

When Push Comes to Shove: The Effect of Economic Crisis on the Spending of Government Savings

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Abstract

This study explores whether and how an economic crisis affects the spending of government savings by focusing on its political-economic benefit. Despite a great deal of discussion about the government's tendency toward more spending, relatively few studies have attempted to identify the conditions that can reverse the tendency. Using data from 254 California cities during 1996-2009, this study finds a regular U-shape relationship between unemployment rates and government savings. Savings decrease until the unemployment rate reaches almost double digits (9.9%) and begins to recover after this point. The results suggest that an economic crisis curbs the spending tendency by modifying the incentives of legislators. This study contributes to public administration research by explaining local government savings and its delayed responses to a crisis from a political-economic perspective.

Introduction

Established knowledge in the political economy literature indicates that legislators are typically in a position to prioritize spending for their constituents over the overall fiscal health of government if no institutional device is in place (e.g., Weingast, Shepsle, and Johnsen 1981; Baqir 2002). These pork-seeking incentives are difficult to directly observe, posing a major challenge in studying them. An alternate approach is to look at what would result if they were aggregated to government. The result would be the formation of a collective spending tendency at a government level, which means that when individual legislators successfully win more spending programs (porks) every year, the level of government spending would grow accordingly. Although the spending level is observable, it does not imply that its growth can be observed at all times because it depends on whether legislators successfully realized their pork-seeking. Thus, for a year when legislators failed, the growth would not be observed despite the existence of the incentives. Namely, whether or not the government tendency toward more spending is observed is an empirical question.

The level of total expenditures, debts, or savings can be used to answer the question. This study argues that savings hold unique advantages over total expenditures or debts in exploring the government spending tendency associated with pork-seeking. First of all, debt issuance can create fiscal resources to fund porks for legislators. Yet, this is a risky option for them to choose, as debt issuance can invite immediate criticism from residents who may be considered to be a direct or indirect re-payer of the debt. Another option is to look at total expenditure, which may be thought of as a direct measure to observe the spending tendency. Yet again, total expenditure is typically under high public

scrutiny. The growth of total expenditure is often a hot-button issue that instigates partisan debates on government size. Being aware of this weakness in advance would make legislators find a safe place that would permit pork-seeking without having to impact total expenditure levels.

Savings are less visible to residents than total expenditures or debts because savings are resources already collected in the past, and thus spending of savings would cause no additional burden on residents. This characteristic would leave residents no substantial motivation to keep track of levels of savings. Moreover, it is possible to plan spending of savings while maintaining a total expenditure level, as the latter is the combination of changes in many different line items. Despite these advantages, savings, especially at local levels, have not been sufficiently studied or theoretically problematized (e.g., Hendrick 2006; Marlowe 2005; Wang and Hou 2012; Arapis and Reitano 2018; Su 2019).

Local government is different from the national government. In the United States, it works in the context of fiscal federalism characterized by balanced budget requirements, interlocal competition for service provision, or a limited fiscal capacity such as limited access to debt markets (Hendrick 2006, 23; Alesina and Tabellini 1990; Clingermayer and Wood 1995; Park 2018). The context forms fiscal incentives unique to local governments, which in turn shape their savings behavior distinct from the federal government (Rodden 2005; Weingast 2009). This makes it clear that findings from research on federal savings are not applicable to local governments. New research is demanded with an exclusive focus on local government savings.

This study explores whether and how an economic crisis affects the spending of government savings by focusing on the role of the economic crisis that incidentally brings about positive changes in fiscal behavior. Within the context of 254 California cities between 1996 and 2009, this study demonstrates that an economic crisis, measured with unemployment rates, has a regular U-shape relationship with government savings, measured with unreserved fund balances. The U shape implies that local legislators pursue the spending of savings during good economic times but are forced to cease the pursuit upon the arrival of an economic crisis.

This study contributes to the scholarship of public finance and public administration. First, this study approaches fund balance as a fiscal resource with strategic value for government. In the study of public finance, fund balance draws attention largely from a pure economic perspective. This perspective shares the view that government mobilizes fund balance to implement counter-cyclical or expansionary policies against an economic crisis (Hou 2006; Hou and Moynihan 2008). However, due to its limited resources and legal restrictions, local government is unfit to play such a proactive role as a protector of its local economy (Rodden and Wibbels 2010), although not completely incapable (Ter-Minassian and Fedelino 2010). On the other hand, an organizational perspective conceives fund balance as financial slack that protects government from external risks (e.g., Hendrick 2006; Su 2019).

The present study contributes to the literature by revealing a political-economic value of fund balance that legislators are attracted to mobilize for their short-sighted goals. This political-economic perspective proves useful to consider institutional devices

that could harden budget constraints by discouraging legislators from pursuing more spending (Alesina and Tabellini 1990; Clingermayer and Wood 1995; Park 2018).

In addition, this empirical study adds to the literature of public administration by providing evidence that explains delayed responses of government. In fact, a delayed response has been acknowledged in the literature as a major characteristic of government decision-making. Its identified causes include bureaucratic rules, regulations, or procedures, interagency tensions and uncertainties (Boin et al. 2010), disconnections between performance and reward (Pearce and Perry 1983), and political conflicts among heterogeneous groups (Alesina and Drazen 1991). Yet empirical research on why and how long government responses are delayed remains underdeveloped. This study shows that government tends to make belated responses to crises and that legislators' short-sightedness and pork-seeking are major reasons for the lateness (Buchanan and Tullock 1999 (1962); Hood 2002; Weaver 1986).

The remainder of this study is organized as follows. The next section reviews relevant theories and literature related to government spending, economic crisis, and blame avoidance; and then lays out hypotheses regarding the effect of an economic crisis on government savings. The third section presents data, measures, and the empirical strategy for hypothesis testing. The fourth section provides findings and discussion, and the last section concludes with implications and limitations of the study.

Theory and Hypothesis

Political Incentives to Government Spending

Government consisting of political actors tends to develop a tendency toward greater spending, a level that is higher than one resulting from an ideal allocation of budgetary resources. It is well known that individual legislators seek to benefit their own constituencies with those public programs by forming a majority coalition in exchange for support of each other's programs (i.e., norm of universalism or log-rolling) (Buchanan and Tullock 1999 (1962); Weingast et al. 1981; for fiscal illusion and government expenditure, Ross and Mughan 2018). Despite a great deal of discussion about the formation of the spending tendency, however, relatively few studies have attempted to identify the conditions that could reverse the tendency.

