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50-State Property Tax Comparison Study

FOR TAXES PAID IN 2016



LINCOLN INSTITUTE
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50-State Property Tax Comparison Study

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Table of Contents

Executive Summary	1
Introduction	6
Why Property Tax Rates Vary Across Cities	8
Homestead Property Taxes	13
Commercial Property Taxes	19
Industrial Property Taxes	24
Apartment Property Taxes	29
Classification and Preferential Treatment of Homestead Properties	33
Property Tax Assessment Limits	40
Methodology	43

Appendix Tables

1. Why Property Tax Rates Vary Across Cities	
1a. Factors Correlated with Homestead Property Tax Rates in Large U.S. Cities	50
1b. Factors Correlated with Commercial Property Tax Rates in Large U.S. Cities	53
1c. Correlates of Cities' Effective Tax Rates on Homestead Properties	56
1d. Correlates of Cities' Effective Tax Rates on Commercial Properties	57
2. Homestead Property Taxes	
2a. Largest City in Each State: Median Valued Homes	58
2b. Largest City in Each State: Median Valued Homes, with Assessment Limits	60
2c. Largest City in Each State: Homes worth \$150,000 and \$300,000	62
2d. Largest Fifty U.S. Cities: Median Valued Homes	64
2e. Largest Fifty U.S. Cities: Median Valued Homes, with Assessment Limits	66
2f. Largest Fifty U.S. Cities: Homes worth \$150,000 and \$300,000	68
2g. Selected Rural Municipalities: Median Valued Homes	70
2h. Selected Rural Municipalities: Homes worth \$150,000 and \$300,000	72
3. Commercial Property Taxes	
3a. Largest City in Each State	74
3b. Largest Fifty U.S. Cities	76
3c. Selected Rural Municipalities	78
4. Industrial Property Taxes	
4a. Largest City in Each State (Personal Property = 50% of Total Parcel Value)	80
4b. Largest City in Each State (Personal Property = 60% of Total Parcel Value)	82
4c. Largest Fifty U.S. Cities (Personal Property = 50% of Total Parcel Value)	84
4d. Largest Fifty U.S. Cities (Personal Property = 60% of Total Parcel Value)	86
4e. Selected Rural Municipalities (Personal Property = 50% of Total Parcel Value)	88
4f. Selected Rural Municipalities (Personal Property = 60% of Total Parcel Value)	90
4g. Preferential Treatment of Personal Property, Largest City in Each State	92
5. Apartment Property Taxes	
5a. Largest City in Each State	94
5b. Largest Fifty U.S. Cities	96
5c. Selected Rural Municipalities	98
6. Classification and Preferential Treatment of Homestead Properties	
6a. Commercial-Homestead Classification Ratio for Largest City in Each State	100
6b. Apartment-Homestead Classification Ratio for Largest City in Each State	102
7. Impact of Assessment Limits	104

Executive Summary

As the largest source of revenue raised by local governments, a well-functioning property tax system is critical for promoting municipal fiscal health. This report documents the wide range of property tax rates in more than 100 U.S. cities and helps explain why they vary so widely. This context is important because high property tax rates usually reflect some combination of heavy property tax reliance with low sales and income taxes, low home values that drive up the tax rate needed to raise enough revenue, or higher local government spending and better public services. In addition, some cities use property tax classification, which can result in considerably higher tax rates on business and apartment properties than on homesteads.

This report provides the most meaningful data available to compare cities' property taxes by calculating the *effective tax rate*: the tax bill as a percent of a property's market value. Data are available for 73 large U.S. cities and a rural municipality in each state, with information on four different property types (homestead, commercial, industrial, and apartment properties), and statistics on both net tax *bills* (i.e. \$3,000) and effective tax *rates* (i.e. 1.5 percent). These data have important implications for cities because the property tax is a key part of the package of taxes and public services that affects cities' competitiveness and quality of life.

Why Property Tax Rates Vary Across Cities

To understand why property tax rates are high or low in a particular city, it is critical to know why property taxes vary so much across cities. This report uses statistical analysis to identify four key factors that explain most of the variation in property tax rates.

Property tax reliance is one of the main reasons why tax rates vary across cities. While some cities raise most of their revenue from property taxes, others rely more on alternative revenue sources. Cities with high local sales or income taxes do not need to raise as much revenue from the property tax, and thus have lower property tax rates on average. For example, this report shows that Bridgeport (CT) has one of the highest effective tax rates on a median valued home, while Birmingham (AL) has one of the lowest rates. However, in Bridgeport city residents pay no local sales or income taxes, whereas Birmingham residents pay both sales and income taxes to local governments. Consequently, despite the fact that Bridgeport has much higher property taxes, total local taxes are considerably higher in Birmingham (\$2,560 vs. \$2,010 per capita).

Property values are the other crucial factor explaining differences in property tax rates. Cities with high property values can impose a lower tax rate and still raise at least as much property tax revenue as a city with low property values. For example, consider San Francisco and Detroit, which have the highest and lowest median home values in this study. After accounting for assessment limits, the average property tax bill on a median valued home for the large cities in this report is \$2,871. To raise that amount from a median valued home, the effective tax rate would need to be more than 20 times higher in Detroit than in San Francisco—6.74 percent versus 0.30 percent.

Two additional factors that help explain variation in tax rates are the level of local government spending and whether cities tax homesteads at lower rates than other types of property (referred to as "classification"). Holding all else equal, cities with higher spending will need to have

higher property tax rates. Classification imposes lower property taxes on homesteads, but higher property taxes on business and apartment properties.

Homestead Property Taxes

There are wide variations across the country in property taxes on owner-occupied primary residences, otherwise known as homesteads. An analysis of the largest city in each state shows that the average effective tax rate on a median-valued homestead was 1.50 percent in 2016 for this group of 53 cities.¹ At that rate, a home worth \$200,000 would owe \$3,000 in property taxes (1.50% x \$200,000). On the high end, there are three cities with effective tax rates that are roughly 2.5 times higher than the average – Detroit, Bridgeport, and Aurora (IL). Conversely, there are six cities where tax rates are less than half of the study average – Honolulu, Boston, Denver, Cheyenne (WY), Birmingham (AL), and Washington DC.

Highest and Lowest Effective Property Tax Rates on a Median Valued Home (2016)

Highest Property Tax Rates				Lowest Property Tax Rates			
1	Detroit (MI)	3.82%	<i>Why:</i> Low property values	49	Birmingham (AL)	0.67%	<i>Why:</i> Low property tax reliance, classification shifts tax to business
2	Bridgeport (CT)	3.81%	<i>Why:</i> High property tax reliance	50	Cheyenne (WY)	0.65%	<i>Why:</i> Low property tax reliance
3	Aurora (IL)	3.72%	<i>Why:</i> High property tax reliance	51	Denver (CO)	0.62%	<i>Why:</i> Low property tax reliance, classification, high home values
4	Newark (NJ)	3.20%	<i>Why:</i> High property tax reliance	52	Boston (MA)	0.61%	<i>Why:</i> High home values, Classification shifts tax to business
5	Milwaukee (WI)	2.67%	<i>Why:</i> Low property values, high property tax reliance	53	Honolulu (HI)	0.30%	<i>Why:</i> High home values, low local gov't spending, classification

Note: Data for all cities: Figure 2 (page 18), Appendix Table 1a (page 50), and Appendix Table 2a (page 58).

The average tax rate for these cities fell slightly between 2015 and 2016, from 1.503 percent to 1.497 percent, with increases in 27 cities, decreases in 25, and no change in 1 city. The largest increase was in Buffalo, where the effective rate rose by about 13 percent, which drove the city's ranking up from 17th to 14th highest. The next largest increases were in Sioux Falls (SD), Columbus (OH), New Orleans, and Wilmington (DE). The largest decrease was in Fargo, which had a 20.6 percent decline and a 12-place drop in rank, from 28th to 40th highest. The next largest declines were in Manchester (NH), Wichita, Chicago, and Burlington (VT).

Note that differences in property values across cities mean that some cities with high tax *rates* can still have low tax *bills* on a median valued home if they have low home values, and vice versa. For example, Detroit and Bridgeport have similar tax rates on a median valued home, but because the median valued home is worth so much more in Bridgeport (\$167k vs. \$43k), the tax bill is far higher in Bridgeport (4th highest) than in Detroit (45th highest).

Effective tax rates rise with home values in about half of the cities (26 of 53), and this pattern has a progressive impact on the property tax distribution. Usually, this relationship occurs because of homestead exemptions that are set to a fixed dollar amount. For example, a \$20,000 exemption

¹ The largest cities in each state includes 53 cities, because it includes Washington (DC) plus two cities in Illinois and New York since property taxes in Chicago and New York City are so different than the rest of the state.

provides a 20 percent tax cut on a \$100,000 home, a 10 percent cut on a \$200,000 home, and a 5 percent cut on a \$400,000 home. The increase in effective tax rates with home values is steepest in Boston, Washington (DC), Honolulu, Atlanta, and New Orleans.

Commercial Property Taxes

There are also significant variations across cities in commercial property taxes, which include taxes on office buildings and similar properties. In 2016, the effective tax rate on a commercial property worth \$1 million averaged 2.10 percent across the largest cities in each state. The highest rates were in Detroit, New York City, Chicago, Bridgeport, and Providence, all of which had effective tax rates that were at least three-quarters higher than the average for these cities. On the other hand, rates were less than half of the average in Cheyenne, Seattle, Honolulu, Fargo, Billings (MT), and Virginia Beach.

Highest and Lowest Effective Property Tax Rates on \$1-Million Commercial Property

Highest Property Tax Rates				Lowest Property Tax Rates			
1	Detroit (MI)	4.09%	<i>Why:</i> Low property values	49	Billings (MT)	1.03%	<i>Why:</i> Low local gov't spending
2	New York (NY)	3.93%	<i>Why:</i> High local gov't spending, Classification shifts tax to business	50	Fargo (ND)	1.01%	<i>Why:</i> Low local gov't spending
3	Chicago (IL)	3.86%	<i>Why:</i> Classification shifts tax to business, High local gov't spending	51	Honolulu (HI)	0.91%	<i>Why:</i> High property values, Low local gov't spending
4	Bridgeport (CT)	3.81%	<i>Why:</i> High property tax reliance	52	Seattle (WA)	0.89%	<i>Why:</i> High property values, Low property tax reliance
5	Providence (RI)	3.71%	<i>Why:</i> High property tax reliance	53	Cheyenne (WY)	0.66%	<i>Why:</i> Low property tax reliance

Note: Analysis includes an additional \$200k in fixtures (office equipment, etc.)

Data for all cities: Figure 3 (page 23), Appendix Table 1b (page 53), and Appendix Table 3a (page 74).

The cities with the largest drops in their effective tax rates from 2015 to 2016 were Boston, whose rate fell by 14 percent and ranking dropped from 24th to 28th, and Fargo where the tax rate fell by 12 percent and whose ranking dropped from 46th to 50th. Sioux Falls is the only other city with a significant decline in its ranking. The largest increase was in Columbus (OH), where the effective tax rate increased by 8 percent, which drove the city's ranking up from 32nd to 30th highest. In only one other city did the ranking rise by more than two places – Albuquerque (NM), where the ranking climbed three places from 37th to 34th.

Preferential Treatment for Homeowners

Many cities have preferences built into their property tax systems that result in lower effective tax rates for certain classes of property, with these features usually designed to benefit homeowners. The “classification ratio” describes these preferences by comparing the effective tax rate on land and buildings for two types of property. For example, if a city has a 3.0% effective tax rate on commercial properties and a 1.5% effective tax rate on homestead properties, then the commercial-homestead classification ratio is 2.0 (3.0% divided by 1.5%).

An analysis of the largest cities in each state shows an average commercial-homestead classification ratio of 1.67, meaning that on average commercial properties experience an effective tax rate that is 67% higher than homesteads. Roughly a fourth of the cities (14 of 53)

have classification ratios above 2.0, meaning that commercial properties face an effective tax rate that is at least double that for homesteads.

Preferential Treatment of Homeowners: Ratio of Effective Tax Rate on Commercial and Apartment Properties to the Rate on Homestead Properties (2016)

Commercial vs. Homestead Ratio			Apartment vs. Homestead Ratio		
1	New York (NY)	4.08	1	New York (NY)	4.97
2	Boston (MA)	3.77	2	Columbia (SC)	3.72
3	Columbia (SC)	3.71	3	Indianapolis (IN)	2.60
4	Denver (CO)	3.62	4	Birmingham (AL)	2.17
5	Honolulu (HI)	3.58	5	Charleston (WV)	2.11

Note: Commercial-homestead ratio compares rate on \$1 million commercial building to median valued home.

Apartment-homestead ratio compares rate on \$600k apartment building to median valued home.

Data for all cities: Figures 6a and 6b (Page 37-38), and Appendix 6 (Page 100).

The average apartment-homestead classification ratio is significantly lower (1.35), with apartments facing an effective tax rate that is 35% higher than homesteads on average. There are five cities where apartments face an effective tax rate that is at least double that for homesteads, with New York City being a major outlier since the rate on apartments is almost five times higher than the rate on a median valued home. It is important to note that while renters do not pay property tax bills directly, they do pay property taxes indirectly since landlords are able to pass through some or all of their property taxes in the form of higher rents.

There are three types of statutory preferences built into property tax systems that can lead to lower effective tax rates on homesteads than other property types: the assessment ratio, the nominal tax rate, and exemptions and credits. In total, 40 of the 53 cities favor homesteads over commercial properties—27 of them have assessment ratios and/or nominal tax rates that favor homesteads, while in 13 cities classification is solely the result of exemptions or credits. Similarly, 34 cities favor homesteads relative to apartments, but only 16 of them have preferential assessment ratios and/or nominal tax rates, while in 18 cities classification is the result of exemptions or credits alone.

Property Tax Assessment Limits

Since the late 1970s, an increasing number of states have adopted property tax limits, including constraints on tax rates, tax levies, and assessed values. This report accounts for the impact of limits on tax rates and levies implicitly, because of how these laws impact cities' tax rates, but it is necessary to use an explicit modeling strategy to account for assessment limits.

Assessment limits typically restrict growth in the assessed value for individual parcels and then reset the taxable value of properties when they are sold. Therefore, the level of tax savings provided from assessment limits largely depends on two factors: how long a homeowner has owned her home and appreciation of the home's *market value* relative to the allowable growth of its *assessed value*. As a result, assessment limits can lead to major differences in property tax bills between owners of nearly identical homes based on how long they have owned their home.

This report estimates the impact of assessment limits by calculating the difference in taxes between newly purchased homes and homes that have been owned for the average duration in each city, for median valued homes. For example, in Los Angeles the average home has been owned for 13 years and the median home value is \$542,100. Because of the state's assessment limit, someone who has owned their home for 13 years would pay 39 percent less in property taxes than the owner of a newly-purchased home, even though both homes are worth \$542,100. The largest discrepancy is in New York City, which has an assessment limit that has capped growth in assessed values for residential properties since 1981, and unlike most assessment limits does not reset when the property is sold. As a result, the owner of a newly built home with the median value in New York City (\$538,300) would face an effective tax rate about 50 percent higher than the owner of a median valued home built prior to 1981 despite their having identical values. Assessment limits have the largest impacts in New York City, the eight California cities studied, and Miami (38.4% difference). Of the 29 cities in this report that are affected by parcel-specific assessment limits, new homeowners face higher property tax bills than existing homeowners in 22 cities.

Conclusion

Property taxes range widely across cities in the United States. This report not only shows which cities have high or low effective property tax rates, but also explains why. Cities will tend to have higher property tax rates if they have high property tax reliance, low property values, or high local government expenditures. In addition, some cities use property tax classification, which can result in considerably higher tax rates on business and apartment properties than on homesteads. By calculating the effective property tax rate, this report provides the most meaningful data available to compare cities' property tax burdens. These data have important implications for cities because the property tax is a key part of the package of taxes and public services that affects cities' competitiveness and quality of life.

Introduction

The property tax is one of the largest taxes paid by American households and businesses and funds many essential public services, including K-12 education, police and fire protection, and a wide range of critical infrastructure. Yet it is surprisingly difficult to get good data on property taxes that are comparable across cities. This report provides the necessary data by accounting for several key features of major cities' property tax systems and then calculating the *effective tax rate*: the tax bill as a percent of a property's market value.

High or low effective property tax rates do not in themselves indicate that tax systems are “good” or “bad.” Evaluating a property tax system requires a broader understanding of the pros and cons of the property tax, the implications of high or low property tax rates, and the method by which property tax rates are set. These key issues are outlined below.

The property tax has key strengths as a revenue instrument for local governments: it is the most stable tax source, it is more progressive than alternative revenue options, and it promotes local autonomy. Property taxes are more stable over the business cycle than sales and especially income taxes, so greater property tax reliance helps local governments avoid major revenue shortfalls during recessions. It also helps localities maintain revenue stability in the face of fluctuating state and federal aid.² In addition, the property tax is relatively progressive compared to the sales tax, which is the other main source of tax revenue for local governments. Whereas the property tax is largely neutral, the sales tax is highly regressive.³

The property tax is particularly appropriate for local governments because it is imposed on an immobile tax base. While it is often easy to cross borders in search of a lower sales tax rate, those who wish to live or locate their business in a particular location cannot avoid paying the property tax. Thus, local governments have limited ability to charge different sales tax rates than their neighbors, but have greater control over setting their property tax rate.

A drawback of any local tax is that the tax base can vary widely across communities, but these disparities can be offset with state aid to local governments. For example, there are significant differences in property values across communities, just as there are wide disparities in retail sales and incomes across localities. State government grants to local governments can help offset these differences to ensure everyone has access to necessary services at affordable tax prices regardless of where they live. In addition, state-funded circuit breaker programs can help households whose property taxes are particularly high relative to their income.⁴

Property taxes are one part of the package of taxes and public services that affects competitiveness and quality of life. This report shows that many of the cities with high property tax rates have relatively low sales and income taxes for local governments, so the total local tax

² Ronald C. Fisher. 2009. “What Policy Makers Should Know About Property Taxes.” *Land Lines*. Cambridge, MA: Lincoln Institute of Land Policy.

³ Institute on Taxation and Economic Policy. 2015. “Who Pays? A Distributional Analysis of the Tax Systems in All 50 States.”

⁴ Bowman, John H., Daphne A. Kenyon, Adam Langley, and Bethany P. Paquin. 2009. “Property Tax Circuit Breakers: Fair and Cost-Effective Relief for Taxpayers.” Cambridge, MA: Lincoln Institute of Land Policy.

burden for residents and business could still be attractive. Furthermore, state aid may reduce local property taxes, but this reduction may be offset by higher state taxes.

Similarly, if higher property taxes are used to pay for better public services, then high property tax rates may not affect competitiveness or quality of life. Many homeowners are willing to pay higher property taxes to have better public schools and safer neighborhoods. The bottom line is that it is the total state-local tax burden relative to the quality of public services that determines competitiveness and quality of life.

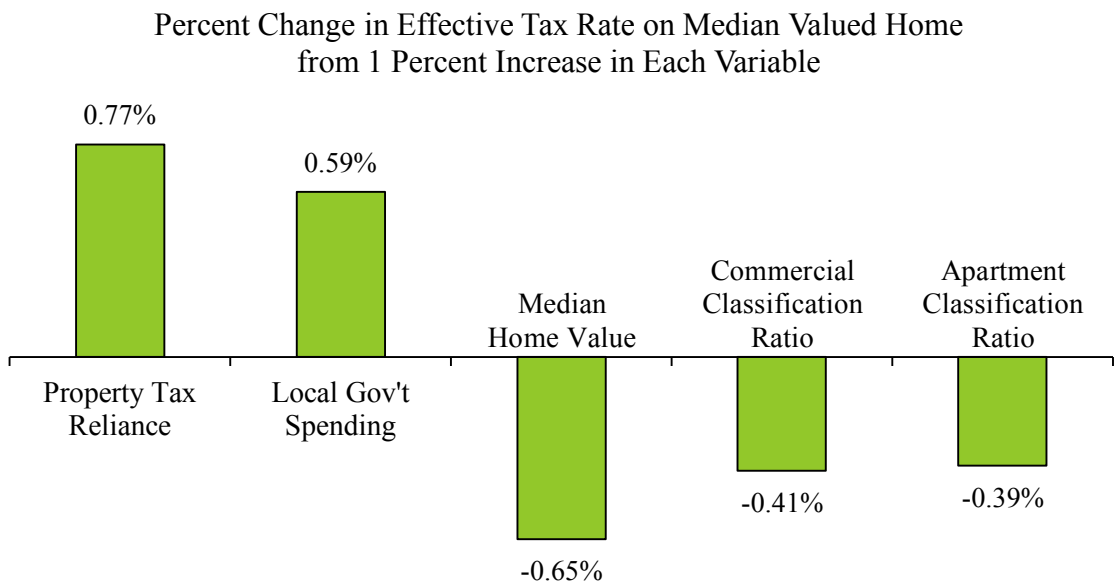
Property tax rates are set differently than other tax rates and reflect decisions about local government spending. Income and sales tax rates usually do not vary much from year-to-year, which leads to significant revenue fluctuations over the business cycle. In contrast, property tax rates are usually established *after* the local government budget is determined by elected officials and/or voters and the rate is then set to raise the targeted revenue level. However, flexibility in setting property tax rates can be constrained by state tax limits or political concerns about property tax burdens. The process for determining property tax rates varies across jurisdictions.

This report allows for meaningful comparisons of cities' property taxes by calculating the effective property tax rate—the tax bill as a percent of a property's market value. For most taxpayers, the effective tax rate will be significantly different from the nominal or official tax rate that appears on their tax bill. There are several reasons for this difference. First, many states only tax a certain percentage of a property's market value. For example, New Mexico assesses all property at 33.3 percent of market value for tax purposes, which means that a \$300,000 home would be taxed as if it were worth \$100,000. In addition, many states and cities use exemptions and/or credits to reduce property taxes. For example, a \$50,000 homestead exemption would mean a \$200,000 home would be taxed as if it were worth \$150,000. Cities also vary in the accuracy of their assessments of property values for tax purposes. Finally, an analysis of property tax burdens requires consideration of property taxes paid to all local governments, including overlying counties and school districts, rather than simply comparing municipal tax rates. This report accounts for all of these differences in cities' property tax systems, which is essential for meaningful comparisons of their tax rates.

Why Property Tax Rates Vary Across Cities

This report demonstrates that effective property tax rates vary widely across U.S. cities. This section explores why some cities have relatively high property tax rates while others have much lower rates. Statistical analysis shows that four key factors explain nearly three-quarters of the variation in property tax rates. The two most important reasons why tax rates vary across cities are the extent to which cities rely on the property tax as opposed to other revenue sources, and the level of property values in each jurisdiction. Two additional factors that help explain variation in tax rates are the level of local government spending and whether cities tax homesteads at lower rates than other types of property (referred to as “classification”).

Figure 1: Key Factors Explaining Differences in Property Tax Rates



Appendix 1 shows how these variables affect tax rates on homestead and commercial properties for each large city included in this report and details the methodology used for this analysis. This section focuses on homestead property taxes, but our analysis shows that tax rates on business and apartment properties are driven by the same four key factors.

Property Tax Reliance

One of the main reasons why tax rates vary across cities is that some cities raise most of their revenue from the property tax, while others rely more on alternative revenue sources.⁵ Cities with high local sales or income taxes do not need to raise as much revenue from the property tax, and thus have lower property tax rates on average. Figure 1 shows that a 1 percent increase in the

⁵ One way to measure the “importance” of each factor is to look at squared semi-partial correlations, which are analogous to estimating the R-square between the effective tax rate on a median valued home and each factor, controlling for the effect of the other factors. For the first regression of Appendix Table 1c, 26% of the variation in effective tax rates is explained by property tax reliance, 37% is explained by median home values, 7% by local government spending, 8% by the commercial-homestead classification ratio, and 3% by the apartment-homestead classification ratios.

share of revenue raised by local governments that comes from the property tax is associated with a 0.77 percent increase in the effective tax rate on a median valued home.

To see how property tax reliance impacts tax rates, compare Bridgeport (CT) and Birmingham (AL). Bridgeport has the highest effective tax rate on a median valued home in large part because it has the highest property tax reliance of any large city included in this report. So while Bridgeport has high property taxes (\$1,979 per capita), city residents pay no local sales or income taxes. In contrast, Birmingham has the seventh lowest effective tax rate on a median valued home, but also has the seventh lowest reliance on the property tax. As a result, Birmingham residents have low property taxes (\$788 per capita), but also pay a host of other taxes to local governments, including sales taxes (\$945 per capita), income taxes (\$367 per capita), and other local taxes (\$436 per capita).⁶ Consequently, total local taxes are considerably higher in Birmingham despite the fact that it has much lower property taxes than Bridgeport (\$2,560 per capita vs. \$2,010 per capita).

It is important to note that the ability of local governments to tap alternative revenue sources that would reduce property tax reliance is normally constrained by state law. State governments usually determine which taxes local governments are authorized to use and set the maximum tax rate localities are allowed to impose.⁷

The data on property tax reliance and local government spending that is used for this analysis is for *fiscally standardized cities* (FiSCs) rather than for city municipal governments alone. FiSCs provide estimates of revenues raised from city residents and businesses and spending on their behalf, whether done by the city government or by overlying county governments, independent school districts, or special purpose districts. This approach is similar to the methodology used in this report, which includes property taxes paid to the city government, county government, and the largest independent school district in each city. The FiSC database is available on the website of the Lincoln Institute of Land Policy.⁸

Property Values

Home values are the other crucial factor explaining differences in property tax rates. Cities with high property values can impose a lower tax rate and still raise at least as much property tax revenue as a city with low property values. For example, Figure 1 shows that a 1 percent increase in the median home value is associated with a 0.65 percent decrease in the effective tax rate on a median valued home.

For example, consider San Francisco and Detroit, which have the highest and lowest median home values in this study—\$941,400 and \$42,600 respectively. After accounting for assessment limits, the average property tax bill on a median valued home in the 73 large cities in this report is \$2,871. To raise that amount from a median valued home, the effective tax rate would need to

⁶ Data on per capita tax collections in 2014 is from the Lincoln Institute's *Fiscally Standardized Cities* database.

⁷ Michael A. Pagano and Christopher W. Hoene. 2010. "States and the Fiscal Policy Space of Cities." In *The Property Tax and Local Autonomy*, ed. Michael E. Bell, David Brunori, and Joan Youngman, 243-277. Cambridge, MA: Lincoln Institute of Land Policy.

⁸ <http://datatoolkits.lincolninst.edu/subcenters/fiscally-standardized-cities>

be more than 20 times higher in Detroit than in San Francisco—6.74 percent versus 0.30 percent. The effective tax rate on a median valued home is actually just 4.5 times higher in Detroit than San Francisco (3.15% vs. 0.70%), which means San Francisco collects nearly five times more in property taxes from a median valued home (\$6,571 vs. \$1,341). This is typical—higher property values usually lead cities to have both lower tax rates and to raise more revenue for public services. While the difference between San Francisco and Detroit is extreme, it is common for there to be dramatic differences in property wealth across communities within a state or region. State government grants to local governments can be used to offset these differences to help ensure everyone has access to necessary services at affordable property tax prices regardless of where they live.

This analysis uses the median home value in each city, but no one measure fully captures all differences in cities' property wealth. For example, even with identical tax rates on homes and businesses, cities with larger business tax bases will be able to have lower residential property tax rates since it usually costs more to provide public services to households than to businesses.⁹ In addition, the median does not provide any information about the distribution of home values. Cities with larger concentrations of high value homes (relative to the median in that city) will be able to have lower tax rates on a median valued home for any given level of public expenditures.

Local Government Spending

The level of local government spending is another reason why property tax rates vary across cities, although its effect is considerably less than property tax reliance or home values. Holding all else equal, cities with higher spending will need to have higher property tax rates. For example, Figure 1 shows that a 1 percent increase in local government spending per capita is associated with a 0.59 percent increase in the effective tax rate on a median valued home.

Just as property tax rates are driven by a number of key variables, there are several factors that influence local government spending. In particular, spending is driven by needs, revenue capacity, costs, and preferences. For example, expenditure needs are higher in cities with larger shares of school age children or higher crime rates, because local governments in those cities will need to spend more on K-12 education and police protection to provide the same quality of education and public safety as cities with fewer children or lower crime. Spending will often be higher in cities with greater revenue capacity since cities with larger tax bases can raise more revenue without needing higher tax rates, as discussed above in the section on property values. Costs also play a role, because cities with higher costs of living and higher private sector wages will need to pay higher salaries to attract qualified teachers, police, and other local government employees. Finally, residents in some cities have a higher preference for public spending—which also means higher taxes—than in other cities.¹⁰

⁹ Ernst & Young LLP and Council on State Taxation. 2015. "Total State and Local Business Taxes: State-by-State Estimates for Fiscal Year 2014." Pg. 16-19.

¹⁰ For an analysis that looks at the factors that drive differences in spending and revenue across states, see "Assessing Fiscal Capacities of States: A Representative Revenue System-Representative Expenditure System Approach, Fiscal Year 2012" by Tracy Gordon, Richard C. Auxier, and John Iselin published by the Urban Institute (March 8, 2016). For an analysis that looks at cities, see "The Fiscal Health of U.S. Cities" by Howard Chernick and Andrew Reschovsky in *Is Your City Healthy? Measuring Urban Fiscal Health* published by the Institute on Municipal Finance and Governance.

Classification and Preferential Treatment of Homestead Properties

Classification is the fourth factor that helps to explain differences across cities in property tax rates on homesteads. Under classified property tax systems, states and cities build preferences into their tax systems that result in lower effective tax rates for certain classes of property, with these features usually designed to benefit homeowners.

The “classification ratio” describes these preferences by comparing the effective tax rate for two types of property. For example, if a city has a 3.0% effective tax rate on commercial properties and a 1.5% effective tax rate on homestead properties, then the commercial-homestead classification ratio is 2.0 (3.0% divided by 1.5%). An increase in the classification ratio will be associated with a decrease in the tax rate on homestead properties, because it means that homeowners are collectively bearing a smaller share of the property tax burden while businesses and/or renters pay more. For example, Figure 1 shows that a 1 percent increase in the commercial-homestead classification ratio is associated with a 0.41 percent decrease in the effective tax rate on a median valued home, and a 1 percent increase in the apartment-homestead classification ratio is associated with a 0.39 percent decrease.

New York City has the highest classification ratios for both commercial and apartment properties relative to homesteads. This means that commercial buildings and apartments are taxed at a dramatically higher percentage of market value than owner-occupied residences. In New York, a \$1 million commercial property faces an effective tax rate that is 4.1 times higher than a median valued home, while a \$600,000 apartment building has an effective tax rate that is 5.0 times higher. As a result, among the largest cities in each state, New York City has the 2nd lowest tax rate on a median valued home, but the highest tax rate on apartments and the 2nd highest rate on commercial properties.¹¹ In New York, homeowners are heavily subsidized at the expense of renters and businesses.¹²

The New York City example shows the other side of the classification equation: favoring homeowners by definition means higher property taxes on businesses and apartment buildings. Regression analysis shows that a 1 percent increase in the commercial-homestead classification ratio is associated with a 0.48 percent increase in the commercial property tax rate, and a 1 percent increase in the apartment-homestead classification ratio is associated with a 0.54 percent increase in the apartment tax rate.¹³

Note that while renters do not pay property tax bills directly, they do pay property taxes indirectly since landlords are able to pass through some of their property taxes by increasing rents.¹⁴ Since renters have lower incomes than homeowners on average, preferences given to homesteads relative to apartment buildings will tend to make the property tax system more regressive.

¹¹ Appendix tables 2b, 5a, and 3a.

¹² Josh Barro. 2013. “If You Live in New York and You Rent, You’re Paying A Huge Tax You Don’t Even Know About.” *Business Insider*. June 28.

¹³ Results for commercial properties are shown in Appendix Table 1d. The analysis with effective tax rates on apartments as the dependent variable uses the same set of explanatory variables; each variable has the same level of statistical significance as in Appendix table 1d and the R-square is very similar (0.663).

¹⁴ Bowman, John H., Daphne A. Kenyon, Adam Langley, and Bethany P. Paquin. 2009. “Property Tax Circuit Breakers: Fair and Cost-Effective Relief for Taxpayers.” Cambridge, MA: Lincoln Institute of Land Policy. Pg. 32.

Other Factors

The four key factors described above explain nearly three-quarters of the variation in cities' effective tax rates on median valued homes, and are thus the most important causes of differences in tax rates across cities. However, there are other factors that also play a role. For example, two variables that could affect property tax rates are the level of state and federal aid and local governments' share of total state and local government spending in each state. However, the impact of these variables will depend on how exactly the state government structures aid or takes on service responsibilities otherwise provided by local governments.

It is reasonable to expect that higher state aid will allow local governments to reduce their reliance on property taxes and thus lead to lower property tax rates. But in fact, research shows that the impact of state aid on local property taxes is ambiguous, and depends on how state aid is structured. Some state aid formulas can limit local spending, in which case state aid is likely to reduce property taxes. However, other aid formulas like matching grants can encourage higher local spending, and thus state aid may not reduce property taxes in those cases.¹⁵

Similarly, if the state government bears a larger share of state and local government expenditures, it makes sense that local government spending and the need for property taxes might decline. That would be the case if the state assumes responsibility for public services that would otherwise be provided by local governments, such as in Hawaii where there is a single statewide school district and thus no local expenditures on K-12 education. But it is also possible that state expenditures are higher because the state government spends more on traditional state responsibilities, like higher education or public welfare, in which case higher state spending would not lead to lower local government expenditures.

The regression analysis used for this section considered these two other variables, but they were not found to be related with effective tax rates at a statistically significant level. This finding is not surprising since the expected impact of these variables depends on institutional details that are not captured by a single measure of state aid or state expenditures.

¹⁵ Kenyon, Daphne A. 2007. *The Property Tax-School Funding Dilemma*. Cambridge, MA: Lincoln Institute of Land Policy. Page 50.

Homestead Property Taxes

Figure 2 shows property taxes on a median valued home for the largest city in each state. The analysis looks at homesteads, which are owner-occupied primary residences. The average effective tax rate on median-valued homesteads for the 53 cities in Figure 2 is 1.497 percent. At that rate, a home worth \$200,000 would owe \$2,994 in property taxes ($1.497\% \times \$200,000$).

Tax rates vary widely across the 53 cities. The three cities at the top of the chart – Detroit, Bridgeport (CT), and Aurora (IL) – have effective tax rates that are roughly 2.5 times higher than the average for the 53 cities. In five other cities, the effective property tax rate on a median valued home is 1.5 to about 2 times the average. Conversely, the bottom six cities – Honolulu, Boston, Denver, Cheyenne (WY), Birmingham (AL), and Washington (DC) – all have effective tax rates that are less than half of the study average.

Overall, the average effective tax rate for all cities fell slightly between 2015 and 2016, from 1.503 percent of value to 1.497 percent. The effective tax rate on the median-valued homestead climbed in 27 cities, fell in 25, and remained unchanged in 1 city. The largest increase was in Buffalo, where the effective rate rose by about 13%, due to a higher nominal tax rate and a drop in the amount of home value exempt from school property taxes, with a corresponding increase in rank from 17th to 14th highest. Other cities where effective tax rates climbed by at least 5 percent include: Sioux Falls (SD), Columbus (OH), New Orleans, Wilmington (DE), and Newark (listed from largest increase to the smallest).

Effective rates on median-valued homesteads fell the farthest in Fargo, which had a 20.6 percent decline and a 12-place drop in rank, from 28th to 40th highest. Other cities with declines of at least 5 percent include: Manchester (NH), Wichita, Denver, Chicago, Burlington (VT), Boston, and Atlanta (listed from largest decrease to the smallest).

Note that in addition to effective tax rates, Figure 2 also reports the tax bill on a median valued home for each city. Because of significant variations in home values across these cities, some cities with modest tax *rates* can still have high tax *bills* on a median valued home relative to other cities, and vice versa. For example, Bridgeport and Detroit have similar tax rates on a median valued home, but because the median valued home is worth so much more in Bridgeport (\$167k vs. \$43k), the tax bill is far higher in Bridgeport (4th highest) than in Detroit (45th highest). In general, cities with high home values can raise considerable property tax revenue from a median valued home despite modest tax rates, whereas cities with low home values may have fairly low tax bills even with high tax rates.

The table on the next page shows cities with the largest differences in their ranking in terms of effective tax rates versus tax bills on a median valued home. Note that most of this report uses fixed home values (i.e., \$300k home in all cities) to estimate effective tax rates, which forces the ordering of cities in terms of tax rates to match the order for tax bills.

Cities with Largest Differences in Ranking on Effective Tax Rate vs. Tax Bill, for a Median Valued Home (2016)

High Home Values Cities with high tax bills despite low tax rates			Low Home Values Cities with low tax bills despite high tax rates		
City	Tax Rate	Tax Bill	City	Tax Rate	Tax Bill
Washington (DC)	48	11	Detroit (MI)	1	45
Boston (MA)	52	20	Buffalo (NY)	14	47
Seattle (WA)	42	10	Jackson (MS)	18	48
Los Angeles (CA)	30	3	Memphis (TN)	15	42
New York (NY)	32	6	Wichita (KS)	28	46

Appendix Table 2b is similar to Table 2a except that it accounts for the effect of assessment limits, which restrict growth in the assessed value of individual parcels for property tax purposes. These limits reduce estimates of homestead property taxes for 11 of the 53 cities, with the largest impacts on Los Angeles, New York City, and Portland (OR). Overall, accounting for assessment limits reduces the average property tax bill for the 53 cities by 6 percent. For more details on the impact of assessment limits, see that section of this report.

Appendix Table 2c shows how effective tax rates on homestead properties vary based on their value, showing tax rates for properties worth \$150,000 and \$300,000 for the largest city in each state. As the table notes, effective tax rates vary with property value about half of the time (26 of 53 cities). Usually, effective tax rates rise with homestead value because of homestead exemptions and property tax credits that are set to a fixed dollar amount. Under these programs, the percentage reduction in property taxes falls as home values rise. For example, a \$20,000 exemption provides a 20 percent tax cut on a \$100,000 home, a 10 percent cut on a \$200,000 home, and a 5 percent cut on a \$400,000 home.¹⁶ However, other design elements can create the same effect. For example, Minnesota uses a tiered assessment system, where 1% of a home's market value is taxable up through \$500,000 of value, while 1.5% of value above that is taxable.

Value-driven differences in effective tax rates make the biggest difference in Boston, which in 2016 offered a homestead exemption equal to the lesser of \$178,325 or 90 percent of a property's market value. This results in an ultra-low effective tax rate of 0.105% on a \$150,000 home, which is roughly a quarter of the effective rate on a \$300,000 home (0.391%). The other two cities with the largest differentials in the effective rates between a \$150,000-valued home and a \$300,000-valued home also offer substantial homestead exemptions: Honolulu (\$80,000 exemption) and Atlanta (which effectively exempts \$75,000 of market value).

