

## The Impact of Direct Democracy on Local Government Fiscal Policy\*

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March 2007

FIRST DRAFT  
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### **Abstract**

This paper examines the fiscal behavior of a sample of cities to assess how different kinds of communities respond to fiscal constraints imposed by voter-imposed state tax and expenditure limitations. I estimate a two-stage model which first explains what kinds of cities are most likely to be constrained by voter-approved state TELs. In the second stage, I model how cities respond to constraint, examining the likelihood of behaviors such as reducing spending, shifting revenue sources, and over-riding tax limits for different kinds of cities. I focus in particular on the extent to which cities use local ballot measures, in the form of supplemental taxes, to mitigate the constraining impact of statewide direct democracy. I find that many of the same factors that predict whether a city is constrained by a state TEL also limit cities' use of local ballot measures. As such, the study demonstrates that local direct democracy is a very limited fiscal tool for the cities most impacted by state TELs.

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\* Prepared for presentation at the USC Conference on Governance of American Cities, sponsored by the USC-Caltech Center for the Study of Law and Politics, the Initiative and Referendum Institute, and the Lusk Center for Real Estate, April 6-7, 2007. I thank Michelle Woolery Rafferty for compiling the extensive fiscal database and acknowledge the support of the Center for Local, State and Urban Policy at the University of Michigan's Gerald R. Ford School of Public Policy.

## **Introduction**

Since the late 1970s, many states have passed laws that limit the ability of local governments to generate tax revenues, particularly via property taxes. The motivations behind these laws typically derived from a desire by citizens and lawmakers to lower homeowners' property tax burdens (Sears and Citrin 1982), reduce the size of local governments, and/or limit cities' ability to undertake redistributive policies (Inman 1982). These laws were nearly all passed by voters through the adoption of constitutional amendments or statutes via initiative or referendum. According to the last nationwide survey on the topic, 46 states had some form of tax and expenditure limitation (TEL) on state and/or local governments in place (ACIR 1995). These limitations employ a variety of mechanisms including rate limits, assessment caps, levy limits, and overall revenue and/or expenditure limits.

Numerous studies have sought to understand the impact of taxes and expenditure limitations. Several examine the effects of state TELs on state revenues and expenditures, largely concluding that such policies fail to limit growth in state budgets (Bails 1982, 1990; Kenyon and Benker 1984, Howard 1989). Parallel studies focus on local economic impacts, producing some evidence that total revenues and expenditures may be lower in communities facing local tax limitations (Dye and McGuire 1997; Bradbury, Mayer and Case 2001; Preston and Ichniowski 1991; Merriam 1987; and Fisher and Gade 1991; but see Lowery 1983 for contrary results). Other studies find that TELs have significant effects on the structure of local government finance (Shadbegian 1999), debt levels (Bahl and Duncombe 1993), wage rates (Poterba and Rueben 1995), public education (Downes 1992; Downes, Dye and McGuire 1998); and overall service quality (Figlio 1997;

Greiner and Peterson 1986; Schwadron 1984). Still others find evidence of redistribution of the tax burden between local and state levels of government (Joyce and Mullins 1991).

In this paper, I consider a different set of impacts that I believe are critically important for understanding the *political* implications of tax and expenditure limitations. Specifically, I am interested in how local governments adapt their local fiscal policies to the constraints imposed by voter approved TELs, and how local political factors shape their responses. In particular, one observes that in response to a fiscal constraint created by a voter-imposed tax and expenditure limitation, local governments can: 1) reduce government size by cutting expenditures; 2) shift to other revenue sources (such as fees, debt, intergovernmental revenues, and other taxes); or 3) over-ride constraints via local direct democracy. Each of these responses represents a different political strategy for coping with local fiscal constraint imposed by statewide direct democracy. I hypothesize that local political factors will shape the likelihood of individual local governments engaging in each of these types of adaptive behaviors. A logically prior question, however, is whether cities with certain characteristics are more likely to be constrained by TELs in the first place. I employ an estimation procedure that allows me to jointly model these processes.

Analyzing the political determinants of local governments' fiscal response to state-imposed fiscal constraints has important implications for understanding local government politics and policy. It focuses attention on the political and institutional determinants of local fiscal policy. It explores – both theoretically and empirically – a potentially important relationship between state and local public policy. And it examines some of the consequences of direct democracy, at both the state and local levels, on an important class of public policy outcomes.

The remainder of this paper is organized as follows. In the next section, I describe the empirical setting for the present analysis, namely Michigan cities during the decade between 1993 and 2002. Subsequent sections present the paper's hypotheses, data and empirical specification. I then report the empirical results and end by offering conclusions and discussing implications.

### **Michigan's TELs**

Because of the availability of a unique dataset, this paper's empirical analysis focuses on the impact of TELs on Michigan cities. In 1978, Michigan voters adopted, via citizen initiative, a state constitutional amendment that limits local property tax levies.<sup>1</sup> This measure, known as the Headlee Amendment, restricts annual growth in the maximum amount of property tax revenue a community can collect to the rate of inflation, with each community's baseline determined by its 1978 property wealth and millage rate.<sup>2</sup> The limitation works by decreasing the maximum millage rate allowed under the state constitution or a local unit's charter *if* aggregate property wealth increases at a rate faster than inflation during that year; this rate decrease is referred to as a "rollback."<sup>3</sup> If

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<sup>1</sup> 10 other states have levy limits in place. See ACIR 1995 for an extensive analysis of local TEL provisions in each state.

