

**A Reconnaissance of Currently Available
Measures of Effective Property Tax Rates**

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Abstract

In order to have an informed policy discussion on local property tax reform initiatives, researchers, policy makers and the public require accurate and reliable information about the current use of the tax. This paper reviews two popular measures of property tax burden and discusses limitations of those measures. It then focuses on effective property tax rates as a means of gauging the intensity of property tax utilization. Based on a reconnaissance of effective property tax rates, the paper discusses several measures of property tax burdens and effective property tax rates. The paper reports findings of a 50 state survey which investigated the types of effective tax rate information states make available, and how those rates are calculated and reported. Because of different methodologies, the results of these measures vary in terms of both estimates of effective property tax rates and the relative rankings of the states.

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Table of Contents

Popular Measures of Property Tax Burdens	3
Effective Property Tax Rates: Alternative Measures.....	7
AARP: State and Local Property Tax Burdens in 2005	8
National Association of Home Builders.....	10
Minnesota Taxpayers Association 50-State Property Tax Comparison.....	12
District of Columbia Nationwide Comparison of Tax Rates and Tax Burdens	16
District of Columbia Fiscal Policy Institute	18
State Estimates of Effective Property Tax Rates.....	19
Conclusion	24
Bibliography	27

List of Tables

Table 1: States Allowing the Taxation of Personal Property in 2007 by Type of Personal Property	3
Table 2: Personal Property Tax Revenue as a Percent of Total Property Tax Revenue by Metropolitan Area.....	5
Table 3: Composition of State Property Tax Base by Land Use Type.....	6
Table 4: Ten Highest and Lowest Property Tax Burden States in 2005.....	9
Table 5: Effective Property Tax Rates from the ACS, 2005.....	10
Table 6: Effective Property Tax Rates for the Median Priced Residential Property in the Largest City in Each State, 2005.....	13
Table 7: Effective Property Tax Rates for Eight Cities in New Hampshire, 2006 for Residential Homestead Property with a True Market Value of \$150,000	15
Table 8: Effective Property Tax Rates by State, 2005	16

Table 9: States Reporting Effective Tax Rates.....	21
Table 10: Within State Variation of Effective Tax Rates	23
Table 11: Comparison of Effective Tax Rates by Organization.....	24
Table 12: Summary of Characteristics of Various Measures of Effective Property Tax Rates	25
Table 13: Correlation Coefficients Across Organizations.....	26

A Reconnaissance of Currently Available Measures of Effective Property Tax Rates

The residential share of the property tax base has been increasing over time. According to the U.S. Census Bureau data, in 1956 the residential share of gross assessed value was 40.5 percent, increasing to 52.1 percent by 1986. The *relative* share of the property tax base accounted for by residential property increased nearly 30 percent during this 30 year period. (Bowman, 2007) The U.S. Census Bureau stopped collecting this information after 1987. However, there is some anecdotal evidence that this trend has continued over the last 20 years as well. For example, Bowman points out that

- In the 1987 Census of Governments, single-family non-farm residential property accounted for 60.6 percent of the real property tax base in Virginia, while an estimate developed at the University of Virginia for 2004-2005 places this figure at 71 percent.
- The 1987 Census of Governments data show that all residential property accounted for 67.7 percent of the real property tax base in Ohio in 1986, while state data for 2004 place the residential share at 72.9 percent. (Bowman, 2007, p. 32)

As residential property becomes a larger share of the property tax base, residents and voters demand property tax relief. In 2007, three states – Indiana, Georgia and Florida – considered proposals to eliminate the property tax, especially that portion that falls on owner-occupied residential properties. Many more states have implemented various types of limitations intended to curb residential property tax bills.¹

In order to have an informed policy discussion of local property tax reform initiatives, researchers need accurate and reliable data on actual property tax burdens and how they have changed over time, across jurisdictions, and among individuals. The purpose of this paper is to provide a reconnaissance of available sources of information on effective property tax rates. Not surprisingly, there is substantial variation in how property tax burdens are conceptualized and measured.

This paper proceeds through three distinct sections. The opening section reviews two popular measures of property tax burdens often reported in the press which are typically part of any legislative debate on property tax issues. The subsequent section looks at how effective property tax rates are computed by organizations that publish them regularly. The final section reviews information on effective property tax rates available on state websites.

First, however, we need to look at one often quoted effort to estimate state and local tax burdens that considers how the final economic incidence of a tax might differ from the initial impact of the tax. This annual study is conducted by the Tax Foundation. Specifically, the Tax Foundation has published state and local tax burden estimates by

¹ For more information on such limitations see Brunori *et al*, 2008.

state every April since 1990. The calculations use the latest and most authoritative government data; they include all state and local taxes and are the most widely cited measures of state and local tax burdens. (Dubay, 2007a, p. 10)

The most recent report concludes that “State and local taxes will consume a record-setting 11 percent of the nation’s income in 2007.” (Dubay, 2007a, p. 1) In part, this record level of state and local taxes is a result of significant increases in property taxes because local government officials have not ratcheted down property tax rates enough to offset increases in the market values of real estate between 2001 and 2006. (Dubay, 2007a, p. 2)

The approach used by the Tax Foundation starts with the most recent data on total state and local tax collections as reported by the Bureau of Economic Analysis (BEA). Seven tax categories from the National Income and Product Accounts are used in the BEA’s analysis: personal current taxes; taxes on corporate income; sales taxes; property taxes; estate and gift taxes, other taxes and contributions for government social insurance. These data, however, are not available on a state-by-state basis from BEA. To generate the data it needs, the Tax Foundation allocates the total state and local tax collection figure reported by BEA to individual states in the same proportions as state tax collections and local tax collections are reported by the U.S. Census Bureau. To some degree, this allocation process undermines some of the benefit of using the BEA’s most current data on state and local tax collections because it generally ignores changes in relative shares of state and local taxes since the last Census publication.

The major innovation of the Tax Foundation’s burden analysis is the focus on taxes paid by residents in each state. In order to more accurately reflect the true tax burden on residents of individual states, the Tax Foundation utilizes a geographical incidence analysis for the purpose of shifting tax burdens from the state of collection to the taxpayer’s state of residence. For example, the ultimate incidence of severance taxes for each state is estimated by its share of receipts deposited in the Federal Highway Trust Fund by states as reported by the Department of Transportation. Similar adjustments are made for taxes on tourism and corporate income. For example, economists generally agree that corporate taxes ultimately are shifted to final consumers, employees or shareholders. The Tax Foundation allocates one-third of corporate taxes to each group. (Dubay, 2007b, pp. 2-3)

Once the per capita state and local taxes are determined for each state, they are divided by per capita state income to determine overall tax burdens. The Tax Foundation uses Net National Product (NNP), calculated by BEA, as its measure of income. Net National Product is not reported by BEA on a state-by-state basis. For the Tax Foundation’s calculations of state and local tax burdens by state, NNP is allocated to individual states according to each state’s share of personal income, which is available by state from the BEA. (Dubay, 2007b, p. 5-7)

While the Tax Foundation’s measures of state and local tax burdens are widely used and make some adjustment for the shifting of tax burdens to out-of-state residents, they do

not report effective taxes for individual taxes like property taxes, and, thus are not helpful for explorations of this subject.

Popular Measures of Property Tax Burdens

Two popular, and often reported, measures of property tax burdens that facilitate comparison across states and jurisdictions within states are property taxes per capita and property taxes per \$1,000 of personal income. For a number of reasons, however, these are imperfect measures of property tax burden and should be used with caution.

Typically, these measures of property tax burden start with property tax collections as reported by the U.S. Census Bureau, which are defined to include taxes on all property – both real and personal. Specifically, the U.S. Census Bureau defines property to include real property (e.g., land and structures) as well as personal property (e.g. tangible property such as automobiles and intangible property such as bank accounts).

