The Effects of Tax and Expenditure Limitations on the Fiscal Decisions of Municipal Governments

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ABSTRACT OF THE DISSERTATION

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This dissertation consists of four essays that introduce tax and expenditure limitations (TELs), examine their effectiveness, identify potential unintended impacts of the TELs, and discuss future beneficial research. TELs impose financial restrictions onto municipalities, however exceptions in these laws allow municipalities to exceed stated thresholds. This creates uncertainty regarding the effectiveness of these laws. This dissertation examines TEL efficacy, in addition to providing insights regarding unintended consequences of these laws. I utilize methodologies which account for the endogenous relationship between TEL enactment and fiscal policy.

The first essay provides background regarding the types of tax and expenditure limitations, their intended effects, and how certain technical aspects of their enactment may allow for circumvention of the stated limits.

In the second essay, I examine how municipal finances are affected by TELs. The main goals of TELs are to reduce the property tax burden of residents and reduce the size of government. I find evidence that property tax burden is reduced following implementation of TELs. However, I do not find strong evidence that expenditures are

significantly reduced. Additionally, I do not find consistent evidence of reductions in expenditure growth.

Essay three examines potential unintended consequences of TELs. I find there are potential consequences of these TELs beyond the two main goals of reduced property tax burden and government size reduction. One consequence is a reduced proportion of spending on productive services. In addition, I find evidence that municipalities may anticipate the enactment of the laws and react by increasing the proportion of service expenditures just before the law goes into effect. The negative implication of this anticipation is that accelerated expenditures, if sub optimally funded by debt, could be costly for the municipality in the long term.

The final essay discusses future research that could provide insights regarding methods to help ensure that municipalities effectively implement financial policies under tax and expenditure limits. This essay posits that GAAP reporting standards and high quality audits may aid in limiting TEL limit circumvention. An exploratory examination of the association of GAAP standards and municipal financial decisions is performed.

Dedication

To my wife, my children and my parents. I thank you for your love and boundless support over these years.

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Table of Contents

List of Tables

List of Figures

1. Introduction to The Effects of Tax and Expenditure Limitations on the Fiscal Decisions of Municipal Governments

1.1 Introduction

Local governments have perhaps the most significant direct impact on the lives United States residents. These governments often provide a variety of services. This includes, but is not limited to, providing a police force, fire protection services, public education, road maintenance, and public parks. Providing these services obviously comes at a cost, and those services that are not covered through state or federal aid are generally funded through property taxes. Some cities obtain significant funding through other revenue streams, such as fees and income tax, however property taxes are the most ubiquitous form of local government revenue. Residents may view the property taxes they pay as a fair cost for the value they receive as residents of their municipality. However, it's also possible that residents feel that property taxes are an unfair burden. Other costs that residents pay, such as local sales taxes, fines, or other fees, are usually due to an active decision or activity in which the resident chose to participate at that time. If local sales taxes increase, residents can adjust their discretionary spending, or shop in a neighboring area. If local governments decide to increase property taxes, the resident often does not have the immediate recourse of selling their property and moving to another municipality. Even if the resident is a renter, the owner of their home can decide to incorporate the increased cost of the property tax into the rent cost. Similarly to home owners, renters may not have a frictionless ability to change their residence to another municipality. They could have local jobs, family obligations, a desire to keep children in their same schools, or

various other reasons for wanting or needing to stay in the same locality. These barriers to avoiding property tax increases can make the increases feel like an unfair burden. However, states have shown the willingness to step in and provide residents with what they believe is relief and protection from an unfair local property tax burden.

As of 2012, the final year of the sample data utilized in this dissertation, 45 states had enacted formal tax and expenditure limitations (TELs) over the finances of local governments. Mullins and Cox (1995) and Mullins and Wallin (2004) classify the types of TELs that exist, and identify the years of their implementation for each state. According to their research, seven types of tax and expenditure limits exist: 1) overall property tax rate limits, 2) specific property tax rate limits, 3) property tax revenue limits, 4) assessment increase limits, 5) general revenue limits, 6) general expenditure limits, and 7) full disclosure. Overall property tax rate limits are written so that the combined property tax of a county or township and the related municipalities does not surpass a certain threshold. A specific property tax limit, in this dissertation, refers to property tax limits that are imposed directly on the municipality, rather than the combined taxes of county and municipality. The property tax revenue limit is a limit on the actual property tax revenues that a municipality can obtain. Assessment increase limits restrict how much a local government can increase the assessed value of a property. A general revenue limit is a TEL that does not directly restrict the property tax revenues of a local government, but rather it limits the total revenues of that government. General expenditure limits impose restrictions on the overall spending of a local government. Full disclosure is not a technical limit on revenues or spending. Rather, it is only a requirement that the public must be

notified before the government imposes any significant increases in property taxes or spending (depending on the language of the rule).

1.2 TEL Strength

These rule classifications lead to interesting issues depending on which limit(s) a state decides to adopt. If states simply impose a cap on property tax rate increases, the local governments could potentially use increased property value assessments to obtain the desired property tax revenues. If states only limit increases in assessments, then a municipality could increase property tax rates to obtain the desired revenues. This potential for managing property tax revenue is why these two examples of TEL laws are deemed weak TELs. If, however, the law placed caps on both the property tax rate and the assessment increases, this law would be classified as a strong TEL. The tax and expenditure limitation literature also classifies any limit on property tax revenues, general revenues, or expenditures, as strong TELs. A full disclosure requirement on its own is deemed to be a weak limitation due to the lack of any real financial constraint. Tax and expenditure limitation laws are enacted to limit property taxes, government size, or both (Waisanen 2010). It seems reasonable that, if a state implements a strong TEL, then compliance with the stated limits would come as a matter of course. However, due to the way many TELs are written, this is not always the case.

1.3 TEL Exclusions

Although strong tax and expenditure limitations seem to provide strict guidance for municipal spending and taxation, TELs are often written with exceptions to these rules (Mullins and Wallin 2004 data). A frequent exclusion, which allows municipalities to raise revenues or expenditures past stated limits, is debt service. The need of this exclusion is

transparent. If municipalities are forced into bankruptcy due to the inability to pay debt, the consequences of that bankruptcy could surpass the intended benefits of the fiscal control imposed by the TEL. However, there seems to be a path for this debt service exclusion to be used in ways that allow for other spending. For example, if a state imposes a strong TEL by limiting property tax revenues, the municipality could instead borrow the money to pay for its projects. When this debt comes due, municipalities then raise the necessary property taxes to service the debt and avoid bankruptcy. This type of situation makes it unclear whether even strong TELs will be successful in imposing their stated limits over municipal finances. Hence, it is worthwhile for researchers to attempt to reveal the actual impacts of TELs.

1.4 Other Impacts of TELs

In addition to the possibility that the main objectives of the TELs are not being achieved, it is also possible that other effects occur that may not have been anticipated by either state legislatures or the residents of states and municipalities that are subject to the limitations. One such instance of an indirect but related effect is how the TEL leads to changes in the proportion of service expenditures. These issues, and the research questions they create, are discussed in the third and fourth essays.

1.5 TEL Theory

As stated earlier, local governments can have the most direct and significant impact on the daily life of a United States resident. If this is the case, then it can be assumed the local government leadership has a better understanding of the desires of its constituency than state level government officials. Why then has it become almost universal for states to impose some type of tax and expenditure limit on local governments? Shouldn't local

governments already know what the best budget is for their residents? In this case, there could be a discrepancy between what is best for the long-term health of the municipality, and what is optimal for the current leadership of the municipality. Leviathan theory (Brennan and Buchanan 1977) states that governments want to increase political power through maximizing budgets. Municipal leaders are also faced with the task of being reelected. For municipal leadership, spending as much as possible on projects that the local constituents favor satisfies leviathan desires of the current year, and potentially help secure reelection in the future to continue implementing maximized budgets.

There is a significant issue that arises when municipal leadership acts in accordance with leviathan theory, which may be the catalyst for state-enacted tax and expenditure limitations. Although most residents may approve of municipal spending, municipal revenue eventually must cover the expenditures. Within a municipality, certain residents may bear a much heavier property tax burden than others. If the highly-impacted minority cannot vote to remove the municipal leadership, they could lobby state level politicians for help in mitigating the rising property tax costs. There may also exist frictions amongst the desires of residents between municipalities.

To illustrate, consider at least two municipalities within a single state: municipality A and municipality B. Municipality A has lower expenditures, and municipality B has high expenditures. Each municipality's residents are perfectly happy with how their own municipality operates. However, residents of municipality A are concerned that eventually, municipality B's spending habits will cause financial stress that forces the state to intervene and pay off the municipality's debts. Residents of municipality A (and other similar residents) understand that it's probable they will be forced to pay extra state taxes

due to the spending of municipality B. In this case, although each individual municipality is governing in a manner that their constituency approves, the majority of the state's population may request that state legislature implement TELs over all local governments as a way to reduce the probability of a state bailout.

1.6 Research Questions

The ability for municipalities to legally circumvent the generally stated TEL goals, as well as the potential implications for doing so, creates a need for examination of the effectiveness of TEL rules. Therefore, I address two main questions in this dissertation:

1) Are tax and expenditure limitations effective in limiting property tax burden and government size?
2) Is reduction in the proportion of service expenditures a potential consequence of enactment of tax and expenditure limitations?

The definitions and calculations of select terms are included in the appendix.

1.7 Methodology

This study utilizes methods which control for the endogenous relationship between the enactment of tax and expenditure limitations and the financial choices of municipalities. Shadbegian (1998) performed tests utilizing municipal financial data which confirmed the need to control for endogeneity in these studies. I control for endogeneity in this study by using regressions which include a variable that significantly captures the effects of factors that influence the likelihood of a strong TEL being in place for each state in each year. This "predicted TEL" variable and the actual TEL variable are included together in regressions so that any significant coefficients on the actual TEL variable are exclusive of

potentially confounding factors. The second major testing technique used in this study is a difference in differences model. This technique captures the influence of time effects and structural differences between the characteristics of the test group and the control group. After these factors are accounted for, the coefficient on the interaction between the test group and post TEL variables better signifies the effect that the TEL has had on the dependent variable of the difference in differences regression.

1.8 Contribution and Limitations

This study contributes to the tax and expenditure limitation literature, as well as literature related to municipal manager decision making. One specific contribution is the improved ability to capture major effects of TELs and other potential consequences of TELs through methods that control for endogeneity. The larger sample size, when compared to other related local government research, provides results that are more generalizable. Additionally, my expanded definition of services better captures expenditures that benefits residents. Most previous literature that examines the spending of local governments focuses on narrow definitions of service expenditures such as teacher to student ratio or police and fire expenditures. The appendix lists the spending categories that I classify as service expenditures.

I also contribute to the literature with the construction of a new proxy for property tax burden. This proxy not only accounts for the cost to residents, but also the potential benefits they receive from those costs. This two-sided approach is key when trying to understand the burden residents may feel from the property taxes they pay.

A contribution related to the effect of tax and expenditure limitations on service ratio is achieved through the disaggregation of the service ratio measure. This

disaggregation uses separate tests to reveal how TELs have different effects on protection services and other service expenditures. This also allows for a direct comparison to prior research, which has used protection services as the definition of service ratio. In contrast to results found in prior research, I do not find significant evidence that protection services are reduced after TEL implementation, but rather the other services are significantly decreased after TEL implementation.

Another way this study contributes is through the examination of how the anticipation of TEL laws affect the timing of municipal service expenditures. I find evidence that service ratio is significantly increased just before a TEL is enacted. This implies that municipalities are taking actions to preempt the effects of the incoming TEL law. This has a significant potential detriment, as these actions could lead to suboptimal funding methods which affect the municipality long-term.

Limitations to this study are related to the nature of local government research. As this is a large-scale, nationwide examination of municipal finances, the testing models do not include certain municipality specific data. Some data which may improve specification of the models, but were impractical to obtain due to study size, were: municipal government structure (mayor – council, council, strong mayor, etc.), municipal election years, and party affiliation of municipal leadership. Despite these limitations, the results revealed in the subsequent essays are significant contributors to the TEL, municipal accounting, and municipal decision making research areas.

1.9 Dissertation Organization

The remainder of this dissertation is organized as follows; the second essay examines whether tax and expenditure limitations are producing the intended effects of

property tax burden reduction and / or reduction in government size. The third essay includes an analysis of the effects that TELs have on service ratio, which is a relationship that is not explicitly outlined in tax and expenditure limitation laws. Therefore, changes in this ratio could be an unintended and unforeseen consequence of the enactment of strict TELs. Finally, the fourth essay discusses future research that could contribute to the tax and expenditure limitation literature. It also includes an exploratory look at how high-quality information is associated with expenditures and service ratio.

2. The Effectiveness of Tax and Expenditure Limitations on Municipal Governments

2.1 Introduction

Within the United States, the vast majority of municipalities are currently operating under laws that limit property tax collection or limit expenditures in some way. These tax and expenditure limitations (TELs) are implemented at the state level and imposed onto the local governments. The purpose of these caps can be to reduce the tax burden of the tax paying population, to reduce the size of municipal government, or both (Waisanen, 2010). McCabe examines property tax burden by testing whether state property tax limitations are responsible for changes in property tax reliance (McCabe, 2000). She finds that newly enacted, binding tax and expenditure limitations (TELs) cause an initial reduction in property tax reliance. In this study, I build upon these results in a few ways. First, I draw from a broader sample period (1970 – 2012) utilizing annual data as opposed to relying solely on 5-year increments. Second, I use testing methodologies which control for the endogenous nature of property tax burden and TEL implementation.

Another contribution of this paper is the creation of a new tax burden construct. Tax burden should not focus only on property tax payments or the property tax portion of the city's own-source revenues; the benefits that tax payers receive in return for paying property taxes are also significant. Thus, I use property taxes per dollar of expenditures as a more complete proxy for property tax burden. Expenditures are the proxy for the value that tax payers receive (police protection, fire departments, parks and recreation, etc.) in

return for paying property taxes. Using this property taxes per expenditure measure, I find evidence of reduced property tax burden due to tax and expenditure limitations.

Prior research has used time-series to study the effect of TELs on government size. Joyce and Mullins (1991) and Lowery (1983) find no evidence that TELs reduce government size. On the other hand, Shadbegian (1998) finds that there is a reduction in both expenditures and municipal growth when using a predicted TEL variable, which is a variable that shows the likelihood of a TEL existing under certain financial and demographic conditions. However, these studies include all types of local governments (cities, counties, and school districts), and aggregate them at the state level. My study focuses on municipalities and utilizes the data at the municipal level. This allows for consistency in the data before and after event dates and permits clearer inferences about the effects of a TEL on a municipality. It is also useful, and perhaps necessary, to disaggregate the data since different types of local governments have fundamental differences in their revenue structure (McCabe & Feiock, 2005). Independent school districts may rely solely on property taxes as their revenue base, while a county or city may have multiple revenue streams available. Taking this into account, my results do not show a significant reduction in either expenditure levels or growth for municipalities operating under tax and expenditure limitations.

It's likely that the enactment of TELs is not exogenous to the financial outcomes of municipalities. For example, the underlying driver of both the TEL enactment and financial status of a local government could be a state population that desires reduced spending. To achieve it, they could vote for candidates that promise to reduce expenditures and implement laws to reduce taxes and spending (such as TELs). If this endogeneity is

significant, isolating the effect of the TEL requires separately accounting for its impact. Therefore, in one method, I use a variety of factors to predict the likelihood that a state will implement a strong TEL. The other method I use is a difference in differences approach which is also capable of addressing the potential issues that stem from endogeneity.

2.2 Motivation

When states enact tax and expenditure limits on their municipalities, their goals are generally to reduce the tax burden placed on its population, and/or to reduce the size of municipal government. These limitations can be legislated in various ways including limits on raising the property tax rate, limits on raising the assessed value of property, limitations on expenditures, or various combinations that may provide more binding limitations. However, there are often exceptions to these limits. These exceptions cast doubt on whether the TELs will truly have their intended effects, and therefore give cause for empirical testing. For example, in New Jersey, property taxes that are used to pay off debt obligations are excluded when calculating whether overall property tax collections or overall expenditures have increased more than the allowed percentage. This is a common exclusion nationwide, and makes fiscal sense because it may save the municipality from the burden of defaulting on its bonds. However, this exception also leaves open the possibility that municipalities merely shift the tax burden from the current period to future periods. If a municipality is unable to levy sufficient property taxes to fund its current expenditures and does not receive increased state support, the mayor and/or council can choose to reduce the expenditures, or try to raise cash through alternative sources. Some municipalities have access to revenues through local sales tax or local income tax. If a municipality wants to maintain its expenditures, this allows many municipalities to choose

between increasing revenue from various fees, permits, licenses, and fines (National League of Cities http://www.nlc.org/build-skills-and-networks/resources/cities-101/city-finances/local-revenue-structures/revenue-from-other-sources), or borrowing the necessary cash. The most predictable source of cash among these alternatives is borrowing. Unlike corporations, in which debt-based financing is often a preferred alternative to equity-based financing (Myers & Majluf, 1984), debt may be the most costly source of cash for municipalities. If limits on property tax collection lead to increased debt, there will be an increase in fees and interest payments and potentially lower credit ratings which would increase interest costs even more. Increased municipal debt financing may cause a larger portion of municipal expenditures to be used to service debt instead of providing public services which, from the residents' perspective, could be seen as a reduction in fiscal productivity. Given the potential for levy caps to have unforeseen effects and results that are not congruent with the original intent of the TELs, my investigation into this matter is warranted. My goal is to add empirical evidence on the effectiveness of these regulations in curbing spending and reducing the property tax burden, and to examine the potential unintended consequence of relatively reduced spending on services. I do this by testing how municipal finances change when operating under strict tax and expenditure limitations.

In the following section, I discuss literature that has examined tax and expenditure limitations and their relationship to tax burden and government size using municipal data from cities throughout the United States.