<sup>2</sup> A millage rate is the tax levied on \$1000 of property. Thus, the tax paid on a \$1000 property subject to a millage rate of 20 mills is \$20. The tax paid on a \$100,000 property subject to the same 20 mill rate is \$2000.

<sup>3</sup> The state constitution allows a different maximum general fund millage rate for each type of municipality (city, home rule village, general law village, general law township, and charter township). A home-rule or charter municipality may decide, however, to set their maximum rate below the constitutional limit. This charter-determined maximum rate is rolled back in the same manner as a constitutionally-set rate. A given community's rollback rate is applied to all local millages.

aggregate property wealth increases by less than the rate of inflation, the maximum millage rate remains unchanged. A community that is levying at a millage rate below the maximum allowable is not “constrained,” even if its maximum rate is rolled back, since policymakers have the option to increase their total levy beyond the rate of inflation through growth in assessed property values and/or a rate increase. A community that is operating at its maximum rate, however, is “constrained” in the sense that a rate rollback will offset any possible increase in revenues resulting from growth in assessed property values. These “constrained” cities can only increase their property tax revenues in real dollars if voters approve a rate “over-ride” or pass a supplemental millage to replace lost revenues. The one exception relates to new construction: increases in assessed value due to new construction are not counted towards the computation of the community’s new maximum rate.

Many Michigan taxpayers, however, were not satisfied with the degree of tax relief they experienced as a result of the Headlee Amendment. Partially in response, voters passed Proposal A in 1994, a constitutional amendment placed on the ballot by the state legislature, which significantly altered the structure of public school financing and limited annual increases in the assessed valuation of individual properties to the lesser of the rate of inflation or 5 percent. This restriction on annual assessment growth continues until the property is sold to a new owner, at which time the assessed value “pops up” to market value.<sup>4</sup> If a community experiences a great deal of property turnover in a given

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<sup>4</sup> Property owners are taxed on 50% of assessed value (referred to as “taxable value”).

year, the resulting increase in total assessed value may trigger a rollback of the maximum millage rate; still, the total property tax levy remains constant in real dollars.<sup>5</sup>

How can communities respond to TELs that work through a levy limit? For the purposes of this analysis, I treat a city as “constrained” if it levies the maximum allowable general fund millage in a given year.<sup>6</sup> There are two possible reasons why a city might set its millage rate at its maximum allowable level. One is that the maximum rate exactly equals the city’s optimal level, that is, the level it would choose in the absence of the TEL. Since actual and maximum millage rates are specified to the fourth decimal point, it is highly unlikely that a city’s political process would produce such a match. A second possibility is that the city prefers a higher rate but is prevented from increasing its rate due to the TEL.<sup>7</sup> Based on numerous informal interviews with local government officials and the logic presented above, I believe the latter scenario is by far the more plausible and assume that constrained cities would prefer a higher millage rate.

When a city becomes constrained, it has several options. One set of options works through spending. Cities can cut costs by slashing or eliminating programs, firing staff, closing facilities, deferring maintenance, etc. They can also seek efficiencies by cooperating and/or combining programs with other local governments or by contracting for services with state, county, or private providers. Due to data limitations that make it

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<sup>5</sup> Proposal A changed an additional important aspect of the Headlee Amendment: prior to 1994, if a community experienced a decrease in aggregate property value, the maximum rate was “rolled up” to keep the levy constant. This feature was eliminated by the legislature’s implementation of Proposal A.

<sup>6</sup> Cities may also levy supplemental millages, which I discuss below.

<sup>7</sup> A city that prefers a lower millage can simply lower its rate and is no longer considered “constrained” by this paper’s definition.

impossible to characterize and compare these micro-level spending strategies across cities, we focus on the net impact of these many strategies by analyzing differences in total expenditures, acknowledging that such differences may reflect any number of micro-level cost-cutting strategies.

A second set of options works through revenues. Cities can offset property tax revenue losses in several ways.<sup>8</sup> Some involve shifting to other (typically non-property-tax) revenue sources that are authorized under the state constitution or local government's charter. Local own-source revenues may include income taxes, local sales taxes, revenues from fees and charges, proceeds from sales of property and assets, general obligation and revenue bonds, etc. Non-property tax revenues can also include transfers from other governments such as federal and state grants and loans, revenue sharing, etc. Cities can typically access these non-property tax revenue sources through local legislative action (i.e., ordinances). In other words, they do not require voter approval. In addition, some states (including Michigan) allow cities to replace property tax revenue losses with a variety of supplemental "authorized" millages and special assessments for specific, targeted purposes. These revenues look a whole lot like regular supplemental millages except that they do not require voter approval. In Michigan, cities can levy special authorized millages for garbage collection, elderly services, libraries, and some forms of