There is substantial variation across the 50 states in terms of how governments tax personal property. Table 1 contains information on which states tax three of the most commonly taxed types of personal property: motor vehicles; inventory; and, machinery and equipment. As of 2007, eight states do not tax personal property at all.² Nineteen states have provisions to tax motor vehicles as personal property; 18 states have provisions to tax inventories as personal property; and 40 states have provisions to tax machinery and equipment as personal property.

Table 1: States Allowing the Taxation of Personal Property in 2007 by Type of Personal Property*

State	Personal Property Tax Allowed	Motor Vehicles	Inventory	Machinery and Equipment
Alabama	Yes	Yes	Yes	Yes
Alaska	Yes	No	Yes	Yes
Arizona	Yes	No	No	Yes
Arkansas	Yes	Yes	Yes	Yes
California	Yes	No	No	Yes
Colorado	Yes	No	No	Yes
Connecticut	Yes	Yes	No	Yes
Delaware	No	No	No	No
Florida	Yes	No	No	Yes
Georgia	Yes	Yes	Yes	Yes
Hawaii	No	No	No	No
Idaho	Yes	No	No	Yes

² States that do not tax personal property are Delaware, Hawaii, Iowa, Illinois, North Dakota, New York, Pennsylvania, and South Dakota.

Illinois	No	No	No	No
Indiana	Yes	Yes	No	Yes
Iowa	No	No	No	No
Kansas	Yes	Yes	No	Yes
Kentucky	Yes	Yes	Yes	Yes
Louisiana	Yes	No	Yes	Yes
Maine	Yes	Yes	Yes	Yes
Maryland	Yes	No	No	No
Massachusetts	Yes	Yes	Yes	Yes
Michigan	Yes	Yes	No	Yes
Minnesota	Yes	No	No	Yes
Mississippi	Yes	Yes	Yes	Yes
Missouri	Yes	Yes	No	Yes
Montana	Yes	No	No	Yes
Nebraska	Yes	No	No	Yes
Nevada	Yes	No	No	Yes
New Hampshire	Yes	No	No	No
New Jersey	Yes	No	No	Yes
New Mexico	Yes	Yes	Yes	Yes
New York	No	No	No	No
North Carolina	Yes	Yes	No	Yes
North Dakota	No	No	No	No
Ohio	Yes	No	Yes	Yes
Oklahoma	Yes	No	Yes	Yes
Oregon	Yes	No	No	Yes
Pennsylvania	No	No	No	No
Rhode Island	Yes	No	Yes	Yes
South Carolina	Yes	Yes	No	Yes
South Dakota	No	No	No	No
Tennessee	Yes	Yes	No	Yes
Texas	Yes	Yes	Yes	Yes
Utah	Yes	No	Yes	Yes
Vermont	Yes	No	Yes	Yes
Virginia	Yes	Yes	Yes	Yes
Washington	Yes	No	No	Yes
West Virginia	Yes	Yes	Yes	Yes
Wisconsin	Yes	No	No	Yes
Wyoming	Yes	No	No	Yes

Source: *Significant Features of the Property Tax*. Lincoln Institute of Land Policy and George Washington Institute of Public Policy.

The differential treatment of personal property for tax purposes across states results in significant variation among states in the composition of property tax revenues reported by the U.S. Census Bureau. For example, Table 2 reports personal property tax revenues for local governments within six metropolitan areas – Baltimore, Las Vegas, Miami, Milwaukee, Richmond, and San Francisco. The proportion of total property taxes generated from taxes on personal property varies significantly across these metropolitan areas. Personal property taxes account for 27% of all property tax revenues in the Richmond metropolitan area, 11.6% of the property tax revenues in the Las Vegas area, and 15.4% in the Baltimore metropolitan area. In San Francisco, Miami and Milwaukee, personal property taxes make up a much smaller proportion of overall property tax revenues, as personal property taxes account for 5.7%, 4.3% and 1.6% of property tax revenues respectively. (Atkins, Curran and Bell, 2005, p. 22)

Table 2: Personal Property Tax Revenue as a Percent of Total Property Tax Revenue by Metropolitan Area

	Personal Property Tax Revenue	Total Property Tax Revenue	Percent of Total Tax Revenue From Personal Property Tax
Baltimore, MD	\$352,972,944	\$2,294,262,000	15.40%
Las Vegas, NV	\$127,892,864	\$1,105,352,000	11.60%
Miami, FL	\$94,801,204	\$2,215,885,000	4.30%
Milwaukee, WI	\$31,202,901	\$1,972,256,000	1.60%
Richmond, VA	\$260,924,933	\$965,321,000	27.00%
San Francisco, CA	\$127,633,301	\$2,223,996,000	5.70%

Source: Atkins, Curran and Bell, 2005, Table 5, p. 22.

The variation in relative importance of personal property tax collections across these six metropolitan areas reflects the different ways states define and measure personal property. In Virginia personal property is especially significant for local governments, because Virginia includes automobiles as personal property for tax purposes. In the Baltimore metropolitan area, some railroad and public utilities (RPU) property, which typically includes both real and personal property, are included as personal property. Las Vegas includes as business personal property all hotel and gambling equipment as well as other equipment, which can be substantial. (Atkins, Curran and Bell, 2005, p. 22)

Once an appropriate and consistent estimate of property tax collections is determined for each state, that number is typically divided by the number of residents in the state, or by the total personal income in the state, to estimate property tax burdens per capita or as a share of state personal income. This might be a reasonable approach to comparing the relative impact of property taxes across states if the property tax base in each state were identical. However, there are substantial differences across states in the composition of

the property tax base (especially the share of a state’s property tax base accounted for by commercial and industrial properties) which makes cross-state comparisons of per capita property taxes and property taxes per \$1,000 personal income difficult to interpret.

Problems interpreting these common measures arise when corporations do business with out-of-state customers. This is because, as is often argued, corporations do not pay property taxes, people do. So while the business entity in a state may actually pay the property tax bill, a share of those payments do not come out of resident income and are not paid by state residents. Corporations will first try to pass the cost of doing business, including property taxes paid, forward to customers in the form of higher prices. If a company is successful in that strategy, *and it only sells to in-state customers*, then such property taxes would be paid by residents from state personal income. But to the extent such taxes are exported to out-of-state customers; taxes will not be entirely paid by residents from state personal income. Thus, the larger the share of the property tax base attributable to commercial and industrial property, the more likely it will be that some portion of property taxes will be paid by non-residents thereby undermining the comparability across states of traditional measures of property tax burdens.

To the extent that a company’s property taxes cannot be shifted forward to consumers through higher prices, the firm will try to shift them backward to employees or, failing that, the firm will incur lower profits thereby impacting those who hold shares of the company. In any case, the greater the share of the property tax base due to commercial and industrial properties, the less reliable are cross-state comparisons of property tax burdens based on traditional measures of property taxes per capita or property taxes per \$1,000 personal income.

Table 3 contains information on the relative importance of various land use types across states. These data reflect the most recent data on the composition of a state’s property tax base available from each state’s website. Not all states, however, provide data on the composition of their property tax base by land use type on their website. Data for 20 states are provided in Table 3.