Other cities where effective tax rates are considerably lower on a \$150,000 home than a \$300,000 home due to fixed dollar credits, exemptions, or other policies, include:

- New Orleans – nine place difference (43rd highest for \$150k, 34th highest for \$300k)
- Boise – five place difference (45th highest for \$150k, 40th highest for \$300k)
- Little Rock – five place difference (33rd highest for \$150k, 28th highest for \$300k)

¹⁶ For information on homestead exemptions in each state, see “How Do States Spell Relief: A National Study of Homestead Exemptions and Property Tax Credits” by Adam H. Langley in *Land Lines* (April 2015).

- Philadelphia – five place difference (36th highest for \$150k, 31st highest for \$300k)

Readers should use some caution when interpreting the results in Appendix Tables 2c, 2f, and 2h; see the box on comparing property taxes calculated with fixed property values (page 22).

Appendix Tables 2d through 2f show effective tax rates on homestead properties for a different set of cities. Whereas Tables 2a through 2c focus on the largest city for each state, Tables 2d through 2f show the 50 largest cities in the country regardless of their state. There is considerable overlap between the two groups of cities, but some significant differences as well. In this set of tables, California has eight cities, Texas has seven, Arizona has three, and five states have two cities each (CO, FL, NC, OK, and TN). There are 21 states without any cities in the top 50. As with the tables for the largest city in each state, there are two sets of tables for median-valued homes; one before and one after accounting for the effects of assessment limitations (Tables 2d and 2e respectively).

The average effective tax rates for homesteads are generally about 4 to 5 percent lower for the 50 largest cities than for the largest city in each state. The exception is when comparing median-valued homes after accounting for assessment limitations. For those cities, the discrepancy is bigger (a 9.2% difference), largely because the share of top 50 cities with assessment limits in effect is much larger than the share on a nationwide basis.

Effective tax rates can be rather homogenous across large cities in a single state. For example, consider the effective rates on median-valued homes in the two largest states shown in Table 2d:

- In the eight California cities, the highest effective tax rate is Oakland (20th highest) and the lowest is Long Beach (38th). However, California accounts for six of the 12 cities ranked between 27th and 38th, with effective tax rates clustering in the 1.1 to 1.2 percent range due to the effect of California's Proposition 13 limitations on tax rates.
- In the seven Texas cities, the highest effective tax rate is El Paso (3rd highest) and the lowest is Houston (14th), with Texas accounting for four of the six cities ranked between 3rd and 8th. It is more difficult to point to a single feature of Texas' property tax system to explain this clustering. However, it likely reflects the fact that local governments in these six Texas cities have relatively high reliance on property taxes and that Texas has a uniform property tax system that does not allow for different tax rates or assessment ratios on different types of property.

However, in other cases there can be considerable differences in effective tax rates between cities within the same state. For example, Table 2d shows some noticeable differences in effective tax rates and rankings for median-valued homes between these sets of same-state cities:

- In Tennessee: Memphis has the 13th highest tax rate (1.837%), while Nashville has the 43rd highest (0.996%) – a 30 place differential.
- In Arizona: Tucson has the 23rd highest tax rate (1.259%) and Phoenix has the 28th highest rate (1.181%), while Mesa has the 45th highest (0.879%) – a 17 place differential between the neighboring cities of Phoenix and Mesa.

Appendix Tables 2g and 2h provide additional information about how effective property tax rates vary across states by looking at a rural community in each state. The rural analysis includes county seats with populations between 2,500 and 10,000 located in nonmetropolitan counties.

The average effective tax rate on median-valued homes in the 50 rural communities in this report is 1.328% for taxes paid in 2016. As with large cities, the rates for rural municipalities vary considerably around that average. In three municipalities – Lancaster (NH), Ridgway (PA), and Warsaw (NY) – the effective tax rates on median-valued homes are 2 times the average or more. However, ten municipalities feature effective tax rates of less than half of the average, with the lowest rates in Kauai (HI), Pocahontas (AR), Monroeville (AL), Natchitoches (LA), and Elkins (WV).

Comparing Tables 2a and 2g shows that effective tax rates on median-valued homesteads are around 4 percent lower in rural municipalities than in large cities on average. There are two major reasons why rates are lower in rural communities: lower nominal tax rates and homestead exemptions that apply to a fixed amount of value across the state and therefore exempt higher proportions of homestead value from taxation in rural areas, where home values are generally much lower than in large cities.

In 34 states, the effective tax rate on the median-valued home is higher in the largest city than in the rural municipality. Arkansas has the biggest difference; the 1.146% rate in Little Rock is over 4.5 times the 0.246% rate in Pocahontas. In three other states the tax rate in the largest city is at least two times higher than in the rural community: Delaware, Louisiana, and Tennessee (listed alphabetically).

On the other hand, in 16 states the effective tax rate on median-valued homes is higher in the rural municipality than in the largest city in the state. The biggest difference is in Massachusetts, where the effective tax rate in Adams is nearly 3.5 times higher than the rate in Boston (2.12% vs. 0.61%), largely because of Boston's unique (within Massachusetts) homestead exemption. Other states where the tax rate in the rural community is at least 1.5 times higher than the largest city are Kansas, New York¹⁷, and Pennsylvania (listed alphabetically).

Some readers may want to use findings on effective tax rates from one specific table to reach conclusions on property taxes throughout an entire state. The small differences in tax rates across cities in California and Texas (Appendix Tables 2d-2f) show that the largest city in each state can serve as a proxy for property tax rates throughout an entire state. However, the large differences between the two largest cities in Tennessee and Arizona show that caution is needed when extrapolating findings for a single city to an entire state.

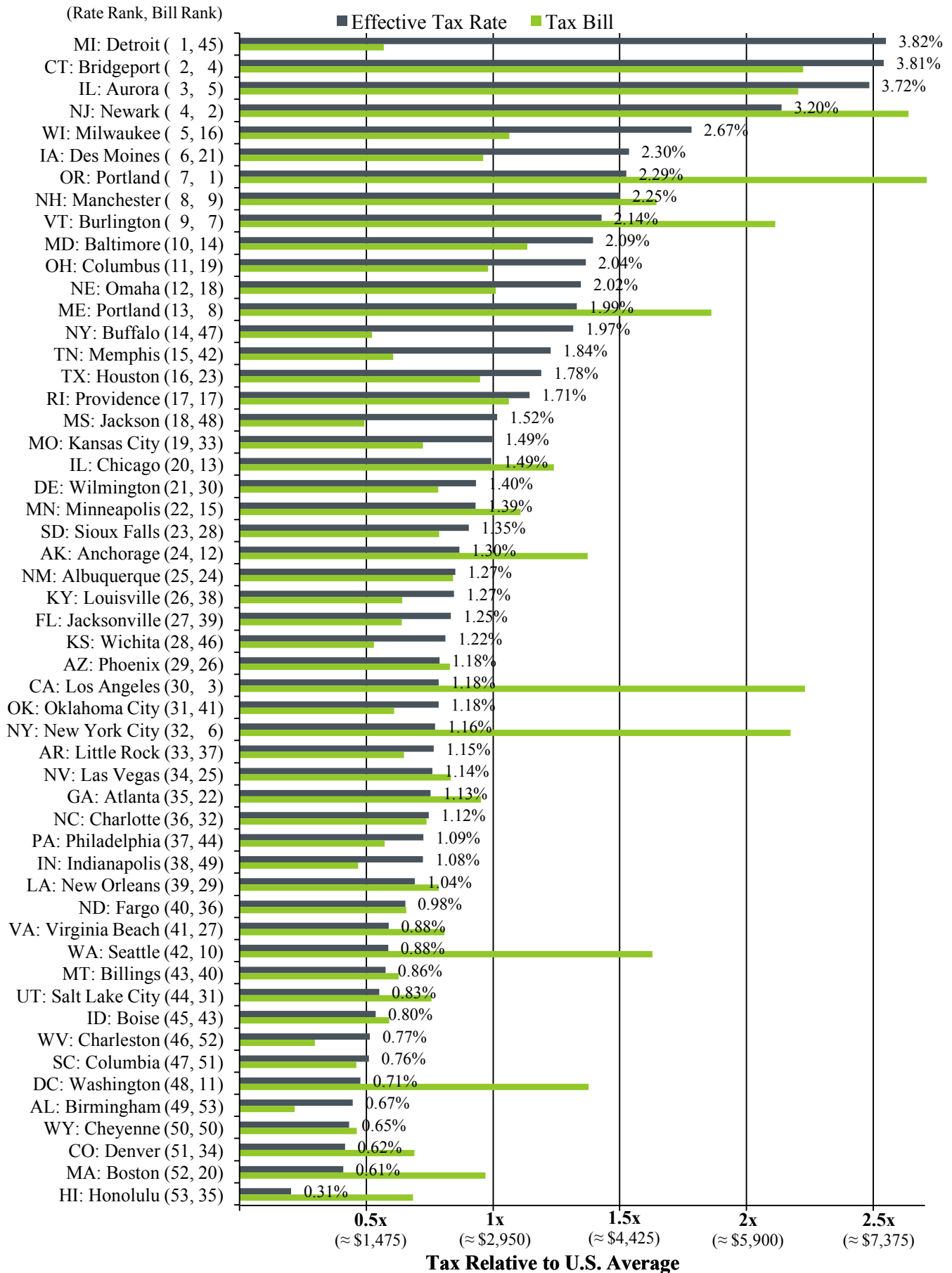
Readers wishing to determine whether taxes in a state are high, low, or somewhere in between are best served by comparing the rankings for urban and rural municipalities. For example, in six states (Illinois¹⁸, Michigan, New Hampshire, New Jersey, Vermont, and Wisconsin) the effective tax rate on the median-valued home is among the ten highest in both a rural and an urban setting – suggesting that these states are most likely to have the highest homestead property taxes.

¹⁷ When Buffalo and New York City are averaged.

¹⁸ Aurora only.

Alabama, Colorado, Hawaii, West Virginia, and Wyoming are the five states where effective tax rates on median-valued homes are among the ten lowest in both urban and rural (where applicable) settings – suggesting that these states are most likely to have the lowest homestead property taxes.

Figure 2: Property Taxes on Median Valued Home for Largest City in Each State (2016)



Commercial Property Taxes

Figure 3 shows effective property tax rates for commercial properties worth \$1 million dollars for the largest city in each state. This analysis looks specifically at taxes on office buildings, hotels, and other commercial properties without inventory on site. Tax rates for other types of commercial property will often be similar, but will vary in cities where personal property is taxed differently than real property. The analysis assumes each property has an additional \$200,000 worth of fixtures, which includes items such as office furniture, equipment, display racks, and tools. Different types of commercial property will have different proportions of real and personal property. Therefore, effective tax rates will change between different types of commercial property in cities where personal property is taxed differently from real property.

The average effective tax rate on commercial properties for the 53 cities in Figure 3 is 2.097 percent. A property worth \$1 million with \$200,000 in fixtures would thus owe \$25,166 in property taxes ($2.097\% \times \$1.2\text{m}$).

Tax rates vary widely across the 53 cities. The top five cities of Detroit, New York City, Chicago, Providence, and Bridgeport all have effective tax rates that are at least two-thirds higher than the average for these cities. The bottom six cities of Virginia Beach, Billings, Fargo, Honolulu, Seattle, and Cheyenne (WY) all have tax rates that are less than half of the average.

A few of the cities had significant changes in their effective tax rates from 2015 to 2016. The cities with the largest declines in their tax rates were Boston and Fargo. Growing underassessment of commercial properties and a lower nominal tax rate led the effective tax rate on a \$1-million valued commercial property in Boston to decline by 14.2%, from 2.24% to 1.92%, with the city's ranking falling from 24th to 28th.¹⁹ In Fargo, the effective tax rate fell by an eighth, from 1.14% to 1.00%, so that the city's ranking dropped from 46th to 50th. The other city with a significant drop in its tax rate rankings was Sioux Falls, SD (from 24th to 39th).

Columbus, OH had the largest increase in effective tax rates on commercial properties from 2015 to 2016. The city's effective tax rate on a commercial property worth \$1 million increased by less than 10%, from 1.62% to 1.75%, so that Columbus' ranking rose from 32nd to 30th. Only one city increased its ranking by more than two places: Albuquerque, where the tax rate ranking rose from 37th highest to 34th.

Appendix Table 3a shows how effective tax rates on commercial properties vary based on their value, showing tax rates for properties worth \$100,000, \$1 million, and \$25 million (all have fixtures worth 20% of the real property value). Effective tax rates for commercial properties generally do not vary based on property values, unlike homestead properties, where exemptions or other tax relief programs often create significantly lower rates on lower valued properties.

Only 11 of the 53 cities have effective tax rates that vary based on their value. Value-driven differences in effective tax rates make the biggest difference in rankings in Philadelphia. Philadelphia has among the lowest tax rates for commercial properties worth \$100,000 (1.135%,

¹⁹ The sales ratio for commercial properties in Columbus fell from 92.4% to 68.8%.

46th highest), but is just slightly below average for commercial properties worth \$25 million (2.110%, 26th highest). The city offers property owners a credit against the first \$2,000 of Business Use and Occupancy Tax (effectively, a property tax imposed only on business properties) assessed against individual properties, and this credit creates this large differential. The credit reduces the tax on a \$100,000-valued property by 46%, but by only 0.3% for a property worth \$25 million.

Other cities where the rankings vary significantly because of beneficial tax treatment provided to lower-valued properties through credits, exemptions, or preferential assessment practices include:

- Des Moines (22nd highest for \$100k, 7th highest for \$25m)
- Washington, DC (41st highest for \$100k, 28th highest for \$25m)
- Minneapolis (17th highest for \$100k, 9th highest for \$25m)

Appendix Table 3b shows effective tax rates on commercial properties for a different set of cities. Whereas Table 3a has the largest city for each state, Table 3b shows the 50 largest cities in the country regardless of their state. There is considerable overlap between the two groups of cities, but some significant differences as well. In Table 3b, California has eight cities, Texas has seven cities, Arizona has three cities, and six states (CO, FL, NC, OK, and TN) have two cities each. There are 21 states without any cities in the top 50 shown in Table 3b. Appendix Table 3b also shows effective tax rates on commercial properties worth \$100,000, \$1 million, and \$25 million (with fixtures worth 20% of the real property value).

The average effective tax rates for commercial properties is slightly lower for the 50 largest cities shown in Table 3b than the cities shown in Table 3a—about 5 to 6 percent lower for the three property values analyzed.

In some states, tax rates do not vary too much across the largest cities. For example, consider tax rates for commercial properties worth \$1 million in the two largest states:

- For California's eight cities, the highest tax rate is in Oakland (35th highest) and the lowest is in Sacramento (47th). California accounts for 7 of the 9 cities ranked between 39th and 47th.
- For Texas's seven cities, the highest tax rate is in San Antonio (9th highest) and the lowest is in Austin (22nd). Texas accounts for six of the eight cities ranked between 9th and 16th.

However, in other cases there can be considerable differences in effective tax rates between cities within the same state. There are actually larger differences in tax rates for states with just two or three cities:

- In Arizona: Phoenix has the 18th highest tax rate, while neighboring Mesa has the 33rd highest.
- In Tennessee: Memphis has the 7th highest tax rate, while Nashville has the 31st highest.
- In Colorado: Denver has the 19th highest tax rate, while Colorado Springs has the 30th highest.

Appendix Table 3c provides additional information about how effective property tax rates vary across states by looking at a rural community in each state. The rural analysis includes county seats with populations between 2,500 and 10,000 that are located in nonmetropolitan counties.

On average, commercial tax rates are about 17 to 18 percent lower for the 50 rural communities than the largest cities in each state. For a property worth \$1 million, the average effective tax rate is 1.73% for the rural cities versus 2.10% for the urban cities shown in Appendix Table 3a. For 34 states, the effective tax rate on a \$1-million valued commercial property is lower in the selected rural municipality than in the state's largest city.

The state with the biggest difference in the tax rate in the largest city and the rural municipality is Tennessee, where the tax rate on a commercial property worth \$1 million in Savannah (TN) is about a third of the rate in Memphis (1.01% vs. 2.84%). Other states where the tax rate in the rural community is significantly lower than the largest city include Delaware (56% lower), Connecticut (51% lower), Arkansas (50% lower), and Oregon (49% lower).

On the other hand, in 16 states the tax rate is higher in the rural municipality than in the largest city in the state. The biggest difference is in Montana, where the tax rate on a commercial property worth \$1 million in Glasgow is 56 percent higher than the rate in Billings (4.55% vs. 2.83%). Other states where the tax rate in the rural municipality is significantly higher than the largest city include South Dakota (43% higher), Washington (40% higher), Florida (31% higher), and Kansas (30% higher).

Variation in tax rates across the 50 rural cities is very similar to variation across the largest cities in each state.

Some readers may want to use findings on effective tax rates from one specific table to reach conclusions on property taxes throughout an entire state. The small differences in tax rates across cities in California and Texas (Appendix Table 3b) show that the largest city in each state can serve as a proxy for property tax rates throughout an entire state. However, the large differences between the largest cities in Tennessee, Arizona, and Colorado show that caution is needed when extrapolating findings for a single city to an entire state.

Readers wishing to determine whether taxes in a state are high, low, or somewhere in between are best served by comparing the rankings for urban and rural municipalities. For example, six states (Iowa, Michigan, Minnesota, New York, South Carolina, and Wisconsin) have multiple top ten rankings in both an urban and rural setting – suggesting that these states are most likely to have the highest commercial property taxes. Conversely, four states (Delaware, Hawaii, Virginia, and Wyoming) have multiple bottom ten rankings in both urban and rural settings.

Comparing Property Taxes Calculated with Fixed Property Values

This report uses fixed property values (i.e. \$1 million in all cities) to control for the impact local real estate conditions have on relative tax burdens. However, differences in property values – driven largely by differences in land values – mean identically valued properties often look very different across the country. For example, a \$1 million property in Detroit is very different from a \$1 million parcel in New York City. For two properties with different values but identical characteristics (i.e. similar square footage, amenities, etc.) in two cities with the same effective tax rates, the property tax bill will be higher in dollar terms in the city with high property values than the city with low values.

For taxes on commercial, industrial, and apartment properties, the report solely uses fixed property values. As a result, if the goal is to compare taxes due on properties with similar characteristics (i.e. 5000 square feet in the central business district), the net tax *bills* (i.e. \$3,000) will be underestimated in cities with high property values and overestimated in cities with low property values. In contrast, data on effective tax *rates* (i.e. 1.5 percent) will be largely unaffected by the property value chosen for the analysis, because effective tax rates usually do not increase with property values for business properties. For this reason, it is better to use data on effective tax *rates* when making cross-city comparisons for taxes on commercial, industrial, and apartment properties.

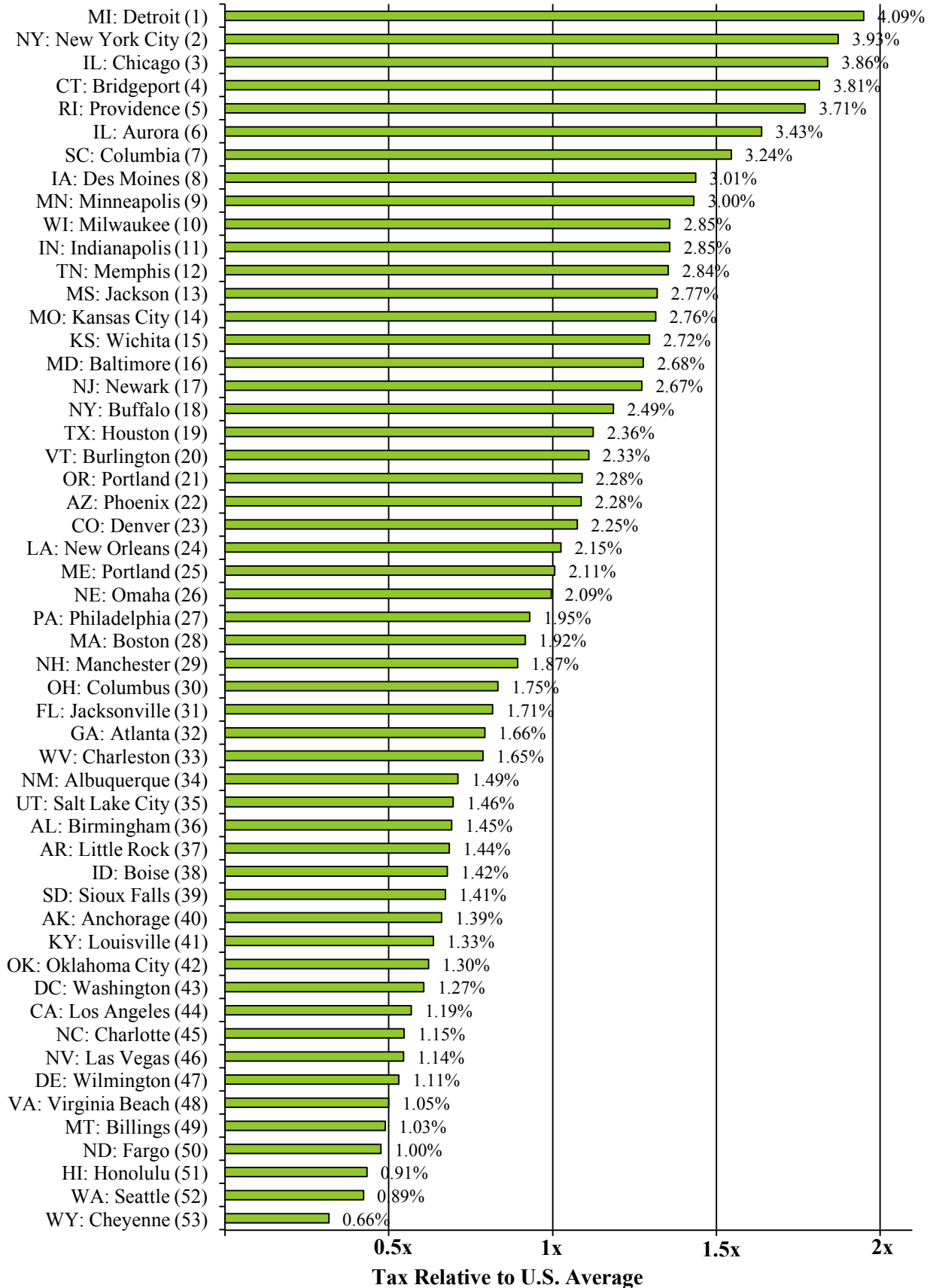
In addition, fixed property values are not problematic from the perspective of a real estate investor looking to invest a certain amount of money—whether it’s a \$1 million condo in New York or a \$1 million apartment complex in Detroit.

Note that the use of fixed property values also makes year-to-year comparisons of effective tax rates or tax bills challenging because property values change over time. A \$1 million property in 1995 looks very different than a \$1 million property in 2016 in most cities.

For homestead property taxes, the report analyzes property taxes on median valued homes, which adjusts for differences in property values, and thus allows for comparisons of property taxes on a “typical” home across cities and over time.

Figure 3: Commercial Property Taxes for Largest City in Each State (2016)

Effective Tax Rate for \$1-Million Valued Property (plus \$200k in Fixtures)



Industrial Property Taxes

Figure 4 shows effective property tax rates for industrial properties with \$1 million worth of real property for the largest city in each state. This analysis looks specifically at taxes on manufacturing properties. We assume that each property has an additional \$1 million of personal property, consisting of \$500,000 of machinery and equipment, \$400,000 of inventories, and \$100,000 of fixtures. Differences in personal property taxation have significant impacts on effective tax rates for industrial properties, as described in the box on the next page. Readers should use some caution when interpreting these results; see the box on comparing property taxes calculated with fixed property values for guidance (page 22).

The average effective tax rate on industrial properties for the 53 cities in Figure 4 is 1.548 percent. A parcel with a real property value of \$1 million that has an additional \$1 million in personal property would thus owe \$30,960 in property taxes ($1.548\% \times \$2\text{m total parcel value}$). For shorthand, this section refers to parcels based on their real property values.

Tax rates vary widely across the 53 cities. The top five cities of Columbia (SC), Detroit, Jackson (MS), Memphis, and Houston all have effective tax rates that are at least 60% higher than the average for these cities. The bottom seven cities of Virginia Beach, Honolulu, Fargo, Cheyenne, Wilmington (DE), Seattle, and Louisville all have tax rates that are less than half of the average.

Some cities had significant changes in their effective tax rates from 2015 to 2016. Similarly to commercial properties, the cities with the largest declines in their industrial property tax rates were Boston and Fargo. A lower nominal tax rate and growing underassessment dropped the effective tax rate in Boston by nearly 15%, from 1.36% to 1.17%, so that the city's ranking dropped from 32nd to 38th. Growing underassessment of industrial properties, influenced the 12% drop in the effective tax rate on a manufacturing parcel in Fargo. Other cities with significant declines include Sioux Falls (SD), which had a 12% drop in its effective tax rate and thus fell from 43rd to 45^h in the rankings; Chicago, which fell from 9th to 14th; and Minneapolis, which fell from 14th to 18th.

Columbus (OH) had the largest increase in effective tax rates on industrial properties from 2015 to 2016. The city's effective tax rate on an industrial property worth \$1 million increased by 8%, from 1.23% to 1.33%, so that the city's ranking rose from 36th to 32nd. Two other cities experienced notable increases in their ranking: Newark rose five spots from 2015, from 26th highest to 21st and Oklahoma City rose four places, from 41st highest to 37th.

Appendix Table 4a shows how effective tax rates on industrial properties vary based on their value, showing tax rates for properties worth \$100,000, \$1 million, and \$25 million (all have personal property worth 100% of the real property value). As the table notes, effective tax rates for industrial properties generally do not vary based on property values, unlike homestead properties, where exemptions or other tax relief programs often create significantly lower rates on lower valued properties.

Taxes on Personal Property

Property taxes are often imposed differently on real property (the value of land and buildings) versus personal property (the value of machinery and equipment, inventories, and fixtures). For example, Appendix Table 4g shows how three categories of personal property are taxed in the largest cities in each state:

- **Machinery and equipment**, which includes things like assembly robots and milling machines, is fully exempt from taxation in 21 cities. In another 10 cities, the property tax system provides preferential treatment to machinery and equipment over real property. In contrast, real property is treated preferentially relative to personal property in at least once instance in five cities.
- **Manufacturers' inventories**, which include raw materials, supplies, unfinished products, and similar items, are fully exempt from taxation in 43 cities. In another 4 cities, inventories receive preferential treatment relative to real property, while the reverse is true in 2 cities.
- **Fixtures**, which include office furniture, equipment, display racks, and tools, are fully exempt from taxation in 15 cities. In another 8 cities, the property tax system provides preferential treatment to fixtures relative to real property, while fixtures are taxed more heavily than real property in at least one instance in 10 cities.

Because personal property is often taxed at a lower rate than real property, the effective tax rate on business properties usually depends on the share of a parcel's total value (i.e. real property + personal property) that comes from personal property. That means estimates of effective tax rates depend on assumptions about the split of total parcel value between real and personal property.

However, the split between real and personal property varies by industry and location. Our modeling indicates that personal property's share of total parcel value ranges from a low of 32.1% for apparel manufacturers to a high of 67.1% for motor vehicle manufacturers. After applying state-specific weights for each manufacturing type, the median state has 55% of total industrial parcel value in personal property with the minimum amount being 50% (Massachusetts) and the maximum being 59% (Michigan).²⁰

Because estimates of effective tax rates are sensitive to assumptions about personal property's share of total parcel value, we present two sets of estimates for industrial properties: personal property accounts for 50% of total parcel value in one set of estimates and 60% in the other set. The first set will be a better reflection of effective tax rates for industries and states where personal property accounts for a smaller share of total parcel value (like apparel manufacturers and Massachusetts), while the second set will be better when personal property accounts for a larger share of total parcel value (like motor vehicle manufacturers and Michigan).

Only 12 of the 53 cities have effective tax rates that vary based on their value. Value-driven differences in effective tax rates make the biggest difference in rankings in Washington, D.C. The District of Columbia has one of the lowest tax rates for industrial properties worth \$100,000

²⁰ To determine personal property's share of total parcel value, we replicate the methodology used by the Minnesota Department of Revenue's Research Division in their biennial *Tax Incidence Study*. These studies are available on their website: http://www.revenue.state.mn.us/research_stats/Pages/Tax_Incidence_Studies.aspx.

(0.764%, 44th highest), but is above average for industrial properties worth \$25 million (1.849%, 16th highest). The city exempts the first \$225,000 of business personal property, which is effectively a complete personal property exemption for the \$100,000-valued parcel but only exempts 0.9% of the personal property associated with the \$25 million-valued parcel. The exemption reduces the total tax on a \$100,000-valued property by more than half but by less than 1% for a property worth \$25 million.

Other cities where the rankings vary significantly because of beneficial tax treatment provided to lower-valued properties through credits, exemptions, or preferential assessment practices include:

- Phoenix (30th highest for \$100k, 10th highest for \$25m)
- Billings (MT) (52nd highest for \$100k, 37th highest for \$25m)
- Des Moines (27th highest for \$100k, 13th highest for \$25m)
- Philadelphia (47th highest for \$100k, 34th highest for \$25m)

Appendix Table 4c shows effective tax rates on industrial properties for a different set of cities. Whereas Table 4a has the largest city for each state, Table 4c shows the 50 largest cities in the country regardless of their state. There is considerable overlap between the two groups of cities, but some significant differences as well. In Table 4c, California has eight cities, Texas has seven cities, Arizona has three cities, and five states (CO, FL, NC, OK, and TN) have two cities each. There are 21 states without any cities in the top 50 shown in Table 4c. Appendix Table 4c also shows effective tax rates on industrial properties worth \$100,000, \$1 million, and \$25 million (again with personal property equal to 100% of the real property value).

The average effective tax rate for industrial properties is slightly higher for the 50 largest cities shown in Table 4c than the cities shown in Table 4a—roughly 4 percent higher, regardless of which of the three property values is analyzed.

In some states, tax rates do not vary too much across the largest cities. For example, consider tax rates for industrial properties worth \$1 million in the two largest states:

- For California's eight cities, the highest tax rate is in Oakland (34th highest) and the lowest is in Sacramento (43rd). California accounts for 8 of the 10 cities ranked between 34th and 43rd.
- For Texas's seven cities, the highest tax rate is in Fort Worth (highest among the 50) and the lowest is in Austin (11th). Texas accounts for the top five cities and six of the top seven.

However, in other cases there can be considerable differences in effective tax rates between cities within the same state. Consider these noticeable differences in ranking (with the associated effective tax rates) for the \$1 million-valued industrial properties in states with two or three cities among the nation's largest fifty:

- In Tennessee: Memphis has the 7th highest tax rate (2.635%), while Nashville has the 25th highest (1.474%).
- In Colorado: Denver has the 18th highest tax rate (1.806%), while Colorado Springs has the 33rd highest (1.307%).

- In Arizona: Phoenix has the 14th highest tax rate (1.965%), while neighboring Mesa has the 30th highest (1.338%).

Appendix Table 4e provides additional information about how effective property tax rates vary across states by looking at a rural community in each state. The rural analysis includes county seats with populations between 2,500 and 10,000 that are located in nonmetropolitan counties.

On average, industrial tax rates are about 16 to 18 percent lower for the 50 rural communities than the largest cities in each state. For a property worth \$1 million, the average effective tax rate is 1.281% for the rural cities versus 1.548% for the urban cities shown in Appendix Table 4a. For 33 states, the effective tax rate on a \$1-million valued industrial property is lower in the selected rural municipality than in the state's largest city.

The state with the biggest difference in the tax rate in the largest city and the rural municipality is Tennessee, where the tax rate on an industrial property worth \$1 million in Savannah (TN) is about a third of the rate in Memphis (0.94% vs. 2.64%). Other states where the tax rate in the rural municipality is significantly lower than the largest city include Delaware (56% lower), Connecticut (51% lower), and Arkansas and Oregon (both 49% lower).

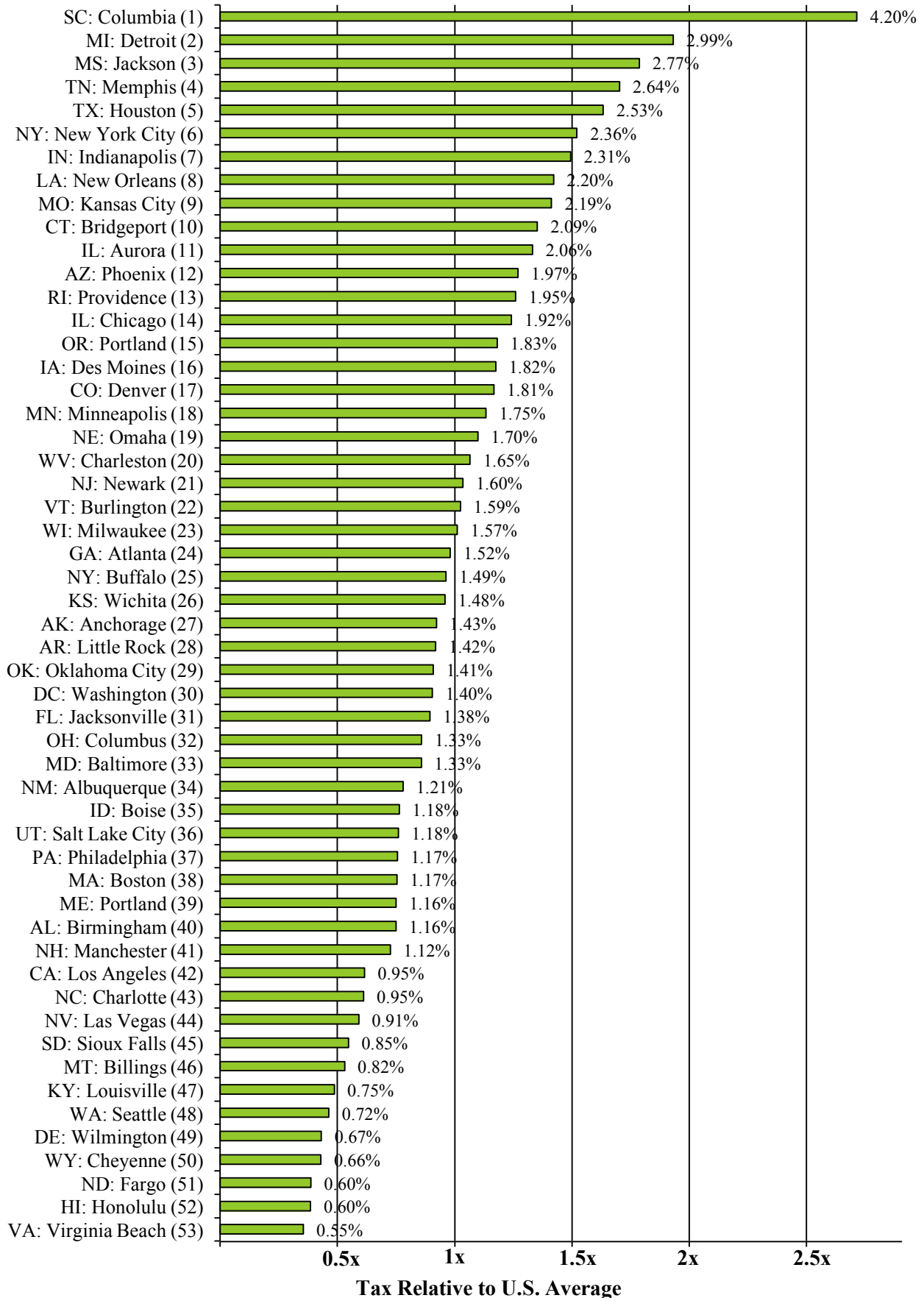
On the other hand, in 17 states the tax rate is higher in the rural municipality than in the largest city in the state. The biggest difference is in Montana, where the tax rate on an industrial property worth \$1 million in Glasgow is 46 percent higher than the rate in Billings (1.19% vs. 0.82%). Other states where the tax rate in the rural municipality is significantly higher than the largest city include South Dakota (43% higher), Washington (41% higher), Virginia (38% higher), and Florida (30% higher).

Variation in industrial tax rates across the 50 rural cities is very similar to variation across the largest cities in each state.

Some readers may want to use findings on effective tax rates from one specific table to reach conclusions on property taxes throughout an entire state. The small differences in tax rates across cities in California and Texas (Appendix Table 4c) show that the largest city in each state can serve as a proxy for property tax rates throughout an entire state. However, the large differences between the two or three largest cities in Tennessee, Arizona, and Colorado show that caution is needed when extrapolating findings for a single city to an entire state.

Readers wishing to determine whether taxes in a state are high, low, or somewhere in between are best served by comparing the rankings for urban and rural municipalities. For example, six states (Indiana, Michigan, Mississippi, Missouri, South Carolina, and Texas) have multiple top ten rankings in both an urban and rural setting under both sets of assumptions – suggesting that these states are most likely to have the highest industrial property taxes. Delaware, Hawaii, Kentucky, North Dakota, Virginia, and Wyoming are the six states that most often have bottom ten rankings in both urban and rural settings.

Figure 4: Industrial Property Taxes for Largest City in Each State (2016)
Effective Tax Rate for \$1-Million Valued Property (plus \$1 Million in Personal Property)



Apartment Property Taxes

Figure 5 shows effective property tax rates for apartment buildings worth \$600,000 for the largest city in each state. The analysis assumes each property has an additional \$30,000 worth of fixtures, which includes items such as stoves, refrigerators, garbage disposals, air conditioners, drapes, and lawn care equipment. Readers should use some caution when interpreting these results; see the box on comparing property taxes calculated with fixed property values for guidance (page 22).

The average effective tax rate on apartment properties for the 53 cities in Figure 5 is 1.866 percent. A property worth \$600,000 with \$30,000 in personal property would thus owe \$11,196 in property taxes ($1.866\% \times \$630,000$ total parcel value).

Tax rates vary widely across the 53 cities. The top two cities of New York City and Detroit have effective tax rates that are more than 2.5 times higher than the average for these cities. The next three cities (Aurora, IL; Bridgeport, CT; and Des Moines, IA) have effective tax rates that are roughly double the average for these cities. Conversely, there are eight cities where tax rates on apartments are less than half the average, with the lowest rates in Honolulu, Cheyenne, Denver, Washington (DC), and Salt Lake City.

Some cities had significant changes in their effective tax rates from 2015 to 2016. The cities where property tax rates on apartment properties declined by at least 25% were Providence (RI) and Chicago. Growing underassessment substantially influenced the effective tax rate reduction for apartments in Chicago. Other cities with significant declines include Salt Lake City, which had a 14% drop in its effective tax rate and thus fell from 46th to 49th in the rankings, and Fargo, where a 12% drop in the effective tax rate resulted in a drop in ranking from 37th to 42nd highest.

The effective tax rate on apartments increased by 8% between 2015 and 2016 in Columbus (OH) largely due to an increase in the city's nominal tax rate on apartments, so that city's ranking rose from 21st to 19th. Five other cities had notable increases in the effective tax rankings for apartments: Wilmington (DE) rose from 40th to 33rd, Newark rose from 10th to 6th, Philadelphia rose from 39th to 36th, Los Angeles rose from 42nd to 39th, and Anchorage (AK) rose from 35th to 32nd.