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<sup>8</sup> Note that Michigan's TEL does not strictly reduce revenues, but rather limits their growth to the rate of inflation. In practical terms, however, this amounts to a cut relative to costs since the cost of many local government expenses (especially employee health care, wages and retirement obligations) have been increasing at a rate far greater than the CPI in recent years. In other words, cities need to increase revenues by more than inflation just to maintain programs at a constant level due to cost pressures.

debt. Their maximum rates are low, however, limiting their potential as a replacement revenue source.<sup>9</sup>

Other revenue options involve replacing property tax revenue losses with other property taxes. Michigan's TEL, like those in most (all?) states, allow cities to circumvent the levy limit with voter approval. These supplemental property taxes can take two forms: general fund supplements, which require voter approval to "over-ride" the levy limit; and special supplemental voted millages, which require voter approval to levy additional mills for specified limited purposes. In Michigan, voters can approve special millages for a much wider range of purposes, including public safety, public facilities, roads and sidewalks, utilities, libraries and cultural facilities, general operations, parks and recreation, senior services, capital improvements, conservation, public transportation, and many other purposes. Supplemental voted millages are available to constrained and unconstrained cities alike.

In the analysis that follows, I consider these three types of responses to local fiscal constraint imposed by state TELs. Given the paper's interest in the political determinants of local fiscal responses, however, I pay special attention to two particular revenue options: supplemental property taxes that require voter approval and those that do not. Subjecting a proposed revenue/tax increase to voter approval represents a fundamentally different political decision than passing a tax increase by a vote of the city council. To the extent that voters are willing to override TEL constraints and/or replace property tax revenue losses with other property taxes, one must conclude that local direct democracy provides a mechanism for reducing the constraint cities feel due to tax and

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<sup>9</sup> Cite criticisms of special allocated, special assessments.

expenditure limitations imposed by voters at the state level. To the extent that voters are not willing to override these constraints, or that voters in some cities are less likely than voters elsewhere to override constraints, it follows that local direct democracy provides at best a limited tool for cities to adapt their fiscal policies to the constraints imposed by statewide direct democracy. Better understanding this local electoral dynamic is a primary goal of this study.

### **Model of Fiscal Response**

What factors determine how a city responds to fiscal constraint created by a state voter-imposed TEL? I model this response as a systematic and rational response by city government officials (both elected and appointed).<sup>10</sup> I assume that local government officials are goal oriented actors who make policy to achieve certain identifiable goals. Minimally, they seek to win re-election<sup>11</sup> (if they are elected officials such as council members or mayors) or remain employed (if they are appointed officials such as city managers).<sup>12</sup> Their ability to implement policies that further these goals is shaped by numerous factors. In the context of local fiscal policy, I posit four sets of factors that are

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<sup>10</sup> By cities, I mean general purpose local governments that have significant autonomy from state and/or county government and that provide a full range of municipal services. The extent of such autonomy varies considerably across states. I exclude from the analysis villages, townships, and special districts that typically perform a limited range of services.

<sup>11</sup> In cities where elected or appointed officials serve for limited term lengths, this consideration becomes more complex, though empirical research indicates that term limited legislators remain keenly focused on election to other offices or levels of government (cites).

<sup>12</sup> Local government officials are also no doubt motivated by other goals such as career advancement, budget maximization, etc. In order to focus on the problem of representation, we limit our theoretical scope to the goal of re-election/ re-appointment.

hypothesized to shape local response to TEL-imposed fiscal constraint: local politics/demand, political institutions, local fiscal capacity, and state statutory environment. Since the paper's empirical analysis is limited to cities in a single state, the impact of the state statutory environment is effectively constant.

Local Political Factors/ Demand: Residents vary in terms of their demand for local government policies and their willingness to pay for municipal services. Certain communities, such as those with aging, low-income, immigrant, and/or minority populations, may face greater demands from residents to provide public services and programs, particularly in the areas of social and human services. Communities with growing populations may also experience pressure on existing services and infrastructure, and hence may face greater demands for expanding services.

***Demand Hypothesis:*** *Cities with high-demand populations will maintain expenditure levels and replace revenues.*

I hypothesize that how local governments respond to these population demands will depend, to some extent, on the political characteristics of a community. Communities with politically conservative electorates may face greater resistance to tax increases and so will be more likely to cut spending. Those with electorates that are more favorable towards an active governmental role will be less likely to cut spending and will be more likely to pass additional taxes or seek out additional revenue sources.

***Voter Ideology Hypothesis:*** *Cities with liberal electorates will maintain expenditure levels and replace revenues, with relatively greater reliance on voter-approved revenues.*

Institutional Factors: Government decision-makers' incentives are shaped, at least in part, by the institutional environment in which they operate. Several dimensions of local

government institutions are likely to be especially important. First, cities vary substantially in terms of the relative powers of elected versus appointed officials. In cities with a strong mayor form of government, an elected mayor wields substantial power over policy and budgetary decisions. He/she may feel more pressure to respond to strong and vocal constituencies with demands for particularistic programs, driving up spending. At the same time, elected officials may feel competing pressures to limit tax increases and so may seek less visible forms of taxation. In cities with a manager form of government, by contrast, decision-makers are more insulated from constituency pressures and may be more likely to hold spending in check and resort to revenue sources that require voter approval.