2.3 Literature Review

2.3.1 Tax and Expenditure Limitations

TELs have become widely used throughout the United States. As of 2012, there were 45 states with some form of TEL in place. These state-implemented rules are enacted to protect tax-payers from rising tax burdens by limiting the local governments' ability to raise property taxes and/or reduce the local governments' expenditures (Mullins & Cox, 1995). Sears and Citrin (1982) discuss the "tax revolt" that was occurring around the time that California enacted Proposition 13 in 1978. In the few years just before and after this time, there was a spike in states passing TELs with varying levels of severity. Different rates and bases were used to calculate the limits, as well as varying exceptions to the caps. These exceptions effectively allow municipal management to circumvent or reduce the impact of the TEL. This has no doubt led to the interest in research regarding whether these laws are indeed working as intended. Most prior research has focused on the proportion of property tax revenues out of overall municipal revenues given these limits, and on whether the size of municipalities, generally proxied by expenditures or revenues, has been reduced. In addition to this essay contributing to this prior research through an expanded dataset and the implementation of multiple methodologies which account for endogeneity, the following essay examines how these TELs influence the service ratio of municipalities. Furthermore, the large-scale (municipalities from multiple states) research that has been done usually contains data no later than 1995. This is likely due to a lack of updated TEL data since Mullins and Cox (1995) provides the most detailed data regarding the tax and expenditure limitation years and types for each state until the Mullins and Wallin (2004) update. I draw from seventeen more years of data by updating this

information through 2012. The following sections discuss research that focuses on the major goals of the tax and expenditure limitations.

2.3.2 Property Tax Burden

McCabe (2000) and McCabe and Feiock (2005) examine the effect of TELs on property tax reliance. McCabe (2000) explicitly focuses on cities, as opposed to all local forms of government (e.g. counties and school districts). In McCabe's articles, she defines property tax reliance as the proportion of own-source revenues consisting of property taxes, and tests the change in this measure between census dates. Using data from 1975 to 1995, McCabe and Feiock find that TELs do seem to reduce property tax reliance. Specifically, limits on assessment increases and levy limits are associated with significant reductions in property tax dependence. This is consistent with McCabe's (2000) results. However, it should be noted that a reduction in property tax reliance does not automatically reduce overall government revenues and/or government spending.

2.3.3 Government Size

Prior literature regarding the effect of TELs on government size show conflicting results. Shadbegian (1998), Joyce and Mullins (1991), and Lowery (1983) all empirically test for the influence of TELs on government size. Each study includes observations from all types of local governments (cities, counties, and school districts) aggregated at the state level. Joyce and Mullins (1991) and Lowery (1983) find no change in government size, using spending as the proxy for government size, when TELs are implemented. By contrast, Shadbegian (1998) shows a reduction of government size using both expenditures and growth as proxies, especially when TELs are treated as endogenous. In his regressions, Shadbegian estimates a likelihood of TEL existence which attempts to account for the

possibility that the spending appetite of the population is correlated with the population's desire to enact a TEL. However, the varied model specifications in this article never include both the predicted TEL value and the actual TEL variable simultaneously. In order to truly measure the impact of the law, as opposed to the circumstances that gave rise to the law, I use both variables in my regressions. This endogeneity, when unaccounted for, weakens the ability to attribute significant financial changes specifically to the TEL.

2.4 Hypothesis Development

TELs are created either to reduce the tax burden of its population, decrease the size of local governments, or both. However, due to various exceptions to the laws concerning tax and expenditure limitations, it is possible that these goals are not being achieved.

Regarding the goal of reducing the residents' tax burden, municipalities are generally allowed exemptions from the enacted limitations when money is needed to pay off debts. These expenditures usually do not count against the expenditure caps, and municipalities are allowed to raise the funds necessary (even through property taxes) to maintain their solvency. Also, if either a property tax rate cap or a property value assessment cap is imposed individually, this would not technically restrict the amount of property tax revenue that could be raised since the municipal managers still maintain control over half of the property tax revenue formula (tax rate X assessment value = property tax revenue). However, under strong TELs, it becomes more difficult to avoid the tax limitations. Since I do not assume that a majority of municipalities will manage to circumvent the property tax limitations completely, I hypothesize the following:

H1) Tax burden is lower in municipalities following implementation of strong tax and expenditure limitations.

This hypothesis is similar to McCabe and Feiock (2005) in that we ultimately want to examine the impact of TELs on tax burden. The significant differences are that my examination does not limit the sample to large municipalities, and that I use a more holistic measure of property tax burden. McCabe and Feiock use property taxes divided by own-source revenues (property tax reliance) as their measure. I use property taxes divided by expenditures in my analysis so that the residents' costs (property taxes) are directly compared to the residents' benefits (municipal expenditures).

My second hypothesis relates to the effect of TELs on government size, where government size is proxied by expenditures. Strong caps on either revenues or expenditures should limit the growth of municipal expenditures as long as municipalities do not, on average, circumvent the caps. Although both expenditure level and growth have been used to proxy for government size, my examination of enacted TEL limits show that TELs are generally written to limit growth. Therefore, I have the following hypotheses:

H2) There is no difference in expenditures for municipalities following implementation of tax and expenditure limitations.

H3) Municipalities have a lower expenditure growth rate following implementation of tax and expenditure limitations.

The reason for separate hypotheses is that TELs are usually written explicitly to reduce the growth rate. Therefore, it should be more likely that growth rate will decrease, while the level of expenditures stays relatively consistent. The next section details the data used and the research designs that were implemented to test these hypotheses.

2.5 Data and Methodology

2.5.1 Data

Archival data was gathered from multiple sources. The financial data were obtained from the United States Census Bureau. The U.S. Census Bureau obtained these data via surveys of state and local governments between 1970 and 2012. The tax and expenditure limitations were gathered from the Mullins and Wallin (2004) and Mullins and Cox (1995) publications, which identify the types of TELs for each state and the years they were enacted. The TELs may limit property tax rates, property tax revenues, assessment increases, general revenues, and / or general expenditures. The data also include whether municipalities are required to fully disclose to the public any increases in tax levies. Through examination of state statutes and constitutions, I update this information through 2012. The number of local governments, for use in predicting the likelihood of a state-year having a strong TEL, was obtained from the U.S. Census Bureau. These data are only available for census years, which are every five years for the years ending in 2 or 7 (e.g. 1977 and 1982). This limits the number of observations that could be used for testing, but due to the fairly stable quantity of governments within the 5 year spans, I apportion the difference in quantity of governments evenly to each estimated year in order to estimate yearly government counts between the census years. The U.S. Department of Commerce – Bureau of Economic Analysis website was used to gather demographic information such as personal income and population, which were subsequently used to calculate the per capita personal income and population density variables used in the prediction model. To identify political party affiliation for use in predicting TEL, data from the National Conference of State Legislatures was utilized.

2.5.2 Predicting TEL

Mitigating the influence of endogeneity is necessary if a causal link is to be made between tax and expenditure limitations and the financial decisions of municipal managers. In this study, one way this mitigation is achieved is by including a predicted TEL score in the regression models. The predicted TEL scores are estimated for each state-year using a probit model. The predicted TEL scores can range from 0, not likely to have a strong TEL in place, to 1, highly likely of having a strong tax and expenditure limitation.

A combination of financial, political, and demographic variables is used to estimate the probability of having a strong TEL. The financial variables include expenditures per capita and two proxies for property tax burden (property taxes per capita and property taxes per expenditure). The political variables used in the probit model include the political party of the Governor, the party in control of the state legislature, and two proxies for the level of government concentration (total number of local governments per mile and total number of local governments per capita). The concentration of governments signals how much monopoly power a local government holds (Shadbegian 1998). The fewer number of competing governments, the more power the existing governments have since moving to a new area controlled by a different government becomes more burdensome. This high level of control over residents could spur the population to seek the implementation of tax and expenditure limitations as a means of reducing or preventing high tax burdens. The demographic and space-time variables included in the probit model include per capita personal income, population density, year, and region (as defined by the U.S. Census Bureau).

These variables are used to produce predicted TEL scores for each state-year. The predicted TEL scores are used in the regression models that estimate the relationship between TELs and municipal financial decisions. See the appendix for the probit model coefficients, as well as the predicted output which estimates the probability that a specific state-year possesses strong TELs. The pseudo r-squared of the prediction model is approximately 23%. Using the estimated coefficients, the predicted TELs are calculated and included in regressions that examine the relationship between TELs and municipal financial outcomes.

2.5.3 Difference in Differences

I also employ difference in differences regressions as another method to examine the effect of tax and expenditure limitations on the fiscal outcomes of municipalities. To perform the tests, I create a separate dataset based on a few criteria. I require municipalities to possess eight consecutive years of data available. This is comprised of the four years prior to enactment of a strong TEL, the TEL enactment year, and three more years following the initial year the TEL law was put into place. The enactment year is included in the "post" period variable in the difference in differences regressions. Table 2.1 and table 2.2 show descriptive statistics separately for the control and test groups. Full sample descriptive statistics is shown in table 2.3.

Table 2.1 Descriptive Statistics of Difference in Differences Control Group

Variable	n	Mean	S.D.	Min	0.25
Total Expenditures	184,680	49,711.52	7.00E+05	-663.9	1,463.17
Service Expenditures / Total Expenditures	184,426	0.81	0.14	0	0.76

Service Expenditure Growth	177,086	0.18	9.48	-2.34	-0.09
Expenditures Per Capita	184,618	1.48	18.48	-0.41	0.44
Expenditure Growth	177,363	0.22	10.22	-1.87	-0.08
Property Tax Per Capita	184,618	0.27	1.32	0	0.06
Property Tax / Total Revenues	184,433	0.25	0.21	0	0.08
Property Tax	184,680	9,056.95	1.20E+05	0	207.43

Table 2.1 continued

Variable	**Median**	**0.75**	**Max**
Total Expenditures	6,943.78	24,013.04	7.80E+07
Service Expenditures / Total Expenditures	0.84	0.9	1.19
Service Expenditure Growth	0.01	0.15	2,576.81
Expenditures Per Capita	0.83	1.49	3,112.39
Expenditure Growth	0.01	0.15	2,577.75
Property Tax Per Capita	0.13	0.26	185.09
Property Tax / Total Revenues	0.19	0.37	1.00
Property Tax	1,030.64	4,354.93	1.10E+07

Table 2.2 Descriptive Statistics of Difference in Differences Test Group

Variable	n	Mean	S.D.	Min	0.25
Total Expenditures	7,540	64,695.25	9.20E+05	0	2,741.75
Service Expenditures / Total Expenditures	7,535	0.82	0.11	0	0.78
Service Expenditure Growth	7,378	0.13	1.97	-1	-0.07
Expenditures Per Capita	7,540	1.15	2.88	0	0.49
Expenditure Growth	7,380	0.11	1.73	-0.99	-0.08
Property Tax Per Capita	7,540	0.33	0.54	0	0.09
Property Tax / Total Revenues	7,535	0.29	0.21	0	0.11
Property Tax	7,540	14,254.06	1.60E+05	0	481.80

Table 2.2 continued

Variable	Median	0.75	Max
Total Expenditures	11,184.41	31,588.25	4.30E+07
Service Expenditures / Total Expenditures	0.85	0.89	1
Service Expenditure Growth	0.02	0.15	134.41
Expenditures Per Capita	0.81	1.45	136.35
Expenditure Growth	0.02	0.14	129.51
Property Tax Per Capita	0.15	0.29	12.83
Property Tax / Total Revenues	0.23	0.45	0.97
Property Tax	1,968.57	8,085.22	6.80E+06

Table 2.3 Descriptive Statistics for Full Sample

Variable	n	Mean	S.D.	Min	0.25
Total Expenditures	665,185	19,133.11	4.90E+05	-663.9	84.00
Service Expenditures / Total Expenditures	655,031	0.8	0.16	-0.5	0.74
Service Expenditure Growth	342,196	0.2	6.4	-28.2	-0.11
Expenditures Per Capita	664,889	0.91	28.03	-0.41	0.15
Expenditure Growth	344,043	0.4	20.18	-1.87	-0.1
Property Tax Per Capita	664,889	0.19	2.49	-0.54	0.03
Property Tax / Total Revenues	659,571	0.31	0.26	-0.79	0.1
Property Tax	665,185	3,619.62	7.58E+04	-350.37	18.75

Table 2.3 continued

Variable	Median	0.75	Max
Total Expenditures	433.78	3,565.39	8.70E+07
Service Expenditures / Total Expenditures	0.83	0.91	1.19
Service Expenditure Growth	0.01	0.17	2,576.81
Expenditures Per Capita	0.39	0.9	19,272.46
Expenditure Growth	0.01	0.16	9,184.79
Property Tax Per Capita	0.08	0.18	1150
Property Tax / Total Revenues	0.24	0.5	4.45
Property Tax	90.83	625.84	1.40E+07

States enacted TEL laws in different years. This scattering of enactment years does not preclude the usage of difference in differences methodology. To account for these varied event years, my dataset aligns test observations about the event year, as opposed to

the calendar year. Each year a strong TEL is initially enacted by a state, I create a unique dataset based on that year. It includes the eight years of data for municipalities within all states enacting a strong TEL that year (the test group), as well as the eight years of data for municipalities that did not implement or remove strong TELs during that eight-year period (the control group). This process is repeated for all event years, and subsequently these individual datasets are merged into the final dataset on which the difference in differences regressions are run. Errors are clustered by municipality to account for repeated observations. Actual year (as opposed to relative year), region, county, and size fixed effects are included. The variable of interest is the interaction between the "Test" group variable and the "Post" TEL implementation variable.

2.5.4 TEL Effects on Financial Decisions

The hypotheses regarding the effects of TELs on financial decisions of municipal managers are tested via OLS regressions using panel data. Tax and expenditure limitations are operationalized in two ways; 1) as a dummy variable which indicates the existence of a TEL, or 2) as a variable that takes the value of either 0,1, or 2 which indicates whether there is no TEL, a weak TEL, or a strong TEL, respectively. A state is said to possess a strong TEL under the following circumstances: (1) limitations are placed on total revenue, (2) limitations are placed on total expenditures, or (3) limitations are placed on tax rate and assessment limits simultaneously. Merely placing a limit on tax rate, without a limitation on property assessment (or vice versa) technically allows for the manipulation of one or the other in order to attain higher levels of overall property tax revenues. Therefore, each of these two scenarios are coded as instances of "weak" TELs.

2.5.5 Size Effect on Results

In addition to the full sample regressions that are run, further testing is performed to identify differences in the way larger or smaller municipalities are affected by the existence of tax and expenditure limitations. The distinction between large and small municipalities is determined based on whether expenditures are greater than, or less than, the median expenditures for the sample. To account for time differences in dollar values, all financial data are adjusted so that their values reflect dollar amounts as of the year 2000. These adjustments are based on the annual CPI data provided by the US Department of Labor – Bureau of Labor Statistics. Separate regressions are run for each group (large and small municipalities) to allow for greater flexibility in the estimation of coefficients for each model.

2.6 Results and Analysis

2.6.1 Property Tax Burden

Results show evidence that when municipalities are operating under strong tax and expenditure limits, property tax burden is lower. Table 2.4 shows results under two specifications of the predicted TEL regression.

Table 2.4 TEL Effects on Property Tax Burden

Variables	Regression 1	Regression 2
Has TEL	-0.002 (0.832)	
Weak TEL		0.008 (0.256)
Strong TEL		-0.017* (0.024)
Constant	0.652*** (0.000)	0.659*** (0.000)
Other Controls[1]		
R^2	0.0891	0.0892
Observations	590,631	590,631
[1]Additional controls included in each regression include: predicted TEL, year, population, region and state.		
Data has been CPI adjusted to reflect year 2000 dollars.		
Data in parentheses () represent p-values.		
*,**, and *** reflect significance at 5%, 1% and .1%, respectively.		

Regression 1 in this table examines the impact of having any level of TEL, while regression 2 shows the distinct effects of having a weak or strong TEL. Table 2.4 only shows signs of reduced property tax burden when strong TELs are in place. The coefficient on the strong TEL variable is -0.017 with a p-value of 0.024. Table 2.5 and table 2.6, which shows results of predicted TEL regressions separately for larger and smaller municipalities, displays a consistency with the full sample results such that only municipalities with strong TELs have a significant reduction in property tax burden.

Table 2.5 TEL Effects on Property Tax Burden – Smaller Municipalities

Smaller Municipalities		
Variables	**Regression 1**	**Regression 2**
Has TEL	-0.023 (0.147)	
Weak TEL		-0.015 (0.354)
Strong TEL		-0.056*** (0.001)
Constant	0.574*** (0.000)	0.573*** (0.000)
Other Controls[1]		
R^2	0.0944	0.0947
Observations	295,269	295,269
[1]Additional controls included in each regression include: Predicted TEL, Year, Population, Region and State		
Data has been CPI adjusted to reflect year 2000 dollars.		
Data in parentheses () represent p-values.		
***,**, and *** reflect significance at 5%, 1% and .1%, respectively.**		

Table 2.6 TEL Effects on Property Tax Burden – Larger Municipalities

Larger Municipalities		
Variables	**Regression 1**	**Regression 2**
Has TEL	-0.008 (0.255)	
Weak TEL		-0.002 (0.783)
Strong TEL		-0.014* (0.039)
Constant	0.677*** (0.000)	0.681*** (0.000)
Other Controls[1]		
R^2	0.1080	0.1081
Observations	295,358	295,358
[1]Additional controls included in each regression include: Predicted TEL, Year, Population, Region and State		
Data has been CPI adjusted to reflect year 2000 dollars.		
Data in parentheses () represent p-values.		
***,**, and *** reflect significance at 5%, 1% and .1%, respectively.**		

However, what's also revealed is that the results are more statistically significant for smaller municipalities. For larger municipalities, the coefficient of the strong TEL variable is -0.014 with a p-value of 0.039. For the smaller municipalities, the coefficient of the strong TEL is -0.056 with a p-value of 0.001. However, if larger municipalities have more available revenue sources, then this is in opposition with the logic that larger municipalities could more easily find substitute revenues for their expenditures, and therefore shouldn't feel the need to maximize their property tax based funding more than a smaller municipality. The difference in differences specification shown in table 2.7 gives additional support that property tax burden is reduced when strong TELs are put into place.

Table 2.7 TEL Effects on Property Tax Burden- Difference in Differences

Variable	**Coefficient**	**t**	**p**
Test Group x Post Event	-0.024	-2.73	0.006
Test Group	0.011	2.33	0.020
Post Event	0.012	3.50	0.000
Observations	383,949		
R-squared	0.0504		
Additional Controls include: Year, Census Region, County, Indicator of Greater than median expenditures.			
Errors are clustered by municipality			

The variable of interest in table 2.7 is the interaction between the test group variable, and the post TEL variable. The coefficient of this variable is -0.024 with a p-value of 0.006. The positive and significant coefficients on the test group variable and post TEL variable imply that the test group generally has a higher property tax burden, and that over time property tax burden increases. Overall, the evidence supports hypothesis 1 by showing

that strong tax and expenditure limitations are effective in reducing the property tax burden of municipal residents.