Legislators' pork-seeking at the individual level can be collectively expressed in the tendency to seek more spending at the government level (Weingast et al. 1981; Baqir 2002; Kim Forthcoming). Legislators typically underscore the immediate benefits of a program they sponsor but often fail to take its full cost into consideration (Baqir 2002, 1319; Von Hagen 2006). They are less attentive to the long-term benefits of fiscal sustainability due to political instability originating from electoral cycles and short-termism (Di Bartolomeo et al. 2018). Thus, government collectively fails to internalize the future cost of present programs and leaves debts to the coming government when it expects to lose an election (Alesina and Tabellini 1990; Di Bartolomeo et al. 2018). In a federal system, Weingast et al. (1981, 643) demonstrate that legislative decisions to fund programs, where benefits are concentrated on an electoral district while costs are

dispersed across districts, result in a higher level of government spending than is economically optimal.

This tendency for (over)spending or debt accumulation is closely related to characterizing budgets as common-pool resources (e.g., Tang, Callahan, Pisano 2014), as individual legislators are entitled to claim certain portions of a budget (i.e., difficulty in exclusion), which diminishes the amount available for others (i.e., subtractability). As Von Hagen (2006, 470) argues, “[i]ndividual politicians perceive that an increase in spending on targeted policies will provide their constituencies with more public services at only a fraction of the total cost, resulting in budget-expanding attitudes by major budget players such as politicians and administrators.”

Local government is also subject to this tendency. Despite the impression that local government may not be highly political, recent studies firmly support its political nature (e.g., Baqir 2002; Trounstein 2012; Berry and Gersen 2010). For example, using city data, Baqir (2002) finds a higher level of government spending when more legislators seek funding programs benefitting their districts. There is an active effort in applying the insights from the common-pool resource literature to the study of fiscal health (Baqir 2002; Von Hagen 2006; Tang et al. 2014; Greer 2015; Greer, Moldogaziev, and Scott 2018).

Economic Crisis and Blame Avoidance

The impact of a crisis has received significant attention in the political-economy literature. A so-called ‘crisis thesis’ established at the national level predicts that an economic crisis incidentally generates a positive influence, such as opening up new reform opportunities (Brooks and Kurtz 2007; Mahmalat and Curran 2018; see also, Park

2019) to invest more in welfare-enhancing policies (Drazen and Easterly 2001; Drazen and Grilli 1993) or stabilize the economy (Alesina and Drazen 1991; Di Bartolomeo et al. 2018). Studies further claim that a crisis may even be “the only way to induce necessary policy changes” (Drazen and Grilli 1993, 598) that can improve social welfare (Drazen and Easterly 2001). Levin and Tadelis (2010, 532) demonstrate that fiscal pressures such as high levels of debt suppress city councilmembers’ pursuits of self-interest and facilitate their efforts to improve the efficiency of public services.

The crisis-thesis literature offers insight into the possibility that an economic crisis can be effective in triggering changes in a government’s spending tendency. However, a specific causal mechanism of how a crisis leads government to reverse the tendency has yet to be disclosed (Brooks and Kurtz 2007; Drazen and Grilli 1993; Mahmalat and Curran 2018). Furthermore, the literature does not offer a specific threshold at which level an economy “can be considered as sufficiently serious to be indicative of a crisis” (Mahmalat and Curran 2018, 616) to induce changes in spending behavior. This study attempts to identify such a threshold.

This study argues that an economic crisis disciplines pork-seeking legislators via negativity bias and blame avoidance. Scholars explain political behaviors based on reputation and recognition (Hood 2002; Krause, Lewis, and Douglas 2013; Nielsen and Baekgaard 2015; Nielsen and Moynihan 2017; Weaver 1986). Legislators manage their reputation primarily in two ways—by calling for recognition of what they have achieved (i.e., credit claiming) and by shirking accusation for what they have failed to achieve (i.e., blame avoidance) (Weaver 1986). Pork-seeking in a prosperous economy could be beneficial as a credit-claiming strategy; however, a dominant strategy for legislators to

avoid blame would be giving up pork-seeking when a high chance of an *economic* crisis exists that could result in a massive revenue shortfall, i.e., a *fiscal* crisis of the local government. In the event of a *fiscal* crisis, the media and the public will single out individual legislators for their incompetence and inaction. The political incentive to avoid blame is strengthened by a negativity bias, i.e., the tendency to place a greater emphasis on negative information rather than the positive (Hood 2002; Nielsen and Baekgaard 2015; Nielsen and Moynihan 2017; Weaver 1986). Legislators with a ‘sense of urgency’ may act sooner to address imminent crises or at least show constituencies that they are doing something. The validity of this blame-avoidance and the negativity-bias account is confirmed on forecasting (Krause et al. 2013; Rose and Smith 2012) and spending (Nielsen and Baekgaard 2015).

Hypothesis

Following the account regarding government spending tendency, this study expects that more spending of savings will be observed in the absence of an economic crisis. Drawing on the crisis thesis, on the other hand, this study expects that an economic crisis plays a disciplining role in managing fiscal resources, thus prompting legislators to spend less and save more; namely, turning the spending tendency around. In other words, the discussion so far leads to a prediction of less savings (i.e., more spending of savings) before the arrival of an economic crisis but more savings (i.e., less spending of savings) after its arrival.

Using unemployment rates as a measure of an economic crisis, this study examines whether this prediction is supported and identifies a threshold at which legislators deviate from the spending tendency. In particular, the initial increase in

unemployment rates is expected to be inversely related to savings, consistent with the spending tendency. Then, the relationship will turn positive per the crisis thesis if unemployment rates keep soaring above the threshold level that qualifies as a crisis. Therefore, our main hypothesis predicts a regular U-shape relationship between an economic crisis and savings: *Unemployment rates have a regular U-shape relationship with government savings.*

Data and Methods

The data for this study include 254 California cities with populations of 25,000 or above. The time scope ranges from 1996 to 2009 for the dependent variable and from 1995 to 2008 for all the independent and control variables due to the one-year lag of the dependent variable for endogeneity concerns. All data expressed in dollars are converted to 2005 constant dollars. Data descriptions and sources for the variables appear in table 1 and summary statistics in the appendix.

[Table 1 here]

Dependent variable

Government savings are measured by the per-capita amount of unreserved fund balances, *\$Unreserved Fund Balances*, the sum of designated and undesignated portions of fund balances from governmental funds and trust funds, which is then divided by city populations. Fund balance is frequently used as a valid measure of local government savings (e.g., Hendrick 2006; Wang and Hou 2012; Su 2019; Arapis and Reitano 2018)

and local fiscal health (e.g., Marlowe 2005, 2011; Tyler 1993) by both academics and practitioners.ⁱ

Fund balance is made up of three portions: reserved, unreserved-designated, and unreserved-undesignated (California State Controller 2005; Marlowe 2011). Reserved fund balance refers to “the portion of fund equity that is *legally* segregated for specific purposes” (California State Controller 2005, 127; Italics added) while unreserved-designated fund balance is “the portion of fund balance segregated to indicate tentative plans for financial resource utilization in a future period, such as for general contingencies or for equipment replacement. Such designations reflect tentative managerial plans or intent...” (California State Controller 2005, 127). While both reserved fund balance and unreserved-designated fund balance are similar in that the use of money is tied to a certain purpose, the reserved portion is more restricted than the designated one in terms of the leeway enjoyed by the government. The unreserved-undesignated fund balance is readily available and unrestricted for use.