Table 3: Composition of State Property Tax Base by Land Use Type*

	Residential	Agricultural	Commercial and Industrial	Other
Alaska	58.35%	0.04%	25.63%	15.98%
Colorado	46.08%	1.10%	30.78%	22.05%
Florida	50.53%	3.52%	11.85%	34.10%
Idaho	66.32%	4.43%	23.95%	5.30%
Indianapolis	55.80%	5.37%	23.03%	15.81%
Iowa	44.17%	18.61%	30.17%	7.06%
Maryland	70.18%	1.85%	16.15%	11.82%
Massachusetts	84.58%	0.00%	13.13%	2.29%
Michigan	68.20%	2.60%	20.12%	9.07%
Missouri	52.02%	1.86%	20.87%	25.25%
Montana	43.72%	7.59%	15.91%	32.78%

New Jersey	74.78%	0.83%	19.34%	5.05%
North Carolina	77.92%	0.00%	19.30%	2.78%
North Dakota	41.00%	31.18%	22.28%	5.53%
Ohio	73.77%	4.03%	22.15%	0.06%
Oklahoma	67.08%	23.32%	9.60%	0.00%
Oregon	48.04%	0.00%	6.23%	45.74%
Pennsylvania	70.51%	3.92%	23.51%	2.06%
South Dakota	39.08%	34.80%	23.60%	2.52%
Utah	45.92%	0.00%	19.79%	34.29%

Source: Significant Features of the Property Tax. Lincoln Institute of Land Policy and George Washington Institute of Public Policy.

*Data across states are not perfectly comparable as the type of properties included in each category varies based on the state definition.

The share of a state’s property tax base attributable to residential property ranges from 85 percent in Massachusetts to just 39 percent in South Dakota. In three of the 20 states listed in Table 3, residential property accounts for 75 percent or more of the total property tax base – New Jersey, North Carolina and Massachusetts. In seven states residential property accounts for less than 50 percent of the property tax base – Colorado, Iowa, Montana, North Dakota, Oregon, South Dakota, and Utah.

The variation across states in the relative importance of commercial and industrial property is not as great as for residential property. The share of a state’s property tax base attributable to commercial and industrial property ranges from 31 percent in Colorado to less than seven percent in Oregon – a 25 percentage-point difference. Approximately 15 percent of the states listed in Table 3 have commercial and industrial property accounting for more than 25 percent of the state’s total property tax base – Alaska, Colorado, and Iowa. In four states commercial and industrial property accounts for less than 15 percent of the state’s property tax base – Florida, Massachusetts, Oklahoma and Oregon.

Given the complicated property tax landscape across the 50 states, one should proceed with caution when interpreting these two common measures of property tax burden. The next section turns to a discussion of alternative measures of effective property tax rate.

Effective Property Tax Rates: Alternative Measures

The previous section reviewed two popular measures of property tax burden often published in the press and utilized in policy debates. Neither measure relates property tax liabilities, or payments, to the actual base of the tax – the market value of property. Thus, a preferred, and more typical, means of exploring the differential impact of property taxes across properties is to look at effective property tax rates across properties or jurisdictions. Effective tax rates relate tax liabilities to the actual base of the tax. For example, effective income tax rates look at total income tax liabilities relative to the base of the tax, personal income. Similarly, effective property taxes compare tax liabilities to

the base of the tax, assessed value. This is in contrast to measures that compare property tax liabilities, or payments, to income, which is a measure of burden. Property tax burdens, relative to income, are useful for some purposes, but they do not tell you anything about how heavily the tax is being used. For that purpose we need to compute effective property tax rates that compare the tax liability with the tax base.

The US Census Bureau reported, as part of the Census of Governments, information on assessed values and property tax revenues by state. These data could be used to compute effective tax rates by dividing property tax revenues by assessed value for each state. Census stopped compiling and publishing these data after the 1992 Census of Governments. The US Census Bureau now reports, as part of the Statistical Abstract of the US, effective property tax rates for the largest city in each state as calculated by the District of Columbia (discussed below).³

AARP: State and Local Property Tax Burdens in 2005⁴

In May 2007 the AARP Public Policy Institute published a report on state and local property tax burdens in 2005. (Baer, 2007) The purpose of the report is to provide policymakers with information on residential property tax burdens across states and demographic groups, so as to assist them with their policy deliberations.

For the purposes of the AARP study, property tax burdens were defined as the ratio of property taxes divided by a measure of family income. Data were obtained from the 2005 American Community Survey (ACS) conducted by the U.S. Census Bureau. The study calculates the overall median state and local residential property tax burden for three groups: all homeowners, homeowners under age 65, and homeowners age 65 and older. AARP used property taxes and income for each household to calculate the median property tax burden in each state. They followed these steps in calculating property tax burdens by state:

1. Income for each household was calculated by including income from family members and any unmarried partners in the household.
2. Household property taxes were reported in ranges rather than actual amounts and the midpoint of each range was assumed to be the amount each household paid in property taxes.⁵
3. After calculating household income and property taxes, the property tax burden was calculated for each of the three groups. The median property tax burden

³See Statistical Abstract of the US at the following address:
http://www.census.gov/compendia/statab/cats/state_local_govt_finances_employment/local_government_finances.html.

⁴ The methodology summarized in this section is drawn from Baer, 2007.

⁵ Ranges are in \$50 increments from \$1 to \$999; \$100 increments from \$1,000 to \$4,999; \$500 increments from \$5,000 to \$5,999; and \$1,000 increments from \$6,000 to \$9,999. The highest range is \$10,000 or more in property taxes. Taxes falling in this highest range were estimated to be \$15,000.

for each group was used as the best estimate for the overall state property tax burden.

Table 4 reports the results from the AARP study of the ten states with the highest and lowest property tax burdens. These property tax burden measures relate property tax liabilities to household income.

Table 4: Ten Highest and Lowest Property Tax Burden States in 2005

All Homeowners		Homeowners Under Age 65		Homeowners Age 65+	
State	Median Property Tax Burden* (%)	State	Median Property Tax Burden* (%)	State	Median Property Tax Burden* (%)
Ten Highest Property Tax Burden States					
New Jersey	6.5	New Jersey	5.8	New Jersey	10.5
New Hampshire	5.6	New Hampshire	5.2	New Hampshire	8.4
Vermont	4.9	Vermont	4.4	Connecticut	8.3
Connecticut	4.9	Connecticut	4.4	Vermont	7.6
Wisconsin	4.7	New York	4.3	Rhode Island	7.3
New York	4.7	Wisconsin	4.3	Wisconsin	7.3
Rhode Island	4.5	Illinois	4.2	Massachusetts	7
Illinois	4.4	Rhode Island	4.1	New York	6.3
Massachusetts	4	Texas	3.6	Illinois	5.4
Pennsylvania	3.5	Massachusetts	3.5	Pennsylvania	5.2
Ten Lowest Property Tax Burden States					
Louisiana	0.3	Louisiana	0.3	Louisiana	0.3
Alabama	0.6	Alabama	0.6	Mississippi	0.4
Mississippi	0.9	West Virginia	0.9	Alabama	0.6
West Virginia	0.9	Arkansas	1	West Virginia	0.9
Arkansas	1.1	Mississippi	1	Delaware	1.4
Hawaii	1.2	Hawaii	1.2	Arkansas	1.5
Delaware	1.3	Wyoming	1.2	South Carolina	1.5
South Carolina	1.3	Delaware	1.2	Hawaii	1.6
Wyoming	1.3	South Carolina	1.3	Oklahoma	1.6
Oklahoma	1.4	Oklahoma	1.3	Kentucky	1.7

Source: Baer, 2005, Table ES-1, pp. ii-iii.

*The property tax burden for each household equals the ratio of property taxes divided by the combination of family income plus income of any unmarried partner.