***Form of Government Hypothesis:** Cities with forms of government that vest power in elected officials, especially strong mayor systems, will maintain expenditure levels. They will replace revenues with non-voted sources to avoid voter backlash. Cities that vest power in appointed officials such as city managers will exhibit more fiscal constraint and will be more willing to approach voters for supplemental millages.*

Cities also vary substantially in terms of the competitiveness of their electoral and political processes. It is not immediately obvious, however, how such competition is likely to play out in terms of local fiscal behavior. In highly competitive cities, elected officials may compete for voter support either by offering new spending and programs, thereby driving up expenditures (and requiring additional taxation, most likely of the non-voted sort), or by promising fiscal restraint, thereby lowering pressure on spending. These possibilities are presented as two alternative competitiveness hypotheses.

***Competitiveness Hypotheses (1):** Cities with more competitive elections will maintain expenditure levels to attract voter support. These expenditures will be financed with non-voted revenue sources.*

***Competitiveness Hypothesis (2):** Cities with more competitive elections will exhibit more fiscal constraint and lower expenditures.*

Fiscal Capacity/ Supply: The ability to generate revenues, especially property tax revenues, will depend to a large extent on a community's property wealth. Communities with significant property wealth will be able to extract a given level of revenues with a lower tax rate, thereby reducing the relative burden on individual property owners. This baseline fiscal capacity will condition local government fiscal choices by increasing or decreasing the relative burden of a given property tax increase on local residents.

***Wealth Hypothesis:** Cities with greater property wealth are more likely to increase revenues through voter-approved revenues.*

### **Preliminary Analysis of Fiscal Constraint in SE Michigan Cities**

Before analyzing cities' responses to state TELs, it is instructive to first understand broad patterns of constraint across cities and the factors that determine whether or not a given city is constrained. Tables 1 and 2 and figure 1 report descriptive statistics that describe the fiscal constraint of Michigan's TEL on the 87 cities in the seven county metropolitan Detroit region over the ten year period 1993-2002, inclusive.<sup>13</sup> This region contains over 40 percent of the entire state's population and is home to the state's largest metropolitan area (metro Detroit).<sup>14</sup> Municipalities in this region exhibit wide variation in regards to size, population characteristics and economic well-being, including some of the

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<sup>13</sup> The counties are: Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw, and Wayne.

<sup>14</sup> We omit the City of Detroit from our analysis due to its large size and atypical fiscal structure. As of 2005, Detroit's population was 886,671, approximately 18% of the entire region (US Census 2005). Its dramatic loss of tax base, reliance on non-property tax revenues, and privileged formula for state unrestricted revenue sharing make it problematic for comparisons with the metro area's other cities.

wealthiest and some of the poorest communities in the country. This diversity makes the region especially well-suited for cross-municipality comparisons.

The dataset consists of detailed annual financial information for each city in the region. These data are created from annual reports filed with the Michigan Department of Treasury by each city on the actual and maximum millage rates for several categories of property taxes (general fund, special voted, special allocated, debt and pension). The dataset also contains information on other revenues, total expenditures, form of government, city-level vote returns, and population characteristics. Appendix A describes each variable and data source.

### **Table 1: Fiscal Constraint in Metro Detroit Cities, 1993-2003**

Table 1 reports the number and percent of cities in the region that were constrained in each of the 10 years of the study period. Three interesting points emerge from table 1. First, less than half of the region's cities, both overall and in any given year, are levying at their maximum general fund millage rate. In other words, more than half of the cities in the region are unconstrained by the TEL in the sense that they are technically able to increase their general fund property tax revenues beyond the rate of inflation by an increase in assessed value or the actual millage rate. Figure 1 considers these data at the level of an individual city by graphing the frequency distribution of the number of years each city in the sample was constrained. The figure is clearly bimodal with a cluster of cities that was never or almost never constrained and another cluster that was always or almost always constrained.

### **Figure 1: Frequency of Number of Years Constrained**

Second, the percent of cities that are constrained increases over time. This trend implies a decrease in cities' fiscal flexibility as more cities feel upward pressure on their general fund millage rates.

Third, while there is a trend towards increasing constraint over time, the trend is not monotonic. In several years, the percent of cities that were constrained was actually less than in the preceding year. This pattern demonstrates that constraint is not necessarily a permanent situation for a city; a given city may be constrained one year, and then unconstrained the next. Table 2 reports the pattern of constraint for the four cities that reported being constrained in 6 of the 10 years of the study. We see one of the four cities became constrained and stayed constrained for the rest of the time period, while the others moved back and forth between constraint and unconstrained. Further examination of the data indicates that both of these patterns are common.

