors. Through the risk-averse method of using the worst-case scenario in forecasting and establishing revenue expectations, the county was able to generate savings each year, which generated the reserves for capital. In this respect, the Board of Supervisors established a win-win scenario, running on a small risk that the revenue planned would not materialize and not incurring debt to fund projects. The Board kept a watchful eye on the ability of the organization to meet mandated services and deal with emergent issues through its operating budget and was able to provide for capital needs (Maricopa County 2009a).

A testament to the stability of leadership and conservative fiscal philosophy is the court tower that was built in downtown Phoenix during the Great Recession of 2008 utilizing the paygo method of capital funding. Maricopa County's Board of Supervisors made the commitment to meet the continually growing need for space of the criminal justice system in the mid-2000s and planned to build a court tower. The use of general and detention (a special revenue tax) fund balance was set aside to design and construct a \$340 million court tower in downtown Phoenix, Arizona for criminal courts. This project was in planning and discussion before the Great Recession. However, a May

2009 budget presentation for the FY 2010 budget documents a discussion regarding the fate of the project (Maricopa County, 2009b). The court tower's scope was discussed and ultimately approved by the Board of Supervisors to begin construction. The project included 32 court rooms, with 22 built out fully and 10 rooms ready for build out as the population growth and need for court rooms emerged. This project moved forward while the County was still making reductions to the operating budgets in response to the recession (*ibid*). It was also constructed just as the housing bubble burst in Maricopa County, putting many construction industries in a tailspin. The timing also provided an opportunity to purchase materials and labor for the construction at discounted prices compared to the prices a few years prior. The political stability and conservative nature of the Board allowed the County to fare well during the recession and utilize one-time funding for the criminal court tower which opened on February 12, 2012.

Maricopa County utilized a spectrum of administrative and technical methods to build and maintain sufficient fund balances to fuel a capital improvement program utilizing cash as the funding source. The political leaders embraced a conservative approach that included paygo capital programming. The revenue budget had continually been built on the pessimistic (or worst-case) forecast. The expenditure budget included one-time and operating contingencies. Departmental requests to utilize savings and start new projects were carefully vetted before a recommendation to approve was made to the Board of Supervisors.

Developments in Paygo at Maricopa County

There have been several recent developments in Maricopa County which impact the administrative, technical and political concepts discussed above. First, in the political environment, FY 2012 was the last budget created with the tenured leadership that had been in place since the early 2000's. Between the FY 2012 budget development and the

FY 2016 budget development processes, the County Manager retired and a former Maricopa County financial officer was placed in that role. Additionally, four new Supervisors were elected, three of whom were new to government. The fundamental beliefs regarding paygo, payuse, taxation, debt, reserves and fund balances were all open to examination and evaluation during this time. While the conservative nature of the Board of Supervisors remained, the people serving on the Board of Supervisors changed and the fiscally conservative philosophy now manifested itself differently than with the previous Supervisors.

There was still a call to reduce property taxes and sustain a structural balance, however the administrative techniques for forecasting were changed. The FY 2014 Budget Guidelines dictated use of the most likely revenue forecast, rather than pessimistic and also called for the elimination of a budgeted operating contingency (Maricopa County 2013b). The elimination of operating contingency, reduction of Non-Departmental (General Government) expenditures and the movement to a most likely revenue forecast were significant contrasts to the previous guidelines and to the once normal administrative techniques used to generate reserves. The following year, specific contingencies were included in the budget, however the percentage of contingency compared to expenditures changed dramatically after FY 2014. In FY 2014, no operating contingency was budgeted and the total operating expenditures did not decrease. This shift in contingency reduced the flow of expenditure savings that had once generated fund balance.

In addition to the change in contingency budgeting, there was a shift in philosophy about budgeting and forecasting revenues, from using the pessimistic scenario to the most likely scenario. The FY 2014 Annual Business Strategies notes this change in budgeting would slow down the capital projects and paygo spending. As was