Data from the ACS is self-reported data. Question 20 on the Housing portion of the survey simply asks “What are the annual real estate taxes on this property?” The accuracy of such self-reported data must always be interpreted with caution, and any response bias may not be consistent across respondents. This is a particular concern with respondents over 65. For example, seniors may be eligible for property tax relief programs that do not directly reduce the property tax bill. It is important, therefore, to know if the numbers being reported are gross or net property taxes; that is, have any

property tax relief measures, especially those targeted at seniors, been netted out of the property tax liability? The answer to this question will vary across responding households depending, in part, on how much time they take to determine the answer to the survey question. This is an important issue relative to comparability of data and trustworthiness of conclusions, because the question asks what the real estate taxes are on a property, not how much an individual household paid in property taxes. Households may, however, incorrectly respond with the latter rather than former interpretation, skewing the results. Similarly, sometimes property tax bills include charges for specific services like solid waste collection and disposal. Those costs should not be included in the numbers reported to the American Community Survey.

National Association of Home Builders

The National Association of Home Builders (NAHB) is another organization which estimates effective property tax rates on a regular basis. Like the AARP, the NAHB utilizes data from the 2005 American Community Survey (ACS) and calculates effective property tax rates for each state and the District of Columbia.

Unlike the AARP, however, the NAHB expresses property taxes in relation to the value of property, not household income. The NAHB determines the median home value for each state from the ACS. It then determines the median real estate taxes paid per home and presents that as tax rates per \$1,000 of home value. (Siniavskaia, 2007)

Table 5 presents data for each state on the effective property tax rate for the AARP and the NAHB. Effective property tax rates relative to personal income as calculated by the AARP range from 6.5 percent in New Jersey to 0.3 percent in Louisiana. Effective property tax rates relative to median home value as calculated by NAHB range from a high of 1.8 percent in Wisconsin and Texas to 0.2 percent in Hawaii and Louisiana. While the state rankings are not identical under the two approaches, there is a correlation coefficient of 0.802 between the two rankings.

Table 5: Effective Property Tax Rates from the ACS, 2005

State	AARP Effective Property Tax Rates Relative to Personal Income (percent)	NAHB Estimate of Effective Property Tax Rates Relative to Median Home Value (percent)
Alabama	0.6	0.31
Alaska	2.8	1.137
Arizona	1.9	0.611
Arkansas	1.1	0.525
California	3.1	0.477
Colorado	2	0.581
Connecticut	4.9	1.424
Delaware	1.3	0.395
District of Columbia	1.8	0.376
Florida	2.8	0.789

Georgia	1.8	0.712
Hawaii	1.2	0.204
Idaho	2.4	0.909
Illinois	4.4	1.579
Indiana	2	0.943
Iowa	2.6	1.271
Kansas	2.4	1.24
Kentucky	1.5	0.667
Louisiana	0.3	0.172
Maine	3.3	1.122
Maryland	2.8	0.771
Massachusetts	4	0.823
Michigan	3.2	1.236
Minnesota	2.6	0.814
Mississippi	0.9	0.503
Missouri	1.9	0.822
Montana	2.8	0.995
Nebraska	3.3	1.669
Nevada	2.3	0.51
New Hampshire	5.6	1.633
New Jersey	6.5	1.603
New Mexico	1.5	0.563
New York	4.7	1.188
North Carolina	1.9	0.757
North Dakota	2.6	1.497
Ohio	3	1.233
Oklahoma	1.4	0.713
Oregon	3.3	0.949
Pennsylvania	3.5	1.469
Rhode Island	4.5	1.092
South Carolina	1.3	0.568
South Dakota	2.7	1.381
Tennessee	1.7	0.696
Texas	3.4	1.817
Utah	1.9	0.676
Vermont	4.9	1.635
Virginia	2.3	0.668
Washington	3.3	0.988
West Virginia	0.9	0.461
Wisconsin	4.7	1.82
Wyoming	1.3	0.546

Minnesota Taxpayers Association 50-State Property Tax Comparison⁶

The Minnesota Taxpayers Association (MTA), in cooperation with other member states of the National Taxpayers Conference, prepares periodically a study comparing effective property tax rates across states. In contrast to statutory rates that are typically applied to taxable values to determine tax liabilities for individual properties, the MTA uses effective tax rates to express the relationship between net property taxes and true market value of individual properties. These measures of effective property tax rates allow for more meaningful comparisons across jurisdictions because they include the effects of all statutory tax provisions as well as the effects of local assessment practices.

Reports have been prepared for tax years 1995, 1998, 2000, 2002, 2004 and 2005. The study compares effective property tax rates for the largest city and a typical rural city in each state. The study computes effective property tax rates for four classes of property – homestead, commercial, industrial and apartments. For owner-occupied housing, the most recent years look at effective property tax rates for homesteads valued at \$70,000, \$150,000 and \$300,000.

The MTA approach to calculating effective property tax rates assumes that the property tax calculation has five distinct components:

- a “true” market value (TMV)
- a local assessment/sales ratio
- a statutory classification rate to determine the proportion of the assessor’s estimated market value that is taxable (CR)
- the total local property tax rate (TR)
- applicable property tax credits (C)

Thus the net local property tax for each parcel of property can be written

$$\text{Net Property Tax} = \text{TMV} \times \text{SR} \times \text{CR} \times \text{TR} - \text{C}$$

The starting point for these calculations is with the true market value of a parcel of property which is determined in the local real estate market consisting of arm’s length transactions between willing buyers and sellers. Three homestead values are used as constants across states because the goal of the study is to compare the effects of property tax structures across states.

Starting with the assumed true market values, the study then adjusts those values with the use of assessment/sales ratios applicable to the location and type of property being studied. These ratios are typically county-level ratios for specific classes of property.⁷ By applying assessment/sales ratios, the MTA is recognizing that a homestead with a true

⁶ The discussion of the methodology used by the Minnesota Taxpayers Association to calculate effective property tax rates is summarized from Minnesota Taxpayers Association (2005).

⁷ Some states, however, do not calculate ratios for each land use type. For example, New Hampshire calculates assessment-sales ratios using all sales from all types of properties.

market value of \$70,000 may be carried on the tax roll of individual jurisdictions at \$65,000 or \$50,000 depending on assessment practices unique to each jurisdiction.

The next step in the process of calculating effective property tax rates is to apply statutory classification or differential assessment schemes to the assessor’s estimate of market value. Not all states have differential assessment schemes or classification by land use type. In those cases, a homestead assessed at \$100,000 and a business with the same assessment would pay identical property taxes and their effective property tax rates would be the same.

Once taxable values for each parcel are determined, as discussed above, they are multiplied by the statutory tax rate applicable in each jurisdiction. The tax rate used is the total aggregate tax rate which includes the tax rate for all taxing jurisdictions in the state which typically levy property taxes -- e.g. cities, counties, and school districts. Special assessments were excluded from these calculations.

Multiplying the tax base by the applicable rate determines a gross tax liability for each property. The final step in the tax calculation is to apply any general deductions from the gross property tax calculations. This might include such things as tax credits and circuit-breaker refunds. These net tax liabilities are then compared with true market value for each individual property to determine effective property tax rates.

The MTA study calculates effective property tax rates for hypothetical properties in four classes of property – residential homesteads, commercial, industrial and apartments. Effective property tax rates are calculated for three values of residential homestead properties and for the median value residential property in the largest city in each state and in a representative rural area. Table 6 presents effective property tax rates for the median priced residential property in the largest city in each state for taxes payable in 2005.

According to this measure of effective property tax rates, Honolulu has the lowest effective property tax rate at just 0.36 percent. The highest effective property tax rate is in Detroit, Michigan at 3.23 percent. Nationally, the average effective property tax rate is 1.35 percent.