This study uses unreserved fund balance (i.e., sum of designated and undesignated portions) as a measure of savings based on two reasons. First, reserved fund balances tend to be less discretionary than unreserved fund balances. It is acknowledged that savings can be made in other places such as budget stabilization funds (Hou 2006; Hou and Moynihan 2008). However, budget stabilization funds are not highly discretionary either, as they typically come with rules regarding deposit and withdrawal. Second, while budget stabilization funds are common among states, they are less so in localities (Hendrick 2006; Arapis and Reitano 2018). In other words, a discretionary aspect of

unreserved fund balance and its prevalence among localities make it a proper choice for investigation of local savings behavior associated with an external crisis.

Independent variable

This study adopts unemployment rates as a primary measure of an economic crisis. *%Unemployment* refers to the annual rate of unemployment published by the Bureau of Labor Statistics for cities with residents of 25,000 or more. As a continuous measure, an increase by one percentage point signifies a gradual change in local economic activity.

Control variables

For purposes of comparison with unemployment rates, a dichotomous indicator of nationwide recessions is added into the model. A nationwide recession refers to a serious exacerbation of the national economy (Baumol and Blinder 2008, 24).ⁱⁱ *Recession* is given 1 if the year is 2001 and 2008, and 0 for the other years as defined by the National Bureau of Economic Research. Collinearity does not exist between *Recession* and *%Unemployment*, indicated by the low correlation (0.02) in the appendix. Including these two measures in the model is an effort to respond to the recent call for a more thorough measurement of an economic crisis (Mahmalat and Curran 2018).

In addition, this study includes a wide range of control variables found to affect fiscal resources in previous studies. Several studies that identify determinants of fund balance at the local level deserve to be discussed in detail. Using municipal data from the Chicago metropolitan area, Hendrick (2006, 30, 35) finds that surpluses (+), capital spending (+), debts (-), total expenditures (-), home rule (+), residential property values (-), revenue diversification (-), changes in population (-), and intergovernmental revenues

(-) are significant on the unreserved governmental fund balance in the direction specified in parentheses. Wang and Hou (2012, 162) report from North Carolina county data that property taxes (+), sales taxes (+), capital outlays (-), and unemployment rates (-) are significantly related to the general fund balance. Su (2019) argues from an analysis of U.S. cities that volatile revenue and non-discretionary expenditure are positively associated with unreserved fund balance. Based on their observation of Florida cities, Arapis and Reitano (2018, 412) confirm that cities were able to avoid exhausting unassigned fund balance during the Great Recession.

This study controls the effects of two prominent institutions of local government in California: home rule and term limits on the city council. *Home Rule* indicates a city governed with greater independence from upper governments, known as a charter city in California, which potentially affects local fiscal resources (Hendrick 2006). *Term Limits* have been extensively studied, while two streams of argument still compete. Some studies find that the discounted utility of office reduces campaign spending (Daniel and Lott 1997), improves bond ratings, and enables pursuing unpopular but socially desirable policies (Schelker 2012). Yet other studies argue that term-limited officeholders are prone to hazardous behavior with the prospect of reelection deprived (Besley and Case 1995; Alt et al. 2011). The indicator variable is given 1 one year after the residents' approval of any type of restrictions on the number of terms sitting on the city council.

Second, this study includes *%Democratic Votes*, which reflects city residents' political preferences (Levin and Tadelis 2010; Hendrick 2006), and *Nonprofit Demand for Service* to consider political pressure from nonprofit organizations (Rose and Smith 2012). Considerably dependent on government grants, nonprofits would be interested in

whether government creates spending programs that advance their causes and, at the same time, increase their revenues. This variable refers to the number of 501(c) (3) charities filing Form 990 by county.

A set of fiscal variables identified as determinants of government spending in previous studies are also included. *Own-Source Revenues* refer to locally raised revenues (i.e., total revenues - intergovernmental revenues originated from the federal, state, or county government) per person. Local governments in an economic crisis are known to change their fiscal behavior depending on their revenue dependency (Park 2017). Fiscal relationships with higher levels of government could weaken the sense of fiscal responsibility among local governments (Rodden 2005; Hendrick 2006) or generate incentives to work toward local economic prosperity (Weingast 2009; Gore 2009). *%Contracting* is added as a proxy for government efforts to achieve efficiency, which is measured by the percentage of spending on service contracts out of the total expenditure (Kim 2015).

Lastly, this study includes a series of variables to account for the demand for government service and expenditures: government growth (Tyer 1993; Rose and Smith 2012), population density, population (Wang and Hou 2012), and year-end budget surplus (Hendrick 2006; Ter-Minassian and Fedelino 2010). *\$Growth* stands for the yearly change in government size calculated by per-capita total revenues for the year of t less per-capita total revenues for that of $t-1$. *Density* refers to population density measured by the number of persons per square mile. *\$Surplus* that reflects short-term fiscal condition is measured with the difference between total revenues and expenditures divided by the city population. Lower service demand may result in higher budget

surpluses, which are found to have a positive impact on unreserved fund balance (Hendrick 2006).

Results and Discussion

Before an empirical strategy is described, informative illustrations are provided on the macroeconomy and government savings. Figure 1 presents the trend of changes in government savings associated with annual changes in unemployment over 1996-2009 for four cities: Ceres, Los Angeles, San Diego, and San Francisco. Unemployment and savings sometimes appear to move in the same direction, but not always. Ceres is chosen because its level of savings per capita, \$511.517 as of 2009, is virtually identical to the average per-capita savings, \$511.027, from all of the cities included in this study. The remaining three cities represent different major regions in the state. The annual trend of savings aggregated from all the cities is presented in figure 2. Three vertical lines indicate years of nationwide recession: 2001, 2008, and 2009.ⁱⁱⁱ Figure 3 depicts various relationships found on the scatterplot between unemployment rates and government savings. A regular U-shaped curve consistent with the main hypothesis is found in San Francisco.