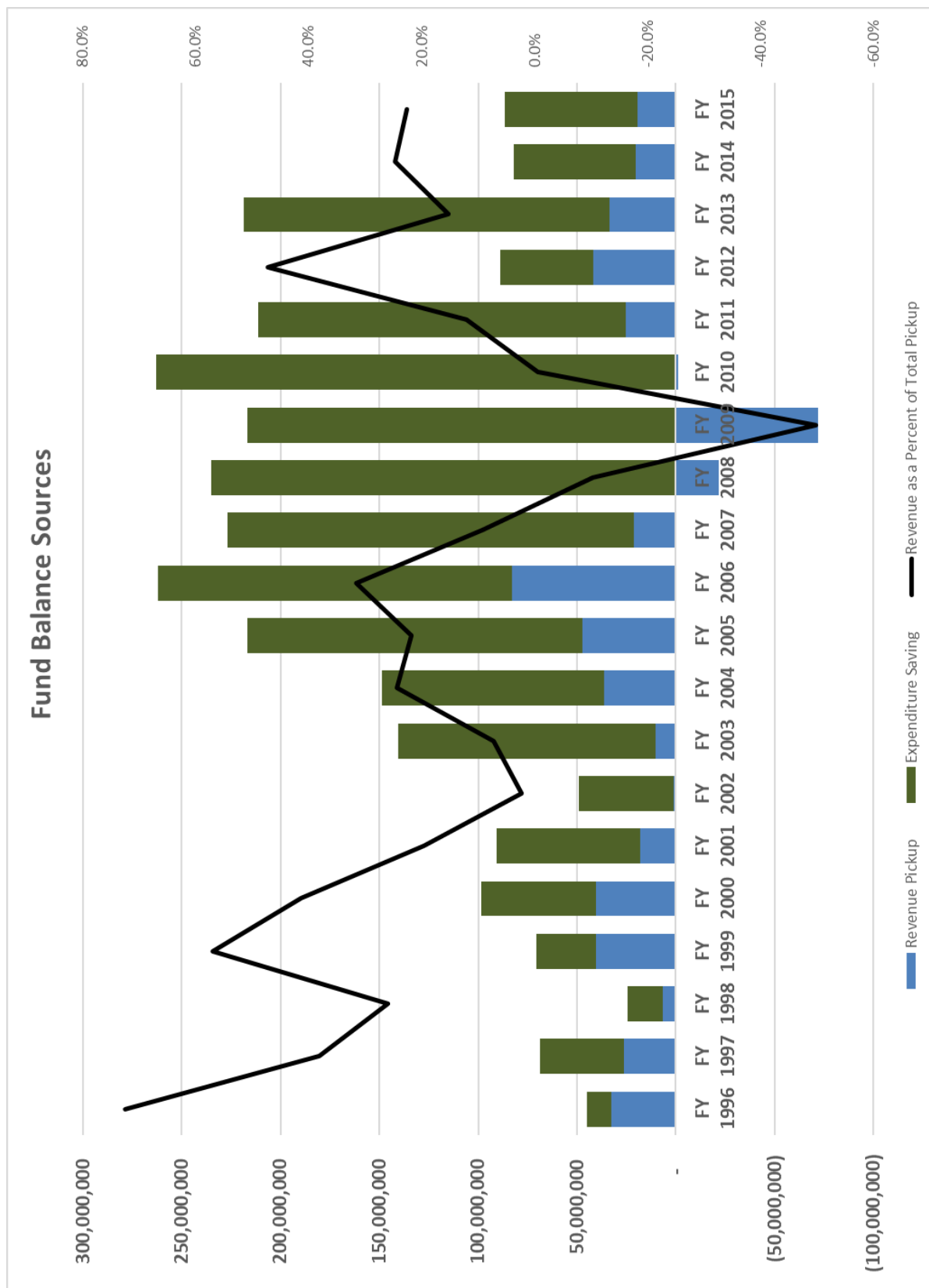


Figure 6. Fund Balance Sources of Increase

discussed in the prior sections, a combination of the pessimistic revenue forecast and budgeting contingency created a source for the general fund's fund balance increase. The shift in philosophy on those two items did have an impact on the amount of fund balance sources flowing into the general fund. Figure 6 shows a history of the revenue pickup (actual revenue collected above the budgeted amount) and the expenditure savings, as well as the amount of the total source (revenue pickup plus expenditure savings) that is attributable to the revenue. With the exception of the Great Recession time period (FY 2008 – FY 2010), the percent attributable to the revenue has been varied, although there are short segments of trending. The remarkable observation from this chart is that although the revenue percentage is roughly 20% from FY 2013 through FY 2016, the overall amount of savings plummeted in FY 2014 and FY 2015, which would be expected given the change of direction in revenue forecasting and contingency budgeting that the county experienced.