Table 6: Effective Property Tax Rates for the Median Priced Residential Property in the Largest City in Each State, 2005

State	Largest City	Effective Tax Rate	Ranking
Alabama	Birmingham	0.66%	47
Alaska	Anchorage	1.42%	20
Arizona	Phoenix	1.04%	37
Arkansas	Little Rock	1.18%	27
California	Los Angeles	1.14%	30
Colorado	Denver	0.51%	50
Connecticut	Bridgeport	1.81%	11

Delaware	Wilmington	1.03%	38
District of Columbia	Washington	0.83%	43
Florida	Jacksonville	1.52%	15
Georgia	Atlanta	1.16%	29
Hawaii	Honolulu	0.36%	51
Idaho	Boise	1.17%	28
Illinois	Chicago	1.50%	16
Indiana	Indianapolis	1.39%	21
Iowa	Des Moines	1.73%	12
Kansas	Wichita	1.19%	26
Kentucky	Louisville	1.13%	32
Louisiana	New Orleans	0.92%	41
Maine	Portland	1.87%	9
Maryland	Baltimore City	2.29%	4
Massachusetts	Boston	0.68%	46
Michigan	Detroit	3.23%	1
Minnesota	Minneapolis	1.29%	23
Mississippi	Jackson	1.32%	22
Missouri	Kansas City	1.45%	18
Montana	Billings	1.05%	36
Nebraska	Omaha	2.06%	7
Nevada	Las Vegas	1.13%	31
New Hampshire	Manchester	1.59%	13
New Jersey	Newark	2.17%	6
New Mexico	Albuquerque	0.97%	39
New York	New York City	0.64%	49
North Carolina	Charlotte	1.13%	33
North Dakota	Fargo	1.99%	8
Ohio	Columbus	1.49%	17
Oklahoma	Oklahoma City	1.10%	34
Oregon	Portland	1.24%	25
Pennsylvania	Philadelphia	2.23%	5
Rhode Island	Providence	1.43%	19
South Carolina	Columbia	1.05%	35
South Dakota	Sioux Falls	1.25%	24
Tennessee	Memphis	1.87%	10
Texas	Houston	2.33%	3
Utah	Salt Lake City	0.80%	45
Vermont	Burlington	1.56%	14
Virginia	Virginia Beach	0.84%	42

Washington	Seattle	0.97%	40
West Virginia	Charleston	0.82%	44
Wisconsin	Milwaukee	2.47%	2
Wyoming	Cheyenne	0.65%	48

Source: Minnesota Taxpayers Association, *50-State Property Tax Comparison Study, Payable 2005*

The effective property tax rates calculated by the MTA are for the largest city in each state. The methodology used to calculate these effective property tax rates is consistent across states and generally across MTA studies. These effective property tax rates provide an overview of how property taxes vary across states. They do not, however, provide any information about how property taxes vary within a state, except for comparing the largest city with a typical rural area in the state.

Table 7 presents data on effective property tax rates for eight cities in New Hampshire for taxable 2006. The MTA study includes the largest city in New Hampshire, Manchester. Using the MTA methodology, the effective tax rate in Manchester was 1.492 percent in 2006. Other than Salem, this is the lowest effective property tax rate reported in Table 7, in part because large cities tend to have more diverse revenue structures than smaller cities and therefore rely less on property taxes. Effective property tax rates for these cities range from a high of 1.919 percent in Derry to a low of just 1.147 percent in Salem. In other words, the effective property tax rate in Derry is nearly two-thirds greater than the effective property tax rate in Salem and nearly 30 percent greater than the effective property tax rate in Manchester. Within-state variation in effective property tax rates across cities is not captured by the MTA study and these differences can be substantial as illustrated in Table 7 for eight cities in New Hampshire.

Table 7: Effective Property Tax Rates for Eight Cities in New Hampshire, 2006 for Residential Homestead Property with a True Market Value of \$150,000

	True Market Value	Sales Ratio	Statutory Tax Rate	Total Tax	Effective Tax Rate
Manchester	\$150,000	0.526	0.02836	2,237.60	1.49%
Nashua	\$150,000	0.992	0.01632	2,428.42	1.62%
Derry	\$150,000	0.71	0.02703	2,878.70	1.92%
Merrimack	\$150,000	0.812	0.02307	2,809.93	1.87%
Concord	\$150,000	0.947	0.01977	2,808.33	1.87%
Dover	\$150,000	0.879	0.01942	2,560.53	1.71%
Salem	\$150,000	0.52	0.02206	1,720.68	1.15%
Rochester	\$150,000	0.955	0.0173	2,478.23	1.65%

Source: Calculations by Bethany Paquine.

District of Columbia Nationwide Comparison of Tax Rates and Tax Burdens⁸

The government of the District of Columbia publishes annually a nationwide comparison of tax rates and tax burdens. The report starts with the recognition that a jurisdiction's revenue system reflects its revenue needs, tax base, the intergovernmental system within which it operates, constitutional and legal limitations it faces, taxpayer demand for services, and other factors. To capture these differences, the study compares tax burdens in 51 different locations for a hypothetical family of three. Specifically, the major state and local tax burdens for the family in the District of Columbia are compared with comparable burdens in the largest city in each state.

The four major taxes included in the study are the individual income tax, real property tax on residential property, general sales and use tax, and automobile taxes, including gasoline tax, registration fees, excise tax and personal property tax. All tax burdens reflect state and local tax rates. Tax burdens are compared for a hypothetical family that consists of two wage-earning spouses and one school-age child. The gross family income levels are assumed to be \$25,000, \$50,000, \$75,000, \$100,000 and \$150,000. Housing values across income levels are based on data from the American Community Survey conducted annually by the U.S. Census Bureau and are adjusted by linear regression for the different income levels.

Real property tax burdens in the 51 cities included in the study are a function of each city's residential real estate values, the ratio of assessed value to market value, the tax rate, and various homeowner exemptions and credits. ACS data were used to determine the median house value at specific income levels.

It appears that the effective property tax rates reported in the D.C. government study are simply the nominal, or legal, tax rate applicable in each city multiplied by the assessment/sales ratio for the city. When this effective property tax rate is applied to the housing value estimated for each income level, a gross tax liability is determined. The D.C. government approach to calculating effective property tax rates does not net out exemptions and credits to determine a net effective property tax rate, a limitation of this measure.

Table 8 reports the effective property tax rates for the largest city in each state and the District of Columbia using the methodology just described. The effective property tax rates range from 3.21 percent in Indianapolis, Indiana to just 0.38 percent in Honolulu, Hawaii. Nationally, the average effective property tax is 1.64 percent.

Table 8: Effective Property Tax Rates by State, 2005

State	City	Nominal Rate	Assessment Level	Effective Tax Rate	Ranking
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⁸ The discussion of the methodology used by the government of the District of Columbia in their study of effective property tax rates across the county is drawn from *Tax Rates and Tax Burdens in the District of Columbia – A Nationwide Comparison, 2005*.

