

THE ROLE OF LOCAL REVENUE AND EXPENDITURE LIMITATIONS IN SHAPING THE COMPOSITION OF DEBT AND ITS IMPLICATIONS

Daniel R. Mullins, Michael S. Hayes, and Chad Smith, American University

INTRODUCTION

THIS PAPER EXAMINES THE EFFECTS OF TAX and expenditure limitations (TELS) on the structure of local finance, particularly the composition of debt. TELS are defined as limitations on the revenue-raising or expenditure-making abilities of local governments imposed universally by state statute or state constitutional amendment. Previous research has shown that the enactment of TELS has brought a shift toward non-tax sources of revenues (fees and charges, state transfers and debt) for financing local public services (Joyce & Mullins, 1991; Mullins & Joyce, 1996). Implicit in these changes are the distribution of the burdens for financing local government services and possible increased reliance on intergenerational transfers. The result also may have serious implications for local autonomy and the ability of communities to match their service/tax packages to the preferences of their residents, seriously reducing the efficiency of resource allocation within the sector.

This research uses time series data on all units of government in 787 metropolitan counties in the United States to assess the effect of state imposed TELS on the ratio of total non-guaranteed long-term debt to total long-term debt outstanding in states enacting these limits. The time frame of the study extends from 1972-2002 and draws on 224,770 county-year observations from seven successive censuses of governments.

The next section briefly reviews relevant studies on TELS. The third and fourth sections provide a detailed description of the data set and statistical model used to address our main research question. Lastly, the paper will discuss the results of our statistical model and draws possible conclusions from these results.

TAX AND EXPENDITURE LIMITATIONS

There are six basic types of TELS: (1) overall property tax rate limits applying to all local governments, (2) specific property tax rate limits applying to specific types of local government (municipalities, counties, school districts, and special districts) or specific functions, (3) property

tax levy (revenue) limits, (4) general revenue or expenditure increase limits, (5) limits on assessment (base) increases, and (6) full disclosure (truth-in-taxation) requirements. In general, the revenue and expenditure limits are potentially the most individually cumbersome, or binding. Rate limits and, particularly, assessment limits can be more easily overcome; however, they too can become seriously binding if used in conjunction with one another.

The differences in the constraining qualities of their provisions have sometimes resulted in a sub-classification of limitations into type 1 (non-binding) and type 2 (potentially binding). Type 1 limitations include: (1) overall and specific property tax rate limitations, and (2) assessment increase limitations. Type 2 limitations include: (1) property tax levy limits, (2) general revenue or expenditure increase limits, and (3) simultaneous property tax rate and assessment increase limitations. While these categories imply inherent variation in the capacity to constrain, the actual limit is determined by the severity of the constraint and provisions available for circumvention and exclusions. Limitations enacted across states vary dramatically in the severity of the constraint imposed. Within a given state, limitations may prove to be seriously binding constraints on some local governments but not others. See Mullins and Cox (1995) and Mullins and Wallin (2004) for a complete inventory of TELS for all states.

Previous research concerning TELS has tended to focus on: (1) reasons for voter support, (2) descriptive summaries and projected effects, and (3) estimates of their actual fiscal impacts, including their effect on the size of the public sector and its structure. This paper focuses on the third category of TEL studies. See Joyce and Mullins (1991) and Shadbegian (1999) for an extensive review of previous TEL studies.

Previous state level studies have all but neglected an assessment of the effects of TELS on the fiscal structure within the local public sector. Even within the ranks of the individual state studies, there has been limited attention to these types of effects. While results point to the use of alternative revenue

sources and intergovernmental transfers, effects on the actual composition and response of the local public sector are largely absent. Have TELs changed the face of the local public sector and its interaction with local populations? Has it done so uniformly? And what are the implications of any of these structural changes for local governance? The imposition of TELs on the local public sector is likely to result in local structural adjustments in fiscal and service delivery responsibility as government attempts to evolve mechanisms to continue to satisfy demands for local public services. This may have serious implications for the ability of local populations to exercise voice and control over the totality of the public service/tax package made available to them, and, thus, the accountability and responsiveness of government.