### **Table 2: Years Constrained for Selected Cities**

Multivariate analysis is used to determine which factors affect the probability that a given city is constrained in a given year. This analysis is based largely on the work of Gerber and Rafferty (2006). In that study, the authors posit that the probability of constraint is determined by many of the same factors that are hypothesized in this paper's model to affect cities' response to fiscal constraint: local political factors (measured here as the percent of voters casting votes for the Democratic presidential candidate in 2000 and the presence of a strong mayor form of government); structural obligations (age of infrastructure and size of the local government bureaucracy); revenue-raising capacity (measured by city property wealth); and population needs (measured by a suite of socio-economic and demographic characteristics). Table 3 reports the results of a probit analysis in which the unit of analysis is a city-year and the dependent variable is a binary

variable, coded 1 if a city was constrained in a given year (i.e., its actual general fund millage rate was exactly equal to its maximum rate) and coded 0 if it was constrained. Robust standard errors are utilized to capture the effects of clustering within the panel of 87 cities.

### **Table 3: Probability of a City Facing Constraint: Probit Estimates**

The coefficient estimates in table 3 indicate empirical support for each of the four sets of explanatory factors. In particular, I find that the probability of constraint is negatively influenced by a city's property wealth, baseline wealth in 1980, and year the median aged housing unit was built, and is positively influenced by the share of tax base that is residential, FTE per 10,000 residents, percent of Democratic voters, and strong mayor form of government. The probability of constraint decreases as the percent of residents under the poverty line increases, but then increases at the highest levels of poverty (as indicated by the squared term).

### **Analysis of Fiscal Response**

I now turn to an analysis of how cities respond to the constraints imposed by voter-approved state tax and expenditure limitations. In particular, I focus on the three behaviors discussed above: expenditures, reliance on supplemental non-voter-approved property taxes, and reliance on supplemental voter-approved property taxes. The analysis comes in three parts. I first present descriptive statistics to investigate how common are the various strategies. I next compare several of the strategies in constrained and unconstrained cities. I then present the results of a series of OLS and probit regression analyses that estimate the determinants of each strategy. For each of the three main responses, I report a simple OLS regression analysis. I then present the results of a series

of instrumental variables regressions that re-estimate the determinants of each strategy while simultaneously accounting for the determinants of fiscal constraint.

Table 4 reports descriptive statistics for the various fiscal outcomes.<sup>15</sup> We observe a tremendous range on each variable. Annual inflation-adjusted expenditures per capita range from \$124.17 to \$2932.61, with mean expenditures of \$737.13. Clearly, cities are employing very different expenditure strategies. On the revenue side, we see a smaller but nonetheless still substantial range of outcomes. Cities collect an average of \$360.26 per capita annually in property tax revenues, of \$26.74 to \$1439.76. General fund property tax rates range from 3.56 to 20.00 in the sample. The mean special non-voted millage rate is 1.35, with 61% of cities levying a special non-voted millage, while the mean special voted millage rate is lower, at 0.78, with 41% of cities levying a special voted millage.<sup>16</sup>

#### **Table 4: Descriptive Statistics – Fiscal Outcomes**

Table 5 compares fiscal outcomes in constrained and unconstrained cities. These comparisons demonstrate how constrained cities deal with the impact of the state TEL, on average, compared to outcomes in unconstrained cities. A difference-of-means test shows statistically significant differences between constrained and unconstrained cities in mean expenditures per capita, property tax revenues per capita, and the three property tax rates. In other words, constrained cities spend significantly less per capita than unconstrained

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<sup>15</sup> In 2002, the State of Michigan changed the forms used by local governments to report their revenues and expenditures, making figures for 2002 incomparable with other years. I therefore limit the analysis of expenditures and revenues to the years 1993-2001.

<sup>16</sup> Given the panel structure of the data, in which a unit of analysis is a city-year, these percentages actually imply that special voted millages were levied in 41% of the city-years; special non-voted millages were levied in 61% of the observations.

cities. Their property tax revenues per capita are lower, but their general fund millage rates, special non-voted millage rates, and special voted millage rates are all higher. Of course, these simple t-tests do not control for other factors that may also affect fiscal outcomes in constrained and unconstrained cities, nor do they identify the marginal, independent effect of being constrained. In other words, while constrained cities exhibit lower expenditures and greater reliance on special voted and special non-voted property taxes, on average, other factors that are correlated with being constrained might actually explain these differences. The multivariate analysis that follows addresses this possibility.

#### **Table 5: Fiscal Response Outcomes in Constrained and Unconstrained Cities**

Tables 6-8 report multivariate analyses of the determinants of expenditures per capita, extra non-voted millages, and extra voted millages. Each column reports OLS or probit regression estimates of the determinants of each of the three fiscal responses. Independent variables are intended to operationalize our Ideology, Form of Government, Competitiveness, Wealth and Demand hypotheses.

