# STRUCTURAL/INSTITUTIONAL DETERMINANTS OF VARIATIONS IN HOUSEHOLD PROPERTY BURDENS AND EFFECTIVE TAX RATES WITHIN AND ACROSS LOCAL GOVERNMENTS: THE IMPLICATIONS OF CLASSIFICATION, ASSESSMENT METHODS, REVENUE DIVERSITY, AND TELS[1]

*John L. Mikesell,* Indiana University
*Daniel R. Mullins,* American University

## INTRODUCTION

THIS PAPER INVESTIGATES THE FACTORS THAT influence the property tax faced by owner-occupied housing. These influences stem as much from state level institutional/structural factors as from local economic conditions and mechanisms of local public choice. Substate jurisdictions establish tax rates within a framework of constrains and options established by their state governments. To be sure, this framework often provides significant local discretion; however, that discretion is tempered by both the characteristics of the local property tax base, alternative options available to localities, and the boundaries established by states. Though not entirely unique, each state defines the essential elements of the tax which apply to subordinate jurisdictions within it. Multiple overlapping jurisdiction at the substate level also means that local decisions have ramifications beyond that of individual governments. In any given location, multiple jurisdictions will be levying their own tax rates and will be establishing these rates independently, with little attention given to the property tax policy of other local governments that overlap its service area in whole or in part.

### Some Property Tax Background

Americans do not like the property tax. The most recent Tax Foundation survey rates the local property tax as the least fair broad-based state and local tax, with half the respondents saying that it was somewhat unfair or not at all fair (Chamberlain, 2007). Patterns of its utilization reflect that public preference; its role in local government finances has been in general secular decline (from 70 percent of of own source general revenue in 1961 to 45 percent in 2006). However, much of the decline occurred by 1980, and recent years have seen a modest increase in share, from 0.437 in 2001 to 0.452 in 2006. As a building block of local revenue systems, the property tax share appears to have stabilized at slightly under 30 percent of the total and it remains the most significant local tax by a considerable margin. At the same time, property tax burdens (as measured by real property tax collections per capita) have been increasing; the 2006 level is 2.24 times that of 1961. The property tax's importance in affording a considerable degree of local fiscal autonomy seems to have counterbalanced political discontent.

Still, burden growth and public unpopularity have produced many state programs to constrain the tax, frequently with particular attention given to the tax on private homesteads. These tax burdens are likely to be ground zero for discontent for state and local elected officials because homeowners are voters. But what factors, including those controlled by state and local officials, shape burdens and effective tax rate? That is the focus of this article.

## MECHANISM OF CONSTRAINT AND RELIEF[2]

The marginal adjustments in the general implementation of the property tax over the last several decades tend to benefit the resident homeowners and more specifically those with the longest tenure. Most common are classification, homestead exemptions, circuit breakers, and deferral programs. Beyond this, acquisition values assessment practice reward longevity of residence and "truth-in-taxation" mechanisms attempt to add transparency to local rate setting. These are often coupled with limitations on property tax rates and levies applicable to individual types of governments (counties, municipalities, or school districts) or aggregate overlapping burdens.

### Classification and Homestead Focused Relief

#### Classification.

Through varying assessment ratios or directly applying differential property tax rates, 22 states (and the District of Columbia) apply lower effective tax rates to the taxable value of residential

property than they do commercial and industrial property. For 14 states, the resulting differential produces a tax rate on commercial and industrial property that is at minimum twice that of residential property. This application to taxable value also significantly underestimates the residential preference due to relative reductions in the base value of residential property due to the existence of preferential homestead exemptions, deferrals, and circuit breaker programs (not to mention differences in assessing practices and methods).

## Homestead Exemptions.

Homestead exemptions provide a reduction of assessed value or credit against tax payments in every state except Missouri. Twenty-seven states provide a general homestead exemption to all homeowners, with two providing similar relief to renters. The remainder provide it to other classes of homeowners, such as elderly, veterans, blind, disabled, or low income. The value of the exemptions ranges to a maximum total exemption of assessed value (generally for disabled veterans) in 18 states to exemptions for all homeowners of $100,000 for school taxes in South Carolina, an $89,000 exemption in Idaho, and an $80,000 exemption in Hawaii. Mississippi exempts 34 percent of assessed value and North Dakota 10 percent. New York exempts $30,000 in property value and Florida and Alaska exempt $25,000 and $20,000, respectively. The value of some of these exemptions is adjusted upwards periodically as home values increase. The fixed nature of these exemptions in most states results in greater relative base relief for lower valued properties, reducing effective tax rates the most for owners of lower valued homesteads. These exemptions reduce the relative value of the residential component of the property tax base (compared to commercial and industrial components) and shift a greater portion of property tax burdens to commercial and industrial classes.

## Circuit Breakers and Deferrals /More Targeted Relief.

Circuit breakers are also used in 33 sates and the District of Columbia for targeted residential property tax relief. Relief is generally calculated as a portion of property tax liabilities that exceed a certain percentage of income and provided as a refundable income tax credit. Relief is available for all homeowners in 13 states, for all renters in 11, and for both renters and homeowners in 10. In 21 states, circuit breakers only apply to elderly homeowners and renters. Special provisions exist applicable to only elderly homeowners in 22 states and elderly renters in 18 states, with 17 states having special provisions for both. The magnitude of relief includes a credit of up to the full property tax liability in Maryland and of any amount over 3 percent of income in Hawaii. Nearly all other states cap absolute maximum credit amounts, but 11 cap this at $1,000 or more.

Deferral programs also exist in 22 states plus the District of Columbia, which allow portions of property tax payments to be deferred until sale of the property or for a specified period of time. These programs are less universal, with only 3 applying deferrals to all homeowners and 22 limiting eligibility to the elderly or disabled (and 1 only the disabled). In addition to state programs, numerous localities also offer deferrals in cases of hardship to relieve excess property tax burdens.

## Limitations on Accessing the Property Tax Base[3]

Forty-seven states have imposed some form of constitutional or statutory state-wide limitation on the fiscal behavior of their units of local government; only Connecticut, New Hampshire, and Vermont have none (Maine adopted limitations on property tax levies and on general expenditures in 2005).[4] Four additional states have adopted only limited full disclosure requirements since 1970.[5] While tax and expenditure limitations on local governments existed as far back as the late 19th century, their imposition greatly accelerated in the latter part of the 20th century. Seventeen states adopted some type of fiscal limitation on their local units of government between 1970 and 1976, and one half (50 percent) of those currently in existence were adopted after 1977.