Appendix Table 5b shows effective tax rates on apartment properties for a different set of cities. Whereas Table 5a has the largest city for each state, Table 5b shows the 50 largest cities in the country regardless of their state. There is considerable overlap between the two groups of cities, but some significant differences as well. In Table 5b, California has eight cities, Texas has seven cities, Arizona has three cities, and five states (CO, FL, NC, OK, and TN) have two cities each. There are 21 states without any cities in the top 50 shown in Table 5b.

The average effective tax rates for apartment properties is about 8 percent lower for the 50 largest cities shown in Table 5b than the cities shown in Table 5a. In some states, tax rates do not vary too much across the largest cities. For example, consider tax rates for apartment properties worth \$600,000 in the two largest states:

- For California's eight cities, the highest tax rate is in Oakland (26th highest) and the lowest is in Sacramento (40th highest). There is a clustering effect as California accounts for 7 of the 9 cities ranked between 32nd and 40th.
- For Texas's seven cities, the highest tax rate is in San Antonio (5th highest) and the lowest is in Austin (13th). Texas accounts for seven of the nine cities ranked between 5th and 13th.

However, in some states there are considerable differences in effective tax rates between different cities. Consider these notable differences in rankings and effective tax rates between the cities in these states:

- In Tennessee: Memphis has the 3rd highest tax rate (2.911%), while Nashville has the 21st highest (1.582%).
- In Oklahoma: Tulsa has the 23rd highest tax rate (1.470%), while Oklahoma City has the 31st highest (1.266%).
- In Arizona: Tucson and Phoenix have the 25th and 30th highest rates (1.359% and 1.276%, respectively), while Mesa has the 45th highest (0.988%).

Appendix Table 5c provides additional information about how effective property tax rates vary across states by looking at a rural community in each state. The rural analysis includes county seats with populations between 2,500 and 10,000 that are located in nonmetropolitan counties.

On average, apartment tax rates are about 14 percent lower for the 50 rural communities than the largest cities in each state. For the \$600,000-valued apartment property, the average effective tax rate is 1.612% for the rural cities versus 1.866% for the large cities shown in Appendix Table 5a. For 32 states, the effective tax rate on a \$600,000-valued apartment property is lower in the selected rural municipality than in the state's largest city.

The state where the tax rate in the largest city is the lowest vis-à-vis the rate for the rural municipality is Tennessee, where the tax rate on a \$600,000-valued apartment property in Savannah is about a third of the rate in Memphis (1.03% vs. 2.91%). Other states where the tax rate in the rural municipality is significantly lower than the largest city include Delaware (58% lower), Connecticut (51% lower), Arkansas (50% lower) and Oregon (49% lower).

On the other hand, in 18 states the tax rate is higher in the rural municipality than in the largest city in the state. The biggest difference is in Pennsylvania, where the tax rate on an apartment property worth \$600,000 in Ridgway is nearly 110 percent higher than the rate in Philadelphia (2.70% vs. 1.30%). Other states where the tax rate in the rural municipality is significantly higher than in the largest city include Massachusetts (103% higher), Hawaii (77% higher), Kansas (62% higher), and South Dakota (43% higher).

Variation in apartment tax rates across the 50 rural municipalities is very similar to variation across the largest cities in each state.

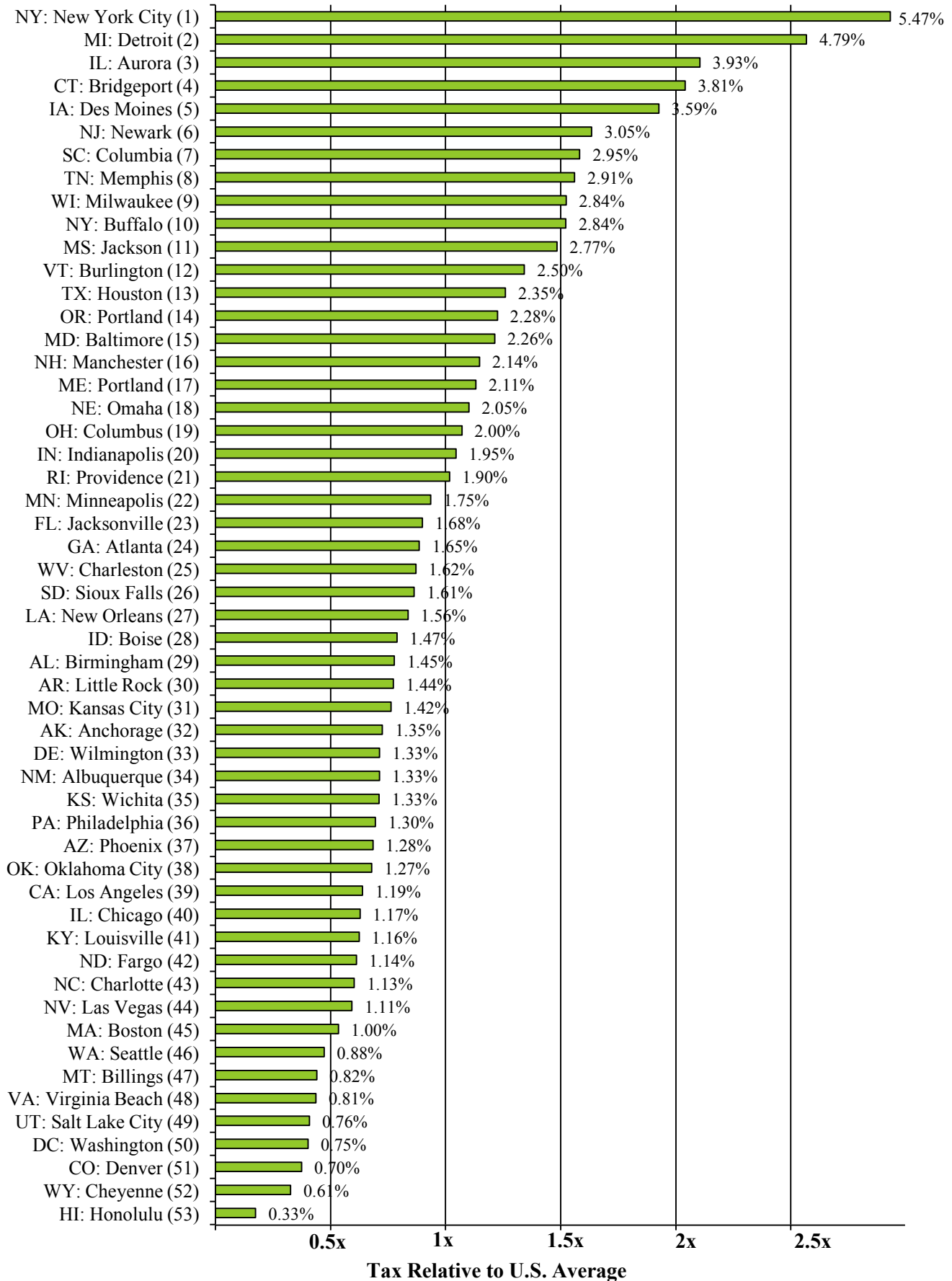
Some readers may want to use findings on effective tax rates from one specific table to reach conclusions on property taxes throughout an entire state. The small differences in tax rates across cities in California and Texas (Appendix Table 5b) show that the largest city in each state can

serve as a proxy for property tax rates throughout an entire state. However, the large differences between the largest cities in Tennessee, Oklahoma, and Arizona show that caution is needed when extrapolating findings for a single city to an entire state.

Readers wishing to determine whether taxes in a state are high, low, or somewhere in between are best served by comparing the rankings for urban and rural municipalities. For example, six states (Iowa, Michigan, New Jersey, New York, South Carolina, and Wisconsin) have top ten rankings in both an urban and rural setting – suggesting that these states are most likely to have the highest apartment property taxes. Colorado, Hawaii, Utah, Virginia, and Wyoming are the five states that have bottom ten rankings in both urban and rural settings.

Figure 5: Apartment Property Taxes for Largest City in Each State (2016)

Effective Tax Rate for \$600,000 Valued Property (plus \$30,000 of Fixtures)



Classification and Preferential Treatment of Homestead Properties

Many cities have preferences built into their property tax systems that result in lower effective tax rates for certain classes of property, with these features usually designed to benefit homeowners. The “classification ratio” describes these preferences by comparing the effective tax rate for two types of property. For example, if a city has a 3.0% effective tax rate on commercial properties and a 1.5% effective tax rate on homestead properties, then the commercial-homestead classification ratio is 2.0 (3.0% divided by 1.5%).

In a property tax system that treats all properties similarly, the classification ratio would be 1.0, because the effective rates on all properties would be the same. Therefore, the classification ratio provides a summary measure of the degree to which one type of property subsidizes lower property taxes on another class of properties. There are four main features of property tax systems that lead to different effective tax rates for different classes of property: the assessment ratio, the nominal tax rate, exemptions and credits, and the sales ratio.²¹

First, states may have different assessment ratios for different classes of property, which is the percentage of market value used to determine taxable values. For example, a state may have a 100% assessment ratio for commercial property and a 70% assessment ratio for residential property, which means a \$100,000 commercial property would be taxed on its full market value but a \$100,000 residential property would be taxed as if it were worth \$70,000.

Second, cities may have different nominal tax rates for different classes of property, which is the tax rate applied to the taxable value to determine the tax bill. The nominal tax rate is also known as the statutory tax rate or millage rate.

Third, states or cities may have exemptions or credits that are only available to certain types of properties. The most common are homestead exemptions, which reduce the amount of property value subject to taxation, but are usually restricted to owner-occupied homes and unavailable to businesses or renters. For example, a \$50,000 homestead exemption would mean a \$200,000 home would be taxed as if it were worth \$150,000, assuming there is a 100% assessment ratio.²²

Fourth, the sales ratio may vary across property classes. The sales ratio measures the accuracy of assessments by comparing assessments to actual sales. For example, if the sales ratio for homesteads is 95%, then a home worth \$100,000 would be “on the books” as if it were worth \$95,000. Unlike the three other causes of classification, differences in sales ratios across classes are not written into law and are normally unintentional. Nonetheless, differences in the quality of assessments across property classes can produce a *de facto* classification system.

²¹ For details on classification in each state, see the Property Tax Classification table on the Lincoln Institute of Land Policy’s *Significant Features of the Property Tax* website (https://www.lincolnst.edu/subcenters/significant-features-property-tax/Report_Property_Tax_Classification.aspx).

²² For information on homestead exemptions in each state, see “How Do States Spell Relief: A National Study of Homestead Exemptions and Property Tax Credits” by Adam H. Langley in *Land Lines* (April 2015).

Commercial-Homestead Classification Ratio

Figure 6a shows the commercial-homestead classification ratio for the largest city in each state, by comparing the effective tax rate on a \$1 million commercial property to the effective tax rate on a median-value homestead property. Note that because homeowners' household goods are not taxable, we exclude commercial fixtures and instead compare only the effective rates on real property (land and buildings).

The average classification ratio for the 53 cities shown in Figure 6a is 1.672, which means that on average commercial properties experience an effective tax rate that is 67% higher than homesteads.

The commercial-homestead classification ratio varies widely across the 53 cities. The top five cities of New York City, Boston, Columbia (SC), Denver, and Honolulu all have classification ratios greater than 3.5. Just over a quarter of the cities (14 of 53) have classification ratios above 2.0, meaning that commercial properties face an effective tax rate that is at least double that for homesteads.

There are two cities where the classification ratio is below one, meaning that their classification system favors commercial properties over homesteads: Louisville and Wilmington (DE). The property tax systems in these cities are not structured to favor commercial properties, but the sales ratio results in a *de facto* classification system since commercial properties are under-assessed relative to homestead properties.

Appendix Table 6a provides additional information about the commercial-homestead classification ratio in each city. Of the 53 cities, 16 have a higher assessment ratio for commercial properties, 15 have a higher nominal tax rate on commercial properties, and 29 have exemptions or credits that favor homesteads over commercial properties. In total, 40 of the 53 cities have statutory preferences for homesteads—27 of them have differences in assessment ratios and/or nominal tax rates that favor homesteads, while in 13 cities classification is the result of exemptions or credits alone.

On average, tax disparities between commercial and homestead properties fell slightly in 2016—declining to 1.672 from 1.683 in 2015. The commercial-homestead classification ratio declined in 25 cities, with the largest drops in Sioux Falls, SD (-0.310); Buffalo (-0.291); Boston (-0.232); New York City (-0.139); and New Orleans (-0.131). Relative changes in sales ratios for commercial versus homestead properties tend to have the biggest impact on short-term changes in classification ratios. However, policy decisions that change the underlying property tax structure can sometimes come into play. From a rankings perspective, Louisville (KY) fell 11 places, from 41st to 52nd highest, although its classification ratio fell by a relatively small amount (-0.049).

The classification ratio increased in 19 cities, with the largest rises in Chicago (0.386); Atlanta (0.245); Phoenix (0.133); Fargo (0.119); and Burlington, VT (0.073). Here, policy decisions come into play; in Georgia, policymakers abolished the property tax imposed by the state, in part generating this higher classification ratio; while in North Dakota policymakers instated a state-paid 12% credit against gross homeowner taxes.

Figure 6c shows the longer-term picture, with trends in the commercial-homestead classification ratio going back to 1998. The 1.678 figure for 2016 is the lowest we have measured, just slightly lower than the 1.680 in 2002. There was a slightly larger drop, on a proportional basis, from 2015 to 2016 when looking solely at locations where residential and commercial properties are treated differently in statute. For cities with “statutory classification,”²³ the average dropped from 1.907 to 1.889.

Apartment-Homestead Classification Ratio

Figure 6b shows the apartment-homestead classification ratio for the largest city in each state, by comparing the effective tax rate on a \$600,000 apartment building to the effective tax rate on a median-value homestead. This classification ratio shows the degree of subsidy provided to homeowners at the expense of renters. The apartment-homestead classification ratio shows that apartments subsidize homestead property taxes at about half the rate that commercial properties do, with apartments facing an effective tax rate that is 35% higher than homesteads on average. In nearly all locations studied, the apartment-homestead classification ratio is smaller than the commercial-homestead classification ratio, with the exceptions of (in alphabetical order): Burlington (VT), Des Moines, Detroit, Houston, New York City, and Wilmington (DE).

New York City is a major outlier in the apartment-homestead classification ratio, with an effective tax rate on apartments that is nearly five times higher than the median valued home. There are four other cities with classification ratios above 2.0: Columbia (SC), Indianapolis, Birmingham, and Charleston (WV). On the other hand, there are seven cities with a classification ratio below 1.0, with the lowest ratios in Chicago, Virginia Beach, and Cheyenne. The preference given to apartments in these cities is not the result of statutory provisions, but is simply the result of greater underassessment for apartments relative to homesteads.

Appendix Table 6b provides more details about the apartment-homestead classification ratio in each city. As with commercial properties, a large majority of cities have higher effective tax rates on apartments than homesteads. However, the preferences given to homesteads relative to apartments are caused more by homestead exemptions and credits than by differences in assessment ratios or nominal tax rates. In total, 34 of the 53 cities have statutory preferences for homesteads relative to apartments, but only 16 of them have differences in assessment ratios and/or nominal tax rates, while in 18 cities classification is the result of exemptions or credits alone.

On average, tax disparities between apartments and homesteads fell about 2% in 2016—declining to 1.351 from 1.380 in 2015. The apartment-homestead classification ratio declined in 27 cities, with the largest drops in Providence (-0.657); Sioux Falls (-0.310); Buffalo, NY (-0.291); Chicago (-0.268); and New York City (-0.126). The classification ratio increased in 15 cities, with the largest rises in Atlanta (0.245); Burlington (0.157); Fargo (0.119); Minneapolis (0.060); and Cheyenne (0.059). Policymakers’ decisions influenced some changes in the apartment-homestead classification ratios. In Atlanta and Fargo, the same factors affecting

²³ To identify cities with statutory classification, we ignore the sales ratio. This group only includes cities where classification is written into law with the assessment ratio, nominal tax rate, or exemptions/credits.

changes in the commercial-homestead classification ratio come into play. **Figure 6d** provides information on how the apartment-homestead classification ratio has changed since 1998.

Figure 6a: Commercial-Homestead Classification Ratio for Largest City in Each State (2016)

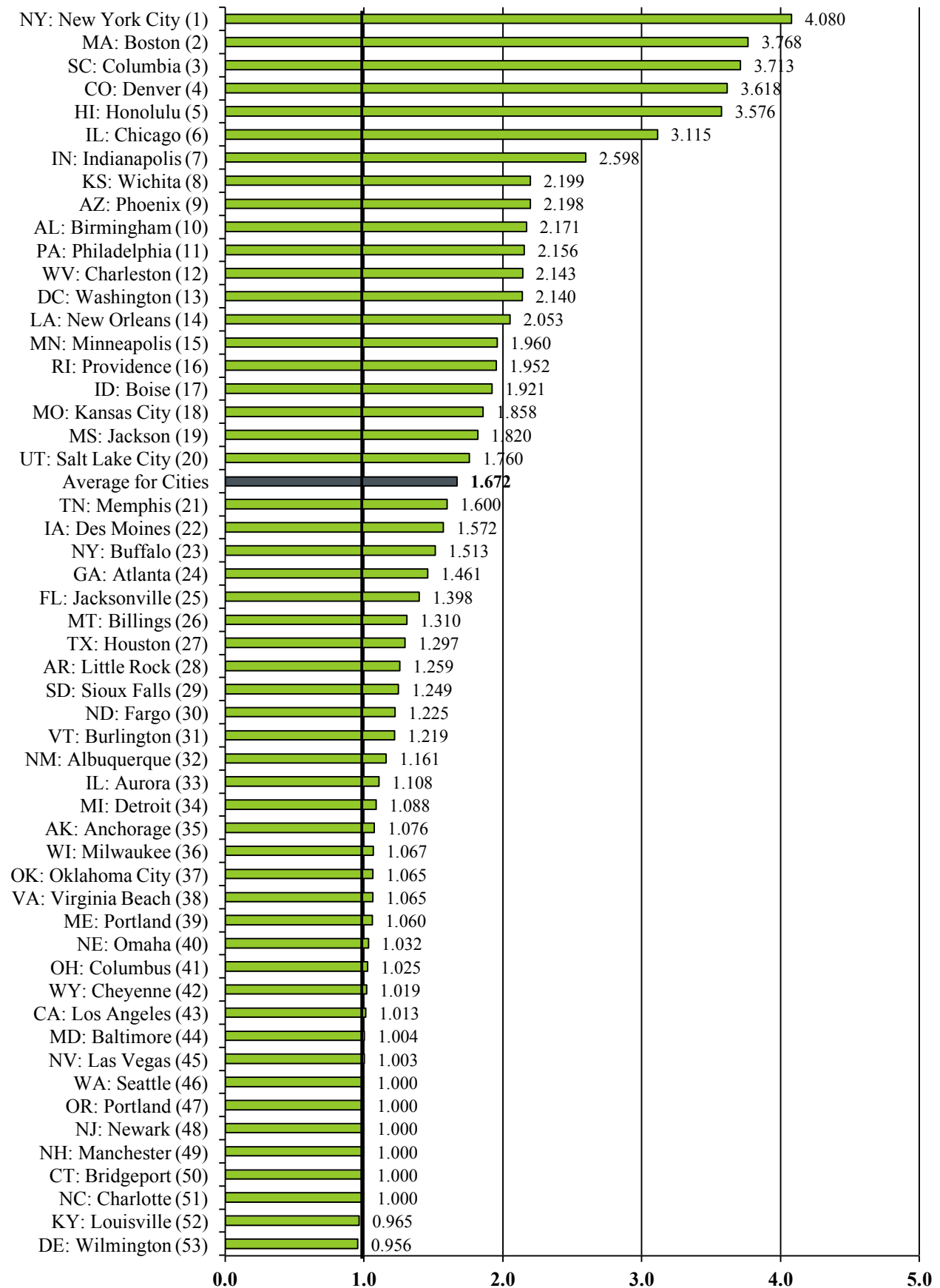


Figure 6b: Apartment-Homestead Classification Ratio for Largest City in Each State (2016)

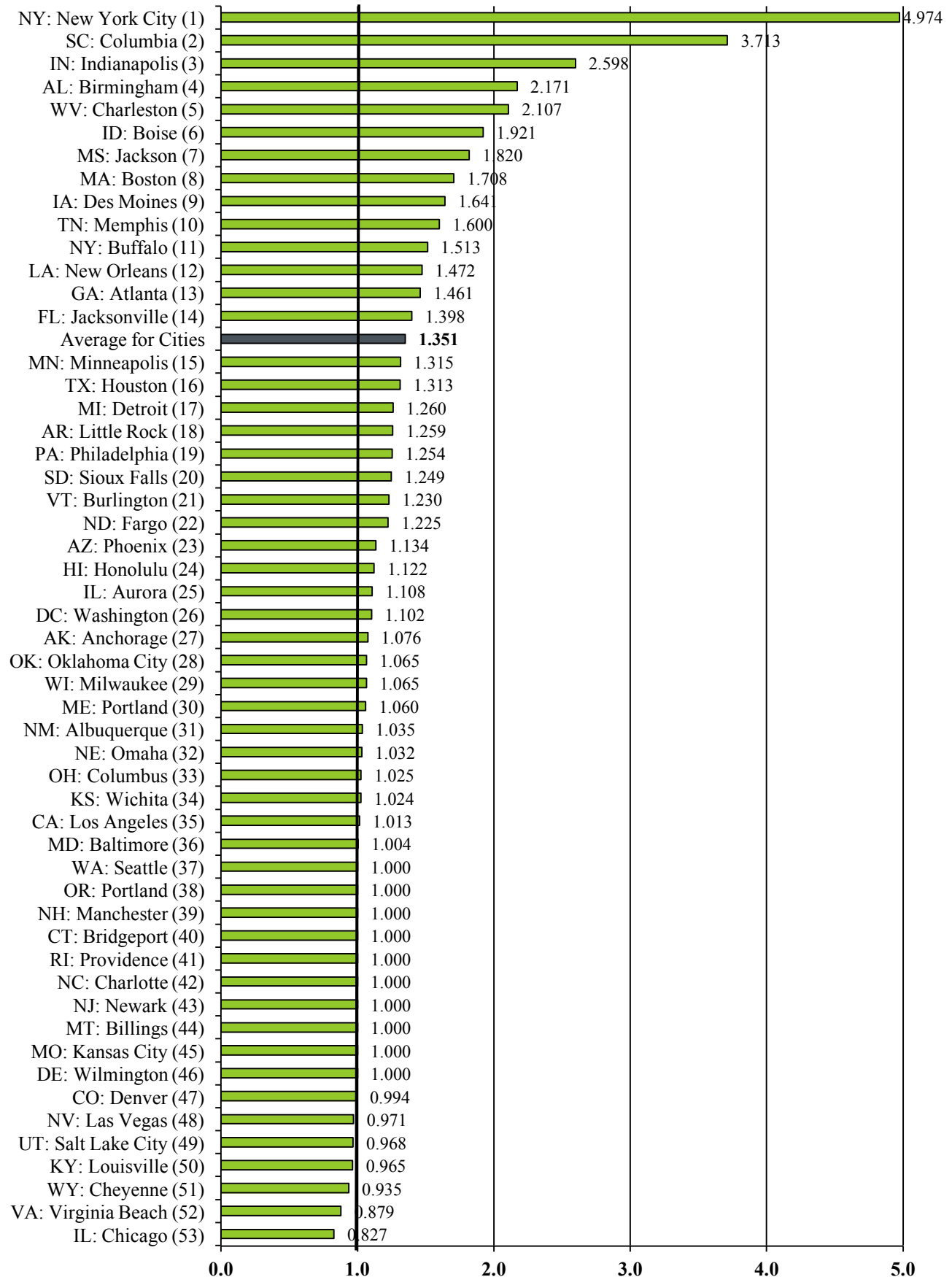
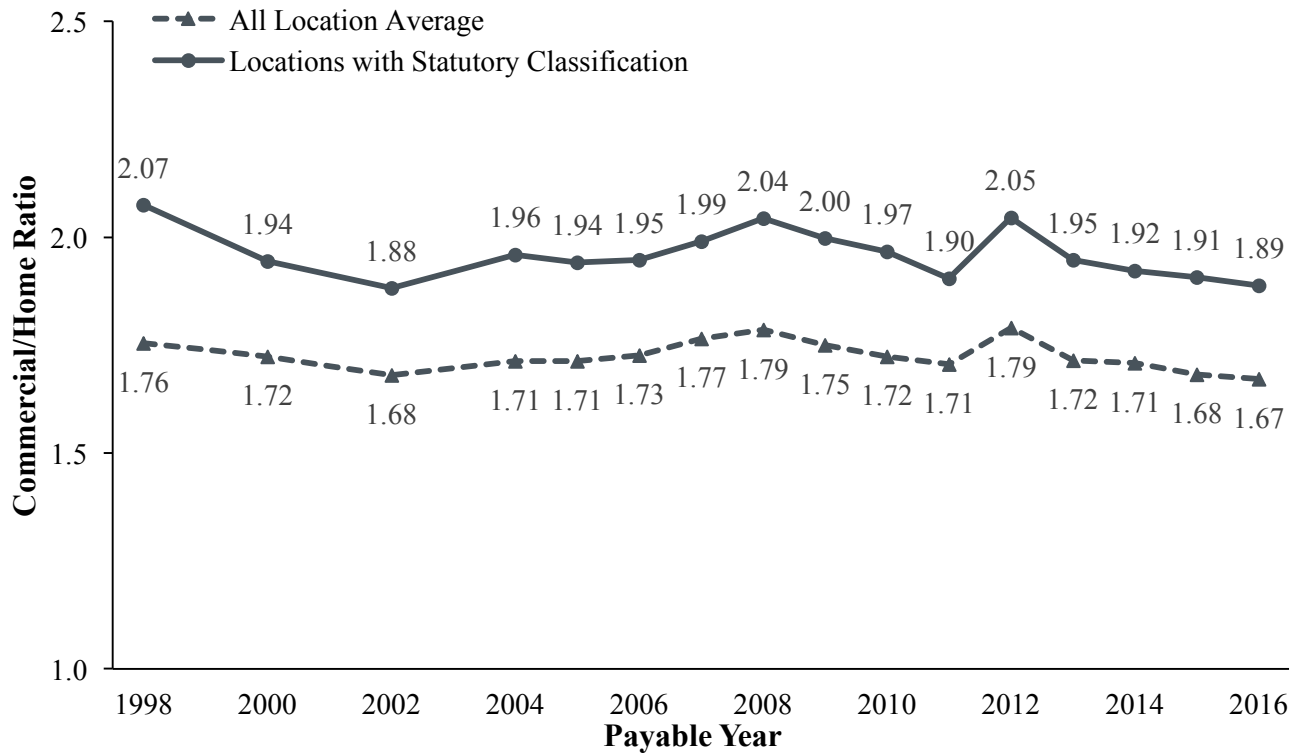


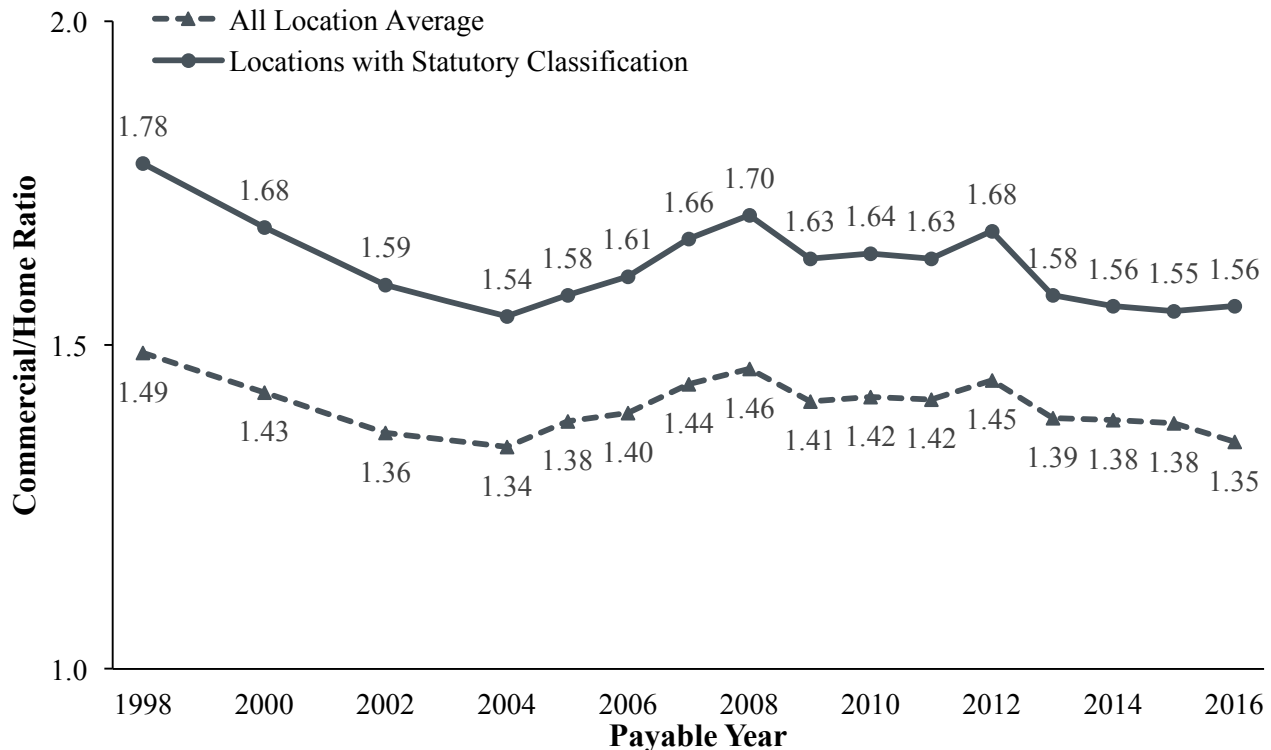
Figure 6c: Commercial-Homestead Classification Ratio for Largest City in Each State (1998 – 2016)



Note: 1.0 denotes unclassified property tax system.

Note: “Statutory classification” is the group of cities where classification is written into law with the assessment ratio, nominal tax rate, or exemptions/credits. Identification of this group ignores the sales ratio.

Figure 6d: Apartment-Homestead Classification Ratio for Largest City in Each State (1998 – 2016)



Note: 1.0 denotes unclassified property tax system.

Property Tax Assessment Limits

Property tax limitations have become an increasingly important feature of the local government finance landscape since the late 1970s, when rapid property value growth provoked Californians to adopt the now-iconic Proposition 13. Since that time, limitations on property taxes have become increasingly popular, especially during the late 1990s and early 2000s, when property values again appreciated significantly.²⁴

There are many different types of property tax limits, including constraints on tax rates, tax levies, and assessed values.²⁵ This report accounts for the impact of limits on tax rates and levies implicitly, because of how these laws impact cities' tax rates. However, accounting for the impact of assessment limits requires an explicit modeling strategy.

Assessment limits typically restrict growth in the assessed value for individual parcels and then reset the taxable value of properties when they are sold. Therefore, the level of tax savings provided from assessment limits largely depends on two factors: how long a homeowner has owned her home and appreciation of the home's *market value* relative to the allowable growth of its *assessed value*.²⁶

This report estimates the amount of tax relief provided by assessment limits for the average homeowner in a particular city by estimating the amount of value growth these limits exclude from taxation over an average tenure of ownership (See Methodology section for details). One key difference between assessment limits and other types of property tax limits, however, is that tax savings from assessment limits vary widely across individual taxpayers within the same city. Tax savings will be greater than average for homeowners whose home values have grown faster than average for the city and have owned their homes longer than average. States with parcel-specific assessment limits include Arizona, Arkansas, California, Florida, Illinois (Cook County only), Michigan, New Mexico, New York City, Oklahoma, Oregon, South Carolina, and Texas.

Figure 7 shows the impact of assessment limits for a median valued home in the 29 cities modeled. The impact of assessment limits varies widely across cities. The largest effect is in New York City, which has an assessment limit that has capped growth in assessed values for residential properties since 1981, even when a property is sold. Because most homes in New York were built prior to 1981, the average home in New York City has been subject to assessment limits for 35 years. However, effective tax rates on newly built homes are far higher, because they do not benefit from the assessment limit. In fact, the owner of a newly built home with the median value in New York City (\$538,300) would face an effective tax rate about 50 percent higher than the owner of a median valued home built prior to 1981 despite their having identical values. Assessment limits also have large impacts in San Francisco, Los Angeles, Miami, Oakland, and Sacramento, where effective tax rates are 35-40% lower for homes that

²⁴ Paquin, Bethany P. 2015. "Chronicle of the 161-Year History of State-Imposed Property Tax Limitations." Cambridge, MA: Lincoln Institute of Land Policy.

²⁵ The Lincoln Institute of Land Policy maintains a comprehensive database of property tax limits on its website: https://www.lincolninst.edu/subcenters/significant-features-property-tax/Report_Tax_Limits.aspx.

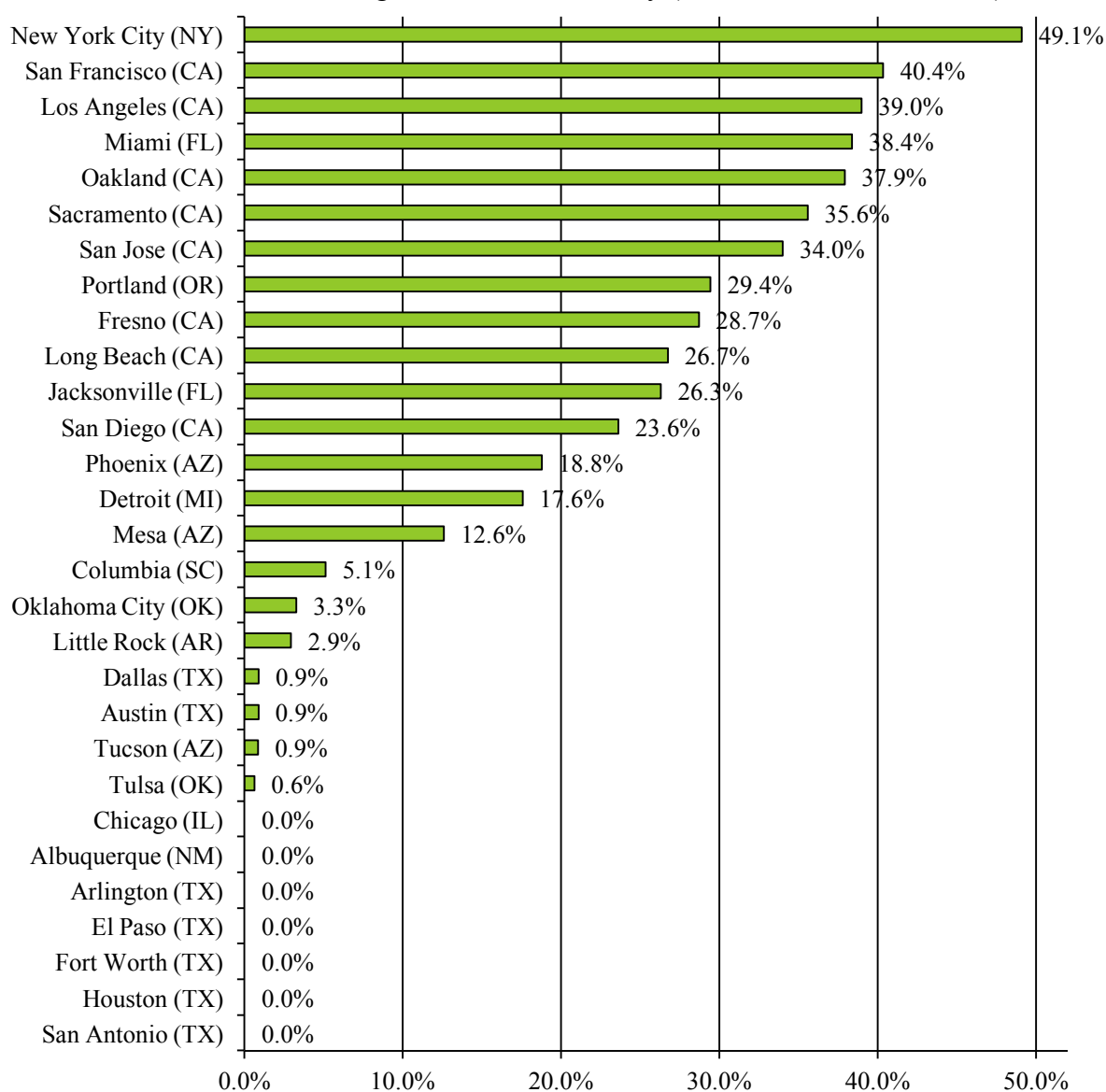
²⁶ Haveman, Mark and Terri A. Sexton. 2008. *Property Tax Assessment Limits: Lessons from Thirty Years of Experience*. Cambridge, MA: Lincoln Institute of Land Policy.

have been owned for the average duration in each city than for newly purchased homes. In contrast, in seven cities assessment limits have no impact on taxes for the average homeowner, because growth in market values is less than allowable growth under the assessment limit.

Appendix Table 7 also shows the impact of assessment limits in terms of the dollar difference in taxes between newly purchased homes and homes that have been owned for the average duration in each city, for median valued homes. In 10 cities, the difference in tax bills is at least \$1,000.

Figure 7: Impact of Assessment Limits

Difference in Property Taxes between a Newly Purchased Home and a Home that Has Been Owned for the Average Duration for the City (For Median Valued Home)



Notes: See Methodology section for details on calculation.

Accounting for assessment limits can lead to major differences in city's tax rate rankings. For example, consider effective tax rates for median valued homes in the largest city in each state (See Appendix Tables 2a and 2b). New York City has the 32nd highest effective tax rate for new homeowners, but drops to 52nd highest once adjusting for assessment limits. Other cities with large changes include Los Angeles (30th to 46th); Portland, OR (7th to 17th); Jacksonville (27th to 38th); and Phoenix (29th to 37th).

Methodology

This study updates the *50-State Property Tax Comparison Study: Payable Year 2015*. It examines four distinct classes of property using a standard set of assumptions about their “true” market values and the split between real and personal property. The report calculates property taxes for parcels with a range of property values in three sets of cities:

- the largest city in each state and the District of Columbia along with Aurora, Illinois and Buffalo, New York;
- the largest fifty cities in the United States; and
- a rural municipality in each state.

This section first describes how property taxes are calculated, then describes data collection and the selection of cities, next defines the four property classes included in this study, and finally describes the methodology used to estimate the impact of assessment limits.

A. Components of the Property Tax Calculation

As an aid in reviewing the remaining assumptions of this study, it is helpful to think of the property tax calculation as having six distinct components:

- (1) a “true” market value (TMV),
- (2) a local sales ratio (SR),
- (3) applicable exemptions that reduce taxable value (E),
- (4) a statutory classification system (classification rate) or other provisions that effectively determine the proportion of the assessor’s estimated market value that is taxable (CR),
- (5) the total local property tax rate (TR), and
- (6) applicable property tax credits (C).