#### **Table 6: Determinants of Total Expenditures Per Capita**

The first results column of table 6 reports our baseline estimates of the determinants of total expenditures per capita. The dependent variable is in inflation-adjusted dollars (2000\$) and includes observations from 1993 through 2001. We hypothesize that unconstrained cities, as well as cities with more liberal electorates, strong mayor forms of government, less competitive elections, greater property wealth, and greater population demand, will spend more public dollars per capita, all else constant. We see that total expenditures per capita are significantly lower in constrained versus unconstrained cities. Cities with more democratic voters and a larger public sector spend more per capita, as hypothesized. Those with strong mayors spend more, while

those with a city manager spend less than other cities, also as hypothesized. Political competition, as proxied by partisan elections, has no significant effect on expenditures per capita. Cities with greater property wealth spend more per capita, all else constant. Of the demand factors, larger cities and those with more crime per capita have lower spending, while those with a greater proportion of white residents spend more per capita. Thus, the data provide support for all but our competitiveness hypothesis. Together, these factors explain 59% of the variance in the dependent variable.

Results columns 2 and 3 of table 6 report the results of an instrumental variables regression that allow us to account for the endogeneity between fiscal response and the probability of a city being constrained. In other words, it is possible that many of the same factors that shape a city's fiscal response also affect the probability that that city is constrained in the first place. The instrumental variables estimation allows us to separate the direct effects of the independent variables on fiscal response from their indirect effects as they work through constraint. The final column reports the reduced form estimation of the determinants of constraint, including all of the independent variables from the model of constraint reported in table 3 as well as the independent variables from the model of response reported in the first column of table 6. Many of the independent variables are significant, including several of the instruments (especially 1980 SEV per capita, percent residential, median year structure built, percent poverty (squared), and year). Since constraint is a binary variable, I utilize probit regression for this reduced form estimation. The resulting predicted probabilities are therefore naturally bounded between 0 and 1.

The second results column of table 6 reports OLS estimates for the structural regression. The difference between the two regression estimations is that the second

contains the predicted value of constraint from the reduced form estimation. As such, the coefficients can be interpreted as the direct effects of the independent variables on expenditures per capita, accounting for any indirect effects of those variables working through constraint. These instrumental variables estimates are largely the same as the baseline regression estimates. Importantly, the estimates on the variables that operationalize our ideology, form of government, competitiveness, and wealth hypotheses are of roughly the same magnitude and level of significance. The effect of constraint becomes larger in magnitude and more significant, implying that once we account for the factors that determine the probability of constraint, cities that are constrained are predicted to spend even less per capita than unconstrained cities. The effects of several demand factors (especially the age, renters, foreign born, and crime rate variables) change sign, magnitude, or significance.

Table 7 reports a series of analyses of the determinants of extra non-voted millages. The first results column presents a baseline regression in which the dependent variable is the city's total non-voted millage rate. We hypothesize that constrained cities will rely more heavily on extra non-voted millages than unconstrained cities. Since extra non-voted millages are less visible to voters (than extra voted millages), we expect them to be used more frequently by cities with fiscally conservative voters and/or politically vulnerable decision-makers. We also hypothesize that cities with less property wealth and greater population demand will levy more extra non-voted millages, all else constant. The results provide some support for these hypotheses. In the first results column, we see that non-voted rates are higher in constrained cities, as hypothesized. Of the ideology variables, cities with larger public sectors rely less on these revenues, as hypothesized, presumably because local political actors can relatively easily utilize more transparent

forms of revenue. By contrast, cities with more liberal voters rely more heavily on these hidden taxes, contrary to expectations, but this effect is not significant. Cities with strong mayors are more likely to use these taxes and those with city managers are less likely, as hypothesized, while those with partisan elections are less reliant on them, also as hypothesized. Larger and denser cities and those with more homogenous and less needy populations also levy more extra non-voted mills.

### **Table 7: Determinants of Extra Non-Voted Millages**

The second results column reports the instrumental variables estimates, including the predicted value of constraint from the reduced form estimation (as in table 6). We see that the effect on constraint remains positive and significant, indicating that constrained cities levy higher extra non-voted millages than unconstrained cities. The demand variables remain largely unchanged in terms of sign, significance, and magnitude. However, the effects of several of the political variables are different once we account for their indirect effects on the probability of constraint. We see that percent democratic voters becomes negative and significant, as hypothesized, with more conservative cities relying more heavily on these hidden taxes, all else constant. However, we are now no longer confident in our form of government hypothesis; strong mayor cities are not significantly more likely to utilize these taxes.

Table 8 reports analyses of the determinants of extra voted millages. The first results column presents a baseline regression in which the dependent variable is the city's total extra voted millage rate, while the second column presents the instrumental variables regression with the predicted value of constraint. We hypothesize that constrained cities will rely more heavily on extra voted millages than unconstrained cities. Cities with fiscally liberal and/or politically secure decision-makers are

hypothesized to make greater use of extra voted property tax revenues. We also hypothesize that cities with less property wealth and greater population demand will levy more extra voted millages, all else constant.

### **Table 8: Determinants of Extra Voted Millages**

The estimates in provide mixed support for these hypotheses. Cities with more Democratic voters, larger public sectors, and city manager forms of government are more likely to rely on voter-approved extra property tax millages, as hypothesized, though several of these effects are no longer statistically significant in the instrumental variables regression. However, contrary to expectations, cities with strong mayors and partisan elections also rely more heavily on these millages, despite their decision-makers being more subject to political pressures. We also see that constrained cities are no more likely to levy extra voted millages than unconstrained cities. Cities with less dense, wealthier, and more homogenous populations are also more likely to rely on extra voted millages.