Local tax and expenditure limitations are generally classified into seven basic forms (Joyce and Mullins, 1991). The most prevalent is the property tax rate limitation imposed on specific forms of local government (33 states have imposed this, with 31 limiting municipalities, 28 counties, 26 school districts, and 23 all three types). Thirty states have limited the size of the tax levy by their local units of government (26 for counties, 25 for municipalities, 17 for school districts, and 17 for all three).[6] Twenty-two states have a full disclosure

requirement; however, only 18 require a rollback of property rates to a level not to exceed the previous year's levy. Overall property tax rate limits are in effect in 13 states, while 14 have enacted limits on the growth of property assessments.[7] Most broadly, 9 states limit expenditure growth in their local governments, while 2 limit general revenue increases.[8] A combination of two or more of these limitations exists in 40 states.

Most of these restrictions on local revenue raising and spending have come in rather recent times and usually through ballot initiatives. Very significant limitations have been enacted in several states since 1995, including California, Washington, Oregon, New Mexico, Oklahoma, and Maine.[9] While the pace of adoption has slowed, the character of constraints being enacted has strengthened. Formula-based limitations on revenue increases are more prominent as is broad application across government form (counties, municipalities, and school districts).

In the 18 states with comprehensive "truth-in-taxation" (or full-disclosure), these provisions are intended to produce transparency in property taxation by requiring that a public hearing be held to set property tax rates.[10] The intent is to limit the ability of jurisdictions to benefit from increases in aggregate property tax revenue due to changes in the value of the existing property tax base, without specifically disclosing the levy increase publicly. Statutory rates must be reduced to produce the same levy as would have been produced with the old tax base, unless voters explicitly approve a levy increase. Some states require a super-majority vote of the local legislative body to set a rate above that which would produce last year's levy. While this is often considered a rather weak constraint, its intent is to provide information to the public choice process with the expectation that such transparency will likely reduce the rate of increase in property tax levies and thus property tax burdens.

## OBJECTIVE OF THIS PAPER

The focus of this paper is an assessment of the determinants of effective tax rate and burden variations across political subdivisions and households[11] within these subdivisions. Specifically, our interest is in the role of subnational fiscal constraints and structural provisions of property taxation as determinants of effective rate and burden varia-

tions. Burdens vary considerably across states and between areas within states and political subdivisions, with deviations across housing units in some areas likely driven as much (or more) by structural aspects of property tax administration as differences in property values. The absence of market-based assessment systems (particularly acquisition value assessment) and the existence of arbitrary depreciation factors (and even classification structures) result in property tax burdens that are significantly related to household tenure and age of structure, rather than actual value. Significant components of this variation are also driven by the existence of artificial constraints on the ability of subnational governments to generate revenue and make expenditure choices (i.e., tax and expenditure limitations and constrained revenue options).

Structural characteristics of property tax systems, such as property classification, full disclosure provisions, homestead exemptions and circuit breakers, and assessment and rate limits are evaluated for their affects on effective tax rates and property tax burdens, in addition to property tax reliance, and local government revenue structure and spending across subnational jurisdictions. It is expected that these structural features will have an important role in distributing/redistributing the burden of property taxes, altering tax prices to residential property owners, influencing local revenue structure and spending, and providing potential head room for greater utilization of the property tax. It might be expected that property taxes (and aggregate burdens) respond positively to the existence of targeted relief mechanisms, suggesting that such provisions (and "equity" enhancements) may strengthen community support for property taxes and increase potential yield. It may be further expected that general relief to homeowners, through generous homestead exemptions and classification structures that increase effective tax rates on non-homestead property (commercial, industrial. etc.), would be associated with greater reliance on property taxes in response to price effects/burden implications. However, burdens are also significantly affected by internal community characteristics and the interaction between constraints and these characteristics and income disparities across populations in political subdivisions. Furthermore, relief mechanisms such as rate, levy, and assessment limits affect the distribution of relative property tax burdens across populations

and space within states and local jurisdictions. Rate limits interact with assessment methods and cycles to influence the distribution of burdens across parcels and income classes, and the affects of property tax limitations are likely to vary by age and fiscal characteristics of communities. The distribution of property ownership, that is the level of heterogeneity in property values across households, is also expected to affect the level of aggregate property tax burden and the distribution of relative burdens between residents. Full disclosure requirement may have more limited influence on property tax outcomes that vary based on rollback provisions.

## METHOD

### Data

This research examines the influences on effective property tax rates and burdens (relative to household incomes) for households across the United States. Household observations from the Public Use Micro Samples of the 1990 and 2000 Census of Population and Housing and Annual Community Surveys for 2005, 200, and 2007 are used to evaluate residential property tax burdens across substate areas and time in all 50 states. The census and surveys provide data on respondent reported income, property market value, and property tax payments along with a variety of other personal and housing characteristics. These data are combined with individual unit data on government revenues and expenditures from the Annual Surveys and Census of Governments and socioeconomic and demographic characteristics from a variety of sources to map individual household data to Public Use Microdata Areas (PUMA) in each state. These data provide the ability to link individual household/housing characteristics and effective property tax rates to approximately 2000 substate areas in the United States with populations of 100,000 or greater.[12]

An array of measures aggregated to county areas have been mapped to PUMAs in each state. Because PUMAs frequently include more than a single county, PUMA values on county specific measures were calculated by averaging the weighted values of counties included within the PUMA. Each county's contribution to the average was based on its value weighted by the percent of the PUMA population contributed by the portion of a county lying within it. For counties containing more than one PUMA, and for which the PUMA was located entirely within a single county, PUMA values for the county specific measures were set to that of the single county.

The model estimated takes the form of a nested, unbalanced panel.[13] The panel period covers 1990 through 2007 and includes more than 8 million complete observation on households. Individual survey observations are nested within the PUMA areas. The panel is unbalanced because of variation in PUMA designation between the 1990 Census and later periods. Demographic and fiscal measures have been matched to the period (years) of the micro data panels. The model estimated is preliminary in nature and is in the form of a pooled cross-sectional time-series with fixed effects.[14]

### Parameters

The model seeks to identify the factors that influence the effective tax rate on single family housing and the burden of the residential property tax relative to the income of the household. Both are significant, as they are often the beginning point for criticisms of the property tax and the focal point for restructuring programs aimed at property tax burden reduction. Three types of variables are examined as determinants of effective rates and burdens. These include the following: (1) characteristics of the individual household or property parcel, (2) relative state / county economic and demographic conditions, and (3) elements of the state fiscal/structural features, relief mechanisms, and tax and expenditure limitations. Our primary focus is on the third category. Panel 1 provides an explanation of these variables (by category) and their expected relationship to tax rates and burdens. This panel and Table 1 provide the foundation for the discussion of results, below.