[Figures 1, 2, 3 here]

As the study data had both time-series and cross-sectional dimensions, this study employed panel data analysis using Stata Ver. 10. This study chose fixed effects estimation with year dummies based on the Hausman test result rejecting its null

hypothesis. No symptom of severe collinearity was detected as the mean of all variance inflation factors (VIFs) for the main specification was 2.07 and the highest VIF was 6.36. Heteroscedasticity-robust standard errors clustered for cities were reported.

The main hypothesis expecting a U-shape relationship between unemployment rates and unreserved fund balances was tested by including a squared term of unemployment rates. The two main independent variables— *%Unemployment Squared* and *%Unemployment* —were estimated in the main specification, where *\$Unreserved Fund Balances* were regressed on *%Unemployment Squared*, *%Unemployment*, *Recession*, *Home Rule*, *Term Limits*, *%Democratic Votes*, *Nonprofits*, *\$Own-Source Revenues*, *%Contracting*, *\$Growth*, *Density*, *Population*, and *\$Surplus*. The empirical model appears below:

$$Y_{it} = \beta_0 + \beta_1 UNE_{it-1}^2 + \beta_2 UNE_{it-1} + \sum_{j=1}^{11} \gamma_j X_{it-1} + f_i + \mu_t + \varepsilon_{it} ,$$

, where $i = 1, \dots, 254$ cities, $t = 1996, \dots, 2009$, f_i are city-specific unobserved effects, μ_t are year-specific unobserved effects, ε_{it} are general stochastic errors, and X is a vector of controls. $Y = \$Unreserved\ fund\ balance$, $UNE^2 = \%Unemployment\ Squared$, $UNE = \%Unemployment$, $X = Recession, Home\ Rule, Term\ Limits, \%Democratic\ Votes, Nonprofits, \$Own-Source\ Revenues, \%Contracting, \$Growth, Density, Population, and \$Surplus$.

[Table 2 here]

The econometric outputs shown in table 2 include four specifications: the first specification is baseline without economic variables. The second and third models show

specifications where a recession dummy and unemployment rates are tested linearly. The last column shows our main specification to test the U-shape relationship between unemployment rates and savings.

In the third specification, the linear use of *%Unemployment* failed to achieve statistical significance. Yet, *%Unemployment Squared* in the main specification achieved one with a positive direction, signaling a regular, not inverse, U shape consistent with the main hypothesis. This contrast between the third and the main specifications suggests that a U shape is a superior fit on the data to either a typical linear fit or an inverse U shape in explaining the relationship between *%Unemployment* and *\$Unreserved Fund Balances*. In other words, an economic crisis and government savings had not a simple but rather a complex relationship that was able to be captured by a regular U shape. This shape is found in figure 4.

[Figure 4 here]

Despite the constant rise in unemployment rates along the left-hand side of the fitted U shape, savings continue to decrease until the unemployment rate reaches 9.9%, at which the relationship turns positive. The point of inflection is located at the bottom of the U shape, where the marginal effect of *%Unemployment* is zero:

$$\frac{\partial \$Unreserved\ fund\ balances}{\partial \%Unemployment} = -9.925 + 2(0.501)\%Umemployment$$

This suggests that local governments in California begin to increase savings (i.e., the spending tendency reversed) after the local economy seriously worsens when the unemployment rate goes up to almost double digits, 9.9%. Approximately 10% of the

data points included in the main specification (350 out of 3,399 city-year pairs) have unemployment rates equal to or above 9.9%.

In addition to the U shape proving to be the superior description to the typical linear one for the study data, figure 5 shows average marginal effects of *%Unemployment*, which indicates that this U shape becomes statistically significant when *%Unemployment* passes about 20%. From an inferential point of view, this implies that the right-hand side of the U shape, i.e., the positive relationship indicated by the crisis thesis, may be generalizable to localities outside California.

[Figure 5 here]

This relatively high threshold level, 9.9%, identified from the main specification is consistent with the crisis-thesis literature. Brooks and Kurtz (2007) argue that a slight downward movement of the economy does not necessarily drive reform, whereas an actually serious economic crisis such as hyperinflation can do so.

It should be noted that less savings observed before an economic crisis do not indicate a counter-cyclical policy by local governments to stabilize their economies (Rodden and Wibbels 2010; Ter-Minassian and Fedelino 2010). They simply lack a monetary, fiscal, or organizational capacity for economic stabilization, unlike their upper government (Rodden and Wibbels 2010). Notably, the federal government possesses the mighty power of dollar printing, which is obviously not allowed for local governments. The latter is also required to make balanced budgets (Hendrick 2006, 23). Such a hard budget constraint is another reason to make it difficult for local governments to enact a

proactive fiscal policy. Third, the federal government has the authority of border control, which is critical to maximizing a desired economic impact within its jurisdiction, whereas local governments are merely powerless in regulating interlocal mobility of people. Lastly, the federal government is assisted by large organizations specializing in economic analysis and forecastings, such as the Office of Management and Budget. Local governments may or may not have support organizations; even if they have, their capacities are not comparable to those of the federal counterparts.

The findings of this study is that a typical local government would behave in the market economy less like the federal government that is powerful enough to impact the macroeconomy, but more like an individual consumer who spends money in a good economy but has to save in a bad economy, only trying to adjust for the economy. To summarize, the notion of a proactive counter-cyclical policy is simply a luxury not feasible for a typical local government to enact.

Several controls produced noteworthy results as well: *Recession*, *Home Rule*, *Term Limits*, *\$Own-Source Revenues*, *\$Growth*, *Density*, and *\$Surplus* turned out to be statistically significant. *Recession* turned out to have a positive significant coefficient. The arrival of a recession grew savings in the next year by \$168.645. Although marginally significant, adopting home rule was related to the increase in government savings in the subsequent year by \$114.291. Installing term limits on the city council resulted in an increase in savings the next year by \$80.622, which supports the positive role of term limits as suggested by previous studies. Each dollar of own-source revenue and government surplus turned out to raise savings by .211 and .203 dollars, respectively.

Government growth and population density capturing public service demand were associated with the decrease in savings by .127 and .002 dollars, respectively.

Robustness checks were conducted in several ways.^{iv} First, an alternate specification was run where the original dependent variable on a per-capita basis was replaced by one measured as percentages of total expenditure. The main result, a regular U shape with statistical significance, did not change. Second, we reestimated the model without the recession dummy due to a collinearity concern with individual year dummies indicating year-specific effects. It turned out that the main result was not sensitive to the removal. Third, the possibility of reverse causality between an economic crisis and government savings could be a concern. A proven approach in the literature (e.g., Jin et al. 2005, 1739) is switching a suspected independent variable and the dependent variable. Accordingly, this study regressed unemployment rates ($\%Unemployment_{t-1}$, $\%Unemployment\ Squared_{t-1}$, $\%Unemployment_t$, respectively) as the dependent variable on $\$Unreserved\ fund\ balance_t$ as an independent variable. $\$Unreserved\ fund\ balance_t$ showed no significance at all on any variable of unemployment rates in these alternate specifications, ruling out the possibility of reverse causality.

