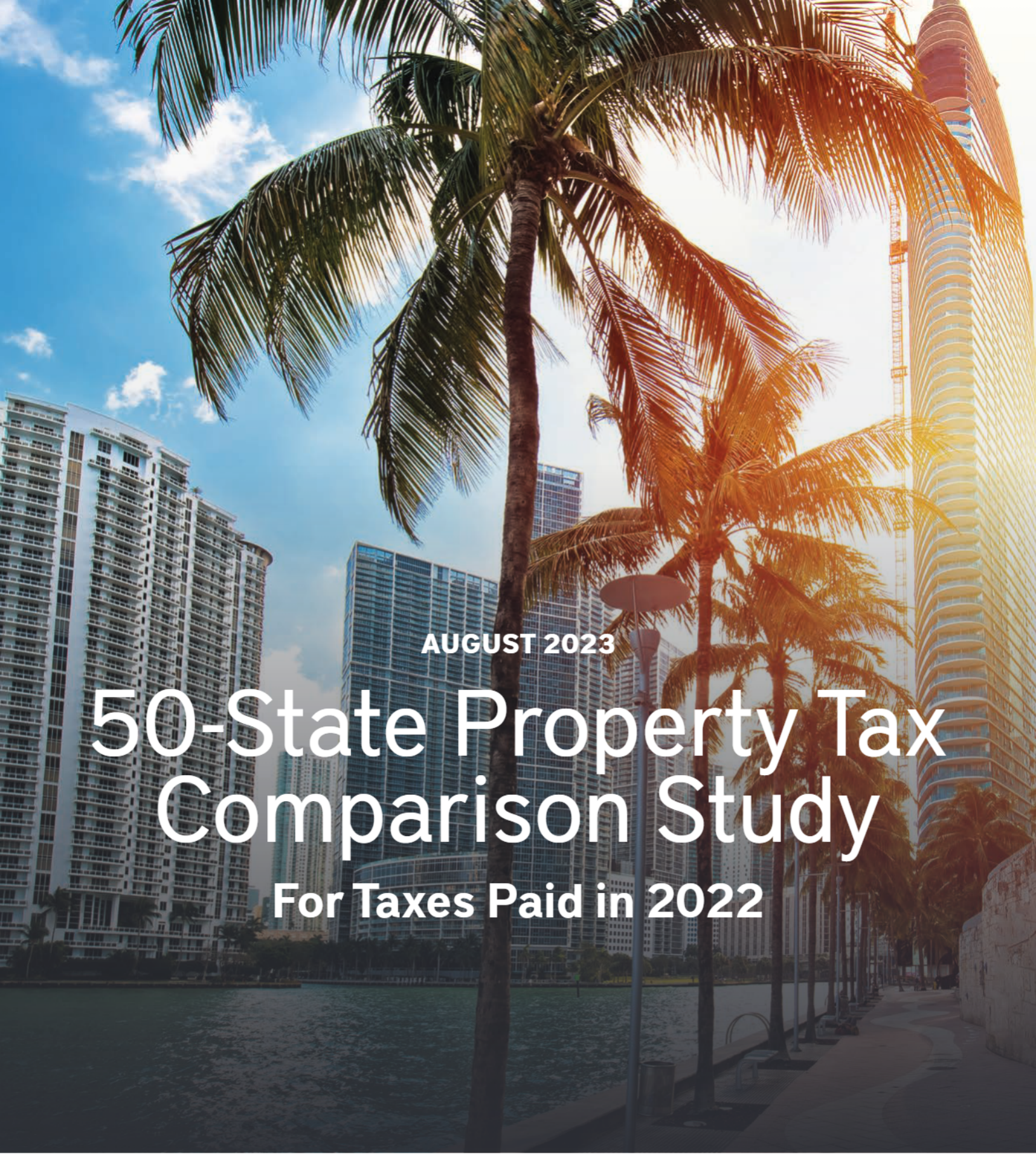

AUGUST 2023

50-State Property Tax Comparison Study

For Taxes Paid in 2022

LINCOLN INSTITUTE
OF LAND POLICY

MINNESOTA CENTER for
Fiscal Excellence
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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: 1) heavy property tax reliance with low sales and income taxes; 2) low home values that drive up the tax rate needed to raise enough revenue; or 3) higher local government spending and better public services. In addition, some cities operate in an environment where the state uses 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 74 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 nearly 50 percent higher in Birmingham ($3,318 vs. $2,281 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 $3,489. To raise that amount from a median valued home, the effective tax rate would need to be 20 times higher in Detroit than in San Francisco—5.03 percent versus 0.27 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 1.32 percent in 2022 for this group of 53 cities.[1] At that rate, a home worth $200,000 would owe $2,642 in property taxes (1.32% x $200,000). On the high end, there are four cities with effective tax rates that are at least two times higher than the average—Bridgeport (CT), Aurora (IL), Newark, and Detroit. Conversely, there are seven cities where tax rates are half of the study average or less—Honolulu, Charleston (SC), Boston, Denver, Salt Lake City, Boise, and Cheyenne (WY).

Highest and Lowest Effective Property Tax Rates on a Median Valued Home (2022)

Highest Property Tax Rates				**Lowest Property Tax Rates**			
1	Detroit (MI)	3.21%	*Why:* Low property values	49	Salt Lake City (UT)	0.58%	*Why:* Low property tax reliance, Classification shifts tax to business
2	Newark (NJ)	3.20%	*Why:* High property tax reliance	50	Denver (CO)	0.52%	*Why:* Low property tax reliance, classification, high home values
3	Aurora (IL)	3.04%	*Why:* High property tax reliance	51	Boston (MA)	0.49%	*Why:* High home values, Classification shifts tax to business
4	Bridgeport (CT)	3.04%	*Why:* High property tax reliance	52	Charleston (SC)	0.44%	*Why:* Classification shifts tax to business, High home values
5	Portland (OR)	2.59%	*Why:* Assessment limit shifts tax to newly built homes	53	Honolulu (HI)	0.29%	*Why:* High home values, low local gov't spending, classification

Note: Data for all cities: Figure 2 (page 19), Appendix Table 1a (page 51), and Appendix Table 2a (page 59).

The average effective tax rate for these 53 cities fell 0.6 percent between 2021 and 2022, from 1.330 percent to 1.321 percent. From 2021 to 2022, significantly more cities had decreases (33) than increases (19). Providence led the way with an effective tax rate decrease of over 35 percent from 2021 to 2022, due to a 27 percent decrease in the city's mill rate and an increase in the city's homestead exemption from 40 to 45 percent of value.

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, Los Angeles and Wichita (KS) have similar effective tax rates of 1.16 and 1.17 percent on median valued homes, but because the median valued home is worth so much more in Los Angeles ($812k vs. $166k), the tax bill is far higher in Los Angeles (3rd highest) than in Wichita (48th highest).

[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.

Effective tax rates rise with home values in about half of the cities (24 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 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, Atlanta, Washington (DC), New Orleans, and Philadelphia.

Commercial Property Taxes

There are also significant variations across cities in commercial property taxes, which include taxes on office buildings and similar properties. In 2022, the effective tax rate on a commercial property worth $1 million averaged 1.836 percent across the largest cities in each state. The highest rates were in Detroit and Chicago, where effective tax rates remain more than twice the average for these 53 cities. On the other hand, rates were less than half of the average in Cheyenne (WY), Boise, Charlotte, Seattle, and Honolulu.

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

Highest Property Tax Rates				**Lowest Property Tax Rates**			
1	Chicago (IL)	4.00%	*Why:* High local gov't spending, Classification shifts tax to business	49	Honolulu (HI)	0.91%	*Why:* High property values, Low local gov't spending
2	Detroit (MI)	3.91%	*Why:* Low property values	50	Seattle (WA)	0.79%	*Why:* High property values, Low property tax reliance
3	Providence (RI)	3.34%	*Why:* High property tax reliance	51	Charlotte (NC)	0.76%	*Why:* Low property tax reliance
4	Bridgeport (CT)	3.04%	*Why:* High property tax reliance	52	Boise (ID)	0.66%	*Why:* Low local gov't spending, High property values
5	Des Moines (IA)	2.86%	*Why:* Low property values, High property tax reliance	53	Cheyenne (WY)	0.60%	*Why:* Low property tax reliance

Note: Analysis includes an additional $200k in fixtures (office equipment, etc.).
Data for all cities: Figure 3 (page 24), Appendix Table 1b (page 54), and Appendix Table 3a (page 75).

The average commercial tax rate for the 53 cities fell 1.4 percent between 2021 and 2022, as 33 cities saw declines versus 19 cities with increases.

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 percent effective tax rate on commercial properties and a 1.5 percent 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 1.83, meaning that on average commercial properties experience an effective tax rate that is 83 percent higher than homesteads. About 30 percent (16 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 led by Charleston (SC) at 5.7.

Preferential Treatment of Homeowners: Ratio of Effective Tax Rate on Commercial and Apartment Properties to the Rate on Homestead Properties (2022)

Commercial vs. Homestead Ratio			Apartment vs. Homestead Ratio		
1	Charleston (SC)	5.69	1	Charleston (SC)	5.69
2	Boston (MA)	4.36	2	New York (NY)	4.24
3	Denver (CO)	4.11	3	Jacksonville (FL)	3.44
4	Honolulu (HI)	3.72	4	Indianapolis (IN)	2.39
5	Providence (RI)	3.62	5	Jackson (MS)	2.18

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. Ratios compare taxes on real property and exclude personal property.
Data for all cities: Figures 6a, 6b (pages 37–38), Appendix Table 6a (page 101), and Appendix Table 6b (page 103).

The average apartment-homestead classification ratio is significantly lower (1.44), with apartments facing an effective tax rate that is 44 percent higher than homesteads on average. There are seven cities where apartments face an effective tax rate that is more than double that for homesteads, with Charleston (SC) as the biggest outlier where the rate for apartments is 5.7 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 four 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, exemptions and credits, and differences in assessment limits. In total, 40 of the 53 cities have statutory preferences that favor homesteads over commercial properties. Above that, 21 of these 40 cities benefit homeowners using at least two of these four statutory preferences in 2022. In 10 cities, preferential treatment for homeowners is delivered through exemptions or credits alone, while in 9 cities preferences are delivered exclusively through differences in assessment ratios or nominal tax rates. Similarly, 36 cities have statutory preferences favoring homesteads relative to apartments, but only 12 offer more than one preference. Eight cities have preferential assessment ratios and/or nominal tax rates only, while 16 cities offer homestead 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 for median valued homes by calculating the difference in taxes between newly purchased homes and homes that have been owned for the average duration in each city. For example, in Los Angeles, the average home has been owned for 15 years and the median home value is $812,800. Because of the state's assessment limit, someone who has owned their home for 15 years would pay 53.8 percent less in property taxes than the owner of a newly purchased home, even though both homes are worth $812,800.

The largest discrepancy is in Jacksonville (FL), where the owner of a newly purchased, median-valued home would face an effective tax rate 64 percent higher than the owner of an equally valued home purchased in 2010. Assessment limits reduce taxes by 60 percent or more in two other cities (Miami and Sacramento), 50 to 60 percent in seven cities (New York City, five California cities, and Phoenix), 40 to 50 percent in another five cities, and 30 to 40 percent in an additional two cities. Of the 30 cities in this report that are affected by parcel-specific assessment limits, new homeowners face higher property tax bills than existing homeowners in 29 cities and their tax bills are at least 30 percent higher in 17 of those cities. Only Chicago, which essentially resets every three years, did not shelter any homeowner value in 2022. In Texas, where prior versions of this report have usually found that the assessment limit law did not have an effect on the median value home with average duration of ownership, all seven cities sheltered some value—ranging from El Paso at 6.2 percent to Austin at 24.9 percent.

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

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[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.

This study calculates effective tax rates by analyzing several key features of each city's property tax system; it is not a parcel-level analysis of property tax liabilities. The Methodology section of this report provides details on how effective tax rates are calculated. First, data are collected for the key elements of property tax systems that determine effective tax rates:

- *Total local property tax rate*: The nominal tax rate that is most prevalent in the city for each class of property (a.k.a. statutory tax rate), including taxes paid to the state, city or township, county, school district, and special taxing districts.
- *Assessment ratio (a.k.a. classification rate):* The percentage of market value used to establish a property's assessed value. For example, a 60 percent assessment ratio means a $100,000 home would be taxed as if it were worth $60,000.
- *Sales ratio:* The sales ratio measures the accuracy of assessments by comparing assessed values to actual sales prices. For example, a 98 percent sales ratio means a $100,000 home would be "on the books" as if it were worth $98,000. This study uses a median or average sales ratio for all properties in each class in each city. The data come primarily

from sales ratio studies and sometimes from state equalization studies. Those studies are performed either by state government agencies or by contractors on behalf of state agencies and are usually publicly available.