Alabama	Birmingham	6.95%	10.00%	0.70%	48
Alaska	Anchorage	1.63%	100.00%	1.63%	24
Arizona	Phoenix	14.09%	10.00%	1.41%	31
Arkansas	Little Rock	6.90%	20.00%	1.38%	32
California	Los Angeles	1.10%	100.00%	1.10%	41
Colorado	Denver	8.36%	8.00%	0.67%	50
Connecticut	Bridgeport	4.23%	70.00%	2.96%	4
Delaware	Wilmington	2.94%	49.20%	1.45%	29
District of Columbia	Washington	0.96%	100.00%	0.96%	45
Florida	Jacksonville	1.86%	100.00%	1.86%	17
Georgia	Atlanta	4.20%	40.00%	1.68%	22
Hawaii	Honolulu	0.38%	100.00%	0.38%	51
Idaho	Boise	1.76%	98.90%	1.75%	18
Illinois	Chicago	7.30%	20.40%	1.49%	27
Indiana	Indianapolis	3.21%	100.00%	3.21%	1
Iowa	Des Moines	4.66%	48.00%	2.24%	10
Kansas	Wichita	11.35%	11.50%	1.30%	33
Kentucky	Louisville	1.26%	100.00%	1.26%	34
Louisiana	New Orleans	17.17%	10.00%	1.72%	19
Maine	Portland	2.01%	81.00%	1.63%	23
Maryland	Baltimore	2.31%	100.00%	2.31%	9
Massachusetts	Boston	1.23%	100.00%	1.23%	37
Michigan	Detroit	6.77%	28.60%	1.94%	15
Minnesota	Minneapolis	1.36%	90.70%	1.24%	36
Mississippi	Jackson	17.11%	10.00%	1.71%	20
Missouri	Kansas City	7.91%	19.00%	1.50%	26
Montana	Billings	1.96%	80.00%	1.57%	25
Nebraska	Omaha	2.10%	96.00%	2.01%	14
Nevada	Las Vegas	3.11%	35.00%	1.09%	42
New Hampshire	Manchester	2.79%	100.00%	2.79%	5
New Jersey	Newark	2.30%	88.50%	2.04%	13
New Mexico	Albuquerque	3.73%	33.30%	1.24%	35
New York	New York City	15.01%	4.60%	0.69%	49
North Carolina	Charlotte	1.26%	95.10%	1.19%	39
North Dakota	Fargo	48.08%	4.40%	2.09%	12
Ohio	Columbus	4.94%	29.60%	1.46%	28
Oklahoma	Oklahoma City	10.70%	11.00%	1.18%	40
Oregon	Portland	1.91%	64.20%	1.23%	38
Pennsylvania	Philadelphia	8.26%	32.00%	2.64%	7
Rhode Island	Providence	3.00%	100.00%	3.00%	3

South Carolina	Columbia	42.76%	4.00%	1.71%	21
South Dakota	Sioux Falls	2.53%	85.00%	2.15%	11
Tennessee	Memphis	7.47%	25.00%	1.87%	16
Texas	Houston	3.01%	100.00%	3.01%	2
Utah	Salt Lake City	1.48%	97.20%	1.44%	30
Vermont	Burlington	2.72%	100.00%	2.72%	6
Virginia	Virginia Beach	1.22%	82.40%	1.00%	44
Washington	Seattle	1.08%	95.30%	1.03%	43
West Virginia	Charleston	1.45%	60.00%	0.87%	46
Wisconsin	Milwaukee	2.46%	96.00%	2.36%	8
Wyoming	Cheyenne	7.60%	9.50%	0.72%	47

Source: *Tax Rates and Tax Burdens in the District of Columbia – A Nationwide Comparison, 2005*, Table 4, p. 17.

The Washington D.C. and MTA studies both calculate effective property tax rates for the largest city in each state and the District of Columbia. Different methodologies and different data are used, albeit these estimates are both for 2005. It is not surprising then that the two studies present somewhat different estimates of effective tax rates in the largest city of each state and the District of Columbia. In a sense, the D.C. estimates reported seem to be gross effective property tax rates because they are derived before various property tax relief measures are applied. Alternatively, the MTA estimates are net effective property tax rates because property tax relief measures have been explicitly accounted for. Also, the results reported for the MTA are for the median priced home in each city and the numbers reported by the District of Columbia are essentially average numbers for each jurisdiction.

As a result, the absolute estimates of effective property tax rates vary between the two studies. The correlation coefficient between the two estimates of effective property tax rates is 0.694. However, the correlation between the rankings of the states by these two measures of effective property tax rates is 0.815 – not a perfect correlation, but the relative rankings are closer than the absolute estimates of the effective property tax rates.

District of Columbia Fiscal Policy Institute⁹

The District of Columbia Fiscal Policy Institute is another organization, in addition to the government of the District of Columbia, which annually calculates tax burdens for hypothetical families. The FPI, however, only calculates tax burdens for families in the Washington D.C. metropolitan area.

The analysis calculates the total tax burden from property, income and car taxes¹⁰ for hypothetical families in the District and four suburban jurisdictions – Montgomery and

⁹ Discussion of the methodology used by the District of Columbia Fiscal Policy Institute in calculating its effective property tax rates draws on Lazere and Gajdeczka, 2006.

Prince George's counties in Maryland and Fairfax and Arlington counties in Virginia. Tax burdens are calculated for hypothetical families with annual incomes of \$50,000, \$100,000 and \$150,000. For homeowners, the study assumes that the family with \$50,000 has a home worth \$250,000; the family with \$100,000 has a home worth \$400,000; and the family making \$150,000 has a home worth \$600,000.

Methodologically, the FPI diverges from the D.C. government study in calculating effective property tax rates. The D.C. government study calculates effective property tax rates by taking the statutory rate for each jurisdiction and multiplying it by the assessment/sales ratio for the jurisdiction. This approximates an average effective property tax rate for the entire jurisdiction.

The FPI uses actual property tax bills for a sample of houses that sold in each jurisdiction. Specifically, for each home value in each jurisdiction, a sample of 50 recently sold homes was used. For example, for homes in the \$400,000 range in Washington D.C., the analysis reflects the average actual tax bill among 50 homes that actually sold for approximately \$400,000 within the appropriate time frame. The FPI also adjusts for various types of residential property tax relief like the annual cap in assessments for D.C. as well as the D.C.'s homestead deduction. Thus, unlike all the other studies summarized here, the FPI is the only one that bases its calculations on actual sales price and tax liability data from homes that sold in each jurisdiction. The product is an average effective tax rate from homes that actually sold in each jurisdiction at various prices.

Using 2006 data, the FPI study found that for a family earning \$100,000 per year, living in a house with a market value of \$400,000 the property tax liability averaged \$1,639, or approximately 41 cents per \$100 assessed value. Using the methodology from the D.C. government report, the average effective property tax rate in 2006 would simply be the statutory rate (92 cents per \$100 of assessed value) divided by the assessment/sales ratio (100 percent), or 92 cents per \$100 assessed value. This effective property tax rate is more than twice as high as the one estimated by the FPI using actual data and making allowance for residential property tax relief measures.

State Estimates of Effective Property Tax Rates

While most states publish nominal tax rates for their local governments, only a few report effective property tax rates. Upon review of the state governments' websites, only 13 states were found to calculate and report effective tax rates. In a couple of additional cases, effective tax rate reports were found on non-governmental websites, such as state tax payer's associations or think tanks. The following review is limited to those effective tax rate reports found on state governments' websites. Table 9 provides an overview of the states' reports and how they calculated their effective tax rates.

¹⁰ This is a more limited set of taxes than those included in the analysis by the government of the District of Columbia.

Although the majority of the effective tax rate reports are prepared by the state's Department of Revenue or a Division within the Department, others are prepared by commissions or committees. Typically, in the latter cases, the reports were prepared one time rather than on an annual or biennial basis. Reports that are not done annually are, at times, prepared for a special purpose, such as in Arizona, where the effective tax rates were prepared as part of a report analyzing the possibility of reinstating a statewide property tax. (Franz et al., 2003)

As discussed previously, there are multiple ways of calculating effective tax rates. Most of the states calculate the effective tax rate simply by multiplying the assessment/sales ratio by the nominal tax rate. This equalizes discrepancies that occur from different valuation cycles, but does not address property tax relief measures. This also represents the average effective property tax rate and does not provide any information about within-jurisdiction variation across individual properties in effective property tax rates.