Conclusion

This study explored whether and how an economic crisis impacted the savings behavior of local government in the context of 254 cities in California over 14 years (1996-2009). The extensive cross-sectional and time scope with rich variations in the data enabled an effective test of its main hypothesis. The findings confirmed the hypothesis regarding the effect of an economic crisis on the spending of savings. That is, an

economic crisis caused the spending of savings incidentally halted by modifying the political incentives of legislators. It identified a threshold level at which government began to accrue savings.

This study holds significant implications for research and practice on how to manage fund balances in localities. Government savings can be studied from various perspectives such as economics or organization theory: the economic approach sees fund balances as *economic* resources, while the organizational approach as *organizational* resources. In comparison, this study approached the resources from a *political-economic* perspective, an attractive source to seek pork during a booming economy. An economic crisis can force legislators to stop pork-seeking to avoid blame, and an incidental product of this would be the accumulation of fund balances during the economic crisis.

If the accumulation of fund balances is only an incidental effect of an economic crisis, there are always chances where fund balances become an easy target again for consumption by legislators. Thus, deliberation should occur on how to keep the legislative pursuit of pork-seeking difficult even after the end of an economic crisis (Alesina and Tabellini 1990; Clingermayer and Wood 1995; Park 2018). One way of doing this from a political-economic perspective could be creating an institutional device such as budget stabilization funds to which binding rules on deposit and withdrawal are attached. Budget stabilization funds are viewed as a product of a collective effort among legislators to protect certain fiscal resources from their own political incentives. As these funds are less common in localities (Hendrick 2006), those that do not have such a fund yet need to consider creating one that absorbs at least some of the unmanaged fund balances.

Moreover, this study has broader practical implications for localities going through the economic crisis in 2020. The new era begun by the COVID-19 pandemic holds great uncertainties. Yet one thing is certain; the new era calls upon governments to meet two uneasy goals simultaneously, first, improving their residents' well-being in various areas (e.g., health or social life) and, second, maintaining their own financial solvencies. Unfortunately, findings of this study imply that local governments are generally ill-prepared for a crisis, which is why they repeatedly suffer like individual consumers whenever it hits. Governments should be able to resist political incentives even in good times and practice prudent financial measures such as expanding fiscal reserves. Only these well-prepared governments will thrive in the new era of great uncertainty.

There is room for future research exploring related questions. First, this study did not address what conditions could make the incidental effect of an economic crisis last longer on savings. Some governments may successfully take innovative measures such as budget stabilization funds, while others may fail to do so, in which case the incidental effect will quickly diminish. In this regard, the role of finance managers merits attention. Hildreth, Yeager, Miller, Rabin (2012) indicate that finance managers as nonpolitical financial experts play a significant role in government fiscal decisions. Data limitations prevented this study from exploring how they could help legislators take those innovative measures. This research question should be pursued by prospective research.

Second, this study attempted to operationalize a crisis by employing an objective economic indicator. However, this approach did not reflect the "role of perception regarding either the crisis itself or the need of change" (Mahmalat and Curran 2018, 616).

Given that individuals change their behaviors through their perception, this is a legitimate concern.

Finally, this study's findings had a limited external validity due to its focus on a single state in the U.S. and the exclusion of smaller localities (residents of 25,000 or less). The limitation could be effectively addressed by future research conducted in diverse political, social, or institutional contexts. Research on savings of smaller localities will deepen the understanding of local savings behavior.

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Table 1. Variable, Description, and Data Source

Variable (Unit)	Description	Source
Unreserved Fund Balances (\$,Constant)	Per capita; (designated + undesignated unreserved fund balances)÷city population	<California City Financial Transactions>, RAND California; originating source– <i>Cities Financial Transactions Report</i>
Unemployment (%)	Lagged; annual unemployment rate for cities with populations above 25,000	<Local Area Unemployment Statistics>, Bureau of Labor Statistics
Recession (0,1)	Lagged; 1 if 2001, 2008; otherwise, 0	National Bureau of Economic Research
Home Rule (0,1)	Lagged; 1, if home rule (or charter); otherwise, 0	California State Controller, <i>Annual Cities Report</i>
Term Limits (0,1)	Lagged; 1, if a city has term limits on its city council; 0, otherwise.	Thousand Oaks, Apr 12, 2011, “State of California Councilmember Term Limits Survey by City in Alphabetical Order,” as Attachment #4 of the Memorandum, <i>Thousand Oaks Councilmembers Term Limits Initiative Impact Analysis Report & Scheduling for November 6, 2012 Election</i> ; municipal code of ordinances; charter; county registrar of voters; California Elections Data Archive (CEDA); Smart Voter; Ballotpedia; newspapers (esp., <i>Los Angeles Times</i>)
Democratic Votes (%)	Lagged; votes cast to a Democratic presidential candidate ÷ total votes cast to any candidate listed on the Supplement to the Statement of Vote*100	California Secretary of State, 1992, 1996, 2000, 2004, and 2008, <i>Supplement to the Statement of Vote</i>
Nonprofits (Number)	Lagged; number of 501(c)(3) charities filing Form 990 by county	Urban Institute, National Center for Charitable Statistics, http://nccsdataweb.urban.org ©2011; originating source–Internal Revenue Service, Exempt Organizations Business Master File 501(c)(3) Public Charities
Own-Source Revenues (\$,Constant)	Lagged; per capita; (Total revenue – revenues from federal, state, county)÷city population	<California City Financial Transactions>, RAND California; originating source– <i>Cities Financial Transactions Report</i>
Contracting (%)	Lagged; expenditure for service contracts ÷ total expenditure*100	<California City Financial Transactions>, RAND California; originating source– <i>Cities Financial Transactions Report</i>
Government Growth (\$,Constant)	Lagged; per capita total revenue t – per capita total revenue $t-1$	<California City Financial Transactions>, RAND California; originating source– <i>Cities Financial Transactions Report</i>
Population Density (Persons)	Lagged; persons per square mile	<Community statistics>, RAND California; originating source–the U.S. Census Bureau
City Population (Persons)	Lagged	<Population and Demographic statistics>, RAND California; originating source–the U.S. Census Bureau
Surplus (\$,Constant)	Lagged; per capita; (Total revenue – expenditure)÷city population	<California City Financial Transactions>, RAND California; originating source– <i>Cities Financial Transactions Report</i>