## RESULTS

Results of the estimations are presented in table 1.[15] The models are estimated in log-linear form with dependent variables represented as (1) natural log of property tax payments as a percent of household income, and (2) natural log property tax payments as a percent of property value. Models were estimated on census and survey records for single family houses (detached or attached).[16]

One immediate observation is the high *t*-values and degree of statistical significance of the coef-

*Panel 1*
**Independent Variable Definition, Discussion and Expectations**

**Individual Household or Property Parcel Characteristics.**
Features of a particular property or the household living in it expected to influence the tax rate and ratio of the property tax bill to household income. These measures are specific to the household and come from the Censuses of Population and Housing and Annual Community Surveys.

Ratio of household income to median household income in PUMA. The relative propensity of a household to spend income on housing is likely to vary with the relative income of the household. Thus, household income would influence the ratio of property tax to household income. Because property taxes on an individual housing structure are driven by the relative value of other property in a community, we use this ratio to establish the relative capacity of individual households. The way the model is specified (simultaneously including measures of property value) means that this measure is *not* a summary measure of the relationship between resulting property tax burden and relative income of property owners in the taxing jurisdiction.

Ratio of residential property value to median residential property value in PUMA. Higher value properties are expected to have higher property tax bills, other influences held constant. However, in a perfectly functioning market-based property tax structure, effective tax rates would be unaffected. Property tax systems, however, do not consistently establish tax value based on real (or market) values of property. Inclusion of this variable allows a direct assessment of variations associated with factors other than a property's market value.

Presence of a householder age 65 or over in the household. Older people are more likely to have larger properties than younger people, other influences held constant, because their properties were acquired while they had families growing up and they have not adjusted to smaller properties. Hence, this variable would be positively related to the dependent variable and allows an assessment of the relative burden of the property tax associated with age (holding household income constant). Alternatively, relief mechanisms often target elderly residents and assessment/reassessment processes often reward longevity. Simultaneously controlling for relative household income and relative property value allows an assessment of the burden implications which might follow age.

Home on large lots (1 acre or more). Property tax systems also variously incorporate the value of land and structures. Land area is a basic measure of the value of land and when incorporated with measures of local economic activity will provide a control for the contribution of land to value.

Rooms in structure and bedrooms in structure. Rooms in structure is a proxy for size. Assessment systems often rely on property characteristics, including rooms and square footage, to establish value. We have separately included total rooms and bedrooms to account for the possible differential effects of room type. Simultaneously controlling for relative value of the structure, this allows an assessment of the degree to which physical property features (such as rooms) might be incorporated in property tax assessment beyond their contribution to market value.

Years since the structure was built. Property assessment systems frequently better assign realistic values to newer properties than to older ones, irrespective of ownership characteristics. Older properties are often undervalued. Therefore, it is expected that the greater the age of the structure, the lower the property valuation.

Tenure of residents in structure. A number of states, including California, Michigan, and Florida, have formal features in their property tax assessment systems that require revaluation of residential property when the property is sold, with no meaningful rebalancing of values at other times. Some other states informally have similar adjustments. That means that properties that are occupied by newly arrived residents are likely to face higher property valuations (and higher property tax bills), other things being equal, than will people who have lived in their properties longer. Therefore, the longer the tenancy, the lower the property tax burden. We combine this measure with a direct assessment of the affects of acquisition assessments to determine the degree to which this affect is more widespread.

Years since structure was built multiplied by tenure in residence. This interaction term was used in preliminary tests of the model and measures the combined effect of structure age and tenure in influencing property tax burdens. Persons who have lived in older structures for longer periods of time will benefit as assessed values do not keep pace with market values. The expected relationship was found. The final model, however, interacts tenure with acquisition value assessment and it, combined with controls for tenure and year of construction, allows an estimate of the effect of the acquisition assessment system separate from general tenure and structure age factors.

Property with annual agricultural sales exceeding $10,000. This adjusts for the existence of functioning agriculture upon the property. Valuations of property in agricultural use often significantly diverges from non-agriculture. However, working business activity may result in higher valuations due to locational and income stream factors.

Business located on the property. The existence of commercial activity on premises may affect property valuation (see above).

**Relative state/county economic and demographic conditions.**
Tax rates and burdens are likely driven by fiscal, demographic, and economic characteristics of the state or PUMA within which property and taxpayers reside. These factors determine certain underlying influences on the tax or market situations for the individual parcel; their inclusion provide statistical controls for the tests of the effect of institutional / structural factors.

Ratio of per capita local direct general expenditure in the state-to- state per capita income. States with high service expectations on local governments place greater fiscal demands on these governments. States where relative spending is high are likely to have localities with high tax rates and, therefore, higher property tax burdens. Spending relative to income should have specific relevance in influencing local tax burdens.

Ratio of per capita direct general expenditures of local governments in a PUMA to per capita direct local expenditures across the entire state. Property taxes on an individual parcel of property are likely to be influenced substantially by the overall demand for local public services within a PUMA. This measure controls for relative local spending preferences within individual substate areas in assessing factors influencing effective tax rates and burden.

Ratio of median value of residential property in PUMA to median value of residential property in state. This measure controls for the relative scale of the property tax base between PUMAs within the state. Median home values vary significantly across PUMAs in the analysis. As the tax base is higher, governments can finance their fiscal obligations with lower statutory tax rates. That will translate into lower tax burdens for any particular property. The effects of a larger relative residential tax base are indeterminate though without consideration of demand elasticities. However, while controlling for relative local spending and relative income, a higher tax base might well result in lower effective tax rates and higher burdens. The desire is to control for factors that might influence burdens and rates apart from structural factors, not to directly test the variation in burden associated with relative property values.

Ratio of PUMA median income to state median income. PUMA relative median income, along with relative median property value, frames expected property tax burdens within the PUMA within the context of state burdens allowing the individual contributions of property, household, and community characteristic to be more specifically isolated. Particularly controlling for relative spending and property value, higher relative PUMA income would be expected to result in lower burdens; however, higher median income in the PUMA, controlling for relative parcel income and value, may result in the reverse effect.