The paygo philosophy at Maricopa County has started to shift. There are a few major projects in the FY 2017 budget which will utilize a combination of cash and debt funding sources, although no general obligation debt is forecasted. The change that seems to be emerging is the use of debt to fund capital projects, and an increase in property taxes to provide the revenue to fund the debt payments. Each year in the Annual Business Strategies, a history of property valuations and rates for a ten-year history is provided. The FY 2008 and FY 2017 Annual Business Strategies were utilized to build Figure 7, which shows the property tax rate (bars) and the property tax levy (line). Starting in FY 2014 both the levy and the rate have increased compared to the period of FY 1999 through FY 2007 where the rate was consistent and the growth value and quantity of taxable property increased the levy.

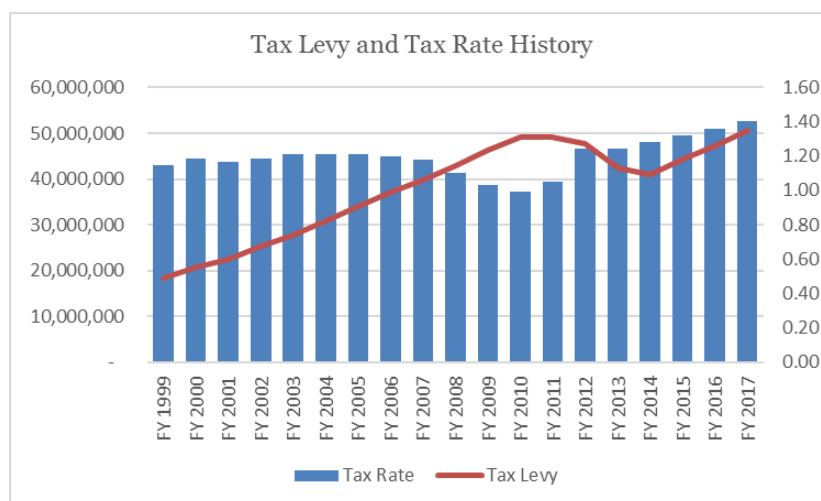


Figure 7. Maricopa County Tax Levy vs. Tax Rate History

In the debt section of the FY 2017 Annual Business Strategies, pay-as-you-go is described as a method where “capital projects are paid for from the government’s current revenue base” (p. 976). This definition is consistent from previous years; however, recent years seems to point to a difference between revenue base and cash base. The practice has historically revolved around having cash available in fund balance to either pay cash for the capital project or to have the cash available to immediately dissolve any debt incurred for the project. In this sense, the reserves had already built up over a period of time to fully fund the projects budgeted. However, the property tax rate and the tax levy indicate a shift to funding capital with revenues generated in the current year to meet the financial or debt obligation of the current year. In this case, the capital project is started and financed with an anticipation of generating revenue to meet the debt payments each year. Even though the tax levy has moved in an upward trend from FY 1999 through FY 2017, with a small exception in FY 2012-2014, the tax rate has remained consistent or decreased through FY 2012. However, after FY 2012, the tax rate and the tax levy are both increasing which indicates an increase in budgeted expenditures from operating

dollars. This may signal the use the operating revenues increasing to cover additional debt payments required to continue capital projects.

While it is too early to tell if Maricopa County is leaving the paygo philosophy, it is clear the sun has set on the tools that established a cash-based paygo process. The political environment in the desert has changed over the last few years, providing a seemingly new direction toward capital spending and budgeting. The administrative tools of pessimistic revenue forecasting and the use of contingency to build a fund balance have been replaced by most likely forecast scenarios and very limited contingency budgets. Budget Guidelines and Schedules do not indicate a change to the technical tools utilized to preserve the conservative spending. The result of changing two of the three areas that allowed the cash paygo process to thrive for so many years have yet to be seen.

Issues Resolved

The research question examined in this case study was two-fold and first recognized that a government with access to debt funding sources for capital improvements did decide to utilize reserves rather than debt to pay for capital projects. Secondly, the case study examined the processes and actors that were required in order to accomplish the establishment and use of reserves for capital improvements over a period of time. Maricopa County provides an interesting case study of a large local government that had a political environment to support a cash-based paygo capital improvement program in the general fund. The use of administrative and technical tools to support the political direction included utilizing conservative forecasting, restricting use of agency savings, and having diversified revenue sources enabled revenue estimates to constrained expenditures. The jurisdiction did not have to utilize cash as it had the ability to utilize bonds or other debt instruments and it also had the ability to raise the

tax rate to support debt as the primary means of funding capital projects. The utilization of cash for capital projects was not forced, rather a cognizant decision made by Maricopa County.