Accordingly, the net local property tax for a given parcel of property is written:

$$\text{Net Property Tax} = \{[(\text{TMV} \times \text{SR}) - \text{E}] \times \text{CR} \times \text{TR}\} - \text{C}$$

Component 1: True Market Value (TMV)

The calculations for this study start with an assumption about the true market value of the four classes of property. This is the market value of a parcel of property as determined in a local real estate market consisting of arm-length transactions between willing buyers and sellers. This is in contrast to “assessed value” or “estimated market value,” which is generally the starting point for tax calculations.

This study assumes the true market values are consistent across all locations in the study. For example, the ranking of property taxes on a residential homestead parcel with a true market value of \$150,000 assumes that the parcel is actually worth \$150,000 in the local real estate market in each location in each state, regardless of what the local assessor may think the property is worth.

For some locations the assumed true market value may be very atypical (a \$150,000 home in Boston, for example). Nevertheless, this study assumes the property exists there. Essentially, this study is meant to compare the effects of property tax structures. Using fixed values allows the isolated effects of tax structures to be observed. That is, the report compares property taxes, not local real estate markets. However, as previously discussed the report does include tables that show the residential tax burdens where the home value is set equal to local median values.

Component 2: Sales Ratios (SR)

A unique aspect of this study is that it includes the effects of assessment practices on relative tax burdens. It would be much simpler to start the calculations by fixing the assessor's "estimated market value" for each property. However, in every state, the quality of property tax assessments is a significant aspect of the local property tax scene. Omission of this aspect of the property tax calculation would make this study much less useful.

Sales ratios are simply a measure of the accuracy of assessments. The sales ratio is determined by comparing assessments to actual sales. A sales ratio of 100% indicates that assessments are equal to market value. Sales ratios of less than 100% indicate that assessments are less than market value; sales ratios of over 100% indicate that assessments are higher than market value. In some states, state aid formulas use sales ratios to adjust assessors' values when local property wealth is used as a measure of local fiscal capacity. While sales ratios are generally not used in calculating an individual's actual property tax bill, some states do use sales data to equalize values as part of the property tax process.

By applying sales ratios, this study recognizes that our \$150,000 residential homestead may be "on the books" at \$155,000 in one location, and \$140,000 in another, and that the actual tax on the property will be based on these "estimates" of market value. For example, if the relevant sales ratio in a given location is 93%, we convert the \$150,000 true market value to \$139,500 ($\$150,000 \times .93$) before applying the provisions of the local property tax. In this way, the study presents tax liabilities that represent the actual experience of property owners.

Sales ratio data is provided either at the city or county level, depending on the state. We use city-level data where appropriate; otherwise we default to county data. Our preference is to use sales ratio data that differentiates between different types of property. However, in many locations only one ratio is reported, covering all types of property. In those cases, we apply the same ratio to all of that location's examples in the study.

In the case of personal property, sales ratios are generally not used. Many states do not have sales ratios for personal property or assume they are 100%. Where states report personal property sales ratios, we include them in this study.

Component 3: Exemptions (E)

Many states provide exemptions that reduce the amount of property value subject to taxation. In some cases these exemptions are provided on a blanket basis across a state; in other cases the exemptions are local-option. Because exemptions are subtracted from assessed value, we apply

them after first applying the sales ratio to true market value, since the exemption will not incorporate any of the assessment error that properties can be subject to.

Note: in some cases the exemption is subtracted from taxable value instead of assessed value. In those cases we apply the exemption after applying the classification rate.

Component 4: Classification Rates (CR)

The fourth component of the property tax calculation involves subjecting the parcel's taxable value to classification (or assessment) rates, which convert assessed value to taxable value. In many cases, these classification rates are 100%, meaning that taxable value is equal to assessed value. However, governments often use differential rates to affect the distribution of property tax levies – to provide tax relief for a selected class of classes of properties at the expense of others.

In most states, state legislatures set the classification schemes. In a few states, local governments have some autonomy over classification rates.

Because of the wide variation in the quality of assessments across the states, particularly across classes of property, many states have no classification scheme in statute may in fact have significant classification via uneven assessments across classes of property. (In some cases, this may violate state constitutional provisions on uniform assessments.) Some states, like Minnesota, enforce strict standards of assessment quality (sales ratio studies, state orders adjusting values, state certification of assessors, etc.) and put their classification policy in statute.

Component 5: Total Local Tax Rate (TR)

The study defines “payable 2016 tax rate” as the rate used to calculate the property taxes with a lien date in 2016, regardless of the date(s) on which payments are due. In some cities, there are multiple combinations of taxing jurisdictions (namely, the state, cities, counties, school districts, and special taxing districts). For instance, a city may be located in multiple school districts and therefore rates will differ based on which school district a parcel is located in. This study uses the rate that is most prevalent in a city.

This study excludes special assessments since they are more in the nature of user charges, do not affect a majority of parcels, and are usually not sources of general revenue.

Component 6: Credits (C)

The final step in the tax calculation is to recognize any general deductions from the gross property tax calculations (credits). The study includes any credits that apply to a majority of parcels of the specified type. Certain states provide credits based on early payment; the study assumes that taxpayers take advantage of the credit by making the early payment.

Effective Tax Rates (ETRs)

Effective tax rates are used to express the relationship between net property taxes and the true market value of a property. This contrasts with the millage rates or other rates that are applied to

taxable value to determine a parcel's tax burden. By including the effects of all statutory tax provisions as well as the effects of local assessment practices, effective tax rates have the virtue of allowing more meaningful comparisons across states and property types.

B. Data Collection

Data for the property tax calculations was collected in one of two ways. Where possible, we collect property tax data directly from various state and local websites. Otherwise, we collect data using a contact-verification approach in which we ask state and local tax experts to provide information. In both cases, this information served as the basis for calculations by the Minnesota Center for Fiscal Excellence.

Selection of Additional Urban Cities

In Cook County (Chicago) and in New York City, the property tax system (notably, the assessment ratios) is substantially different from the system used in the remainder of Illinois and New York, respectively. We include the second-largest cities in those states (Buffalo and Aurora) to represent the property tax structures in the remainder of those states. In essence, the Urban analysis is a comparison of 53 different property tax structures.

Selection of Rural Cities

Rural cities generally must meet three criteria to be included in the study:

- the city has a population of between 2,500 and 10,000 (controlling for size);
- the city is a county seat (controlling, as best as possible, for economic conditions and type of services delivered); and
- the city is located in a county coded as a “6” or “7”²⁷ on the U.S. Department rural-urban measurement continuum (controlling for geographical relationships to urban areas)

In five states (Connecticut, Delaware, Hawaii, New Jersey, and Rhode Island), there were no counties coded 6 or 7 on the USDA's continuum. In the case of Massachusetts, the only code 6 or 7 county included Nantucket Island, which does not seem comparable to rural counties in other states. In these six cases, we selected the county seat in the most rural county available.

Data on Median-Valued Homes

This study compares homeowner property taxes using a “median value analysis”, which sets the home value in each city equal to the median value of owner-occupied housing units in the city, or for smaller cities, in the relevant county. This data comes from the one-year or five-year data in the Census Bureau's *American Community Survey* for 2015, as appropriate. We intend this comparison to show how differences in local real estate markets affect residential property taxes.

²⁷ Counties coded “6” are nonmetro counties with urban population of 2,500 to 19,999 that are adjacent to a metro area; counties coded “7” are nonmetro counties within the same population range that are not adjacent to a metro area.

Note that the payable 2014 edition of this study was the first to use ACS data on median home values. Prior to that, median home value data came from metropolitan-area data provided by the National Association of Realtors. Readers should make time-trend comparisons of tax burdens on median-valued homes before and after this methodological change with care.

Special Property Tax Provisions

“Special property tax provisions” are provisions that, in practice, apply to less than half of all taxpayers for a given class of property. Special provisions are normally triggered by special circumstances or attributes of the taxpayer or property. Examples include senior tax deferrals, and special valuation exclusions based on age, health or special use.

Because the goal of this study is to compare the actual tax experience of the largest number of taxpayers in the selected jurisdictions, this study excludes special property tax provisions.

C. Property Classes and Assumptions About Value

This report studies hypothetical properties in four property classes (1) residential homesteads, (2) commercial property, (3) industrial property, and (4) apartments. Except for apartments, the study calculates taxes for all properties based on multiple values that are fixed across states. All classes of business property (commercial, industrial, and apartments) have a corresponding set of assumptions regarding the amount of personal property each parcel has.

These four classes were selected for a variety of reasons. First, they represent the vast majority of property value across the country. In Minnesota, these four classes represent nearly 70% of market value. It is likely that this figure is similar to other states, and may be even higher in states that do not have substantial agricultural operations. Second, these are the classes of property that policymakers tend to focus time and attention on. Third, most omitted classes of property are either not relevant to all fifty states (cabin properties, for example) or require more complex work to develop assumptions about value (public utilities and farms, for example).

Selection of Fixed Values

This report compares the tax burdens various property tax systems across the nation impose on a fixed amount of value. Holding property values constant across all jurisdictions controls for the effects differences in property values have on effective tax rates. The specific fixed values the study uses for homes, commercial, and industrial properties were largely chosen between 1995 and 2000 to represent a low-valued²⁸, medium-valued, and high-valued parcel.

Over time we have added or eliminated property values when appropriate. However, to preserve the usefulness of time-trend comparisons we have not changed any fixed values after their first appearance in the report.

²⁸ Note that the study no longer includes the \$70,000 “low-valued” home.

Importantly, in most locations the effective tax rates for commercial and industrial properties do not vary much with value. Therefore, with few exceptions the specific fixed values selected for inclusion in the report are not of major consequence.

Real and Personal Property

The treatment of personal property is a significant part of each state's property tax regime. Because personal property exemptions (or lack thereof) vary from state to state, creating accurate property tax comparisons will depend in large part on making accurate assumptions about personal property. This is especially true with regard to industrial parcels, which have much higher proportions of personal property than do commercial properties in general.

Making these assumptions is challenging because the specific mix of real and personal property obviously varies by industry and location. With the permission of the Minnesota Department of Revenue's Research Division, we have borrowed the methodology they use to determine shares of real and personal business property in their biennial *Tax Incidence Study*.²⁹ Using that methodology, we have calculated state-specific real property, machinery and equipment, fixtures, and inventory shares for industrial parcels. The findings this model generates indicate that the median split for industrial parcels nationwide is 44.6% land and buildings (real property) and 55.4% personal property. Overall, the split ranges from 40.9% real/59.1% personal (Michigan) to 49.6% real/50.4% personal (Massachusetts).

PROPERTY CLASSES AND TRUE MARKET VALUES

Class	Values of Property				Total
	Real	Mach. & Equip.	Inventories	Fixtures	
Homestead	\$150,000	\$0	\$0	\$0	\$150,000
	\$300,000	\$0	\$0	\$0	\$300,000
Apartments	\$600,000	\$0	\$0	\$30,000	\$630,000
Commercial	\$100,000	\$0	\$0	\$20,000	\$120,000
	\$1,000,000	\$0	\$0	\$200,000	\$1,200,000
	\$25,000,000	\$0	\$0	\$5,000,000	\$30,000,000
Industrial (50% Personal)	\$100,000	\$50,000	\$40,000	\$10,000	\$200,000
	\$1,000,000	\$500,000	\$400,000	\$100,000	\$2,000,000
	\$25,000,000	\$12,500,000	\$10,000,000	\$2,500,000	\$50,000,000
Industrial (60% Personal)	\$100,000	\$75,000	\$60,000	\$15,000	\$250,000
	\$1,000,000	\$750,000	\$600,000	\$150,000	\$2,500,000
	\$25,000,000	\$18,750,000	\$15,000,000	\$3,750,000	\$62,500,000

These results suggest a two-assumption approach, with one set of rankings assuming 40% real property/60% personal property and a second set of rankings assuming 50% real property/50% personal property. The following table summarizes the assumed true market values and assessed value of personal property used for each property class.

²⁹ *Tax Incident Studies* are available on the website of the Minnesota Department of Revenue: http://www.revenue.state.mn.us/research_stats/Pages/Tax_Incidence_Studies.aspx.

This study does not include intangibles such as bank balances or financial securities in the property tax calculations.

Definitions of Real and Personal Property

The types of property found in this study are defined as follows:

- **Real Property:** consists of land and buildings not classified as personal property for tax purposes.
- **Machinery and Equipment:** includes large and ponderous equipment, generally not portable and often mounted on special foundations. Examples include large printing presses and assembly robots.
- **Inventories:** includes raw materials, unfinished products, supplies and similar items used by manufacturers. Does not include any inventory retailers hold for sale.
- **Fixtures:** includes items such as office furnishings, display racks, tools and similar items, but not motor vehicles. In the case of apartments, it includes such things as stoves, refrigerators, garbage disposals, air conditioners, drapes, and lawn care equipment.

D. Estimates of Assessment Limitation Effects

This study estimates the effect that provisions have which deliver property tax relief for homeowners by limiting increases in home value or property taxes at the parcel level. Generally, the value of parcel-specific assessment limitations results from a combination of the length of homeowner tenure and changes in the market value of the parcel relative to the provisions of the applicable limitation. This study uses data from the Census Bureau's *American Community Survey* to estimate that average length of homeowner tenure for locations where assessment limitation provisions are in effect. ZIP5 data from the Federal Housing Finance Agency's *House Price Index for All Transactions* is used to estimate the average change in residential property value each individual city where assessment limitation provisions are in effect. We then model the average change in residential property value over the average length of homeowner tenure in each of these locations and compare that change to the allowable growth in homestead value and/or taxes during that period to determine the amount of excluded value or property tax relief these provisions afford.

One final key assumption: the model represents the experience of a homeowner with an “average” length of tenure. Therefore, if the model returns no excluded value, then we assume that the provision does not apply to half or more of homeowners and therefore does not apply.

MCFE prepared a working paper for the Lincoln Institute of Land Policy on this subject where there is considerably more detailed information on the methodology underlying this analysis.³⁰

³⁰ Twait, Aaron. 2012. “Property Assessment Limits: Effects on Homestead Property Tax Burdens and National Property Tax Rankings.” Cambridge, MA: Lincoln Institute of Land Policy. April.

Appendix Table 1a: Factors Correlated with Homestead Property Tax Rates in Large U.S. Cities
(Effective Tax Rate for Median Valued Home, with Assessment Limits)

State	City	Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio		
		Rank (1-73)	Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Commercial Rank (1-73)	Apartments Rank (1-73)	Impact on Tax Rate
Alabama	Birmingham	67	0.67	67	-0.52	70	0.67	33	0.01	10	4	-0.49
Alaska	Anchorage	31	1.30	6	0.72	14	-0.39	47	-0.10	45	36	0.16
Arizona	Mesa	61	0.77	56	-0.33	39	0.04	58	-0.21	23	28	-0.03
Arizona	Phoenix	48	0.96	49	-0.22	35	-0.02	51	-0.15	15	30	-0.08
Arizona	Tucson	34	1.25	44	-0.13	57	0.31	66	-0.25	22	31	-0.03
Arkansas	Little Rock	40	1.11	66	-0.52	46	0.17	56	-0.19	32	21	0.05
California	Fresno	54	0.85	43	-0.12	34	-0.03	40	-0.04	51	41	0.18
California	Long Beach	55	0.84	64	-0.48	10	-0.81	6	0.41	57	47	0.19
California	Los Angeles	63	0.72	50	-0.25	6	-0.91	5	0.42	58	48	0.19
California	Oakland	56	0.83	53	-0.30	4	-0.94	4	0.66	60	50	0.19
California	Sacramento	63	0.72	59	-0.36	15	-0.34	12	0.20	54	45	0.19
California	San Diego	50	0.89	32	0.05	9	-0.89	38	-0.02	59	49	0.19
California	San Francisco	66	0.70	55	-0.32	1	-1.41	2	0.97	63	52	0.20
California	San Jose	57	0.83	37	-0.05	2	-1.17	24	0.08	61	51	0.20
Colorado	Colorado Springs	72	0.45	71	-0.60	25	-0.14	25	0.08	3	66	-0.47
Colorado	Denver	69	0.62	69	-0.54	13	-0.43	7	0.35	2	65	-0.47
Connecticut	Bridgeport	1	3.81	1	1.22	44	0.15	41	-0.06	65	57	0.20
DC	Washington	65	0.71	63	-0.48	5	-0.93	1	1.74	19	35	-0.03
Delaware	Wilmington	27	1.40	34	-0.02	47	0.18	20	0.10	73	60	0.25
Florida	Jacksonville	49	0.92	40	-0.10	53	0.26	29	0.03	27	15	-0.03

How to Interpret Each Factor's Impact on a City's Tax Rate

The columns labeled “Impact on Tax Rate” shows how each factor is expected to affect the tax rate in that city relative to a scenario where the city had the average value for that variable—a positive value means that factor increases the city’s tax rate, while a negative value means that factor decreases the city’s tax rate.

For example, consider Birmingham, Alabama. The city has the 67th highest property tax reliance (7th lowest), which is predicted to decrease the city’s tax rate on a median valued home by 0.52 percentage points relative to a city with average property tax reliance. An alternative way to interpret this data is that if Birmingham had the average property tax reliance and all other characteristics of the city were unchanged (home values, government spending, etc.), then the city’s tax rate would be 0.52 percentage points higher, which at 1.19% would be 36th highest. Birmingham also has the 70th highest median home value (4th lowest), which is expected to increase their tax rate by 0.67 percentage points relative to a scenario where the city had the average home value for all cities in this analysis. Local government spending per capita is about average in Birmingham (33rd highest), which is expected to increase the city’s tax rate by 0.01 percentage points relative to a city with average spending. Finally, Birmingham has significantly higher tax rates for commercial properties and apartments than for homestead properties; the classification ratio is 10th highest for commercial properties and 4th highest for apartments. The city’s classification ratios are predicted to decrease the property tax rate on a median valued home by 0.49 percentage points compared to a city with the average classification ratio.

State	City	Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio		
		Rank (1-73)	Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Commercial	Apartments	Impact
Florida	Miami	46	0.99	35	-0.03	16	-0.34	22	0.09	36	27	0.09
Georgia	Atlanta	38	1.13	42	-0.12	22	-0.19	8	0.35	26	14	-0.07
Hawaii	Honolulu*	73	0.31	20	0.24	3	-1.07	73	-0.44	6	32	-0.35
Idaho	Boise	59	0.80	12	0.42	29	-0.06	72	-0.39	20	6	-0.31
Illinois	Aurora	2	3.72	4	0.98	43	0.13	61	-0.22	69	34	0.19
Illinois	Chicago	26	1.49	33	0.00	23	-0.17	9	0.32	8	73	-0.15
Indiana	Indianapolis	42	1.08	38	-0.05	64	0.42	17	0.11	7	3	-0.76
Iowa	Des Moines	8	2.30	11	0.43	65	0.45	43	-0.06	29	9	-0.09
Kansas	Wichita	35	1.22	26	0.16	63	0.41	59	-0.21	9	46	-0.12
Kentucky	Louisville	33	1.27	45	-0.17	54	0.27	71	-0.33	49	69	0.20
Louisiana	New Orleans	43	1.04	57	-0.34	28	-0.09	27	0.05	14	13	-0.23
Maine	Portland	17	1.99	9	0.52	19	-0.28	36	-0.01	47	40	0.17
Maryland	Baltimore	12	2.09	31	0.05	48	0.21	18	0.11	30	53	0.13
Massachusetts	Boston	70	0.61	3	1.09	11	-0.75	31	0.03	5	8	-0.59
Michigan	Detroit	4	3.15	62	-0.45	73	1.38	35	0.01	44	20	0.10
Minnesota	Minneapolis	28	1.39	36	-0.03	26	-0.13	19	0.10	12	16	-0.20
Mississippi	Jackson	24	1.52	7	0.71	71	0.68	69	-0.30	17	7	-0.28
Missouri	Kansas City	25	1.49	68	-0.54	58	0.31	28	0.05	16	59	-0.02
Montana	Billings	53	0.86	24	0.21	32	-0.05	70	-0.31	35	61	0.15
Nebraska	Omaha	15	2.02	22	0.21	56	0.28	37	-0.01	52	43	0.18
Nevada	Las Vegas	36	1.14	54	-0.30	30	-0.06	48	-0.11	64	67	0.21
New Hampshire	Manchester	9	2.25	8	0.61	31	-0.06	50	-0.15	72	58	0.24
New Jersey	Newark*	3	3.20	2	1.18	24	-0.16	46	-0.09	71	55	0.24
New Mexico	Albuquerque	32	1.27	47	-0.21	37	0.03	68	-0.29	37	42	0.15
New York	Buffalo	18	1.97	70	-0.59	72	0.86	15	0.18	31	12	-0.04
New York	New York City	71	0.59	51	-0.29	7	-0.91	3	0.84	4	1	-1.76
North Carolina	Charlotte	39	1.12	61	-0.43	38	0.04	13	0.18	53	62	0.20
North Carolina	Raleigh	44	1.02	21	0.23	27	-0.13	65	-0.25	67	56	0.20
North Dakota	Fargo	47	0.98	46	-0.19	36	0.02	63	-0.22	56	26	0.12
Ohio	Columbus	14	2.04	39	-0.06	59	0.32	39	-0.02	70	44	0.23

*Honolulu and Newark do not have data on property tax reliance or local government spending in the Fiscally Standardized Cities database, so statewide data on all local governments is used instead (Source: U.S. Census Bureau, 2014 Census of Government Finances).

		Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio		
State	City	Rank (1-73)	Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Commercial	Apartments	Impact
Oklahoma	Oklahoma City	37	1.14	52	-0.29	52	0.25	67	-0.28	42	38	0.15
Oklahoma	Tulsa	29	1.37	48	-0.22	61	0.35	64	-0.22	48	37	0.16
Oregon	Portland	23	1.61	25	0.18	12	-0.52	34	0.01	65	63	0.20
Pennsylvania	Philadelphia	41	1.09	72	-0.67	51	0.24	16	0.15	18	22	-0.09
Rhode Island	Providence	22	1.71	5	0.85	41	0.09	44	-0.07	11	64	-0.10
South Carolina	Columbia	62	0.73	19	0.24	42	0.12	53	-0.16	1	2	-1.55
South Dakota	Sioux Falls	30	1.35	30	0.12	45	0.15	60	-0.21	50	23	0.11
Tennessee	Memphis	20	1.84	27	0.13	69	0.66	11	0.22	25	10	-0.14
Tennessee	Nashville	45	1.00	18	0.24	40	0.05	23	0.08	24	11	-0.14
Texas	Arlington	13	2.06	14	0.32	55	0.27	62	-0.22	38	24	0.08
Texas	Austin	19	1.87	10	0.49	18	-0.33	30	0.03	41	33	0.13
Texas	Dallas	16	2.01	29	0.12	49	0.23	32	0.02	33	18	0.04
Texas	El Paso	6	2.58	16	0.25	66	0.45	57	-0.20	68	71	0.25
Texas	Fort Worth	11	2.10	13	0.35	60	0.33	54	-0.17	40	19	0.07
Texas	Houston	21	1.78	15	0.28	50	0.23	45	-0.09	28	17	0.01
Texas	San Antonio	7	2.33	23	0.21	62	0.40	26	0.07	39	29	0.10
Utah	Salt Lake City	57	0.83	41	-0.12	21	-0.26	52	-0.16	21	68	0.02
Vermont	Burlington	10	2.14	65	-0.49	17	-0.33	21	0.09	43	25	0.10
Virginia	Virginia Beach	51	0.88	28	0.13	20	-0.26	55	-0.18	34	72	0.19
Washington	Seattle	52	0.88	60	-0.37	8	-0.89	14	0.18	62	54	0.20
West Virginia	Charleston	60	0.77	58	-0.35	68	0.52	49	-0.12	13	5	-0.47
Wisconsin	Milwaukee	5	2.67	17	0.25	67	0.49	42	-0.06	46	39	0.16
Wyoming	Cheyenne	68	0.65	73	-0.89	33	-0.04	10	0.30	55	70	0.22

Appendix Table 1b: Factors Correlated with Commercial Property Tax Rates in Large U.S. Cities
(Effective Tax Rate for \$1-Million Valued Commercial Property, with \$200k in Fixtures)

State	City	Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio*	
		Rank (1-73)	Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate
Alabama	Birmingham	48	1.45	67	-0.56	70	0.76	33	0.02	10	0.34
Alaska	Anchorage	52	1.39	6	0.78	14	-0.44	47	-0.14	45	-0.19
Arizona	Mesa	45	1.46	56	-0.36	39	0.04	58	-0.31	23	0.09
Arizona	Phoenix	27	2.28	49	-0.24	35	-0.02	51	-0.22	15	0.22
Arizona	Tucson	29	2.19	44	-0.14	57	0.35	66	-0.37	22	0.13
Arkansas	Little Rock	49	1.44	66	-0.56	46	0.20	56	-0.28	32	-0.10
California	Fresno	58	1.23	43	-0.13	34	-0.04	40	-0.05	51	-0.21
California	Long Beach	62	1.16	64	-0.52	10	-0.91	6	0.60	57	-0.22
California	Los Angeles	59	1.19	50	-0.27	6	-1.03	5	0.61	58	-0.22
California	Oakland	53	1.35	53	-0.32	4	-1.06	4	0.96	60	-0.22
California	Sacramento	64	1.14	59	-0.39	15	-0.39	12	0.29	54	-0.21
California	San Diego	61	1.17	32	0.05	9	-1.00	38	-0.03	59	-0.22
California	San Francisco	60	1.18	55	-0.35	1	-1.59	2	1.41	63	-0.22
California	San Jose	57	1.26	37	-0.05	2	-1.31	24	0.12	61	-0.22
Colorado	Colorado Springs	42	1.62	71	-0.65	25	-0.15	25	0.11	3	1.03
Colorado	Denver	28	2.25	69	-0.59	13	-0.49	7	0.52	2	1.03
Connecticut	Bridgeport	4	3.81	1	1.33	44	0.16	41	-0.08	65	-0.22
DC	Washington	56	1.27	63	-0.52	5	-1.05	1	2.53	19	0.15
Delaware	Wilmington	66	1.11	34	-0.03	47	0.21	20	0.14	73	-0.32
Florida	Jacksonville	39	1.71	40	-0.11	53	0.30	29	0.05	27	-0.05

*Table shows impact of the commercial-homestead classification ratio

How to Interpret Each Factor's Impact on a City's Tax Rate

The columns labeled "Impact on Tax Rate" shows how each factor is expected to affect the tax rate in that city relative to a scenario where the city had the average value for that variable—a positive value means that factor increases the city's tax rate, while a negative value means that factor decreases the city's tax rate.

For example, consider Birmingham, Alabama. The city has the 67th highest property tax reliance (7th lowest), which is predicted to decrease the city's commercial property tax rate by 0.56 percentage points relative to a city with average property tax reliance. An alternative way to interpret this data is that if Birmingham had the average property tax reliance and all other characteristics of the city were unchanged (home values, government spending, etc.), then the city's commercial tax rate would be 0.56 percentage points higher. Birmingham also has the 70th highest median home value (4th lowest), which is expected to increase their tax rate by 0.76 percentage points relative to a scenario where the city had the average home value for all cities in this analysis. Local government spending per capita is about average in Birmingham (33rd highest), which is expected to increase the city's tax rate by 0.02 percentage points relative to a city with average spending. Finally, Birmingham has the 10th highest commercial-homestead classification ratio, which is predicted to increase the commercial property tax rate by 0.34 percentage points compared to a city with the average classification ratio.

State	City	Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio*	
		Rank (1-73)	Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Tax Rate
Florida	Miami	36	1.90	35	-0.03	16	-0.38	22	0.13	36	-0.14
Georgia	Atlanta	40	1.66	42	-0.13	22	-0.21	8	0.50	26	0.00
Hawaii	Honolulu**	71	0.91	20	0.26	3	-1.20	73	-0.65	6	0.72
Idaho	Boise	50	1.42	12	0.46	29	-0.07	72	-0.56	20	0.14
Illinois	Aurora	6	3.44	4	1.06	43	0.15	61	-0.31	69	-0.26
Illinois	Chicago	3	3.86	33	-0.01	23	-0.20	9	0.47	8	0.54
Indiana	Indianapolis	10	2.85	38	-0.06	64	0.47	17	0.16	7	0.56
Iowa	Des Moines	8	3.01	11	0.47	65	0.50	43	-0.09	29	-0.08
Kansas	Wichita	16	2.72	26	0.17	63	0.46	59	-0.31	9	0.37
Kentucky	Louisville	54	1.33	45	-0.18	54	0.31	71	-0.48	49	-0.20
Louisiana	New Orleans	30	2.15	57	-0.37	28	-0.10	27	0.08	14	0.29
Maine	Portland	32	2.11	9	0.56	19	-0.31	36	-0.01	47	-0.20
Maryland	Baltimore	17	2.68	31	0.05	48	0.24	18	0.15	30	-0.09
Massachusetts	Boston	35	1.92	3	1.18	11	-0.85	31	0.04	5	0.80
Michigan	Detroit	1	4.09	62	-0.49	73	1.55	35	0.02	44	-0.19
Minnesota	Minneapolis	9	3.00	36	-0.03	26	-0.15	19	0.15	12	0.33
Mississippi	Jackson	13	2.77	7	0.77	71	0.76	69	-0.44	17	0.17
Missouri	Kansas City	14	2.76	68	-0.58	58	0.36	28	0.07	16	0.18
Montana	Billings	68	1.03	24	0.23	32	-0.06	70	-0.46	35	-0.13
Nebraska	Omaha	33	2.09	22	0.23	56	0.32	37	-0.02	52	-0.21
Nevada	Las Vegas	64	1.14	54	-0.32	30	-0.07	48	-0.17	64	-0.22
New Hampshire	Manchester	37	1.87	8	0.66	31	-0.06	50	-0.22	72	-0.30
New Jersey	Newark**	18	2.67	2	1.28	24	-0.19	46	-0.14	71	-0.30
New Mexico	Albuquerque	44	1.49	47	-0.23	37	0.04	68	-0.43	37	-0.14
New York	Buffalo	20	2.49	70	-0.64	72	0.97	15	0.26	31	-0.10
New York	New York City	2	3.93	51	-0.31	7	-1.02	3	1.23	4	0.92
North Carolina	Charlotte	63	1.15	61	-0.47	38	0.04	13	0.27	53	-0.21
North Carolina	Raleigh	69	1.02	21	0.25	27	-0.14	65	-0.36	67	-0.23
North Dakota	Fargo	70	1.00	46	-0.20	36	0.02	63	-0.32	56	-0.21
Ohio	Columbus	38	1.75	39	-0.07	59	0.36	39	-0.03	70	-0.29

*Table shows impact of the commercial-homestead classification ratio

**Honolulu and Newark do not have data on property tax reliance or local government spending in the Fiscally Standardized Cities database, so statewide data on all local governments is used instead (Source: U.S. Census Bureau, 2014 Census of Government Finances).

		Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio*	
State	City	Rank (1-73)	Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Tax Rate
Oklahoma	Oklahoma City	55	1.30	52	-0.32	52	0.28	67	-0.41	42	-0.17
Oklahoma	Tulsa	47	1.45	48	-0.24	61	0.39	64	-0.33	48	-0.20
Oregon	Portland	26	2.29	25	0.20	12	-0.58	34	0.02	65	-0.22
Pennsylvania	Philadelphia	34	1.95	72	-0.73	51	0.27	16	0.22	18	0.16
Rhode Island	Providence	5	3.71	5	0.92	41	0.10	44	-0.11	11	0.34
South Carolina	Columbia	7	3.24	19	0.26	42	0.13	53	-0.24	1	1.33
South Dakota	Sioux Falls	51	1.41	30	0.13	45	0.17	60	-0.31	50	-0.20
Tennessee	Memphis	12	2.84	27	0.14	69	0.74	11	0.32	25	0.04
Tennessee	Nashville	43	1.55	18	0.26	40	0.06	23	0.12	24	0.04
Texas	Arlington	23	2.41	14	0.35	55	0.31	62	-0.32	38	-0.14
Texas	Austin	31	2.15	10	0.53	18	-0.37	30	0.04	41	-0.16
Texas	Dallas	19	2.53	29	0.13	49	0.26	32	0.03	33	-0.10
Texas	El Paso	21	2.45	16	0.27	66	0.51	57	-0.29	68	-0.25
Texas	Fort Worth	22	2.43	13	0.38	60	0.37	54	-0.25	40	-0.15
Texas	Houston	24	2.36	15	0.31	50	0.26	45	-0.13	28	-0.07
Texas	San Antonio	15	2.72	23	0.23	62	0.45	26	0.11	39	-0.14
Utah	Salt Lake City	45	1.46	41	-0.12	21	-0.29	52	-0.23	21	0.14
Vermont	Burlington	25	2.33	65	-0.53	17	-0.37	21	0.13	43	-0.18
Virginia	Virginia Beach	67	1.05	28	0.14	20	-0.30	55	-0.27	34	-0.13
Washington	Seattle	72	0.89	60	-0.40	8	-1.01	14	0.27	62	-0.22
West Virginia	Charleston	41	1.65	58	-0.38	68	0.58	49	-0.17	13	0.32
Wisconsin	Milwaukee	10	2.85	17	0.27	67	0.55	42	-0.09	46	-0.19
Wyoming	Cheyenne	73	0.66	73	-0.97	33	-0.04	10	0.44	55	-0.21

*Table shows impact of the commercial-homestead classification ratio

Appendix Table 1c: Correlates of Cities' Effective Tax Rates on Homestead Properties

	(1)	(2)	Mean	St. Dev.	Data
Tax Rate on Median Valued Home	N/A	N/A	1.405	0.717	Effective tax rate on median valued home, with assessment limits Source: <i>50-State Property Tax Comparison Study</i> (Appendix Tables 2b, 2e)
Median Home Value	-0.654*** (0.063)	-0.900*** (0.136)	229,771	154,642	Median home value in city Source: 2015 American Community Survey (U.S. Census Bureau)
Business Classification Ratio	-0.408*** (0.083)	-0.257*** (0.080)	1.469	0.705	Commercial-homestead classification ratio, with taxes on personal property excluded for commercial properties Source: <i>50-State Property Tax Comparison Study</i>
Apartments Classification Ratio	-0.390*** (0.130)	-0.338* (0.173)	1.242	0.446	Apartment-homestead classification ratio, with taxes on personal property excluded for apartments Source: <i>50-State Property Tax Comparison Study</i>
Property Tax Reliance	0.765*** (0.100)	0.0308*** (0.006)	40.7	14.0	Property taxes as a percent of own source revenue for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2014).
Local Gov't Spending Per Capita (1000s)	0.593*** (0.138)	0.126*** (0.034)	6.062	1.873	Direct expenditures per capita for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2014).
State and Federal Aid as % Local Gov't Budget	0.0324 (0.116)	0.00419 (0.006)	35.5	9.8	Intergovernmental revenue as a percent of general revenue for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2014).
Local as % State-Local Spending	-0.149 (0.288)	0.000519 (0.009)	46.0	7.3	Local government direct expenditures as a percent of state and local direct expenditures (State-level variable) Source: 2014 Survey of State and Local Gov't Finances (U.S. Census Bureau)
Constant	-0.706 (1.262)	10.98*** (1.676)			
N	69	69			
R-sq	0.74	0.683			
adj. R-sq	0.71	0.647			
F	33.04	11.92			

* p < 0.10, ** p < 0.05, *** p < 0.01; robust standard errors in parenthesis.

Regression #1 shows elasticities with all variables measured in natural logs; these coefficients are reported in figure 1.

Regression #2 measures all variables in levels except for median home value, which is measured as the natural log; these coefficients are used in appendix table 1a.

Notes: Washington, DC and New York City were excluded from the regression because they have very atypical revenue structures, and as major outliers they significantly altered the coefficient estimates and weakened the overall fit for the model. Honolulu and Newark were excluded because they do not have data in the FiSC database on property tax reliance or state and federal aid as a percent of the local government budget. The means and standard deviations shown in the table also exclude these four cities.

Appendix Table 1d: Correlates of Cities' Effective Tax Rates on Commercial Properties

	(1)	(2)	Mean	St. Dev.	Data
Tax Rate on Commercial Property	N/A	N/A	1.982	0.810	Effective tax rate on \$1-Million Commercial Property Source: <i>50-State Property Tax Comparison Study</i> (Appendix Tables 3a, 3b)
Median Home Value	-0.497*** (0.074)	-1.015*** (0.191)	229,771	154,642	Median home value in city Source: 2015 American Community Survey (U.S. Census Bureau)
Business Classification Ratio	0.480*** (0.082)	0.479*** (0.134)	1.469	0.705	Commercial-homestead classification ratio, with taxes on personal property excluded for commercial properties Source: <i>50-State Property Tax Comparison Study</i>
Apartments Classification Ratio	-0.270** (0.128)	-0.319 (0.207)	1.242	0.446	Apartment-homestead classification ratio, with taxes on personal property excluded for apartments Source: <i>50-State Property Tax Comparison Study</i>
Property Tax Reliance	0.705*** (0.104)	0.0334*** (0.006)	40.7	14.0	Property taxes as a percent of own source revenue for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2014).
Local Gov't Spending Per Capita (1000s)	0.632*** (0.146)	0.184*** (0.044)	6.062	1.873	Direct expenditures per capita for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2014).
State and Federal Aid as % Local Gov't Budget	0.135 (0.102)	0.0104 (0.006)	35.5	9.8	Intergovernmental revenue as a percent of general revenue for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2014).
Local as % State-Local Spending	0.0682 (0.274)	0.00434 (0.011)	46.0	7.3	Local government direct expenditures as a percent of state and local direct expenditures (State-level variable) Source: 2014 Survey of State and Local Gov't Finances (U.S. Census Bureau)
Constant	-2.655** (1.249)	11.00*** (2.451)			
N	69	69			
R-sq	0.679	0.649			
adj. R-sq	0.642	0.609			
F	27.01	14.81			

* p < 0.10, ** p < 0.05, *** p < 0.01; robust standard errors in parenthesis.

Regression #1 shows elasticities with all variables measured in natural logs.

Regression #2 measures all variables in levels except for median home value, which is measured as the natural log; these coefficients are used in appendix table 1b.

Notes: Washington, DC and New York City were excluded from the regression because they have very atypical revenue structures, and as major outliers they significantly altered the coefficient estimates and weakened the overall fit for the model. Honolulu and Newark were excluded because they do not have data in the FiSC database on property tax reliance or state and federal aid as a percent of the local government budget. The means and standard deviations shown in the table also exclude these four cities.