2.6.2 Government Size

Using expenditures as a proxy, results do not show a significant decrease in government size. Table 2.8 shows the results of the predicted TEL regressions under two specifications.

Table 2.8 TEL Effects on Expenditures

Variable	Regression 1	Regression 2
Has TEL	575.95 (0.854)	
Weak TEL		44.29 (0.989)
Strong TEL		1,394.67 (0.664)
Constant	-128,284.40*** (0.000)	-128,333.90*** (0.000)
Other Controls[1]		
R^2	0.7535	0.7535
Observations	598,021	598,021
[1]Additional controls included in each regression include: Predicted TEL, Year, Population, Region and State		
Data has been CPI adjusted to reflect year 2000 dollars.		
Data in parentheses () represent p-values.		
*, **, and *** reflect significance at 5%, 1% and .1%, respectively		

In Regression 1, the existence of TEL specification, having a TEL is shown to have an insignificant impact on the level of expenditures. Even in Regression 2, which separates the effects of weak and strong TELs, there is no significant impact on expenditures by neither the weak, nor the strong TEL. Separately testing larger and smaller municipalities shows unexpected results in the smaller municipality sample. Results for smaller

municipalities are shown in table 2.9, while results for larger municipalities are shown in table 2.10. The coefficients for expenditures for smaller municipalities with a TEL is actually positive (16.93 with p value of 0.000). When these smaller municipalities are further examined according to the existence of weak or strong TELs, it's shown that expenditures are increased by 19.00 (p value 0.000) under weak TELs and 9.24 (p value 0.000), under strong TELs.

Table 2.9 TEL Effects on Expenditures of Smaller Municipalities

Smaller Municipalities		
Variable	**Regression 1**	**Regression 2**
Has TEL	16.93*** (0.000)	
Weak TEL		19.00*** (0.000)
Strong TEL		9.24*** (0.000)
Constant	210.50 (0.999)	208.90 (0.999)
Other Controls[1]		
R^2	0.3226	0.3231
Observations	302,659	302,659
[1]Additional controls included in each regression include: Predicted TEL, Year, Population, Region and State		
Data has been CPI adjusted to reflect year 2000 dollars.		
Data in parentheses () represent p-values.		
***, **, and *** reflect significance at 5%, 1% and .1%, respectively.**		

Table 2.10 TEL Effects on Expenditures of Larger Municipalities

Larger Municipalities		
Variable	**Regression 1**	**Regression 2**
Has TEL	602.09 (0.908)	
Weak TEL		-1,470.36 (0.784)
Strong TEL		-3,027.79 (0.576)
Constant	-143,320.70*** (0.000)	-145,000.20*** (0.000)
Other Controls[1]		
R^2	0.7560	0.7560
Observations	295,358	295,358
[1]Additional controls included in each regression include: Predicted TEL, Year, Population, Region and State		
Data has been CPI adjusted to reflect year 2000 dollars.		
Data in parentheses () represent p-values.		
***, **, and *** reflect significance at 5%, 1% and .1%, respectively.**		

The results of the larger municipalities mirror the overall results. For the larger sized group, table 2.10 shows that having any kind of TEL, having a weak TEL, or having a strong TEL, all lack any significant impact on the level of municipal expenditures.

I further examine the overall effect of TELs on expenditures using the difference a differences model. Table 2.11 shows the results of this model. The variable which details the direct effect of the strong TEL on the level of expenditures is the interaction of the test group variable and the post TEL variable. This model specification accounts for endogeneity between TEL enactment and expenditure level by controlling for test group and time-based fixed effects, as well as other covariates as detailed in table 2.11.

Table 2.11 TEL Effects on Expenditures – Difference in Differences

Expenditures - Difference in Differences Specification			
	Coefficient	**t**	**p**
Test Group x Post Event	6,089.32	1.07	0.284
Test Group	-12,463.03	-2.15	0.032
Post Event	-3,678.77	-2.10	0.036
Observations	384,440		
R-squared	0.8859		
Additional Controls include: Year, Census Region, County, Indicator of greater than median expenditures.			
Errors are clustered by municipality			

Results of this model are consistent with the predicted TEL models, in that strong TELs are not shown to have a significant impact on expenditure levels. This general lack of significance for reducing expenditures isn't entirely unexpected, and supports hypothesis 2. Although a goal of tax and expenditure limitation laws may be to reduce the size of government, the laws are usually written as a cap on spending increases. Therefore, it's more likely to see a significant reduction in the rate of expenditure growth, as opposed to the level of expenditures. Therefore, a second proxy is used to examine the effect of TELs on government size.

The second proxy for government size used in this study is expenditure growth. Results displayed in table 2.12 show a potential reduction in expenditure growth, but only in the odd case of a weak TEL, rather than a strong TEL.

Table 2.12 TEL Effects on Expenditure Growth of Municipalities

Expenditure Growth - Full Sample		
Variable	**Regression 1**	**Regression 2**
Has TEL	-0.510 (0.154)	
Weak TEL		-0.786* (0.032)
Strong TEL		-0.137 (0.713)
Constant	0.087 (0.885)	0.060 (0.921)
Other Controls[1]		
R^2	0.0036	0.0037
Observations	315,193	315,193
[1]Additional controls included in each regression include: Predicted TEL, Year, Population, Region and State		
Data has been CPI adjusted to reflect year 2000 dollars.		
***, **, and *** reflect significance at 5%, 1% and .1%, respectively.**		

Analyzing this result further, through separate regressions for larger and smaller municipalities as seen in tables 2.13 and 2.14, does not show any significant change in expenditure growth due to the implementation of TELs at traditional levels. However, there is a marginally significant reduction in expenditure growth for smaller municipalities with weak TELs (coefficient of -0.205 with p-value of 0.052), which is similar with results shown in the full sample tests.

Table 2.13 TEL Effects on Expenditure Growth of Smaller Municipalities

Expenditure Growth - Smaller Municipalities		
Variable	**Regression 1**	**Regression 2**
Has TEL	-0.204 (0.053)	
Weak TEL		-0.205 (0.052)
Strong TEL		-0.181 (0.108)

Constant	-0.342 (0.602)	-0.360 (0.583)
Other Controls[1]		
R^2	0.0077	0.0077
Observations	118,534	118,534
[1]Additional controls included in each regression include: Predicted TEL, Year, Population, Region and State		
Data has been CPI adjusted to reflect year 2000 dollars.		
***, **, and *** reflect significance at 5%, 1% and .1%, respectively.**		

Table 2.14 TEL Effects on Expenditure Growth of Larger Municipalities

Expenditure Growth - Larger Municipalities		
Variable	**Regression 1**	**Regression 2**
Has TEL	-0.439 (0.374)	
Weak TEL		-0.787 (0.123)
Strong TEL		-0.077 (0.881)
Constant	-0.084 (0.918)	-0.118 (0.885)
Other Controls[1]		
R^2	0.0054	0.0054
Observations	196,655	196,655
[1]Additional controls included in each regression include: Predicted TEL, Year, Population, Region and State		
Data has been CPI adjusted to reflect year 2000 dollars.		
***, **, and *** reflect significance at 5%, 1% and .1%, respectively.**		

Examination of the TEL's effect on expenditure growth using the difference in differences specification also shows no reduction in growth, as shown in table 2.15. In fact, there is a marginally significant positive coefficient (0.064 coefficient, p-value of 0.052) on the test group, post-TEL interaction.

Table 2.15 TEL Effects on Expenditure Growth – Difference in Differences

Expenditure Growth - Difference in Differences Specification			
	Coefficient	**t**	**p**
Test Group x Post Event	0.064	1.95	0.052
Test Group	-0.054	-2.01	0.044
Post Event	-0.160	-4.51	0.000
Observations	376,719		
R-squared	0.0158		
Additional Controls include: Year, Census Region, County, Indicator of greater than median expenditures.			
Errors are clustered by municipality			

These results on expenditure growth do not consistently support hypothesis 3, and at times stand in contrast to the results of Shadbegian (1998). The difference in difference specification, which has a stronger r-squared than the predicted TEL models, hint that reductions in expenditure growth are likely related to natural reductions in expenditure growth over time, and to fundamental characteristics of the test group. Results support the findings of Joyce and Mullins (1991), and Lowery (1983). Overall, I do not find evidence that tax and expenditure limitations significantly reduce government size, but I acknowledge the relatively low R-squared values of the expenditure growth models.

2.7 Conclusion

Results suggest that tax and expenditure limitations are generally achieving their major goal of reduced property tax burden. However, there is mixed evidence whether there is a significant reduction of government growth. I find no evidence that government expenditures are reduced after TELs, but this is in line with my expectations since TELs are generally written to limit expenditure growth rates, not to cap the level of expenditures. However, the expenditure growth results were surprising. It's important to note that,

though each model was significant, they were somewhat lacking in overall explanatory power. With this noted, I do not find evidence that the expenditure growth rate is being significantly reduced.

3. Potential Unintended Consequences of Tax and Expenditure Limitations on Municipal Governments

3.1 Introduction

In the United States, there has been a movement toward limiting the taxing power and spending ability of local governments. As of 2016, most local governments are operating under state mandated tax and expenditure limitations (TELs). Two goals of these laws are to reduce the tax burden of the residents, to cap the growth of local governments, or both (Waisanen, 2010). What is not clear, is whether these laws are intended to affect both service expenditures and administrative expenditures in an equally proportional manner. A major contribution of this paper is a broad-based examination of the potential service ratio changes due to the enactment of tax and expenditure limits. A reduction in service ratio could indicate that municipal residents are receiving fewer benefits per tax dollar than in the years prior to TEL enactment. All things being equal, this can be viewed as an increase in the price of services for the residents. Therefore, it is not a certainty that TELs are a financial benefit for residents.

TELs have become widely used throughout the United States. As of 2012, the final year included in my data, there were 45 states with some form of TEL in place. These state-implemented rules are enacted to protect tax-payers from rising tax burdens by limiting the local governments' ability to raise property taxes and/or reduce the local governments' expenditures (Mullins & Cox, 1995). Sears and Citrin (1982) discuss the "tax revolt" that was occurring around the time that California enacted Proposition 13 in 1978. In the few years just before and after this time, there was a spike in the number of states passing TELs with varying levels of restrictiveness. There were different rates and

bases used to calculate the limits, as well as varying exceptions to the caps that were imposed. These exceptions allow municipal management to circumvent or reduce the impact of the TEL. This has no doubt led to the interest in research regarding whether these laws are indeed working as intended.

Much research regarding the effectiveness of tax and expenditure limitations is performed at the state government level. Although my research is an examination of local governments, the results and theories of state level research can provide useful insights in motivating my research. Some of this research is focused on examining or forwarding theories as to why TELs are ultimately effective or ineffective. New (2010) posits that the origin of the TEL policy is key in predicting whether the rules will be successfully implemented. In his research, citizen enacted policy is more successful than legislature enacted policy. On the other hand, Kousser, McCubbins, and Moule (2008) and Seljan (2014) put forth principal-agent theory as the major driver of successful implementation of TEL rules. Kousser, McCubbins, and Moule state that "…policies passed through direct democracy can often be thwarted by the politicians charged with implementing them." Seljan states that principal-agent theory is a better predictor of TEL effectiveness than policy origin, as evidenced through examination of TEL scenarios involving varied monitoring difficulty. Another aspect of predicting TEL success is provided by Kioko (2011). Kioko finds that technical elements of the TELs, such as whether states estimate their limits based on prior year actual spending or prior year appropriations, can eventually lead to a significant disparity between the limit and the actual revenues or expenditures when appropriations are used. In the fourth essay of this dissertation, I perform an

exploratory examination of how higher information quality effects municipal financial outcomes.

Governmental research regarding the financial outcomes of states due to TEL enactment has illuminated effects on revenues, spending levels and debt. Deller, Maher, Amiel, and Stallmann (2013) find that the TELs' effects on debt level is dependent on the type and restrictiveness of the TELs. TELs that are very restrictive over revenues and expenditures lead to states having lower debt. However, having strict limits for only revenues or only expenditures is associated with increased debt. The increased debt is likely due to the desire to spend but inability to collect revenues that support the expenditures. This scenario is highlighted by McCubbins and Moule (2010). They show that, especially in times of recession, TELs have a significant negative effect on state and local revenues. They detail that this effect manifests due to the reliance on "income-elastic revenue sources, such as the income tax or charges and fees." Therefore, even if TELs were meant to simply cap or reduce revenues to a certain level, it also had the effect of increasing the variability of total revenues collected. In addition to state level research on the outcomes for revenues, expenditures, and debt levels, researchers have also analyzed the effects of TELs on borrowing costs. Results from Poterba and Reuben (2001) and Johnson and Kriz (2005) find that state policies such as tax and expenditure limitations do influence borrowing costs. The specific direction of the influence depends on the nature of the TEL. Limits on revenues generally increase borrowing costs, while expenditure limits are associated with reduced borrowing costs. A local level examination of borrowing costs is performed by Maher, Deller, Stallmann, and Park (2016) who find that municipalities burdened with restrictive TELs have weaker credit ratings, likely leading to higher borrowing costs.

Most prior, local government specific, TEL research focuses on the change in proportion of property tax revenues to overall municipal revenues under these limits (McCabe 2000, McCabe and Feiock 2005), and on whether the size of municipalities, generally proxied by expenditures or revenues, has been reduced (Lowery 1983, Joyce and Mullins 1991, Shadbegian 1998). Comparatively, there have been few nationwide analyses of the TELs' implications for service ratio. Much service expenditure based research focuses on an individual state and/or a specific service metric, such as teacher to student ratio (Downes and Figlio (1999)). Conversely, in this paper I utilize financial data for municipalities throughout the United States, for overall service expenditures.

Figlio and O'Sullivan (2001) investigate how service and administrative expenditures are affected under tax and expenditure limitations. Their findings suggest a reduction in the proportion of service expenditures for municipalities that possess legal provisions which allow residents to override the normal tax and spending limits. They theorize that municipal managers use threats of reductions in services as a method of spurring residents to override the limits. This is derived from the Leviathan theory by Brennan and Buchanan (1977) which posits that bureaucracies want to grow their influence through ever increasing expenditures.

3.2 Hypothesis Development

TELs are generally designed to reduce property taxes and overall expenditures. They do not provide municipalities with the directive to maintain the same service expenditure ratio that existed prior to the enactment of the tax and expenditure limitation. Therefore, it is unclear how service ratios change following the enactment of these rules, or whether they would at all. Figlio and O'Sullivan (2001) find that the proportion of

service to administrative expenditures is reduced in their specific context. Because of my significantly expanded definition of services, as well as my expanded dataset, it is not clear whether their results are applicable to this context. Therefore, I state the following hypothesis in the null form:

H1) Tax and expenditure limitations cause no change in the municipalities' service expenditure ratio.

Contrary to the predicting the direction of change in service ratio after TELs are enacted, which is difficult, a logical prediction can be made for the effect on service ratio just before TEL implementation. Using leviathan theory and agency theory (Jensen and Meckling 1976) principles, it is natural to expect an increase in the service expenditure ratio just before TELs are implemented. Brennan and Buchanan theorize that governments are "Leviathan" and want to maximize budgets. Maximizing budgets through service expenditures could build a good reputation for elected government officials, potentially aiding their reelection efforts, and thereby allowing them to continue reaping the benefits of controlling a government budget.

Local governments may be able to increase their service expenditures just before the TEL without fear of significant state government backlash due to agency issues (Seljan 2014). The state, as the principal, has created a law that it is relying on the municipal government, as the agent, to implement. Various exceptions in most TEL laws allow for some fiscal flexibility to tax and/or spend over the general limit, especially to pay off debt. This ability to raise money and spend to pay off debt could embolden municipalities to borrow and spend money on service projects just before TELs are implemented, knowing that the increased debt payments could be offset with additional property taxes or

refinanced debt later. Also, although not directly related to service expenditures, McCubbins and Moule (2010) find that states show some evidence of fiscal changes just before TELs are enacted. Because of this, I hypothesize the following:

H2) Service Ratio is higher just before tax and expenditure limitations are enacted in anticipation of the reduced service spending capacity after enactment.

3.3 Data and Methodology

The full dataset consists of governmental financial data obtained from the United States Census Bureau's survey and census of governments. The years of data utilized in this study are from 1970 through 2012 for the difference in differences analysis, and 1977 through 2012 for the predicted TEL analysis. Municipalities respond to the survey with details of how their revenues are obtained, and in which areas expenditures are spent. Responses to this survey are voluntary, and sample size fluctuates from year to year. During years of the census, sample sizes are much larger. The U.S. Census Bureau performs the census of governments every five years for years ending in 7 or 2 (e.g. 1977, 1982, and etc.). Table 3.1 shows pertinent descriptive statistics for the full sample.

Table 3.1 Descriptive Statistics for Full Sample

Variable	n	Mean	S.D.	Min	0.25
Total Expenditures	665,185	19,133.11	4.90E+05	-663.9	84.00
Service Expenditures / Total Expenditures	655,031	0.8	0.16	-0.5	0.74
Service Expenditure Growth	342,196	0.2	6.4	-28.2	-0.11
Expenditures Per Capita	664,889	0.91	28.03	-0.41	0.15

Expenditure Growth	344,043	0.4	20.18	-1.87	-0.1
Property Tax Per Capita	664,889	0.19	2.49	-0.54	0.03
Property Tax / Total Revenues	659,571	0.31	0.26	-0.79	0.1
Property Tax	665,185	3,619.62	7.58E+04	-350.37	18.75

Table 3.1 continued

Variable	**Median**	**0.75**	**Max**
Total Expenditures	433.78	3,565.39	8.70E+07
Service Expenditures / Total Expenditures	0.83	0.91	1.19
Service Expenditure Growth	0.01	0.17	2,576.81
Expenditures Per Capita	0.39	0.9	19,272.46
Expenditure Growth	0.01	0.16	9,184.79
Property Tax Per Capita	0.08	0.18	1150
Property Tax / Total Revenues	0.24	0.5	4.45
Property Tax	90.83	625.84	1.40E+07

The tax and expenditure limitations were gathered from the Mullins and Wallin (2004) and Mullins and Cox (1995) publications, and updates through 2012 of TELs were hand collected. The TEL strengths for each state and year can be found in the appendix. TEL strengths take the values of 0, 1, or 2. A value of 0 means no state imposed TEL is in place. A value of 1 means a weaker TEL is in place, while a value of 2 means a strong TEL is in place. The nature of the limit differentiates a weak from a strong TEL. Mullins and Cox identify the areas that tax and expenditure limitations usually target. These areas include

property tax rates, property value assessments, general revenue limits, and general expenditure limits. A TEL is considered weak if it only limits increases in either the property tax rate or the property value assessment. This is weak because a municipality could still increase the tax burden on residents by increasing the value that is not subject to the state imposed limitation. A TEL is strong if it imposes a general revenue or expenditure limit, or possesses both a tax rate limit and property value assessment limit. Frequency distributions for the full sample by state and region can be found in the appendix.