Table 2. Fixed-Effects (Within) Regression Estimates

	(1) Baseline	(2) Recession	(3) %Unemployment linear	(4) Main specification
Variables				
		\$Unreserved fund balance		
%Unemployment Sqd $t-1$	—	—		0.501** (0.234)
%Unemployment $t-1$	—	—	4.801 (6.502)	-9.926 (10.89)
Recession (0,1) $t-1$	—	162.4*** (37.89)	179.2*** (44.79)	168.6*** (45.53)
Home Rule (0,1) $t-1$	117.8* (64.98)	117.8* (64.98)	117.7* (65.19)	114.3* (64.92)
Term Limits (0,1) $t-1$	80.65* (48.16)	80.65* (48.16)	77.06 (48.97)	80.62* (48.43)
%Democratic Votes $t-1$	0.182 (2.476)	0.182 (2.476)	-0.317 (2.474)	-0.242 (2.473)
Nonprofits $t-1$	-0.00674 (0.0107)	-0.00674 (0.0107)	-0.00709 (0.0109)	-0.00851 (0.0108)
\$Own-Source Revenue $t-1$	0.213*** (0.0686)	0.213*** (0.0686)	0.211*** (0.0697)	0.212*** (0.0697)
%Contracting $t-1$	0.215 (0.740)	0.215 (0.740)	0.225 (0.741)	0.174 (0.745)
\$Government Growth $t-1$	-0.128*** (0.0349)	-0.128*** (0.0349)	-0.127*** (0.0352)	-0.128*** (0.0351)
Density $t-1$	-0.00237** (0.00106)	-0.00237** (0.00106)	-0.00238** (0.00107)	-0.00248** (0.00105)
Population (Persons) $t-1$	-0.000451 (0.000981)	-0.000451 (0.000981)	-0.000429 (0.000989)	-0.000514 (0.00101)
\$Surplus $t-1$	0.204*** (0.0670)	0.204*** (0.0670)	0.207*** (0.0665)	0.204*** (0.0663)
Constant	285.4 (226.6)	144.4 (171.6)	131.1 (173.4)	211.5 (185.3)
Observations	3,399	3,399	3,399	3,399
R-squared (Within)	0.183	0.183	0.184	0.185
Number of cities	254	254	254	254

Note: P-values are denoted as follows: ***p < 0.01, **p < 0.05, and *p < 0.1; Two-tailed test; Robust standard errors clustered for cities are reported; Year-specific dummies are included. Dollar data are converted to 2005 constant dollars.