Appendix Table 2a: Homestead Property Taxes for Largest City in Each State: Median Valued Homes

State	City	Tax Rate (%)			Tax Bill (\$)			Median Home Value
		Rate	Rank	Change from '15	Rate	Rank	Change from '15	
Alabama	Birmingham	0.668%	49	1 ↑	621	53	-	93,000
Alaska	Anchorage	1.297%	24	3 ↑	3,925	12	1 ↓	302,500
Arizona	Phoenix	1.181%	29	1 ↑	2,372	26	1 ↑	200,800
Arkansas	Little Rock	1.146%	33	3 ↑	1,857	37	2 ↑	162,000
California	Los Angeles	1.176%	30	3 ↑	6,378	3	3 ↑	542,100
Colorado	Denver	0.623%	51	-	1,971	34	-	316,700
Connecticut	Bridgeport	3.806%	2	1 ↓	6,360	4	2 ↓	167,100
DC	Washington	0.714%	48	-	3,936	11	2 ↑	551,300
Delaware	Wilmington	1.397%	21	2 ↑	2,239	30	5 ↓	160,300
Florida	Jacksonville	1.248%	27	4 ↑	1,828	39	4 ↑	146,500
Georgia	Atlanta	1.129%	35	13 ↓	2,722	22	5 ↓	241,200
Hawaii	Honolulu	0.305%	53	-	1,955	35	2 ↑	641,900
Idaho	Boise	0.804%	45	-	1,687	43	2 ↑	209,900
Illinois	Aurora*	3.719%	3	-	6,300	5	2 ↓	169,400
Illinois	Chicago	1.486%	20	2 ↓	3,544	13	1 ↓	238,500
Indiana	Indianapolis	1.083%	38	-	1,337	49	-	123,500
Iowa	Des Moines	2.300%	6	-	2,748	21	2 ↓	119,500
Kansas	Wichita	1.216%	28	4 ↓	1,513	46	-	124,400
Kentucky	Louisville	1.266%	26	1 ↓	1,836	38	2 ↓	145,000
Louisiana	New Orleans	1.035%	39	1 ↑	2,244	29	6 ↑	216,800
Maine	Portland	1.992%	13	1 ↓	5,322	8	-	267,100
Maryland	Baltimore	2.087%	10	-	3,247	14	1 ↑	155,600
Massachusetts	Boston	0.612%	52	3 ↓	2,772	20	-	453,000
Michigan	Detroit	3.819%	1	1 ↑	1,627	45	3 ↓	42,600
Minnesota	Minneapolis	1.394%	22	1 ↓	3,171	15	3 ↑	227,500
Mississippi	Jackson	1.521%	18	2 ↑	1,408	48	1 ↓	92,600
Missouri	Kansas City	1.493%	19	-	2,066	33	-	138,400
Montana	Billings	0.861%	43	-	1,792	40	-	208,200
Nebraska	Omaha	2.017%	12	1 ↓	2,888	18	3 ↑	143,200
Nevada	Las Vegas	1.138%	34	1 ↑	2,382	25	3 ↑	209,400
New Hampshire	Manchester	2.247%	8	1 ↓	4,701	9	-	209,200
New Jersey	Newark	3.202%	4	-	7,547	2	2 ↑	235,700
New Mexico	Albuquerque	1.273%	25	1 ↑	2,409	24	2 ↑	189,200
New York	Buffalo*	1.971%	14	3 ↑	1,494	47	3 ↑	75,800
New York	New York City	1.155%	32	5 ↑	6,215	6	1 ↑	538,300
AVERAGE		1.497%			2,943			221,785

		Tax Rate (%)			Tax Bill (\$)			Median Home Value
State	City	Rate	Rank	Change from '15	Rate	Rank	Change from '15	
North Carolina	Charlotte	1.117%	36	2 ↓	2,109	32	1 ↓	188,800
North Dakota	Fargo	0.978%	40	12 ↓	1,882	36	7 ↓	192,400
Ohio	Columbus	2.044%	11	2 ↑	2,803	19	3 ↑	137,100
Oklahoma	Oklahoma City	1.175%	31	1 ↑	1,745	41	-	148,500
Oregon	Portland	2.285%	7	2 ↑	7,957	1	-	348,300
Pennsylvania	Philadelphia	1.086%	37	2 ↑	1,637	44	-	150,700
Rhode Island	Providence	1.712%	17	1 ↓	3,036	17	3 ↓	177,400
South Carolina	Columbia	0.764%	47	1 ↓	1,318	51	-	172,400
South Dakota	Sioux Falls	1.354%	23	6 ↑	2,249	28	4 ↑	166,100
Tennessee	Memphis	1.837%	15	1 ↓	1,735	42	4 ↓	94,400
Texas	Houston	1.783%	16	1 ↓	2,713	23	1 ↑	152,200
Utah	Salt Lake City	0.825%	44	-	2,165	31	1 ↓	262,400
Vermont	Burlington	2.137%	9	1 ↓	6,044	7	2 ↓	282,800
Virginia	Virginia Beach	0.880%	41	-	2,314	27	4 ↓	262,900
Washington	Seattle	0.877%	42	-	4,658	10	-	530,900
West Virginia	Charleston	0.770%	46	1 ↑	852	52	-	110,600
Wisconsin	Milwaukee	2.669%	5	-	3,043	16	-	114,000
Wyoming	Cheyenne	0.648%	50	2 ↑	1,324	50	2 ↓	204,500
AVERAGE		1.497%			2,943			221,785

* Illinois and New York have two cities included in this table, because the tax systems in Chicago and New York City are significantly different from the rest of the state.
Source for median home values: *2015 American Community Survey*, 1-year data

Appendix Table 2b: Homestead Property Taxes for Largest City in Each State: Median Valued Homes, with Assessment Limits

State	City	Tax Rate (%)			Tax Bill (\$)			Median Home Value
		Rate	Rank	Change from '15	Rate	Rank	Change from '15	
Alabama	Birmingham	0.668%	48	2 ↑	621	53	-	93,000
Alaska	Anchorage	1.297%	24	3 ↑	3,925	10	-	302,500
Arizona	Phoenix	0.959%	37	3 ↓	1,926	35	2 ↓	200,800
Arkansas	Little Rock	1.112%	32	1 ↑	1,802	38	2 ↑	162,000
California	Los Angeles	0.718%	46	2 ↓	3,892	11	2 ↓	542,100
Colorado	Denver	0.623%	50	1 ↑	1,971	33	1 ↑	316,700
Connecticut	Bridgeport	3.806%	1	-	6,360	2	1 ↓	167,100
DC	Washington	0.714%	47	1 ↑	3,936	9	3 ↑	551,300
Delaware	Wilmington	1.397%	21	2 ↑	2,239	29	4 ↓	160,300
Florida	Jacksonville	0.920%	38	1 ↓	1,347	47	1 ↓	146,500
Georgia	Atlanta	1.129%	30	8 ↓	2,722	22	5 ↓	241,200
Hawaii	Honolulu	0.305%	53	-	1,955	34	3 ↑	641,900
Idaho	Boise	0.804%	43	-	1,687	42	1 ↑	209,900
Illinois	Aurora*	3.719%	2	-	6,300	3	1 ↓	169,400
Illinois	Chicago	1.486%	20	2 ↓	3,544	12	1 ↑	238,500
Indiana	Indianapolis	1.083%	34	1 ↑	1,337	49	-	123,500
Iowa	Des Moines	2.300%	6	-	2,748	21	2 ↓	119,500
Kansas	Wichita	1.216%	27	3 ↓	1,513	44	-	124,400
Kentucky	Louisville	1.266%	26	1 ↓	1,836	37	1 ↓	145,000
Louisiana	New Orleans	1.035%	35	3 ↑	2,244	28	7 ↑	216,800
Maine	Portland	1.992%	12	1 ↓	5,322	6	-	267,100
Maryland	Baltimore	2.087%	9	-	3,247	13	2 ↑	155,600
Massachusetts	Boston	0.612%	51	2 ↓	2,772	20	-	453,000
Michigan	Detroit	3.148%	4	1 ↓	1,341	48	1 ↓	42,600
Minnesota	Minneapolis	1.394%	22	1 ↓	3,171	14	4 ↑	227,500
Mississippi	Jackson	1.521%	18	2 ↑	1,408	46	1 ↓	92,600
Missouri	Kansas City	1.493%	19	-	2,066	32	-	138,400
Montana	Billings	0.861%	41	-	1,792	39	-	208,200
Nebraska	Omaha	2.017%	11	1 ↓	2,888	18	3 ↑	143,200
Nevada	Las Vegas	1.138%	28	4 ↑	2,382	25	2 ↑	209,400
New Hampshire	Manchester	2.247%	7	-	4,701	7	-	209,200
New Jersey	Newark	3.202%	3	1 ↑	7,547	1	2 ↑	235,700
New Mexico	Albuquerque	1.273%	25	1 ↑	2,409	24	2 ↑	189,200
New York	Buffalo*	1.971%	13	4 ↑	1,494	45	5 ↑	75,800
New York	New York City	0.588%	52	5 ↓	3,164	15	4 ↓	538,300
AVERAGE		1.439%			2,768			221,785

		Tax Rate (%)			Tax Bill (\$)			Median Home Value
State	City	Rate	Rank	Change from '15	Rate	Rank	Change from '15	
North Carolina	Charlotte	1.117%	31	-	2,109	31	1 ↓	188,800
North Dakota	Fargo	0.978%	36	8 ↓	1,882	36	8 ↓	192,400
Ohio	Columbus	2.044%	10	3 ↑	2,803	19	3 ↑	137,100
Oklahoma	Oklahoma City	1.136%	29	1 ↑	1,687	41	-	148,500
Oregon	Portland	1.612%	17	5 ↓	5,614	5	-	348,300
Pennsylvania	Philadelphia	1.086%	33	3 ↑	1,637	43	1 ↓	150,700
Rhode Island	Providence	1.712%	16	-	3,036	17	3 ↓	177,400
South Carolina	Columbia	0.725%	45	1 ↑	1,250	51	-	172,400
South Dakota	Sioux Falls	1.354%	23	6 ↑	2,249	27	4 ↑	166,100
Tennessee	Memphis	1.837%	14	-	1,735	40	2 ↓	94,400
Texas	Houston	1.783%	15	-	2,713	23	1 ↑	152,200
Utah	Salt Lake City	0.825%	42	-	2,165	30	1 ↓	262,400
Vermont	Burlington	2.137%	8	-	6,044	4	-	282,800
Virginia	Virginia Beach	0.880%	39	-	2,314	26	3 ↓	262,900
Washington	Seattle	0.877%	40	-	4,658	8	-	530,900
West Virginia	Charleston	0.770%	44	1 ↑	852	52	-	110,600
Wisconsin	Milwaukee	2.669%	5	-	3,043	16	-	114,000
Wyoming	Cheyenne	0.648%	49	3 ↑	1,324	50	2 ↓	204,500
AVERAGE		1.439%			2,768			221,785

* Illinois and New York have two cities included in this table, because the tax systems in Chicago and New York City are significantly different from the rest of the state.
Source for median home values: *2015 American Community Survey*, 1-year data

Appendix Table 2c: Homestead Property Taxes for Largest City in Each State: Homes worth \$150,000 and \$300,000

State	City	\$150,000 Property Value				\$300,000 Property Value				Tax Rate Varies with Property Value
		Tax Rate	Tax Bill	Rank	Change from '15	Tax Rate	Tax Bill	Rank	Change from '15	
Alabama	Birmingham	0.690%	1,035	48	-	0.707%	2,122	48	-	X
Alaska	Anchorage	1.256%	1,885	27	2 ↑	1.297%	3,890	25	3 ↑	X
Arizona	Phoenix	1.181%	1,772	29	1 ↑	1.181%	3,543	33	1 ↓	
Arkansas	Little Rock	1.129%	1,693	33	3 ↑	1.245%	3,736	28	1 ↑	X
California	Los Angeles	1.136%	1,704	32	2 ↑	1.164%	3,492	35	-	X
Colorado	Denver	0.623%	934	50	1 ↓	0.623%	1,868	50	1 ↓	
Connecticut	Bridgeport	3.806%	5,709	2	1 ↓	3.806%	11,418	3	2 ↓	
DC	Washington	0.418%	627	51	-	0.621%	1,864	51	-	X
Delaware	Wilmington	1.397%	2,095	20	2 ↑	1.397%	4,191	23	1 ↑	
Florida	Jacksonville	1.260%	1,889	26	1 ↓	1.502%	4,506	20	-	X
Georgia	Atlanta	0.810%	1,215	44	13 ↓	1.231%	3,692	30	7 ↓	X
Hawaii	Honolulu	0.162%	242	52	-	0.255%	765	53	-	X
Idaho	Boise	0.792%	1,188	45	1 ↓	1.038%	3,114	40	1 ↓	X
Illinois	Aurora*	3.667%	5,501	3	-	3.894%	11,683	1	1 ↑	X
Illinois	Chicago	1.367%	2,051	21	1 ↓	1.527%	4,582	19	-	X
Indiana	Indianapolis	1.091%	1,637	35	2 ↑	1.111%	3,332	39	2 ↑	X
Iowa	Des Moines	2.339%	3,508	6	-	2.415%	7,246	6	-	X
Kansas	Wichita	1.223%	1,834	28	5 ↓	1.238%	3,714	29	4 ↓	X
Kentucky	Louisville	1.266%	1,899	24	-	1.266%	3,798	27	-	
Louisiana	New Orleans	0.817%	1,226	43	2 ↑	1.171%	3,512	34	3 ↑	X
Maine	Portland	1.900%	2,850	14	2 ↓	2.005%	6,016	14	2 ↓	X
Maryland	Baltimore	2.087%	3,130	10	-	2.087%	6,260	11	1 ↓	
Massachusetts	Boston	0.105%	157	53	-	0.391%	1,173	52	-	X
Michigan	Detroit	3.819%	5,728	1	1 ↑	3.819%	11,456	2	1 ↑	
Minnesota	Minneapolis	1.278%	1,916	23	2 ↓	1.448%	4,344	22	1 ↓	X
Mississippi	Jackson	1.645%	2,467	18	-	1.745%	5,234	17	1 ↑	X
Missouri	Kansas City	1.493%	2,239	19	-	1.493%	4,479	21	1 ↑	
Montana	Billings	0.861%	1,291	41	1 ↑	0.861%	2,583	44	-	
Nebraska	Omaha	2.017%	3,026	13	2 ↓	2.017%	6,051	13	2 ↓	
Nevada	Las Vegas	1.138%	1,706	31	4 ↑	1.138%	3,413	36	2 ↑	
New Hampshire	Manchester	2.247%	3,370	8	1 ↓	2.247%	6,741	8	1 ↓	
New Jersey	Newark	3.202%	4,803	4	-	3.202%	9,606	4	-	
New Mexico	Albuquerque	1.261%	1,892	25	1 ↑	1.289%	3,868	26	-	X
New York	Buffalo*	2.074%	3,111	11	3 ↑	2.127%	6,380	10	3 ↑	X
New York	New York City	1.069%	1,604	37	2 ↑	1.128%	3,385	37	3 ↑	X
AVERAGE		1.464%	2,196			1.529%	4,586			N = 26

		\$150,000 Property Value				\$300,000 Property Value				Tax Rate Varies with Property Value
State	City	Tax Rate	Tax Bill	Rank	Change from '15	Tax Rate	Tax Bill	Rank	Change from '15	
North Carolina	Charlotte	1.117%	1,675	34	1 ↓	1.117%	3,350	38	2 ↓	X
North Dakota	Fargo	0.978%	1,467	38	11 ↓	0.978%	2,935	41	11 ↓	
Ohio	Columbus	2.044%	3,067	12	1 ↑	2.044%	6,133	12	2 ↑	
Oklahoma	Oklahoma City	1.176%	1,763	30	2 ↑	1.213%	3,640	32	1 ↑	
Oregon	Portland	2.285%	3,427	7	2 ↑	2.285%	6,854	7	2 ↑	
Pennsylvania	Philadelphia	1.085%	1,628	36	2 ↑	1.224%	3,671	31	3 ↑	X
Rhode Island	Providence	1.712%	2,567	17	-	1.712%	5,135	18	1 ↓	
South Carolina	Columbia	0.764%	1,146	47	1 ↓	0.764%	2,293	47	1 ↓	
South Dakota	Sioux Falls	1.354%	2,031	22	6 ↑	1.354%	4,062	24	7 ↑	
Tennessee	Memphis	1.837%	2,756	15	-	1.837%	5,512	16	-	
Texas	Houston	1.780%	2,670	16	-	1.880%	5,641	15	-	X
Utah	Salt Lake City	0.825%	1,238	42	1 ↑	0.825%	2,475	45	-	
Vermont	Burlington	2.137%	3,206	9	1 ↓	2.137%	6,411	9	1 ↓	
Virginia	Virginia Beach	0.880%	1,320	39	1 ↑	0.880%	2,641	42	-	
Washington	Seattle	0.877%	1,316	40	1 ↑	0.877%	2,632	43	-	
West Virginia	Charleston	0.770%	1,155	46	1 ↑	0.770%	2,310	46	1 ↑	X
Wisconsin	Milwaukee	2.714%	4,071	5	-	2.784%	8,353	5	-	
Wyoming	Cheyenne	0.648%	971	49	1 ↑	0.648%	1,943	49	1 ↑	
AVERAGE		1.464%	2,196			1.529%	4,586			N = 26

* Illinois and New York have two cities included in this table, because the tax systems in Chicago and New York City are significantly different from the rest of the state.

Appendix Table 2d: Homestead Property Taxes for the Largest Fifty U.S. Cities: Median Valued Homes

State	City	Tax Rate (%)			Tax Bill (\$)			Median Home Value
		Rate	Rank	Change from '15	Rate	Rank	Change from '15	
Arizona	Mesa	0.879%	45	1 ↑	1,653	45	3 ↑	188,100
Arizona	Phoenix	1.181%	28	1 ↓	2,372	31	-	200,800
Arizona	Tucson	1.259%	23	5 ↑	1,755	42	5 ↑	139,400
California	Fresno	1.188%	27	3 ↑	2,419	28	1 ↑	203,700
California	Long Beach	1.140%	34	5 ↑	5,512	8	1 ↑	483,700
California	Los Angeles	1.176%	29	3 ↑	6,378	5	-	542,100
California	Oakland	1.334%	20	1 ↑	7,429	4	-	557,000
California	Sacramento	1.114%	38	-	3,200	15	6 ↑	287,300
California	San Diego	1.159%	32	3 ↑	6,105	7	1 ↓	526,900
California	San Francisco	1.170%	31	2 ↑	11,018	1	-	941,400
California	San Jose	1.250%	24	1 ↑	8,966	2	-	717,100
Colorado	Colorado Springs	0.448%	50	-	1,024	50	-	228,600
Colorado	Denver	0.623%	48	1 ↑	1,971	37	1 ↓	316,700
DC	Washington	0.714%	47	-	3,936	12	1 ↑	551,300
Florida	Jacksonville	1.248%	25	4 ↑	1,828	41	4 ↑	146,500
Florida	Miami	1.605%	15	-	4,599	11	-	286,600
Georgia	Atlanta	1.129%	36	16 ↓	2,722	26	7 ↓	241,200
Illinois	Chicago	1.486%	17	1 ↓	3,544	13	1 ↓	238,500
Indiana	Indianapolis	1.083%	40	-	1,337	49	-	123,500
Kansas	Wichita	1.216%	26	3 ↓	1,513	48	2 ↓	124,400
Kentucky	Louisville	1.266%	22	2 ↑	1,836	40	2 ↓	145,000
Louisiana	New Orleans	1.035%	41	2 ↑	2,244	34	3 ↑	216,800
Maryland	Baltimore	2.087%	7	2 ↑	3,247	14	1 ↑	155,600
Massachusetts	Boston	0.612%	49	1 ↓	2,772	25	3 ↓	453,000
Michigan	Detroit	3.819%	1	-	1,627	47	3 ↓	42,600
Minnesota	Minneapolis	1.394%	18	-	3,171	16	4 ↑	227,500
Missouri	Kansas City	1.493%	16	1 ↑	2,066	36	1 ↓	138,400
Nebraska	Omaha	2.017%	11	1 ↓	2,888	22	1 ↑	143,200
Nevada	Las Vegas	1.138%	35	1 ↑	2,382	30	2 ↑	209,400
New Mexico	Albuquerque	1.273%	21	5 ↑	2,409	29	1 ↓	189,200
New York	New York City	1.155%	33	4 ↑	6,215	6	1 ↑	538,300
North Carolina	Charlotte	1.117%	37	3 ↓	2,109	35	2 ↓	188,800
North Carolina	Raleigh	1.023%	42	1 ↓	2,317	32	2 ↓	226,500
Ohio	Columbus	2.044%	9	5 ↓	2,803	24	15 ↑	137,100
Oklahoma	Oklahoma City	1.175%	9	22 ↑	1,745	43	-	148,500
AVERAGE		1.437%			3,343			262,772

		Tax Rate (%)			Tax Bill (\$)			Median Home Value
State	City	Rate	Rank	Change from '15	Rate	Rank	Change from '15	
Oklahoma	Tulsa	1.376%	19	-	1,840	39	1 ↑	133,700
Oregon	Portland	2.285%	5	1 ↑	7,957	3	-	348,300
Pennsylvania	Philadelphia	1.086%	39	17 ↓	1,637	46	12 ↓	150,700
Tennessee	Memphis	1.837%	13	-	1,735	44	3 ↓	94,400
Tennessee	Nashville	0.996%	43	1 ↓	1,843	38	4 ↑	185,000
Texas	Arlington*	2.061%	8	NA	2,987	20	NA	144,900
Texas	Austin	1.887%	12	1 ↓	5,334	9	1 ↓	282,700
Texas	Dallas	2.025%	10	2 ↓	3,086	17	1 ↑	152,400
Texas	El Paso	2.580%	3	-	3,057	18	4 ↓	118,500
Texas	Fort Worth	2.104%	6	1 ↓	2,877	23	7 ↓	136,700
Texas	Houston	1.783%	14	-	2,713	27	-	152,200
Texas	San Antonio	2.333%	4	3 ↑	2,954	21	3 ↑	126,600
Virginia	Virginia Beach	0.880%	44	-	2,314	33	7 ↓	262,900
Washington	Seattle	0.877%	46	1 ↓	4,658	10	-	530,900
Wisconsin	Milwaukee	2.669%	2	-	3,043	19	2 ↓	114,000
AVERAGE		1.437%			3,343			262,772

* Arlington, TX replaces Cleveland, OH in the set of fifty largest cities.

Source for median home values: *2015 American Community Survey*, 1-year data

Appendix Table 2e: Homestead Property Taxes for the Largest Fifty U.S. Cities: Median Valued Homes, with Assessment Limits

State	City	Tax Rate (%)			Tax Bill (\$)			Median Home Value
		Rate	Rank	Change from '15	Rate	Rank	Change from '15	
Arizona	Mesa	0.768%	42	2 ↑	1,444	46	2 ↑	188,100
Arizona	Phoenix	0.959%	33	4 ↓	1,926	36	2 ↓	200,800
Arizona	Tucson	1.249%	21	3 ↑	1,741	40	5 ↑	139,400
California	Fresno	0.846%	38	3 ↓	1,724	42	4 ↓	203,700
California	Long Beach	0.835%	39	9 ↑	4,038	8	10 ↑	483,700
California	Los Angeles	0.718%	43	-	3,892	10	2 ↓	542,100
California	Oakland	0.828%	40	6 ↓	4,612	7	2 ↓	557,000
California	Sacramento	0.718%	44	3 ↓	2,062	34	4 ↓	287,300
California	San Diego	0.885%	35	3 ↑	4,663	5	1 ↑	526,900
California	San Francisco	0.698%	46	4 ↓	6,571	1	-	941,400
California	San Jose	0.825%	41	4 ↓	5,917	2	-	717,100
Colorado	Colorado Springs	0.448%	50	-	1,024	50	-	228,600
Colorado	Denver	0.623%	47	2 ↑	1,971	35	-	316,700
DC	Washington	0.714%	45	1 ↑	3,936	9	1 ↑	551,300
Florida	Jacksonville	0.920%	34	2 ↓	1,347	47	1 ↓	146,500
Florida	Miami	0.989%	32	5 ↓	2,834	22	2 ↓	286,600
Georgia	Atlanta	1.129%	25	7 ↓	2,722	25	8 ↓	241,200
Illinois	Chicago	1.486%	16	1 ↓	3,544	11	-	238,500
Indiana	Indianapolis	1.083%	28	2 ↑	1,337	49	-	123,500
Kansas	Wichita	1.216%	22	1 ↓	1,513	45	1 ↓	124,400
Kentucky	Louisville	1.266%	20	2 ↑	1,836	38	1 ↓	145,000
Louisiana	New Orleans	1.035%	29	7 ↑	2,244	31	5 ↑	216,800
Maryland	Baltimore	2.087%	6	2 ↑	3,247	12	1 ↑	155,600
Massachusetts	Boston	0.612%	48	1 ↓	2,772	24	3 ↓	453,000
Michigan	Detroit	3.148%	1	-	1,341	48	1 ↓	42,600
Minnesota	Minneapolis	1.394%	17	-	3,171	13	6 ↑	227,500
Missouri	Kansas City	1.493%	15	1 ↑	2,066	33	-	138,400
Nebraska	Omaha	2.017%	9	-	2,888	20	2 ↑	143,200
Nevada	Las Vegas	1.138%	23	5 ↑	2,382	28	1 ↑	209,400
New Mexico	Albuquerque	1.273%	19	4 ↑	2,409	27	-	189,200
New York	New York City	0.588%	49	4 ↓	3,164	14	5 ↓	538,300
North Carolina	Charlotte	1.117%	26	-	2,109	32	1 ↓	188,800
North Carolina	Raleigh	1.023%	30	1 ↑	2,317	29	1 ↓	226,500
Ohio	Columbus	2.044%	8	4 ↓	2,803	23	16 ↑	137,100
Oklahoma	Oklahoma City	1.136%	24	1 ↑	1,687	43	-	148,500
AVERAGE		1.307%			2,817			262,772

		Tax Rate (%)			Tax Bill (\$)			Median Home Value
State	City	Rate	Rank	Change from '15	Rate	Rank	Change from '15	
Oklahoma	Tulsa	1.368%	18	1 ↑	1,829	39	3 ↑	133,700
Oregon	Portland	1.612%	14	3 ↓	5,614	3	-	348,300
Pennsylvania	Philadelphia	1.086%	27	7 ↓	1,637	44	12 ↓	150,700
Tennessee	Memphis	1.837%	12	1 ↑	1,735	41	1 ↓	94,400
Tennessee	Nashville	0.996%	31	2 ↑	1,843	37	4 ↑	185,000
Texas	Arlington*	2.061%	7	NA	2,987	18	NA	144,900
Texas	Austin	1.870%	11	1 ↓	5,287	4	-	282,700
Texas	Dallas	2.007%	10	3 ↓	3,058	15	1 ↑	152,400
Texas	El Paso	2.580%	3	-	3,057	16	4 ↓	118,500
Texas	Fort Worth	2.104%	5	-	2,877	21	7 ↓	136,700
Texas	Houston	1.783%	13	1 ↑	2,713	26	-	152,200
Texas	San Antonio	2.333%	4	2 ↑	2,954	19	4 ↑	126,600
Virginia	Virginia Beach	0.880%	36	3 ↑	2,314	30	5 ↓	262,900
Washington	Seattle	0.877%	37	3 ↑	4,658	6	1 ↑	530,900
Wisconsin	Milwaukee	2.669%	2	-	3,043	17	2 ↓	114,000
AVERAGE		1.307%			2,817			262,772

* Arlington, TX replaces Cleveland, OH in the set of fifty largest cities.

Source for median home values: *2015 American Community Survey*, 1-year data

Appendix Table 2f: Homestead Property Taxes for the Largest Fifty U.S. Cities: Homes worth \$150,000 and \$300,000

State	City	\$150,000 Property Value				\$300,000 Property Value				Tax Rate Varies with Property Value
		Tax Rate	Tax Bill	Rank	Change from '15	Tax Rate	Tax Bill	Rank	Change from '15	
Arizona	Mesa	0.879%	1,318	43	2 ↑	0.879%	2,636	45	1 ↑	
Arizona	Phoenix	1.181%	1,772	27	-	1.181%	3,543	31	3 ↓	
Arizona	Tucson	1.259%	1,889	24	5 ↑	1.259%	3,778	24	6 ↑	
California	Fresno	1.172%	1,759	29	2 ↑	1.201%	3,603	30	1 ↑	X
California	Long Beach	1.102%	1,653	35	4 ↑	1.129%	3,388	37	3 ↑	X
California	Los Angeles	1.136%	1,704	31	2 ↑	1.164%	3,492	33	1 ↓	X
California	Oakland	1.288%	1,932	19	2 ↑	1.319%	3,958	21	1 ↑	X
California	Sacramento	1.089%	1,633	37	-	1.115%	3,345	40	2 ↓	X
California	San Diego	1.120%	1,679	33	3 ↑	1.147%	3,441	35	-	X
California	San Francisco	1.124%	1,686	32	3 ↑	1.152%	3,455	34	-	X
California	San Jose	1.204%	1,806	26	-	1.233%	3,700	26	1 ↑	X
Colorado	Colorado Springs	0.448%	672	48	-	0.448%	1,343	49	1 ↑	
Colorado	Denver	0.623%	934	47	-	0.623%	1,868	47	-	
DC	Washington	0.418%	627	49	-	0.621%	1,864	48	-	X
Florida	Jacksonville	1.260%	1,889	23	1 ↑	1.502%	4,506	17	-	X
Florida	Miami	1.328%	1,991	18	-	1.618%	4,854	15	-	X
Georgia	Atlanta	0.810%	1,215	46	18 ↓	1.231%	3,692	27	7 ↓	X
Illinois	Chicago	1.367%	2,051	17	1 ↓	1.527%	4,582	16	-	X
Indiana	Indianapolis	1.091%	1,637	36	2 ↑	1.111%	3,332	41	-	X
Kansas	Wichita	1.223%	1,834	25	3 ↓	1.238%	3,714	25	1 ↓	X
Kentucky	Louisville	1.266%	1,899	21	2 ↑	1.266%	3,798	23	3 ↑	
Louisiana	New Orleans	0.817%	1,226	45	1 ↑	1.171%	3,512	32	4 ↑	X
Maryland	Baltimore	2.087%	3,130	7	2 ↑	2.087%	6,260	9	-	
Massachusetts	Boston	0.105%	157	50	-	0.391%	1,173	50	1 ↓	X
Michigan	Detroit	3.819%	5,728	1	-	3.819%	11,456	1	-	
Minnesota	Minneapolis	1.278%	1,916	20	1 ↓	1.448%	4,344	19	1 ↓	X
Missouri	Kansas City	1.493%	2,239	15	-	1.493%	4,479	18	1 ↑	
Nebraska	Omaha	2.017%	3,026	11	1 ↓	2.017%	6,051	11	1 ↓	
Nevada	Las Vegas	1.138%	1,706	30	4 ↑	1.138%	3,413	36	1 ↑	
New Mexico	Albuquerque	1.261%	1,892	22	3 ↑	1.289%	3,868	22	3 ↑	X
New York	New York City	1.069%	1,604	39	1 ↑	1.128%	3,385	38	1 ↑	X
North Carolina	Charlotte	1.117%	1,675	34	2 ↓	1.117%	3,350	39	6 ↓	
North Carolina	Raleigh	1.023%	1,534	40	1 ↑	1.023%	3,069	42	-	
Ohio	Columbus	2.044%	3,067	9	5 ↓	2.044%	6,133	10	6 ↓	
Oklahoma	Oklahoma City	1.176%	1,763	28	2 ↑	1.213%	3,640	29	-	X
AVERAGE		1.394%	2,091			1.465%	4,695			N = 31

		\$150,000 Property Value				\$300,000 Property Value				Tax Rate Varies with Property Value
State	City	Tax Rate	Tax Bill	Rank	Change from '15	Tax Rate	Tax Bill	Rank	Change from '15	
Oklahoma	Tulsa	1.387%	2,081	5	12 ↑	1.432%	4,296	20	1 ↑	X
Oregon	Portland	2.285%	3,427	5	1 ↑	2.285%	6,854	5	2 ↑	X
Pennsylvania	Philadelphia	1.085%	1,628	38	18 ↓	1.224%	3,671	28	5 ↓	
Tennessee	Memphis	1.837%	2,756	12	1 ↑	1.837%	5,512	14	-	
Tennessee	Nashville	0.996%	1,494	41	1 ↑	0.996%	2,988	43	-	
Texas	Arlington*	2.069%	3,104	8	NA	2.185%	6,556	7	NA	X
Texas	Austin	1.792%	2,688	13	2 ↓	1.893%	5,678	12	1 ↓	X
Texas	Dallas	2.021%	3,032	10	2 ↓	2.122%	6,366	8	-	X
Texas	El Paso	2.645%	3,968	3	-	2.768%	8,305	3	-	X
Texas	Fort Worth	2.126%	3,189	6	1 ↓	2.239%	6,717	6	1 ↓	X
Texas	Houston	1.780%	2,670	14	-	1.880%	5,641	13	-	X
Texas	San Antonio	2.380%	3,570	4	3 ↑	2.506%	7,519	4	2 ↑	X
Virginia	Virginia Beach	0.880%	1,320	42	1 ↑	0.880%	2,641	44	-	X
Washington	Seattle	0.877%	1,316	44	-	0.877%	2,632	46	1 ↓	
Wisconsin	Milwaukee	2.714%	4,071	2	-	2.784%	8,353	2	-	
AVERAGE		1.394%	2,091			1.465%	4,695			N = 31

* Arlington, TX replaces Cleveland, OH in the set of fifty largest cities.

Appendix Table 2g: Homestead Property Taxes for Selected Rural Municipalities: Median Valued Homes

State	City	Tax Rate (%)			Tax Bill (\$)			Median Home Value
		Rate	Rank	Change from '15	Rate	Rank	Change from '15	
Alabama	Monroeville	0.366%	48	-	355	49	-	97,100
Alaska	Ketchikan	1.035%	30	2 ↑	2,325	13	-	224,600
Arizona	Safford	0.749%	40	2 ↑	989	34	4 ↑	132,000
Arkansas	Pocahontas	0.246%	49	-	187	50	-	75,900
California	Yreka	1.005%	32	1 ↓	1,551	20	2 ↓	154,300
Colorado	Walsenburg	0.551%	45	-	431	48	-	78,200
Connecticut	Litchfield	1.911%	14	2 ↓	6,688	1	-	350,000
Delaware	Georgetown	0.584%	43	1 ↑	1,229	30	6 ↓	210,300
Florida	Moore Haven	0.952%	33	7 ↓	706	41	4 ↓	74,100
Georgia	Fitzgerald	1.522%	19	-	1,263	29	2 ↓	83,000
Hawaii	Kauai	0.200%	50	-	934	35	2 ↓	466,200
Idaho	Saint Anthony	0.815%	36	2 ↓	867	37	2 ↑	106,400
Illinois	Galena	2.170%	7	3 ↑	3,298	6	-	152,000
Indiana	North Vernon	0.862%	34	3 ↑	717	39	3 ↑	83,200
Iowa	Hampton	1.856%	15	-	1,544	21	4 ↓	83,200
Kansas	Iola	1.981%	12	2 ↑	1,381	27	2 ↑	69,700
Kentucky	Morehead	1.136%	25	4 ↑	1,770	17	9 ↑	155,800
Louisiana	Natchitoches	0.372%	47	-	524	47	-	141,000
Maine	Rockland	1.959%	13	-	2,991	8	1 ↓	152,700
Maryland	Denton	1.458%	20	2 ↓	2,500	9	-	171,500
Massachusetts	Adams	2.118%	9	-	3,011	7	1 ↑	142,200
Michigan	Manistique	2.144%	8	2 ↓	1,385	26	3 ↓	64,600
Minnesota	Glencoe	1.306%	21	1 ↑	1,609	18	2 ↓	123,200
Mississippi	Philadelphia	1.023%	31	3 ↓	807	38	3 ↓	78,900
Missouri	Boonville	1.088%	28	1 ↓	1,166	32	2 ↓	107,200
Montana	Glasgow	1.060%	29	4 ↑	1,425	24	7 ↑	134,400
Nebraska	Sidney	1.988%	11	3 ↓	2,434	10	1 ↑	122,400
Nevada	Fallon	1.259%	22	1 ↓	1,560	19	2 ↑	123,900
New Hampshire	Lancaster	2.820%	1	2 ↑	3,945	5	-	139,900
New Jersey	Maurice River Twp	2.556%	4	-	4,269	4	-	167,000
New Mexico	Santa Rosa	0.831%	35	-	709	40	1 ↑	85,300
New York	Warsaw	2.656%	3	1 ↓	2,332	12	2 ↓	87,800
North Carolina	Edenton	1.096%	27	3 ↑	1,280	28	3 ↓	116,800
North Dakota	Devils Lake	1.112%	26	1 ↓	1,014	33	1 ↑	91,200
Ohio	Bryan	1.535%	18	2 ↑	1,511	22	2 ↓	98,400
AVERAGE		1.328%			1,753			132,382

		Tax Rate (%)			Tax Bill (\$)			Median Home Value
State	City	Rate	Rank	Change from '15	Rate	Rank	Change from '15	
Oklahoma	Mangum	0.778%	39	1 ↓	538	45	-	69,100
Oregon	Tillamook	1.156%	24	-	2,015	14	1 ↑	174,300
Pennsylvania	Ridgway	2.666%	2	1 ↓	1,954	15	1 ↓	73,300
Rhode Island	Hopkinton	2.083%	10	1 ↑	5,367	3	-	257,700
South Carolina	Mullins	0.801%	37	1 ↓	555	44	1 ↓	69,300
South Dakota	Vermillion*	1.728%	16	NA	1,781	16	NA	103,100
Tennessee	Savannah	0.651%	42	1 ↓	561	43	3 ↑	86,200
Texas	Fort Stockton	1.727%	17	-	1,391	25	3 ↑	80,500
Utah	Richfield	0.788%	38	2 ↑	1,228	31	1 ↑	155,900
Vermont	Hartford	2.480%	5	-	5,639	2	-	227,400
Virginia	Wise	0.562%	44	2 ↑	702	42	2 ↓	124,800
Washington	Okanogan	1.222%	23	-	1,429	23	4 ↓	116,900
West Virginia	Elkins	0.523%	46	3 ↓	526	46	2 ↓	100,700
Wisconsin	Rice Lake	2.208%	6	1 ↑	2,340	11	1 ↑	106,000
Wyoming	Worland	0.693%	41	2 ↓	897	36	-	129,500
AVERAGE		1.328%			1,753			132,382

* Vermillion, SD replaces Madison, SD in the set of rural municipalities.