I use two methods to examine the effect of tax and expenditure limitations on the fiscal outcomes of municipalities. First, I utilize a difference in differences approach, which uses the enactment of a strong TEL as the event (i.e. "treatment). Second, I use regressions which include both a predicted TEL variable, and the actual TEL variable. The predicted variable is estimated by a probit model which uses a variety of financial, political, and demographic factors to predict the likelihood that a strong TEL will be implemented in each state-year. The dependent variable in these regressions is service ratio. This is calculated as service expenditures divided by total expenditures less pension benefits paid (Service Ratio = Service Expenditures / (Total Expenditures – Pension Benefits Paid)). My classification of service expenditures, using the U.S. Census Bureau survey to determine categories, is detailed in the appendix.

To perform the difference in difference tests, I create a separate dataset based on a few criteria. I require municipalities to possess eight consecutive years of data available. This is comprised of the four years prior to enactment of a strong TEL, the TEL enactment year, and three more years after the initial year the TEL law was put into place. The enactment year is included in the "post" period variable in the difference in differences regression.

Different states have enacted TEL laws in many different years. This scattering of enactment years does not naturally lend itself to a difference in differences methodology. To account for this, my dataset aligns test observations about the event year, as opposed to the actual year. Each year a strong TEL is initially enacted by a state, I create a unique dataset based on that year. It includes the eight years of data for municipalities within all states enacting a strong TEL that year (the test group), as well as the eight years of data for municipalities that did not implement or remove strong TELs during that eight-year period (the control group). This process is repeated for all event years, and subsequently these individual databases are merged into the final dataset on which the difference in differences specifications are estimated. Errors are clustered by municipality to account for repeated observations. Actual year (as opposed to relative year), region, county, and size fixed effects are included. The variable of interest is the interaction between the "Test" group variable and the "Post" TEL implementation variable.

The same created dataset is utilized for difference in differences testing of the TEL anticipation hypothesis. To examine individual temporal effects, the general "Post" TEL implementation variable is not utilized in the regression. It is replaced by seven relative time variables (relative to the year of the TEL implementation). The event year is excluded so that results can be interpreted with reference to the event year. The variables of interest are the interactions of the individual time variables and the "Test" variable. Especially of interest is the year just prior to the event year. This regression specification also uses the control variables of year, region, county, and size.

To estimate the predicted TEL variable for usage in OLS regressions, a combination of financial, political, and demographic variables is used. Included in the financial variables

are multiple proxies for state-level property tax burden: property taxes per capita, and property taxes per expenditure. There are four variables which comprise the political set of factors used to predict the likelihood of having a strong TEL. These variables include the political party of the Governor, the party in control of the state legislature, and two proxies for local government concentration: total number of local governments per mile and total number of local governments per capita. Per Shadbegian (1998), the concentration of governments signals how much monopoly power a local government holds over its residents. Having fewer local governments in an area would increase the burden for residents to a suitable locality to move to when faced with tax policies they deem unfavorable. Physical distance between significant alternatives could make the population realize that their best method to protect themselves from a burdensome local government would be to lobby for the enactment of tax and expenditure limitations by the state government. Demographic and space-time variables in the probit model include per capita personal income, population density, year, and the U.S. Census Bureau-defined region.

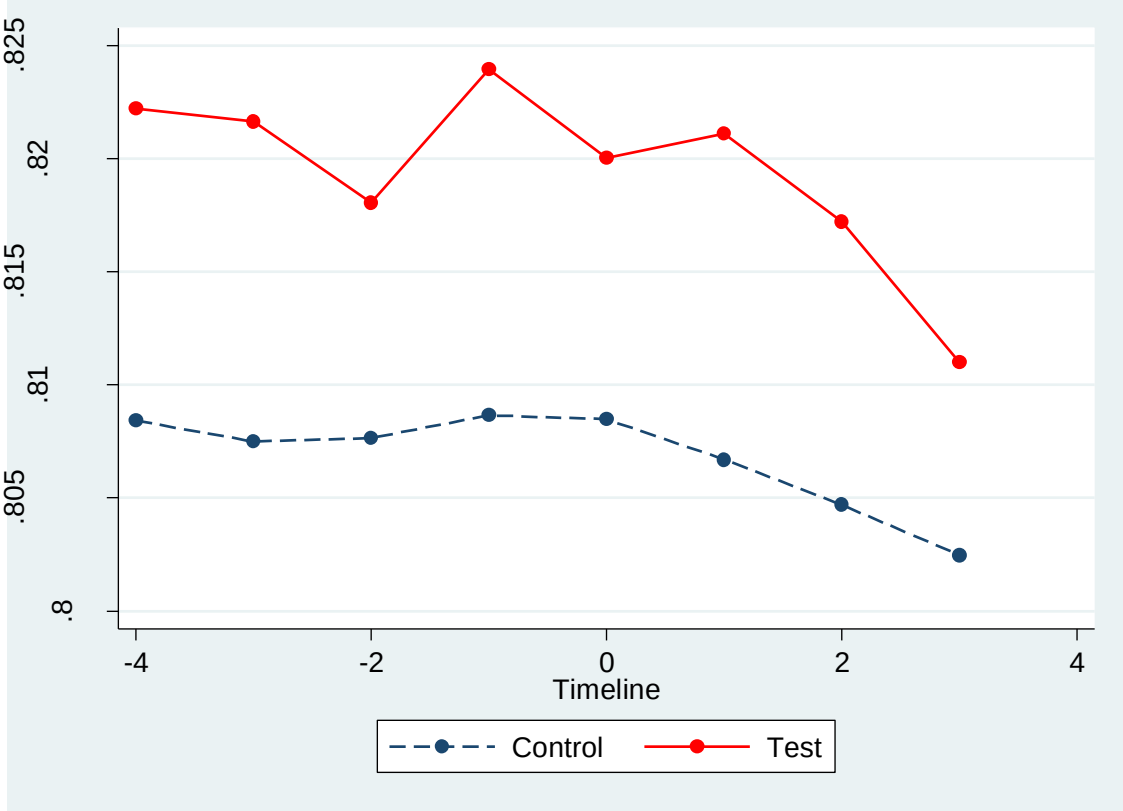
These determinants are used in the estimation of the likelihood of strong TELs being present for each state-year. See the appendix for the output of this probit model. The pseudo r-squared of the prediction model is approximately 23%. These predicted probabilities are used in regressions in conjunction with dummy variables that indicate the existence of any TEL, a weak TEL, or a strong TEL. Using these methods to account for the endogenous relationship between service ratio and the existence of a strong TEL allows the TEL to be interpreted as a true cause of service ratio changes.

3.4 Results and Analysis

3.4.1 Service Ratio Effects

The first question I seek to answer is whether tax and expenditure limitations lead to municipalities reducing the proportion of service expenditures. Figure 3.1 charts the service ratio separately for the test and control groups under the difference in differences model.

Figure 3.1 Service Ratio

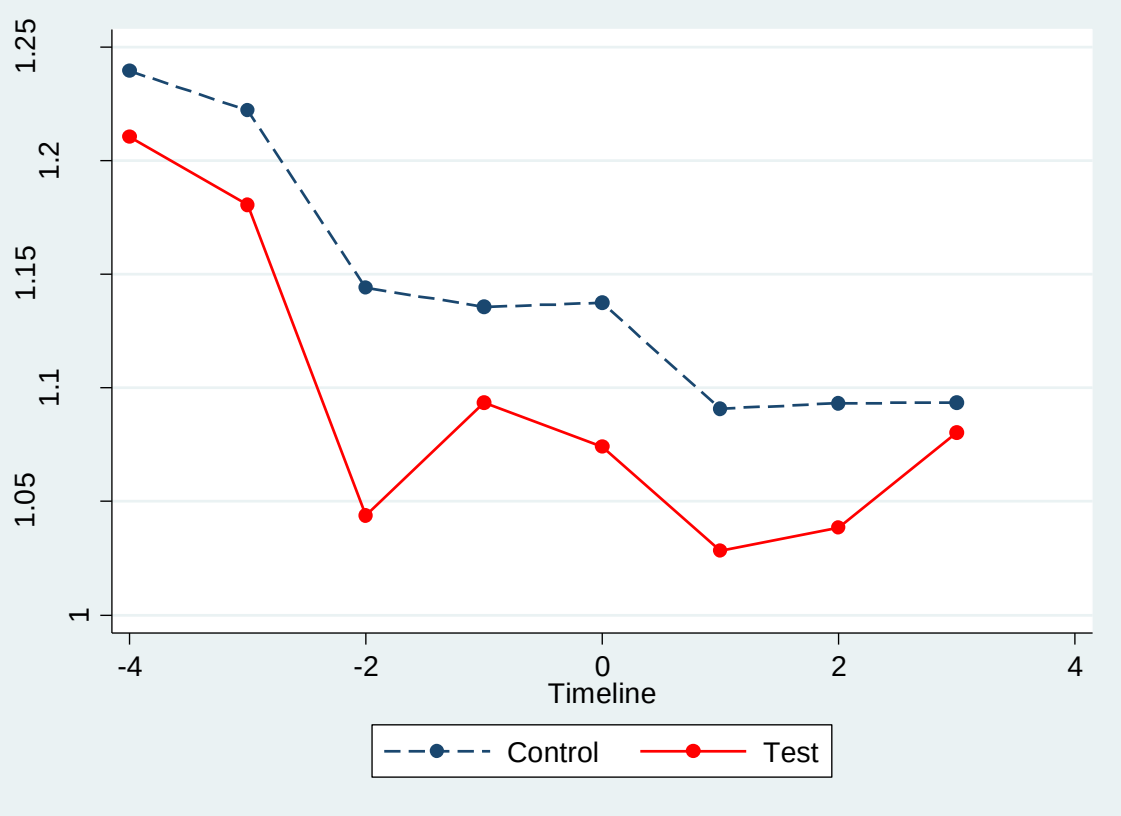


Service Ratio trend (using the difference in differences regression dataset) over time. All time periods are in reference to the TEL enactment year.

This high-level view seems to show a noticeable decline in the service ratio following strong TELs being placed into effect. However, because figure 1 is based on a ratio

calculation, it is unclear if the service expenditures (numerator) are a main influence on the changes. Therefore, figure 3.2 charts the change in service expenditures for both the test and control groups.

Figure 3.2 Service Expenditure Growth



Trend of Service Growth (Service Expenditures/Service Expenditures$_{t-1}$, using the difference in differences dataset). Time periods are in reference to the TEL year.

Figure 3.2 gives visual evidence that changes in services provided are likely the driver of changes in service ratio. Since both the test and control groups show a similar trend in service ratio, it's possible that time is the only factor causing the decline. I use the difference in differences approach to address whether implementation of the law is a significant factor in the decline of service ratio, over and above the effect of time. The

descriptive statistics of the two separate groups in the difference in differences dataset can be found in tables 3.2 and 3.3.

Table 3.2 Descriptive Statistics of Difference in Differences Control Group

Variable	n	Mean	S.D.	Min	0.25
Total Expenditures	184,680	49,711.52	7.00E+05	-663.9	1,463.17
Service Expenditures / Total Expenditures	184,426	0.81	0.14	0	0.76
Service Expenditure Growth	177,086	0.18	9.48	-2.34	-0.09
Expenditures Per Capita	184,618	1.48	18.48	-0.41	0.44
Expenditure Growth	177,363	0.22	10.22	-1.87	-0.08
Property Tax Per Capita	184,618	0.27	1.32	0	0.06
Property Tax / Total Revenues	184,433	0.25	0.21	0	0.08
Property Tax	184,680	9,056.95	1.20E+05	0	207.43

Table 3.2 continued

Variable	Median	0.75	Max
Total Expenditures	6,943.78	24,013.04	7.80E+07
Service Expenditures / Total Expenditures	0.84	0.9	1.19
Service Expenditure Growth	0.01	0.15	2,576.81
Expenditures Per Capita	0.83	1.49	3,112.39
Expenditure Growth	0.01	0.15	2,577.75
Property Tax Per Capita	0.13	0.26	185.09

Property Tax / Total Revenues	0.19	0.37	1.00
Property Tax	1,030.64	4,354.93	1.10E+07

Table 3.3 Descriptive Statistics of Difference in Differences Test Group

Variable	**n**	**Mean**	**S.D.**	**Min**	**0.25**
Total Expenditures	7,540	64,695.25	9.20E+05	0	2,741.75
Service Expenditures / Total Expenditures	7,535	0.82	0.11	0	0.78
Service Expenditure Growth	7,378	0.13	1.97	-1	-0.07
Expenditures Per Capita	7,540	1.15	2.88	0	0.49
Expenditure Growth	7,380	0.11	1.73	-0.99	-0.08
Property Tax Per Capita	7,540	0.33	0.54	0	0.09
Property Tax / Total Revenues	7,535	0.29	0.21	0	0.11
Property Tax	7,540	14,254.06	1.60E+05	0	481.80

Table 3.3 continued

Variable	**Median**	**0.75**	**Max**
Total Expenditures	11,184.41	31,588.25	4.30E+07
Service Expenditures / Total Expenditures	0.85	0.89	1
Service Expenditure Growth	0.02	0.15	134.41
Expenditures Per Capita	0.81	1.45	136.35

Expenditure Growth	0.02	0.14	129.51
Property Tax Per Capita	0.15	0.29	12.83
Property Tax / Total Revenues	0.23	0.45	0.97
Property Tax	1,968.57	8,085.22	6.80E+06

Table 3.3, the Test Group data, is pre-event data. This is done to provide an apples to apples comparison of the potential structural differences between the groups before the TEL confounds the data. The differences between the groups in the service ratio and other variables are accounted for in the difference in difference methodology. Results of the regression are shown in table 3.4. Results show that the test group has a systematically higher service ratio as shown by the positive (0.009) and significant (p-value 0.000) coefficient on the Test Group variable. This is consistent with the figures shown in the descriptive statistics.

Table 3.4 TEL Effects on Service Ratio – Difference in Differences

Service Ratio - Difference in Differences Specification			
	Coefficient	**t**	**p**
Test Group x Post Event	-0.0029	-1.72	0.085
Test Group	0.0088	4.13	0.000
Post Event	0.0082	14.46	0.000
Observations	383,941		
R-squared	0.2984		
Additional Controls include: Year, Census Region, County, Indicator of Greater than median expenditures.			
Errors are clustered by municipality			

Hypothesis 1 is addressed by the "Test Group x Post Event" interaction. It shows a negative coefficient of -0.0029 with a two-tailed p-value of 0.085. This is evidence that there may be a reduction of service ratio directly related to the implementation of tax and expenditure limits on municipalities.

To further examine the impact of tax and expenditure limitations on the service ratio of municipalities, I utilize regressions which include a variable that is the predicted likelihood of a strong TEL existing for a given year in each state. Using this variable along with the actual TEL variables allows the predicted variable to account for the financial, political, demographic, and space-time factors that influence TEL enactment. This allows fewer factors to provide a confounding influence on the actual TEL variable, which in turn leads to the actual TEL variable better capturing the true effect of the TEL on service ratio.

Table 3.5 shows the results of testing the full sample under the predicted TEL model specifications; while tables 3.6 and 3.7 show results using separate predicted TEL regressions for larger and smaller municipalities as determined by level of expenditures.

Table 3.5 TEL Effects on Service Ratio – Predicted TEL

Service Ratio - Full Sample		
Variable	**Regression 1**	**Regression 2**
Has TEL	0.008*** (0.000)	
Weak TEL		0.009*** (0.000)
Strong TEL		0.006** (0.004)
Constant	0.772*** (0.000)	0.772*** (0.000)
Other Controls[1]		
R^2	0.0983	0.0983
Observations	589,515	589,515

[1]Additional controls included in each regression include: Predicted TEL, Year, Population, Region and State
Data has been CPI adjusted to reflect year 2000 dollars.
*, **, and *** reflect significance at 5%, 1% and .1%, respectively.

Table 3.6 TEL Effects on Service Ratio of Smaller Municipalities – Predicted TEL

Service Ratio - Smaller Municipalities		
Variable	**Regression 1**	**Regression 2**
Has TEL	-0.027*** (0.000)	
Weak TEL		-0.026*** (0.000)
Strong TEL		-0.030*** (0.000)
Constant	0.845*** (0.000)	0.847*** (0.000)
Other Controls[1]		
R^2	0.1534	0.1535
Observations	294,334	294,334
[1]Additional controls included in each regression include: Predicted TEL, Year, Population, Region and State		
Data has been CPI adjusted to reflect year 2000 dollars.		
***, **, and *** reflect significance at 5%, 1% and .1%, respectively.**		

Table 3.7 TEL Effects on Service Ratio of Larger Municipalities – Predicted TEL

Service Ratio - Larger Municipalities		
Variable	**Regression 1**	**Regression 2**
Has TEL	-0.004* (0.047)	
Weak TEL		-0.003 (0.112)
Strong TEL		-0.004* (0.021)
Constant	0.911*** (0.000)	0.784*** (0.000)
Other Controls[1]		
R^2	0.0951	0.0952

Observations	295,177	295,177
[1]Additional controls included in each regression include: Predicted TEL, Year, Population, Region and State		
Data has been CPI adjusted to reflect year 2000 dollars.		
***, **, and *** reflect significance at 5%, 1% and .1%, respectively.**		

Results of the full sample tests are contradictory to expectations and the results of the difference in differences model. The coefficient for having any TEL is positive at 0.008 with a p-value of 0.000. When a weak TEL is in place, the effect is positive at 0.009 with a p-value of 0.000. Under strong TELs the service ratio is lower than with a weak TEL, nevertheless it also remains positive at 0.006 with a p-value of 0.004. However, allowing estimations of separate regressions for the larger and smaller municipalities reveals results that are in line with expectations and the results shown in the difference in differences specification. For smaller municipalities, both weak and strong TELs cause a reduction in service ratio with coefficients of -0.026 and -0.030, respectively. Each is highly significant with p-values of 0.000. For larger municipalities, there is weaker evidence of a reduction in service ratio. As a relatively larger municipality, having a TEL reduces service ratio by -0.004 with a p-value of 0.047. Weak TELs do not show a significant effect on service ratio, while strong TELs account for a -0.004 reduction in service ratio with a significant p-value of 0.021. Most results reject hypothesis 1, which states that TELs do not significantly impact the service ratio of municipalities. Instead, the data show significant evidence that service ratio is reduced by the implementation of tax and expenditure limits.