The traditional answer to the equity question of whether it is right to tax residents today for capital purchases that they may not directly benefit from has been countered by an answer of providing future generations the ability to make their own decisions and plans rather than being burdened with the debt of their elder generation. The viewpoint echoes that of environmental actions that have people today bearing costs and observing rules so that the world will be a better place for the next generation. In addition to the philosophical reason that may have spurred Maricopa County to make the paygo decision, they believed they were ultimately saving the taxpayers real dollars. The FY 2017 Tentative Budget Presentation boasts that the general fund saved taxpayers \$594 million since FY 2002 in interest costs. The amount of capital projects paid directly from the General Fund Capital Improvement Fund and the Technology Capital Improvement Fund through FY 2016 is over \$613 million.

Hildreth (1993) elaborates on the incentives and disincentives for borrowing. The primary incentive to borrow funds is the desire or need to spend funds whether constructing an asset or purchasing an asset. Maricopa County, similar to other jurisdictions, had a need to secure facilities and infrastructure. Hildreth points out the second incentive to borrow is due to the inability to produce up-front funding for the spending need. In Maricopa County's case, the up-front capital was available for the projects that were prioritized. One area of information not readily available in the case study is how many projects were desired or needed, but passed over due to lack of up-front funding. Without the overriding philosophy that the Supervisors would only approve projects for which funding had already been saved, perhaps some borrowing

would have facilitated the ability to meet larger needs. Evidence on this area is not available to determine if true needs were left unmet or if all needs were met with the reserves that had been established. Hildreth's third incentive involves political capital, and promulgates that politicians will have increased political capital through the use of borrowing and the resulting completion of capital projects to meet residents' needs. While the discussion in Public Choice Theory presented in Hildreth's article implies that borrowing will increase a politician's ability to be reelected, the Maricopa County Board of Supervisors were reelected several times in their tenure while holding fast to the philosophy of only spending what they had saved.

Disincentives for borrowing begin with the legal restrictions placed on a government such as debt ceilings. Maricopa County had sufficient capacity with relation to debt restrictions to take on additional debt. Secondly, Hildreth addresses political hurdles to debt. This is the point at which the disincentives for borrowing outweighed the incentives for Maricopa County. Politically, the Board of Supervisors were unwilling to seek voter-approved bonds to fund their capital improvement needs. The last disincentive Hildreth addresses is economic in nature and considers the requirement to pay back, with interest, the funds that are borrowed. The major issue here is the ability to raise sufficient revenue to cover the debt payments. Maricopa County had the ability to increase the property taxes if they had selected debt as the option to fund capital projects.

There are a few conclusions that can be gleaned from this case study in the arena of public budgeting and finance. First, while paygo is not necessarily common, it is a viable way for local governments to build and maintain capital programs. Further research should be conducted to see if jurisdictions with a less diversified revenue stream could also find success with the paygo capital programs. Additionally, are there other

fiscal controls and policies that allow jurisdictions to accumulate sufficient cash to support a paygo system?

Certainly, the political will of the government dictates the mechanisms a jurisdiction utilizes to fund capital. The Maricopa County example shows that the political climate is changing, but time will tell the consequences, if any, of that change. Politicians typically pay the price of tax rate and other fiscal choices at the polls, and are very careful regarding their constituents' pocketbooks. While every community is different and has different pain points, needs and tolerances, the public administrators and politicians must find an approach to meet the needs of the government, the community and the people. Public administrators can develop options as well as forecast short and long-term impacts of utilizing various mechanisms to fund capital projects. The elected governing body will determine the course of action. The tenure of the Maricopa County Board of Supervisors allowed the development of their conservative philosophy and the mechanisms to utilizing cash for their capital needs. Additional jurisdictions should be researched and developed as case studies to facilitate a comparative analysis and seek to determine the relationship between the political will and perceived and real funding choices with regard to capital projects.

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Conclusion

Budget stabilization funds make sense, whether formal or informal, but they are very difficult to build, maintain and use properly. Not only do they typically require some form of legislation to create a formal fund, but the political pressures by policy makers to not over tax or to spend available funding create strong forces with which to contend (Hou, 2013). There are many forces at work on the budget stabilization fund. Financial managers tend to behave conservatively (underestimating revenues) to create savings. Fiscally conservative policy makers typically believe that government is too big and is taxing too much. These policy makers apply pressure to reduce the balance and taxes. The fiscally conservative policy makers are countered by the less fiscally conservative who see fund balances as an opportunity to spend the reserves (Kelly, 2013). Therefore, the legal structure and surrounding policies are very important to effective budget stabilization funds.