Figure 1. Unemployment and Annual Trends of Savings – Select Cities

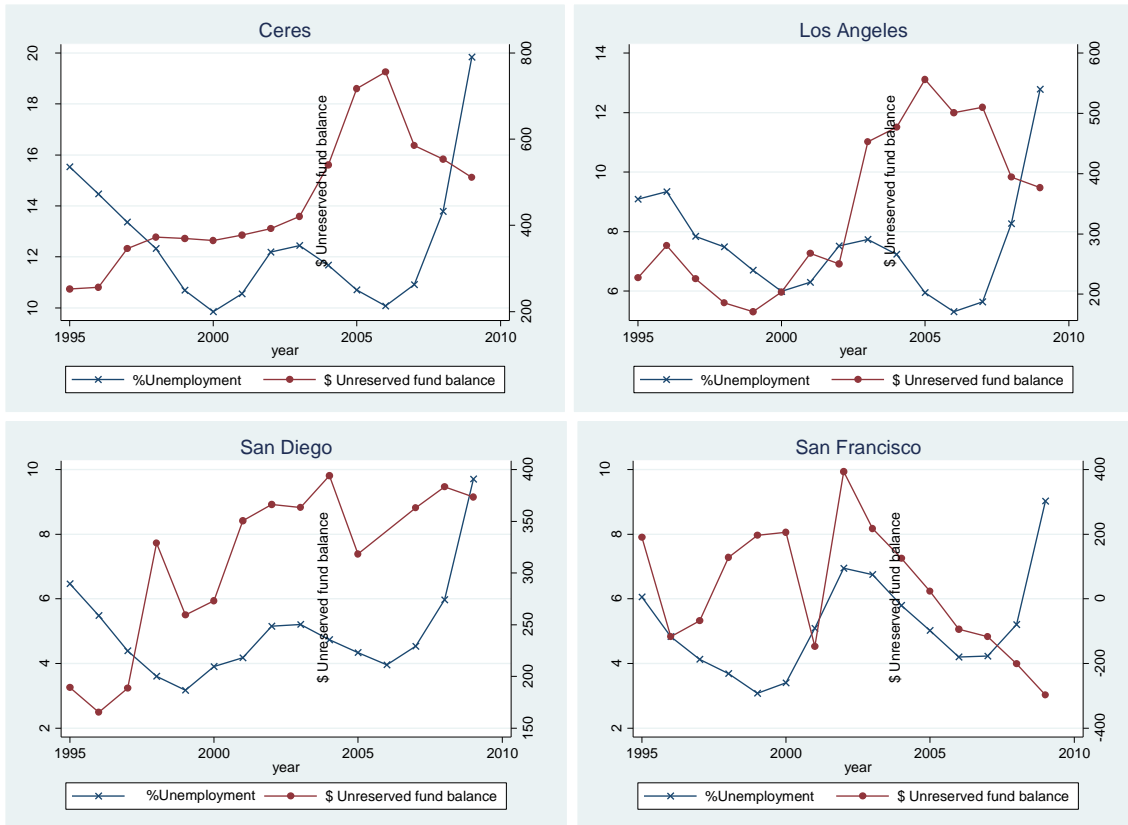


Figure 2. Nationwide Recessions and Annual Trends of Savings - Aggregated

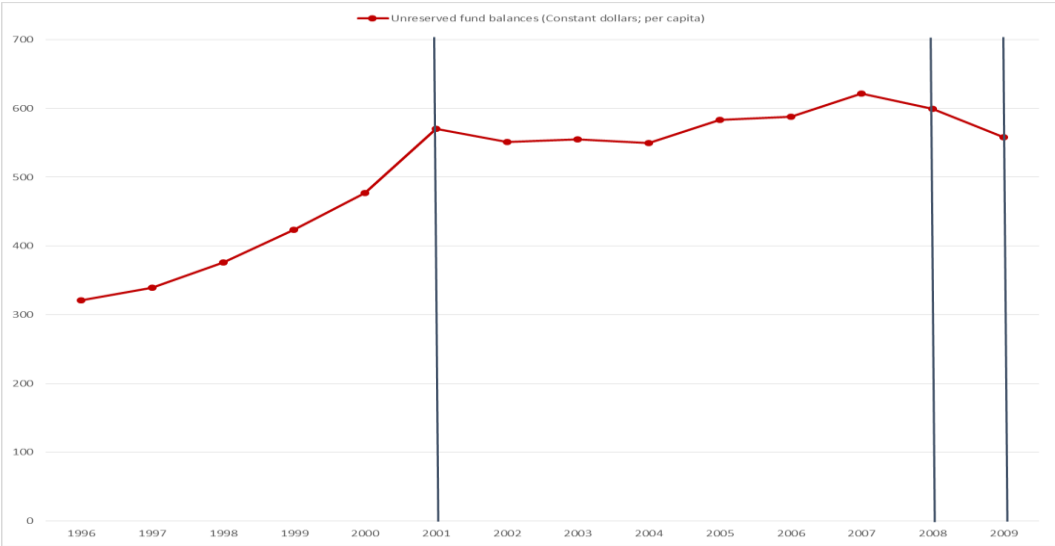


Figure 3. Scatterplot between Unemployment and Savings – Select Cities

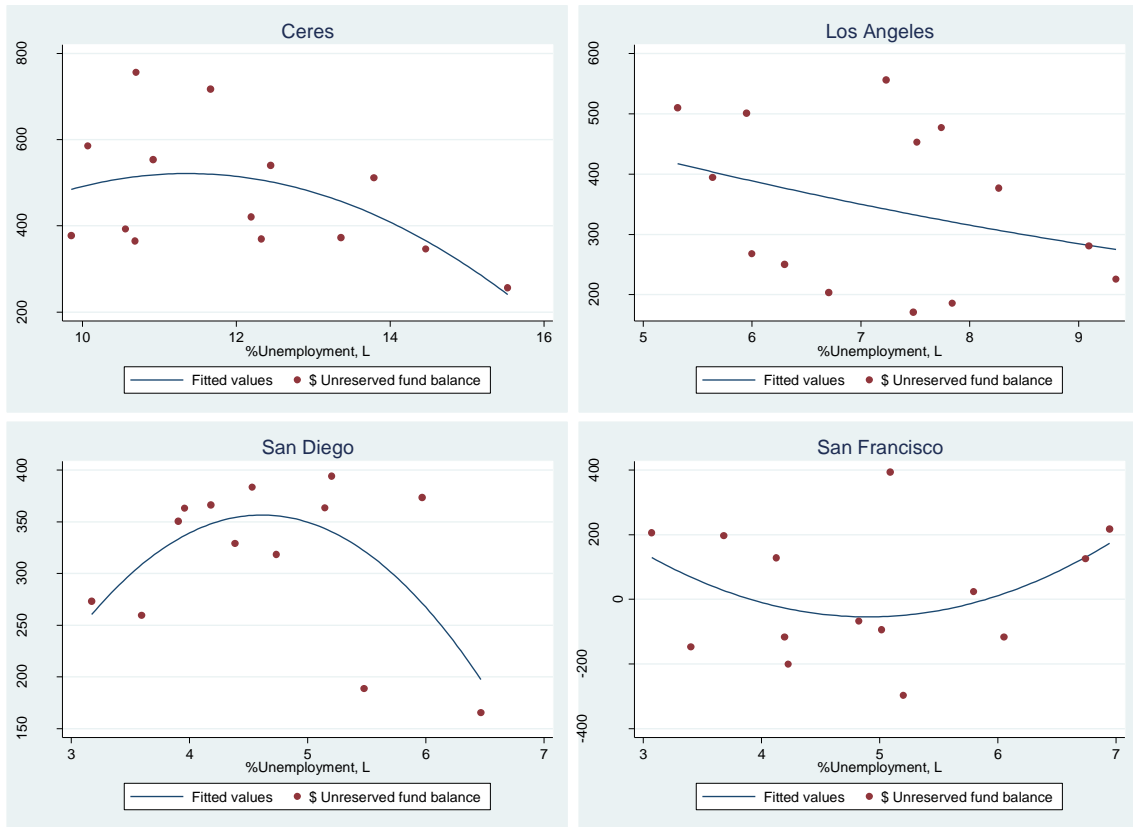


Figure 4: Predictive Margins with 95% Confidence Intervals

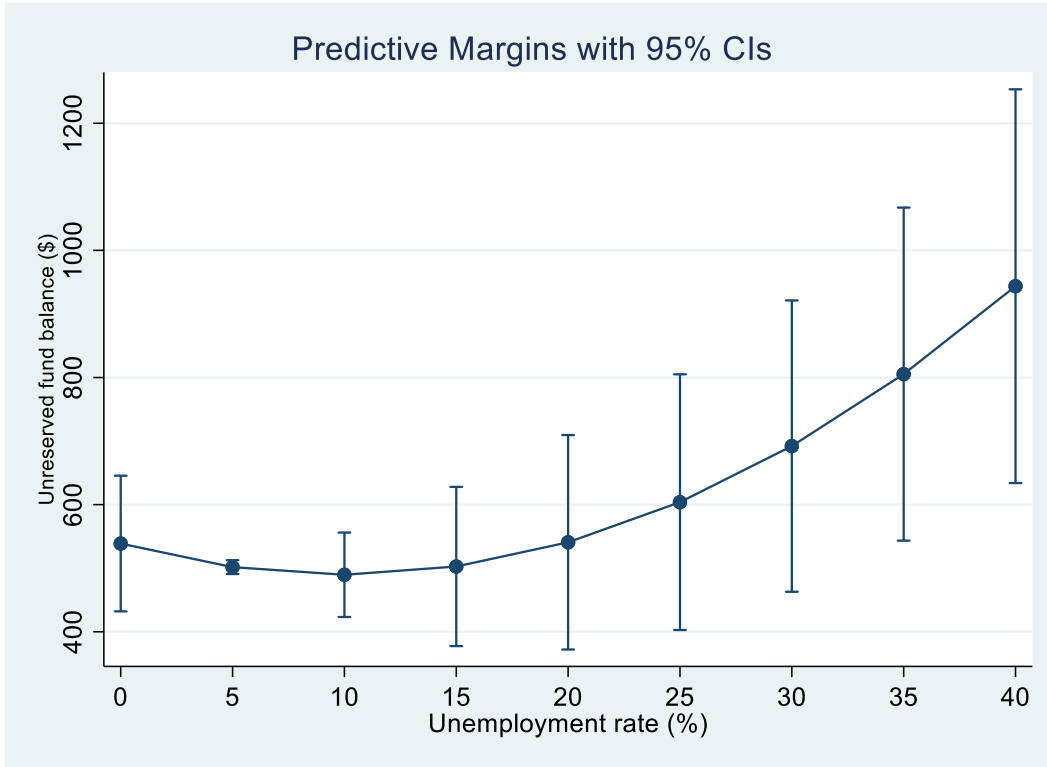
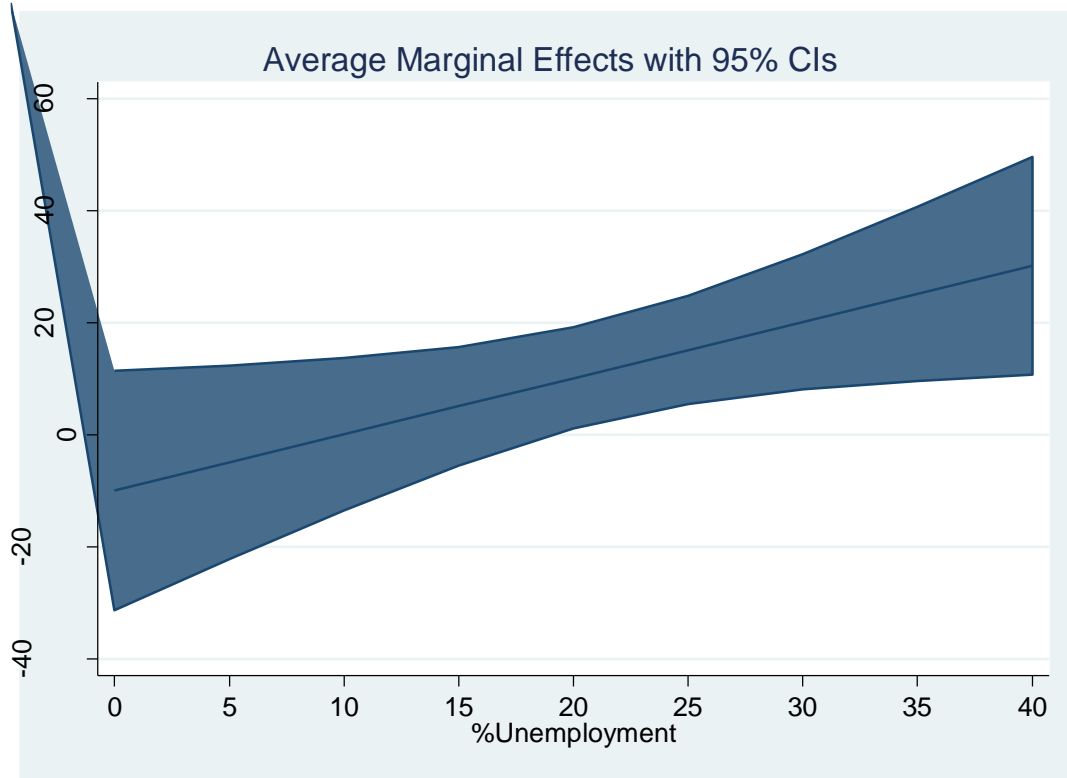


Figure 5. Average Marginal Effects of %Unemployment



Note: Unemployment rate (%) in the study data is characterized by the mean of 5.91, standard deviation of 3.59, minimum of 1.01, and maximum of 38.69.

Appendix 1A. Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min.	Max.
\$Unreserved Fund Balances	3,399	504.11	467.30	-753.28	5,391.71
%Unemployment	3,399	5.91	3.59	1.01	38.69
Recession	3,399	.14	.35	0	1
Home Rule	3,399	.28	.45	0	1
Term Limits	3,399	.22	.41	0	1
%Democratic Votes	3,399	53.13	14.67	22.98	94.85
Nonprofits	3,399	3,145.79	3,506.50	18	13,634
\$Own-Source Revenues	3,399	1,072.67	845.13	87.65	8,385.52
%Contracting	3,399	20.47	16.54	0	82.08
\$Government Growth	3,399	36.72	285.71	-2,340.03	2,686.47
Population Density	3,399	5,638.04	4,639.80	275	78,777
City Population	3,399	100,854.1	258,339.5	11,419	3,801,574
\$Surplus	3,399	66.59	229.44	-1,919.66	3,336.04

Appendix 2A. Pearson's Correlation Coefficients

	1	2	3	4	5	6	7	8	9	10	11	12
1.\$Unreserved fund balances	1.00											
2.Recession <i>t-1</i>	0.03*	1.00										
