Fiscal Stress and Borrowing Costs in Indiana Local Government

Rachel Thompson

Public Financial Management

Senior

Justin Ross

Associate Professor

School of Public and Environmental Affairs

Faculty Advisor

Abstract

In 2008, Indiana's property tax reform created property tax caps, also referred to as circuit breaker credits. These tax cap credits are used to reduce property tax bills when they exceed the cap amounts, resulting in tax reductions for taxpayers and revenue losses for local governments. Property tax caps were first implemented statewide in 2009, and have been used at their current cap rates since 2010. Taxing entities have now lost a large share of their revenues to the tax cap credit, which must be accounted for in future budgetary decisions and allocations.

In this thesis, I have collected data on circuit breaker credits from the Department of Local Government Finance, as well as data regarding the retired debt of taxing entities statewide from the Indiana Business Research Center, and analyzed this data in order to better understand the effect that circuit breaker credits, a fiscal stress, has had on the cost of issuing debt, while also considering other factors such as changes in per capita personal income and population in each county.

Introduction

Indiana's property tax caps have many differences from other tax and expenditure limits (TELs) throughout the country. Because the nature of the property tax caps results in a revenue loss for municipalities, there is a certain fiscal stress placed on the taxing entities to make up for the lost revenue. A key characteristic of Indiana's property tax caps is the fixed cap rate that corresponds to the type of property – 1 percent for residential homesteads, 2 percent for non-homestead residential

property and farmland, and 3 percent for business property. Indiana also offers a circuit breaker credit for property tax payers over the age of 65, however for this analysis, I did not emphasize this circuit breaker. In 2018, the average circuit breaker loss for each county was $1,114,872. Below is an example of the impact of circuit breaker credits on Monroe County:

2018 Monroe County Circuit Breaker Report				
County-wide Totals				
1% Homestead Circuit Breaker Credits	2% Circuit Breaker Credits	3% Circuit Breaker Credits	Over 65 Circuit Breaker Credits	County-wide Grant Total
$1,259,478.36	$455,077.98	$0.00	$217,279.23	$1,931,835.57

Figure 1: 2018 Monroe County Circuit Breaker Impact Report

In this thesis, I have gathered data from the Indiana Department of Local Government Finance on circuit breaker credits and from the Indiana Business Research Center on retired debt from 1969 to the present in order to answer the question of whether or not fiscal stress in Indiana local governments affects borrowing costs.

Literature Review

This paper is focused on answering the question of whether or not the 2008 change in Indiana's fiscal and tax policy had an effect on the borrowing costs for local governments. There has been similar research regarding the effect of fiscal stressors on borrowing costs due to changes in fiscal policy. In 2012, the state of Kansas passed a change in tax code that cut income taxes and changed tax bases through 2016 that affected borrowing costs. Events from 2004 to 2006 in Houston

surrounding revenue cap propositions affected bond yields and interest costs for the City of Houston general obligation bonds. In addition, there is evidence that the bankruptcy in Jefferson County, Alabama had negative spillover effects on surrounding general-purpose local governments. All of these fiscally stressful events had consequences on borrowing costs for affected municipalities.

Kansas Tax Cuts

Kansas made changes to its tax code in 2012, which resulted in significant reductions in individual income and business income taxes (Pathak and Dzigbede 2018). This article used True Interest Cost (TIC) as the primary variable of interest, which is a widely used measure of the cost of capital for a bond issuer, but it presents some challenges. TIC is calculated for the entire bond issue, so the entire bond issue is used as the unit of analysis rather than individual maturities. This leads to a reduced sample of issues, especially because a single state does not issue a large number of bonds in any given year. In addition, the use of interest cost as a primary outcome measure prevented the researchers from aggregating the outcome at a state level. Pathak and Dzigbede (2018) used a difference-in-difference regression approach, comparing Kansas and its neighboring states of Oklahoma, Colorado, Missouri, and Nebraska in the pre- and post-reform period, and found that the 2012 tax cuts appear to have led to higher borrowing costs for both state issuers and local governments, but more so for local governments.