Percent of population in PUMA less than 18 and percent of populations greater than 65. These measures control for dependent population. Population less that 18 reflects the added pressures for education spending and the revenue implications of that pressure. Education is, by far, the single most resource intensive local government function. Alternatively, the population over 65 has been linked to preferences for higher spending in areas such as public safety and provides a proxy for the share of potential property owners that might benefit from longevity issues or targeted relief of tax burdens, or may reside in housing stock of a value inconsistent with current income.

Percent of PUMA school enrollment which is private. This measure reflects the offsetting effects that private school enrollment might have on the expenditure pressures associated with the under 18 population in general. It also serves as a potential proxy for dissatisfaction with local services and incentives to reduce general property tax support for public education in order to channel more household resources to private education. There is, however, a critical mass of electoral influence necessary before this latter effect would be pronounced.

PUMA poverty rate in percent. Populations in poverty place additional demands on local public services and increase service costs. Controlling for median income and residential property value, a greater poverty population suggests lower relative revenue capacity via an amplified lower tale of the income distribution.

PUMA per capita income multiplied by poverty rate. While controlling for poverty rate, this provides a measure of income disparity. Higher values imply, all else equal, greater income disparity as proportionately higher income in the upper income rank is needed to offset poverty income to produce higher relative values for this measure in the face of a given poverty ratio. Income disparity suggests non-uniformity in local spending preferences and the potential need for more variety in services and higher spending to satisfy an increased range of preferences. Economic diversity will likely influence local choice beyond that of individual effects of poverty and average income.

Ratio of PUMA Employment to Total PUMA Residents. When this ratio is high, the county will have a higher level of economic activity generating nonresidential property value. Revenue needs will also be greater due to service requirements of employers as well as an inward commuting labor force. The outcome for the individual homeowner is not a priori clear (given the simultaneous controls). A positive net fiscal residual would likely reduce the portion of the tax burden born by the housing stock while a negative would have the reverse effect. There is also the possibility for a significant net positive residual to produce a stimulative price effect.

Population per square mile. Population density affects the costs and demand for local government services, with higher costs in each of the extremes. Density and its polynomial can be used to capture population scaling effects on revenue requirements, tax rates, and burdens.

**State fiscal/structural features, relief mechanisms, and tax and expenditure limitations.**
State policies influence property tax burdens. Some are related directly to public demand to constrain or control the property tax, while some others may have collateral impact. The basic purpose of this study is to examine these impacts. As a set, they reflect policy options available to respond to a public desire to "do something" about property taxes. Outcomes are sometimes unexpected or counter-intuitive, and may likely produce somewhat other than the intended effects.

Existence of Dillon's Rule. States operating under the constraint of Dillon's Rule allow their localities only those powers, including fiscal, that have been explicitly delegated them by their state. Localities do not have free choice and, while typically given the power to levy property taxes, do not have the ability to seek out other fiscal alternatives, in terms of either taxing or spending. Hence, states in which Dillon's Rule strictly applies are likely to host households bearing higher property tax burdens – their local governments have few options for fiscal creativity.

Ratio of total state fiscal assistance to local governments to total general revenue of local government in the state. States differ widely in the extent to which they provide fiscal assistance, measured here by the ratio of state transfers to total local revenue, to their local governments. Those with higher ratios are likely to have households with lower property tax burdens.

Ratio of local taxes other than property (sales and income) to total general revenue of local governments in the state. Alternative tax revenue options provide a fiscal alternative to the property tax. Households in states with a considerable role for alternative local taxes, such as income and sales taxes, are likely to face lower property tax burdens. The effects of this measure are likely to be comingled with the direct assessment of Dillon's Rule, as the availability of alternative revenue options is a major element of its effect.

Acquisition value assessment. California, Michigan, Florida, New Mexico, Arkansas, and Oklahoma require acquisition value assessment for owner-occupied residential properties and have annual adjustment factors on individual property below 5 percent, thus creating a considerable constraint on value adjustments (Haveman and Sexton, 2008). In other words, the basic assessed value for properties will be the most recent transaction value for the parcel, plus a modest maximum annual growth factor, creating a progressively increasing divergence between a parcel's assessed and market value. With such a system legally installed, it is likely that the combined effective tax rate will be lower than would otherwise be anticipated when this assessment system is interacted with (multiplied by) the tenure of the resident. No matter how the market value of a home might be changing, the assessed value of the property would not be subject to significant readjustment until the property sells again.

Homestead exemptions. Twenty-seven states provide homestead exemptions to all resident households. While the exemptions vary in value, they reduce the absolute and relative base of homesteads for property tax purposes. Widespread homestead exemptions are expected to reduce property tax burdens and effective tax rates.

**Property tax circuit breaker rebates as percent of property tax collections.** Circuit breaker programs establish a link between the property tax paid by a household and the income of that household, providing rebates when that relationship is high enough to indicate an overload. The expectation is that more liberal circuit breaker relief for a deserving segment of the population would allow higher property tax levies to be applied. A more generous circuit breaker accommodates higher (gross) property tax burdens.

**Presence of a property tax deferral program.** States that allow deferral of a portion of property tax bills prevent the property tax in any year from imposing an excessive burden on certain taxpayers, usually senior citizens or farmers. That gives governments greater flexibility in application of the tax and, hence, would allow higher tax burdens on the rest of the population.

**Property tax rate classification.** Rate classification systems typically operate by applying higher statutory rates to commercial and industrial properties than to residential properties. The idea is to put greater burden on properties that are not residential. The presence of a classification system – measured here by the ratio of the effective property tax rate on industrial property to the effective property tax rate on residential housing with a median value of $150,000 – would be expected to provide a lower tax burden on households. However, as the value of commercial and industrial property in a community grows, the classification systems also produce a relative price reduction for local resident services financed via property taxes. This could ultimately stimulate higher spending and greater burdens.

**Judicial mandate on education.** More than half the states have been required by court action to increase their spending on primary and secondary education – by requiring higher capital or recurring expenditures or by requiring equalization across districts. States under such a mandate are expected to have higher property tax burdens to deal with the requirements.

**Local debt limits.** Debt limits are often applied to local governments, limiting their ability to finance capital expenditures over time and, therefore, increasing their reliance on current revenues. Some of these limitations heavily constrain access to general obligation debt, while others set levels to such a small percent of tax base (absolute ceiling, or require such stringent approval processes) that they effectively wall off significant debt access. Stringent local debt limits are expected to require higher property tax burdens and rates to finance projects on a pay-before-you-use basis.