Three states, however, calculate effective tax rates by determining the net tax liability to some extent. Ohio calculates the effective tax rate as taxes-charged divided by taxable value. Although taxes-charged accounts for tax reduction factors, a reduction in the property tax used to eliminate tax revenue growth resulting only from appreciating property values, it does not account for the 10% rollback given to all real property, the 2.5% rollback for residential real property, or the homestead exemption given to qualified homeowners. (Ohio Department of Taxation, 2007) Minnesota notes that its effective tax rates are calculated by "net tax payable divided by the indicated market value." (Minnesota Department of Revenue, n.d.) Finally, Wisconsin calculates its effective tax rate by figuring the "general property tax less state property tax credit (not including lottery credit) divided by the full value." (Wisconsin Bureau of Property Tax, 2006, p. 2) Though these methods of calculating the effective tax rates are not necessarily comparable, they come closer to capturing the true effective tax rate, by compensating for the state's property tax relief programs.

Another variation in the calculation of effective tax rates among the states is whether they include real property only or real and personal property. As can be seen in Table 1, South Dakota does not assess a personal property tax. Of the remaining twelve states, six states include both real and personal property in their calculations, while the other four do not include personal property even though it is taxed¹¹.

¹¹ It could not be determined if personal property was included in the calculations completed by New Jersey and Vermont.

Table 9: States Reporting Effective Tax Rates

State	Year(s)	Government Department Preparing the Report	Annual, Biennial or One Time Calculation	How are Effective Tax Rates Calculated?	Are Effective Tax Rates Calculated for Real Property or Real and Personal Property?	Are Effective Tax Rates Provided by Type of Jurisdiction or Type of Property?
Arizona	2000	Arizona Citizen Finance Review Commission	One time	Not Available	Real Property Only	Type of Property
Georgia	2006	Georgia Department of Economic Development	Not Available	Not Available	Real and Personal Property	Type of Jurisdiction
Minnesota	Taxes Payable 2001 - 2004	Minnesota Department of Revenue	Annual	Net Tax Liability	Real and Personal Property	Type of Jurisdiction
Montana	Fiscal Years 1998 - 2006	Montana Department of Revenue	Biennial	Tax rate multiplied by Assessment Ratio	Real and Personal Property	Type of Property
New Jersey	1998-2006	New Jersey Division of Taxation	Annual	Tax rate multiplied by Assessment Ratio	Not Available	Type of Jurisdiction
North Carolina	Fiscal Years 2002 - 2007	North Carolina Department of Revenue	Annual	Tax rate multiplied by Assessment Ratio	Real and Personal Property	Type of Jurisdiction
Ohio	1996 - 2006	Ohio Department of Taxation	Annual	Net Tax Liability	Real Property Only	Type of Property and Type of Jurisdiction

South Dakota	Taxes Payable 1997 - 2006	South Dakota Department of Revenue and Regulation	Annual	Tax rate multiplied by Assessment Ratio	Real Property Only	Type of Property and Type of Jurisdiction
Tennessee	Tax Year 2000	Tennessee Advisory Commission on Intergovernmental Relations	One time	Tax rate multiplied by Assessment Ratio	Real Property Only	Type of Jurisdiction
Vermont	Tax Years 2001 - 2006	Vermont Department of Taxes	Annual	Not Available	Not Available	Type of Property and Type of Jurisdiction
Virginia	1993-2005	Virginia Department of Taxation	Annual	Tax rate multiplied by Assessment Ratio	Real Property Only	Type of Jurisdiction
Washington	Taxes Payable 1991 - 2006	Washington State Department of Revenue	Annual	Tax rate multiplied by Assessment Ratio	Real and Personal Property	Type of Jurisdiction
Wisconsin	Taxes Payable 2000 - 2007	Wisconsin Department of Revenue, Division of State and Local Finances	Annual	Net Tax Liability	Real and Personal Property	Type of Jurisdiction

States also vary in how they report the effective tax rates that they calculated. Some states report these rates by class or type of property, while others provide the data by jurisdiction, while still others do both. States that report their data by type of property tend to provide statewide average effective tax rates for each class of property. States that report their data by jurisdiction do so either for a single jurisdiction, or for multiple jurisdictions. Ohio, South Dakota, and Vermont report their effective property tax rates by property type and jurisdiction. Not only does Ohio report effective property tax rates by county in their annual report, but they also provide a database that can be downloaded and users can select both the jurisdiction (by county, city, township, school districts, or special districts) they have an interest in or the property type (residential and commercial real property; or industrial, commercial, mineral, and railroad real property).

The calculation of effective tax rates by these thirteen states allows taxpayers within those states to compare their tax rates to other jurisdictions or their property type to others within the state. Table 10 provides the minimum, median, maximum, and range for effective property tax rates in the four states that include only real property in their calculations of effective tax rates, and report their data by jurisdiction.

If one divides the range in rates by the median rate we get an idea of the variation in rates across local governments in each state. According to this measure, Virginia has the most variation in rates and Ohio has the least variation in rates across jurisdictions. Although they don't include estimates from the whole state, the effective tax rates calculated for the eight cities in New Hampshire, in Table 7, suggest a range of effective property tax rates that is similar to those provided by the states shown in Table 10.

Table 10: Within State Variation of Effective Tax Rates

	Year	Minimum	Median	Maximum	Range
Ohio	2005	3.254	4.511	7.242	3.988
South Dakota	2005	0.023	1.77	3	2.977
Tennessee	2000	0.003	0.008	0.016	0.013
Virginia	2005	0.24	0.52	1.35	1.11

States are more likely to know the unique nuances of the property tax system within their states than organizations that are calculating effective tax rates using standard procedures for each state. Our look at the data supports this assumption. Table 11 compares the effective property tax rates calculated by the states and those calculated by the Minnesota Taxpayers Association and the D.C. Government for the largest city in each state¹². The correlation coefficient between each state's estimate and the estimate provided by the Minnesota Taxpayers Association is .9162. The correlation between the state's estimates and the D.C. government estimates is .7676. These differences are not surprising given the different calculation methods used for calculating effective tax rates by each organization and the states.

¹² Minnesota and Washington only report data by county so their effective tax rates were not included in this table. Likewise, Tennessee was not included as the most recent data are from tax year 2000.

Table 11: Comparison of Effective Tax Rates by Organization

State	City	Year	State's Estimate	Minnesota Taxpayers Association	D.C. Government
Georgia	Atlanta	2006	1.68%	1.16%	1.68%
New Jersey	Newark	2005	2.04%	2.17%	2.04%
North Carolina	Charlotte	2005	1.13%	1.13%	1.19%
Ohio	Columbus	2005	1.47%	1.49%	1.46%
South Dakota	Sioux Falls	2005	1.47%	1.25%	2.15%
Vermont	Burlington	2005	1.72%	1.56%	2.72%
Virginia	Virginia Beach	2005	0.77%	0.84%	1.00%
Wisconsin	Milwaukee	2005	2.35%	2.47%	2.36%

Conclusion

This reconnaissance has turned up several measures of property tax burdens, including one by the Tax Foundation, as well as generic property taxes per capita and a generic property taxes per \$1000 of personal income; and five major measures of effective property tax rates, including studies by AARP, NAHB, MTA, the D.C. government and the Fiscal Policy Institute.

The first part of the article reviewed property tax burden approaches. The Tax Foundation publishes annual state and local tax burden estimates by state. Two other options that facilitate comparison across states and jurisdictions within states are the popular, and often reported, measures of property tax burdens of property taxes per capita and property taxes per \$1,000 of personal income. As discussed above, researchers confront challenges in interpreting results from these property tax burden measures because of the complicated property tax tableau that exists at the state and local levels. There are reasons to proceed with caution on measures of property tax burden.