3.4.2 Anticipation of TELs

A difference in difference regression is employed to examine whether municipalities anticipate the enactment of a TEL (hypothesis 2). Examining figure 3.1

once again, there is a noticeable spike in the service ratio the year just before a strong TEL is implemented for the test group. This clearly contrasts with the line of the control group which stays relatively consistent about the -1 time frame. If municipalities increase their proportion of service expenditures just before the TEL is in place, the interaction between the "Test Group" variable and the "1 Year Prior" variable should be positive and significant. Viewing table 3.8, we see that is indeed the case.

Table 3.8 TEL Anticipation Effects on Service Ratio – Difference in Differences

Service Ratio - Difference in Differences In Relation To Event Year			
	Coefficient	**t**	**p**
Test Group x 4 Years Prior	0.0048	1.82	0.068
4 Years Prior	-0.0082	-11.72	0.000
Test Group x 3 Years Prior	0.0039	1.49	0.136
3 Years Prior	-0.0068	-11.90	0.000
Test Group x 2 Years Prior	-0.0006	-0.28	0.779
2 Years Prior	-0.0049	-11.56	0.000
Test Group x 1 Year Prior	0.0049	2.44	0.015
1 Years Prior	-0.0032	-11.29	0.000
Test Group x 1 Year After	0.0052	2.74	0.006
1 Year After	0.0031	11.33	0.000
Test Group x 2 Years After	0.0002	0.0022	0.927
2 Years After	0.0038	9.27	0.000
Test Group x 3 Years After	-0.0036	0.0024	0.140
3 Years After	0.0039	7.21	0.000
Test Group	0.0053	2.12	0.034
Observations	383,941		
R-squared	0.2985		
Additional Controls include: Year, Census Region, County, Indicator of greater than median expenditures.			
Errors are clustered by municipality.			

In fact, the coefficient for the "Test Group x 1 Year Prior" interaction is more positive and significant (coefficient of 0.0049, p-value 0.015) than any other interaction variable in the

timeline except for the year after. The spike in the year after could be explained in a manner similar to "channel stuffing." If the municipality accelerated projects from the year that the TEL was enacted to the year just before the TEL was enacted, then service expenditures in the enactment year will likely be artificially deflated. Once the flow of service expenditures normalizes again in the following year, there is an artificial increase in service ratio despite the TEL generally causing a decrease in service ratio post TEL implementation. Therefore, these results do suggest that there is a TEL anticipation effect leading to inflated service ratio in the year before a strong TEL goes into effect.

3.4.3 Disaggregation of Service Ratio

To analyze the drivers of service ratio changes detailed in the results, I split service costs into two categories. In one category are those costs related to fire and police expenditures, which prior research such as Figlio and O'Sullivan (2001) has often used as the only service costs. In the second category are all other service expenditures which I have defined through an examination of the U.S. Census Bureau's survey of local governments. Each category is valued as its own service ratio:

(Fire + Police Expenditures) / (Expenditures) = Fire And Police Ratio

All Other Service Expenditures / (Expenditures) = Other Service Ratio

Identifying which category drives the results allows additional inferences to be made regarding the motivation of municipal management under TEL restrictions as well as the differing nature of certain types of costs. For example, some administrative costs may be "sticky" in comparison to service costs. This could be due to union contracts as well as a significant fixed amount of necessary administrative costs. However, these

characteristics also seem applicable to the fire and police service costs. There is a need for these services, and a significant portion of government employees (40% of local government employees) are unionized per the Bureau of Labor Statistics' 2016 data news release. Additionally, fire and police expenditures are highly visible and therefore may lead to greater consequences for municipal leadership if they are significantly reduced.

Given the results which show a reduction in service ratio after TEL, I anticipate that the driver of this reduction is driven by "other" services, with little to no reduction in the fire and police expenditure ratio. Therefore, I define the following hypotheses:

H3) Tax and Expenditure limitations cause no reduction in the fire and police service ratio.

H4) Tax and Expenditure limitations cause a significant reduction in the ratio for other services (Services exclusive of fire and police expenditures).

3.4.4 Disaggregation of Service Ratio Results

Tables 3.9 and 3.10 show the results of the difference in differences testing of H3 and H4.

Table 3.9 TEL Anticipation Effects on Protection Services Ratio – Diff in Diff

Fire and Police Service Ratio - Difference in Differences Specification			
	Coefficient	**t**	**p**
Test Group x Post Event	0.0033	3.24	0.001
Test Group	-0.0023	-1.64	0.102
Post Event	0.0025	6.06	0.000
Observations	383,941		
R-squared	0.4031		

Additional Controls include: Year, Census Region, County, Indicator of greater than median expenditures.
Errors are clustered by municipality.

Table 3.9 supports H3 by showing that the fire and police expenditure ratio is not reduced due to the implementation of TELs. In fact, contrary to results shown by Figlio and O'Sullivan (2001), a significant increase is shown in the proportion of expenditures that are related to fire and police protection services. The coefficient of interest is positive with a p-value of 0.001. Table 3.10 shows results that support hypothesis 4.

Table 3.10 TEL Anticipation Effects on Other Services Ratio – Diff in Diff

Other Services Ratio - Difference in Differences Specification			
	Coefficient	**t**	**p**
Test Group x Post Event	-0.0062	-3.21	0.001
Test Group	0.0111	4.79	0.000
Post Event	0.0057	8.67	0.000
Observations	383,941		
R-squared	0.3829		
Additional Controls include: Year, Census Region, County, Indicator of greater than median expenditures.			
Errors are clustered by municipality.			

Indeed, the TEL causes a significant reduction in the proportion of money that is spent on other services. The variable of interest, the interaction between Test Group and Post TEL variables, has a coefficient of -0.0062 with a highly significant p-value of 0.001.

The results of these disaggregated tests provide insights which demonstrate how differing spending categories are affected by tax and expenditure limitation laws. The results contrast with the previous "fire and police" service definition research, although I

acknowledge that the sample and parameters involved in their testing is significantly different than in my examination.

3.5 Conclusion

I find that although the intent of tax and expenditure limitations is to benefit residents through reduced tax burden and limiting the growth of local governments, there is a potential cost that arises from these laws. Municipalities seem to spend a smaller proportion of their expenditures on productive (non-administrative) services after the TELs are implemented.

Additionally, I find evidence that suggests municipalities are anticipating the implementation of TELs and responding by increasing their service expenditures just before the law goes into effect. These results make it necessary to consider whether there are long term consequences to a municipality's fiscal health due to this accelerated spending.

Finally, I show that reductions in the service ratio are driven by reductions to the non-protection service costs (service costs excluding fire and police spending). This stands in contrast to prior research showing reduce service ratio, where service expenditures are defined as spending for fire and police services.

Future research will determine whether TELs actually increase the "price" of services. Even if property tax growth is reduced, if services are disproportionately reduced, then residents could end up paying more per service expenditure than before the TEL law went into place. Also worthy of investigation is whether accelerated spending (just before TEL implementation) on projects is funded by extra debt or property tax revenues. This brings

into question whether TELs spur municipalities to increase their budgets at the expense of a weaker capital structure.

Another path of research involves investigating the TEL law as a principal-agent problem with potentially limited monitoring. The state (the principal) imposes a rule which it tasks the municipality (the agent) with implementing. If monitoring does influence the municipalities' decision-making (Seljan 2014), can high quality audits / auditors serve as the monitor? Does requiring municipalities' financial reporting to comply with GAAP produce higher quality information that influences the financial choices of municipal managers? The results revealed in this essay certainly warrant further investigation of these issues. In the final essay of this dissertation, I perform an exploratory examination of how required GAAP reporting may affect the financial outcomes of municipalities.

4. Future Research Regarding Municipal Financial Outcomes Under Tax and Expenditure Limitations

4.1 Introduction

In describing why the Governmental Accounting Standards Board's work is important, GASB's 2017 fact sheet states that "[GASB] standards also help government officials demonstrate to their constituents their accountability and stewardship over public resources." This increased accountability can also be interpreted as a monitoring mechanism that helps to protect government resources. The previous essays of this dissertation have demonstrated how state-imposed tax and expenditure limitations do not always have impacts that are congruent with the purpose of those TELs. In fact, as shown in essay 3, there may be consequences beyond the stated parameters of the TELs which result in a disproportionate reduction of benefits for the people residing in municipalities that are operating under tax and expenditure limitations.

Future research would benefit state legislatures and municipal residents if it can reveal factors that influence the fiscal decision-making of municipalities. The intersection of GASB's purpose of improved governmental accountability through high quality information with municipalities' responses to state-imposed tax and expenditure limitations may demonstrate how high quality accounting information has a real and positive impact on municipal financial decisions. In this essay, I discuss competing theories about what creates a successful TEL implementation, and I perform an exploratory examination of the principal-agent theory.

Current data limitations regarding GAAP implementation dates and enforcement by state do not allow for a truly in-depth analysis. However, this high-level view may be useful as a primary step in revealing how high quality information and monitoring may serve to reduce the information asymmetry between the state and the municipality, thereby inducing the municipality to act in a manner more congruent with the state's goals.

This essay provides a cursory look at how the requirement of GAAP compliant financial statements may affect financial outcomes related to expenditures and service ratio of municipalities operating under tax and expenditure limitations. The results of various tests are not conclusive, but do show that generally, municipalities in states that require GAAP have consistently lower expenditures and higher service ratios. However, interacting the GAAP requirement variable with the TEL variables show inconsistent results. This level of testing likely requires much more specific data regarding the timing and implementation of GAAP requirements. Based on the theories presented below, future research in this area could prove worthwhile in helping predict the effectiveness of tax and expenditure limitations.

4.2 Literature Review and Motivation

There has been state level research focused on examining or forwarding theories as to why TELs are ultimately effective or ineffective. Some researchers find that the origin of the TEL policy is a significant predictor in how successfully tax and expenditure limits will change state taxing and spending habits. Research from New (2010) posits that citizen-enacted policies are more likely to achieve their goals than policies created through state legislatures. In contrast, Kousser, McCubbins, and Moule (2008) and Seljan (2014)

show that issues related to principal-agent theory are the major factors related to the successful implementation of TEL rules. Kousser, McCubbins, and Moule state that "…policies passed through direct democracy can often be thwarted by the politicians charged with implementing them." Seljan states that principal-agent theory is a better predictor of TEL effectiveness than policy origin, as evidenced through examination of TEL scenarios involving varied monitoring difficulty. Another view regarding the major influencers of successful TEL implementation is provided by Kioko (2011). Kioko finds that technical elements of the TELs, such as whether states estimate their limits based on prior year actual spending or prior year appropriations, can eventually lead to a significant disparity between the limit and the actual revenues or expenditures. She finds this is a significant occurrence when appropriations are used as a basis for allowable expenditures or revenues. This type of technical examination of tax and expenditure limitations, but applied at the local level of government, would aid state legislatures in crafting TEL legislation that results in the desired municipal fiscal changes.

The TELs used in this exploratory review are mostly compiled by Mullins and Cox (1995) and Mullins and Wallin (2004). They provide TEL data which includes type of TEL, which level of local government the TEL applies to, and which year the TELs were enacted. I update this data through 2012 though personal examination of state constitutions, state legislatures, and web searches. As of 2012, 45 states implemented either weak or strong tax and expenditure limitations on local municipal governments. The late 1970s and early 1980s are associated with an increase in the enactment of TELs. This time was referred to as the "tax revolt" and is discussed by Sears and Citrin (1983), centering on California's Proposition 13 which was passed in 1978. It is pertinent to note

that most TELs were written with exceptions. As municipalities increasingly use these exceptions, the main goals of the limitations may not be achieved. Therefore, finding additional methods of control would be useful to regulators and municipal residents.

Previous examinations of the effect of tax and expenditure limitations on municipal size have generally shown that TELs have little to no effect on expenditures. Research by Joyce and Mullins (1991) and Lowery (1983) both come to this conclusion in their empirical studies. A notable exception comes from Shadbegian's 1998 study which attempts to control for the endogenous relationship between TELs and municipal fiscal outcomes. He finds that there is a reduction in expenditure levels and expenditure growth. However, as noted in essay 2 of this dissertation, my results diverge from Shadbegian's findings. Shadbegian attempts to control for endogeneity through the usage of a prediction variable which estimates the probability of a given state in a given year possessing a TEL. However, the model specifications do not include both the predicted variable, and the actual variable within the same regressions. This still confounds the attempt to attribute any change in expenditures or expenditure growth to the TEL alone, as opposed to the factors that may simultaneously give rise to the enactment of a TEL and a change in financial decisions. My second essay uses difference in differences testing as well as regression models utilizing both the predicted likelihood of TEL and the actual TEL variables simultaneously. Under these specifications, I generally find no significant reduction of expenditures or expenditure growth related to the implementation of tax and expenditure limitations.

There is limited prior literature that examines, on a nationwide scale, the effects of tax and expenditure limitations on the service ratio of municipalities. Figlio and O'Sullivan

(2001) perform a nuanced analysis of this topic and find evidence of reduced service ratio due to TELs in certain contexts. However, their main results are focused on municipalities where residents have the ability to override the limits; and their definition of service expenditures is limited to fire and police expenditures. I review the U.S. Census Bureau's survey to municipal governments to identify the cost areas that are likely to be considered beneficial to a municipal resident. This includes fire and expenditure services, but also includes costs such as road maintenance, spending on parks, hospitals, and other costs. The expenditure categories of the U.S. Census Bureau local governments survey, and how I classify those categories, can be seen in the appendix. Using this more inclusive definition of services, I find results in essay 3 that initially seem to be congruent with Figlio and O'Sullivan's research, but shows significant differences upon deeper inspection. Generally, I found that municipalities operating under tax and expenditure limitations have a relatively lower service ratio than municipalities not governed by TELs laws. The contrast with Figlio and O'Sullivan is revealed through separate testing of two versions of service ratio. Analysis of service ratio, where only the protection services (fire and police) are classified as services, I find a significant increase in service ratio after TEL implementation. In contrast, when examining the service ratio that only classifies other services (non-protection services) as service expenditures, I find a highly significant reduction in service ratio due to tax and expenditure limitations. This exploratory examination of the relationship between required GAAP reporting and the fiscal choices of municipalities could motivate future, more detailed, analysis of the effect of high quality information and monitoring on the municipalities' choice of spending type (service vs administrative).

As this is an exploratory discussion and analysis of potential useful research in this area, formal hypotheses are not appropriate. The following section details the data and methods used in this analysis. That will be followed by a brief discussion of the outcomes of the models, and a conclusion.

4.3 Data and Methodology

This essay analyzes how GAAP reporting requirements of municipal governments are related to the fiscal outcomes of those governments. This is done through a review of expenditures and service ratio. The previous essays in this dissertation have found that these two areas may not reflect the desired outcomes of the tax and expenditure limitation laws. Financial data for municipal governments is obtained from the U.S. Census Bureau's survey of governments for the years 1970 through 2012. This government agency surveyed municipalities throughout this time, with survey responses being voluntary. The survey included questions about revenues and expenditure categories which are detailed in the appendix. The tax and expenditure limitation data was obtained from the Mullins and Wallin (2004) and Mullins and Cox (1995) publications. These publications gave specifics regarding which states enacted TELs, what year those TELs were effective, what type of TELs they were, and to which kind of local governments they applied to. I review state constitutions and statutes, and perform web searches to update the TEL data through 2012. The types of tax and expenditure limitations include limits on property tax rates, assessment increases, general revenues, and general expenditures. Another TEL they include is called full disclosure. This is not a technical limit on what a municipality can spend, but rather a requirement to notify the populace of certain increases in taxation or spending. This full disclosure limitation is classified as a weak TEL in the literature,

because there is does not strictly limit a municipality's spending and taxing. TELs are also classified as weak if they limit only property tax rates, or assessment increases. These are technically ineffective since a municipality could increase either one to produce higher property tax revenues. If the TEL limits both, or places limits on revenues or expenditures, it is classified as a strong TEL.

Due to the endogenous relationship between the enactment of TELs and the financial position of municipalities, attributing any change to municipal finances to the enactment of TELs requires controlling that endogeneity. This analysis accomplishes this by employing regressions which utilize a predicted TEL variable. This variable predicts the likelihood that a given state in each year would have a strong TEL. Including this variable in the same regression as the variable which indicates the existence of an actual TEL allows the results attributed to the actual TEL to be deemed as causal, rather than a simple association.

To predict the likelihood of a strong TEL I use a probit model which includes financial, demographic, political, and space-time data at the state level. The financial variables are property taxes per capita and property taxes per expenditure. To gauge the political climate, I use data obtained from the National Conference of State Legislatures. This data includes the political party of the Governor and the party in control of the state legislature. Two other political variables are proxies for government concentration. These are the number of local governments per capita and the total number of local governments per mile. These government concentration variables are proxies for the monopoly power that local governments possess over their residents (Shadbegian 1998). The local government data was obtained from the U.S. Census Bureau. They make the data available

in 5-year increments. Because government counts are relatively stable over these 5-year periods, I evenly spread the difference to each year between the surveyed years. This allows me to utilize significantly more data in the regressions. Local government counts are important in predicting the likelihood of a TEL existing for a given state-year. If municipal residents feel they are unable to easily move to a nearby competing municipality which better meets their needs, they could feel it's more optimal to petition the state to assert controls over their municipality's finances. The demographic and space-time data used to predict the likelihood of a strong TEL include: region (defined by the U.S. Census Bureau), year, per-capita personal income, and population density. The appendix includes a table of the predicted likelihoods of possessing a strong TEL for each state and year. The appendix also includes the probit prediction model results that were used to estimate the likelihoods. The prediction model's r-squared is 23%.