Governments prefer to plan and operate in an incremental manner, with only minor changes in services demanded and provided, as well as in revenues and expenditures. Small changes year over year are easier to react to and accommodate than large changes from year to year. While incrementalism is preferred, reality is rarely purely incremental. There may be long periods of time with little or no change, but these periods are interrupted with wars, recessions, natural disasters or other events that fall outside the norm or average expectations. The demand for services provided by governments do not decrease during these events, rather they are usually amplified such as in the case of natural disasters or economic events. In order to meet the additional demand for services, and not add to the economic impact of a punctuating event by reducing services or staff, government leaders must create fiscal reserves to draw on during times of crisis. Only through the recognition of fiscal shocks, financial planning

through reserves and policies to govern reserves; can government leaders hope to mitigate punctuating events and maintain a smooth and incremental expenditure budget (Joyce, 2001). Further, through planning, budgeting and fiscal management, governments can be poised for uninterrupted service delivery without the need to make sweeping changes in budgeting from year to year.

Fiscal reserves are prudent for many reasons including the need to obtain and replace capital equipment as well as to build and replace buildings, technology and infrastructure. Fiscal reserves are necessary because of punctuating events that interrupt the small growth or reductions from year to year. These events may be seen as opportunities to radically correct operations and/or viewed as a shortfall in revenue that must either be filled from a reserve or a time in which services must be reduced to meet the revenue available. In either case (or both) governments must have the flexibility that fiscal reserves provide in order to effectively provide the necessary services to their constituents. By utilizing reserves, the budget should remain incremental from an overall perspective.

The preferred method of budgeting, as well as the provision of services, is through a predictable and incremental approach. Agencies are able to provide higher quality services when the directors anticipate a stable resource base year over year. Citizens and residents interact better with government when they can predict the expectations and services provided by the government. Reserves are necessary in order for a government to maintain a stable service delivery model during the downside of the economic cycle. When governments can draw down reserves to maintain service delivery in down cycles and build up reserves while providing the same services in growth cycles, the government is able to maintain a steady service delivery regardless of the economic pressures. Reserves enable this behavior and outcome.

Reserves are important for government leaders to have in order to accommodate the punctuating events which will be experienced from time to time. In terms of local government, those events might include wildfires or flooding or court orders or some malfunction of a department. It is reasonable to expect some area or areas within a government to require financial resources when a large problem is suddenly revealed. Resolution requires swift and radical change such that the area will not go back to business as usual. Without reserves, officials are faced with limited options to counter the unexpected, the quickest of which is to reduce or eliminate spending in other areas of the government to resolve the issue in the spotlight. Assuming that government is providing necessary services, the need of reserves becomes very clear. Drawing on reserves to address the unexpected is preferred to cutting or eliminating services.

County governments are not immune from natural disasters, emergencies, unanticipated events and inaccurate forecasting of revenues or expenditures. The research in this dissertation has laid a foundation of knowledge on which additional research can be built. Not surprisingly, the diversity of counties with respect to size, method of governance, services provided, and policy publication was confirmed. I had anticipated that more counties would be discussing reserves and methods of protecting jurisdictions from another recession similar to the Great Recession of 2008, but found that only 55% of counties had policies on reserves. However, 66% of the counties were in the practice of maintaining reserves and many indicated it was for cashflow, stabilization and good management practices. Additionally, I anticipated that the scope of services, population, census region or number of elected officials would have a predictive relationship to the presence of reserves. The only predictive feature of the county I found, was in the form of government, with the Commission Only form of government not having reserve policies in place. Other than the Commission Only form of

government, counties across the nation are adopting reserves regardless of population, area, size of policy board, elected executive or appointed public administrator and the of services provided by the county.

The research also showed that counties were not increasing their fund balances when revenues were increasing; rather, as the revenue was increasing, the fund balance was decreasing. It is uncertain if this behavior is in reaction to the depth and breadth of the Great Recession of 2008, or if this behavior will continue through the next economic cycle. The data did indicate that those counties with a requirement to have a reserve did have a larger fund balance. Additionally, the counties with a Commission Only form of government, had a higher fund balance compared to those counties with an executive. Counties which had a biennial budgeting cycle had lower reserves comparatively. These results were more unexpected than not overall.

Examining the counties across the country has revealed some interesting results, which generated more questions to be researched. Why do biennial-budgeting counties have lower reserves? Do they mitigate risk in another way or is the reserve utilized consistently and a different time period will reveal a different result? If another five years were added to the panel data; would the results be consistent with this analysis; or will the behavior change over time? In the next punctuating event; how do county leaders handle the decreased revenue and/or increased expenditures? What are other factors in Commission Only forms of government create a lack of public documentation on policy, yet higher actual fund balances? When discovered, what are the impacts of these factors on counties with an executive?