- *Exemptions:* This study accounts for exemptions that reduce the amount of property value subject to taxation for the majority of properties in a class for each city. For example, a $20,000 exemption means a $100,000 home would be taxed as if it were worth $80,000.
- *Credits:* This study accounts for credits that reduce the tax bill for the majority of properties in a class for each city. For example, Arkansas has a $350 credit that reduces the tax bill by $350 for all homesteads in the state. The report also accounts for early payment discounts that can reduce tax bills in some cities.

With this information, it is possible to calculate typical tax bills in each city for four classes of property (residential, commercial, industrial, apartments) and several different market values:

$$\text{Net Tax Bill} = \{[(\text{Market Value x Sales Ratio}) - \text{Exemptions}] \text{ x Assessment Ratio x Tax Rate}\} - \text{Credits}$$

First the taxable value is determined, with the market value of the property adjusted using the sales ratio, then exemptions are subtracted, and then the assessment ratio is applied.[5] Next that taxable value is multiplied by the total property tax rate, and any credits are subtracted. Finally, the effective tax rate is calculated by dividing the net tax bill by the market value of the property.

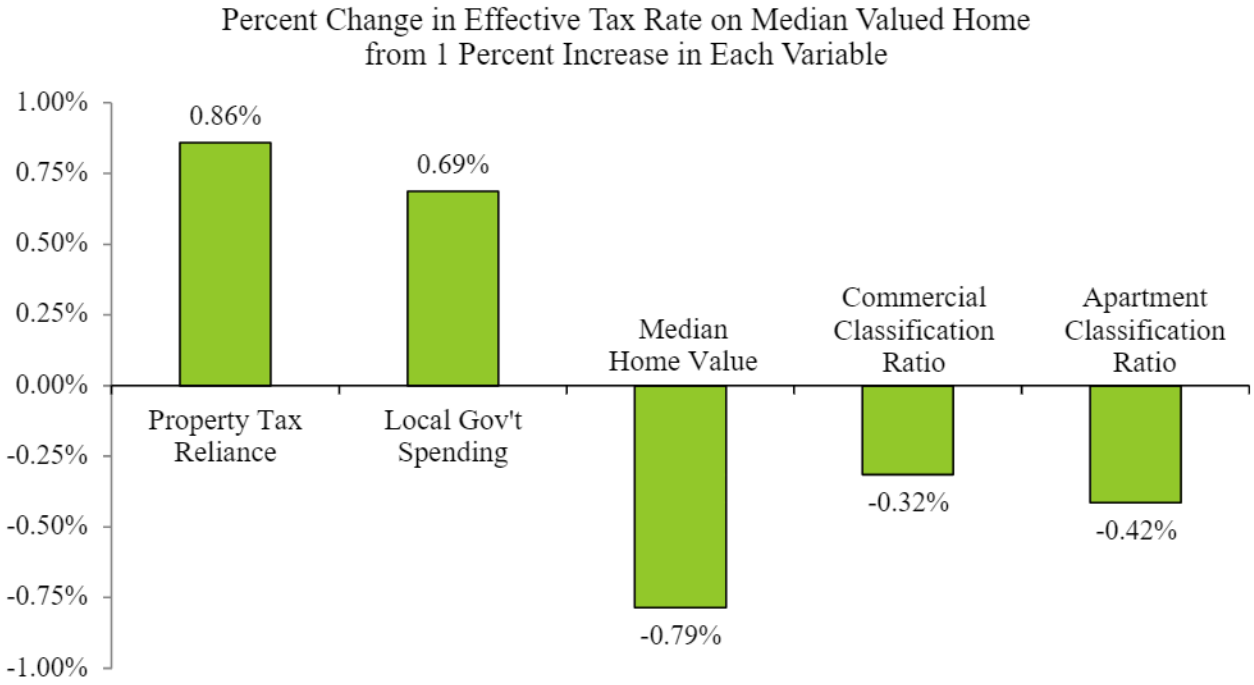
It is important to note that this study provides typical effective tax rates, assuming that the median or average sales ratio represents a typical value for all properties in each class. In practice, the accuracy of assessments varies across properties, so some parcels will have higher effective tax rates than reported in this study and some will have lower tax rates. In addition, this study does not account for exemptions or credits that are available for a minority of taxpayers in a city, such as exemptions available solely for seniors or veterans, or tax incentives available to just some businesses or homeowners.

[5] Note that exemptions based on assessed valued are subtracted after the assessment ratio is applied.

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 about two-thirds 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.[6] Cities

[6] 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, 21% of the variation in effective tax rates is explained by property tax reliance, 39% is explained by median home values, 7% by local government spending, 4% by the commercial-homestead classification ratio, and 4% by the apartment-homestead classification ratios.

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 share of revenue raised by local governments that comes from the property tax is associated with a 0.86 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 3rd 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 ($2,279 per capita), city residents pay no local sales or income taxes. In contrast, Birmingham has the 8th lowest effective tax rate on a median valued home, but also has the fourth lowest reliance on the property tax.[7] As a result, Birmingham residents have low property taxes ($1,059 per capita), but also pay a host of other taxes to local governments, including sales taxes ($1,200 per capita), income taxes ($471 per capita), and other local taxes ($587 per capita).[8] Consequently, total local taxes are almost 50 percent higher in Birmingham despite the fact that it has much lower property taxes than Bridgeport ($3,318 per capita vs. $2,281 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.[9]

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.[10]

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 0.79 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—$1,306,400 and $69,300 respectively. After accounting for assessment limits, the average property tax bill on a median valued home in the 74 large cities in

[7] Appendix Table 1a.
[8] Data on per capita tax collections in 2020 is from the Lincoln Institute's *Fiscally Standardized Cities* database.
[9] 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.
[10] https://www.lincolninst.edu/research-data/data-toolkits/fiscally-standardized-cities

this report is $3,489. To raise that amount from a median valued home, the effective tax rate would need to be nearly 20 times higher in Detroit than in San Francisco – 5.03 percent versus 0.27 percent. The effective tax rate on a median valued home is actually just 1.9 times higher in Detroit than San Francisco (1.71% vs. 0.90%), which means San Francisco collects ten times more in property taxes from a median valued home ($11,756 vs. $1,183). 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.[11] 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 0.69 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.[12]

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[11] Ernst & Young LLP and Council on State Taxation. 2017. "Total State and Local Business Taxes: State-by-State Estimates for Fiscal Year 2016." Pg. 15-18.

[12] 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 0.32 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 0.42 percent decrease.

Charleston (SC) has the highest classification ratio for apartment buildings relative to homesteads, and the highest commercial-homestead classification ratio. This means that commercial buildings and apartments are taxed at a dramatically higher percentage of market value than owner-occupied residences. In Charleston, a $1 million commercial property and a $600,000 apartment building both face effective tax rates on their land and buildings that are 5.69 times higher than a median valued home. As a result, among the largest cities in each state, Charleston has the 20th highest tax rate on apartments and the 26th highest rate on commercial properties, but the lowest tax rate on a median valued home after accounting for assessment limits.[13] Such findings demonstrate that in Charleston, homeowners are heavily subsidized at the expense of renters and businesses.

The Charleston 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 0.51 percent increase in the commercial property tax rate, and a 1 percent increase in the apartment-homestead classification ratio is associated with a 0.30 percent increase in the apartment tax rate.[14]

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.[15] Since renters have lower incomes than homeowners on average, preferences given to

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[13] Appendix tables 2b, 5a, and 3a.

[14] 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; the R-square is similar (0.6111) and each variable has the same level of statistical significance as in Appendix table 1d with the exception that the coefficient on the apartment-homestead classification ratio is also significant at the 1% level.

[15] 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.

homesteads relative to apartment buildings will tend to make the property tax system more regressive.

Other Factors

The four key factors described above explain more than two-thirds 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.[16]

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.

[16] 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 1.321 percent. At that rate, a home worth $200,000 would owe $2,642 in property taxes (1.321% x $200,000).

Tax rates vary widely across the 53 cities. The four cities at the top of the chart – Detroit, Newark, Aurora (IL), and Bridgeport (CT) – have effective tax rates on a median-valued home that are more than two times higher than the 53-city average. In four other cities, the effective property tax rate is between 1.5 and 2 times the average. Conversely, the bottom seven cities – Honolulu, Charleston (SC), Boston, Denver, Salt Lake City, Boise, and Cheyenne (WY) – 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 2021 and 2022, from 1.330 percent of value to 1.321 percent. The effective tax rate on the median-valued homestead climbed in 19 cities and fell in 33 cities, with one city (Las Vegas) exhibiting no change.

The largest decrease was 35 percent in Providence, which was due to a 27 percent mill rate reduction and an increase in the city's homestead exemption from 40 to 45 percent of value.

Note that a few cities saw unusually large increases or decreases in effective tax rates the past two years due to fluctuations in sales ratios from 2020 to 2022. Given the COVID-19 pandemic and rapid rise in home values in many areas, this time period posed significant challenges in accurately assessing property values for tax purposes. In the text of this year's report, we have tried to draw extra attention to cities like Providence where large changes in effective tax rates were driven by deliberate policy changes (mill rates, exemptions and credits, and assessment ratios). We have chosen not to highlight large changes in effective tax rates driven by fluctuations in sales ratios since many of these changes will be transitory, but interested readers can find changes in every city's ranking in the appendix tables.

Six other cities had effective tax rate decreases between 10 and 16 percent. In Milwaukee, mill rates dropped 10.2 percent, and coupled with an increase in the state's lottery and gaming credit, produced an 11.7 percent decrease in the effective tax rate on a median valued home.

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, Los Angeles and Wichita have similar tax rates on a median valued home, but because the median valued home is worth so much more in Los Angeles ($812k vs. $166k), the tax bill is far higher in Los Angeles (3rd highest) than in Wichita (48th 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 below shows cities with the largest differences in their ranking in terms of effective tax rates versus tax bills on a median valued home.

Cities with Largest Differences in Ranking on Effective Tax Rate vs. Tax Bill for a Median Valued Home (2022)

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**
Seattle (WA)	43	8	Detroit (MI)	1	45
Washington (DC)	44	11	Jackson (MS)	23	52
Los Angeles (CA)	29	3	Buffalo (NY)	15	43
Boston (MA)	51	25	Wichita (KS)	28	48
New York (NY)	25	4	Des Moines (IA)[17]	10	26

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 in Jacksonville (FL), New York City, Los Angeles, Phoenix, and Detroit. Overall, accounting for assessment limits reduces the average property tax bill for the 53 cities by 9.2 percent.[18] 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 nearly half of the time (24 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.[19] 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 2022 offered a homestead exemption equal to the lesser of $303,787 or 90 percent of a property's market value. This results in ultra-low effective tax rates of 0.098% on a $150,000 home and on a $300,000 home, and 0.49% for a median-valued home ($659,700). Other cities with the largest differentials in the effective rates between a $150,000-valued and a $300,000-valued home also offer substantial homestead exemptions: Honolulu ($100,000 exemption), New Orleans (effectively $75,000 of market value), Washington, DC ($78,700 exemption), and Philadelphia ($45,000 exemption). Readers should use some caution when interpreting the

[17] In addition to Des Moines, two other cities are 16 places apart between tax rate and tax bill: Little Rock, AR (30; 46) and Wilmington, DE (21; 37).
[18] In the previous year, assessment limits reduced the average property tax bill for the 53 cities by 7 percent. Last year's report incorrectly reported the decrease as 9.5 percent.
[19] 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).

results in Appendix Tables 2c, 2f, and 2h; see the box on comparing property taxes calculated with fixed property values (page 23).

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 nine cities, Texas has seven, Arizona has three, and five states have two cities each (CO, FL, NC, OK, and TN). There are 22 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).

This year, the average effective tax rate for median valued homes in the 50 largest cities (Table 2d at 1.349%) exceeds the rate for the largest cities in each state (Table 2a at 1.321%) by 2.1 percent. When comparing median value homes after accounting for assessment limitations, however, the 50 largest cities drop to 14% below the group of largest cities in each state, with an average effective tax rate of 1.054% (Table 2e) compared to 1.200% (Table 2b). This is because 27 of the 50 largest cities in the country saw reductions from assessment limits in 2021, and only 11 cities of the 53 that make up the largest cities in each state did so.

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 nine California cities, the highest effective tax rate is Oakland (18th highest) and the lowest is Sacramento (34th). California accounts for seven of the 11 cities ranked from 24th to 34th, with effective tax rates clustering in the 1.13 to 1.25 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), so Texas accounts for seven of the 12 cities ranked from 3rd to 14th. 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 seven 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 16th highest tax rate (1.523%), while Nashville has the 43rd highest (0.814%) – a 27 place differential.
- In Florida: Miami has the 11th highest tax rate (1.623%) and Jacksonville has the 23rd highest tax rate (1.259%) – creating a 12-place differential between the cities.