The data which classifies the GAAP requirements for the municipalities of each state is obtained from the GASB 2008 Research Brief. They attempt to find how many states and local governments follow generally accepted accounting principles. The appendix shows which states require GAAP financial statements. For some states, there is a threshold that separates which municipalities are or aren't required to produce financial statements in according with GAAP. The variable I use to test the influence of GAAP requirements is an indicator of complete GAAP requirement. Possessing a threshold to this requirement is coded as a 0 in my data. In their research brief, GASB is able to acquire the status of GAAP requirement as of the survey date, however, do not possess the specific years that the GAAP requirement went into effect. This limitation only allows for a cursory examination of the association between municipal financial status and the requirement of

GAAP financial statements. But this data can still be useful within a limited context, and as a starting point for progressing research regarding the real impacts of high quality accounting information in the governmental context.

4.4 Results

As previously stated, the results of this analysis are to be viewed as exploratory in nature. Although the financial data included in this analysis contains years that precede the establishment of the GASB, the requirement to follow GAAP rules serves as a proxy of a state's desire for high quality municipal information.

The tests implemented in this analysis mimic those in the previous essays. They utilize the predicted TEL models to reveal how TELs impact expenditures and service ratio. Table 4.1 shows results that are consistent with the expenditure results shown in essay 2.

Table 4.1 Association of GAAP Requirement and Expenditures

Expenditures & GAAP Requirement		
Variable	**Regression 1**	**Regression 2**
Has TEL	575.95 (0.854)	
Weak TEL		44.29 (0.989)
Strong TEL		1,394.67 (0.664)
GAAP Requirement	-26,160.06** (0.003)	-26,533.87** (0.003)
Constant	-128,284.40***	-128,333.90***
Other Controls[1]		
R^2	0.7535	0.7535
Observations	598,021	598,021
[1]Additional controls included in each regression include: Predicted TEL, Year, Population, Region and State		

Data has been CPI adjusted to reflect year 2000 dollars.
***, **, and *** reflect significance at 5%, 1% and .1%, respectively.**

Included in this specification is the GAAP requirement variable, which is associated with a significant decrease in expenditures. There are conflicting results when separate regressions are run for smaller and larger municipalities (tables 4.2 and 4.3).

Table 4.2 Association of GAAP Requirement and Expenditures – Smaller Municipalities

Expenditures & GAAP Requirement - Smaller Municipalities		
Variable	**Regression 1**	**Regression 2**
Has TEL	16.93*** (0.000)	
Weak TEL		19.00*** (0.000)
Strong TEL		9.24*** (0.000)
GAAP Requirement	137.56 (0.999)	144.68 (0.999)
Constant	209.65 (0.999)	208.40 (0.999)
Other Controls[1]		
R^2	0.3226	0.3231
Observations	302,659	302,659
[1]Additional controls included in each regression include: Predicted TEL, Year, Population, Region and State		
Data has been CPI adjusted to reflect year 2000 dollars.		
***, **, and *** reflect significance at 5%, 1% and .1%, respectively.**		

Table 4.3 Association of GAAP Requirement and Expenditures – Larger Municipalities

Expenditures & GAAP Requirement - Larger Municipalities		
Variable	**Regression 1**	**Regression 2**
Has TEL	602.09 (0.908)	
Weak TEL		-1,470.36 (0.784)
Strong TEL		3,027.79 (0.576)
GAAP Requirement	26,127.32 (1.000)	21,977.12 (1.000)
Constant	-169,448 (1.000)	-166,977.30 (1.000)
Other Controls[1]		
R^2	0.7560	0.7560
Observations	295,358	295,358
[1]Additional controls included in each regression include: Predicted TEL, Year, Population, Region and State		
Data has been CPI adjusted to reflect year 2000 dollars.		
***, **, and *** reflect significance at 5%, 1% and .1%, respectively.**		

In these separate specifications, there is no evidence of significant associations between expenditures and GAAP requirement.

Similar to the expenditures examination, the service ratio regressions generally reflect the same coefficients as the models in the previous essay. Tables 4.4, 4.5, and 4.6 show results of the models reflecting the association of GAAP requirement and service ratio for the full sample, smaller municipalities, and larger municipalities, respectively.

Table 4.4 Association of GAAP Requirement and Service Ratio

Service Ratio with GAAP Requirement - Full Sample		
	Regression 1	**Regression 2**
Has TEL	0.008*** (0.000)	
Weak TEL		0.009*** (0.000)
Strong TEL		0.006** (0.004)
GAAP Requirement	0.130*** (0.000)	0.131*** (0.000)
Constant	0.772*** (0.000)	0.772*** (0.000)
Other Controls[1]		
R^2	0.0983	0.0983
Observations	589,515	589,515
[1]Additional controls included in each regression include: Predicted TEL, Year, Population, Region and State		
Data has been CPI adjusted to reflect year 2000 dollars.		
***, **, and *** reflect significance at 5%, 1% and .1%, respectively.**		

Table 4.5 Association of GAAP Requirement and Service Ratio – Smaller Municipalities

Service Ratio with GAAP Requirement - Smaller Municipalities		
	Regression 1	**Regression 2**
Has TEL	-0.027*** (0.000)	
Weak TEL		-0.026*** (0.000)
Strong TEL		-0.030*** (0.000)
GAAP Requirement	0.151*** (0.000)	0.151*** (0.000)
Constant	0.694** (0.000)	0.696*** (0.000)
Other Controls[1]		
R^2	0.1534	0.1535
Observations	294,334	294,334

[1]Additional controls included in each regression include: Predicted TEL, Year, Population, Region and State
Data has been CPI adjusted to reflect year 2000 dollars.
***, **, and *** reflect significance at 5%, 1% and .1%, respectively.**

Table 4.6 Association of GAAP Requirement and Service Ratio – Larger Municipalities

Service Ratio with GAAP Requirement - Larger Municipalities		
	Regression 1	**Regression 2**
Has TEL	-0.004* (0.047)	
Weak TEL		-0.003 (0.112)
Strong TEL		-0.004* (0.021)
GAAP Requirement	0.126*** (0.000)	0.127*** (0.000)
Constant	0.784*** (0.000)	0.784*** (0.000)
Other Controls[1]		
R^2	0.0951	0.0952
Observations	295,177	295,177
[1]Additional controls included in each regression include: Predicted TEL, Year, Population, Region and State		
Data has been CPI adjusted to reflect year 2000 dollars.		
***, **, and *** reflect significance at 5%, 1% and .1%, respectively.**		

The separate predicted TEL regressions for smaller and larger municipalities, as reflected in tables 4.5 and 4.6, respectively, showed significant reductions in municipalities' service ratio due to tax and expenditure limitations. For smaller municipalities, table 4.5 reveals that strong TELs reduced the service ratio by -0.030, with a p-value of 0.000. In larger municipalities, strong TELs reduce the service ratio by -0.004, with a p-value of 0.021.

Within the same regressions, it is shown that municipalities that are required to file financial statements in conformance with GASB standards have higher service ratios. For smaller municipalities, the GAAP requirement is associated with an increase in service ratio of 0.151 with a p-value of 0.000. In larger municipalities, GAAP requirement is associated with a 0.126 to 0.127 increase in service ratio, where both coefficients have p-values of 0.000.

4.5 Conclusion

Modifying the specification of the expenditure and service ratio regressions to include the interaction of GAAP requirement and TEL variables would provide results that would allow the assertion that the GAAP requirement is causing the change in service ratio, rather than merely being associated with a service ratio reduction. However, the required details required to property perform these tests is not yet available. Therefore, it is inappropriate to create or attempt to interpret the results of models specified in that way.

This essay shows that GAAP requirements may have some significant influence on the actual financial decisions of municipalities. The nature of the testing methodology does leave open the possibility that the significant differences in expenditures and service ratio could be significant factors which caused states to mandate GAAP compliance. Future testing that is able to pinpoint the primary drivers of this association would make a significant contribution to the literature related to real effects of GAAP compliance, and the literature related to the impacts of tax and expenditure limitations.

Another potential significant influencer of the effectiveness of TELs is high quality auditing. Seljan (2014) provided evidence that the enactment and implementation of TELs falls into the scope of a principal-agent problem. Because state and municipal incentives

may not be in alignment, monitoring may be required to ensure adequate implementation of the state's rules. High quality information may be one monitoring mechanism, but high quality auditing is a more direct, and perhaps more effective, monitoring mechanism. This could especially hold true when municipalities are subject to audit by state auditors. The TEL and governmental audit literature would greatly benefit from the collection and testing of audit data which provides significant indicators regarding the quality of a municipality's audit.

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6. Appendix

Select Definitions and Calculations

Term	Definition
Assessment	Valuation of real estate. Used to calculate property tax revenue.
Cap	A limit on the property taxes, revenues, or expenditures of a government.
Exceptions	Revenues or expenditures allowed by a TEL above and beyond the stated cap.
Exclusions	Revenues or expenditures allowed by a TEL above and beyond the stated cap.
GAAP Requirement	Indicator of which states require their municipalities to comply with GAAP. The requirement must also be enforced. Status determined by 2008 GASB research brief. See appendix for listing.
Larger Municipalities	Municipalities above the median expenditures for the full sample.
Other Services	Service expenditures that are not related to fire and police forces.
Predicted TEL	The predicted likelihood of a strong TEL existing in a state-year. See appendix for prediction model specification and results.
Property Tax Burden	Calculated as Property Taxes / Expenditures
Protection Services	Municipal expenditures for fire and police forces.
Service Cost	See Appendix for C
Service Ratio	Service Expenditures / Expenditures
Smaller Municipalities	Municipalities below the median expenditures for the full sample.
Strong TEL	A TEL that strictly limits the property tax revenues, total revenues or expenditures of a municipality. Subject to exclusions.
TEL	Tax and expenditure limitation. See appendix for list of TELs.
Weak TEL	A TEL that does not strictly limit the property tax revenues, total revenues or expenditures of a municipality.

Probit Output – Probability of Having a Strong TEL

State	1977	1978	1979	1980	1981	1982	1983	1984
Alabama	0.1411	0.2236	0.2678	0.3300	0.3742	0.3976	0.4132	0.3974
Alaska	0.1715	0.2586	0.3948	0.4278	0.5321	0.5037	0.6203	0.7337
Arizona	0.6255	0.6745	0.6624	0.7073	0.7201	0.7622	0.7341	0.7067
Arkansas	0.0716	0.1047	0.1545	0.2196	0.2434	0.2632	0.2764	0.2640
California	0.3085	0.4002	0.4735	0.5486	0.6031	0.6363	0.6367	0.6378

Colorado	0.1400	0.1885	0.2398	0.2858	0.3186	0.3370	0.3549	0.3572
Connecticut	0.1567	0.2123	0.2516	0.2897	0.3226	0.3314	0.3355	0.2886
Delaware	0.0500	0.0848	0.1176	0.1452	0.1844	0.1913	0.1794	0.1669
Florida	0.1036	0.1465	0.1975	0.2378	0.2784	0.3105	0.3053	0.3037
Georgia	0.0865	0.1305	0.1810	0.2391	0.2774	0.2962	0.2912	0.2636
Hawaii	0.3588	0.4461	0.5181	0.5750	0.6622	0.7090	0.7073	0.7082
Idaho	0.1766	0.2462	0.3326	0.4022	0.4672	0.5162	0.5106	0.5286
Illinois	0.4370	0.5333	0.7787	0.8733	0.7971	0.8065	0.8246	0.8034
Indiana	0.5599	0.6554	0.7254	0.8127	0.8482	0.8690	0.8771	0.8595
Iowa	0.5024	0.5592	0.6643	0.7616	0.8299	0.8594	0.8799	0.8585
Kansas	0.3134	0.4110	0.4620	0.5519	0.5855	0.5953	0.6226	0.6017
Kentucky	0.1250	0.3105	0.3521	0.4348	0.4672	0.4867	0.5265	0.5175
Louisiana	0.1304	0.1834	0.2263	0.2702	0.2998	0.3311	0.3784	0.3910
Maine	0.0570	0.1047	0.2658	0.3134	0.2001	0.2033	0.2048	0.1954
Maryland	0.1727	0.2433	0.3068	0.3732	0.4246	0.4426	0.4386	0.4137
Massachusetts	0.3501	0.4436	0.5272	0.5674	0.6111	0.6003	0.5872	0.5336
Michigan	0.7189	0.7917	0.8498	0.9068	0.9342	0.9464	0.9815	0.9767
Minnesota	0.6991	0.7730	0.8238	0.8725	0.7876	0.8097	0.9126	0.8928
Mississippi	0.1360	0.2074	0.2752	0.3321	0.3733	0.3995	0.4160	0.4164
Missouri	0.5894	0.6810	0.7411	0.8161	0.8407	0.8477	0.8508	0.8364
Montana	0.2910	0.3425	0.4080	0.4355	0.7329	0.7926	0.7768	0.8153
Nebraska	0.2330	0.2861	0.3846	0.4982	0.5126	0.5275	0.5700	0.5417
Nevada	0.2560	0.3114	0.4050	0.4276	0.4953	0.5526	0.7504	0.7684
New Hampshire	0.0815	0.1189	0.0469	0.0616	0.0724	0.0697	0.0593	0.0608
New Jersey	0.3409	0.4222	0.4958	0.5360	0.5796	0.5788	0.5676	0.7057
New Mexico	0.4818	0.5856	0.6609	0.7265	0.7369	0.7615	0.8952	0.8980
New York	0.1999	0.2802	0.3387	0.3953	0.4366	0.4387	0.4302	0.4045
North Carolina	0.1452	0.2083	0.2761	0.3373	0.3808	0.4060	0.4021	0.3771
North Dakota	0.1102	0.0953	0.1764	0.3392	0.5043	0.5370	0.3154	0.3321
Ohio	0.7773	0.8475	0.9550	0.9720	0.9445	0.9531	0.9836	0.9805
Oklahoma	0.0376	0.0604	0.0746	0.0954	0.1010	0.1019	0.1468	0.1473
Oregon	0.1993	0.2755	0.3468	0.4510	0.5364	0.6000	0.5991	0.5920
Pennsylvania	0.0945	0.1445	0.0556	0.1035	0.2905	0.3082	0.3282	0.3336
Rhode Island		0.7358	0.7940	0.8184	0.8477	0.8600	0.8579	0.8465
South Carolina	0.1356	0.2011	0.2739	0.3242	0.3756	0.4027	0.4020	0.3796
South Dakota	0.2776	0.3372	0.4150	0.5734	0.5798	0.5995	0.6271	0.6054
Tennessee	0.1012	0.1485	0.2004	0.2675	0.3105	0.3310	0.3371	0.3187
Texas	0.0443	0.0670	0.0895	0.1198	0.1194	0.1331	0.1538	0.1509

Utah	0.3150	0.4128	0.5023	0.5993	0.6504	0.6737	0.7046	0.7081
Vermont	0.0121	0.0201	0.0307	0.0430	0.0515	0.0608	0.1913	0.1815
Virginia	0.0669	0.1006	0.1394	0.1749	0.2120	0.2261	0.2247	0.1991
Washington	0.6807	0.7749	0.6283	0.6981	0.7853	0.8368	0.8438	0.8420
West Virginia	0.1121	0.1735	0.2340	0.2941	0.3470	0.3607	0.3997	0.3925
Wisconsin	0.6978	0.7757	0.8151	0.8615	0.8921	0.9061	0.9122	0.9147
Wyoming	0.1414	0.2284	0.2841	0.3490	0.4032	0.5006	0.6093	0.7649

State	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**
Alabama	0.4084	0.4301	0.4219	0.4324	0.4177	0.4587	0.4599	0.4206
Alaska	0.8277	0.8292	0.9331	0.9022	0.9142	0.9120	0.8287	0.8225
Arizona	0.6807	0.6847	0.6798	0.7211	0.7559	0.8178	0.8448	0.8312
Arkansas	0.2791	0.3080	0.3237	0.3293	0.3303	0.3789	0.3858	0.3471
California	0.6672	0.6915	0.6870	0.7085	0.7244	0.7724	0.8012	0.8065
Colorado	0.3816	0.4202	0.4472	0.4586	0.4344	0.4830	0.4943	0.4606
Connecticut	0.2969	0.2918	0.2559	0.2250	0.2077	0.2765	0.1845	0.1486
Delaware	0.3222	0.3014	0.2953	0.2938	0.2812	0.3615	0.3626	0.3798
Florida	0.3086	0.3381	0.3336	0.3409	0.3235	0.4034	0.6556	0.6474
Georgia	0.2690	0.2811	0.2726	0.2811	0.2876	0.3359	0.3582	0.3232
Hawaii	0.7443	0.7449	0.7591	0.7264	0.6913	0.7364	0.7612	0.7553
Idaho	0.5563	0.6048	0.6022	0.5962	0.8039	0.8307	0.6435	0.6129
Illinois	0.8135	0.8225	0.8117	0.8044	0.7994	0.8253	0.9365	0.9169
Indiana	0.8781	0.8852	0.9689	0.9692	0.9639	0.9732	0.9789	0.9703
Iowa	0.8744	0.8869	0.8817	0.9050	0.8967	0.9179	0.9306	0.9125
Kansas	0.6270	0.6499	0.6522	0.6792	0.8784	0.8985	0.9076	0.8874
Kentucky	0.5353	0.5745	0.5555	0.5518	0.5365	0.5859	0.5750	0.5257
Louisiana	0.4178	0.4977	0.5694	0.5381	0.5457	0.5641	0.5676	0.5441
Maine	0.1965	0.1912	0.1746	0.1703	0.1886	0.2439	0.2913	0.2682
Maryland	0.3960	0.4089	0.4009	0.4060	0.4088	0.4754	0.5165	0.5008
Massachusetts	0.5402	0.5280	0.5061	0.4801	0.5157	0.6034	0.6409	0.6091
Michigan	0.9748	0.9775	0.9814	0.9828	0.9822	0.9877	0.9901	0.9877
Minnesota	0.9043	0.9090	0.7987	0.8266	0.8134	0.8432	0.8661	0.8407
Mississippi	0.4463	0.4978	0.4783	0.5191	0.4869	0.6061	0.5573	0.5194
Missouri	0.8457	0.8618	0.8622	0.8784	0.8692	0.8999	0.9041	0.8908
Montana	0.8472	0.8559	0.8487	0.8597	0.8383	0.9231	0.8925	0.9361
Nebraska	0.5679	0.6031	0.6009	0.6180	0.6339	0.6700	0.6995	0.6798
Nevada	0.7695	0.7851	0.7838	0.7306	0.7321	0.7909	0.8050	0.7761
New Hampshire	0.0481	0.0466	0.0373	0.0381	0.0425	0.0774	0.0783	0.0800
New Jersey	0.7187	0.7277	0.6968	0.4989	0.4914	0.5624	0.6289	0.5664