Potential outcomes of what are likely to be second-best solutions include: (1) reduced efficiencies through lessened ability to meet service preferences (due to resources constraints), (2) increased costs for service delivery due to constraints imposed on governance organizations with access to capacity for service production, and (3) greater compliance costs (for taxpayers) and administrative costs (of government).

While it is likely that a similar set of local structural responses might be forthcoming (both within and across states) in the face of the imposition of similar constraints, significant differences in the necessity and capacity for adaptation is also likely. Variability in the assignment of public service delivery responsibilities and options, and differences in local fiscal capacities and economic and demographic structures are likely to produce different adaptive responses.

The research reported here represents the first cut at multi-state, cross-sectional time-series analyses attempting to assess the effects of the tax limitation "movement" on the internal structure of the local public sector across the United States. We analyze the ratio of non-guaranteed long-term debt to total long-term debt outstanding within metropolitan areas across the 48 contiguous states. In addition, we attempt to begin to assess the degree to which such effects vary across jurisdictions and populations.

DATA

A variety of data sources were used to estimate the effects of the imposition of TELs on the compo-

sition of debt in the local public sector. The focus of the analyses is on local government structural changes that have taken place within metropolitan areas in the contiguous 48 states between 1972 and 2002, which can be statistically associated with the enacting of these limitations. Although there is a more recent, publicly available Census of Governments in 2007, the U.S. Census Bureau stopped collecting disaggregated debt measures for many units of government. Our analysis relies on disaggregated debt measures like non-guaranteed long-term debt; therefore, we were not able to include the 2007 data in our analysis.

These initial analyses are conducted using county areas (and New England county equivalents) as the unit of analysis. County areas were chosen as the basic geographic unit because they generally provide the smallest geographic referent containing the universe of government organizations providing local services to individual local populations. Fiscal data were compiled individually for all units of local governments within 787 metropolitan counties at seven year intervals (the only years for which complete information is available).¹ Over these eight periods, these 787 counties average 31,804 units of government, producing a data set containing 224,770 observations of individual local government's finances over the 35-year period.

The measure of composition of debt is constructed based on the relative fiscal relationships between units of local government within these county areas. In effect, we are first measuring structural characteristics of individual county areas based on the individual (disaggregated) characteristics of the universe of their constituent local government units, and are then estimating the effect that the imposition of fiscal limitations has had on the evolution of these local governance structures. We do this controlling for a number of demographic, economic, social, and structural characteristics of the individual county areas and controlling for broader national trend and state specific effects on the dependent measures.² Seven observations are made at six year intervals, corresponding to availability of complete local government finance data over eight contiguous government censuses. The existence and characteristics of local TELs were identified for each state, and all modern period (1960-2002) enactments of limitations were included in these analyses.³ This resulted one time series (or panel) model

that includes the dependent variable focusing on debt composition within individual county areas, independent variables representing various types of TELs, and demographic and control variables.

Dependent Variable

Limitations imposed state-wide to constrain government's ability to generate revenue and make expenditures do nothing to constrain demands and needs for public services. In the face of continuing demands, governments would be expected to find alternative means of satisfying resource needs. Previous research has shown a significant increase in fees and intergovernmental transfers in the face of limitations. In addition to resources from these sources, because limitations are often focused on property taxes with specific exemptions for debt service, another possible avenue would be the issuance of debt to finance public projects/services that would have been funded out of general revenues were there not constraints. Further, because general debt often faces its own constraint, this pressure for government services may be translated into increased usage of non-guaranteed forms of debt and contractual financing instruments (technically outside the definition of debt) in the form of leases and certificates of participation.

Because limitations often are directed specifically at property tax revenue, and more recently fees, and because they often exempt debt (particularly self-supporting-revenue-debt and debt of special districts) and debt service levies, they may encourage the increased use of debt financing (both traditional and creative) to support public services. While the use of debt (or even its increase) is not inherently bad public policy, the implications may be significant. This is particularly so if it is associated with attempts to circumvent current revenue and spending constraints imposed by limitations rather than the result of rational financial calculation. There are potentially serious implications for longer-term debt service requirements, debt head room, and inter-generational equity and allocative efficiency. This paper measures debt composition as the ratio of non-guaranteed debt to total long-term debt outstanding (in 1987 dollars).