Source for median home values: *2015 American Community Survey*, 5-year data

Appendix Table 2h: Homestead Property Taxes for Selected Rural Municipalities: Homes worth \$150,000 and \$300,000

State	City	\$150,000 Property Value				\$300,000 Property Value				Tax Rate Varies with Property Value
		Tax Rate	Tax Bill	Rank	Change from '15	Tax Rate	Tax Bill	Rank	Change from '15	
Alabama	Monroeville	0.381%	572	49	-	0.396%	1,187	49	-	X
Alaska	Ketchikan	1.035%	1,553	32	1 ↑	1.035%	3,106	33	1 ↑	
Arizona	Safford	0.749%	1,124	40	2 ↑	0.749%	2,248	40	2 ↑	
Arkansas	Pocahontas	0.474%	710	47	-	0.590%	1,771	44	2 ↑	X
California	Yreka	1.004%	1,506	33	2 ↓	1.028%	3,085	34	2 ↓	X
Colorado	Walsenburg	0.551%	827	45	-	0.551%	1,654	47	-	
Connecticut	Litchfield	1.911%	2,866	15	3 ↓	1.911%	5,733	17	5 ↓	
Delaware	Georgetown	0.584%	877	43	1 ↑	0.584%	1,753	45	-	
Florida	Moore Haven	1.626%	2,439	19	2 ↓	1.955%	5,865	16	-	X
Georgia	Fitzgerald	1.629%	2,444	18	1 ↑	1.696%	5,087	19	1 ↓	X
Hawaii	Kauai	0.050%	75	50	-	0.142%	427	50	-	X
Idaho	St. Anthony	0.815%	1,223	37	1 ↓	1.055%	3,165	32	6 ↓	X
Illinois	Galena	2.166%	3,249	7	3 ↑	2.314%	6,941	7	-	X
Indiana	North Vernon	0.971%	1,457	34	2 ↓	0.971%	2,913	35	2 ↓	
Iowa	Hampton	1.955%	2,932	14	-	2.016%	6,048	13	-	X
Kansas	Iola	2.017%	3,025	11	2 ↑	2.032%	6,096	12	3 ↑	X
Kentucky	Morehead	1.136%	1,704	27	2 ↑	1.136%	3,409	27	3 ↑	
Louisiana	Natchitoches	0.403%	604	48	-	0.644%	1,932	43	-	X
Maine	Rockland	1.955%	2,932	13	2 ↑	2.063%	6,190	11	3 ↑	X
Maryland	Denton	1.458%	2,187	21	1 ↓	1.458%	4,374	22	2 ↓	
Massachusetts	Adams	2.118%	3,176	9	-	2.118%	6,353	9	1 ↑	
Michigan	Manistique	2.144%	3,215	8	2 ↓	2.144%	6,431	8	-	
Minnesota	Glencoe	1.391%	2,087	22	-	1.588%	4,764	20	2 ↑	X
Mississippi	Philadelphia	1.203%	1,804	25	-	1.303%	3,908	23	-	X
Missouri	Boonville	1.088%	1,631	30	2 ↓	1.088%	3,263	30	1 ↓	
Montana	Glasgow	1.060%	1,590	31	3 ↑	1.060%	3,181	31	4 ↑	
Nebraska	Sidney	1.988%	2,982	12	4 ↓	1.988%	5,964	15	6 ↓	
Nevada	Fallon	1.259%	1,889	23	-	1.259%	3,777	24	-	
New Hampshire	Lancaster	2.820%	4,229	2	1 ↑	2.820%	8,459	2	1 ↑	
New Jersey	Maurice River Twp	2.556%	3,834	4	-	2.556%	7,668	4	-	
New Mexico	Santa Rosa	0.859%	1,289	35	-	0.878%	2,634	36	-	X
New York	Warsaw	2.939%	4,408	1	-	3.138%	9,414	1	-	X
North Carolina	Edenton	1.096%	1,643	29	1 ↑	1.096%	3,287	29	2 ↑	
North Dakota	Devils Lake	1.112%	1,667	28	1 ↓	1.112%	3,335	28	-	
Ohio	Bryan	1.535%	2,303	20	1 ↑	1.535%	4,606	21	-	
AVERAGE		1.370%	2,054			1.414%	4,241			N = 20

		\$150,000 Property Value				\$300,000 Property Value				Tax Rate Varies with Property Value
State	City	Tax Rate	Tax Bill	Rank	Change from '15	Tax Rate	Tax Bill	Rank	Change from '15	
Oklahoma	Mangum	0.836%	1,254	36	1 ↑	0.860%	2,581	37	-	X
Oregon	Tillamook	1.156%	1,734	26	-	1.156%	3,468	26	1 ↑	X
Pennsylvania	Ridgway	2.752%	4,128	3	1 ↓	2.793%	8,378	3	1 ↓	
Rhode Island	Hopkinton	2.083%	3,124	10	1 ↑	2.083%	6,248	10	1 ↑	
South Carolina	Mullins	0.801%	1,202	38	-	0.801%	2,403	38	-	
South Dakota	Vermillion*	1.728%	2,592	17	NA	1.728%	5,184	18	NA	X
Tennessee	Savannah	0.651%	977	42	1 ↓	0.651%	1,953	42	1 ↓	
Texas	Fort Stockton	1.909%	2,863	16	-	2.014%	6,041	14	3 ↑	
Utah	Richfield	0.788%	1,182	39	1 ↑	0.788%	2,364	39	1 ↑	
Vermont	Hartford	2.480%	3,720	5	-	2.480%	7,440	5	-	
Virginia	Wise	0.562%	843	44	2 ↑	0.562%	1,687	46	2 ↑	X
Washington	Okanogan	1.222%	1,834	24	-	1.222%	3,667	25	-	
West Virginia	Elkins	0.523%	784	46	3 ↓	0.523%	1,568	48	4 ↓	
Wisconsin	Rice Lake	2.259%	3,388	6	1 ↑	2.320%	6,961	6	-	
Wyoming	Worland	0.693%	1,039	41	2 ↓	0.693%	2,078	41	2 ↓	
AVERAGE		1.370%	2,054			1.414%	4,241			N = 20

* Vermillion, SD replaces Madison, SD in the set of rural municipalities.

Appendix Table 3a: Commercial Property Taxes for Largest City in Each State

		Land and Building Value: \$100,000			Land and Building Value: \$1 Million			Land and Building Value: \$25 Million			Tax Rate Varies with Property Value	Lower Tax Rate on Personal Property
State	City	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank		
Alabama	Birmingham	1.450%	1,740	35 (1 ↑)	1.450%	17,400	36 (2 ↑)	1.450%	435,000	38 (1 ↑)		
Alaska	Anchorage	1.163%	1,396	43 (1 ↑)	1.387%	16,640	40 (1 ↑)	1.410%	423,137	40 (2 ↑)	X	X
Arizona	Phoenix	2.164%	2,596	23 (1 ↑)	2.281%	27,368	22 (1 ↑)	2.646%	793,734	18 (1 ↓)	X	X
Arkansas	Little Rock	1.436%	1,723	36 (1 ↑)	1.436%	17,231	37 (2 ↑)	1.436%	430,765	39 (1 ↑)		
California	Los Angeles	1.192%	1,430	42 (-)	1.192%	14,302	44 (-)	1.192%	357,555	44 (-)		
Colorado	Denver	2.254%	2,705	21 (2 ↓)	2.254%	27,052	23 (3 ↓)	2.254%	676,306	23 (2 ↓)		
Connecticut	Bridgeport	3.806%	4,567	4 (1 ↑)	3.806%	45,671	4 (1 ↑)	3.806%	1,141,770	4 (1 ↑)		
DC	Washington	1.273%	1,528	41 (-)	1.273%	15,279	43 (-)	1.949%	584,625	28 (2 ↑)	X	X
Delaware	Wilmington	1.113%	1,335	47 (1 ↑)	1.113%	13,354	47 (2 ↑)	1.113%	333,857	47 (2 ↑)		X
Florida	Jacksonville	1.454%	1,745	34 (1 ↑)	1.714%	20,566	31 (1 ↓)	1.750%	524,853	31 (-)	X	X
Georgia	Atlanta	1.662%	1,995	30 (1 ↓)	1.662%	19,948	32 (1 ↓)	1.662%	498,708	33 (-)		
Hawaii	Honolulu	0.908%	1,089	51 (-)	0.908%	10,892	51 (-)	0.908%	272,304	51 (-)		X
Idaho	Boise	1.287%	1,544	40 (2 ↓)	1.423%	17,079	38 (3 ↓)	1.554%	466,273	35 (3 ↓)	X	X
Illinois	Aurora*	3.435%	4,122	6 (-)	3.435%	41,217	6 (-)	3.435%	1,030,427	6 (-)		X
Illinois	Chicago	3.857%	4,629	3 (1 ↑)	3.857%	46,288	3 (1 ↑)	3.857%	1,157,198	3 (1 ↑)		X
Indiana	Indianapolis	2.848%	3,418	8 (1 ↑)	2.848%	34,178	11 (1 ↑)	2.848%	854,455	11 (1 ↑)		
Iowa	Des Moines	2.234%	2,681	22 (-)	3.013%	36,151	8 (1 ↑)	3.270%	980,920	7 (1 ↑)	X	X
Kansas	Wichita	2.718%	3,261	13 (3 ↓)	2.718%	32,611	15 (2 ↓)	2.718%	815,279	15 (2 ↓)		
Kentucky	Louisville	1.333%	1,600	38 (1 ↑)	1.333%	15,999	41 (1 ↓)	1.333%	399,971	42 (1 ↓)		
Louisiana	New Orleans	2.150%	2,580	24 (1 ↑)	2.150%	25,803	24 (1 ↑)	2.150%	645,065	24 (1 ↑)		
Maine	Portland	2.111%	2,533	25 (2 ↑)	2.111%	25,332	25 (2 ↑)	2.111%	633,300	25 (2 ↑)		
Maryland	Baltimore	2.678%	3,214	14 (-)	2.678%	32,139	16 (-)	2.678%	803,463	16 (-)		
Massachusetts	Boston	1.921%	2,306	26 (3 ↓)	1.921%	23,057	28 (4 ↓)	1.921%	576,415	29 (5 ↓)		X
Michigan	Detroit	4.088%	4,906	1 (-)	4.088%	49,057	1 (-)	4.088%	1,226,425	1 (-)		X
Minnesota	Minneapolis	2.377%	2,852	17 (1 ↓)	3.002%	36,026	9 (2 ↓)	3.108%	932,457	9 (2 ↓)	X	X
Mississippi	Jackson	2.767%	3,320	11 (2 ↑)	2.767%	33,201	13 (2 ↑)	2.767%	830,025	13 (2 ↑)		
Missouri	Kansas City	2.756%	3,308	12 (-)	2.756%	33,077	14 (-)	2.756%	826,914	14 (-)		X
Montana	Billings	0.940%	1,127	50 (-)	1.025%	12,303	49 (1 ↓)	1.108%	332,268	48 (2 ↓)	X	X
Nebraska	Omaha	1.921%	2,305	27 (1 ↓)	2.088%	25,061	26 (-)	2.106%	631,901	27 (1 ↓)	X	X
Nevada	Las Vegas	1.142%	1,370	45 (1 ↑)	1.142%	13,703	46 (1 ↑)	1.142%	342,572	46 (2 ↑)		
New Hampshire	Manchester	1.872%	2,247	28 (-)	1.872%	22,469	29 (1 ↓)	1.872%	561,724	30 (1 ↓)		X
New Jersey	Newark	2.668%	3,202	15 (2 ↑)	2.668%	32,020	17 (1 ↑)	2.668%	800,488	17 (2 ↑)		X
New Mexico	Albuquerque	1.491%	1,790	32 (2 ↑)	1.491%	17,898	34 (3 ↑)	1.491%	447,449	36 (2 ↑)		
New York	Buffalo*	2.485%	2,982	16 (1 ↓)	2.485%	29,821	18 (1 ↓)	2.485%	745,536	19 (1 ↓)		X
New York	New York City	3.926%	4,711	2 (-)	3.926%	47,107	2 (-)	3.926%	1,177,679	2 (-)		X
AVERAGE		2.035%	2,443		2.097%	25,166		2.132%	639,680		N = 11	N = 26

		Land and Building Value: \$100,000			Land and Building Value: \$1 Million			Land and Building Value: \$25 Million			Tax Rate Varies with Property Value	Lower Tax Rate on Personal Property
State	City	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank		
North Carolina	Charlotte	1.146%	1,376	44 (1 ↓)	1.146%	13,757	45 (-)	1.146%	343,922	45 (-)		
North Dakota	Fargo	0.999%	1,198	49 (4 ↓)	0.999%	11,984	50 (4 ↓)	0.999%	299,593	50 (3 ↓)		X
Ohio	Columbus	1.747%	2,096	29 (1 ↑)	1.747%	20,964	30 (2 ↑)	1.747%	524,109	32 (2 ↑)		X
Oklahoma	Oklahoma City	1.303%	1,563	39 (1 ↑)	1.303%	15,631	42 (-)	1.303%	390,766	43 (-)		
Oregon	Portland	2.285%	2,742	20 (1 ↑)	2.285%	27,415	21 (1 ↑)	2.285%	685,378	22 (1 ↑)		
Pennsylvania	Philadelphia	1.135%	1,362	46 (1 ↑)	1.951%	23,418	27 (2 ↑)	2.110%	632,965	26 (2 ↑)	X	X
Rhode Island	Providence	3.714%	4,457	5 (2 ↓)	3.714%	44,572	5 (2 ↓)	3.714%	1,114,292	5 (2 ↓)		
South Carolina	Columbia	3.240%	3,888	7 (-)	3.240%	38,883	7 (1 ↑)	3.240%	972,068	8 (1 ↑)		
South Dakota	Sioux Falls	1.410%	1,691	37 (5 ↓)	1.410%	16,915	39 (5 ↓)	1.410%	422,864	41 (5 ↓)		X
Tennessee	Memphis	2.838%	3,406	9 (1 ↓)	2.838%	34,061	12 (1 ↓)	2.838%	851,514	12 (1 ↓)		X
Texas	Houston	2.358%	2,829	18 (-)	2.358%	28,293	19 (-)	2.358%	707,315	20 (-)		
Utah	Salt Lake City	1.460%	1,752	33 (-)	1.460%	17,521	35 (1 ↑)	1.460%	438,029	37 (-)		
Vermont	Burlington	2.329%	2,795	19 (1 ↑)	2.329%	27,949	20 (1 ↑)	2.329%	698,717	21 (1 ↑)		X
Virginia	Virginia Beach	1.048%	1,257	48 (1 ↑)	1.048%	12,573	48 (2 ↑)	1.048%	314,333	49 (1 ↑)		
Washington	Seattle	0.886%	1,063	52 (-)	0.886%	10,628	52 (-)	0.886%	265,693	52 (-)		
West Virginia	Charleston	1.650%	1,980	31 (-)	1.650%	19,799	33 (-)	1.650%	494,980	34 (1 ↑)		
Wisconsin	Milwaukee	2.788%	3,345	10 (1 ↑)	2.848%	34,181	10 (-)	2.855%	856,461	10 (-)	X	
Wyoming	Cheyenne	0.664%	797	53 (-)	0.664%	7,969	53 (-)	0.664%	199,237	53 (-)		
AVERAGE		2.035%	2,443		2.097%	25,166		2.132%	639,680		N = 11	N = 26

* Illinois and New York have two cities included in this table, because the tax systems in Chicago and New York City are significantly different from the rest of the state. \$100,000-valued property has an additional \$20,000 worth of fixtures; \$1 million-valued property has an additional \$200,000 worth of fixtures; \$25 million-valued property has an additional \$5 million worth of fixtures.

Appendix Table 3b: Commercial Property Taxes for the Largest Fifty U.S. Cities

		Land and Building Value: \$100,000			Land and Building Value: \$1 Million			Land and Building Value: \$25 Million			Tax Rate Varies with Property Value	Lower Tax Rate on Personal Property
State	City	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank		
Arizona	Mesa	1.370%	1,644	33 (3 ↓)	1.460%	17,522	33 (2 ↓)	1.743%	522,779	30 (2 ↓)	X	X
Arizona	Phoenix	2.164%	2,596	19 (3 ↑)	2.281%	27,368	18 (2 ↑)	2.646%	793,734	12 (-)	X	X
Arizona	Tucson	2.076%	2,491	22 (4 ↓)	2.194%	26,323	20 (6 ↓)	2.561%	768,227	13 (8 ↓)	X	X
California	Fresno	1.230%	1,476	39 (-)	1.230%	14,757	40 (-)	1.230%	368,935	40 (-)		
California	Long Beach	1.156%	1,388	43 (2 ↑)	1.156%	13,875	44 (2 ↑)	1.156%	346,875	44 (2 ↑)		
California	Los Angeles	1.192%	1,430	40 (-)	1.192%	14,302	41 (-)	1.192%	357,555	41 (-)		
California	Oakland	1.351%	1,621	34 (1 ↑)	1.351%	16,210	35 (1 ↑)	1.351%	405,240	36 (1 ↑)		
California	Sacramento	1.142%	1,370	46 (2 ↓)	1.142%	13,702	47 (2 ↓)	1.142%	342,540	47 (2 ↓)		
California	San Diego	1.174%	1,409	42 (1 ↑)	1.174%	14,092	43 (1 ↑)	1.174%	352,296	43 (1 ↑)		
California	San Francisco	1.179%	1,415	41 (1 ↑)	1.179%	14,150	42 (1 ↑)	1.179%	353,760	42 (1 ↑)		
California	San Jose	1.263%	1,515	38 (1 ↓)	1.263%	15,152	39 (1 ↓)	1.263%	378,810	39 (-)		
Colorado	Colorado Springs	1.620%	1,944	27 (2 ↓)	1.620%	19,444	30 (2 ↓)	1.620%	486,088	32 (2 ↓)		
Colorado	Denver	2.254%	2,705	18 (1 ↓)	2.254%	27,052	19 (1 ↓)	2.254%	676,306	20 (1 ↓)		
DC	Washington	1.273%	1,528	37 (1 ↑)	1.273%	15,279	38 (1 ↑)	1.949%	584,625	25 (2 ↑)	X	X
Florida	Jacksonville	1.454%	1,745	32 (-)	1.714%	20,566	28 (1 ↓)	1.750%	524,853	28 (1 ↑)	X	X
Florida	Miami	1.591%	1,909	28 (1 ↓)	1.896%	22,754	26 (1 ↓)	1.938%	581,434	26 (-)	X	X
Georgia	Atlanta	1.662%	1,995	26 (-)	1.662%	19,948	29 (-)	1.662%	498,708	31 (-)		
Illinois	Chicago	3.857%	4,629	3 (-)	3.857%	46,288	3 (-)	3.857%	1,157,198	3 (-)		X
Indiana	Indianapolis	2.848%	3,418	4 (1 ↑)	2.848%	34,178	6 (1 ↑)	2.848%	854,455	6 (2 ↑)		
Kansas	Wichita	2.718%	3,261	9 (3 ↓)	2.718%	32,611	10 (2 ↓)	2.718%	815,279	10 (1 ↓)		
Kentucky	Louisville	1.333%	1,600	35 (1 ↓)	1.333%	15,999	36 (1 ↓)	1.333%	399,971	37 (1 ↓)		
Louisiana	New Orleans	2.150%	2,580	20 (3 ↑)	2.150%	25,803	21 (2 ↑)	2.150%	645,065	21 (2 ↑)		
Maryland	Baltimore	2.678%	3,214	10 (1 ↓)	2.678%	32,139	11 (1 ↓)	2.678%	803,463	11 (-)		
Massachusetts	Boston	1.921%	2,306	23 (3 ↓)	1.921%	23,057	25 (4 ↓)	1.921%	576,415	27 (6 ↓)		X
Michigan	Detroit	4.088%	4,906	1 (-)	4.088%	49,057	1 (-)	4.088%	1,226,425	1 (-)		X
Minnesota	Minneapolis	2.377%	2,852	15 (3 ↓)	3.002%	36,026	4 (-)	3.108%	932,457	4 (-)	X	X
Missouri	Kansas City	2.756%	3,308	7 (1 ↑)	2.756%	33,077	8 (1 ↑)	2.756%	826,914	8 (2 ↑)		X
Nebraska	Omaha	1.921%	2,305	24 (-)	2.088%	25,061	23 (1 ↑)	2.106%	631,901	24 (-)	X	X
Nevada	Las Vegas	1.142%	1,370	45 (1 ↑)	1.142%	13,703	46 (1 ↑)	1.142%	342,572	46 (1 ↑)		
New Mexico	Albuquerque	1.491%	1,790	30 (1 ↑)	1.491%	17,898	32 (1 ↑)	1.491%	447,449	34 (-)		
New York	New York City	3.926%	4,711	2 (-)	3.926%	47,107	2 (-)	3.926%	1,177,679	2 (-)		X
North Carolina	Charlotte	1.146%	1,376	44 (3 ↓)	1.146%	13,757	45 (3 ↓)	1.146%	343,922	45 (3 ↓)		
North Carolina	Raleigh	1.022%	1,227	49 (1 ↓)	1.022%	12,267	49 (1 ↓)	1.022%	306,684	49 (1 ↓)		
Ohio	Columbus	1.747%	2,096	25 (9 ↓)	1.747%	20,964	27 (10 ↓)	1.747%	524,109	29 (11 ↓)		X
Oklahoma	Oklahoma City	1.303%	1,563	36 (-)	1.303%	15,631	37 (-)	1.303%	390,766	38 (-)		
AVERAGE		1.932%	2,319		1.983%	23,802		2.025%	607,385		N = 10	N = 18

		Land and Building Value: \$100,000			Land and Building Value: \$1 Million			Land and Building Value: \$25 Million			Tax Rate Varies with Property Value	Lower Tax Rate on Personal Property
State	City	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank		
Oklahoma	Tulsa	1.454%	1,745	31 (2 ↑)	1.454%	17,453	34 (-)	1.454%	436,313	35 (-)	X	X
Oregon	Portland	2.285%	2,742	17 (2 ↑)	2.285%	27,415	17 (2 ↑)	2.285%	685,378	19 (1 ↑)		
Pennsylvania	Philadelphia	1.135%	1,362	47 (-)	1.951%	23,418	24 (2 ↑)	2.110%	632,965	23 (2 ↑)		X
Tennessee	Memphis	2.838%	3,406	5 (1 ↓)	2.838%	34,061	7 (1 ↓)	2.838%	851,514	7 (-)		X
Tennessee	Nashville	1.554%	1,865	29 (-)	1.554%	18,646	31 (1 ↑)	1.554%	466,142	33 (-)		X
Texas	Arlington*	2.408%	2,890	14 (NA)	2.408%	28,896	15 (NA)	2.408%	722,400	17 (NA)		
Texas	Austin	2.149%	2,578	21 (-)	2.149%	25,785	22 (-)	2.149%	644,622	22 (-)		
Texas	Dallas	2.533%	3,040	11 (2 ↑)	2.533%	30,399	12 (1 ↑)	2.533%	759,987	14 (1 ↑)		
Texas	El Paso	2.447%	2,936	12 (3 ↑)	2.447%	29,359	13 (3 ↑)	2.447%	733,966	15 (2 ↑)		
Texas	Fort Worth	2.434%	2,921	13 (3 ↓)	2.434%	29,214	14 (3 ↓)	2.434%	730,347	16 (3 ↓)		
Texas	Houston	2.358%	2,829	16 (2 ↓)	2.358%	28,293	16 (1 ↓)	2.358%	707,315	18 (2 ↓)		
Texas	San Antonio	2.721%	3,265	8 (3 ↑)	2.721%	32,653	9 (3 ↑)	2.721%	816,336	9 (5 ↑)		
Virginia	Virginia Beach	1.048%	1,257	48 (1 ↑)	1.048%	12,573	48 (1 ↑)	1.048%	314,333	48 (1 ↑)		
Washington	Seattle	0.886%	1,063	50 (-)	0.886%	10,628	50 (-)	0.886%	265,693	50 (-)		
Wisconsin	Milwaukee	2.788%	3,345	6 (1 ↑)	2.848%	34,181	5 (-)	2.855%	856,461	5 (1 ↑)		X
AVERAGE		1.932%	2,319		1.983%	23,802		2.025%	607,385		N = 10	N = 18

* Arlington, TX replaces Cleveland, OH in the set of fifty largest cities.

\$100,000-valued property has an additional \$20,000 worth of fixtures; \$1 million-valued property has an additional \$200,000 worth of fixtures; \$25 million-valued property has an additional \$5 million worth of fixtures.

Appendix Table 3c: Commercial Property Taxes for Selected Rural Municipalities

		Land and Building Value: \$100,000			Land and Building Value: \$1 Million			Land and Building Value: \$25 Million			Tax Rate Varies with Property Value	Lower Tax Rate on Personal Property
State	Municipality	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank		
Alabama	Monroeville	0.820%	984	45 (1 ↓)	0.820%	9,840	45 (-)	0.820%	246,000	45 (-)		
Alaska	Ketchikan	0.863%	1,035	44 (1 ↑)	1.033%	12,400	42 (1 ↑)	1.057%	317,012	38 (5 ↑)	X	X
Arizona	Safford	1.170%	1,404	35 (2 ↓)	1.251%	15,008	33 (1 ↓)	1.501%	450,444	28 (1 ↓)	X	X
Arkansas	Pocahontas	0.722%	866	47 (1 ↑)	0.722%	8,663	47 (1 ↑)	0.722%	216,581	47 (1 ↑)		
California	Yreka	1.053%	1,264	38 (-)	1.053%	12,636	38 (1 ↑)	1.053%	315,900	39 (-)		
Colorado	Walsenburg	2.061%	2,473	17 (6 ↓)	2.061%	24,727	19 (6 ↓)	2.061%	618,170	19 (6 ↓)		
Connecticut	Litchfield	1.869%	2,243	24 (-)	1.869%	22,428	25 (1 ↓)	1.869%	560,700	25 (1 ↓)		
Delaware	Georgetown	0.490%	588	50 (-)	0.490%	5,877	50 (-)	0.490%	146,914	50 (-)		X
Florida	Moore Haven	1.903%	2,284	23 (-)	2.238%	26,860	11 (1 ↑)	2.284%	685,287	11 (1 ↑)	X	X
Georgia	Fitzgerald	1.757%	2,108	26 (1 ↓)	1.757%	21,080	26 (1 ↓)	1.757%	527,012	26 (1 ↓)		
Hawaii	Kauai	0.675%	810	49 (-)	0.675%	8,100	49 (-)	0.675%	202,500	49 (-)		X
Idaho	St. Anthony	1.195%	1,434	34 (8 ↑)	1.339%	16,069	31 (5 ↑)	1.477%	443,149	30 (1 ↑)	X	X
Illinois	Galena	2.051%	2,461	19 (1 ↑)	2.051%	24,615	21 (1 ↑)	2.051%	615,367	21 (1 ↑)		X
Indiana	North Vernon	2.855%	3,426	3 (1 ↑)	2.855%	34,260	4 (-)	2.855%	856,500	5 (-)		
Iowa	Hampton	1.921%	2,306	22 (-)	2.700%	32,403	7 (1 ↓)	2.957%	887,204	3 (-)	X	X
Kansas	Iola	3.534%	4,241	1 (-)	3.534%	42,414	1 (-)	3.534%	1,060,349	1 (-)		
Kentucky	Morehead	1.036%	1,243	41 (6 ↓)	1.036%	12,431	41 (4 ↓)	1.036%	310,775	42 (5 ↓)		
Louisiana	Natchitoches	1.356%	1,627	30 (1 ↓)	1.356%	16,271	30 (1 ↓)	1.356%	406,787	32 (2 ↓)		
Maine	Rockland	2.172%	2,606	10 (3 ↑)	2.172%	26,064	12 (3 ↑)	2.172%	651,600	12 (3 ↑)		
Maryland	Denton	2.026%	2,432	20 (1 ↑)	2.026%	24,316	22 (1 ↑)	2.026%	607,910	23 (-)		
Massachusetts	Adams	2.145%	2,574	12 (3 ↑)	2.145%	25,740	14 (3 ↑)	2.145%	643,500	14 (3 ↑)		X
Michigan	Manistique	2.931%	3,517	2 (3 ↑)	2.931%	35,174	3 (2 ↑)	2.931%	879,344	4 (2 ↑)		X
Minnesota	Glencoe	2.368%	2,841	6 (3 ↓)	3.008%	36,093	2 (-)	3.116%	934,837	2 (-)	X	X
Mississippi	Philadelphia	2.104%	2,525	14 (-)	2.104%	25,250	16 (-)	2.104%	631,260	16 (-)		
Missouri	Boonville	2.092%	2,511	15 (2 ↑)	2.092%	25,105	17 (2 ↑)	2.092%	627,637	17 (2 ↑)		X
Montana	Glasgow	1.499%	1,799	27 (9 ↑)	1.597%	19,168	27 (7 ↑)	1.692%	507,521	27 (5 ↑)	X	X
Nebraska	Sidney	1.852%	2,223	25 (13 ↓)	2.013%	24,151	24 (10 ↓)	2.030%	608,910	22 (8 ↓)	X	X
Nevada	Fallon	1.278%	1,534	31 (1 ↓)	1.278%	15,335	32 (2 ↓)	1.278%	383,385	33 (-)		
New Hampshire	Lancaster	2.350%	2,820	8 (1 ↑)	2.350%	28,197	10 (-)	2.350%	704,915	10 (-)		X
New Jersey	Maurice River Twp	2.130%	2,556	13 (5 ↑)	2.130%	25,561	15 (5 ↑)	2.130%	639,021	15 (5 ↑)		X
New Mexico	Santa Rosa	1.040%	1,248	40 (3 ↓)	1.040%	12,477	40 (2 ↓)	1.040%	311,926	41 (3 ↓)		
New York	Warsaw	2.781%	3,338	4 (2 ↓)	2.781%	33,377	5 (2 ↓)	2.781%	834,437	6 (2 ↓)		X
North Carolina	Edenton	1.100%	1,321	37 (2 ↑)	1.100%	13,205	37 (3 ↑)	1.100%	330,131	37 (3 ↑)		
North Dakota	Devils Lake	1.200%	1,440	33 (7 ↑)	1.200%	14,398	35 (6 ↑)	1.200%	359,946	35 (6 ↑)		X
Ohio	Bryan	1.443%	1,732	29 (2 ↓)	1.443%	17,316	29 (2 ↓)	1.443%	432,902	31 (3 ↓)		X
AVERAGE		1.680%	2,016		1.729%	20,746		1.748%	524,284		N = 9	N = 23

		Land and Building Value: \$100,000			Land and Building Value: \$1 Million			Land and Building Value: \$25 Million			Tax Rate Varies with Property Value	Lower Tax Rate on Personal Property
State	Municipality	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank		
Oklahoma	Mangum	0.922%	1,106	43 (-)	0.922%	11,061	44 (-)	0.922%	276,525	44 (-)	X	
Oregon	Tillamook	1.156%	1,387	36 (2 ↓)	1.156%	13,873	36 (1 ↓)	1.156%	346,820	36 (-)		
Pennsylvania	Ridgway	2.361%	2,834	7 (1 ↑)	2.361%	28,338	9 (-)	2.361%	708,449	9 (-)		
Rhode Island	Hopkinton	2.079%	2,495	16 (-)	2.079%	24,954	18 (-)	2.079%	623,844	18 (-)		
South Carolina	Mullins	2.744%	3,292	5 (1 ↑)	2.744%	32,922	6 (1 ↑)	2.744%	823,050	7 (-)		
South Dakota	Vermillion*	2.023%	2,427	21 (NA)	2.023%	24,271	23 (NA)	2.023%	606,766	24 (NA)	X	X
Tennessee	Savannah	1.007%	1,209	42 (1 ↓)	1.007%	12,085	43 (1 ↓)	1.007%	302,130	43 (1 ↓)		
Texas	Fort Stockton	2.152%	2,582	11 (4 ↓)	2.152%	25,821	13 (5 ↓)	2.152%	645,517	13 (5 ↓)		
Utah	Richfield	1.498%	1,797	28 (3 ↑)	1.498%	17,972	28 (3 ↑)	1.498%	449,310	29 (5 ↑)		
Vermont	Hartford	2.055%	2,466	18 (1 ↑)	2.055%	24,657	20 (1 ↑)	2.055%	616,437	20 (1 ↑)		
Virginia	Wise	0.803%	964	46 (1 ↑)	0.803%	9,640	46 (1 ↑)	0.803%	241,005	46 (1 ↑)	X	
Washington	Okanogan	1.241%	1,489	32 (-)	1.241%	14,895	34 (1 ↓)	1.241%	372,363	34 (1 ↑)		
West Virginia	Elkins	1.052%	1,262	39 (11 ↓)	1.052%	12,618	39 (11 ↓)	1.052%	315,452	40 (11 ↓)		
Wisconsin	Rice Lake	2.323%	2,788	9 (1 ↑)	2.376%	28,512	8 (3 ↑)	2.382%	714,490	8 (3 ↑)		
Wyoming	Worland	0.721%	865	48 (2 ↓)	0.721%	8,649	48 (2 ↓)	0.721%	216,233	48 (2 ↓)		
AVERAGE		1.680%	2,016		1.729%	20,746		1.748%	524,284		N = 9	N = 23

* Vermillion, SD replaces Madison, SD in the set of rural municipalities.

\$100,000-valued property has an additional \$20,000 worth of fixtures; \$1 million-valued property has an additional \$200,000 worth of fixtures; \$25 million-valued property has an additional \$5 million worth of fixtures.

Appendix Table 4a: Industrial Property Taxes for Largest City in Each State (Personal Property = 50% of Total Parcel Value)

		Land and Building Value: \$100,000			Land and Building Value: \$1 Million			Land and Building Value: \$25 Million			Tax Rate Varies with Property Value
State	City	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Alabama	Birmingham	1.160%	2,320	37 (-)	1.160%	23,200	40 (1 ↓)	1.160%	580,000	41 (-)	X
Alaska	Anchorage	1.294%	2,587	31 (1 ↓)	1.428%	28,552	27 (3 ↑)	1.442%	720,937	28 (3 ↑)	
Arizona	Phoenix	1.298%	2,596	30 (1 ↑)	1.965%	39,305	12 (1 ↑)	2.184%	1,092,164	10 (2 ↓)	X
Arkansas	Little Rock	1.422%	2,845	24 (1 ↑)	1.422%	28,447	28 (1 ↓)	1.422%	711,165	29 (-)	X
California	Los Angeles	0.953%	1,907	39 (2 ↑)	0.953%	19,070	42 (2 ↑)	0.953%	476,740	43 (2 ↑)	
Colorado	Denver	1.806%	3,611	15 (1 ↓)	1.806%	36,115	17 (1 ↓)	1.806%	902,875	19 (2 ↓)	X
Connecticut	Bridgeport	2.093%	4,186	10 (2 ↑)	2.093%	41,865	10 (2 ↑)	2.093%	1,046,623	11 (3 ↑)	
DC	Washington	0.764%	1,528	44 (1 ↑)	1.401%	28,029	30 (1 ↑)	1.849%	924,625	16 (2 ↑)	X
Delaware	Wilmington	0.668%	1,335	48 (2 ↑)	0.668%	13,354	49 (2 ↑)	0.668%	333,857	49 (2 ↑)	X
Florida	Jacksonville	1.184%	2,369	33 (2 ↑)	1.385%	27,695	31 (2 ↓)	1.406%	703,071	30 (2 ↓)	
Georgia	Atlanta	1.518%	3,037	21 (2 ↑)	1.518%	30,367	24 (1 ↑)	1.518%	759,178	25 (1 ↑)	X
Hawaii	Honolulu	0.597%	1,194	51 (1 ↑)	0.597%	11,937	52 (-)	0.597%	298,437	52 (-)	
Idaho	Boise	0.772%	1,544	43 (-)	1.181%	23,629	35 (1 ↓)	1.260%	630,021	35 (2 ↓)	X
Illinois	Aurora*	2.061%	4,122	11 (-)	2.061%	41,217	11 (-)	2.061%	1,030,427	12 (-)	
Illinois	Chicago	1.922%	3,844	13 (4 ↓)	1.922%	38,445	14 (5 ↓)	1.922%	961,125	15 (5 ↓)	X
Indiana	Indianapolis	2.314%	4,629	7 (-)	2.314%	46,287	7 (-)	2.314%	1,157,185	7 (-)	
Iowa	Des Moines	1.351%	2,702	27 (-)	1.818%	36,365	16 (1 ↑)	1.972%	986,250	13 (2 ↑)	X
Kansas	Wichita	1.484%	2,968	23 (3 ↓)	1.484%	29,681	26 (2 ↓)	1.484%	742,029	27 (2 ↓)	
Kentucky	Louisville	0.753%	1,506	45 (1 ↓)	0.753%	15,057	47 (-)	0.753%	376,421	47 (-)	X
Louisiana	New Orleans	2.201%	4,402	8 (2 ↑)	2.201%	44,016	8 (2 ↑)	2.201%	1,100,405	8 (3 ↑)	
Maine	Portland	1.161%	2,322	36 (2 ↑)	1.161%	23,221	39 (1 ↑)	1.161%	580,525	40 (2 ↑)	X
Maryland	Baltimore	1.327%	2,655	29 (-)	1.327%	26,547	33 (-)	1.327%	663,665	33 (1 ↑)	
Massachusetts	Boston	1.166%	2,332	35 (7 ↓)	1.166%	23,325	38 (6 ↓)	1.166%	583,118	39 (7 ↓)	X
Michigan	Detroit	2.437%	4,874	5 (-)	2.990%	59,791	2 (-)	2.990%	1,494,780	2 (-)	
Minnesota	Minneapolis	1.389%	2,778	26 (5 ↓)	1.755%	35,098	18 (4 ↓)	1.817%	908,419	18 (5 ↓)	X
Mississippi	Jackson	2.767%	5,534	2 (-)	2.767%	55,335	3 (-)	2.767%	1,383,375	3 (-)	X
Missouri	Kansas City	2.187%	4,375	9 (1 ↓)	2.187%	43,750	9 (1 ↓)	2.187%	1,093,740	9 (-)	
Montana	Billings	0.564%	1,127	52 (1 ↓)	0.821%	16,417	46 (-)	1.177%	588,373	37 (2 ↑)	X
Nebraska	Omaha	1.600%	3,199	18 (2 ↓)	1.700%	34,003	19 (-)	1.711%	855,438	20 (-)	X
Nevada	Las Vegas	0.915%	1,829	41 (1 ↑)	0.915%	18,292	44 (1 ↑)	0.915%	457,309	45 (1 ↑)	X
New Hampshire	Manchester	1.123%	2,247	38 (2 ↓)	1.123%	22,469	41 (3 ↓)	1.123%	561,724	42 (2 ↓)	
New Jersey	Newark	1.601%	3,202	17 (7 ↑)	1.601%	32,020	21 (5 ↑)	1.601%	800,488	22 (5 ↑)	X
New Mexico	Albuquerque	1.207%	2,414	32 (2 ↑)	1.207%	24,136	34 (3 ↑)	1.207%	603,409	36 (2 ↑)	
New York	Buffalo*	1.491%	2,982	22 (3 ↓)	1.491%	29,821	25 (2 ↓)	1.491%	745,536	26 (2 ↓)	X
New York	New York City	2.355%	4,711	6 (-)	2.355%	47,107	6 (-)	2.355%	1,177,679	6 (-)	
AVERAGE		1.467%	2,933		1.548%	30,961		1.576%	787,830		N = 12

		Land and Building Value: \$100,000			Land and Building Value: \$1 Million			Land and Building Value: \$25 Million			Tax Rate Varies with Property Value
State	City	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
North Carolina	Charlotte	0.947%	1,893	40 (1 ↓)	0.947%	18,934	43 (1 ↓)	0.947%	473,362	44 (1 ↓)	
North Dakota	Fargo	0.599%	1,198	50 (3 ↓)	0.599%	11,984	51 (2 ↓)	0.599%	299,593	51 (2 ↓)	
Ohio	Columbus	1.329%	2,659	28 (5 ↑)	1.329%	26,586	32 (4 ↑)	1.329%	664,655	32 (4 ↑)	
Oklahoma	Oklahoma City	1.405%	2,811	25 (1 ↑)	1.405%	28,108	29 (1 ↓)	1.405%	702,699	31 (1 ↓)	
Oregon	Portland	1.828%	3,655	14 (1 ↑)	1.828%	36,553	15 (3 ↑)	1.828%	913,837	17 (2 ↑)	
Pennsylvania	Philadelphia	0.681%	1,362	47 (2 ↑)	1.171%	23,418	37 (4 ↑)	1.266%	632,965	34 (3 ↑)	X
Rhode Island	Providence	1.950%	3,899	12 (1 ↑)	1.950%	38,992	13 (2 ↑)	1.950%	974,792	14 (2 ↑)	
South Carolina	Columbia	4.202%	8,405	1 (-)	4.202%	84,046	1 (-)	4.202%	2,101,140	1 (-)	
South Dakota	Sioux Falls	0.846%	1,691	42 (2 ↓)	0.846%	16,915	45 (2 ↓)	0.846%	422,864	46 (2 ↓)	
Tennessee	Memphis	2.635%	5,271	3 (-)	2.635%	52,709	4 (-)	2.635%	1,317,714	4 (-)	
Texas	Houston	2.529%	5,057	4 (-)	2.529%	50,571	5 (-)	2.529%	1,264,282	5 (-)	
Utah	Salt Lake City	1.176%	2,352	34 (2 ↓)	1.176%	23,522	36 (1 ↓)	1.176%	588,039	38 (3 ↓)	
Vermont	Burlington	1.586%	3,172	19 (1 ↓)	1.586%	31,723	22 (1 ↓)	1.586%	793,085	23 (-)	
Virginia	Virginia Beach	0.549%	1,097	53 (-)	0.549%	10,973	53 (-)	0.549%	274,333	53 (-)	
Washington	Seattle	0.717%	1,433	46 (-)	0.717%	14,335	48 (-)	0.717%	358,367	48 (-)	
West Virginia	Charleston	1.650%	3,300	16 (1 ↑)	1.650%	32,999	20 (-)	1.650%	824,967	21 (-)	X
Wisconsin	Milwaukee	1.530%	3,060	20 (2 ↑)	1.566%	31,325	23 (1 ↓)	1.570%	785,082	24 (2 ↓)	
Wyoming	Cheyenne	0.664%	1,328	49 (1 ↓)	0.664%	13,285	50 (-)	0.664%	332,120	50 (-)	
AVERAGE		1.467%	2,933		1.548%	30,961		1.576%	787,830		N = 12

* Illinois and New York have two cities included in this table, because the tax systems in Chicago and New York City are significantly different from the rest of the state.