New Mexico	0.9000	0.9249	0.8250	0.8454	0.8525	0.8842	0.8827	0.8849
New York	0.4106	0.4168	0.4123	0.3773	0.3543	0.3826	0.4662	0.4486
North Carolina	0.3872	0.3913	0.3835	0.3795	0.3724	0.4299	0.4513	0.4044
North Dakota	0.6438	0.6613	0.6635	0.7750	0.7319	0.7155	0.7343	0.6904
Ohio	0.9783	0.9820	0.9825	0.9831	0.9819	0.9864	0.9895	0.9870
Oklahoma	0.1720	0.2289	0.2583	0.3001	0.2731	0.3000	0.3306	0.3173
Oregon	0.6204	0.6367	0.6433	0.6404	0.6234	0.6728	0.8415	0.8308
Pennsylvania	0.3300	0.3511	0.3428	0.3336	0.3131	0.3544	0.3635	0.3645
Rhode Island	0.8555	0.8635	0.8644	0.8488	0.8439	0.8981	0.9215	0.9340
South Carolina	0.4108	0.4289	0.4241	0.4227	0.4190	0.4655	0.4985	0.4777
South Dakota	0.6479	0.6796	0.6957	0.7030	0.6966	0.7040	0.8901	0.8758
Tennessee	0.3322	0.3484	0.3352	0.3402	0.3407	0.3858	0.3990	0.3530
Texas	0.1619	0.2163	0.2310	0.2464	0.2529	0.2762	0.3024	0.2740
Utah	0.7294	0.7620	0.7740	0.7810	0.7849	0.8036	0.8024	0.7879
Vermont	0.1893	0.1947	0.1770	0.1808	0.1670	0.2242	0.2776	0.2486
Virginia	0.1956	0.2022	0.1969	0.1993	0.1934	0.2491	0.2644	0.2422
Washington	0.8425	0.8420	0.9436	0.9448	0.9354	0.9425	0.8596	0.8315
West Virginia	0.4157	0.4601	0.4717	0.4678	0.4541	0.4850	0.5045	0.4631
Wisconsin	0.9127	0.9170	0.9071	0.9225	0.8974	0.9198	0.9288	0.9143
Wyoming	0.7301	0.7728	0.7900	0.7885	0.7383	0.7226	0.7188	0.6945

State	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
Alabama	0.4525	0.4465	0.4704	0.5185	0.5170	0.5236	0.5162	0.5214
Alaska	0.6134	0.8235	0.8178	0.8317	0.8156	0.8212	0.8241	0.8177
Arizona	0.8465	0.8291	0.8497	0.8677	0.8373	0.8292	0.9416	0.9382
Arkansas	0.3725	0.3625	0.3926	0.4276	0.4446	0.4652	0.6440	0.6500
California	0.8344	0.8417	0.8583	0.8695	0.8663	0.8533	0.8221	0.7675
Colorado	0.4727	0.4603	0.4722	0.4837	0.4833	0.4265	0.6444	0.5765
Connecticut	0.1626	0.1787	0.3279	0.3377	0.2950	0.2689	0.2381	0.1985
Delaware	0.4237	0.4145	0.4391	0.4704	0.4603	0.4557	0.4480	0.4503
Florida	0.6833	0.6917	0.4549	0.4945	0.5070	0.5240	0.4977	0.4569
Georgia	0.3441	0.3404	0.3638	0.3809	0.3939	0.3692	0.3435	0.3322
Hawaii	0.8083	0.8348	0.8503	0.8952	0.9091	0.9266	0.9136	0.9168
Idaho	0.6126	0.6195	0.6603	0.6837	0.7084	0.7060	0.6871	0.6722
Illinois	0.9285	0.9244	0.9297	0.9341	0.9297	0.9294	0.9222	0.9046
Indiana	0.9744	0.9721	0.9760	0.9787	0.9789	0.9773	0.9749	0.9747
Iowa	0.9778	0.9697	0.9069	0.8998	0.9013	0.9080	0.9075	0.9022
Kansas	0.7234	0.7323	0.7665	0.7739	0.7627	0.7645	0.7545	0.7515

Kentucky	0.5537	0.5514	0.5956	0.6169	0.6047	0.5963	0.7453	0.7221
Louisiana	0.5646	0.5372	0.5686	0.5991	0.5894	0.6116	0.6089	0.6111
Maine	0.2896	0.2928	0.1617	0.1691	0.1634	0.1612	0.2812	0.2638
Maryland	0.5331	0.5416	0.5835	0.6151	0.6094	0.5959	0.5567	0.5233
Massachusetts	0.6611	0.6299	0.6540	0.6525	0.6400	0.6545	0.5819	0.4820
Michigan	0.9881	0.9889	0.9947	0.9961	0.9758	0.9733	0.9665	0.9643
Minnesota	0.8702	0.8579	0.8729	0.8767	0.9483	0.9362	0.8367	0.8256
Mississippi	0.5312	0.5053	0.5433	0.5757	0.5867	0.5964	0.5896	0.6069
Missouri	0.9009	0.8968	0.9128	0.9198	0.9175	0.9259	0.9713	0.9675
Montana	0.8362	0.8500	0.8756	0.8927	0.8925	0.8927	0.8812	0.8632
Nebraska	0.7159	0.7012	0.7324	0.7225	0.7493	0.7421	0.7209	0.7251
Nevada	0.7918	0.7848	0.8028	0.8113	0.8174	0.8325	0.8134	0.8058
New Hampshire	0.1014	0.0852	0.0848	0.0977	0.2449	0.2416	0.0675	0.2523
New Jersey	0.6016	0.6045	0.6364	0.6628	0.6113	0.6217	0.5972	0.5328
New Mexico	0.8761	0.8737	0.8785	0.8961	0.8975	0.9094	0.9094	0.8983
New York	0.4851	0.5010	0.5131	0.5256	0.5059	0.5325	0.4897	0.4501
North Carolina	0.4186	0.4191	0.4473	0.4496	0.4430	0.4526	0.4338	0.4355
North Dakota	0.4933	0.4399	0.5211	0.4678	0.5656	0.5262	0.5382	0.4931
Ohio	0.9474	0.9443	0.9508	0.9577	0.9544	0.9555	0.9517	0.9522
Oklahoma	0.3473	0.3474	0.3767	0.4004	0.4005	0.4091	0.4021	0.3553
Oregon	0.6353	0.6094	0.6492	0.6688	0.6669	0.6859	0.6717	0.6532
Pennsylvania	0.1702	0.1749	0.1950	0.2070	0.1959	0.1939	0.1784	0.1579
Rhode Island	0.9398	0.9427	0.9404	0.9513	0.9513	0.9400	0.9401	0.9342
South Carolina	0.6825	0.6921	0.7006	0.7284	0.7288	0.7358	0.7229	0.7213
South Dakota	0.7188	0.7015	0.7521	0.7346	0.7594	0.7375	0.7015	0.6868
Tennessee	0.3626	0.3634	0.3853	0.4210	0.4222	0.3931	0.3811	0.3745
Texas	0.3032	0.3052	0.5188	0.5392	0.5115	0.4983	0.2330	0.2127
Utah	0.7979	0.7921	0.8090	0.8176	0.8186	0.8304	0.8159	0.8085
Vermont	0.2817	0.2609	0.2863	0.3124	0.1583	0.1541	0.6928	0.5494
Virginia	0.2641	0.2561	0.2922	0.5122	0.4974	0.4976	0.4573	0.2000
Washington	0.9355	0.9431	0.9486	0.9561	0.9529	0.9433	0.9251	0.8853
West Virginia	0.5055	0.5021	0.5364	0.5767	0.5877	0.6070	0.5994	0.5919
Wisconsin	0.9707	0.9667	0.9717	0.9756	0.9731	0.9719	0.9708	0.9698
Wyoming	0.6903	0.6891	0.7144	0.7342	0.7020	0.7067	0.6404	0.6049

State	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**

Alabama	0.5298	0.5125	0.5010	0.4935	0.5235	0.5218	0.5569	0.5667
Alaska	0.8932	0.8006	0.8166	0.8077	0.7903	0.7895	0.9292	0.8966
Arizona	0.8243	0.8174	0.8115	0.8093	0.8089	0.7802	0.8529	0.8718
Arkansas	0.6193	0.6093	0.5766	0.5878	0.6250	0.6170	0.6357	0.6322
California	0.7980	0.7894	0.7919	0.7837	0.8002	0.7785	0.8005	0.8238
Colorado	0.3439	0.3770	0.4785	0.4918	0.5029	0.4949	0.5270	0.5255
Connecticut	0.2187	0.2653	0.2739	0.2393	0.2204	0.1575	0.1405	0.1698
Delaware	0.3952	0.3791	0.4208	0.4451	0.4916	0.5021	0.3670	0.3960
Florida	0.4510	0.4319	0.4306	0.3987	0.4230	0.3813	0.3990	0.4551
Georgia	0.5429	0.5487	0.3010	0.3284	0.3457	0.3474	0.4055	0.4308
Hawaii	0.9290	0.9181	0.9020	0.9006	0.9171	0.8949	0.9045	0.9064
Idaho	0.6936	0.6857	0.6948	0.6876	0.7248	0.6908	0.7261	0.7792
Illinois	0.8210	0.8219	0.8360	0.8771	0.8594	0.8332	0.8408	0.8467
Indiana	0.9800	0.9799	0.9199	0.9316	0.9894	0.9887	0.9910	0.9918
Iowa	0.9121	0.9000	0.9757	0.9691	0.9384	0.9429	0.9353	0.9206
Kansas	0.7685	0.7731	0.7770	0.7882	0.8040	0.7768	0.7838	0.7422
Kentucky	0.7395	0.7261	0.7337	0.7428	0.7687	0.7701	0.7983	0.7963
Louisiana	0.5769	0.5671	0.5844	0.5968	0.6113	0.5200	0.5221	0.5261
Maine	0.1397	0.1309	0.2629	0.2708	0.3317	0.3163	0.3368	0.3329
Maryland	0.5401	0.5282	0.5221	0.5251	0.5607	0.5329	0.5680	0.5757
Massachusetts	0.5170	0.5228	0.5413	0.5477	0.5829	0.5097	0.5559	0.5602
Michigan	0.9731	0.9737	0.9782	0.9784	0.9976	0.9980	0.9986	0.9985
Minnesota	0.8382	0.8537	0.9436	0.9426	0.8946	0.8905	0.8950	0.8916
Mississippi	0.6042	0.6038	0.6029	0.6142	0.6212	0.6346	0.6728	0.6543
Missouri	0.8941	0.8925	0.8875	0.8873	0.9078	0.9036	0.9138	0.9065
Montana	0.8473	0.8173	0.9307	0.9263	0.9333	0.9240	0.9236	0.9203
Nebraska	0.7348	0.7254	0.6879	0.7103	0.7537	0.7673	0.7551	0.7349
Nevada	0.8306	0.8368	0.8165	0.7995	0.7825	0.7970	0.6859	0.7589
New Hampshire	0.2545	0.2057	0.2167	0.1914	0.2429	0.2092	0.2236	0.2275
New Jersey	0.5733	0.8119	0.8287	0.7023	0.7426	0.7034	0.7179	0.7218
New Mexico	0.8844	0.8846	0.8948	0.9054	0.9176	0.9135	0.9293	0.9318
New York	0.4873	0.5290	0.5751	0.5487	0.5486	0.4982	0.2838	0.2940
North Carolina	0.6592	0.6633	0.4902	0.4960	0.5307	0.5238	0.5545	0.5768
North Dakota	0.5161	0.4899	0.4206	0.4852	0.5096	0.5157	0.4643	0.3431
Ohio	0.9591	0.9601	0.9617	0.9662	0.9738	0.9733	0.9963	0.9963
Oklahoma	0.3585	0.3609	0.5592	0.5446	0.5444	0.5022	0.2972	0.2313
Oregon	0.8747	0.8905	0.8886	0.8888	0.8077	0.7836	0.8093	0.8130
Pennsylvania	0.1689	0.1648	0.1672	0.1642	0.2041	0.1796	0.4240	0.4183
Rhode Island	0.9437	0.9401	0.9311	0.9380	0.9444	0.9409	0.9324	0.9387

South Carolina	0.5018	0.5023	0.5133	0.5254	0.5558	0.5430	0.5679	0.5904
South Dakota	0.7030	0.6974	0.6297	0.6178	0.6740	0.7102	0.6578	0.6053
Tennessee	0.4057	0.3978	0.5882	0.5994	0.6584	0.6516	0.4261	0.4318
Texas	0.2114	0.2330	0.2459	0.2592	0.2544	0.2303	0.2544	0.2126
Utah	0.8184	0.8221	0.8316	0.8407	0.8362	0.8104	0.8150	0.8291
Vermont	0.5124	0.4661	0.2590	0.2446	0.3810	0.3733	0.3707	0.3355
Virginia	0.2076	0.2056	0.1832	0.1763	0.1858	0.1704	0.1762	0.4170
Washington	0.8849	0.8786	0.7479	0.7311	0.7776	0.7485	0.7280	0.7258
West Virginia	0.5706	0.5821	0.6029	0.6228	0.6561	0.6099	0.6458	0.6049
Wisconsin	0.8931	0.8924	0.8913	0.8969	0.9796	0.9764	0.9429	0.9457
Wyoming	0.5791	0.5724	0.5271	0.4968	0.4589	0.3316	0.3842	0.3144

State	**2009**	**2010**	**2011**	**2012**
Alabama	0.5370	0.5291	0.5173	0.5484
Alaska	0.8996	0.8703	0.8721	0.8854
Arizona	0.8699	0.8772	0.9015	0.9110
Arkansas	0.6015	0.6358	0.6694	0.6553
California	0.8350	0.8420	0.8658	0.8377
Colorado	0.5331	0.5761	0.7587	0.7472
Connecticut	0.1989	0.1904	0.2269	0.2217
Delaware	0.3637	0.4288	0.4571	0.5080
Florida	0.4912	0.2890	0.5281	0.5729
Georgia	0.4203	0.4567	0.4886	0.5291
Hawaii	0.8925	0.8990	0.9196	0.9325
Idaho	0.7779	0.7880	0.8200	0.8219
Illinois	0.8657	0.8767	0.8919	0.8945
Indiana	0.9921	0.9933	0.9726	0.9742
Iowa	0.9248	0.9246	0.9714	0.9775
Kansas	0.7539	0.7718	0.7618	0.7738
Kentucky	0.7696	0.7771	0.8078	0.8204
Louisiana	0.5112	0.4988	0.5550	0.4676
Maine	0.2898	0.2972	0.2747	0.2947
Maryland	0.5368	0.5442	0.5895	0.6312
Massachusetts	0.5619	0.6018	0.6296	0.6247
Michigan	0.9984	0.9982	0.9893	0.9901
Minnesota	0.9008	0.8912	0.8652	0.8610
Mississippi	0.6146	0.6243	0.6764	0.6159
Missouri	0.9051	0.9164	0.9330	0.9354
Montana	0.9149	0.9119	0.7746	0.7751

Nebraska	0.7383	0.7403	0.7259	0.7284
Nevada	0.8087	0.8527	0.8902	0.8808
New Hampshire	0.1993	0.1771	0.1483	0.1332
New Jersey	0.7510	0.7667	0.7957	0.8138
New Mexico	0.9231	0.9240	0.9376	0.9410
New York	0.3037	0.2819	0.5162	0.5058
North Carolina	0.5582	0.5764	0.5725	0.5597
North Dakota	0.3794	0.2978	0.2622	0.1528
Ohio	0.9959	0.9962	0.9799	0.9797
Oklahoma	0.2952	0.2804	0.2746	0.2485
Oregon	0.8131	0.8377	0.9424	0.9438
Pennsylvania	0.4017	0.4158	0.2183	0.2134
Rhode Island	0.9213	0.9182	0.8507	0.8574
South Carolina	0.5560	0.5724	0.6405	0.6357
South Dakota	0.6035	0.5989	0.5548	0.6243
Tennessee	0.4042	0.3945	0.4452	0.4467
Texas	0.2521	0.2443	0.2517	0.2410
Utah	0.8445	0.8659	0.8833	0.8890
Vermont	0.2616	0.2477	0.2643	0.2745
Virginia	0.4054	0.4062	0.4466	0.4730
Washington	0.7390	0.7478	0.7849	0.7701
West Virginia	0.5550	0.5689	0.6036	0.6323
Wisconsin	0.9420	0.9443	0.9330	0.9358
Wyoming	0.4665	0.4386	0.3857	0.3547

Probit Model Coefficients

Predictor Variables	Coefficient	P Value
Expenditures per Capita	0.128	0.000
Property Tax per Capita	-1.907	0.012
Property Tax per Expenditure	17.089	0.000
Governments per Mile	-5.100	0.001
Governments per Capita	-410.551	0.000
Per Capita Personal Income	-0.0001	0.000
Population Density	0.003	0.000
Governor Party, Other	-0.509	0.133
Governor Party, Republican	-0.006	0.933

State Legislature Control, N/A	-0.147	0.561
State Legislature Control, Republican	-0.192	0.041
State Legislature Control, Split	0.476	0.000
Census Region, Northeast	-2.273	0.000
Census Region, South	-2.194	0.000
Census Region, West	-0.991	0.000
1978	0.327	0.265
1979	0.504	0.083
1980	0.625	0.031
1981	0.758	0.009
1982	0.817	0.005
1983	0.896	0.002
1984	0.971	0.001
1985	1.060	0.000
1986	1.119	0.000
1987	1.209	0.000
1988	1.305	0.000
1989	1.344	0.000
1990	1.455	0.000
1991	1.456	0.000
1992	1.426	0.000
1993	1.486	0.000
1994	1.515	0.000
1995	1.633	0.000
1996	1.752	0.000
1997	1.811	0.000
1998	1.935	0.000
1999	1.914	0.000
2000	1.956	0.000
2001	2.002	0.000
2002	1.952	0.000
2003	1.965	0.000
2004	2.048	0.000
2005	2.159	0.000
2006	2.199	0.000
2007	2.306	0.000
2008	2.288	0.000
2009	2.116	0.000
2010	2.128	0.000
2011	2.314	0.000
2012	2.416	0.000