**Tax and expenditure limitations.** Forty-seven states have some form of local tax or expenditure limitation imposed upon local government within their boundaries. However, in 15 states, they are (1) remnants of earlier (pre-1960s) provisions, (2) applicable only to a limited number of jurisdictions, (3) applicable only to disclosures, or (4) so recent as to have had no impact. For this analysis, 32 states are considered to have active limitation provisions. This analysis classifies local limitations into two forms: (1) those imposing either an overall or specific property tax or assessment limit (weak), or (2) those imposing a levy limit, general revenue limit, expenditure limit, or a combination of both rate limits and assessment limits (strong). Specific or overall rate limitations can be easily circumvented through assessment increases, and assessment increases limits can be easily circumvented through rate increases and are, therefore, expected to have a lesser effect. However, property tax levy, general revenue and expenditure limits (and rate limits combined with an assessment limit) are expected to have more pronounced effects. We expect that these constraints will lead to lower property tax burdens as local discretion is limited. The estimated model includes binary (0/1) variables to represent the existence of either of these (weak/strong) constraints in a state at the time of the census or survey. In addition, a measure of existence of the "strong" form of limitation is included, identifying the years that have elapsed since its introduction.

**Truth-in-Taxation (Full Disclosure) Law.** Eighteen states require local governments to report when there has been a general revaluation of properties and to adjust rates downward accordingly, unless they disclose that the localities intend to increase their levies by not adjusting those rates. Public hearings are normally required – so that revaluation does not bring stealth tax increases. If the laws work as intended, jurisdictions with such requirements would have lower property tax burdens.

Table 1
**Exploratory Model Results**
**Determinants of Household Property Tax Burdens and Effective Property Tax Rates**
**(simple OLS estimations of partial fixed effects nested unbalanced panel models)**

*Dependent Variables: Property Tax Burden as Percent of Household Income (in log form)/*
*Effective Tax Rate on Property (in log form).*

| Independent variable (parameters for fixed cross-section year effects are omitted) | Household Property Tax Burden | | Property Tax Effective Tax Rate | |
| --- | --- | --- | --- | --- |
| | Parameter Estimate | t-value | Parameter Estimate | t-value |
| Intercept | 0.08794 | 12.67 | 0.05967 | 10.89 |
| Ratio, household's income to median household income in PUMA | -0.46659 | -1779.4 | 0.02865 | 138.43 |
| Ratio, property's value to median residential property value in PUMA | 0.44215 | 1096.19 | -0.17453 | -548.15 |
| Household resident age 65 or > (1 = yes) | 0.14612 | 209.9 | -0.05167 | -94.04 |
| Lot size (1 ≥ Acre) (1 = yes) | -0.12726 | -181.8 | -0.13790 | -249.57 |
| Number of bedrooms | 0.01847 | 41.52 | 0.01311 | 37.34 |
| Total rooms in home | 0.02524 | 109.7 | 0.01577 | 86.83 |
| Age of structure (years) | -0.00099 | -68.65 | -0.00131 | -114.88 |
| Tenure—years current occupants have lived in structure | 0.00229 | 69.19 | 2.71E-005 | 1.04 |
| Agricultural sales greater than $10,000 (1 = yes) | -0.02305 | -7.3 | 0.11050 | 44.34 |
| Business located on property (1 = yes) | 0.01304 | 7.1 | -0.00432 | -2.98 |
| Ratio, per capita local direct general expenditure in the state-to-state per capita income | 7.12000 | 289.08 | 5.21256 | 268.1 |
| Ratio, per capita direct gen. exps. of local govs.: PUMA to entire state | 0.02177 | 82.43 | 0.01435 | 68.84 |
| Ratio, median value of residential property: PUMA to entire state | 0.29534 | 160.5 | -0.45343 | -312.17 |
| Ratio, PUMA median income to state median income | 0.00376 | 1.39 | 0.44605 | 209.38 |
| Percent of PUMA population age < 18 | 0.01164 | 75.45 | 0.00981 | 80.57 |
| Percent of PUMA population age 65 or > | 0.00522 | 40.73 | 0.00251 | 24.85 |
| Percent of total PUMA school enrollment that is in private schools | 0.00325 | 55.22 | 0.00146 | 31.47 |
| PUMA poverty rate in percent | 0.00482 | 26.32 | -0.01700 | -117.57 |
| PUMA per capita income multiplied by poverty rate | -2.40E-007 | -15.89 | 1.62E-006 | 136.07 |
| PUMA employment as percent of total PUMA residents | 0.00215 | 81.06 | 0.00382 | 181.96 |
| PUMA population per square mile | 3.65E-006 | 24.46 | -1.83E-005 | -156.57 |
| Existence of Dillon's Rule (1=yes) | 0.01932 | 22.78 | 0.11399 | 170.27 |
| Ratio, state transfers to local govs. to total local gov. revenue in state | -1.67199 | -265.89 | -2.65306 | -534.48 |
| Ratio, local (non-property) tax revenue to total local revenue in state | -3.28410 | -450.73 | -3.81349 | -663.02 |
| Acquisition value assessment (1 = yes) | 0.32775 | 230.17 | 0.35468 | 315.54 |
| Acquisition value assessment * tenure at residence | -0.01439 | -230.58 | -0.01420 | -288.14 |
| State homestead exemption available to all homeowners (1 = yes) | -0.10539 | -113.22 | -0.14032 | -190.96 |
| Circuit breaker rebates as percent of property tax collections | -0.03887 | -143.32 | -0.06743 | -314.95 |
| Existence of a property tax deferral program (1 = yes) | 0.22619 | 238.55 | 0.09062 | 121.07 |
| Property tax rate classification: industrial burden/residential burden | -0.04246 | -156 | -0.04402 | -204.91 |
| Existence of a judicial mandate on education | 0.24318 | 338.97 | 0.25826 | 456.02 |
| Local debt limitations (1 = yes) | 0.04573 | 46.26 | 0.28785 | 368.8 |
| State wide local government tax / expenditure limitations (1 = yes) | -0.06357 | -66.94 | -0.12508 | -166.86 |
| Years since adoption of "strong" tax / expenditure limitation (1 = yes) | -0.00482 | -99.21 | -0.00777 | -202.63 |
| Existence of Full Disclosure (Truth-in-Taxation) Requirement (1 = yes) | 0.08111 | 87.54 | 0.07021 | 95.98 |
| Coefficient of determination (R-square) | 0.45 | | 0.36 | |
| Number of observations | 8,019,461 | | 8,019,461 | |

ficients. With more than 8 million observations, this is not surprising and statistical significance in itself does not assure substantive significance. Still, many of the parameter estimates convey an interesting (if not important) context to the determinants of the burden of property taxes in the United States and the factors that may shape this burden.