Independent Variables

For the purposes of this research, a number of different representations of local TELs are used in different models. In each case, measures are constructed identifying the existence of a limit

in the state in which a local unit is located for the year of the observation. One set of models divides limitations into two broad categories outlined above: non-binding (TYPE1) and potentially binding (TYPE2). Each is represented by a binary variable indicating "1" for their presence and "0" otherwise in each state for each year. Because we expect the effects of limitations to grow over time (as their potential to constrain becomes more pronounced), we included a variable in our models that indicates the number of years that have elapsed since the enactment of local potentially binding limits (TYPE2_y) for each state in each cross-section. This model also includes a binary measure interacting the existence of limitations within a central (i.e., "primary") county. In effect, this provides a separate estimate of the effect of the limitations in the core urban counties (TYPE1i, TYPE2i, and TYPE2_yi). The same is done for models exploring the differential effect in county areas experiencing relative fiscal stress. For these models, the measures (TYPE1i, TYPE2i and TYPE2_yi) reflect the interaction of limitations with the existence of county areas in "stress," instead of primary counties.

A final set of estimates are made using a less aggregate representation of existing limitations (or the "form" of limitation). For these models, limitations are separated into those that are universally applied across local jurisdictions in the form of overall property tax rate limits or limitations on assessments, and those directed at general purpose governments (counties and municipalities) versus school districts. Two dichotomous variables are established indicating the existence of an overall property tax rate limit (RATE_L) and assessment limits (ASMT_L); a second set of measures indicates the existence of specific rate limits, levy limits, revenue limits, or expenditure limits applied to general purpose (GP_LMT) or school district (SC_LMT) governments. Again, urban core and fiscal stress effects are represented by an additional set of binary measures (RATE_Li, ASMT_Li, GP_LMTi, and SC_LMTi).

It is likely that limitations will prove to be more or less constraining on governments in different fiscal positions. It may be for some measures that the effects on less constrained units offset those active on a more constrained subgroup, rendering an aggregate analysis unable to ferret-out the meaningful effects. Therefore, each of the above analyses will also be subset for overall fiscal and

structural characteristics of local governments and populations within four classifications of county areas: primary counties, non-primary counties, fiscally-stressed counties, and non-fiscally stressed counties.

Primary counties are defined as those containing the primary central city of the metropolitan area. Because these central counties house the oldest constituent units of the urban area, including central cities and older (less affluent) suburbs, limitations are expected to have a potentially more demonstrable effect in these areas. In order to assess the implications of central urban structure on the effects of TELs, analyses will be conducted including a term interacting the existence of a limitation with primary county status. In addition, when this effect is significant, the sample will be subset into two separate subgroup analyses for primary and non-primary county areas.

Fiscally-stressed counties are defined as counties with 1990 family poverty rates greater than 110 percent of the average for all metropolitan counties in their state that were classified as under relative stress. Because TELs may be expected to be more binding constraints in county areas with fewer relative resources, analyses will be conducted including a term interacting the existence of a limitation with a measure of the relative affluence of the county area.

Control Variables

We also have included in our models several measures commonly associated with the demand for local public services, the composition of the resource base, and important structural and cost elements to control for the structural and demographic variations across counties. Variables that control for scale and supply measures include total aggregate resident population of county, resident population per square mile, population growth rate, average persons per household, and the proportion of housing units built before 1940.

Estimating models also attempt to account for the effects of a variety of population and income distribution, and need and demand measures, in isolating the effects of limitations. These variables include the proportion of population under the age of 17, the percent of students enrolled in private K-12 schools, percent of population over 65 years old, per capita income, and average monthly social security payments to recipients. Lastly, the models include control variables that measure the economic structure of the county. These variables include the

ratio of total employment to total resident population by manufacturing, service, and retail sectors.