Finally, the case study examined the processes and actors that were required in order to accomplish the establishment and use of reserves for capital improvements over a period of time. Maricopa County provides an interesting case study of a large local

government that had a political environment to support a cash-based paygo capital improvement program in the general fund. One conclusion that can be drawn from the study is that while paygo is not necessarily common, it is a viable way for local governments to build and maintain capital programs. Further research should be conducted to see if jurisdictions with a less diversified revenue stream could also find success with the paygo capital programs. Additionally, are there other fiscal controls and policies that allow jurisdictions to accumulate sufficient cash to support a paygo system? The research in this dissertation has provided a contribution to the field of public budgeting and financial management by beginning a national overview of county governments and creating initial documentation about the policies and behaviors of county leadership toward general fund reserves. It has met its purpose is beginning a dialog about county fiscal practices in anticipation that other researchers will join me in a continued look at this important subnational layer of government.

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APPENDIX A

MOST POPULOUS NON-CONSOLIDATED COUNTIES IN EACH STATE

State	County	Notable City	2010 Census Population
Alabama	Jefferson County	Birmingham	658,466
Alaska	Fairbanks North Star Borough	Fairbanks	97,581
Arizona	Maricopa County	Phoenix	3,817,117
Arkansas	Pulaski County	Little Rock	382,748
California	Los Angeles County	Los Angeles	9,818,605
Colorado	El Paso County	Colorado Springs	622,263
Delaware	New Castle County	Wilmington	538,479
Florida	Miami-Dade County	Miami	2,496,435
Georgia	Fulton County	Atlanta	920,581
Idaho	Ada County	Boise	392,365
Illinois	Cook County	Chicago	5,194,675
Indiana	Lake County	Gary	496,005
Iowa	Polk County	Des Moines	430,640
Kansas	Johnson County	Overland Park	544,179
Kentucky	Kenton County	Covington	159,720
Louisiana	Jefferson Parish	Gretna	432,552
Maine	Cumberland County	Portland	281,674
Maryland	Montgomery County	Bethesda	971,777
Massachusetts	Bristol County	Taunton	548,285
Michigan	Wayne County	Detroit	1,820,584
Minnesota	Hennepin County	Minneapolis	1,152,425
Mississippi	Hinds County	Jackson	245,285
Missouri	St. Louis County	Chesterfield	998,954
Montana	Yellowstone County	Billings	147,972
Nebraska	Douglas County	Omaha	517,110
Nevada	Clark County	Las Vegas	1,951,269
New Hampshire	Hillsborough County	Manchester	400,721
New Jersey	Bergen County	Hackensack	905,116
New Mexico	Bernalillo County	Albuquerque	662,564
New York	Suffolk County	Long Island	1,493,350
North Carolina	Mecklenburg County	Charlotte	919,628
North Dakota	Cass County	Fargo	149,778
Ohio	Cuyahoga County	Cleveland	1,280,122
Oklahoma	Oklahoma County	Oklahoma City	718,633
Oregon	Multnomah County	Portland	735,334
Pennsylvania	Allegheny County	Pittsburgh	1,223,348
South Carolina	Greenville County	Greenville	451,225
South Dakota	Minnehaha County	Sioux Falls	169,468
Tennessee	Shelby County	Memphis	927,644
Texas	Harris County	Houston	4,092,459
Utah	Salt Lake County	Salt Lake City	1,029,655
Vermont	Chittenden County	Burlington	156,545
Virginia	Fairfax County	Fairfax	1,081,726
Washington	King County	Seattle	1,931,249
West Virginia	Kanawha County	Charleston	193,063
Wisconsin	Milwaukee County	Milwaukee	947,735
Wyoming	Laramie County	Cheyenne	91,738