### Household/Property Characteristics

The estimated model focuses on determinants of burden and effective tax rates within and across PUMAs for similarly situated properties and households driven by institutional and structural features of the revenue system across states. To do so it includes (and thus controls for) characteristics of households and properties both individually and relative to median/average characteristic within individual PUMAs and within states. The effects of these characteristics are themselves interesting from a policy perspective.

Our previous investigation has shown property tax burden to be a declining function of income (Mikesell and Mullins, 2008). In this paper, we have made no effort to repeat this result and have not included estimates for this purpose.[17] When measures of relative property value are simultaneously included in the model with a measure of household income, the coefficient for household income is of little interest as a measure of burden distribution across income classes. For example, interpretations of the coefficients for household income and housing value would suggest that households with incomes double the PUMA median face 47 percent lower tax burdens (holding the median housing value relative to the PUMA median at its mean) or that property with a value twice the median in a PUMA results in a 44 percent higher tax burden (holding the ratio of household income to PUMA median household income at its mean). This is the same as concluding that persons with higher income living in housing of average value (or visa versa) have lower (or higher) tax burdens, not unexpected results. However, including household income and property value characteristic simultaneously provides better isolation of differential household burdens associated with community and state fiscal and institutional characteristics. Interpretation of the estimates of effective tax rates are more straight forward. Effective tax rates on property for households with incomes double the PUMA median (controlling for relative housing value) are slightly (3 percent) higher, while 17.5 percent lower for

property valued at twice the PUMA median (controlling for the household income of the occupants). The slightly higher effective tax rate for higher income households (occupying similarly valued properties) may be attributable to the net effect of relief mechanism and assessment practices producing marginally higher effective tax rates on property owned by higher income households. However, reduced effective tax rates on higher valued properties (holding household income constant) suggest that higher income households (in aggregate) will face lower property tax burdens.

Results for determinants of property tax burdens and effective tax rates for the other characteristics of households and property provide additional insight into property tax administration. Age matters for the householder and also for the property. State/local property tax structures impose 14.6 percent higher burdens on households with occupants 65 years of age or older. Alternatively, householders living in older structures experience somewhat lower relative burdens, with burdens declining approximately 1/10 percent per year. Age also matters for effective tax rates. However, in this case, effective tax rates decrease by 5 percent for households with older occupants and by .13 percent per year with the age of the structure. These latter results may reflect effects of age-targeted relief measures or assessment bias.

Tenure also matters. Initial model estimations (not reported) showed a significant annual decline in tax burden with increasing tenure. In addition, a term interacting tenure with age of structure showed a reenforcing effect. This outcome is suggestive of the potential affects of specific reassessment processes that favor tenure, such as reassessment on sale practices. With a parameter indicating the existence acquisition value assessment included in the model and an interaction between it and structure age (see below), the generic effects of tenure reverse. Controlling for assessment processes which favor tenure, burden increases by 0.22 percent per year while effective tax rate is not significantly affected.

Characteristics of structures also seem to matter somewhat. Relative burdens and effective tax rates are approximately 13 percent lower for housing on larger tracts of land (more than one acre) located in lesser urbanized areas. Households that mix income earning activities in the form of agriculture have slightly lower tax burdens while other business uses have slightly higher burdens. Effective tax

rates on the homestead component of agricultural land is, however, 11 percent higher. Irrespective of reported market value, structures with more rooms and bedrooms experience higher relative burdens and higher effective tax rates. For each additional room (above the mean), burdens increase by approximately 3 percent and effective tax rates by 2 percent. For bedrooms, burdens increase 2 percent and effective tax rates by 1.3 percent. This likely reflects the effects of valuation systems reliant on construction, square footage, and design characteristics in addition to market value.

### Relative state / PUMA Economic and Demographic Conditions

We have controlled for PUMA/state context through several measures that are assumed to affect housing property tax burdens. Per capita local government spending as a portion of state per capita income (as an indicator of the magnitude of the local role statewide) has significant affects on property tax burdens and effective tax rates. Holding constant other structural characteristics of the local revenue system, a 1 percentage point increase in the level of state per capita income devoted to local government spending results in a 7 percent increase in property tax burdens and a 5 percent increase in effective tax rates. The relative level of local spending also affects tax burdens and effective tax rates. PUMAs with local government's spending more relative to the average for the state also have higher property tax burdens and effective tax rates (controlling for other factors, including relative property tax base).

Community tax base also affects burden, although the inclusion of other control measures complicates interpretation. Greater median residential property values in a PUMA compared to the state median (with relative spending held constant) is associated with significantly lower effective tax rates. Rates decline .45 percent for each 1 percent increase in property values in the PUMA above the state median. The tax burden model, however, shows increasing tax burdens (.3 percent) with higher median values. This is a function of the existence of controls for household and median incomes being simultaneously included in the model. Within the context of these controls, PUMAs with higher incomes relative to the state experience no change in burden but have higher effective tax rates (increasing by .44 percent per 1 percent increase in relative income).

Increases in levels of dependent populations are also associated with higher property tax burdens and higher effective tax rates. A 1 percentage point increase in the population under 18 (school aged) results in a 1.2 percent increase in tax burdens and a 1 percent increase in effective tax rates. Results for a 1 percentage point increase in the population 65 or older show a .5 percent increase in burden and a .3 percent increase in tax rate. A higher area poverty rate also affects household burden slightly in the positive direction, while affecting effective tax rate negatively. This measure, however, is included in the model with a measure for income diversity (per capita income multiplied by poverty rate). Positive values on this measure indicate greater extremes in income (or more income diversity). Greater extremes somewhat offset the poverty effect with slight burden reductions and tax rate increases. Higher levels of employment (and with it the need to service commuting populations and employer property) increases burden by 1/5 percent for each percentage point increase in employment relative to population. Population density is associated with modest increased burdens and a reduction in effective tax rates.

### State Fiscal/Structural Features, Relief Mechanisms and Tax and Expenditure Limitations.

The focus of this paper is the effect of institutional/structural aspects of the state/local fiscal environment on property taxes and their administration. The intent of the controls introduced in the previous sections of these models is to isolate the effects of these institutional/structural factors.