Constant	2.761	0.000
Pseudo R-Squared	0.2306	
Observations	1,799	

Strength of TEL

State	1970	1971	1972	1973	1974	1975	1976
Alabama	1	1	1	1	1	1	1
Alaska	0	0	2	2	2	2	2
Arizona	2	2	2	2	2	2	2
Arkansas	1	1	1	1	1	1	1
California	0	0	0	0	0	0	0
Colorado	2	2	2	2	2	2	2
Connecticut	0	0	0	0	0	0	0
Delaware	0	0	0	0	0	0	0
Florida	1	1	1	1	2	2	2
Georgia	0	0	0	0	0	0	0
Hawaii	0	0	0	0	0	0	0
Idaho	1	1	1	1	1	1	1
Illinois	1	1	1	1	1	1	1
Indiana	0	0	0	2	2	2	2
Iowa	0	0	1	1	1	1	1
Kansas	2	2	2	2	2	2	2
Kentucky	1	1	1	1	1	1	1
Louisiana	0	0	0	0	1	1	1
Maine	0	0	0	0	0	0	0
Maryland	1	1	1	1	1	1	1
Massachusetts	0	0	0	0	0	0	0
Michigan	1	1	1	1	1	1	1
Minnesota	0	2	2	2	2	2	2
Mississippi	0	0	0	0	0	0	0
Missouri	1	1	1	1	1	1	1
Montana	1	1	1	1	1	1	1
Nebraska	1	1	1	1	1	1	1
Nevada	1	1	1	1	1	1	1
New Hampshire	0	0	0	0	0	0	0
New Jersey	0	0	0	0	0	0	2
New Mexico	1	1	1	1	1	1	1
New York	1	1	1	1	1	1	1

North Carolina	0	0	0	1	1	1	1
North Dakota	1	1	1	1	1	1	1
Ohio	1	1	1	1	1	1	2
Oklahoma	1	1	1	1	1	1	1
Oregon	2	2	2	2	2	2	2
Pennsylvania	1	1	1	1	1	1	1
Rhode Island	0	0	0	0	0	0	0
South Carolina	0	0	0	0	0	1	1
South Dakota	1	1	1	1	1	1	1
Tennessee	0	0	0	0	0	0	0
Texas	1	1	1	1	1	1	1
Utah	2	2	2	2	2	2	2
Vermont	0	0	0	0	0	0	0
Virginia	0	0	0	0	0	0	1
Washington	1	2	2	2	2	2	2
West Virginia	1	1	1	1	1	1	1
Wisconsin	2	2	2	2	2	2	2
Wyoming	1	1	1	1	1	1	1

State	**1977**	**1978**	**1979**	**1980**	**1981**	**1982**	**1983**
Alabama	1	1	1	1	1	1	1
Alaska	2	2	2	2	2	2	2
Arizona	2	2	2	2	2	2	2
Arkansas	1	1	1	1	2	2	2
California	0	2	2	2	2	2	2
Colorado	2	2	2	2	2	2	2
Connecticut	0	0	0	0	0	0	0
Delaware	0	0	0	0	0	0	0
Florida	2	2	2	2	2	2	2
Georgia	0	0	0	0	0	0	0
Hawaii	0	0	0	0	0	0	0
Idaho	1	1	2	2	2	2	2
Illinois	1	1	1	1	1	1	1
Indiana	2	2	2	2	2	2	2
Iowa	1	2	2	2	2	2	2
Kansas	2	2	2	2	2	2	2
Kentucky	1	1	2	2	2	2	2
Louisiana	1	2	2	2	2	2	2

Maine	0	0	0	0	0	0	0
Maryland	1	1	1	1	1	1	1
Massachusetts	0	0	0	2	2	2	2
Michigan	1	2	2	2	2	2	2
Minnesota	2	2	2	2	2	2	2
Mississippi	0	0	0	2	2	2	2
Missouri	1	1	1	2	2	2	2
Montana	1	1	1	1	1	1	1
Nebraska	1	1	1	1	1	1	1
Nevada	1	1	1	1	1	1	2
New Hampshire	0	0	0	0	0	0	0
New Jersey	2	2	2	2	2	2	2
New Mexico	1	1	2	2	2	2	2
New York	1	1	1	1	1	1	1
North Carolina	1	1	1	1	1	1	1
North Dakota	1	1	1	1	2	2	2
Ohio	2	2	2	2	2	2	2
Oklahoma	1	1	1	1	1	1	1
Oregon	2	2	2	2	2	2	2
Pennsylvania	1	1	1	1	1	1	1
Rhode Island	0	0	1	1	1	1	1
South Carolina	1	1	1	1	1	1	1
South Dakota	1	1	1	1	1	1	1
Tennessee	0	0	1	1	1	1	1
Texas	1	1	1	1	1	2	2
Utah	2	2	2	2	2	2	2
Vermont	0	0	0	0	0	0	0
Virginia	1	1	1	1	1	1	1
Washington	2	2	2	2	2	2	2
West Virginia	1	1	1	1	1	1	1
Wisconsin	2	2	2	2	2	2	2
Wyoming	1	1	1	1	1	1	1

State	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**
Alabama	1	1	1	1	1	1	1
Alaska	2	2	2	2	2	2	2
Arizona	2	2	2	2	2	2	2
Arkansas	2	2	2	2	2	2	2

California	2	2	2	2	2	2	2
Colorado	2	2	2	2	2	2	2
Connecticut	0	0	0	0	0	0	0
Delaware	0	0	0	0	0	0	0
Florida	2	2	2	2	2	2	2
Georgia	0	0	0	0	0	0	0
Hawaii	0	0	0	0	0	0	0
Idaho	2	2	2	2	2	2	2
Illinois	1	1	1	1	1	1	1
Indiana	2	2	2	2	2	2	2
Iowa	2	2	2	2	2	2	2
Kansas	2	2	2	2	2	2	2
Kentucky	2	2	2	2	2	2	2
Louisiana	2	2	2	2	2	2	2
Maine	0	0	0	0	0	0	0
Maryland	1	1	1	1	1	1	1
Massachusetts	2	2	2	2	2	2	2
Michigan	2	2	2	2	2	2	2
Minnesota	2	2	2	2	2	2	2
Mississippi	2	2	2	2	2	2	2
Missouri	2	2	2	2	2	2	2
Montana	1	1	1	2	2	2	2
Nebraska	1	1	1	1	1	1	2
Nevada	2	2	2	2	2	2	2
New Hampshire	0	0	0	0	0	0	0
New Jersey	2	2	2	2	2	2	2
New Mexico	2	2	2	2	2	2	2
New York	1	1	2	2	2	2	2
North Carolina	1	1	1	1	1	1	1
North Dakota	2	2	2	2	2	2	2
Ohio	2	2	2	2	2	2	2
Oklahoma	1	1	1	1	1	1	1
Oregon	2	2	2	2	2	2	2
Pennsylvania	1	1	1	1	1	1	1
Rhode Island	1	2	2	2	2	2	2
South Carolina	1	1	1	1	1	1	1
South Dakota	1	1	1	1	1	1	1
Tennessee	1	1	1	1	1	1	1
Texas	2	2	2	2	2	2	2

Utah	2	2	2	1	1	1	1
Vermont	0	0	0	0	0	0	0
Virginia	1	1	1	1	1	1	1
Washington	2	2	2	2	2	2	2
West Virginia	1	1	1	1	1	1	2
Wisconsin	2	2	2	2	2	2	2
Wyoming	1	1	1	1	1	1	1

State	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**
Alabama	1	1	1	1	1	1	1
Alaska	2	2	2	2	2	2	2
Arizona	2	2	2	2	2	2	2
Arkansas	2	2	2	2	2	2	2
California	2	2	2	2	2	2	2
Colorado	2	2	2	2	2	2	2
Connecticut	0	0	0	0	0	0	0
Delaware	0	0	0	0	0	0	0
Florida	2	2	2	2	2	2	2
Georgia	1	1	1	1	1	1	1
Hawaii	0	0	0	0	0	0	0
Idaho	2	1	1	1	2	2	2
Illinois	2	2	2	2	2	2	2
Indiana	2	2	2	2	2	2	2
Iowa	2	2	2	2	2	2	2
Kansas	2	2	2	2	2	2	2
Kentucky	2	2	2	2	2	2	2
Louisiana	2	2	2	2	2	2	2
Maine	0	0	0	0	0	0	0
Maryland	1	1	1	1	1	1	1
Massachusetts	2	2	2	2	2	2	2
Michigan	2	2	2	2	2	2	2
Minnesota	2	2	2	2	2	2	2
Mississippi	2	2	2	2	2	2	2
Missouri	2	2	2	2	2	2	2
Montana	2	2	2	2	2	2	2
Nebraska	2	2	2	2	2	2	2
Nevada	2	2	2	2	2	2	2
New Hampshire	0	0	0	0	0	0	0
New Jersey	2	2	2	2	2	2	2

New Mexico	2	2	2	2	2	2	2
New York	2	2	2	2	2	2	2
North Carolina	1	1	1	1	1	1	1
North Dakota	2	2	2	2	2	2	2
Ohio	2	2	2	2	2	2	2
Oklahoma	1	1	1	1	1	2	2
Oregon	2	2	2	2	2	2	2
Pennsylvania	1	1	1	1	1	1	1
Rhode Island	2	2	2	2	2	2	2
South Carolina	1	1	1	1	1	1	1
South Dakota	1	1	1	1	1	1	1
Tennessee	1	1	1	1	1	1	1
Texas	2	2	2	2	2	2	2
Utah	1	1	1	1	1	1	1
Vermont	0	0	0	0	0	0	0
Virginia	1	1	1	1	1	1	1
Washington	2	2	2	2	2	2	2
West Virginia	2	2	2	2	2	2	2
Wisconsin	2	2	2	2	2	2	2
Wyoming	1	1	1	1	1	1	1

State	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Alabama	1	1	1	1	1	1	1
Alaska	2	2	2	2	2	2	2
Arizona	2	2	2	2	2	2	2
Arkansas	2	2	2	2	2	2	2
California	2	2	2	2	2	2	2
Colorado	2	2	2	2	2	2	2
Connecticut	0	0	0	0	0	0	0
Delaware	0	0	0	0	0	0	0
Florida	2	2	2	2	2	2	2
Georgia	1	1	1	1	1	1	1
Hawaii	0	0	0	0	0	0	0
Idaho	2	2	2	2	2	2	2
Illinois	2	2	2	2	2	2	2
Indiana	2	2	2	2	2	2	2
Iowa	2	2	2	2	2	2	2
Kansas	2	2	1	1	1	1	1

Kentucky	2	2	2	2	2	2	2
Louisiana	2	2	2	2	2	2	2
Maine	0	0	0	0	0	0	0
Maryland	1	1	1	1	1	1	1
Massachusetts	2	2	2	2	2	2	2
Michigan	2	2	2	2	2	2	2
Minnesota	2	2	2	2	2	2	2
Mississippi	2	2	2	2	2	2	2
Missouri	2	2	2	2	2	2	2
Montana	2	2	2	2	2	2	2
Nebraska	2	2	2	2	2	2	2
Nevada	2	2	2	2	2	2	2
New Hampshire	0	0	0	0	0	0	0
New Jersey	2	2	2	2	2	2	2
New Mexico	2	2	2	2	2	2	2
New York	2	2	2	2	2	2	2
North Carolina	1	1	1	1	1	1	1
North Dakota	2	2	2	2	2	2	2
Ohio	2	2	2	2	2	2	2
Oklahoma	2	2	2	2	2	2	2
Oregon	2	2	2	2	2	2	2
Pennsylvania	1	1	1	1	1	1	1
Rhode Island	2	2	2	2	2	2	2
South Carolina	1	1	1	1	1	1	1
South Dakota	1	1	1	1	1	1	1
Tennessee	1	1	1	1	1	1	1
Texas	2	2	2	2	2	2	2
Utah	1	1	1	1	1	1	1
Vermont	0	0	0	0	0	0	0
Virginia	1	1	1	1	1	1	1
Washington	2	2	2	2	2	2	2
West Virginia	2	2	2	2	2	2	2
Wisconsin	2	2	2	2	2	2	2
Wyoming	1	1	1	1	1	1	1

State	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Alabama	1	1	1	1	1	1	1	1
Alaska	2	2	2	2	2	2	2	2

Arizona	2	2	2	2	2	2	2	2
Arkansas	2	2	2	2	2	2	2	2
California	2	2	2	2	2	2	2	2
Colorado	2	0	0	0	0	0	2	2
Connecticut	0	0	0	0	0	0	0	0
Delaware	0	0	0	0	0	0	0	0
Florida	2	2	2	2	2	2	2	2
Georgia	1	1	1	1	1	1	1	1
Hawaii	0	0	0	0	0	0	0	0
Idaho	2	2	2	2	2	2	2	2
Illinois	2	2	2	2	2	2	2	2
Indiana	2	2	2	2	2	2	2	2
Iowa	2	2	2	2	2	2	2	2
Kansas	1	1	1	1	1	1	1	1
Kentucky	2	2	2	2	2	2	2	2
Louisiana	2	2	2	2	2	2	2	2
Maine	2	2	2	2	2	2	2	2
Maryland	1	1	1	1	1	1	1	1
Massachusetts	2	2	2	2	2	2	2	2
Michigan	2	2	2	2	2	2	2	2
Minnesota	2	2	2	2	2	2	2	2
Mississippi	2	2	2	2	2	2	2	2
Missouri	2	2	2	2	2	2	2	2
Montana	2	2	2	2	2	2	2	2
Nebraska	2	2	2	2	2	2	2	2
Nevada	2	2	2	2	2	2	2	2
New Hampshire	0	0	0	0	0	0	0	0
New Jersey	2	2	2	2	2	2	2	2
New Mexico	2	2	2	2	2	2	2	2
New York	2	2	2	2	2	2	2	2
North Carolina	1	1	1	1	1	1	1	1
North Dakota	2	2	2	2	2	2	2	2
Ohio	2	2	2	2	2	2	2	2
Oklahoma	2	2	2	2	2	2	2	2
Oregon	2	2	2	2	2	2	2	2
Pennsylvania	1	1	1	1	1	1	1	1
Rhode Island	2	2	2	2	2	2	2	2
South Carolina	1	1	1	1	1	1	1	1
South Dakota	1	1	1	1	1	1	1	1

Tennessee	1	1	1	1	1	1	1	1
Texas	2	2	2	2	2	2	2	2
Utah	1	1	1	1	1	1	1	1
Vermont	0	0	0	0	0	0	0	0
Virginia	1	1	1	1	1	1	1	1
Washington	2	2	2	2	2	2	2	2
West Virginia	2	2	2	2	2	2	2	2
Wisconsin	2	2	2	2	2	2	2	2
Wyoming	1	1	1	1	1	1	1	1

Sample Frequency by State

State	**Frequency**
Alabama	8,433
Alaska	2,821
Arizona	1,931
Arkansas	8,792
California	12,070
Colorado	5,137
Connecticut	5,854
Delaware	1,343
Florida	8,632
Georgia	11,506
Hawaii	43
Idaho	3,975
Illinois	45,844
Indiana	32,107
Iowa	16,252
Kansas	31,824
Kentucky	8,739
Louisiana	5,627
Maine	10,726
Maryland	2,956
Massachusetts	10,912
Michigan	30,591
Minnesota	43,038
Mississippi	5,847
Missouri	20,331
Montana	2,772
Nebraska	15,797

Nevada	610
New Hampshire	5,787
New Jersey	13,856
New Mexico	2,127
New York	30,598
North Carolina	10,276
North Dakota	27,168
Ohio	39,115
Oklahoma	10,000
Oregon	4,825
Pennsylvania	46,482
Rhode Island	1,567
South Carolina	5,646
South Dakota	20,662
Tennessee	6,403
Texas	19,541
Utah	4,402
Vermont	7,236
Virginia	4,575
Washington	5,530
West Virginia	4,908
Wisconsin	37,600
Wyoming	2,371
Total	**665,185**

Sample Frequency by Region

Region	**Frequency**
Midwest	360,329
Northeast	133,018
South	123,224
West	48,614
Total	**665,185**

U.S. Census Bureau Survey of Municipal Governments Expenditure Categories

Service (Productive) Expenditures	**Administrative Expenditures**
Road Maintenance	Total Interest on Debt
Fire	Long Term Debt Retired
Parks	Financial Administration (accountants, etc.)
Waste Management	Judicial and Legal (juries, prosecutors, attorneys.)
Water Supply	Central Staff Services (city council)
Hospitals	General Public Buildings (government offices, not police)
Health	Correctional Institutions
Police	
Libraries	
Public Welfare (support to needy)	
Inspections for protection of public	
Housing and Community Development	
Natural Resources	
Airports	
Electrical Grid	
Parking	
Gas Supply	
Transit System	
Ports	
Education	

List of U.S. Census Bureau expenditure classifications as detailed in the survey to municipal governments. I determine classification as service or administrative subjectively to capture the costs that residents are likely to find beneficial.

Municipal GAAP Requirement by State

State	GAAP Required	Must Meet Threshold	GAAP Not Required
Alabama			X
Alaska			X
Arizona	X		
Arkansas			X
California			X
Colorado		X	
Connecticut	X		
Delaware			X
Florida		X	
Georgia		X	
Hawaii	X		
Idaho			X
Illinois			X
Indiana			X
Iowa			X
Kansas			X
Kentucky		X	
Louisiana		X	
Maine	X		
Maryland	X		
Massachusetts	X		
Michigan			X
Minnesota		X	
Mississippi		X	
Missouri			X
Montana			X
Nebraska			X
Nevada	X		
New Hampshire			X
New Jersey			X
New Mexico	X		
New York			X
North Carolina	X		
North Dakota			X
Ohio			X
Oklahoma			X

Oregon			X
Pennsylvania			X
Rhode Island	X		
South Carolina			X
South Dakota			X
Tennessee	X		
Texas			X
Utah		X	
Vermont			X
Virginia		X	
Washington			X
West Virginia			X
Wisconsin		X	
Wyoming			X

Chart Data Obtained from GASB Research Brief, 2008