APPENDIX B

MOST POPULOUS NON-CONSOLIDATED COUNTIES IN EACH STATE WITH FORM OF GOVERNMENT

State	County	Notable City	2010 Census	Form of Government
Alabama	Jefferson County	Birmingham	658,466	Board - Manager
Alaska	Fairbanks North Star Borough	Fairbanks	97,581	Council - Elected Executive
Arizona	Maricopa County	Phoenix	3,817,117	Board - Manager
Arkansas	Pulaski County	Little Rock	382,748	Council - Elected Executive
California	Los Angeles County	Los Angeles	9,818,605	Board - Manager
Colorado	El Paso County	Colorado Springs	622,263	Board - Manager
Delaware	New Castle County	Wilmington	538,479	Board - Manager
Florida	Miami-Dade County	Miami	2,496,435	Council - Elected Executive
Georgia	Fulton County	Atlanta	920,581	Board - Manager
Idaho	Ada County	Boise	392,365	Commission
Illinois	Cook County	Chicago	5,194,675	Council - Elected Executive
Indiana	Lake County	Gary	496,005	Commission
Iowa	Polk County	Des Moines	430,640	Board - Manager
Kansas	Johnson County	Overland Park	544,179	Board - Manager
Kentucky	Kenton County	Covington	159,720	Council - Elected Executive
Louisiana	Jefferson Parish	Gretna	432,552	Council - Elected Executive
Maine	Cumberland County	Portland	281,674	Board - Manager
Maryland	Montgomery County	Bethesda	971,777	Council - Elected Executive
Massachusetts	Bristol County	Taunton	548,285	Commission
Michigan	Wayne County	Detroit	1,820,584	Council - Elected Executive
Minnesota	Hennepin County	Minneapolis	1,152,425	Board - Manager
Mississippi	Hinds County	Jackson	245,285	Board - Manager
Missouri	St. Louis County	Chesterfield	998,954	Council - Elected Executive
Montana	Yellowstone County	Billings	147,972	Commission
Nebraska	Douglas County	Omaha	517,110	Board - Manager
Nevada	Clark County	Las Vegas	1,951,269	Board - Manager
New Hampshire	Hillsborough County	Manchester	400,721	Commission
New Jersey	Bergen County	Hackensack	905,116	Council - Elected Executive
New Mexico	Bernalillo County	Albuquerque	662,564	Board - Manager
New York	Suffolk County	Long Island	1,493,350	Council - Elected Executive
North Carolina	Mecklenburg County	Charlotte	919,628	Board - Manager
North Dakota	Cass County	Fargo	149,778	Board - Manager
Ohio	Cuyahoga County	Cleveland	1,280,122	Council - Elected Executive
Oklahoma	Oklahoma County	Oklahoma City	718,633	Commission
Oregon	Multnomah County	Portland	735,334	Board - Manager
Pennsylvania	Allegheny County	Pittsburgh	1,223,348	Council - Elected Executive
South Carolina	Greenville County	Greenville	451,225	Board - Manager
South Dakota	Minnehaha County	Sioux Falls	169,468	Board - Manager
Tennessee	Shelby County	Memphis	927,644	Council - Elected Executive
Texas	Harris County	Houston	4,092,459	Council - Elected Executive
Utah	Salt Lake County	Salt Lake City	1,029,655	Council - Elected Executive
Vermont	Chittenden County	Burlington	156,545	Commission
Virginia	Fairfax County	Fairfax	1,081,726	Board - Manager
Washington	King County	Seattle	1,931,249	Council - Elected Executive
West Virginia	Kanawha County	Charleston	193,063	Board - Manager
Wisconsin	Milwaukee County	Milwaukee	947,735	Council - Elected Executive
Wyoming	Laramie County	Cheyenne	91,738	Commission

APPENDIX C

STATA RESULTS

Prais-Winsten AR(1) regression -- iterated estimates

Linear regression

Number of obs = 213
 F(49, 163) = 161.22
 Prob > F = 0.0000
 R-squared = 0.9313
 Root MSE = 30.104