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 1.257% for taxes paid in 2022, down significantly from 1.304 in 2021. As with large cities, the rates for rural municipalities vary considerably around that average. In two municipalities – Warsaw (NY) and Maurice River Township (NJ) – the effective tax rate on a median-valued home is double the average, despite the fact that both had effective tax rate decreases (Warsaw at 20.3% and Maurice River at 6.7%). The Warsaw decrease was driven by an 11 percent mill rate reduction and only two rural cities had a greater percentage decrease overall from 2021 to 2022.

In contrast, ten municipalities feature effective tax rates of less than half the average, with the lowest rates in Kauai (HI), Monroeville (AL), Saint Anthony (ID), Pocahontas (AR), and Georgetown (DE). The largest decrease was Saint Anthony at 46 percent due to a 21 percent mill rate reduction and a decrease in the city's sales ratio.

The largest increase took place in Galena (IL) at 17.7 percent driven by a 9.3 percent mill rate increase, moving Galena up from 11th to 5th in rural city rankings on a median value home. An increase in the city's sales ratio also contributed to the overall increase.

Comparing Tables 2a and 2g shows that effective tax rates on median-valued homesteads are almost 6 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 29 states, the effective tax rate on the median-valued home is higher in the largest city than in the rural municipality.[20] Arkansas had the biggest difference in 2022; the 1.14 percent rate in Little Rock is 2.9 times the 0.39 percent rate in Pocahontas. Five other states have a tax rate in the largest city that is at least two times higher than in the rural community: Delaware (2.7), Oregon (2.2), Connecticut (2.1), New Mexico (2.1), and Louisiana (2.0).

On the other hand, in 21 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 4.1 times higher than the rate in Boston (2.026% vs. 0.490%), largely because of Boston's unique (even within Massachusetts) homestead exemption. The only other state where the tax rate in the rural community is at least two times higher than the largest city is Rhode Island (where Hopkinton is 2.2 times the rate of Providence).

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

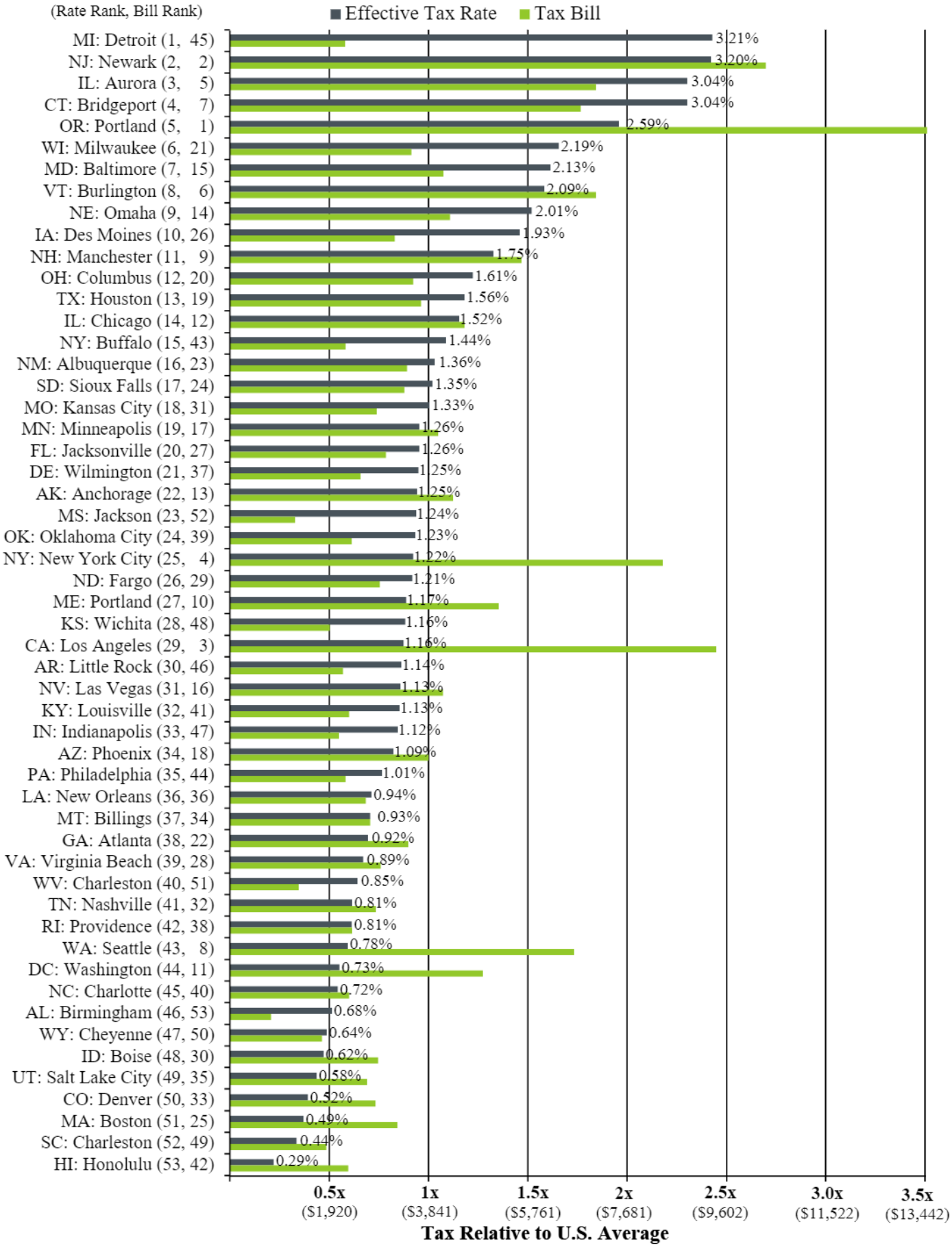
[20] Excluding Washington (DC), which has no rural analogue, and Chicago (IL) and New York (NY), which have property tax systems that differ substantially from those in the remainder of the state. In Illinois and New York, the differentials are calculated between the rural municipality and the state's second-largest city.

differences between the two largest cities in Tennessee, and to a lesser degree Florida, 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.[21] For example, in six states (Illinois, Michigan, Nebraska, 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. States where effective tax rates are among the ten lowest in both rural and urban settings are Alabama, Hawaii, Idaho, and Utah – suggesting that these states are most likely to have the lowest homestead property taxes.

[21] Rankings for large cities are adjusted to 1-50 to compare state systems and exclude Chicago, New York City, and Washington DC.

Figure 2: Property Taxes on Median Valued Home for Largest City in Each State (2022)



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 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.[22]

The average effective tax rate on commercial properties for the 53 cities in Figure 3 is 1.836 percent. A property worth $1 million with $200,000 in fixtures would thus owe $22,032 in property taxes (1.836% x $1.2m).

Tax rates vary widely across the 53 cities. Detroit and Chicago both had 2022 effective tax rates that were more than twice the average. Providence and Bridgeport (CT) were the only other cities with a tax rate over 3 percent. On the other hand, Cheyenne (WY), Boise, Charlotte, Seattle, and Honolulu have tax rates less than half of the average.

Only 17 cities had increases in effective tax rates on $1 million commercial properties in 2022. Three cities had a flat tax rate and 33 cities had decreases. The largest decrease was in Boise, at 32 percent. In Boise, mill rates decreased only 2.1% on both real and personal property and the sales ratio was stable. The big change was an additional $150,000 exemption on business personal property (in addition to the current $100,000 exemption) that effectively eliminates the $200,000 personal property tax for a $1 million property.

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 14 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 (1.076%, 46th highest), but is above average for commercial properties worth $25 million (1.987%, 21st 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

[22] For an analysis that looks at how effective tax rates vary between different types of commercial property, see "The Effects of State Personal Property Taxation on Effective Tax Rates for Commercial Property" by Aaron Twait, published by the Lincoln Institute of Land Policy (April 2018). The paper finds that average effective tax rates for payable 2016 exceeded 1.9% for hospitals, restaurants, and office space while wholesale trade facilities encountered rates roughly half as large. The paper also finds the current study assumptions realistically model the property taxes payable on the most common type of commercial property – office property.

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:

- Washington, DC (40th highest for $100k, 26th highest for $25m)
- Minneapolis (27th highest for $100k, 13th highest for $25m)
- Des Moines, IA (15th highest for $100k, 4th 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 nine cities, Texas has seven cities, Arizona has three cities, and six states (CO, FL, NC, OK, and TN) have two cities each. There are 22 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 rate for $1 million commercial properties is slightly higher for the largest city in each state (Table 3a) than for the 50 largest cities (Table 3b). Only 14 cities showed effective tax rate increases, Las Vegas remained flat, and 35 cities showed tax rate decreases.

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 nine cities, the highest tax rate is in Oakland (32nd highest) and the lowest is in Sacramento (44th). California accounts for 8 of the 10 cities ranked from 36th to 45th.
- For Texas's seven cities, the highest tax rate is in El Paso (3rd highest) and the lowest is in Austin (21st), while the other five cities are spread rather evenly between them.

Some states with just two or three cities in the study show significant variance in rates:

- In Tennessee: Memphis has the 13th highest tax rate, while Nashville has the 38th highest.
- In Arizona: Phoenix has the 19th highest tax rate, while neighboring Mesa has the 33rd 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 more than 9 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 1.66% for the rural cities versus 1.81% for the urban cities shown in Appendix Table 3a.[23] For

[23] Excluding Washington (DC), Chicago and New York City from the Table 3a average.

29 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.[24]

The state with the biggest difference in the effective tax rate between the largest city and the rural municipality is Delaware, where the rate on a commercial property worth $1 million in Georgetown is almost 60 percent lower than the rate in Wilmington (0.47% vs. 1.13%). Yet Wilmington does not rank high – 44th in urban cities – while Georgetown ranks 50th (lowest) among rural cities. Other states where the effective tax rate in the rural community is significantly lower than the largest city include Oregon (55% lower), Arizona (51% lower), New Mexico (49% lower), and Rhode Island (45% lower) – with Connecticut, Arkansas, and West Virginia all at 42% lower.

On the other hand, in 21 states the tax rate is higher in the rural municipality than in the largest city in the state. The biggest difference is in Maine, where the tax rate on a commercial property worth $1 million in Rockland is nearly twice the rate in Portland (2.43% vs. 1.24%). Rockland ranked 8th among rural cities in 2022 and Portland ranked 40th among urban cities. Other states where the tax rate in the rural municipality is significantly higher than the largest city include South Carolina (65% higher), Kansas (54% higher), North Carolina (44% higher), Montana (38% higher), and Washington (35% higher).

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 (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 larger differences between the 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 local property 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, three states (Indiana, Iowa, and Michigan) have at least one top ten ranking in both an urban and rural setting – suggesting that these states are most likely to have the highest commercial property taxes. Conversely, five states (Delaware, Hawaii, Idaho, Virginia and Wyoming) have bottom ten rankings in both urban and rural settings.

[24] Excluding Washington (DC), which has no rural analogue, and Chicago (IL) and New York (NY), which have property tax systems that differ substantially from those in the remainder of the state. In Illinois and New York, the differentials are calculated between the rural municipality and the state's second-largest city.

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. 5,000 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.