The second part reviewed measures of effective property tax rates. The AARP report expresses property tax burdens relative to personal income, so it is really more of a property tax burden measure than a measure of effective property tax rates. The other major studies reviewed here – NAHB, MTA, the D.C. government and the Fiscal Policy Institute – report property tax payments, or liabilities, relative to some measure of property value – e.g., the median housing value of a jurisdiction as computed from data in the American Community Survey.

The data in Table 12 summarize major differences between the various measures of effective property tax rates. For example, AARP and NAHB rely on data collected by the Bureau of Census for their calculations and AARP uses a comprehensive measure of household income to compute property tax burdens, while NAHB uses a measure of property value to compute effective tax rates. The MTA and D.C. government studies

report effective tax rates for the largest city in each state and the District of Columbia, while the AARP and NAHB studies report average effective property tax rates for the entire state. All of the studies except AARP use some measure of property value to calculate effective property tax rates.

Table 12: Summary of Characteristics of Various Measures of Effective Property Tax Rates

	Source of Data		Base of Comparison	Jurisdiction for which Effective Tax Rate is Computed
	Property Taxes	Property Value/Income		
AARP	ACS	ACS	Income	Average for state*
NAHB	ACS	ACS	Property value	Average for state
MTA	Calculated for each state	Calculated for each state	Property value	Largest city and one rural jurisdiction in each state
D.C. Government	Calculated for each state	ACS	Property value	Largest city in each state
Fiscal Policy Institute	Calculated for individual properties	Actual sales data	Property value	Individual jurisdictions in the D.C. metro area

*Property tax burdens are computed for three groups in each state - all homeowners, homeowners under 65 years of age, and homeowners over 65 years of age.

Different challenges confront researchers of effective property tax rates, as illustrated by the studies examined here. These measures can be used to explore cross state variation in various issues like the level and quality of public services provided, but they provide no information that can be used for within-state, or within-jurisdiction, variation in effective property tax rates which could be utilized to explore issues of equity.

Because of the different methodologies used in these studies, the results vary across studies, both in terms of absolute estimates of effective property tax rates and the relative ranking of states. Table 13 reports correlation coefficients for these studies and the two traditional measures of property tax burdens discussed above – property taxes per capita and per \$1,000 personal income.

Table 13: Correlation Coefficients Across Organizations

	AARP	NAHB	MTA	D.C. Government	Property Taxes Per Capita	Property Taxes Per \$1,000 Personal Income
AARP	1	0.802	0.483	0.49	0.796	0.777
NAHB		1	0.685	0.651	0.579	0.69
MTA			1	0.694	0.289	0.38
D.C. Government				1	0.367	0.48
Property Taxes Per Capita					1	0.92
Property Taxes Per \$1,000 Personal Income						1

The AARP study reports median property tax burdens relative to personal income by state. This measure is relatively highly correlated with the traditional measures of property tax burdens – per capita property taxes (0.796) and property taxes per \$1,000 personal income (0.777). However, this measure is not strongly correlated with the MTA or D.C. government measures of effective property taxes calculated for the largest city in each state and relative to some measure of property value.

The MTA and D.C. government studies are somewhat correlated with each other (0.694), but not correlated with traditional measures of property tax burdens – per capita (0.289 and 0.367) and property taxes relative to \$1,000 personal income (0.380 and 0.480).

If one accepts the notion that when computing effective tax rates the tax liability, or payment, should be expressed relative to the appropriate tax base, then it would seem that the MTA and D.C. government measures of effective property tax rates might be preferred. The down side is that the two approaches only report effective property tax rates for the largest city in each state, which tend to rely less on property taxes than other cities. Also, the D.C. government study reports what might be characterized as a gross effective property tax rate before any deductions. However, the D.C. study has the necessary information to calculate a net effective property tax rate more similar to the MTA estimates.

Finally, the D.C. government and the MTA studies could provide additional useful information if they based their calculations of effective property tax rates on data reflecting actual sales and property taxes paid. This is the methodology used by the District of Columbia Fiscal Policy Institute. This would allow some comment on within-jurisdiction equity as well.

Bibliography

Atkins, Patricia S., Leah B. Curran and Michael E. Bell. 2005. *Intra-metropolitan Area Revenue Raising Disparities and Equities*, U.S. Department of Housing and Urban Development, mimeograph.

Baer, David. 2007. *State and Local Property Tax Burdens in 2005*, AARP Public Policy Institute, #2007-09, May.

Bloom, Howard S., Helen F. Ladd and John Yinger. 1983. "Are Property taxes Capitalized into House Values?" in George R. Zodrow (editor), *Local Provisions of Public Services: The Tiebout Model after Twenty-Five Years*, New York, Academic Press.

Bowman, John H. 2007. *Issues in state and local government finance: Questions and answers on selected topics with an emphasis on property taxes*. Unpublished manuscript prepared for the Lincoln Institute of Land Policy.

Burnori, David and Michael Bell, Joseph Cordes and Bing Yuan. 2008. "Tax and Expenditure Limitations and Their Effects on Local Finances and Urban Areas." in *Urban and Regional Policy and Its Effects*, edited by Margery Austin Turner, Howard Wial and Harold Wolman, Brookings Institute Press, Washington DC.

Dubay, Curtis S. 2007a. *State and Local Tax Burdens Hit 25-Year High*, The Tax Foundation, Special Report No. 153, April.

Dubay, Curtis S. 2007b. *State-Local Tax Burden Methodology*, Tax Foundation Working Paper No. 4, April.

Fisher, Ronald C. 1996. *State and Local Public Finance*, Second Edition, Chicago, Irwin.

Franz, T., Stein, R., Bush, J., Hogan, T., Kitchel, G., Kotterman, P., et al. (2003). *Reinstate a State Property Tax*. Retrieved September 14, 2007, from http://www.azcfr.gov/files/CFRC%20Proposal_%20Reinstate%20A%20State%20Property%20Tax.pdf.

Green, H. A., Chervin, S., & Lippard, C. (2002). *The Local Government Finance Series, Volume I: The Local Property Tax in Tennessee*. Retrieved September 14, 2007, from http://www.state.tn.us/tacir/PDF_FILES/Taxes/LOCAL%20PROPERTY%20TAX.pdf.

Lazere, Ed and Aleksandra Gajdeczka. 2006. *Taxes on DC Families Are Now the Lowest in the Washington Region*, D.C. Fiscal Policy Institute, September 20.

Minnesota Taxpayers Association. 2005. *50-State Property Tax Comparison Study*, St. Paul, Minnesota, January.

Minnesota Department of Revenue. (n.d.). *Property Taxes Levied in Minnesota: Table 57: Total Tax Capacity Value, Indicated Market Value and Effective Tax Rates of Counties for Property Taxes Levied in 2003 Payable in 2004*. Retrieved September 14, 2007, from http://www.taxes.state.mn.us/taxes/property_tax_administrators/other_supporting_content/ptbull_pay04_sect4currentyrtables.shtml.

Montana Department of Revenue. (2006). *Biennial Report: July 1, 2004 to June 30, 2006*. Retrieved September 14, 2007, from <http://mt.gov/revenue/formsandresources/biennialreports/2005-2006biennialreport.pdf>.

Ohio Department of Taxation (2007). *2006 Annual Report*. Retrieved September 28, 2007, from http://tax.ohio.gov/divisions/communications/publications/documents/2006AR_entire_report.pdf

Siniavskaia, Natalia. 2007. *Real Estate Tax Rates in the American Community Survey*, National Association of Home Builders, Special Studies, May 22.

Wisconsin Bureau of Property Tax. (2006). *Town, Village, and City Taxes - 2006, Taxes Levied 2006- Collected 2007*. Retrieved September 14, 2007, from <http://www.revenue.wi.gov/pubs/slf/tvc06.pdf>.