		Semirobust		t	P> t	[95% Conf. Interval]	
spendFB	Coef.	Std. Err.					
	lnpcpyexp	148.0905	17.36741	8.53	0.000	113.7964	182.3847
	ResReq	266.5211	35.36115	7.54	0.000	196.6962	336.3461
	revdec	-5.490318	4.361555	-1.26	0.210	-14.10275	3.122115
	govform	175.4393	62.0692	2.83	0.005	52.87596	298.0027
	services	90.52657	29.70533	3.05	0.003	31.8697	149.1834
	biennialbudget	-568.6633	164.2107	-3.46	0.001	-892.9178	-244.4088
	lnsocecon	.7783449	14.78098	0.05	0.958	-28.40854	29.96523
	Iyear 2013	11.72178	6.510068	1.80	0.074	-1.133158	24.57672
	Iyear 2014	16.27005	9.47551	1.72	0.088	-2.440522	34.98063
	Iyear 2015	9.459621	9.865215	0.96	0.339	-10.02048	28.93972
	Iyear 2016	11.99434	10.81407	1.11	0.269	-9.35939	33.34807
Fairbanks North Star	Icounty 2	47.00931	71.4612	0.66	0.512	-94.09973	188.1183
Maricopa	Icounty 3	102.1388	38.3215	2.67	0.008	26.46821	177.8094
Los Angeles	Icounty 4	-678.568	184.7171	-3.67	0.000	-1043.315	-313.8211
El Paso	Icounty 5	16.15999	21.6831	0.75	0.457	-26.65598	58.97597
New Castle	Icounty 6	-92.08303	64.34453	-1.43	0.154	-219.1393	34.97326
Miami-Dade	Icounty 7	-598.7836	159.863	-3.75	0.000	-914.453	-283.1142
Fulton	Icounty 8	-410.5103	101.6722	-4.04	0.000	-611.2748	-209.7459
Ada	Icounty 9	-211.2744	39.35176	-5.37	0.000	-288.9794	-133.5695
Cook	Icounty 10	-218.0305	46.72168	-4.67	0.000	-310.2882	-125.7727
Polk	Icounty 11	-363.1184	117.7207	-3.08	0.002	-595.5725	-130.6642
Lake	Icounty 12	9.228759	92.72706	0.10	0.921	-173.8724	192.3299
Johnson	Icounty 13	-369.3761	117.3452	-3.15	0.002	-601.0887	-137.6634
Kenton	Icounty 14	335.061	39.71613	8.44	0.000	256.6365	413.4854
Jefferson Parish	Icounty 15	-322.2654	105.4185	-3.06	0.003	-530.4273	-114.1035
Montgomery	Icounty 16	-235.8016	113.6194	-2.08	0.040	-460.1573	-11.44599
Wayne	Icounty 17	-177.9037	34.5892	-5.14	0.000	-246.2043	-109.603
Hennepin	Icounty 18	94.92898	34.27589	2.77	0.006	27.24697	162.611
Hinds	Icounty 19	183.7008	29.88364	6.15	0.000	124.6918	242.7098
St. Louis	Icounty 20	197.273	20.71842	9.52	0.000	156.3619	238.1841
Yellowstone	Icounty 21	178.6245	46.6785	3.83	0.000	86.45199	270.797
Douglas	Icounty 22	147.5066	50.64773	2.91	0.004	47.49638	247.5169
Clark	Icounty 23	-211.2561	121.0833	-1.74	0.083	-450.3503	27.838
Hillsborough	Icounty 24	235.4239	94.66545	2.49	0.014	48.49514	422.3526
Bergen	Icounty 25	220.5527	70.99746	3.11	0.002	80.35935	360.746
Bernalillo	Icounty 26	509.9385	117.1025	4.35	0.000	278.705	741.1721
Suffolk	Icounty 27	-768.222	81.53636	-9.42	0.000	-929.2257	-607.2183
Mecklenburg	Icounty 28	19.38563	58.48268	0.33	0.741	-96.0957	134.867
Cass	Icounty 29	324.6764	49.17921	6.60	0.000	227.5659	421.7869
Cuyahoga	Icounty 30	417.9505	93.87612	4.45	0.000	232.5804	603.3206
Oklahoma	Icounty 31	184.1565	85.61297	2.15	0.033	15.10301	353.21
Multnomah	Icounty 32	-267.7395	54.70997	-4.89	0.000	-375.7711	-159.7079
Allegheny	Icounty 33	252.819	58.6307	4.31	0.000	137.0454	368.5927
Greenville	Icounty 34	429.7879	113.4264	3.79	0.000	205.8134	653.7624
Minnehaha	Icounty 35	93.72058	60.31356	1.55	0.122	-25.37606	212.8172
Shelby	Icounty 36	-276.2896	78.36807	-3.53	0.001	-431.0371	-121.5421
Harris	Icounty 37	85.17892	63.66774	1.34	0.183	-40.54098	210.8988
Salt Lake	Icounty 38	-253.093	91.05944	-2.78	0.006	-432.9012	-73.28481
Fairfax	Icounty 39	-481.1847	120.5304	-3.99	0.000	-719.1869	-243.1825
King	Icounty 40	0	(omitted)				
Kanawha	Icounty 41	0	(omitted)				
Milwaukee	Icounty 42	0	(omitted)				
Laramie	Icounty 43	0	(omitted)				
cons		-1238.846	387.2629	-3.20	0.002	-2003.545	-474.147
rho		.2795242					

Durbin-Watson statistic (original) 0.981527

Durbin-Watson statistic (transformed) 1.219610