3.%Unemployment <i>t-1</i>	-0.22*	0.02*	1.00									
4.Home Rule <i>t-1</i>	0.05*	0.00	-0.00	1.00								
5.Term Limits <i>t-1</i>	0.13*	0.01	-0.18*	0.44*	1.00							
6.%Democratic Votes <i>t-1</i>	-0.04*	0.12*	0.24*	0.15*	0.02	1.00						
7.Nonprofits <i>t-1</i>	-0.02*	0.08*	-0.09*	0.00	0.08*	0.28*	1.00					
8.\$Own-source Revenues <i>t-1</i>	0.38*	0.06*	-0.10*	0.37*	0.20*	0.15*	-0.00	1.00				
9.\$Surplus <i>t-1</i>	0.29*	0.05*	-0.07*	0.02	0.01	-0.08*	-0.01	0.29*	1.00			
10.%Contracting <i>t-1</i>	0.00	0.00	-0.17*	-0.19*	-0.01	-0.13*	0.12*	-0.23*	-0.01	1.00		
11.Density <i>t-1</i>	-0.08*	0.01	0.11*	0.00	0.07*	0.41*	0.40*	-0.03*	-0.08*	-0.02	1.00	
12.Population <i>t-1</i>	-0.05*	0.00	0.01	0.24*	0.23*	0.10*	0.09*	0.20*	-0.03*	-0.07*	0.06*	1.00
13.\$Growth <i>t-1</i>	0.07*	0.02	-0.02*	0.02*	0.01	0.00	0.00	0.24*	0.54*	-0.03*	-0.01	0.01

Note: * significant at 10% level

Endnotes

ⁱ Moody's Investors Service, Mar 2004, *The Six Critical Components of Strong Municipal Management: Managerial Methods to Promote Credit Enhancement*, retrieved Jul 12, 2017; Standard & Poor's, Jul 26, 2010, *Top 10 Management Characteristics of Highly Rated Credits in U.S. Public Finance*, accessed Jul 12, 2017.

ⁱⁱ National Bureau of Economic Research (NBER), "US Business Cycle Expansions and Contractions," www.nber.org/cycles/cyclesmain.html, accessed Aug 5, 2019.

ⁱⁱⁱ The Great Recession ended in June 2009. NBER, "US Business Cycle Expansions and Contractions," www.nber.org/cycles/cyclesmain.html, accessed Aug 5, 2019.

^{iv} Results are available upon request.