Houston Revenue Caps

Benson and Marks studied the effect of two dueling revenue cap propositions – one proposed by a citizen group and the other by the mayor – on Houston bond

yields between June 2004 and March 2006. The citizen group's proposition proposed to put a revenue cap on the city in response to the Houston property tax revenue increasing at a rate slightly more than double the combined rate of growth of consumer prices and population growth (Benson and Marks 2010). The mayor's initiative, on the other hand, would limit the growth in revenue from property taxes and water and sewer rates to the combined rates of inflation and population growth. This study acknowledges hurricanes Katrina, Rita, and Wilma as factors in the ratings of Houston bonds. Their analysis revealed that the dueling revenue cap issues led to virtually all of the demonstrated increase in bond yields over this period, and therefore directly translated into increases in interest costs for any new debt issue that Houston brought to the market after these events occurred (Benson and Marks 2010).

Jefferson County, Alabama Bankruptcy

Lang Kate Yang studied the effects that bankruptcy in Jefferson County, Alabama had on adjacent jurisdictions, but found that concerns may be unsupported. Alabama bonds issued after the Jefferson County bankruptcy realized an interest savings of about 7 basis points. The credit market places municipal bonds into different risk clusters based on specific bond features, and in turn investors adjust the expected return on all bonds in a risk cluster once a bankruptcy reveals that bonds with a given feature are not as creditworthy as previously conceived. This analysis implies that policies for preventing and mitigating contagion of fiscal crises should respond to and evolve with current developments in the municipal market (Yang 2018). While the article found no evidence for

general contagion to adjacent jurisdictions, there were signs of negative spillover to issues by general purpose local governments and general obligation bonds. Understanding these effects of fiscal crises is important in informing state policy design.

California's Proposition 13

Property tax caps in Indiana are most commonly compared to the taxing and spending limitations produced by the passage of Proposition 13 in California on June 6, 1978. A year after the passage of the proposition, Jack Beebe examined the effects to new-issue interest costs for different categories (general obligation, revenue, tax-allocation, and lease-purchase) of California municipal bonds. Beebe used a regression model to see the effects on each type of bond. The results show that there might have been a slight adverse impact on general obligation bonds prior to the June election, no significant effects on revenue bonds, highly significant adverse effects on tax-allocation bonds, and lease-purchase bonds were also adversely affected (Beebe 1979). The findings of this study implied that restrictions on the size of government – in this case, taxing and expenditure limits on local governments – do not increase the cost of new debt nor decrease the value of exiting debt to any significant extent. Funds needed to pay off all existing debt could be exempted from revenue ceilings (as was voter-approved debt under Proposition 13), thereby lessening the effect on existing debt (Beebe 1979).

Property Tax Caps in Indiana

The Indiana state legislature passed a series of "circuit breaker credits" in 2008 as a property tax cap reform. Circuit breaker credits are awarded to taxpayers whose property tax bill exceeded a defined percentage of their property's market value as an attempt to increase stability and certainty for taxpayers when faced with their annual tax bills (Gray 2014). The taxpayer is presented a property tax bill that cannot exceed a certain percentage of their property's gross assessed value – 1% for residential homesteads, 2% for other non-homestead residential and farmland, and 3% for business real and personal property (DeBoer 2015). A key characteristic of the Indiana property tax caps is that the circuit breaker credits used to implement the property tax caps represent structural deficits because they are revenue losses to the local governments levying property taxes (Ross et al 2015). This system also allows local governments the autonomy to set their own rates, so long as no individual owner has a cumulative property tax bill that exceeds a set percentage of their property's value. This approach does not just limit revenue availability; it also creates revenue shortages for a given amount of budgeted spending (Ross et al 2015). Local governments that overlap cities and towns lose the biggest share of their revenue to the circuit breaker credits because those districts usually have higher tax rates. Special districts and library districts lose more to the property tax cap - almost 16 percent of their levies - because they are more likely to overlap cities and towns (DeBoer 2015).