Constraints on the availability of alternative fiscal instruments produce the need for an increase reliance on property taxes and increased property tax burdens. Households in states classified as employing Dillon's Rule, experienced slightly higher property tax burdens and 11 percent higher effective tax rates. Property tax burdens on households in states that allow local jurisdictions access to alternative tax instruments, such as income and sales taxes, are substantially lower. A percentage point increase in local relative reliance on non-property tax revenue (i.e., sales or income taxes) within a state is associated with 3.3 percent lower household property tax burden and a 3.8 percent reduction in effective tax rates. Similarly states that constrain the ability of local jurisdictions to use debt financing also face higher tax burdens and substantially higher effective tax rates (29 percent). Tax burdens are also lower for households in states which provide more relative

fiscal support to local jurisdictions. Each percentage point increase in state transfers (as a portion of local revenue) is associated with a corresponding 1.7 percent decline in property tax burdens and a 2.7 percent decline in effective tax rates.

Property tax valuation processes and residential relief measures appear to also have significant ramifications for tax burdens. Holding property age and tenure constant, acquisition value assessment is associated with an overall 33 percent increase in tax burdens and a 35 percent increase in effective rates. At first reflection, this result may be surprising until one considers that suppressing tax values on a subset of the housing tax base would necessitate the imposition of higher tax rates across the remainder of properties to collect a given level of property tax revenue. When the existence of acquisition value assessment is interacted with resident household tenure, tax burdens and effective tax rates decline by 1.4 percent per year of residency. Burdens and effective rates differ significantly by tenancy, with higher relative burdens for those with shortest tenure. Residential property tax relief in the form of a homestead exemption available to all homeowners reduces tax burdens by 10.5 percent and effective tax rates by 14 percent. The expectation is that the result is greater relief to owners of lower valued property and a shift of some of the aggregate property tax burden to non-homestead classifications. Similarly, classification itself, though not generally considered a traditional relief mechanism, shifts property tax burdens to non-residential (non-single family homestead) property. For each percentage point increase in the relative effective tax burden on industrial property, the household property tax burdens and effective tax rates decline by approximately 4.3 percent. Circuit breaker relief is also associated with lower household property tax burdens, with burdens declining as the percent of relief increases. The effect is greatest in reducing effective tax rates (at -6.7 percent per 1 percent increase in the relative scale of the circuit breaker program), however, burdens are also reduced significantly (at -3.9 percent). On the other hand, deferral programs apparently allow targeted relief to offset 23 percent higher general tax burdens and 9 percent higher effective tax rates.

External constraints on property taxation or other mechanisms of finance also have significant implication for property tax burdens and effective tax rates. Court intervention in mandating elements of educa-tion finance are associated with substantial increases in burdens (24 percent) and effective tax rates (26 percent). Constraints in the form of either local tax or expenditure limitations also appear to reduce tax burdens and effective tax rates. The adoption of any of these constraints ("weak" or "strong") is associated with a 6 percent reduction in tax burdens and a 12.5 percent reduction in effective tax rates. Further, for each year since the enactment of one of the "strong" forms of these constraints (a levy limit, general revenue limit, expenditure limit, or a combination of both rate limits and assessment limits), burdens decline by ½ percent and effective tax rates decline by 0.8 percent. Lastly, though generally considered a measure intended to reduce property tax burdens, residential property tax burdens are 8 percent higher and effective tax rates 7 percent higher in states with full disclosure provisions. This may reflect the motivation for enactment of these provisions, rather than their effects. However, it may be more likely that the effect of annual public hearings (specifically directed at setting property tax rates) may have normalized the process and created public (and lawmaker) expectations of continuous legislative reconsideration of the intensity of property tax use. If public hearings are to be held annually and local legislative bodies are going to be labeled as raising tax rates (even in situations where levies might hold constant or possibly even decline), the political cost of raising rates to a level beyond the base increase may be reduced compared to an environment in which levy increases occur without legislative action. The fact that "truth-in-taxation" forces annual action (and possibly sets too low a base point for consideration) might very well increase the likelihood of a levy increase above the increment in the base. In this regard, the dogs are no-longer sleeping so they might as well bark.

## CONCLUSION

Structural, administrative, "relief" mechanisms, and external constraints matter significantly in determining property tax burdens and effective tax rates within and between political subdivisions and in the level of local government reliance on this source of revenue. Burdens and rates are driven by, in addition to characteristics of the property and community, (1) the availability of alternative local financing sources and general levels of local autonomy and discretion, (2) the method of valuing property between households, (3) how the housing tax base is taxed

relative to commercial and industrial properties, and (4) the breadth of the availability of homestead exemptions, the existence of deferral programs, and the generosity of circuit breakers. Burdens and effective tax rates are also shaped by (5) the imposition of external constraints in the form of judicial mandates, local debt limitations, local property tax and expenditure limitations, and (6) process of transparency. Selective, targeted relief appears linked to greater relative viability and acceptability of the property tax. However, it is not clear that the array of policy overlays are providing consistent progress toward maintaining or improving the tax's veracity. While not specifically addressed here, the tax, in practice, varies substantially in its burden distribution. However, greater uniformity in residential burdens (the implications of targeted relief withstanding) is associated with greater reliance. Nonuniformity appears to become less acceptable as aggregate burden increases. Interest in provisions for targeted burden relief has increased with the escalation in base valuations. It is not likely that this interest will decline in the face of the housing/financial crisis gripping the nation. However the need of local governments for this robust revenue source will not decline. As a myriad of "reforms" to the property tax are proposed in states across the nations, a better understanding of the determinants of burdens and rates is needed.

## Notes

[1] This is a substantial extension of research presented at the NTA conference last year. This paper focuses on household property tax burdens and effective tax rates within and across substate areas. The initial paper focused most heavily on variations across states and income groups (see Mikesell and Mullins, 2008).

[2] See Table 1 to the conference version of this paper (or Mullins, forthcoming) for classification and rate differentials, homestead exemptions and circuit breakers by state.

[3] See Table 3 to the conference version of this paper (or Mullins, forthcoming) for Tax and Expenditure Limitation Existing Across the 50 states.

[4] While not technically in the category of a limitation, in 1997 the state of Vermont adopted an education finance reform (in response to a state Supreme Court decision), which has substantially altered the level of accessibility of the local property tax base for local education. Above a threshold level, a portion of revenues generated by increased local property tax levies are pooled for distribution across school districts in the state. This has significantly altered the role of the property tax in local finance. New Hampshire has also recently

instituted a state-wide property tax to fund education in response to an order from its Supreme Court to restructure education finance. The role of the property tax is undergoing redefinition. Connecticut also limits assessment increases related to reassessment.