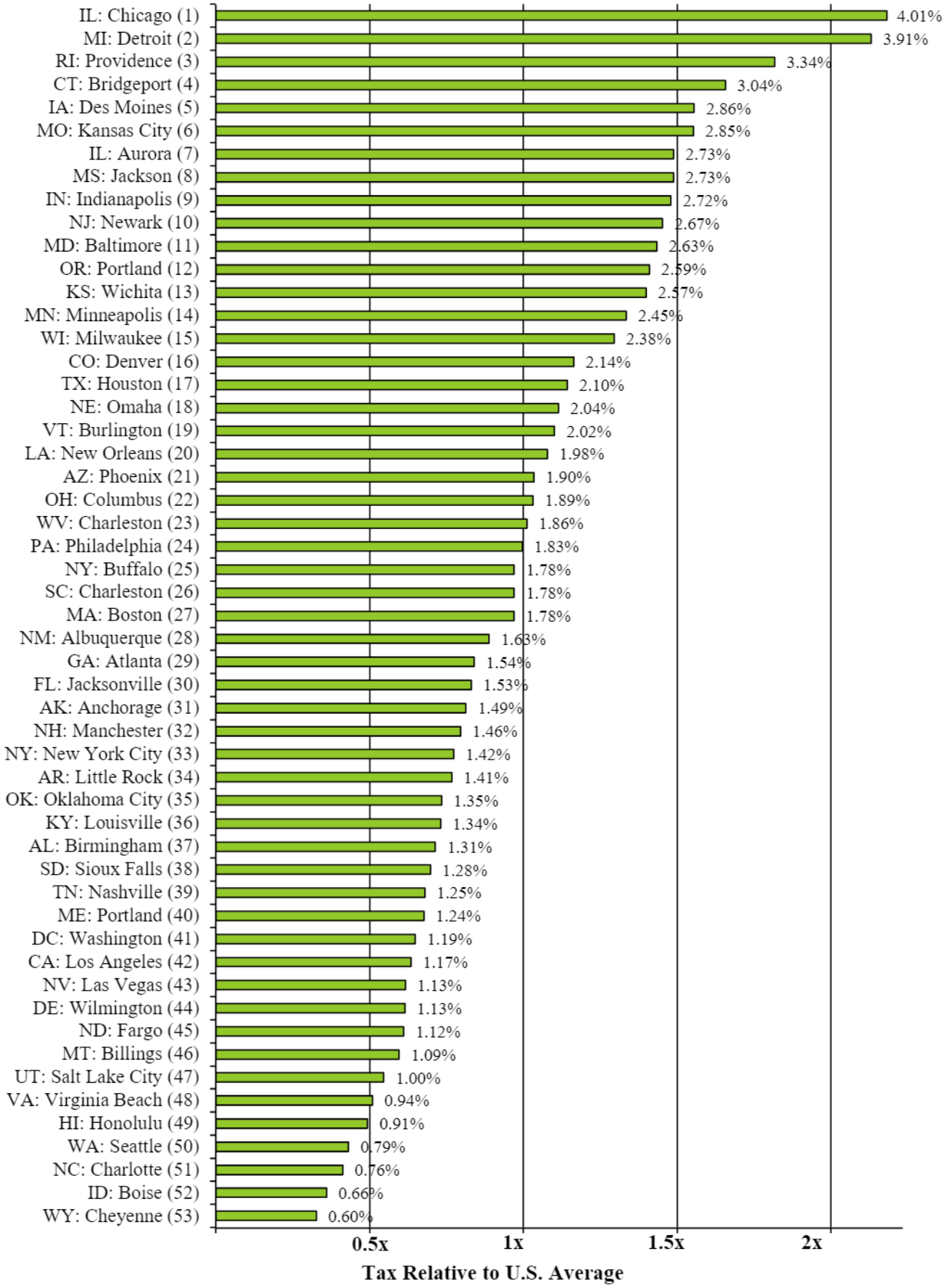
In addition, fixed property values are not problematic from the perspective of a real estate investor looking to invest a certain amount of money—whether it's a $1 million condo in New York or a $1 million apartment complex in Detroit.

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 2022 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 (2022)

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 23).

The average effective tax rate on industrial properties at this value for the 53 cities in Figure 4 is 1.346 percent. A parcel with a real property value of $1 million that has an additional $1 million in personal property would thus owe $26,920 in property taxes (1.346% x $2m total parcel value). For shorthand, this section refers to parcels based on their real property values.

Tax rates vary widely across the 53 cities. Jackson (MS) has a tax rate more than twice the average, while Chicago, Indianapolis, Detroit, Charleston (SC), and Kansas City (MO) all have effective tax rates that are at least 60% higher than the average for these cities. The bottom six cities of Virginia Beach, Honolulu, Boise, New York City, Seattle, and Charlotte all have tax rates that are less than half of the average.

Some cities had significant changes in their effective tax rates from 2021 to 2022.
As with commercial property taxes, the largest decrease among urban cities was Boise at 31 percent due to an increased personal property exemption up to $250,000. Phoenix decreased 12.7 percent due to a 6.3 percent mill rate decrease and increases in exempt property value and state coverage of school taxes. Milwaukee decreased 10.2 percent due to a corresponding mill rate decrease. In Albuquerque, a 16 percent mill rate increase led to a 10.8 percent increase in the effective tax rate.

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 an additional 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 one 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 an additional 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 an additional 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 29.8% for apparel manufacturers to a high of 69.1% for motor vehicle manufacturers. After applying state-specific weights for each manufacturing type, the median state has 54% of total industrial parcel value in personal property with the minimum amount being 50% (Massachusetts) and the maximum being 59% (Michigan).[25]

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

[25] 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: https://www.revenue.state.mn.us/tax-incidence-studies.

(0.714%, 42nd highest), but is substantially above average for industrial properties worth $25 million (1.787%, 12th 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 nearly 60% but by less than 1% for a property worth $25 million.

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

- Phoenix (29th highest for $100k, 10th highest for $25m)
- Philadelphia (49th highest for $100k, 32nd highest for $25m)
- Minneapolis (36th highest for $100k, 21st highest for $25m)
- Des Moines (28th highest for $100k, 13th highest for $25m)
- Billings, MT (46th highest for $100k, 35th 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 nine cities, Texas has seven cities, Arizona has three cities, and five states (CO, FL, NC, OK, and TN) have two cities each. There are 22 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 5.7 percent higher for the 50 largest cities (see Table 4c) than the largest city in each state (see Table 4a) for a $100,000 property, and 7.2 percent higher for real property worth $1 million or $25 million.

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 nine cities, the highest tax rate is in Oakland (33rd highest) and the lowest is in Bakersfield (44th). California accounts for 8 of 9 cities ranking between 36th and 44th place.
- For Texas's seven cities, the highest tax rate is in El Paso (highest among the 50 cities) and the lowest is in Austin (13th). Texas accounts for four of the top five cities.

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 9th highest tax rate (2.132%), while Nashville has the 32nd highest (1.139%).
- In Florida: Miami has the 18th highest tax rate (1.481%), while Jacksonville has the 29th highest (1.243%).

- In Arizona: Phoenix has the 16th highest tax rate (1.660%), while neighboring Mesa has the 31st highest (1.208%).

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 9.3 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 1.204 percent for the rural cities shown in Appendix Table 4e versus 1.346 percent for the urban cities shown in Appendix Table 4a. For 30 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.[26]

The state with the biggest difference in the tax rate between the largest city and the rural municipality is Delaware, where the tax rate on an industrial property worth $1 million in Georgetown is nearly 60 percent lower than the rate in Wilmington (0.282% vs. 0.678%). Other states where the tax rate in the rural municipality is significantly lower than the largest city include Oregon (55% lower), New Mexico (49% lower), Arizona (46% lower), Alabama (44% lower), and Alaska (43% lower).

On the other hand, in 20 states the tax rate is higher in the rural municipality than in the largest city in the state. The biggest difference is in Maine where Rockland is nearly twice the rate of Portland (1.335% vs. 0.683%). Other states where the tax rate in the rural municipality is significantly higher than the largest city include South Carolina (68% higher), Virginia (62% higher), Kansas (52% higher), and Washington (40% higher).

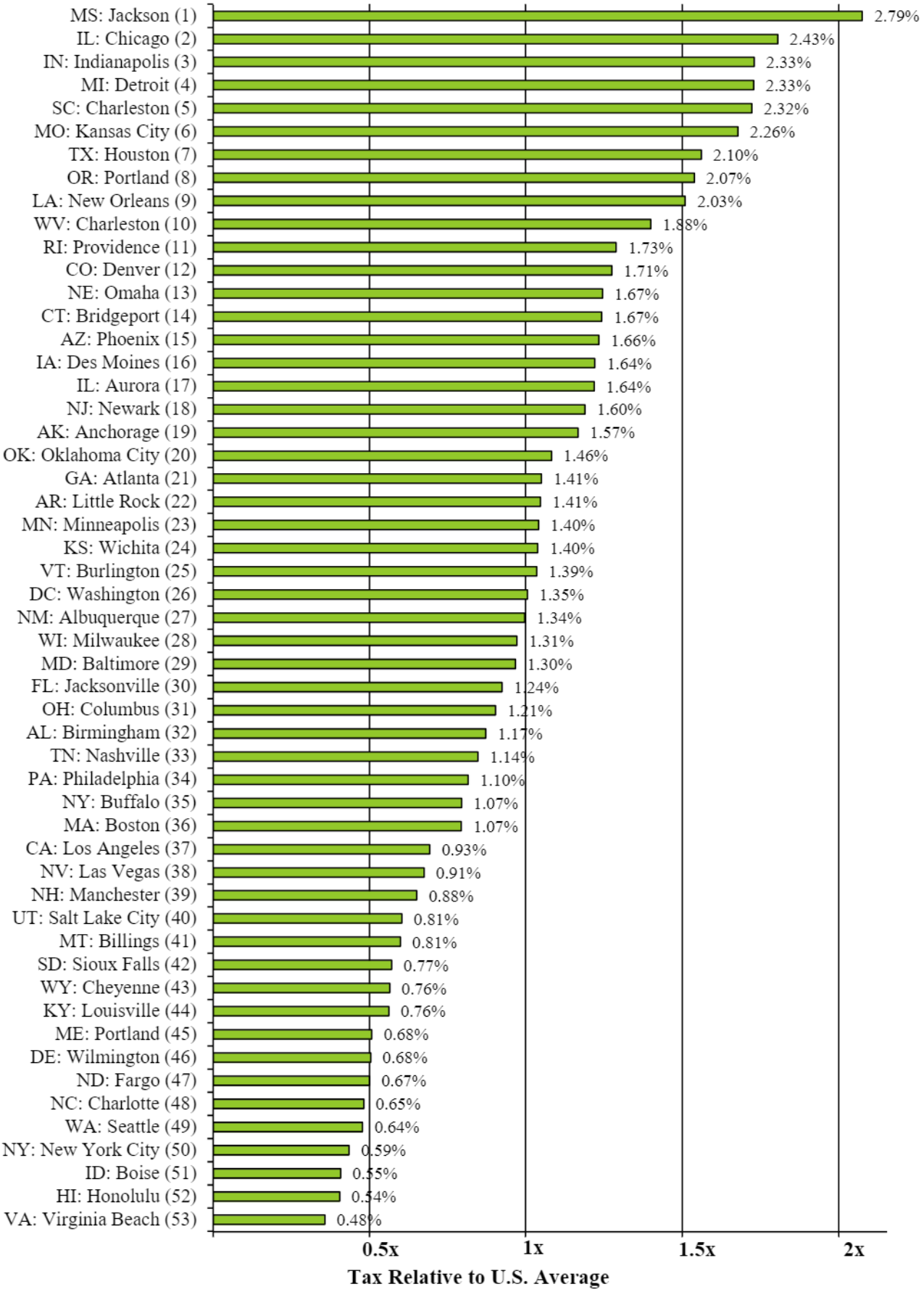
Some readers may want to use findings on effective tax rates from one specific table to reach conclusions on property taxes throughout an entire state. The small differences in tax rates across cities in California and Texas (Appendix Table 4c) show that the largest city in each state can serve as a proxy for property tax rates throughout an entire state. However, the large differences between the two or three largest cities in Tennessee, Florida, 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, five states (Indiana, Mississippi, 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 had bottom ten rankings in both urban and rural settings.

[26] Excluding Washington (DC), which has no rural analogue, and Chicago (IL) and New York (NY), which have property tax systems that differ substantially from those in the remainder of the state. In Illinois and New York, the differentials are calculated between the rural municipality and the state's second-largest city.

Figure 4: Industrial Property Taxes for Largest City in Each State (2022)

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 23).

The average effective tax rate on apartment properties for the 53 cities in Figure 5 is 1.577 percent. A property worth $600,000 with $30,000 in personal property would thus owe $9,935 in property taxes (1.577% x $630,000 total parcel value).

Tax rates vary widely across the 53 cities. The top city, Detroit, has an effective tax rate more than 2.5 times higher than the average for these cities, while Aurora (IL), Newark, and Bridgeport (CT) have effective tax rates nearly 2 times higher than the average. Conversely, there are nine cities where tax rates on apartments are less than half the average, with the lowest rates in Honolulu, Denver, Salt Lake City, Cheyenne (WY), Washington (DC), Virginia Beach, Charlotte, Boise, and Seattle.

Some cities had significant changes in their effective tax rates from 2021 to 2022. Six cities saw effective tax rates decline over 10 percent, led by Providence at 26 percent and Boise at 24 percent, with both declines due to mill rate reductions. Denver decreased 20 percent due to a temporary assessment ratio change. Milwaukee decreased more than 10 percent for apartments as it did for all property types. One notable increase was in Chicago, where the effective tax rate rose 24 percent due to an increase in the apartment assessment ratio from 6.15 percent to 8.44 percent, which was a more substantial increase than for residential, commercial, or industrial properties.

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 nine cities, Texas has seven cities, Arizona has three cities, and five states (CO, FL, NC, OK, and TN) have two cities each. There are 22 states without any cities in the top 50 shown in Table 5b.

The average effective tax rate for apartment properties is 1.9 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 much across the largest cities. For example, consider tax rates for apartment properties worth $600,000 in the two largest states:

- For California's nine cities, the highest tax rate is in Oakland (24th highest) and the lowest is in Sacramento (39th highest). There is a clustering effect as California accounts for 6 of the 7 cities ranked from 33rd to 39th.
- For Texas's seven cities, the highest tax rate is in El Paso (2nd highest) and the lowest is in Austin (16th). Texas accounts for four of the top seven cities.