\$100,000-valued property has an additional \$50,000 worth of machinery and equipment, an additional \$40,000 worth of inventories, and an additional \$10,000 worth of fixtures.

\$1 million-valued property has an additional \$500,000 worth of machinery and equipment, an additional \$400,000 worth of inventories, and an additional \$100,000 worth of fixtures.

\$25 million-valued property has an additional \$12.5 million worth of machinery and equipment, an additional \$10 million worth of inventories, and an additional \$2.5 million worth of fixtures.

Appendix Table 4b: Industrial Property Taxes for Largest City in Each State (Personal Property = 60% of Total Parcel Value)

		Land and Building Value: \$100,000			Land and Building Value: \$1 Million			Land and Building Value: \$25 Million			Tax Rate Varies with Property Value
State	City	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Alabama	Birmingham	1.102%	2,755	32 (-)	1.102%	27,550	36 (-)	1.102%	688,750	37 (-)	X
Alaska	Anchorage	1.333%	3,332	22 (-)	1.440%	35,997	22 (3 ↑)	1.451%	907,062	23 (1 ↑)	
Arizona	Phoenix	1.039%	2,596	35 (-)	1.930%	48,258	9 (-)	2.106%	1,315,985	8 (2 ↓)	X
Arkansas	Little Rock	1.418%	3,546	20 (-)	1.418%	35,457	24 (-)	1.418%	886,415	25 (-)	X
California	Los Angeles	0.906%	2,265	39 (1 ↑)	0.906%	22,645	42 (-)	0.906%	566,128	43 (1 ↑)	
Colorado	Denver	1.716%	4,291	12 (2 ↓)	1.716%	42,912	13 (2 ↓)	1.716%	1,072,801	14 (2 ↓)	X
Connecticut	Bridgeport	1.751%	4,377	10 (4 ↑)	1.751%	43,768	11 (4 ↑)	1.751%	1,094,196	12 (4 ↑)	
DC	Washington	0.611%	1,528	47 (-)	1.529%	38,229	19 (1 ↑)	1.887%	1,179,625	10 (1 ↑)	X
Delaware	Wilmington	0.534%	1,335	49 (1 ↑)	0.534%	13,354	50 (1 ↑)	0.534%	333,857	50 (1 ↑)	X
Florida	Jacksonville	1.161%	2,903	28 (1 ↑)	1.322%	33,042	27 (-)	1.339%	836,735	27 (-)	
Georgia	Atlanta	1.492%	3,731	18 (-)	1.492%	37,309	20 (2 ↑)	1.492%	932,713	21 (1 ↑)	X
Hawaii	Honolulu	0.477%	1,194	51 (1 ↑)	0.477%	11,937	52 (-)	0.477%	298,437	52 (-)	
Idaho	Boise	0.618%	1,544	46 (1 ↓)	1.142%	28,541	34 (2 ↓)	1.205%	752,833	31 (1 ↓)	X
Illinois	Aurora*	1.649%	4,122	15 (-)	1.649%	41,217	16 (-)	1.649%	1,030,427	17 (-)	
Illinois	Chicago	1.538%	3,844	17 (5 ↓)	1.538%	38,445	18 (5 ↓)	1.538%	961,125	20 (6 ↓)	X
Indiana	Indianapolis	2.215%	5,537	6 (-)	2.215%	55,369	7 (-)	2.215%	1,384,233	7 (1 ↑)	
Iowa	Des Moines	1.081%	2,702	33 (-)	1.455%	36,365	21 (-)	1.578%	986,250	19 (2 ↑)	X
Kansas	Wichita	1.246%	3,115	25 (2 ↓)	1.246%	31,146	30 (1 ↓)	1.246%	778,654	30 (1 ↓)	
Kentucky	Louisville	0.659%	1,648	44 (1 ↓)	0.659%	16,478	48 (1 ↓)	0.659%	411,946	48 (1 ↓)	X
Louisiana	New Orleans	2.216%	5,540	5 (-)	2.216%	55,400	6 (-)	2.216%	1,384,993	6 (1 ↑)	
Maine	Portland	0.971%	2,428	36 (1 ↑)	0.971%	24,277	38 (1 ↑)	0.971%	606,913	40 (1 ↑)	X
Maryland	Baltimore	1.174%	2,934	27 (3 ↑)	1.174%	29,343	32 (2 ↑)	1.174%	733,564	34 (1 ↑)	
Massachusetts	Boston	0.933%	2,332	37 (3 ↓)	0.933%	23,325	40 (3 ↓)	0.933%	583,118	41 (3 ↓)	X
Michigan	Detroit	2.013%	5,032	8 (-)	2.676%	66,893	3 (1 ↓)	2.676%	1,672,335	3 (1 ↓)	
Minnesota	Minneapolis	1.111%	2,778	31 (5 ↓)	1.404%	35,098	25 (6 ↓)	1.453%	908,419	22 (2 ↓)	X
Mississippi	Jackson	2.767%	6,917	2 (-)	2.767%	69,169	2 (1 ↑)	2.767%	1,729,219	2 (1 ↑)	X
Missouri	Kansas City	2.070%	5,175	7 (-)	2.070%	51,754	8 (-)	2.070%	1,293,860	9 (-)	
Montana	Billings	0.451%	1,127	53 (2 ↓)	0.780%	19,503	45 (-)	1.188%	742,654	33 (-)	X
Nebraska	Omaha	1.548%	3,870	16 (-)	1.628%	40,709	17 (-)	1.637%	1,023,091	18 (-)	X
Nevada	Las Vegas	0.869%	2,173	41 (-)	0.869%	21,734	44 (-)	0.869%	543,362	45 (-)	X
New Hampshire	Manchester	0.899%	2,247	40 (2 ↓)	0.899%	22,469	43 (3 ↓)	0.899%	561,724	44 (2 ↓)	
New Jersey	Newark	1.281%	3,202	24 (3 ↑)	1.281%	32,020	29 (2 ↑)	1.281%	800,488	29 (3 ↑)	X
New Mexico	Albuquerque	1.153%	2,882	29 (2 ↑)	1.153%	28,815	33 (2 ↑)	1.153%	720,379	35 (1 ↑)	
New York	Buffalo*	1.193%	2,982	26 (1 ↓)	1.193%	29,821	31 (1 ↓)	1.193%	745,536	32 (1 ↓)	X
New York	New York City	1.884%	4,711	9 (-)	1.884%	47,107	10 (-)	1.884%	1,177,679	11 (1 ↓)	
AVERAGE		1.319%	3,298		1.409%	35,224		1.433%	895,867		N = 12

		Land and Building Value: \$100,000			Land and Building Value: \$1 Million			Land and Building Value: \$25 Million			Tax Rate Varies with Property Value
State	City	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
North Carolina	Charlotte	0.913%	2,282	38 (1 ↑)	0.913%	22,818	41 (-)	0.913%	570,442	42 (1 ↑)	
North Dakota	Fargo	0.479%	1,198	50 (2 ↓)	0.479%	11,984	51 (1 ↓)	0.479%	299,593	51 (1 ↓)	
Ohio	Columbus	1.063%	2,659	34 (2 ↑)	1.063%	26,586	37 (1 ↑)	1.063%	664,655	38 (1 ↑)	
Oklahoma	Oklahoma City	1.436%	3,591	19 (-)	1.436%	35,906	23 (-)	1.436%	897,657	24 (1 ↓)	
Oregon	Portland	1.736%	4,341	11 (-)	1.736%	43,407	12 (-)	1.736%	1,085,181	13 (-)	
Pennsylvania	Philadelphia	0.545%	1,362	48 (1 ↑)	0.937%	23,418	39 (4 ↑)	1.013%	632,965	39 (1 ↑)	X
Rhode Island	Providence	1.671%	4,178	13 (-)	1.671%	41,782	14 (-)	1.671%	1,044,542	15 (-)	
South Carolina	Columbia	3.992%	9,980	1 (-)	3.992%	99,804	1 (-)	3.992%	2,495,104	1 (-)	
South Dakota	Sioux Falls	0.677%	1,691	43 (1 ↓)	0.677%	16,915	47 (1 ↓)	0.677%	422,864	47 (1 ↓)	
Tennessee	Memphis	2.575%	6,436	3 (-)	2.575%	64,364	4 (-)	2.575%	1,609,089	4 (-)	
Texas	Houston	2.529%	6,321	4 (-)	2.529%	63,214	5 (-)	2.529%	1,580,352	5 (-)	
Utah	Salt Lake City	1.121%	2,802	30 (2 ↓)	1.121%	28,022	35 (2 ↓)	1.121%	700,547	36 (2 ↓)	
Vermont	Burlington	1.382%	3,455	21 (-)	1.382%	34,554	26 (-)	1.382%	863,861	26 (-)	
Virginia	Virginia Beach	0.471%	1,177	52 (1 ↑)	0.471%	11,773	53 (-)	0.471%	294,334	53 (-)	
Washington	Seattle	0.685%	1,711	42 (2 ↑)	0.685%	17,115	46 (2 ↑)	0.685%	427,874	46 (2 ↑)	
West Virginia	Charleston	1.650%	4,125	14 (3 ↑)	1.650%	41,248	15 (3 ↑)	1.650%	1,031,209	16 (3 ↑)	X
Wisconsin	Milwaukee	1.281%	3,202	23 (1 ↑)	1.310%	32,753	28 (-)	1.313%	820,772	28 (-)	
Wyoming	Cheyenne	0.631%	1,578	45 (1 ↑)	0.631%	15,776	49 (-)	0.631%	394,393	49 (-)	
AVERAGE		1.319%	3,298		1.409%	35,224		1.433%	895,867		N = 12

* Illinois and New York have two cities included in this table, because the tax systems in Chicago and New York City are significantly different from the rest of the state.
\$100,000-valued property has an additional \$75,000 worth of machinery and equipment, an additional \$60,000 worth of inventories, and an additional \$15,000 worth of fixtures.
\$1 million-valued property has an additional \$750,000 worth of machinery and equipment, an additional \$600,000 worth of inventories, and an additional \$150,000 worth of fixtures.
\$25 million-valued property has an additional \$18.75 million worth of machinery and equipment, an additional \$15 million worth of inventories, and an additional \$3.75 million worth of fixtures.

Appendix Table 4c: Industrial Property Taxes for the Largest Fifty U.S. Cities (Personal Property = 50% of Total Parcel Value)

		Land and Building Value: \$100,000			Land and Building Value: \$1 Million			Land and Building Value: \$25 Million			Tax Rate Varies with Property Value
State	City	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Arizona	Mesa	0.822%	1,644	44 (-)	1.338%	26,756	30 (4 ↓)	1.507%	753,617	25 (2 ↓)	X
Arizona	Phoenix	1.298%	2,596	29 (1 ↑)	1.965%	39,305	14 (1 ↑)	2.184%	1,092,164	14 (2 ↓)	X
Arizona	Tucson	1.246%	2,491	30 (7 ↓)	1.916%	38,328	16 (2 ↓)	2.137%	1,068,350	15 (6 ↓)	X
California	Fresno	0.984%	1,968	36 (-)	0.984%	19,677	39 (-)	0.984%	491,913	39 (-)	
California	Long Beach	0.925%	1,850	41 (2 ↑)	0.925%	18,500	44 (2 ↑)	0.925%	462,500	44 (2 ↑)	
California	Los Angeles	0.953%	1,907	37 (1 ↑)	0.953%	19,070	40 (1 ↑)	0.953%	476,740	40 (1 ↑)	
California	Oakland	1.081%	2,161	34 (-)	1.081%	21,613	37 (-)	1.081%	540,320	37 (-)	
California	Sacramento	0.913%	1,827	43 (2 ↓)	0.913%	18,269	46 (2 ↓)	0.913%	456,720	46 (2 ↓)	
California	San Diego	0.939%	1,879	40 (-)	0.939%	18,789	43 (-)	0.939%	469,728	43 (-)	
California	San Francisco	0.943%	1,887	39 (-)	0.943%	18,867	42 (-)	0.943%	471,680	42 (-)	
California	San Jose	1.010%	2,020	35 (-)	1.010%	20,203	38 (-)	1.010%	505,080	38 (-)	
Colorado	Colorado Springs	1.307%	2,614	28 (2 ↓)	1.307%	26,142	33 (2 ↓)	1.307%	653,560	33 (2 ↓)	
Colorado	Denver	1.806%	3,611	16 (2 ↓)	1.806%	36,115	18 (1 ↓)	1.806%	902,875	20 (3 ↓)	
DC	Washington	0.764%	1,528	46 (1 ↑)	1.401%	28,029	28 (2 ↑)	1.849%	924,625	17 (1 ↑)	X
Florida	Jacksonville	1.184%	2,369	32 (1 ↑)	1.385%	27,695	29 (-)	1.406%	703,071	29 (1 ↓)	X
Florida	Miami	1.321%	2,642	27 (-)	1.557%	31,136	22 (1 ↓)	1.582%	790,960	22 (-)	X
Georgia	Atlanta	1.518%	3,036	19 (2 ↑)	1.518%	30,363	23 (1 ↑)	1.518%	759,068	24 (2 ↑)	
Illinois	Chicago	1.922%	3,844	14 (2 ↓)	1.922%	38,445	15 (3 ↓)	1.922%	961,125	16 (2 ↓)	
Indiana	Indianapolis	2.314%	4,629	10 (-)	2.314%	46,287	10 (-)	2.314%	1,157,185	10 (1 ↑)	
Kansas	Wichita	1.484%	2,968	20 (2 ↓)	1.484%	29,681	24 (1 ↓)	1.484%	742,029	26 (1 ↓)	
Kentucky	Louisville	0.753%	1,506	47 (1 ↓)	0.753%	15,057	48 (-)	0.753%	376,421	48 (-)	
Louisiana	New Orleans	2.201%	4,402	12 (1 ↑)	2.201%	44,016	12 (1 ↑)	2.201%	1,100,405	12 (3 ↑)	
Maryland	Baltimore	1.327%	2,655	26 (3 ↑)	1.327%	26,547	32 (1 ↑)	1.327%	663,665	32 (1 ↑)	
Massachusetts	Boston	1.166%	2,332	33 (5 ↓)	1.166%	23,325	36 (4 ↓)	1.166%	583,118	36 (4 ↓)	
Michigan	Detroit	2.437%	4,874	8 (1 ↓)	2.990%	59,791	1 (-)	2.990%	1,494,780	1 (-)	X
Minnesota	Minneapolis	1.389%	2,778	24 (5 ↓)	1.755%	35,098	19 (3 ↓)	1.817%	908,419	19 (3 ↓)	X
Missouri	Kansas City	2.187%	4,375	13 (2 ↓)	2.187%	43,750	13 (2 ↓)	2.187%	1,093,740	13 (-)	
Nebraska	Omaha	1.600%	3,199	17 (-)	1.700%	34,003	20 (-)	1.711%	855,438	21 (-)	X
Nevada	Las Vegas	0.915%	1,829	42 (-)	0.915%	18,292	45 (-)	0.915%	457,309	45 (-)	
New Mexico	Albuquerque	1.207%	2,414	31 (1 ↑)	1.207%	24,136	34 (1 ↑)	1.207%	603,409	35 (1 ↑)	
New York	New York City	2.355%	4,711	9 (1 ↓)	2.355%	47,107	9 (1 ↓)	2.355%	1,177,679	9 (1 ↓)	
North Carolina	Charlotte	0.947%	1,893	38 (1 ↓)	0.947%	18,934	41 (1 ↓)	0.947%	473,362	41 (1 ↓)	
North Carolina	Raleigh	0.817%	1,634	45 (-)	0.817%	16,343	47 (-)	0.817%	408,564	47 (-)	
Ohio	Columbus	1.329%	2,659	25 (9 ↓)	1.329%	26,586	31 (12 ↓)	1.329%	664,655	31 (11 ↓)	
Oklahoma	Oklahoma City	1.405%	2,811	23 (1 ↑)	1.405%	28,108	27 (-)	1.405%	702,699	30 (1 ↓)	
AVERAGE		1.524%	3,047		1.613%	32,264		1.639%	819,347		N = 11

		Land and Building Value: \$100,000			Land and Building Value: \$1 Million			Land and Building Value: \$25 Million			Tax Rate Varies with Property Value
State	City	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Oklahoma	Tulsa	1.410%	2,819	22 (3 ↑)	1.410%	28,193	26 (2 ↑)	1.410%	704,813	28 (2 ↑)	X
Oregon	Portland	1.828%	3,655	15 (-)	1.828%	36,553	17 (1 ↑)	1.828%	913,837	18 (1 ↑)	
Pennsylvania	Philadelphia	0.681%	1,362	49 (-)	1.171%	23,418	35 (1 ↑)	1.266%	632,965	34 (1 ↑)	
Tennessee	Memphis	2.635%	5,271	6 (1 ↓)	2.635%	52,709	7 (1 ↓)	2.635%	1,317,714	7 (1 ↓)	
Tennessee	Nashville	1.474%	2,948	21 (1 ↑)	1.474%	29,484	25 (-)	1.474%	737,102	27 (-)	
Texas	Arlington*	2.662%	5,323	5 (NA)	2.662%	53,230	6 (NA)	2.662%	1,330,754	6 (NA)	
Texas	Austin	2.230%	4,460	11 (2 ↓)	2.230%	44,603	11 (2 ↓)	2.230%	1,115,071	11 (1 ↓)	
Texas	Dallas	2.719%	5,439	4 (1 ↓)	2.719%	54,386	5 (1 ↓)	2.719%	1,359,645	5 (1 ↓)	
Texas	El Paso	2.817%	5,633	2 (-)	2.817%	56,334	3 (-)	2.817%	1,408,358	3 (-)	
Texas	Fort Worth	2.814%	5,627	3 (2 ↓)	2.814%	56,273	4 (2 ↓)	2.814%	1,406,814	4 (2 ↓)	
Texas	Houston	2.529%	5,057	7 (1 ↓)	2.529%	50,571	8 (1 ↓)	2.529%	1,264,282	8 (1 ↓)	
Texas	San Antonio	2.822%	5,645	1 (3 ↑)	2.822%	56,450	2 (3 ↑)	2.822%	1,411,248	2 (3 ↑)	
Virginia	Virginia Beach	0.549%	1,097	50 (-)	0.549%	10,973	50 (-)	0.549%	274,333	50 (-)	
Washington	Seattle	0.717%	1,433	48 (-)	0.717%	14,335	49 (-)	0.717%	358,367	49 (-)	
Wisconsin	Milwaukee	1.530%	3,060	18 (2 ↑)	1.566%	31,325	21 (1 ↑)	1.570%	785,082	23 (1 ↑)	
AVERAGE		1.524%	3,047		1.613%	32,264		1.639%	819,347		N = 11

* Arlington, TX replaces Cleveland, OH in the set of fifty largest cities.

\$100,000-valued property has an additional \$50,000 worth of machinery and equipment, an additional \$40,000 worth of inventories, and an additional \$10,000 worth of fixtures.
\$1 million-valued property has an additional \$500,000 worth of machinery and equipment, an additional \$400,000 worth of inventories, and an additional \$100,000 worth of fixtures.

\$25 million-valued property has an additional \$12.5 million worth of machinery and equipment, an additional \$10 million worth of inventories, and an additional \$2.5 million worth of fixtures.

Appendix Table 4d: Industrial Property Taxes for the Largest Fifty U.S. Cities (Personal Property = 60% of Total Parcel Value)

		Land and Building Value: \$100,000			Land and Building Value: \$1 Million			Land and Building Value: \$25 Million			Tax Rate Varies with Property Value
State	City	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Arizona	Mesa	0.657%	1,644	47 (2 ↓)	1.347%	33,681	27 (2 ↓)	1.483%	926,745	23 (1 ↓)	X
Arizona	Phoenix	1.039%	2,596	31 (2 ↑)	1.930%	48,258	13 (-)	2.106%	1,315,985	12 (2 ↓)	X
Arizona	Tucson	0.996%	2,491	33 (3 ↓)	1.893%	47,332	14 (3 ↓)	2.070%	1,293,442	14 (5 ↓)	X
California	Fresno	0.935%	2,337	35 (1 ↑)	0.935%	23,366	38 (-)	0.935%	584,146	38 (1 ↑)	
California	Long Beach	0.879%	2,197	41 (2 ↑)	0.879%	21,969	44 (2 ↑)	0.879%	549,219	44 (2 ↑)	
California	Los Angeles	0.906%	2,265	38 (-)	0.906%	22,645	41 (1 ↓)	0.906%	566,128	41 (-)	
California	Oakland	1.027%	2,567	32 (-)	1.027%	25,665	35 (-)	1.027%	641,630	35 (-)	
California	Sacramento	0.868%	2,169	43 (2 ↓)	0.868%	21,694	46 (2 ↓)	0.868%	542,355	46 (2 ↓)	
California	San Diego	0.892%	2,231	40 (-)	0.892%	22,312	43 (-)	0.892%	557,802	43 (-)	
California	San Francisco	0.896%	2,240	39 (-)	0.896%	22,405	42 (-)	0.896%	560,120	42 (-)	
California	San Jose	0.960%	2,399	34 (1 ↑)	0.960%	23,991	36 (1 ↑)	0.960%	599,783	37 (-)	
Colorado	Colorado Springs	1.247%	3,117	24 (-)	1.247%	31,167	30 (1 ↑)	1.247%	779,164	30 (1 ↑)	
Colorado	Denver	1.716%	4,291	15 (2 ↓)	1.716%	42,912	17 (2 ↓)	1.716%	1,072,801	18 (2 ↓)	
DC	Washington	0.611%	1,528	48 (-)	1.529%	38,229	20 (1 ↑)	1.887%	1,179,625	15 (-)	X
Florida	Jacksonville	1.161%	2,903	27 (-)	1.322%	33,042	28 (-)	1.339%	836,735	28 (-)	X
Florida	Miami	1.308%	3,271	22 (-)	1.497%	37,421	21 (1 ↓)	1.517%	948,104	21 (-)	X
Georgia	Atlanta	1.492%	3,730	18 (1 ↓)	1.492%	37,302	22 (-)	1.492%	932,548	22 (1 ↑)	
Illinois	Chicago	1.538%	3,844	17 (2 ↓)	1.538%	38,445	19 (2 ↓)	1.538%	961,125	20 (2 ↓)	
Indiana	Indianapolis	2.215%	5,537	10 (1 ↓)	2.215%	55,369	11 (1 ↓)	2.215%	1,384,233	11 (1 ↑)	
Kansas	Wichita	1.246%	3,115	25 (2 ↓)	1.246%	31,146	31 (1 ↓)	1.246%	778,654	31 (1 ↓)	
Kentucky	Louisville	0.659%	1,648	46 (-)	0.659%	16,478	49 (1 ↓)	0.659%	411,946	49 (1 ↓)	
Louisiana	New Orleans	2.216%	5,540	9 (1 ↓)	2.216%	55,400	10 (1 ↓)	2.216%	1,384,993	10 (1 ↑)	
Maryland	Baltimore	1.174%	2,934	26 (2 ↑)	1.174%	29,343	32 (-)	1.174%	733,564	32 (-)	
Massachusetts	Boston	0.933%	2,332	36 (5 ↓)	0.933%	23,325	39 (5 ↓)	0.933%	583,118	39 (5 ↓)	
Michigan	Detroit	2.013%	5,032	12 (1 ↓)	2.676%	66,893	5 (4 ↓)	2.676%	1,672,335	5 (4 ↓)	X
Minnesota	Minneapolis	1.111%	2,778	29 (3 ↓)	1.404%	35,098	25 (6 ↓)	1.453%	908,419	24 (4 ↓)	X
Missouri	Kansas City	2.070%	5,175	11 (1 ↓)	2.070%	51,754	12 (-)	2.070%	1,293,860	13 (-)	
Nebraska	Omaha	1.548%	3,870	16 (-)	1.628%	40,709	18 (-)	1.637%	1,023,091	19 (-)	X
Nevada	Las Vegas	0.869%	2,173	42 (-)	0.869%	21,734	45 (-)	0.869%	543,362	45 (-)	
New Mexico	Albuquerque	1.153%	2,882	28 (1 ↑)	1.153%	28,815	33 (-)	1.153%	720,379	33 (-)	
New York	New York City	1.884%	4,711	13 (1 ↓)	1.884%	47,107	15 (1 ↓)	1.884%	1,177,679	16 (2 ↓)	
North Carolina	Charlotte	0.913%	2,282	37 (-)	0.913%	22,818	40 (1 ↓)	0.913%	570,442	40 (-)	
North Carolina	Raleigh	0.776%	1,940	44 (-)	0.776%	19,399	47 (-)	0.776%	484,974	47 (-)	
Ohio	Columbus	1.063%	2,659	30 (10 ↓)	1.063%	26,586	34 (8 ↓)	1.063%	664,655	34 (8 ↓)	
Oklahoma	Oklahoma City	1.436%	3,591	20 (1 ↓)	1.436%	35,906	24 (-)	1.436%	897,657	26 (1 ↓)	
AVERAGE		1.423%	3,557		1.527%	38,170		1.547%	967,006		N = 10

		Land and Building Value: \$100,000			Land and Building Value: \$1 Million			Land and Building Value: \$25 Million			Tax Rate Varies with Property Value
State	City	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Oklahoma	Tulsa	1.396%	3,491	21 (-)	1.396%	34,905	26 (1 ↑)	1.396%	872,625	27 (-)	X
Oregon	Portland	1.736%	4,341	14 (-)	1.736%	43,407	16 (-)	1.736%	1,085,181	17 (-)	
Pennsylvania	Philadelphia	0.545%	1,362	49 (-)	0.937%	23,418	37 (4 ↑)	1.013%	632,965	36 (2 ↑)	
Tennessee	Memphis	2.575%	6,436	6 (1 ↓)	2.575%	64,364	7 (1 ↓)	2.575%	1,609,089	7 (1 ↓)	
Tennessee	Nashville	1.450%	3,626	19 (1 ↓)	1.450%	36,258	23 (-)	1.450%	906,452	25 (1 ↓)	
Texas	Arlington*	2.662%	6,654	5 (NA)	2.662%	66,538	6 (NA)	2.662%	1,663,442	6 (NA)	
Texas	Austin	2.230%	5,575	8 (1 ↓)	2.230%	55,754	9 (1 ↓)	2.230%	1,393,838	9 (1 ↓)	
Texas	Dallas	2.719%	6,798	4 (1 ↓)	2.719%	67,982	4 (-)	2.719%	1,699,556	4 (-)	
Texas	El Paso	2.817%	7,042	2 (-)	2.817%	70,418	2 (1 ↑)	2.817%	1,760,447	2 (1 ↑)	
Texas	Fort Worth	2.814%	7,034	3 (2 ↓)	2.814%	70,341	3 (1 ↓)	2.814%	1,758,517	3 (1 ↓)	
Texas	Houston	2.529%	6,321	7 (1 ↓)	2.529%	63,214	8 (1 ↓)	2.529%	1,580,352	8 (1 ↓)	
Texas	San Antonio	2.822%	7,056	1 (3 ↑)	2.822%	70,562	1 (4 ↑)	2.822%	1,764,059	1 (4 ↑)	
Virginia	Virginia Beach	0.471%	1,177	50 (-)	0.471%	11,773	50 (-)	0.471%	294,334	50 (-)	
Washington	Seattle	0.685%	1,711	45 (2 ↑)	0.684%	17,105	48 (1 ↑)	0.685%	427,874	48 (1 ↑)	
Wisconsin	Milwaukee	1.281%	3,202	23 (2 ↑)	1.310%	32,753	29 (-)	1.313%	820,772	29 (-)	
AVERAGE		1.423%	3,557		1.527%	38,170		1.547%	967,006		N = 10

* Arlington, TX replaces Cleveland, OH in the set of fifty largest cities.

\$100,000-valued property has an additional \$75,000 worth of machinery and equipment, an additional \$60,000 worth of inventories, and an additional \$15,000 worth of fixtures.
\$1 million-valued property has an additional \$750,000 worth of machinery and equipment, an additional \$600,000 worth of inventories, and an additional \$150,000 worth of fixtures.

\$25 million-valued property has an additional \$18.75 million worth of machinery and equipment, an additional \$15 million worth of inventories, and an additional \$3.75 million worth of fixtures.

Appendix Table 4e: Industrial Property Taxes for Selected Rural Municipalities (Personal Property = 50% of Total Parcel Value)

		Land and Building Value: \$100,000			Land and Building Value: \$1 Million			Land and Building Value: \$25 Million			Tax Rate Varies with Property Value
State	Municipality	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Alabama	Monroeville	0.656%	1,312	47 (3 ↓)	0.656%	13,120	47 (1 ↓)	0.656%	328,000	47 (1 ↓)	X
Alaska	Ketchikan	0.722%	1,445	41 (2 ↑)	0.854%	17,080	40 (2 ↑)	0.868%	434,012	40 (2 ↑)	
Arizona	Safford	0.702%	1,404	45 (4 ↓)	1.160%	23,208	27 (2 ↓)	1.311%	655,451	19 (1 ↑)	X
Arkansas	Pocahontas	0.722%	1,443	42 (2 ↓)	0.722%	14,434	44 (-)	0.722%	360,861	44 (-)	
California	Yreka	0.842%	1,685	38 (-)	0.842%	16,848	41 (-)	0.842%	421,200	41 (-)	
Colorado	Walsenburg	1.648%	3,297	9 (-)	1.648%	32,969	11 (-)	1.648%	824,226	12 (-)	
Connecticut	Litchfield	1.028%	2,056	28 (3 ↑)	1.028%	20,559	31 (2 ↑)	1.028%	513,975	31 (3 ↑)	
Delaware	Georgetown	0.294%	588	50 (-)	0.294%	5,877	50 (-)	0.294%	146,914	50 (-)	
Florida	Moore Haven	1.544%	3,088	11 (-)	1.803%	36,051	8 (-)	1.830%	915,056	8 (-)	X
Georgia	Fitzgerald	1.545%	3,089	10 (3 ↑)	1.545%	30,892	14 (-)	1.545%	772,288	15 (1 ↓)	
Hawaii	Kauai	0.405%	810	49 (-)	0.405%	8,100	49 (-)	0.405%	202,500	49 (-)	
Idaho	St. Anthony	0.717%	1,434	44 (4 ↑)	1.149%	22,973	28 (1 ↓)	1.231%	615,748	24 (4 ↑)	X
Illinois	Galena	1.231%	2,461	21 (1 ↑)	1.231%	24,615	22 (1 ↑)	1.231%	615,367	25 (-)	
Indiana	North Vernon	2.313%	4,626	3 (1 ↑)	2.313%	46,260	3 (1 ↑)	2.313%	1,156,500	3 (2 ↑)	
Iowa	Hampton	1.079%	2,159	26 (1 ↓)	1.547%	30,934	13 (-)	1.701%	850,494	9 (2 ↑)	X
Kansas	Iola	1.898%	3,796	5 (2 ↓)	1.898%	37,963	6 (3 ↓)	1.898%	949,085	6 (3 ↓)	
Kentucky	Morehead	0.587%	1,173	48 (1 ↓)	0.587%	11,732	48 (-)	0.587%	293,290	48 (-)	
Louisiana	Natchitoches	1.393%	2,787	16 (-)	1.393%	27,866	17 (-)	1.393%	696,647	18 (1 ↓)	
Maine	Rockland	1.195%	2,389	24 (1 ↓)	1.195%	23,892	25 (1 ↓)	1.195%	597,300	28 (2 ↓)	
Maryland	Denton	1.018%	2,037	31 (2 ↑)	1.018%	20,366	34 (1 ↑)	1.018%	509,160	34 (2 ↑)	
Massachusetts	Adams	1.287%	2,574	17 (1 ↑)	1.287%	25,740	19 (1 ↑)	1.287%	643,500	21 (1 ↑)	
Michigan	Manistique	1.793%	3,586	6 (6 ↑)	2.108%	42,153	4 (3 ↑)	2.108%	1,053,819	4 (3 ↑)	X
Minnesota	Glencoe	1.421%	2,841	13 (6 ↓)	1.805%	36,093	7 (2 ↓)	1.870%	934,837	7 (3 ↓)	X
Mississippi	Philadelphia	2.104%	4,208	4 (1 ↑)	2.104%	42,084	5 (1 ↑)	2.104%	1,052,100	5 (1 ↑)	
Missouri	Boonville	1.679%	3,358	7 (3 ↑)	1.679%	33,581	9 (3 ↑)	1.679%	839,527	10 (3 ↑)	
Montana	Glasgow	0.899%	1,799	36 (9 ↑)	1.194%	23,888	26 (10 ↑)	1.603%	801,309	14 (4 ↑)	X
Nebraska	Sidney	1.539%	3,078	12 (4 ↓)	1.635%	32,708	12 (2 ↓)	1.646%	822,831	13 (3 ↓)	X
Nevada	Fallon	1.023%	2,046	29 (3 ↓)	1.023%	20,459	32 (4 ↓)	1.023%	511,485	32 (3 ↓)	
New Hampshire	Lancaster	1.410%	2,820	15 (-)	1.410%	28,197	16 (-)	1.410%	704,915	17 (1 ↓)	
New Jersey	Maurice River Twp	1.278%	2,556	18 (2 ↑)	1.278%	25,561	20 (1 ↑)	1.278%	639,021	22 (1 ↑)	
New Mexico	Santa Rosa	0.839%	1,678	39 (2 ↓)	0.839%	16,780	42 (2 ↓)	0.839%	419,496	42 (2 ↓)	
New York	Warsaw	1.669%	3,338	8 (2 ↓)	1.669%	33,377	10 (1 ↓)	1.669%	834,437	11 (2 ↓)	
North Carolina	Edenton	0.885%	1,771	37 (1 ↓)	0.885%	17,705	39 (-)	0.885%	442,631	39 (-)	
North Dakota	Devils Lake	0.720%	1,440	43 (3 ↑)	0.720%	14,398	45 (2 ↑)	0.720%	359,946	45 (2 ↑)	
Ohio	Bryan	1.022%	2,044	30 (2 ↑)	1.022%	20,441	33 (1 ↑)	1.022%	511,029	33 (2 ↑)	
AVERAGE		1.223%	2,446		1.281%	25,611		1.299%	649,438		N = 10

		Land and Building Value: \$100,000			Land and Building Value: \$1 Million			Land and Building Value: \$25 Million			Tax Rate Varies with Property Value
State	Municipality	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Oklahoma	Mangum	0.995%	1,991	33 (3 ↓)	0.995%	19,910	36 (4 ↓)	0.995%	497,745	36 (3 ↓)	
Oregon	Tillamook	0.925%	1,850	35 (-)	0.925%	18,497	38 (-)	0.925%	462,426	38 (-)	
Pennsylvania	Ridgway	1.417%	2,834	14 (-)	1.417%	28,338	15 (-)	1.417%	708,449	16 (1 ↓)	
Rhode Island	Hopkinton	1.144%	2,289	25 (1 ↓)	1.144%	22,890	29 (3 ↓)	1.144%	572,244	29 (2 ↓)	
South Carolina	Mullins	3.581%	7,162	1 (-)	3.581%	71,616	1 (-)	3.581%	1,790,400	1 (-)	
South Dakota	Vermillion*	1.214%	2,427	22 (NA)	1.214%	24,271	23 (NA)	1.214%	606,766	26 (NA)	
Tennessee	Savannah	0.938%	1,876	34 (-)	0.938%	18,757	37 (-)	0.938%	468,930	37 (-)	
Texas	Fort Stockton	2.599%	5,197	2 (-)	2.599%	51,974	2 (-)	2.599%	1,299,350	2 (-)	
Utah	Richfield	1.198%	2,396	23 (5 ↑)	1.198%	23,963	24 (6 ↑)	1.198%	599,080	27 (4 ↑)	
Vermont	Hartford	1.233%	2,466	20 (1 ↑)	1.233%	24,657	21 (1 ↑)	1.233%	616,437	23 (1 ↑)	
Virginia	Wise	0.757%	1,513	40 (1 ↓)	0.757%	15,130	43 (-)	0.757%	378,255	43 (-)	X
Washington	Okanogan	1.012%	2,023	32 (5 ↓)	1.012%	20,235	35 (6 ↓)	1.012%	505,869	35 (5 ↓)	
West Virginia	Elkins	1.064%	2,127	27 (10 ↓)	1.064%	21,270	30 (12 ↓)	1.064%	531,761	30 (11 ↓)	
Wisconsin	Rice Lake	1.275%	2,549	19 (-)	1.306%	26,130	18 (1 ↑)	1.310%	654,944	20 (1 ↑)	
Wyoming	Worland	0.701%	1,401	46 (4 ↓)	0.701%	14,012	46 (1 ↓)	0.701%	350,290	46 (1 ↓)	
AVERAGE		1.223%	2,446		1.281%	25,611		1.299%	649,438		N = 10

* Vermillion, SD replaces Madison, SD in the set of rural municipalities.