Indiana's property tax cap policy is controversial in part because of the difficulty in understanding all of its possible implications and effects, but also because of concerns over equity. A study by Ross and Cheek found that county

governments with low-income households lose fiscal resources that are primarily tax savings for commercial and industrial property owners. For example, a county whose poverty rate was one standard deviation higher than another county with the same tax levy would have $235,702 more in total circuit breaker losses than the average county – about 61 percent of those losses would result from class 3 (commercial and industrial) properties (Ross and Cheek 2014). In addition, a one standard deviation increase in the percent of the population receiving support from the Supplemental Nutrition Assistance Program results in an additional $297,617 in circuit breaker losses, with 67 percent awarded to class 3 properties (Ross and Cheek 2014). These two examples demonstrate that county government circuit breaker losses are higher in economically distressed areas, and the majority of those losses are tax savings for commercial and industrial property owners. Also, the homestead tax cap credits themselves are regressive because they reduce the tax bills of higher-valued homes by more than lower-valued homes. For example, in 2014, an average $100,000 home recognized a 5 percent reduction from the circuit breaker credits, while an average $500,000 home recognized a 16 percent reduction. Wealthier taxpayers are receiving a larger deduction, and higher tax bills are more likely to be capped (DeBoer 2015).

Research Design and Data

The data sample used in the analysis includes retired debt series with closing dates from January 15, 1969 through December 31, 2018 from all 92 counties in Indiana. Debt-issuing entities within the counties include the county government

themselves, townships, cities and towns, school corporations, and other special districts such as fire districts, libraries, airport authorities, etc. Key bond characteristics include the average interest rate over the length of the bond, the total principal of the series, closing date of the bond series, the taxing entity categorization, and TIF status.

This analysis also includes data on circuit breaker losses throughout Indiana counties, townships, cities and towns, school corporations, and other major taxing districts between 2012-2018. Circuit breaker characteristics include the total amount levied by the taxing unit, the sum of the circuit breaker credits, and the circuit breaker credits as a percentage of the total levy.

Data and Descriptive Statistics

Primary retired debt data, including information on debt issuers and bond characteristics, are from the Indiana Business Research Center. The Indiana Department of Local Government Finance provides data on circuit breaker losses by county, townships, cities and towns, school corporations, and other major districts. Local economic condition variables such as population and per capita personal income are from the U.S. Bureau of Economic Analysis and were merged based on county. Only county-level measures are available and therefore used as representations for the economic condition of the area served by a municipality.

Endogenous Variables

A potential threat to identifying fiscal stress is unobserved factors affecting the creditworthiness of borrowers among Indiana local governments. As in the case of Houston's revenue cap issue and increased bond yields, the study attempted to

account for outside factors that may have impacted the results, which were the economic effects of hurricanes Katrina, Rita, and Wilma that took place during the time of the study. In this study, I have attempted to control my data with descriptive statistics for income and population in each county to account for large increases in population. For example, Carmel in Hamilton County has recently issued a large number of series of debt for infrastructure investments, as a result of their population doubling in the last 20 years. As of July 2017, the City of Carmel had 48 outstanding bonds, which is far more debt (in terms of principal) than they city's neighbors Fishers, Noblesville, and Westfield (Erdody 2017). This large jump in debt issuance might explain an increase in interest rates, so therefore I have controlled the entire study for per capita personal income and population.

Methodology

We analyze the following linear regression model:

$$\mathbf{INT}_{it}=\boldsymbol{\beta}_0+\boldsymbol{\beta}_1\mathbf{Def}_{it}+\boldsymbol{\beta}_2\mathbf{Def}_{it}^2+\boldsymbol{\beta}_3\mathbf{PCPI}_{it}+\boldsymbol{\beta}_4\mathbf{POP}_{it}+\boldsymbol{\delta}_{it}+\boldsymbol{\varepsilon}_{it}$$

In this equation, the unit of observation is debt issued by government *i* in year *t*. We observed retired debt series from 315 unique general-purpose governments over the years 1976 to 2016. INT represents the interest rate on debt provided by the Indiana Business Research Center. The coefficient of Def, β_1, measures the effect that the percentage of levy lost to property tax caps has on borrowing costs. The coefficient of PCPI, β_3, calculates the effect that per capita personal income has on interest rates. The coefficient of POP, β_4, measures the impact that population had on borrowing costs for each local government during a specific year. This regression model allows the coefficient of each event dummy

variable for city status and year fixed effect to measure the impact of the deficit on borrowing costs.