METHODOLOGY

The effects of TELs on local structure are investigated by estimating two different models (reflecting the two different approaches to classifying limitations for analysis). Each is estimated using pooled cross-sectional time series techniques, with the institutional and control variables regressed against the dependent variables. The design employed is a standard fixed effect time series regression model, with binary variables representing each year and each state in order to hold constant the effects of general patterns across time, and to adjust for the unique structural qualities of each state.⁴

These models use a quasi-experimental time series design in which the enactment of limitations in differing states at differing times represents the existence of multiple treatments and where the absence of limitations in some states during a subset of years, and across all years in other states, act implicitly as a control group. The results obtained can be considered a conservative assessment of the effects of the enactment of limitations and the limitation movement.⁵ While a firm causal relationship between institutional constraints and fiscal shifts cannot be established, a variety of plausible rival explanations are accounted for in these models, and a strong indication of the effects of enacting formal limitations is suggested.

The results of the statistical models are presented in table 1. In each case, these tables display only the results for the institutional constraint measures, omitting results for the 20 control measures and the 56 (year and state) fixed effect parameters. While the parameter estimates for these control variables, individual year, and state fixed effects are interesting in their own regard, because our specific focus is on the effects of TELs, it seems appropriate to limit the presentation to only the estimated coefficients for the institutional constraints.

As indicated above, the universe of governments within metropolitan counties defined for these analyses consists of 787 county areas over seven successive five-year observation periods, yielding 5,509 county area observations. However, for a variety of reasons, it was necessary to exclude some county areas from each model, which leads to a final sample size of 5,409 county areas.⁶ Lastly, all models were weighted by population density to

Table 1
**Effect of Tax and Expenditure Limitations on Relative Use
of Guaranteed and Non-Guaranteed Debt
(Pooled Cross-Sectional Time Series Regression Results)**

<i>Dependent Variables</i>	<i>Ratio of Total Non-Guaranteed Long-Term Debt to Total Long-Term Debt Outstanding (density wt.)</i>				
	<i>All</i>	<i>Primary Interact</i>	<i>Primary</i>	<i>Fringe</i>	<i>Stress Interact</i>
<i>Independent Variables</i>					
TYPE1	.040 [^]	.027*	.055 [^]	.004	.041 [^]
TYPE2	.009	.029~	-.024~	.020	.030*
TYPE2_y	.001~	.001	.002 [^]	-.001	-.001
TYPE1i	-	.023*	-	-	-.001
TYPE2i	-	-.032~	-	-	-.042*
TYPE2_yi	-	.001	-	-	.003 [^]
Adj R-sq/N	.45/ 5409	.45/ 5409	.57/ 2190	.42/ 3219	.45/ 5409
RATE_L	.177 [^]	.187 [^]	.177 [^]	.162 [^]	.174 [^]
ASMT_L	.076 [^]	.039	.088 [^]	.055*	.058 [^]
GP_LMT	.054 [^]	.050 [^]	.056 [^]	.036*	.064 [^]
SC_LMT	-.041*	-.025	-.065 [^]	-.042*	-.038*
RATE_Li	-	-.020	-	-	-.000
ASMT_Li	-	.059*	-	-	.054*
GP_LMTi	-	.010	-	-	-.023
SC_LMTi	-	-.028~	-	-	-.002
Adj R-sq/N	.47/ 5409	.47/ 5409	.59/ 2190	.42/ 3219	.47/ 5409

“~” = p-value of $\leq .10$; “*” = p-value of $\leq .05$; “[^]” = p-value $\leq .01$.

Parameter estimates for 20 control variables and 56 state and year effects were included in the estimated models but omitted from the results presented in the table.

focus the analyses on the impact of limitations on service populations.⁷

RESULTS

Table 1 displays the results of the regressions on ratio of total non-guaranteed long-term debt to total long-term debt. Specific categories of limitations appear to have some overall effects. For example, a TYPE1 limitation is associated with a 4 percentage point increase in the dependent variable. Limitations in the form of general rate limits, assessment limits, and limits on general purpose governments all have significant positive effects (increasing the non-guaranteed portion of total outstanding debt

by 17.7, 7.6, and 5.4 points, respectively). Limitations imposed on school districts reduce this ratio, apparently reducing the need for general purpose non-guaranteed debt.