\$100,000-valued property has an additional \$50,000 worth of machinery and equipment, an additional \$40,000 worth of inventories, and an additional \$10,000 worth of fixtures.
\$1 million-valued property has an additional \$500,000 worth of machinery and equipment, an additional \$400,000 worth of inventories, and an additional \$100,000 worth of fixtures.

\$25 million-valued property has an additional \$12.5 million worth of machinery and equipment, an additional \$10 million worth of inventories, and an additional \$2.5 million worth of fixtures.

Appendix Table 4f: Industrial Property Taxes for Selected Rural Municipalities (Personal Property = 60% of Total Parcel Value)

		Land and Building Value: \$100,000			Land and Building Value: \$1 Million			Land and Building Value: \$25 Million			Tax Rate Varies with Property Value
State	Municipality	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Alabama	Monroeville	0.623%	1,558	44 (1 ↓)	0.623%	15,580	46 (-)	0.623%	389,500	46 (-)	X
Alaska	Ketchikan	0.718%	1,796	42 (1 ↓)	0.824%	20,590	39 (2 ↑)	0.835%	521,762	39 (-)	
Arizona	Safford	0.562%	1,404	47 (3 ↓)	1.174%	29,359	16 (2 ↑)	1.295%	809,207	17 (1 ↑)	X
Arkansas	Pocahontas	0.722%	1,806	40 (-)	0.722%	18,061	44 (-)	0.722%	451,536	44 (-)	
California	Yreka	0.800%	2,001	37 (-)	0.800%	20,007	41 (1 ↓)	0.800%	500,175	41 (-)	
Colorado	Walsenburg	1.566%	3,915	7 (-)	1.566%	39,151	9 (1 ↑)	1.566%	978,769	10 (-)	X
Connecticut	Litchfield	0.860%	2,149	34 (1 ↓)	0.860%	21,494	37 (1 ↓)	0.860%	537,338	37 (1 ↓)	
Delaware	Georgetown	0.235%	588	50 (-)	0.235%	5,877	50 (-)	0.235%	146,914	50 (-)	
Florida	Moore Haven	1.511%	3,777	8 (1 ↑)	1.718%	42,944	6 (2 ↑)	1.740%	1,087,383	6 (2 ↑)	
Georgia	Fitzgerald	1.501%	3,753	9 (1 ↑)	1.501%	37,527	11 (1 ↑)	1.501%	938,168	12 (-)	
Hawaii	Kauai	0.324%	810	49 (-)	0.324%	8,100	49 (-)	0.324%	202,500	49 (-)	X
Idaho	St. Anthony	0.574%	1,434	46 (2 ↑)	1.126%	28,151	20 (1 ↑)	1.192%	745,198	18 (3 ↑)	
Illinois	Galena	0.985%	2,461	25 (3 ↑)	0.985%	24,615	29 (2 ↑)	0.985%	615,367	29 (3 ↑)	X
Indiana	North Vernon	2.210%	5,526	3 (-)	2.210%	55,260	3 (-)	2.210%	1,381,500	3 (-)	
Iowa	Hampton	0.864%	2,159	33 (2 ↓)	1.237%	30,934	15 (1 ↑)	1.361%	850,494	15 (1 ↑)	
Kansas	Iola	1.608%	4,019	5 (-)	1.608%	40,189	7 (2 ↓)	1.608%	1,004,717	7 (2 ↓)	X
Kentucky	Morehead	0.521%	1,303	48 (3 ↓)	0.521%	13,031	48 (1 ↓)	0.521%	325,783	48 (1 ↓)	
Louisiana	Natchitoches	1.404%	3,511	12 (1 ↑)	1.404%	35,112	13 (1 ↑)	1.404%	877,809	14 (-)	
Maine	Rockland	0.999%	2,498	23 (1 ↓)	0.999%	24,978	27 (2 ↓)	0.999%	624,450	27 (1 ↓)	
Maryland	Denton	0.894%	2,234	31 (1 ↑)	0.894%	22,341	35 (-)	0.894%	558,535	35 (-)	
Massachusetts	Adams	1.030%	2,574	20 (-)	1.030%	25,740	24 (1 ↓)	1.030%	643,500	24 (-)	X
Michigan	Manistique	1.470%	3,676	11 (4 ↑)	1.848%	46,200	5 (1 ↑)	1.848%	1,154,993	5 (2 ↑)	
Minnesota	Glencoe	1.137%	2,841	15 (3 ↓)	1.444%	36,093	12 (5 ↓)	1.496%	934,837	13 (7 ↓)	X
Mississippi	Philadelphia	2.104%	5,261	4 (-)	2.104%	52,605	4 (-)	2.104%	1,315,125	4 (-)	X
Missouri	Boonville	1.598%	3,994	6 (2 ↑)	1.598%	39,938	8 (3 ↑)	1.598%	998,444	8 (3 ↑)	
Montana	Glasgow	0.720%	1,799	41 (5 ↑)	1.097%	27,427	21 (12 ↑)	1.565%	978,289	11 (4 ↑)	X
Nebraska	Sidney	1.488%	3,720	10 (4 ↓)	1.565%	39,126	10 (1 ↓)	1.573%	983,272	9 (-)	X
Nevada	Fallon	0.972%	2,430	26 (3 ↓)	0.972%	24,302	30 (4 ↓)	0.972%	607,560	30 (3 ↓)	X
New Hampshire	Lancaster	1.128%	2,820	17 (-)	1.128%	28,197	19 (-)	1.128%	704,915	21 (1 ↓)	
New Jersey	Maurice River Twp	1.022%	2,556	21 (-)	1.022%	25,561	25 (1 ↓)	1.022%	639,021	25 (-)	
New Mexico	Santa Rosa	0.800%	2,001	38 (3 ↓)	0.800%	20,007	42 (4 ↓)	0.800%	500,174	42 (4 ↓)	X
New York	Warsaw	1.335%	3,338	13 (2 ↓)	1.335%	33,377	14 (1 ↓)	1.335%	834,437	16 (3 ↓)	
North Carolina	Edenton	0.843%	2,108	35 (1 ↓)	0.843%	21,080	38 (1 ↓)	0.843%	527,006	38 (1 ↓)	
North Dakota	Devils Lake	0.576%	1,440	45 (2 ↑)	0.576%	14,398	47 (1 ↑)	0.576%	359,946	47 (1 ↑)	
Ohio	Bryan	0.818%	2,044	36 (2 ↑)	0.818%	20,441	40 (2 ↑)	0.818%	511,029	40 (2 ↑)	
AVERAGE		1.101%	2,753		1.162%	29,042		1.179%	736,978		N = 10

		Land and Building Value: \$100,000			Land and Building Value: \$1 Million			Land and Building Value: \$25 Million			Tax Rate Varies with Property Value
State	Municipality	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Oklahoma	Mangum	1.018%	2,544	22 (3 ↓)	1.018%	25,440	26 (4 ↓)	1.018%	636,008	26 (3 ↓)	
Oregon	Tillamook	0.879%	2,197	32 (2 ↓)	0.879%	21,965	36 (2 ↓)	0.879%	549,131	36 (2 ↓)	
Pennsylvania	Ridgway	1.134%	2,834	16 (-)	1.134%	28,338	18 (1 ↓)	1.134%	708,449	20 (1 ↓)	
Rhode Island	Hopkinton	0.957%	2,392	29 (2 ↓)	0.957%	23,922	33 (3 ↓)	0.957%	598,044	33 (2 ↓)	
South Carolina	Mullins	3.402%	8,504	1 (-)	3.402%	85,044	1 (-)	3.402%	2,126,100	1 (-)	
South Dakota	Vermillion*	0.971%	2,427	27 (NA)	0.971%	24,271	31 (NA)	0.971%	606,766	31 (NA)	
Tennessee	Savannah	0.917%	2,293	30 (1 ↓)	0.917%	22,927	34 (2 ↓)	0.917%	573,180	34 (1 ↓)	
Texas	Fort Stockton	2.599%	6,497	2 (-)	2.599%	64,968	2 (-)	2.599%	1,624,188	2 (-)	
Utah	Richfield	1.138%	2,846	14 (12 ↑)	1.138%	28,456	17 (12 ↑)	1.138%	711,408	19 (11 ↑)	
Vermont	Hartford	0.986%	2,466	24 (1 ↑)	0.986%	24,657	28 (-)	0.986%	616,437	28 (1 ↑)	
Virginia	Wise	0.777%	1,944	39 (-)	0.777%	19,435	43 (-)	0.777%	485,880	43 (-)	X
Washington	Okanogan	0.970%	2,424	28 (4 ↓)	0.970%	24,240	32 (5 ↓)	0.970%	605,998	32 (4 ↓)	
West Virginia	Elkins	1.067%	2,668	19 (5 ↓)	1.067%	26,678	23 (8 ↓)	1.067%	666,955	23 (6 ↓)	
Wisconsin	Rice Lake	1.067%	2,669	18 (-)	1.093%	27,321	22 (2 ↓)	1.096%	684,717	22 (-)	
Wyoming	Worland	0.666%	1,664	43 (1 ↓)	0.666%	16,639	45 (-)	0.666%	415,969	45 (-)	
AVERAGE		1.101%	2,753		1.162%	29,042		1.179%	736,978		N = 10

* Vermillion, SD replaces Madison, SD in the set of rural municipalities.

\$100,000-valued property has an additional \$75,000 worth of machinery and equipment, an additional \$60,000 worth of inventories, and an additional \$15,000 worth of fixtures.
\$1 million-valued property has an additional \$750,000 worth of machinery and equipment, an additional \$600,000 worth of inventories, and an additional \$150,000 worth of fixtures.

\$25 million-valued property has an additional \$18.75 million worth of machinery and equipment, an additional \$15 million worth of inventories, and an additional \$3.75 million worth of fixtures.

Appendix Table 4g: Preferential Treatment of Personal Property, Largest City in Each State (2016)

State	City	Machinery & Equipment		Manufacturers' Inventories		Fixtures		Rural Municipality Are preferences for personal property the same as in the state's rural municipality?
		Full Exemption	Preferential Treatment	Full Exemption	Preferential Treatment	Full Exemption	Preferential Treatment	
Alabama	Birmingham			X	X			Yes
Alaska	Anchorage		X		X		X	No - See note below
Arizona	Phoenix		X	X	X		X	Yes
Arkansas	Little Rock							No - See note below
California	Los Angeles			X	X			Yes
Colorado	Denver			X	X			Yes
Connecticut	Bridgeport	X	X	X	X			Yes
DC	Washington		***	X	X		***	Yes
Delaware	Wilmington	X	X	X	X	X	X	Yes
Florida	Jacksonville		X	X	X		X	Yes
Georgia	Atlanta				X		-	Yes
Hawaii	Honolulu	X	X	X	X	X	X	Yes
Idaho	Boise		X	X	X		X	Yes
Illinois	Chicago	X	X	X	X	X	X	Yes
Illinois	Aurora	X	X	X	X	X	X	Yes
Indiana	Indianapolis			X	X			Yes
Iowa	Des Moines	X	X	X	X	X	X	Yes
Kansas	Wichita	X	X	X	X			Yes
Kentucky	Louisville		X		X		-	Yes
Louisiana	New Orleans		-		-		-	Yes
Maine	Portland	X	X	X	X			Yes
Maryland	Baltimore	X	X	X	X		-	Yes
Massachusetts	Boston	X	X	X	X	X	X	Yes
Michigan	Detroit		X	X	X		X	Yes
Minnesota	Minneapolis	X	X	X	X	X	X	Yes
Mississippi	Jackson							Yes
Missouri	Kansas City		X	X	X		X	Yes
Montana	Billings		***	X	X		***	Yes
Nebraska	Omaha		***	X	X		***	Yes
Nevada	Las Vegas			X	X			Yes
New Hampshire	Manchester	X	X	X	X	X	X	Yes
New Jersey	Newark	X	X	X	X	X	X	Yes
New Mexico	Albuquerque			X	X			No - See note below
New York	New York City	X	X	X	X	X	X	Yes
New York	Buffalo	X	X	X	X	X	X	Yes
Number of Cities		21	31	43	47	15	23	No = 7

State	City	Machinery & Equipment		Manufacturers' Inventories		Fixtures		Rural Municipality
		Full Exemption	Preferential Treatment	Full Exemption	Preferential Treatment	Full Exemption	Preferential Treatment	Are preferences for personal property the same as in the state's rural municipality?
North Carolina	Charlotte			X	X			Yes
North Dakota	Fargo	X	X	X	X	X	X	Yes
Ohio	Columbus	X	X	X	X	X	X	Yes
Oklahoma	Oklahoma City		-		-		-	Yes
Oregon	Portland			X	X			Yes
Pennsylvania	Philadelphia	X	X	X	X	X	X	Yes
Rhode Island	Providence	X	X	X	X		-	No - See note below
South Carolina	Columbia			X	X			Yes
South Dakota	Sioux Falls	X	X	X	X	X	X	Yes
Tennessee	Memphis		X		X		X	Yes
Texas	Houston							Yes
Utah	Salt Lake City			X	X			Yes
Vermont	Burlington		X	X	X		X	No - See note below
Virginia	Virginia Beach		X	X	X		-	No - See note below
Washington	Seattle			X	X			Yes
West Virginia	Charleston							Yes
Wisconsin	Milwaukee	X	X	X	X		-	Yes
Wyoming	Cheyenne			X	X			No - See note below
Number of Cities		21	31	43	47	15	23	No = 7

* Preferential treatment means there are statutory provisions that result in lower property taxes on personal property than on real property, which could be due to exemptions/credits, the nominal tax rate, or the assessment ratio. Preferences are usually fairly uniform within a state.

** A dash ("-") indicates that real property is treated preferentially to personal property.

*** In the District of Columbia and Nebraska, there is a personal property exemption which is capped at a fixed value amount. This provides personal property with preferential treatment for a \$100,000-valued property but the non-preferential treatment embedded in the tax system overwhelms that benefit at higher values.

*** In Montana, whether personal property is treated preferentially to real property depends on the total value of a parcel. At low values, machinery and equipment and fixtures are taxed preferentially, because of Montana's exemption of the first \$100,000 of property value. But at high values, personal property is being taxed more heavily than real property because the state has a system of tiered assessment ratios.

Differences in Preferential Treatment in Rural Municipalities

- Alaska: Ketchikan has a full exemption for manufacturers' inventories.
- Arkansas: Pocahontas has preferential treatment for manufacturers' inventories.
- New Mexico: Santa Rosa has preferential treatment for machinery/equipment and fixtures.
- Rhode Island: Hopkinton does not treat real property preferentially to fixtures.
- Vermont: Hartford has a full exemption for machinery/equipment and fixtures.
- Virginia: Wise treats real property preferentially to machinery/equipment.
- Wyoming: Worland does not have preferential treatment for manufacturers' inventories.

Appendix Table 5a: Apartment Property Taxes for Largest City in Each State

		Land and Building Value: \$600,000				Lower Tax Rate on Personal Property
State	City	Tax Rate	Tax Bill	Rank	Change From '14	
Alabama	Birmingham	1.450%	9,135	29	1 ↑	
Alaska	Anchorage	1.353%	8,525	32	3 ↑	X
Arizona	Phoenix	1.276%	8,038	37	1 ↓	X
Arkansas	Little Rock	1.441%	9,077	30	1 ↑	X
California	Los Angeles	1.192%	7,509	39	3 ↑	
Colorado	Denver	0.697%	4,392	51	-	
Connecticut	Bridgeport	3.806%	23,977	4	1 ↑	
DC	Washington	0.750%	4,723	50	-	X
Delaware	Wilmington	1.330%	8,381	33	7 ↑	X
Florida	Jacksonville	1.676%	10,558	23	1 ↑	X
Georgia	Atlanta	1.652%	10,410	24	2 ↑	
Hawaii	Honolulu	0.326%	2,051	53	-	X
Idaho	Boise	1.471%	9,265	28	-	X
Illinois	Aurora*	3.925%	24,730	3	-	X
Illinois	Chicago	1.171%	7,377	40	13 ↓	X
Indiana	Indianapolis	1.949%	12,277	20	-	X
Iowa	Des Moines	3.593%	22,635	5	1 ↓	X
Kansas	Wichita	1.326%	8,354	35	2 ↓	
Kentucky	Louisville	1.163%	7,329	41	-	X
Louisiana	New Orleans	1.560%	9,826	27	2 ↑	
Maine	Portland	2.111%	13,299	17	2 ↑	
Maryland	Baltimore	2.262%	14,250	15	2 ↑	
Massachusetts	Boston	0.995%	6,270	45	-	X
Michigan	Detroit	4.791%	30,186	2	-	X
Minnesota	Minneapolis	1.746%	11,000	22	1 ↑	X
Mississippi	Jackson	2.767%	17,431	11	1 ↑	
Missouri	Kansas City	1.422%	8,957	31	1 ↑	X
Montana	Billings	0.820%	5,165	47	1 ↑	X
Nebraska	Omaha	2.053%	12,936	18	-	X
Nevada	Las Vegas	1.107%	6,973	44	-	
New Hampshire	Manchester	2.140%	13,481	16	-	X
New Jersey	Newark	3.049%	19,212	6	4 ↑	X
New Mexico	Albuquerque	1.329%	8,370	34	-	
New York	Buffalo*	2.840%	17,893	10	3 ↓	X
New York	New York City	5.470%	34,460	1	-	X
AVERAGE		1.866%	11,753			N = 30

		Land and Building Value: \$600,000				Lower Tax Rate on Personal Property
State	City	Tax Rate	Tax Bill	Rank	Change From '14	
North Carolina	Charlotte	1.125%	7,089	43	-	X
North Dakota	Fargo	1.141%	7,190	42	5 ↓	
Ohio	Columbus	1.997%	12,579	19	2 ↑	
Oklahoma	Oklahoma City	1.266%	7,975	38	-	
Oregon	Portland	2.285%	14,393	14	1 ↑	
Pennsylvania	Philadelphia	1.297%	8,173	36	3 ↑	X
Rhode Island	Providence	1.896%	11,943	21	15 ↓	
South Carolina	Columbia	2.953%	18,602	7	1 ↑	
South Dakota	Sioux Falls	1.611%	10,149	26	4 ↓	X
Tennessee	Memphis	2.911%	18,338	8	1 ↑	X
Texas	Houston	2.350%	14,807	13	1 ↑	X
Utah	Salt Lake City	0.761%	4,792	49	3 ↓	
Vermont	Burlington	2.504%	15,777	12	1 ↑	
Virginia	Virginia Beach	0.813%	5,124	48	1 ↑	
Washington	Seattle	0.880%	5,543	46	1 ↑	
West Virginia	Charleston	1.624%	10,230	25	-	
Wisconsin	Milwaukee	2.842%	17,906	9	2 ↑	
Wyoming	Cheyenne	0.609%	3,840	52	-	
AVERAGE		1.866%	11,753			N = 30

* Illinois and New York have two cities included in this table, because the tax systems in Chicago and New York City are significantly different from the rest of the state. Property has an additional \$30,000 worth of fixtures.

Appendix Table 5b: Apartment Property Taxes for the Largest Fifty U.S. Cities

		Land and Building Value: \$600,000				Lower Tax Rate on Personal Property
State	City	Tax Rate	Tax Bill	Rank	Rank	
Arizona	Mesa	0.988%	6,225	45	-	X
Arizona	Phoenix	1.276%	8,038	30	1 ↓	X
Arizona	Tucson	1.359%	8,564	25	5 ↑	X
California	Fresno	1.230%	7,748	33	2 ↑	
California	Long Beach	1.156%	7,284	39	2 ↑	
California	Los Angeles	1.192%	7,509	34	2 ↑	
California	Oakland	1.351%	8,510	26	1 ↑	
California	Sacramento	1.142%	7,193	40	-	
California	San Diego	1.174%	7,398	36	2 ↑	
California	San Francisco	1.179%	7,429	35	2 ↑	
California	San Jose	1.263%	7,955	32	1 ↓	
Colorado	Colorado Springs	0.500%	3,153	50	-	
Colorado	Denver	0.697%	4,392	49	-	
DC	Washington	0.750%	4,723	48	-	X
Florida	Jacksonville	1.676%	10,558	19	-	X
Florida	Miami	1.835%	11,557	17	2 ↓	X
Georgia	Atlanta	1.652%	10,410	20	-	
Illinois	Chicago	1.171%	7,377	37	16 ↓	X
Indiana	Indianapolis	1.949%	12,277	16	1 ↑	X
Kansas	Wichita	1.326%	8,354	28	2 ↓	
Kentucky	Louisville	1.163%	7,329	38	4 ↓	X
Louisiana	New Orleans	1.560%	9,826	22	1 ↑	
Maryland	Baltimore	2.262%	14,250	12	-	
Massachusetts	Boston	0.995%	6,270	44	1 ↓	X
Michigan	Detroit	4.791%	30,186	2	-	X
Minnesota	Minneapolis	1.746%	11,000	18	-	X
Missouri	Kansas City	1.422%	8,957	24	1 ↑	X
Nebraska	Omaha	2.053%	12,936	14	-	X
Nevada	Las Vegas	1.107%	6,973	42	-	
New Mexico	Albuquerque	1.329%	8,370	27	1 ↑	
New York	New York City	5.470%	34,460	1	-	X
North Carolina	Charlotte	1.125%	7,089	41	2 ↓	
North Carolina	Raleigh	1.023%	6,444	43	1 ↑	X
Ohio	Columbus	1.997%	12,579	15	9 ↓	X
Oklahoma	Oklahoma City	1.266%	7,975	31	1 ↑	
AVERAGE		1.714%	10,795			N = 21

		Land and Building Value: \$600,000				Lower Tax Rate on Personal Property
State	City	Tax Rate	Tax Bill	Rank	Rank	
Oklahoma	Tulsa	1.470%	9,263	23	1 ↑	X
Oregon	Portland	2.285%	14,393	11	-	
Pennsylvania	Philadelphia	1.297%	8,173	29	4 ↑	X
Tennessee	Memphis	2.911%	18,338	3	-	X
Tennessee	Nashville	1.582%	9,968	21	1 ↑	X
Texas	Arlington*	2.570%	16,191	8	NA	
Texas	Austin	2.115%	13,326	13	-	
Texas	Dallas	2.634%	16,591	7	-	
Texas	El Paso	2.352%	14,820	9	1 ↑	
Texas	Fort Worth	2.669%	16,814	6	1 ↓	
Texas	Houston	2.350%	14,807	10	1 ↓	
Texas	San Antonio	2.731%	17,203	5	3 ↑	
Virginia	Virginia Beach	0.813%	5,124	47	-	
Washington	Seattle	0.880%	5,543	46	-	
Wisconsin	Milwaukee	2.842%	17,906	4	-	
AVERAGE		1.714%	10,795			N = 21

* Arlington, TX replaces Cleveland, OH in the set of fifty largest cities.
Property has an additional \$30,000 worth of fixtures.

Appendix Table 5c: Apartment Property Taxes for Selected Rural Municipalities

		Land and Building Value: \$600,000				Lower Tax Rate on Personal Property
State	Municipality	Tax Rate	Tax Bill	Rank	Rank	
Alabama	Monroeville	0.820%	5,166	43	1 ↓	
Alaska	Ketchikan	0.995%	6,270	37	-	X
Arizona	Safford	0.862%	5,433	42	1 ↑	X
Arkansas	Pocahontas	0.719%	4,531	45	1 ↑	
California	Yreka	1.053%	6,634	33	1 ↓	
Colorado	Walsenburg	0.637%	4,012	48	1 ↓	
Connecticut	Litchfield	1.869%	11,775	20	2 ↑	
Delaware	Georgetown	0.557%	3,506	50	-	X
Florida	Moore Haven	2.193%	13,818	13	1 ↓	X
Georgia	Fitzgerald	1.761%	11,092	23	-	X
Hawaii	Kauai	0.576%	3,630	49	-	X
Idaho	St. Anthony	1.366%	8,606	27	4 ↑	X
Illinois	Galena	2.344%	14,769	11	-	X
Indiana	North Vernon	1.794%	11,304	22	1 ↓	X
Iowa	Hampton	3.251%	20,480	1	-	X
Kansas	Iola	2.154%	13,573	15	2 ↓	
Kentucky	Morehead	0.870%	5,479	41	5 ↓	X
Louisiana	Natchitoches	0.912%	5,749	38	1 ↑	
Maine	Rockland	2.172%	13,684	14	-	
Maryland	Denton	1.752%	11,035	24	-	
Massachusetts	Adams	2.017%	12,706	18	1 ↑	X
Michigan	Manistique	3.060%	19,277	3	-	X
Minnesota	Glencoe	1.812%	11,413	21	3 ↓	X
Mississippi	Philadelphia	2.104%	13,256	16	-	
Missouri	Boonville	1.036%	6,526	34	1 ↑	X
Montana	Glasgow	1.010%	6,362	36	5 ↑	X
Nebraska	Sidney	1.981%	12,480	19	4 ↓	X
Nevada	Fallon	1.267%	7,982	28	1 ↓	
New Hampshire	Lancaster	2.685%	16,918	5	-	X
New Jersey	Maurice River Twp	2.434%	15,336	8	-	X
New Mexico	Santa Rosa	0.905%	5,703	39	1 ↓	
New York	Warsaw	3.179%	20,026	2	-	X
North Carolina	Edenton	1.097%	6,911	31	2 ↑	
North Dakota	Devils Lake	1.371%	8,639	26	3 ↑	X
Ohio	Bryan	1.649%	10,390	25	-	X
AVERAGE		1.612%	10,157			N = 28

		Land and Building Value: \$600,000				Lower Tax Rate on Personal Property
State	Municipality	Tax Rate	Tax Bill	Rank	Rank	
Oklahoma	Mangum	0.895%	5,641	40	-	X
Oregon	Tillamook	1.156%	7,283	30	-	
Pennsylvania	Ridgway	2.699%	17,003	4	-	
Rhode Island	Hopkinton	2.082%	13,115	17	-	
South Carolina	Mullins	2.496%	15,725	7	-	
South Dakota	Vermillion*	2.311%	14,562	12	NA	X
Tennessee	Savannah	1.032%	6,501	35	1 ↓	X
Texas	Fort Stockton	2.599%	16,372	6	-	X
Utah	Richfield	0.785%	4,942	44	1 ↑	
Vermont	Hartford	2.348%	14,794	10	-	
Virginia	Wise	0.646%	4,068	46	2 ↑	
Washington	Okanogan	1.228%	7,735	29	1 ↓	
West Virginia	Elkins	1.064%	6,706	32	6 ↓	
Wisconsin	Rice Lake	2.371%	14,935	9	-	
Wyoming	Worland	0.639%	4,024	47	3 ↓	
AVERAGE		1.612%	10,157			N = 28

* Vermillion, SD replaces Madison, SD in the set of rural municipalities.
Property has an additional \$30,000 worth of fixtures.

Appendix Table 6a: Commercial-Homestead Classification Ratio for Largest City in Each State

		Classification Ratio			Causes of Preferential Treatment of Homesteads			
City	State	Rank	Ratio	Chg. from 2015	Assessment Ratio	Nominal Tax Rate	Exemptions & Credits	Sales Ratio*
Birmingham	Alabama	10	2.171	-0.019	X		X	
Anchorage	Alaska	35	1.076	-0.005			X	
Phoenix	Arizona	9	2.198	0.133	X	X		+
Little Rock	Arkansas	28	1.259	-0.021			X	+
Los Angeles	California	43	1.013	-0.001			X	
Denver	Colorado	4	3.618	0.000	X			-
Bridgeport	Connecticut	46	1.000	0.041				
Washington	DC	13	2.140	-0.031		X	X	-
Wilmington	Delaware	53	0.956	0.000				-
Jacksonville	Florida	25	1.398	-0.066			X	
Atlanta	Georgia	24	1.461	0.245			X	
Honolulu	Hawaii	5	3.576	-0.044		X	X	-
Boise	Idaho	17	1.921	-0.114			X	-
Aurora	Illinois	33	1.108	0.001			X	
Chicago	Illinois	6	3.115	0.386	X		X	
Indianapolis	Indiana	7	2.598	-0.050			X	-
Des Moines	Iowa	22	1.572	0.011	X		-	-
Wichita	Kansas	8	2.199	0.019	X		X	-
Louisville	Kentucky	52	0.965	-0.049				-
New Orleans	Louisiana	14	2.053	-0.131	X		X	-
Portland	Maine	39	1.060	0.017			X	
Baltimore	Maryland	44	1.004	0.010				+
Boston	Massachusetts	2	3.768	-0.232		X	X	-
Detroit	Michigan	34	1.088	-0.015		X		-
Minneapolis	Minnesota	15	1.960	-0.128	X	X	X	-
Jackson	Mississippi	19	1.820	-0.020	X		X	
Kansas City	Missouri	18	1.858	-0.001	X	X		-
Billings	Montana	26	1.310	-0.090	X			-
Omaha	Nebraska	40	1.032	0.000			-	+
Las Vegas	Nevada	45	1.003	0.014				+
Manchester	New Hampshire	46	1.000	0.000				
Newark	New Jersey	46	1.000	0.000				
Albuquerque	New Mexico	32	1.161	0.007		X	X	
Buffalo	New York	23	1.513	-0.291		X	X	
New York City	New York	1	4.080	-0.139	X	-	X	

		Classification Ratio			Causes of Preferential Treatment of Homesteads			
City	State	Rank	Ratio	Chg. from 2015	Assessment Ratio	Nominal Tax Rate	Exemptions & Credits	Sales Ratio*
Charlotte	North Carolina	51	1.000	0.000				
Fargo	North Dakota	30	1.225	0.119	X		X	-
Columbus	Ohio	41	1.025	-0.010		X	X	-
Oklahoma City	Oklahoma	37	1.065	-0.005			X	
Portland	Oregon	46	1.000	0.000				
Philadelphia	Pennsylvania	11	2.156	0.033		X	X	
Providence	Rhode Island	16	1.952	0.043		X		
Columbia	South Carolina	3	3.713	0.022	X		X	
Sioux Falls	South Dakota	29	1.249	-0.310		X		-
Memphis	Tennessee	21	1.600	0.000	X			
Houston	Texas	27	1.297	-0.083			X	-
Salt Lake City	Utah	20	1.760	-0.040			X	-
Burlington	Vermont	31	1.219	0.073	X	X		-
Virginia Beach	Virginia	38	1.065	0.069				+
Seattle	Washington	46	1.000	0.000				
Charleston	West Virginia	12	2.143	0.036		X	-	+
Milwaukee	Wisconsin	36	1.067	-0.003			X	
Cheyenne	Wyoming	42	1.019	0.061				+
TOTAL/AVERAGE			1.672	-0.011	16	15	29	8 (+), 21 (-)

*For sales ratio, "+" indicates that the sales ratio is higher for commercial properties and thus increases the classification ratio, while "-" indicates that the sales ratio is lower for commercial properties and thus decreases the classification ratio. For a few cities, one of the other three features of the property tax system favors commercial properties over homesteads, and this is also indicated with a "-".

Appendix Table 6b: Apartment-Homestead Classification Ratio for Largest City in Each State

		Classification Ratio			Causes of Preferential Treatment of Homesteads			
City	State	Rank	Ratio	Chg. from 2015	Assessment Ratio	Nominal Tax Rate	Exemptions & Credits	Sales Ratio*
Birmingham	Alabama	4	2.171	-0.019	X		X	
Anchorage	Alaska	27	1.076	-0.005			X	
Phoenix	Arizona	23	1.134	0.013		X		
Little Rock	Arkansas	18	1.259	-0.021			X	+
Los Angeles	California	35	1.013	-0.001			X	
Denver	Colorado	47	0.994	0.000				-
Bridgeport	Connecticut	37	1.000	0.041				
Washington	DC	26	1.102	-0.016			X	-
Wilmington	Delaware	41	1.000	0.000				
Jacksonville	Florida	14	1.398	-0.066			X	
Atlanta	Georgia	13	1.461	0.245			X	
Honolulu	Hawaii	24	1.122	-0.014			X	-
Boise	Idaho	6	1.921	-0.114			X	-
Aurora	Illinois	25	1.108	0.001			X	
Chicago	Illinois	53	0.827	-0.268	-		X	
Indianapolis	Indiana	3	2.598	-0.050			X	-
Des Moines	Iowa	9	1.641	-0.017	X		X	-
Wichita	Kansas	34	1.024	0.000			X	
Louisville	Kentucky	50	0.965	-0.049				-
New Orleans	Louisiana	12	1.472	-0.094			X	
Portland	Maine	30	1.060	0.017			X	
Baltimore	Maryland	36	1.004	0.010				+
Boston	Massachusetts	8	1.708	0.031			X	
Detroit	Michigan	17	1.260	-0.001		X		
Minneapolis	Minnesota	15	1.315	0.060	X		X	+
Jackson	Mississippi	7	1.820	-0.020	X		X	
Kansas City	Missouri	41	1.000	0.000				
Billings	Montana	41	1.000	0.000				
Omaha	Nebraska	32	1.032	0.000				+
Las Vegas	Nevada	48	0.971	-0.017				-
Manchester	New Hampshire	37	1.000	0.000				
Newark	New Jersey	41	1.000	0.000				
Albuquerque	New Mexico	31	1.035	-0.002			X	
Buffalo	New York	11	1.513	-0.291		X	X	
New York City	New York	1	4.974	-0.126	X	-	X	

		Classification Ratio			Causes of Preferential Treatment of Homesteads			
City	State	Rank	Ratio	Chg. from 2015	Assessment Ratio	Nominal Tax Rate	Exemptions & Credits	Sales Ratio*
Charlotte	North Carolina	41	1.000	0.000				
Fargo	North Dakota	22	1.225	0.119	X		X	-
Columbus	Ohio	33	1.025	-0.010		X	X	-
Oklahoma City	Oklahoma	28	1.065	-0.005			X	
Portland	Oregon	37	1.000	0.000				
Philadelphia	Pennsylvania	19	1.254	0.001			-	
Providence	Rhode Island	41	1.000	-0.657				
Columbia	South Carolina	2	3.713	0.022	X		X	
Sioux Falls	South Dakota	20	1.249	-0.310		X		-
Memphis	Tennessee	10	1.600	0.000	X			
Houston	Texas	16	1.313	-0.019			X	-
Salt Lake City	Utah	49	0.968	-0.022				-
Burlington	Vermont	21	1.230	0.157	X	X		+
Virginia Beach	Virginia	52	0.879	0.027				-
Seattle	Washington	37	1.000	0.000				
Charleston	West Virginia	5	2.107	-0.107		X		+
Milwaukee	Wisconsin	29	1.065	-0.003			X	
Cheyenne	Wyoming	51	0.935	0.059				-
TOTAL/AVERAGE			1.351	-0.029	9	7	28	6 (+), 15 (-)

*For sales ratio, "+" indicates that the sales ratio is higher for apartments and thus increases the classification ratio, while "-" indicates that the sales ratio is lower for apartments and thus decreases the classification ratio. For a few cities, one of the other three features of the property tax system favors apartments over homesteads, and this is also indicated with a "-".

Appendix Table 7: Impact of Assessment Limits
Difference in Property Taxes between a Newly Purchased Home and a Home that
Has Been Owned for the Average Duration for the City (For Median Valued Home)

State	City	Tax Rate on Median-Valued Home			Tax Bill on Median-Valued Home			
		Newly Purchased Home	Home Owned for Average Duration in City	Difference	Newly Purchased Home	Home Owned for Average Duration in City	Difference	% Difference
Arizona	Mesa	0.830	0.740	0.090	1,423	1,269	154	10.8%
Arizona	Phoenix	1.228	1.095	0.133	2,196	1,958	238	10.8%
Arizona	Tucson	1.209	1.209	0.000	1,530	1,530	0	0.0%
Arkansas	Little Rock	1.128	1.108	0.020	1,684	1,654	30	1.8%
California	Fresno	1.184	0.953	0.231	2,250	1,811	439	19.5%
California	Long Beach	1.107	0.665	0.442	4,881	2,934	1,947	39.9%
California	Los Angeles	1.175	0.768	0.407	5,942	3,884	2,058	34.6%
California	Oakland	1.346	0.986	0.360	6,723	4,924	1,799	26.8%
California	Sacramento	1.111	0.829	0.282	2,837	2,116	721	25.4%
California	San Diego	1.158	0.929	0.229	5,662	4,543	1,119	19.8%
California	San Francisco	1.173	0.826	0.347	9,931	6,991	2,940	29.6%
California	San Jose	1.277	0.942	0.335	8,447	6,232	2,215	26.2%
Florida	Jacksonville	1.205	1.003	0.202	1,586	1,320	266	16.8%
Florida	Miami	1.613	1.153	0.460	3,953	2,826	1,127	28.5%
Illinois	Chicago	1.585	1.514	0.071	3,483	3,328	155	4.5%
Michigan	Detroit	3.809	3.143	0.666	1,596	1,317	279	17.5%
New Mexico	Albuquerque	1.273	1.273	0.000	2,355	2,355	0	0.0%
New York	New York City	1.125	0.715	0.410	5,583	3,547	2,036	36.5%
Oklahoma	Oklahoma City	1.182	1.164	0.018	1,644	1,619	25	1.5%
Oregon	Portland	2.291	1.915	0.376	7,144	5,971	1,173	16.4%
South Carolina	Columbia	0.764	0.719	0.045	1,206	1,135	71	5.9%
Texas	Austin	1.984	1.957	0.027	5,077	5,007	70	1.4%
Texas	Dallas	2.117	2.117	0.000	2,978	2,978	0	0.0%
Texas	El Paso	2.640	2.640	0.000	3,147	3,147	0	0.0%
Texas	Fort Worth	2.467	2.467	0.000	3,141	3,141	0	0.0%
Texas	Houston	1.763	1.754	0.009	2,371	2,360	11	0.5%
Texas	San Antonio	2.225	2.225	0.000	2,648	2,648	0	0.0%
AVERAGE		1.554	1.363	0.191	3,756	3,057	699	13.9%

Notes: Table is for states with parcel-specific assessment limits. Taxes on newly purchased homes come from Appendix Tables 2a and 2d, which ignore assessment limits.
Taxes on homes owned for the average duration in each city come from Appendix Tables 2b and 2e, which do account for assessment limits.
See Methodology section for details on calculation.