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 5th highest tax rate (2.408%), while Nashville has the 26th highest (1.286%).
- In Arizona: Phoenix and Tucson have the 31st and 40th highest rates (1.240% and 1.131%, respectively), while Mesa has the 43rd highest (0.895%).

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 6 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 1.490% for the rural cities versus 1.577% for the large cities shown in Appendix Table 5a. For 26 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.[27]

The state where the tax rate for the rural municipality is the lowest compared to the rate for the largest city is Delaware, where the tax rate on a $600,000-valued apartment property in Georgetown is 63 percent lower than the rate in Wilmington (0.441% vs. 1.194%). Other states where the tax rate in the rural municipality is significantly lower than the largest city include Oregon (55% lower), Connecticut (51% lower), New Mexico (49% lower), Alabama (43% lower), Arizona (43% lower), and Arkansas (42% lower).

On the other hand, in 24 states the tax rate is higher in the rural municipality than in the largest city in the state. The biggest difference is in Massachusetts, where the tax rate on an apartment property worth $600,000 in Adams is taxed at more than twice the rate in Boston (1.935% vs. 0.935%). Other states where the tax rate in the rural municipality is significantly higher than in the largest city include Maine (95% higher), Kansas (87% higher), Hawaii (79% higher), South Carolina (65% higher), and North Carolina (48% higher).

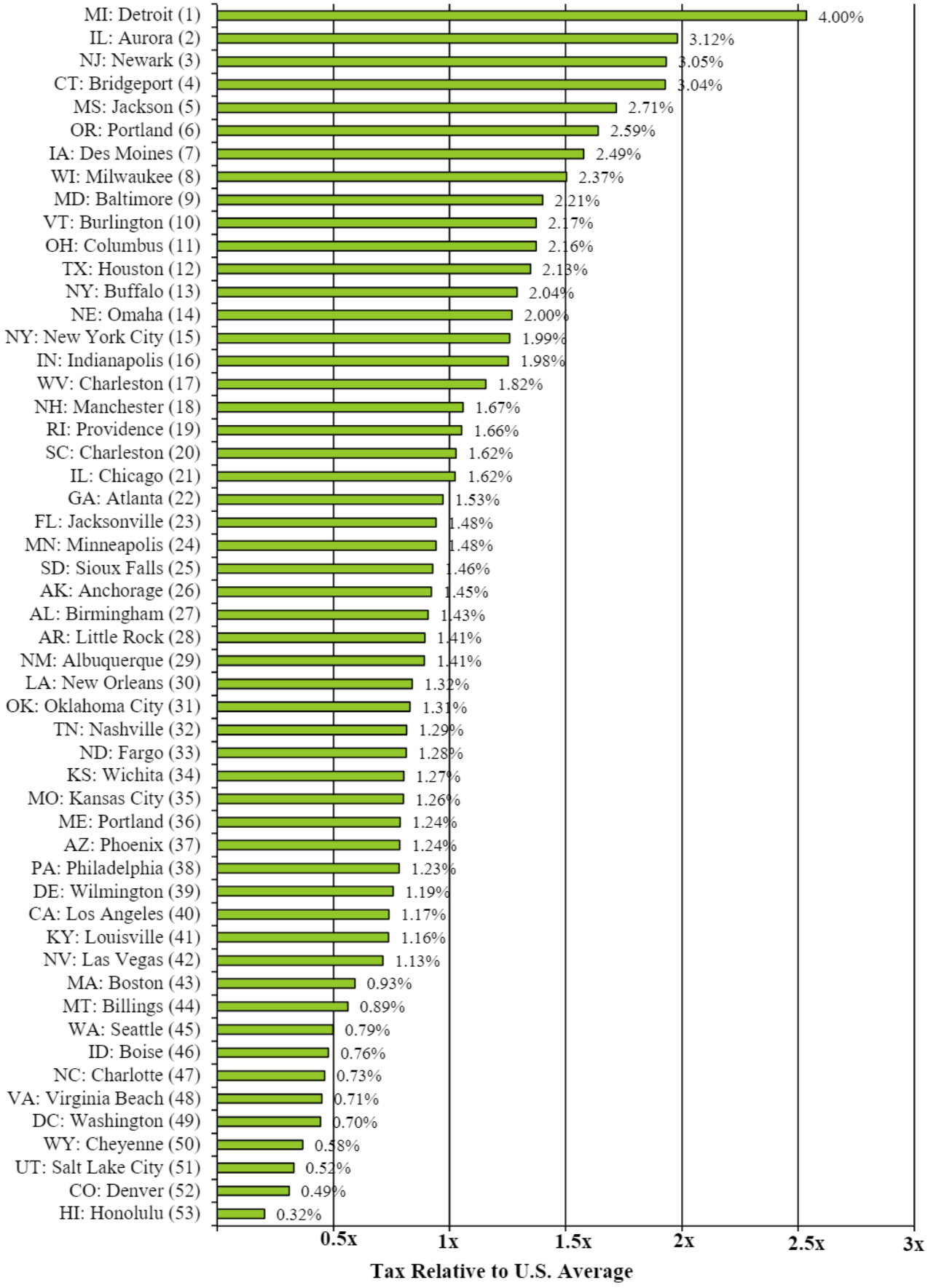
Some readers may want to use findings on effective tax rates from one specific table to reach conclusions on property taxes throughout an entire state. The small differences in tax rates across cities in California and Texas (Appendix Table 5b) show that the largest city in each state can serve as a proxy for property tax rates throughout an entire state. However, the larger differences between the 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, four states (Illinois, Iowa, Michigan, and New Jersey) 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.

[27] Excluding Washington (DC), which has no rural analogue. In Illinois and New York, the differentials are calculated between the rural municipality and the state's second-largest city.

Figure 5: Apartment Property Taxes for Largest City in Each State (2022)

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.[28]

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.[29]

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.

[28] 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.lincolninst.edu/subcenters/significant-features-property-tax/Report_Property_Tax_Classification.aspx).

[29] 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.[30] 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 1.803, which means that on average commercial properties experience an effective tax rate that is 80.3 percent higher than homesteads.

The commercial-homestead classification ratio varies widely across the 53 cities. Charleston (SC) is at the top with a classification ratio of 5.7. The next two cities of Boston and Denver have classification ratios greater than 4.0, and five more cities have classification ratios greater than 3.0 (Honolulu, Providence, New York City, Jacksonville, and Chicago). Thirty percent of the cities (16 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 four cities where the classification ratio is slightly below one, meaning the classification system favors commercial properties over homesteads: Baltimore, Cheyenne (WY), Las Vegas, and Virginia Beach. These property tax systems 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, 17 have a higher assessment ratio for commercial properties, 14 have a higher nominal tax rate on commercial properties, 27 have exemptions or credits that favor homesteads over commercial properties, and 6 offer homesteads parcel-specific assessment limits not available to commercial properties. Property tax systems often combine these features – in 21 of these cities homeowners benefit from at least two of these four features, and in Albuquerque, Charleston (SC), and Minneapolis, homeowners benefit from three of the four. In 11 cities, preferential treatment for homeowners is delivered through exemptions or credits alone, while in 9 cities preferences are delivered exclusively through differences in assessment ratios or nominal tax rates.

On average, tax disparities between commercial and homestead properties increased by 3.3 percent in 2022: increasing from 1.745 in 2021 to 1.803 in 2022. The number of cities with more than a 3.0 ratio increased from six to eight, while those with more than a 2.0 ratio decreased from 17 to 16 cities.

The classification ratio decreased in 24 cities. The large decrease in Boise (-0.360) was mainly due to an additional $150,000 exemption on business personal property, which includes apartment fixtures.

[30] See the methodology section for more detail on how these calculations are performed.

The commercial-homestead classification ratio increased in 20 cities, led by Charleston, SC (1.938) where a levy was increased that does not apply to homes; Providence, RI (1.125) where a homestead exemption was increased; and Jacksonville, FL (0.925) due to the increased impact of limited market value on homes. The classification ratio was unchanged in nine cities.

Figure 6c shows the longer-term picture, with trends in the commercial-homestead classification ratio going back to 1998. The ratio increased from 1.745 in 2021 to 1.803 in 2022. Locations where residential and commercial properties have "statutory classification"[31] and are treated differently in state law remained higher and increased at a similar rate to the overall average, from 1.979 to 2.065.

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.[32] 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 44 percent higher than homesteads on average. In most locations studied, the apartment-homestead classification ratio is smaller than or equal to the commercial-homestead classification ratio, with the exceptions of (in alphabetical order): Anchorage, Birmingham (AL), Detroit, New York City, and Burlington (VT).

Charleston (SC) and New York City are outliers in the apartment-homestead classification ratio, with effective tax rates on apartments that are 5.7 and 4.2 times higher than the median valued home. Jacksonville (FL) is 3.4 times higher, and another five cities are above 2.0: Indianapolis, Jackson (MS), Charleston (WV), Birmingham (AL), and Boston. On the other hand, there are six cities with a classification ratio below 1.0, with the lowest ratios in Virginia Beach, Cheyenne (WY), and Salt Lake City. The preference given to apartments in these cities is not the result of statutory provisions, but is simply the result of lower average sales ratios 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, 36 of the 53 cities have statutory preferences for homesteads relative to apartments, but only 12 offer more than one preference (Charleston, SC is the only city to offer three preferences). Eight cities have preferential assessment ratios and/or nominal tax rates only, while 16 cities offer homestead exemptions or credits alone.

On average, tax disparities between apartments and homesteads increased in 2022, rising from 1.362 in 2021 to 1.439 in 2022. The apartment-homestead classification ratio declined in 21 cities, with the largest drop in Boise (-0.360). The classification ratio increased in 21 cities, but

[31] 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.
[32] See the methodology section for more detail on how these calculations are performed.

generally at much higher magnitudes. The largest declines were in Charleston, SC (1.938); Jacksonville, FL (0.925); Albuquerque (0.227); and Little Rock (0.180)—the latter three of which were driven by the increased impact of limited market value on homes. As with the commercial-homestead ratios, relative changes in sales ratio often have the biggest impact in year-to-year changes in the apartment-homestead ratios.

Figure 6d provides information on how the apartment-homestead classification ratio has changed since 1998 with a historic high of 1.49 in 1998 and a historic low of 1.31 in 2018.

Figure 6a: Commercial-Homestead Classification Ratio for Largest City in Each State (2022)

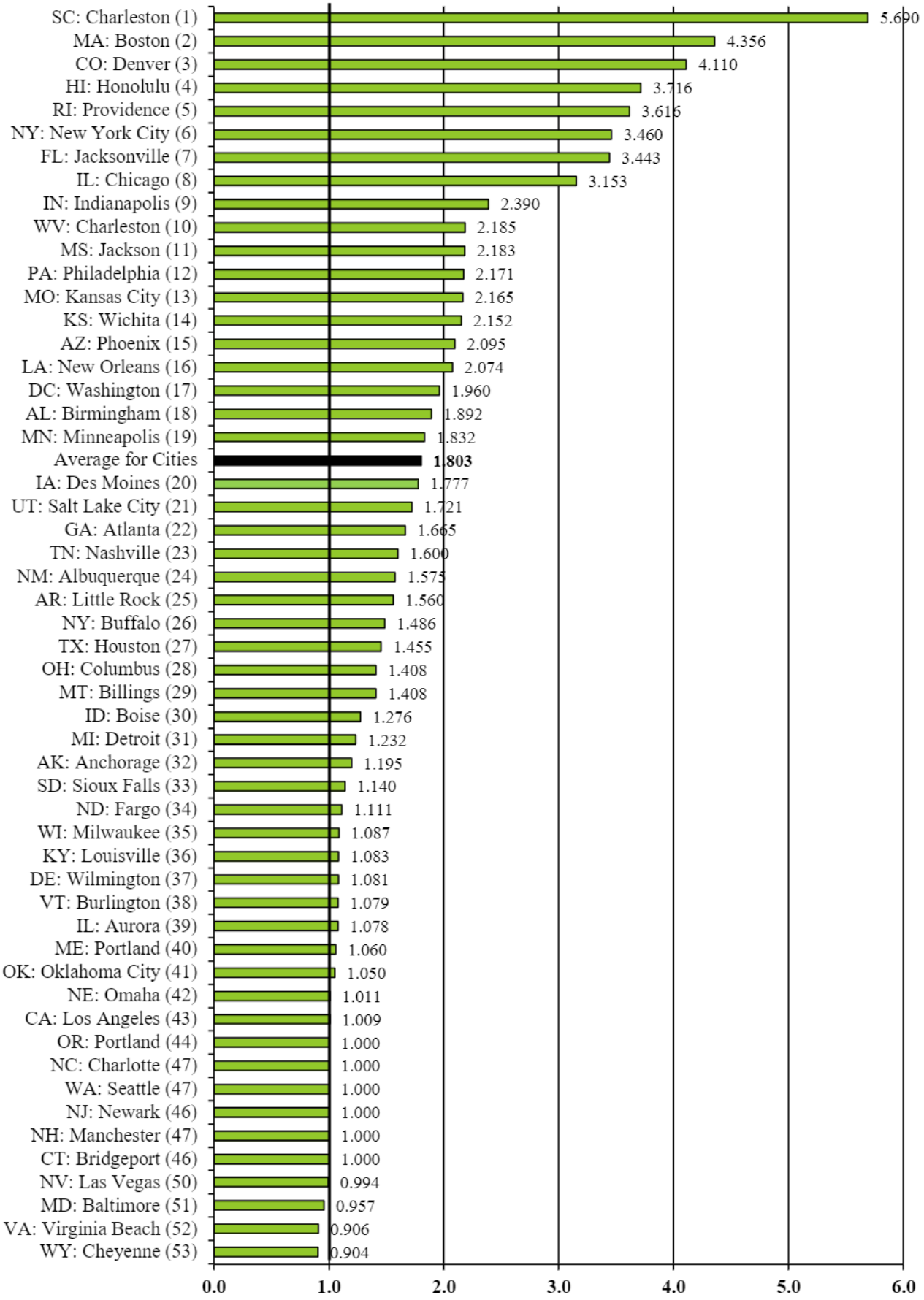


Figure 6b: Apartment-Homestead Classification Ratio for Largest City in Each State (2022)