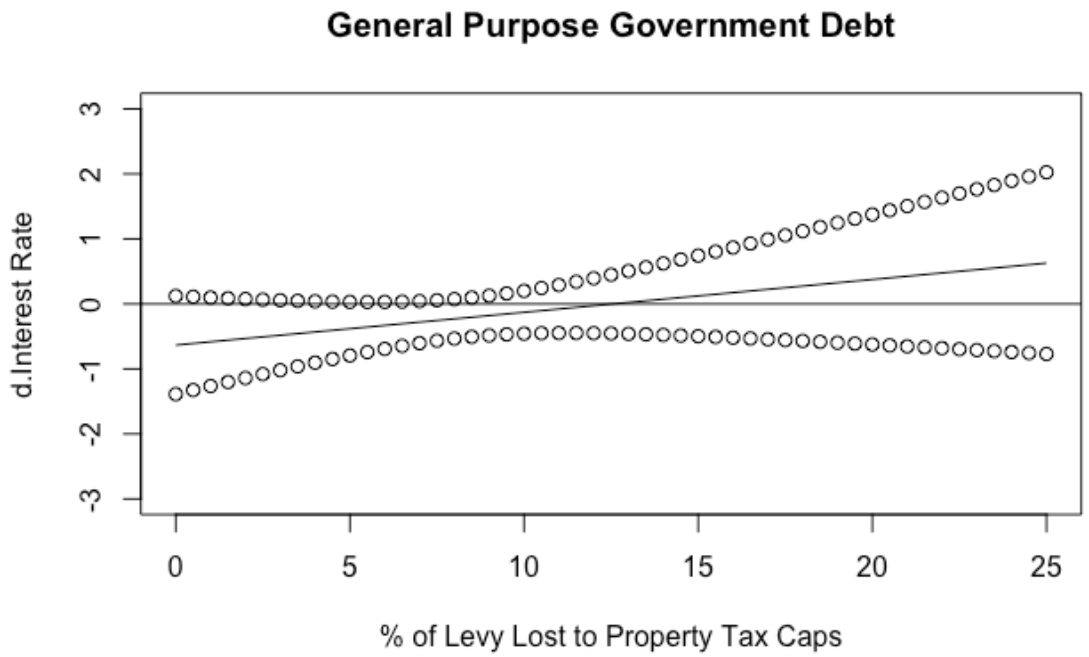
This regression equation will show the effects of the percent of levy lost to circuit breaker on interest rates, while separating out general economic growth from the deficit by controlling for economic variables as well as year factors to eliminate the effects of time. Ultimately, what we study is the derivative of this regression equation:

$$\mathbf{dINT/dDef = \beta_1 + 2\,\beta_2 Def}$$

Analysis of Findings

This thesis estimates a series of regressions based on the Average Interest Rate of bonds issued by general-purpose governments. General-purpose government bonds include debt issued by counties, cities, and towns. The graph below shows the effects of the percentage of levy lost to property tax caps on the interest rate for general-purpose government debt:

Figure 2: Linear Regression Plot for General Purpose Government Debt



This graph shows that there is no statistically significant effect of the cap losses on interest rates, though the effect does appear to turn positive after about 14 percent of levy lost to property tax caps. This result could be due to random chance. The coefficients of this regression are as follows:

Table 1: Regression Results for Predictors on Debt Interest Rate for General Purpose Governments

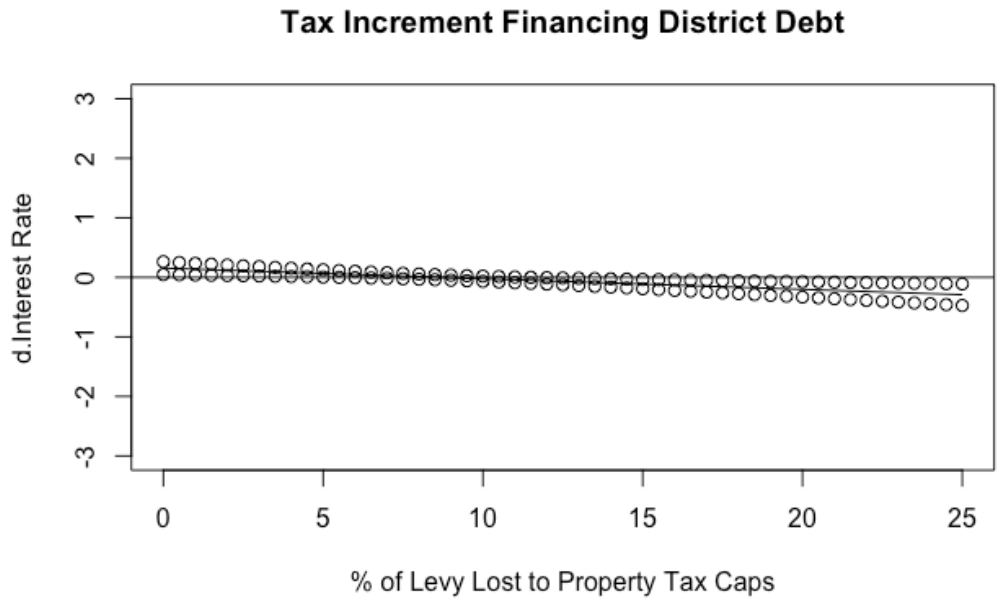
	Estimate	Std. Error	T Value	Pr(>|t|)
Intercept	3.624	16.510	0.220	0.826
Def	-0.634	0.385	-1.645	0.100
Def^2	0.025	0.021	1.201	0.230
GPG	1.361	1.221	1.115	0.265
PCPI	0.000	0.000	0.078	0.938