### **Conclusions**

These results indicate that there are clearly different political dynamic going on with the three response options. The estimated determinants of expenditures per capita and non-voted millages indicate that local decision-makers are responding to state TEL-imposed fiscal constraint in a manner that is systematically shaped by their local political environment. Constrained cities spend less per capita and generate more revenues via extra non-voted millages than unconstrained cities. On the other hand, the results indicate that local direct democracy, in the form of extra voted millages, is not being used to circumvent state TEL-imposed fiscal constraint. In fact, constrained cities are no more likely than unconstrained cities to use these taxes. Further, local political factors seem

less important in determining whether a city levies extra voted millages. Extra voted millage rates are higher in cities with more liberal voters who are presumably more tolerant of taxes. But there is no evidence that safer political environments lead to more reliance on local direct democracy (or that less secure political environments lead to less). Demand factors speak to a model of voter decision-making in which extra voted millages are more likely in communities where the electorate is less dense, wealthier, and more homogenous. Citizens are more likely to tax themselves in these types of communities, independent of many of the other local political dynamics that shape cities' fiscal responses to state TEL-imposed constraints.

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**Table 1: Fiscal Constraint in Metro Detroit Cities, 1993-2003**

<b>Year</b>	<b>Number of Cities</b>	<b>Number Constrained</b>	<b>Percent Constrained</b>
All Years	848	344	40.6
1993	84	27	32.1
1994	71	25	35.2
1995	85	35	41.2
1996	87	35	40.2
1997	87	38	43.7
1998	86	39	45.3
1999	87	35	40.2
2000	87	37	42.5
2001	87	38	43.7
2001	87	35	40.2

**Table 2: Years Constrained for Selected Cities, Metro Detroit, 1993-2002**

<b>Year</b>	<b>New Baltimore</b>	<b>Richmond</b>	<b>Warren</b>	<b>Harper Woods</b>
1993	Yes	Yes	No	Yes
1994	No	No	No	Yes
1995	Yes	Yes	No	Yes
1996	Yes	Yes	No	Yes
1997	Yes	Yes	Yes	Yes
1998	Yes	Yes	Yes	No
1999	No	No	Yes	No
2000	No	No	Yes	No
2001	Yes	Yes	Yes	No
2002	No	No	Yes	Yes

**Table 3: Probability of a City Facing Constraint: Probit Estimates**

Independent Variables	Probit Model DV=Constraint (1=yes, 0=no)
<b>Political</b>	
Percent Democratic Voters	2.99** (1.31)
Strong Mayor	1.32*** (.37)
<b>Structural Obligations</b>	
Median Year Housing Units	-.043*** (.015)
FTE Per 10,000	.013** (.0056)
<b>Capacity</b>	
Median Home Value/10,000	-.13*** (.035)
SEV Per Capita 1980/10,000	-.54** (.26)
Percent Residential	2.28* (1.17)
<b>Population</b>	
Percent Under Poverty Line	-19.30** (8.88)
(Percent Poverty) <sup>2</sup>	54.38* (29.56)
Year	.083*** (.025)
Constant	-81.07 (51.65)
Pseudo R <sup>2</sup>	.3681
N	819

**Table 4: Descriptive Statistics – Fiscal Response Outcomes**

<b>Variable</b>	<b>N</b>	<b>Mean</b>	<b>Std.Dev.</b>	<b>Min</b>	<b>Max</b>
Total Expend/capita (2000\$)	692	737.13	336.47	124.17	2932.61
Property Tax Revenue/capita (2000\$)	624	360.26	190.78	26.74	1439.76
General Fund Millage Rate (mills)	848	12.70	4.10	3.56	20.00
Special Non-Voted Millage Rate (mills)	848	1.35	1.28	0.00	4.69
Special Voted Millage Rate (mills)	847	0.78	1.32	0.00	6.61

**Table 5: Fiscal Response Outcomes in Constrained and Unconstrained Cities**

<b>Variable</b>	<b><math>\bar{Y}</math> (Constrained)</b>	<b><math>\bar{Y}</math> (Unconstrained)</b>	<b>Pr( T &gt; t )</b>
Total Expend/capita (2000\$)	639.62	682.64	.03
Property Tax Revenue/capita (2000\$)	307.91	392.60	.00
General Fund Millage Rate (mills)	13.52	12.17	.00
Special Non-Voted Millage Rate (mills)	2.09	0.86	.00
Special Voted Millage Rate (mills)	0.96	0.63	.00