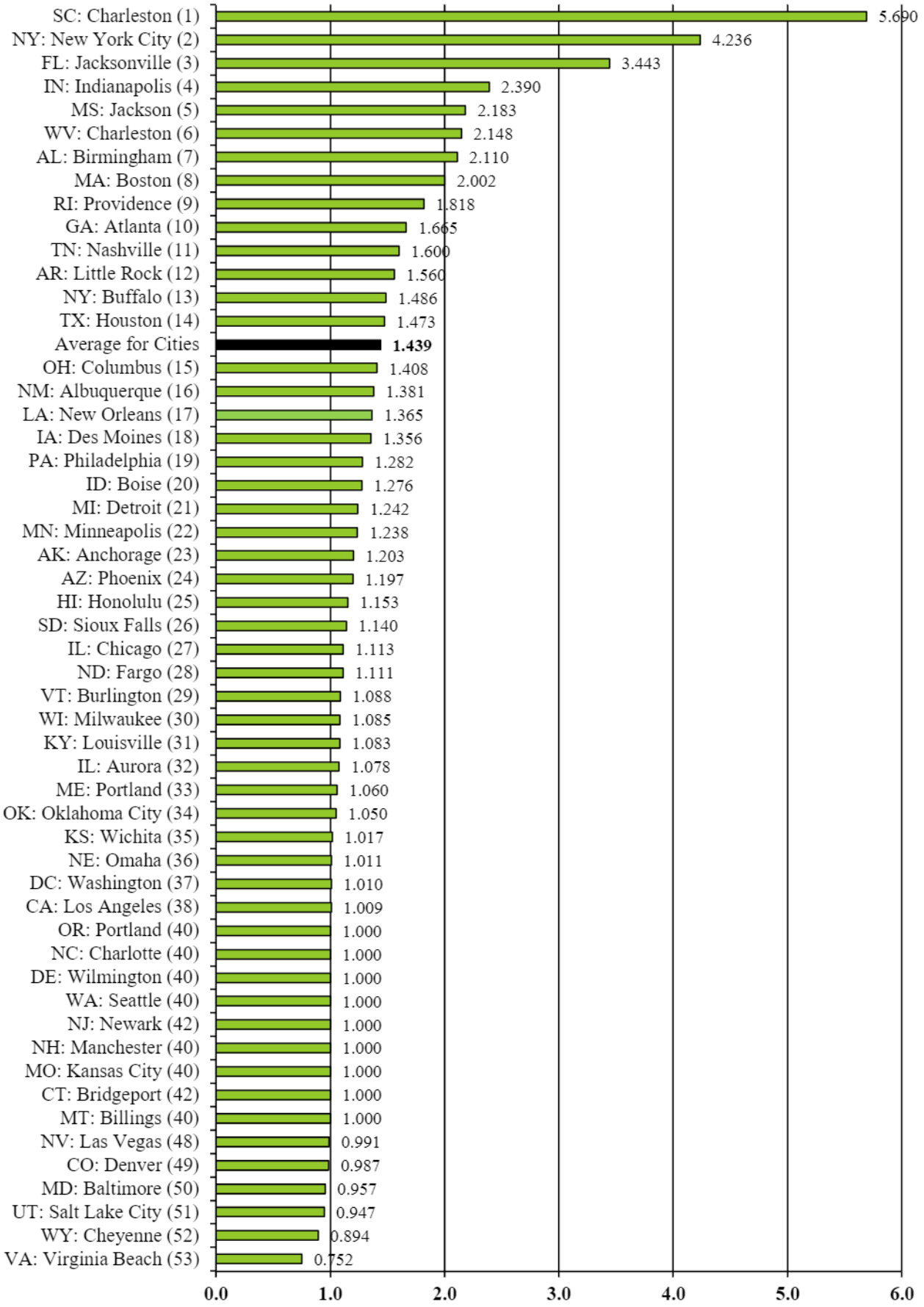
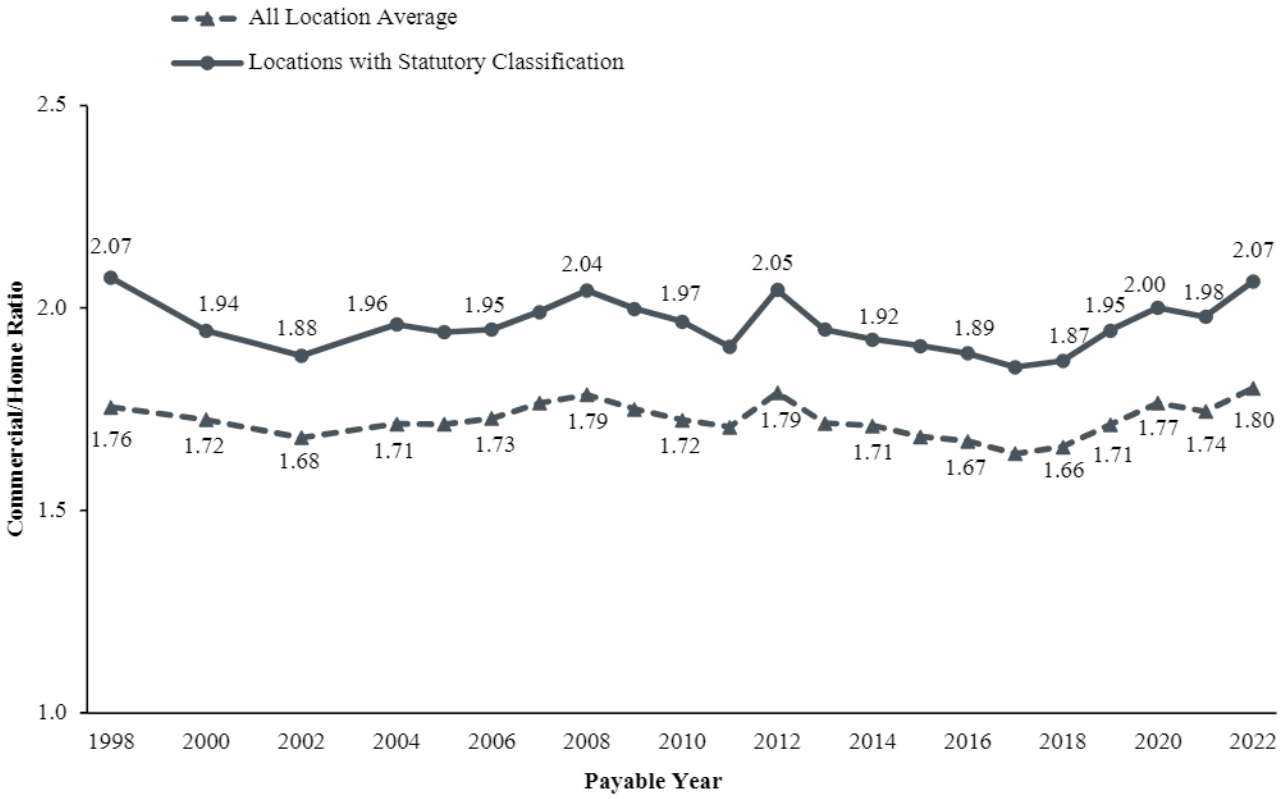


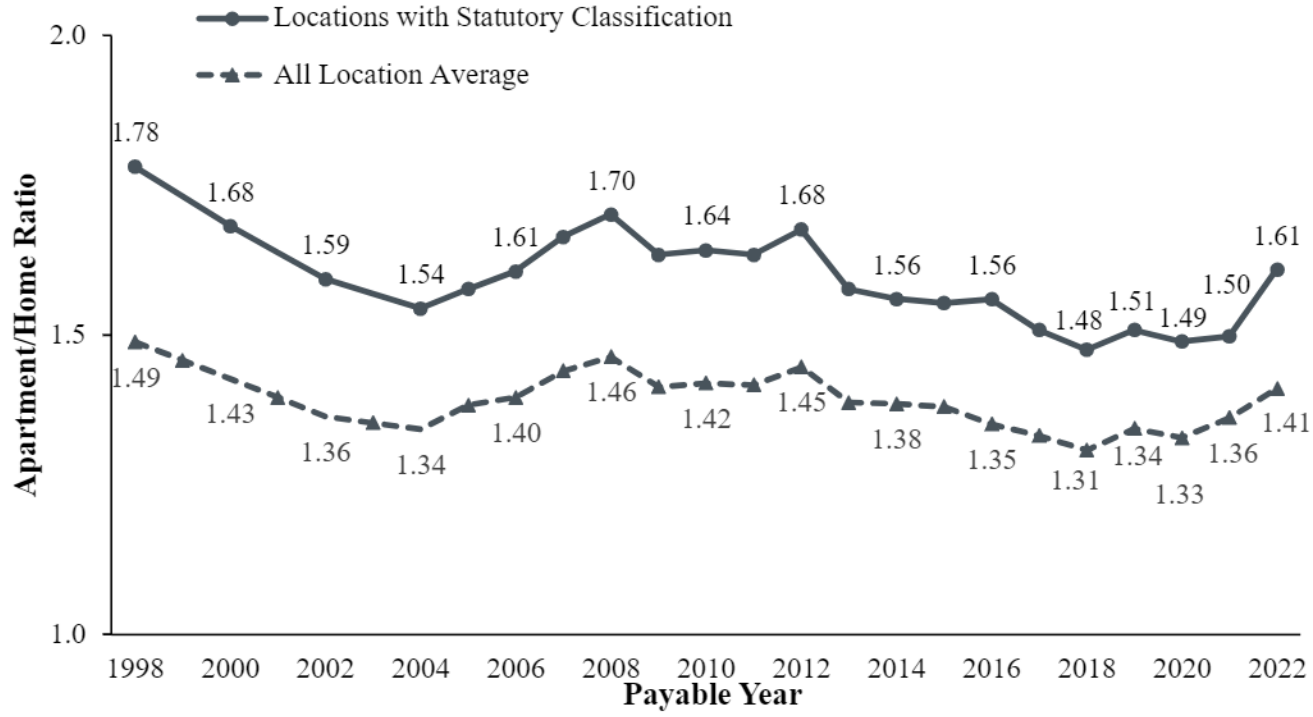
Figure 6c: Commercial-Homestead Classification Ratio for Largest City in Each State (1998 – 2022)



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. The identification of this group ignores the sales ratio.

Figure 6d: Apartment-Homestead Classification Ratio for Largest City in Each State (1998 – 2022)



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.[33]

There are many different types of property tax limits, including constraints on tax rates, tax levies, and assessed values.[34] This report accounts for the impact of these limits implicitly, because of how these laws impact cities' effective 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*.[35]

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).[36] 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 (New York City and Nassau County only), Oklahoma, Oregon, South Carolina, and Texas.

Figure 7 shows the impact of assessment limits for a median valued home in the 30 cities modeled. The impact of assessment limits varies widely across cities. The largest effect is in Florida, where a new homeowner in Jacksonville would pay 64 percent more in property taxes than someone who has owned their home for 12 years (the average duration of ownership in that city). There are nine other cities where a newly purchased median valued home would face an effective tax rate at least twice as high as the rate for an equivalently valued home that has been

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

[34] 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.