POP	0.000	0.000	-0.736	0.462

For example, if a county is losing 16.5 percent of its levy to property tax caps, another 1 percent loss will increase borrowing costs by 0.02 percent.

The following graph shows the effects of the percentage of levy lost to property tax caps on the interest rate for tax increment financing district debt:

Figure 3: Linear Regression Plot for Tax Increment Financing District Debt



Again, there is no statistically significant effect of the property tax cap losses on interest rates for tax increment financing (TIF) districts, though this graph shows interest rates increase at low levels of levy loss to property tax caps and then turn negative after about 9 percent. In this case, the zero effects are more precisely estimated. The coefficients of this regression are as follows:

Table 2: Regression Results for Predictors on Debt Interest Rate for Tax Increment Financing Districts

	Estimate	Std. Error	T Value	Pr(>|t|)

Intercept	3.367	1.520	2.215	0.028
Def	0.155	0.055	2.814	0.005
Def^2	-0.009	0.003	-3.182	0.002
PCPI	0.000	0.000	-0.933	0.352
POP	0.000	0.000	-1.164	0.246

I have estimated the effects on borrowing costs separately here because local governments, school districts, and other jurisdictions relying on property tax revenue from the TIF district will find this tax base frozen for the duration of the TIF. In addition, TIF is free of the requirements general-purpose government debt is usually subject to, such as debt limits and voter referendum (Youngman 2016).

Discussion and Conclusion

Previous research has shown us that fiscal stress has the tendency to induce higher borrowing costs compared to pre-reform borrowing costs. Indiana's property tax cap policy is unique from other taxing and expenditure limits because of the structural deficit they create. The reason we call this policy a fiscal stress is because the nature of the policy creates revenue shortages for a given amount of budgeted spending – the taxing entity's levy – and requires a greater decrease in the property tax levy to make up for each dollar lost. We might expect that the market would offer higher interest rates to borrowers after the implementation of this policy if investors believe that this type of fiscal stress will affect repayment. This study revealed that there was not enough evidence to prove that fiscal stress from property tax caps has had an effect on borrowing costs in Indiana. This could be

because the market does not see the municipality's structural deficit as an indicator of inability for repayment. In addition, Indiana local governments typically make it a priority to repay their debt service obligations before making any other payments. If the municipality is losing revenue from its budgeted levy, other programs and services offered by the entity will experience cuts before debt repayment experiences any issues.

Future Research

This study could be improved in future research by taking a few additional factors into consideration. Previous studies, such as that by Beebe (1979), considered the different effects that fiscal stress had on the borrowing costs for different types of debt in general purpose governments. Specifically, future researchers may want to separate general obligation bonds – repaid through the taxing power of the borrower – and revenue bonds, which are repaid through a specific revenue stream. The nature of the bonds and their unique repayment methods may lead to different effects on their borrowing costs due to fiscal stress.

Future research on this topic could also be improved by uncovering bias prompted by selection bias in which entities are issuing debt. In this thesis, it was difficult to observe debt series that were not issued because of the borrowing costs that might have been induced by the effect of circuit breaker. Municipalities who wanted to borrow, but decided not to after seeing the interest rate offered by investors, may be those that are most affected by circuit breaker losses. Without knowing their borrowing costs, we are unable to observe them in this study.

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