Models exploring the primary county effects (column 2), show relatively limited deviation from all counties. Where coefficients are significant, they tend to suppress the magnitude of effects. These results are born out in the subgroup models. The same pattern prevails as that for all counties in both the primary (core) county and fringe county subgroups, with effects being of greater magnitude in the fringe counties. Results for counties with higher poverty populations (stress) are a bit more divergent. The effects for imposing a single limitation or

both types of limitations are significantly opposite those of the effects across all other counties, virtually canceling out the effects and resulting in near zero net coefficients for these counties in stress. An exception is a significant reinforcing effect for overall rate limits, with rate limits appearing to have a slightly greater effect on an increased relative level of non-guaranteed debt in these counties (for a net effect of a 22.8 percentage point increase in the non-guaranteed debt ratio).

DISCUSSION AND CONCLUSIONS

To summarize, we find that TELs are associated with shifts in the proportion of non-guaranteed debt as a component of total debt. These effects are mixed in direction, but are greatest for fringe counties (increasing the non-guaranteed portion with the introduction of an initial limitation) and suppressed in counties with less affluent populations.

The results of our analyses suggest that TELs do have significant and potentially important substantive effects on long-term mechanisms of finance. They suggest that different forms of limitations have different overall effects, that many effects vary by the structural position of the county (core or fringe), and more vary (sometimes dramatically) by relative prosperity of the county population. These results also suggest that specific limitations on general purpose or school district governments may provide increased revenue or expenditure flexibility for non-limited forms of government by decreasing competition for shared tax bases.

Notes

- ¹ Metropolitan counties and county equivalents were identified based on the Department of Commerce’s designation of counties forming metropolitan areas as of January 1, 1987.
- ² Revenue and expenditure data come from U.S. Department of Commerce, Census of Governments: State and Local Government Finances, machine readable files for 1972, 1977, 1982, 1987, 1992, 1997, and 2002 (Washington, DC: U.S. Government Printing Office, various years); demographic data are from various governmental sources.
- ³ Specific dates of enactment (or significant modification) for each state were ascertained through the results of detailed legal and survey research reported in D. Mullins and K. Cox, op. Cit. Limitations enacted or modified after 1995 were identified through supplemental research by the author.

- ⁴ The model employed assumes constant slope coefficients and an intercept that varies over states and time. This construction is widely considered appropriate for this type of analysis.
- ⁵ Behavior altering adjustments resulting from the spillover of “informal” moods between neighboring states, but not consummated in the enactment of limitations, cannot be estimated and are not included in our assessment of the impact of this “movement.” On the same token, however, those affects associated with the enactment of limitations reflect unique contributions of a class of specific institutional constraints.
- ⁶ Five small and populous county areas virtually contiguous with their central cities were excluded. Independent cities in Virginia were also excluded. Lastly, observations with zero values on the dependent measure or data errors/extreme outliers were excluded.
- ⁷ To explore the aggregate impact of limitations on people rather than space, a population weighting is in order. However, because it is the location of population in relative space that provides avenues to exercise choice via spatial location, provides the opportunity for multiple units to respond to differences in preferences, and partitions resource bases, the interaction between population and space is more critical than population alone, suggesting the appropriateness of a population density weighting. Further, the variance on population density is not as extreme as population itself, eliminating the possible excessive influence of the most populous places.

References

Joyce, Philip G. and Daniel R. Mullins. The Changing Fiscal Structure of the State and Local Public Sector: The Impact of Tax and Expenditure Limitations. *Public Administration Review* 51 (May/June 1991): 240-253.

Mullins, Daniel R. and Bruce A. Wallin. Tax and Expenditure Limitations: Introduction and Overview. *Public Budgeting and Finance* 24 (2004): 2-15.

Mullins, Daniel R. and Kimberly Cox. Tax and Expenditure Limitations on Local Governments, M-194. Washington, DC: Advisory Commission on Intergovernmental Relations, 1995.

Mullins, Daniel R. and Philip G. Joyce. Tax and Expenditure Limitations and State and Local Fiscal Structure: An Empirical Assessment. *Public Budgeting and Finance* 16 (1996): 75-101.

Shadbegian, Ronald J. The Effect of Tax and Expenditure Limitations on the Revenue Structure of Local Government, 1962-87. *National Tax Journal* 52 (June 1999): 221-237.

U.S. Department of Commerce. Census of Governments: State and Local Government Finances, machine readable files. Washington, DC: U.S. Government Printing Office, various years.