**Table 6: Determinants of Total Expenditures Per Capita, 2000\$, 1993-2001**

Hypothesis/Variable	DV=TotExpCap Constraint=Actual (OLS)	DV=TotExpCap Constraint=Predicted (OLS)	DV=Constraint (Probit RFE)
<b>Constraint</b>	-28.73**	-168.45***	
<b>Ideology</b>			
% Dem Voters	234.12**	371.61***	4.035***
FTE/10,000	3.15***	3.36***	.014***
<b>Form of Government</b>			
Strong Mayor	87.74***	126.75***	1.19***
Manager	-70.51***	-65.14***	.074
<b>Competitiveness</b>			
Partisan Elections	67.78	-60.79	-2.48***
<b>Wealth</b>			
Median HH Value	.00073***	.00080***	-.000013***
<b>Population/Demand</b>			
Total Population	-.0018***	-.0016***	8.87e-06**
Persons Per Acre	8.23**	15.82***	.0037
Median HH Income	.00024	-.00021	-7.30e-07
% Poverty	107.71	226.25	-18.45**
Herfindahl Index	-120.70	-181.30	-1.21
% White	292.79**	358.65**	1.97
% Old	747.91***	282.61	-5.63**
% Young	-257.60	-771.41**	-3.99
% Rental Units	17.90	-128.87	3.10**
% Foreign Born	320.96*	76.60	-.94
Crimes Per Capita	-145.097	-6.64	-.18
<b>Instruments</b>			
Total TV Per Capita			.000015
SEV Per Cap 1980			-.000051***
Net Total Permits			-.00056
% Residential			4.11***
Med Year Str Built			-.038***
(% Poverty) <sup>2</sup>			50.40**
Year			.072**
Constant	-17.079	116.45	-72.24
R <sup>2</sup>	.59	.59	.38
N	582	576	781

**Table 7: Determinants of Extra Non-Voted Millages, 1993-2002**

Hypothesis/Variable	DV=XNVRate Constraint=Act (OLS)	DV=XNVRate Constraint=Pred. (OLS)	Constraint (Probit RFE)
<b>Constraint</b>	.36***	1.13***	
<b>Ideology</b>			
% Dem Voters	.087	-1.018**	4.035***
FTE/10,000	-.0017*	-.0030**	.014***
<b>Form of Government</b>			
Strong Mayor	.37***	.096	1.19***
Manager	-.18**	-.20**	.074
<b>Competitiveness</b>			
Partisan Elections	-1.40***	-1.01***	-2.48***
<b>Wealth</b>			
Median HH Value	-4.34e-08	-6.77e-07	-.000013***
<b>Population/Demand</b>			
Total Population	7.57e-06***	6.88e-06***	8.87e-06**
Persons Per Acre	.22***	.17***	.0037
Median HH Income	-1.87e-06	1.09e-06	-7.30e-07
% Poverty	6.30***	6.45***	-18.45**
Herfindahl Index	-2.91***	-2.75***	-1.21
% White	.48	-.060	1.97
% Old	-2.47**	-1.65	-5.63**
% Young	-7.95***	-7.48***	-3.99
% Rental Units	-3.51***	-3.00***	3.10**
% Foreign Born	-7.57***	-6.52***	-.94
Crimes Per Capita	-.76	-1.06	-.18
<b>Instruments</b>			
Total TV Per Capita			.000015
SEV Per Cap 1980			-.000051***
Net Total Permits			-.00056
% Residential			4.11***
Med Year Str Built			-.038***
(% Poverty) <sup>2</sup>			50.40**
Year			.072**
Constant	5.45***	6.054***	-72.24
R <sup>2</sup>	.67	.66	.38
N	811	781	781

**Table 8: Determinants of Extra Voted Millages, 1993-2002**

Hypothesis/Variable	DV=XVRate Constraint=Act (OLS)	DV=XVRate Constraint=Pred. (OLS)	Constraint (Probit RFE)
<b>Constraint</b>	.13	.35	
<b>Ideology</b>			
% Dem Voters	2.39***	1.63**	4.035***
FTE/10,000	.0033**	.0025	.014***
<b>Form of Government</b>			
Strong Mayor	.39**	.22	1.19***
Manager	.18*	.17	.074
<b>Competitiveness</b>			
Partisan Elections	.41	.030	-2.48***
<b>Wealth</b>			
Median HH Value	-2.57e-06**	-3.04e-06**	-.000013***
<b>Population/Demand</b>			
Total Population	1.30e-06	1.20e-06	8.87e-06**
Persons Per Acre	-.070***	-.097***	.0037
Median HH Income	9.66e-06	.000011*	-7.30e-07
% Poverty	-8.27***	-7.45***	-18.45**
Herfindahl Index	-1.74***	-2.17***	-1.21
% White	-.66	-.93	1.97
% Old	1.78	.61	-5.63**
% Young	-4.77**	-7.77**	-3.99
% Rental Units	.18	.11	3.10**
% Foreign Born	4.60***	4.79***	-.94
Crimes Per Capita	.62	1.046	-.18
<b>Instruments</b>			
Total TV Per Capita			.000015
SEV Per Cap 1980			-.000051***
Net Total Permits			-.00056
% Residential			4.11***
Med Year Str Built			-.038***
(% Poverty) <sup>2</sup>			50.40**
Year			.072**
Constant	2.19*	4.19**	-72.24
R <sup>2</sup>	.24	.26	.38
N	810	780	781

**Figure 1: Frequency of Number of Years Constrained, Metro Detroit Cities, 1993-2002**