[5] Updated for recent enactment through 2008; for original source see Mullins (2003) and Mullins and Cox (1995).

[6] These counts reflect the number of states that have imposed any of the seven forms of limitations since 1970. It includes all states that have done so, not just those which have limitations currently active. For example two states, Kansas and Minnesota, have repealed specific rate limitations, resulting in 31 states for which they are active. Likewise, Kansas also repealed its levy limit in 1999, leaving 29 states with limits currently in effect.

[7] Washington's assessment increase limit was ruled unconstitutional, leaving 13 active.

[8] General revenue limits were repealed in Minnesota and Nevada during 1993 and 1989, respectively. Restrictions remain in Colorado and California, even though Colorado's TABOR state level restrictions were suspended in 2005.

[9] However, Maine's levy and expenditure limits can be overridden by a simple majority vote of local legislative bodies (or through normal school budget approval processes). A public referenda can be triggered by acquiring signatures from citizens equal to 10 percent of the number voting in the last gubernatorial election to challenge the override.

[10] See Table 4 to the conference version of this paper for details on the full-disclosure requirements in each state.

[11] An extension of this paper will also consider, in detail, variations across household income classes.

[12] Sources for measures related to state fiscal structures as follows: for Dillon's rule see Richardson (2003); for circuit breakers, see Lyons, Farkas, and Johnson (2007), Baer (2008); for deferrals, see National Conference of State Legislatures (2002); for classification, see Minnesota Taxpayers Association (2006); for overlapping governments, see Census Bureau (2002); and for education mandates, see Atkins (2007). Truth-in-taxation and tax and expenditure limitations were compiled by authors. Other data for the study come from several U.S. Department of Commerce sources including: *American Community Survey, Annual Survey of State and Local Government Finances, Census of Governments, Census of Population and Housing, County Business Patterns,* and *USA Counties.*

[13] Observations are nested within PUMAs and PUMAs are nested within states.

[14] We are still in the process of determining the appropriate econometric method of estimation. Preliminary estimates are using OLS with fixed effects for state and year.

[15] Results for fixed cross-section (state) and temporal (year) effects are omitted.

[16] Models were estimated with census household weight applied to improve representativeness, however, results were consistent with or without weights. Top coding of records truncates the value of households in the highest reporting bracket. To avoid underestimating the burden for highest valued category, the extreme category was eliminated. Also, only household reporting minimal income of at least $500 during the calendar year were included in the analysis. Thus, while truncated, the analysis includes the vast majority of households (at over 97 percent).

[17] To evaluate burden relative to income, our previous models were estimated with property value and property characteristics, which are proxies for value removed, to assess the relationship between property tax burden and household income absent controls for property value. Those results showed property tax burden across the United States to be a declining function of income. On average, burdens decline 6 percent for each $10,000 increase in household income. This suggests that either property tax rates or property valuation methods (or both) and/or the ratio of property value to household income varies across and within states and PUMAs in a manner that levies higher relative taxes on the incomes of lower income households.

## References

Atkins, Chris. Appropriation by Litigation: Estimating the Cost of Judicial Mandates for State and Local Education Spending. Washington, D.C.: Tax Foundation, 2007. Tax Foundation Background Paper 55.

Baer, David. *State Handbook of Economic, Demographic & Fiscal Indicators* (7th ed.). Washington, D.C.: American Association of Retired Persons, 2008.

Chamberlain, Andrew. What Does America Think About Taxes? The 2007 Annual Survey of U. S. Attitudes on Taxes and Wealth. Washington, D.C.: Tax Foundation, 2007. Tax Foundation Special Report 154.

Haveman, Mark and Terri A. Sexton. *Property Tax Assessment Limits: Lessons from Thirty Years of Experience.* Cambridge, MA: Lincoln Institute for Land Policy, 2008.

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.

Lyons, Karen, Sarah Farkas, and Nicholas Johnson. *The Property Tax Circuit Breaker: An Introduction and Survey of Current Programs.* Washington, D.C.: Center on Budget and Policy Priorities, 2007.

Mikesell, John L. and Daniel R. Mullins. The Impacts of Property and Household Characteristics and Property Tax Systems on Household Property Tax Burdens: An Analysis from Individual Property Data. *State Tax Notes* 47 (February 2008).

Minnesota Taxpayers Association. 50 State Property Tax Comparison Study 2000. St. Paul, MN: Minnesota Taxpayers Association, 2001.

Minnesota Taxpayers Association. 50 State Property Tax Comparison Study 2005. St. Paul, MN: Minnesota Taxpayers Association, 2005.

Mullins, Daniel R. Popular Processes and the Transformation of State and Local Government Finances. In David L. Sjoquist, ed. *State and Local Finances Under Pressure.* Northampton, MA: Edward Elgar, 2003, pp. 95-162.

Mullins, Daniel R. Fiscal Limitations on Local Choice: The Imposition and Effects of Local Government Tax and Expenditure Limitations. In Sally Wallace, ed. *State and Local Fiscal Policy: Thinking Outside the Box.* Northampton, MA: Edward Elgar, forthcoming.

Mullins, Daniel R. and Kimberly A. Cox. *Tax and Expenditure Limits on Local Governments* (M-194). Washington, D.C.: Advisory Commission on Intergovernmental Relations, 1995.

National Conference of State Legislatures. A Guide to Property Taxes: Property Tax Relief. Washington, D.C.: National Conference of State Legislatures, 2002.

Richardson, Jesse J., Jr., Meghan Zimmerman Gough, and Robert Puentes. Is Home Rule the Answer? Clarifying the Influence of Dillon's Rule on Growth Management. Washington, D.C.: The Brookings Institution, 2003.

U.S. Department of Commerce.
*American Community Survey.* Public Use Microdata Sample Files (PUMS), years 2000 through 2007. Washington, D.C.: Bureau of the Census, various years.
*Annual Survey of State and Local Government Finances.* Washington, D.C.: Bureau of the Census, various years
*Census of Governments* (1987-2002). Machine readable files, Washington, D.C.: Bureau of the Census, various years.
*Census of Population and Housing.* 5 Percent Public Use Microdata Sample Files (PUMS) (1990, 2000). Washington, D.C.: Bureau of the Census, prepared various years.
*County Business Patterns, 2004.* Machine readable files, all fifty states. Washington, D.C.: Bureau of the Census, 2006.
*USA Counties.* Machine readable files. Washington, D.C.: Bureau of the Census, released March 2008, continuously updated.