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

[36] Unlike most locales, assessment limits effective in New York City and Portland (OR) do not reset upon sale of a property. Therefore, for those two cities the duration of the assessment limitation is set to the lesser of the average age of an owner-occupied home (i.e. number of years since average home was constructed, which is 67 years in New York City and 65 years in Portland) or the period during which assessment limits have been in place (since 1981 in New York City and 1996 in Portland).

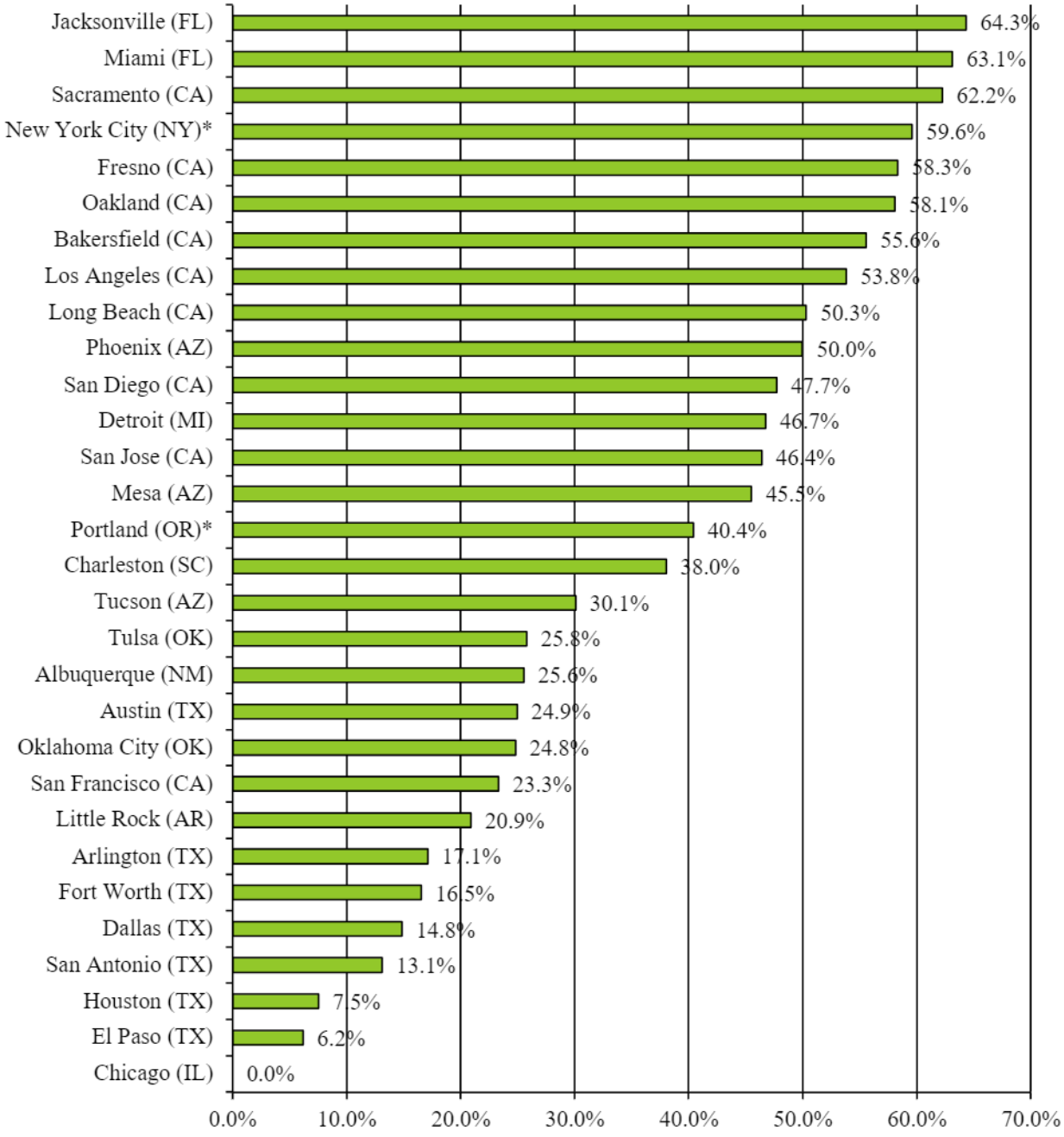
owned for the average duration in the city: Miami, Sacramento, New York City, Fresno, Oakland, Bakersfield, Los Angeles, Long Beach, and Phoenix. Assessment limits also have large impacts in San Diego, Detroit, San Jose, Mesa, and Portland (OR), where effective tax rates are 40 to 50 percent lower for homes that have been owned for the average duration compared to newly purchased homes. In contrast, assessment limits had a relatively smaller impact in Texas, where effective tax rates on newly purchased homes were 6 to 17 percent higher in six of the seven Texas cities in this report, with Austin seeing a larger 25 percent disparity.

Appendix Table 7 also shows the impact of assessment limits in terms of the dollar difference in taxes between newly purchased homes and homes subject to the average assessment limitation in each city for median valued homes. In 17 cities, the difference in tax bills is at least $1,000 – with differences reaching as high as $6,731 in Oakland. From 2019-2021, the average reduction in tax bills for all cities using assessment limits was just under 30 percent. In 2022, that average rose to 39 percent, largely because of the sharp rise in home values.

Accounting for assessment limits can lead to major differences in city 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). Jacksonville (FL) has the 20th highest effective tax rate for new homeowners but drops to 51st highest once adjusting for assessment limits. Other cities with large changes include New York City (25th to 49th); Los Angeles (29th to 47th); Phoenix (34th to 46th); Detroit (1st to 10th); Oklahoma City (24th to 32nd); and Portland, OR (5th to 12th).

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.

* New York City and Portland (OR) have unique assessment limits, because they do not reset when a property is sold like in other cities. For these cities, figure 7 shows the difference in property taxes on a newly-built home and a home built prior to the implementation of assessment limits (1981 in New York City; 1996 in Portland).
(See footnote 40 on page 49 for details on the methodology for these two cities)

Methodology

This study updates the *50-State Property Tax Comparison Study: For Taxes Paid in 2021*. 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:

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

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 x .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 a 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 to which properties may be subject.

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 and 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 2020 tax rate" as the rate used to calculate the property taxes with a lien date in 2020, 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"[37] 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 2021. We intend this comparison to show how differences in local real estate markets affect residential property taxes.

[37] 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 in 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-valued[38], 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.

[38] 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*.[39] 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 45.6% land and buildings (real property) and 54.4% personal property. Overall, the split ranges from 41.3% real/58.7% personal (Michigan) to 49.6% real/50.4% personal (Massachusetts).

PROPERTY CLASSES AND TRUE MARKET VALUES

Class	Values of Property				
	Real	**Mach. & Equip.**	**Inventories**	**Fixtures**	**Total**
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	$2,500,00	**$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.

[39] *Tax Incidence Studies* are available on the website of the Minnesota Department of Revenue: https://www.revenue.state.mn.us/tax-incidence-studies.

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 for 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: in most instances the model represents the experience of a homeowner with an "average" length of tenure.[40] Therefore, if the model returns no excluded value, then we assume that the provision does not apply to half or more of homeowners and thus does not apply.

[40] Except for New York City and Portland (OR), which have unique assessment limits that do not reset assessed values when a property is sold. To measure the impact of assessment limits in these cities, we compare the difference in effective tax rates on a newly-built home and a home built prior to the implementation of assessment limits (1981 in New York City; 1996 in Portland). The median home was built 63 years ago in New York City and 58 years ago in Portland. As a result, these cities have had growth in their assessed value constrained since the limits were implemented. The analysis compares a newly-built and older home with identical market values (the median valued home is $685,700 in New York City and $520,200 in Portland).

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.[41]

E. Classification Ratios

This report measures two "classification ratios" – the ratio of the effective tax rates between a median-valued home and the real portion of a $1 million commercial property ("commercial-homestead classification ratio") and between a median-valued home and the real portion of a $600,000 apartment property ("apartment-homestead classification ratio"). Both measures are designed to offer perspective on the level of homeowner tax preferences that are built into a property tax system. For example, a city with a 3% effective tax rate on commercial property and a 1.5% effective tax rate on homesteads will have a classification ratio of 2.0 – meaning that commercial property is taxed at twice the rate as homes are. A property tax system with no homeowner preferences will have a classification ratio of 1.0; in other words, the effective tax rates for homes will be the same as the rates for other types of properties.

In most of the property tax jurisdictions this report studies and reports on, parcel-specific assessment limitations either do not exist or else do not apply equally to all classes of property; such as California's Proposition 13 limit which restrict growth for any parcel in the state to 2% per year. For these properties, we calculate the classification ratio using homestead property tax burdens based on full market value taxation (Appendix Table 2a) to ensure similar assessment limitation treatment across properties in the same property tax systems.

However, there are seven property tax systems – Arkansas; Florida; Cook County, Illinois; New Mexico; New York, New York; South Carolina, and Texas – where assessment limitations either affect homesteads only, or are applied differently to different types of property. For cities located in these jurisdictions in the payable 2021 report we are calculating the classification ratio using the assessment limited homestead tax burdens (Appendix Table 2b) to reflect the reality that homesteads are subject to different value capping requirements than other types of property.

[41] 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)

		Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio		
State	City	Rank (1-74)	Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Rank (1-74)	Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Rank (1-74)
Alabama	Birmingham	54	0.68	67	-0.40	72	0.69	43	-0.05	23	8	-0.14
Alaska	Anchorage	26	1.25	7	0.54	27	-0.12	50	-0.10	43	33	0.09
Arizona	Mesa	71	0.42	49	-0.17	25	-0.13	64	-0.18	18	31	-0.05
Arizona	Phoenix	62	0.54	39	-0.10	24	-0.13	56	-0.13	20	34	-0.04
Arizona	Tucson	52	0.69	27	0.09	51	0.20	65	-0.21	19	32	-0.04
Arkansas	Little Rock	42	0.90	68	-0.42	61	0.32	58	-0.15	30	16	-0.01
California	Bakersfield	66	0.52	43	-0.13	36	-0.06	32	0.00	54	46	0.15
California	Fresno	65	0.52	37	-0.09	33	-0.06	21	0.08	55	47	0.15
California	Long Beach	59	0.58	59	-0.27	8	-0.64	9	0.25	58	52	0.15
California	Los Angeles	63	0.53	47	-0.16	5	-0.76	7	0.27	60	55	0.15
California	Oakland	61	0.57	58	-0.24	3	-0.79	4	0.45	61	56	0.15
California	Sacramento	70	0.43	65	-0.34	17	-0.32	14	0.12	56	49	0.15
California	San Diego	56	0.63	29	0.06	7	-0.72	29	0.01	59	54	0.15
California	San Francisco	43	0.90	57	-0.23	1	-1.12	2	1.06	63	58	0.15
California	San Jose	53	0.69	46	-0.15	2	-1.00	12	0.17	62	57	0.15
Colorado	Colorado Springs	72	0.40	53	-0.18	21	-0.21	52	-0.10	3	70	-0.31
Colorado	Denver	64	0.52	70	-0.43	12	-0.46	6	0.32	4	69	-0.31
Connecticut	Bridgeport	3	3.04	1	1.09	52	0.21	61	-0.16	64	59	0.15
DC	Washington	50	0.73	62	-0.29	10	-0.62	1	1.60	22	53	0.01
Delaware	Wilmington	25	1.25	34	0.02	58	0.29	26	0.05	48	59	0.14

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 (8th lowest), which is predicted to decrease the city's tax rate on a median valued home by 0.40 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 0.40 percentage points higher, which at 1.08% would be 32nd highest. Birmingham also has the 72nd highest median home value (3rd lowest), which is expected to increase their tax rate by 0.69 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 slightly below average in Birmingham (43rd highest), which is expected to decrease the city's tax rate by 0.05 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 23rd highest for commercial properties and 8th highest for apartments. The city's classification ratios are predicted to decrease the property tax rate on a median valued home by 0.14 percentage points compared to a city with the average classification ratio.

		Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio		
State	City	Rank (1-74)	Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Commercial Rank (1-74)	Apartments Rank (1-74)	Impact
Florida	Jacksonville	69	0.45	28	0.09	47	0.16	47	-0.09	8	3	-0.56
Florida	Miami	58	0.60	31	0.05	20	-0.25	30	0.00	10	4	-0.44
Georgia	Atlanta	41	0.92	22	0.15	22	-0.18	18	0.08	26	11	-0.04
Hawaii	Honolulu*	73	0.29	13	0.34	6	-0.73	74	-0.27	5	35	-0.28
Idaho	Boise	57	0.62	11	0.35	15	-0.33	72	-0.24	40	27	0.07
Illinois	Aurora	2	3.04	5	0.75	50	0.18	60	-0.16	50	42	0.13
Illinois	Chicago	17	1.52	44	-0.13	37	-0.01	15	0.12	9	37	-0.19
Indiana	Indianapolis	34	1.12	61	-0.29	63	0.34	38	-0.03	11	5	-0.25
Iowa	Des Moines	10	1.93	16	0.22	66	0.44	41	-0.04	24	23	-0.01
Kansas	Wichita	31	1.17	21	0.17	65	0.43	73	-0.27	17	48	-0.02
Kentucky	Louisville	33	1.13	41	-0.12	57	0.28	62	-0.17	47	41	0.13
Louisiana	New Orleans	38	0.94	64	-0.33	40	0.04	46	-0.09	21	22	-0.06
Maine	Portland	30	1.17	8	0.51	18	-0.31	40	-0.04	51	43	0.14
Maryland	Baltimore	6	2.13	36	-0.06	60	0.32	16	0.12	72	71	0.16
Massachusetts	Boston	68	0.49	3	0.83	11	-0.60	39	-0.03	2	9	-0.49
Michigan	Detroit	14	1.71	63	-0.33	74	1.09	48	-0.09	42	29	0.08
Minnesota	Minneapolis	24	1.26	35	-0.03	35	-0.06	23	0.06	12	30	-0.08
Mississippi	Jackson	27	1.24	6	0.67	73	0.80	70	-0.23	14	6	-0.19
Missouri	Kansas City	23	1.33	69	-0.43	55	0.24	36	-0.02	16	59	-0.02
Montana	Billings	39	0.93	20	0.18	39	0.01	69	-0.23	36	59	0.09
Nebraska	Omaha	9	2.01	30	0.06	56	0.25	42	-0.05	57	51	0.15
Nevada	Las Vegas	32	1.13	55	-0.21	23	-0.15	35	-0.02	71	68	0.15
New Hampshire	Manchester	12	1.75	10	0.38	33	-0.06	66	-0.21	64	59	0.15
New Jersey	Newark*	1	3.20	2	1.04	31	-0.07	57	-0.15	64	59	0.15
New Mexico	Albuquerque	36	1.01	51	-0.17	44	0.12	68	-0.23	29	20	0.01
New York	Buffalo	20	1.44	71	-0.44	69	0.48	22	0.07	32	17	0.01
New York	New York City	67	0.49	40	-0.11	9	-0.63	3	0.59	7	2	-0.67
North Carolina	Charlotte	51	0.72	72	-0.46	32	-0.06	10	0.22	64	59	0.15
North Carolina	Raleigh	46	0.82	17	0.21	28	-0.11	59	-0.15	64	59	0.15
North Dakota	Fargo	29	1.21	45	-0.14	48	0.16	51	-0.10	45	38	0.12

*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, 2020 Census of Government Finances).

		Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio		
State	**City**	Rank (1-74)	Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Commercial Rank (1-74)	Apartments Rank (1-74)	Impact
Ohio	Columbus	15	1.61	48	-0.16	54	0.22	34	-0.01	35	19	0.03
Oklahoma	Oklahoma City	40	0.93	54	-0.20	62	0.33	71	-0.24	53	45	0.14
Oklahoma	Tulsa	35	1.03	50	-0.17	64	0.41	63	-0.17	52	44	0.14
Oregon	Portland	16	1.54	23	0.15	13	-0.43	19	0.08	64	50	0.15
Pennsylvania	Philadelphia	37	1.01	73	-0.54	53	0.22	13	0.14	15	26	-0.06
Rhode Island	Providence	48	0.81	4	0.76	38	0.01	54	-0.12	6	10	-0.36
South Carolina	Charleston	74	0.27	33	0.03	19	-0.27	28	0.01	1	1	-1.21
South Dakota	Sioux Falls	21	1.35	25	0.12	45	0.13	67	-0.21	44	36	0.11
Tennessee	Memphis	18	1.52	38	-0.09	71	0.55	24	0.06	27	13	-0.02
Tennessee	Nashville	47	0.81	42	-0.12	26	-0.12	17	0.09	28	14	-0.02
Texas	Arlington	13	1.74	32	0.05	43	0.11	37	-0.02	39	21	0.06
Texas	Austin	28	1.23	9	0.40	14	-0.37	20	0.08	31	15	-0.01
Texas	Dallas	22	1.33	24	0.12	42	0.07	31	0.00	34	12	0.00
Texas	El Paso	4	2.20	26	0.10	70	0.49	45	-0.09	38	25	0.06
Texas	Fort Worth	11	1.78	14	0.33	46	0.13	53	-0.11	37	24	0.05
Texas	Houston	19	1.44	12	0.35	49	0.17	44	-0.06	33	18	0.02
Texas	San Antonio	8	2.01	19	0.18	59	0.30	27	0.04	41	28	0.08
Utah	Salt Lake City	60	0.58	52	-0.18	16	-0.33	5	0.35	25	72	0.05
Vermont	Burlington	7	2.09	56	-0.21	29	-0.10	25	0.06	49	39	0.13
Virginia	Virginia Beach	44	0.89	15	0.23	30	-0.08	55	-0.13	73	74	0.20
Washington	Seattle	49	0.78	66	-0.35	4	-0.79	8	0.27	64	59	0.15
West Virginia	Charleston	45	0.85	60	-0.28	68	0.47	33	0.00	13	7	-0.19
Wisconsin	Milwaukee	5	2.19	18	0.18	67	0.46	49	-0.09	46	40	0.13
Wyoming	Cheyenne	55	0.64	74	-0.66	41	0.05	11	0.19	74	73	0.18

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)

		Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio*	
State	City	Rank (1-74)	Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate
Alabama	Birmingham	50	1.31	67	-0.38	72	0.94	43	-0.07	23	0.09
Alaska	Anchorage	41	1.49	7	0.50	27	-0.16	50	-0.14	43	-0.20
Arizona	Mesa	47	1.37	49	-0.16	25	-0.18	64	-0.26	18	0.19
Arizona	Phoenix	27	1.90	39	-0.09	24	-0.18	56	-0.19	20	0.17
Arizona	Tucson	36	1.73	27	0.09	51	0.28	65	-0.31	19	0.18
Arkansas	Little Rock	45	1.41	68	-0.40	61	0.44	58	-0.22	30	-0.05
California	Bakersfield	59	1.19	43	-0.12	36	-0.08	32	0.00	54	-0.27
California	Fresno	53	1.27	37	-0.08	33	-0.09	21	0.11	55	-0.27
California	Long Beach	58	1.19	59	-0.26	8	-0.87	9	0.37	58	-0.27
California	Los Angeles	61	1.17	47	-0.15	5	-1.04	7	0.40	60	-0.27
California	Oakland	46	1.38	58	-0.23	3	-1.08	4	0.67	61	-0.27
California	Sacramento	62	1.15	65	-0.32	17	-0.43	14	0.18	56	-0.27
California	San Diego	56	1.22	29	0.06	7	-0.98	29	0.01	59	-0.27
California	San Francisco	60	1.18	57	-0.22	1	-1.52	2	1.55	63	-0.27
California	San Jose	51	1.29	46	-0.14	2	-1.36	12	0.24	62	-0.27
Colorado	Colorado Springs	37	1.65	53	-0.17	21	-0.29	52	-0.15	3	1.00
Colorado	Denver	21	2.14	70	-0.40	12	-0.62	6	0.47	4	0.98
Connecticut	Bridgeport	4	3.04	1	1.02	52	0.29	61	-0.24	64	-0.28
DC	Washington	57	1.19	62	-0.27	10	-0.84	1	2.35	22	0.12
Delaware	Wilmington	64	1.13	34	0.02	58	0.39	26	0.07	48	-0.24

*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 (7h lowest), which is predicted to decrease the city's commercial property tax rate by 0.38 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 0.38 percentage points higher. Birmingham also has the 72nd highest median home value (3rd lowest), which is expected to increase their tax rate by 0.94 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 slightly below average in Birmingham (43rd highest), and thus is expected to decrease the city's tax rate by 0.07 percentage points relative to a city with average spending. Finally, Birmingham had the 23rd highest commercial-homestead classification ratio, which is predicted to decrease the commercial property tax rate by 0.09 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 (1-74)	Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate
Florida	Jacksonville	40	1.53	28	0.08	47	0.21	47	-0.13	8	0.73
Florida	Miami	32	1.81	31	0.05	20	-0.34	30	0.00	10	0.56
Georgia	Atlanta	39	1.54	22	0.14	22	-0.25	18	0.12	26	0.00
Hawaii	Honolulu**	69	0.91	13	0.32	6	-1.00	74	-0.40	5	0.84
Idaho	Boise	73	0.66	11	0.33	15	-0.45	72	-0.36	40	-0.16
Illinois	Aurora	8	2.73	5	0.70	50	0.24	60	-0.23	50	-0.25
Illinois	Chicago	1	4.01	44	-0.12	37	-0.01	15	0.18	9	0.61
Indiana	Indianapolis	10	2.72	61	-0.27	63	0.46	38	-0.04	11	0.29
Iowa	Des Moines	6	2.86	16	0.21	66	0.59	41	-0.06	24	0.04
Kansas	Wichita	15	2.57	21	0.16	65	0.59	73	-0.39	17	0.20
Kentucky	Louisville	49	1.34	41	-0.11	57	0.38	62	-0.25	47	-0.24
Louisiana	New Orleans	25	1.98	64	-0.31	40	0.06	46	-0.13	21	0.16
Maine	Portland	55	1.24	8	0.48	18	-0.42	40	-0.06	51	-0.25
Maryland	Baltimore	12	2.63	36	-0.05	60	0.43	16	0.17	72	-0.29
Massachusetts	Boston	35	1.78	3	0.78	11	-0.82	39	-0.05	2	1.10
Michigan	Detroit	2	3.91	63	-0.31	74	1.48	48	-0.13	42	-0.18
Minnesota	Minneapolis	16	2.45	35	-0.03	35	-0.08	23	0.09	12	0.27
Mississippi	Jackson	9	2.73	6	0.62	73	1.09	70	-0.34	14	0.21
Missouri	Kansas City	7	2.85	69	-0.40	55	0.33	36	-0.03	16	0.20
Montana	Billings	66	1.09	20	0.17	39	0.02	69	-0.34	36	-0.11
Nebraska	Omaha	23	2.04	30	0.05	56	0.34	42	-0.07	57	-0.27
Nevada	Las Vegas	63	1.13	55	-0.20	23	-0.21	35	-0.03	71	-0.28
New Hampshire	Manchester	42	1.46	10	0.35	33	-0.09	66	-0.31	64	-0.28
New Jersey	Newark**	11	2.67	2	0.97	31	-0.09	57	-0.21	64	-0.28
New Mexico	Albuquerque	38	1.63	51	-0.16	44	0.16	68	-0.33	29	-0.04
New York	Buffalo	33	1.78	71	-0.41	69	0.66	22	0.11	32	-0.08
New York	New York City	44	1.42	40	-0.11	9	-0.86	3	0.87	7	0.73
North Carolina	Charlotte	72	0.76	72	-0.44	32	-0.09	10	0.32	64	-0.28
North Carolina	Raleigh	70	0.85	17	0.20	28	-0.15	59	-0.22	64	-0.28
North Dakota	Fargo	65	1.12	45	-0.13	48	0.22	51	-0.14	45	-0.23

*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, 2020 Census of Government Finances).

		Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio*	
State	**City**	Rank (1-74)	Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate
Ohio	Columbus	28	1.89	48	-0.15	54	0.30	34	-0.02	35	-0.11
Oklahoma	Oklahoma City	48	1.35	54	-0.19	62	0.44	71	-0.35	53	-0.26
Oklahoma	Tulsa	43	1.44	50	-0.16	64	0.55	63	-0.26	52	-0.25
Oregon	Portland	13	2.59	23	0.14	13	-0.58	19	0.12	64	-0.28
Pennsylvania	Philadelphia	31	1.83	73	-0.50	53	0.30	13	0.20	15	0.20
Rhode Island	Providence	3	3.34	4	0.71	38	0.01	54	-0.17	6	0.80
South Carolina	Charleston	34	1.78	33	0.02	19	-0.36	28	0.02	1	1.65
South Dakota	Sioux Falls	52	1.28	25	0.11	45	0.17	67	-0.31	44	-0.22
Tennessee	Memphis	19	2.34	38	-0.09	71	0.74	24	0.09	27	-0.03
Tennessee	Nashville	54	1.25	42	-0.11	26	-0.17	17	0.14	28	-0.03
Texas	Arlington	20	2.29	32	0.04	43	0.15	37	-0.03	39	-0.16
Texas	Austin	29	1.88	9	0.37	14	-0.50	20	0.11	31	-0.06
Texas	Dallas	26	1.97	24	0.12	42	0.10	31	0.00	34	-0.09
Texas	El Paso	5	2.86	26	0.09	70	0.67	45	-0.13	38	-0.15
Texas	Fort Worth	17	2.45	14	0.31	46	0.17	53	-0.16	37	-0.13
Texas	Houston	22	2.10	12	0.33	49	0.22	44	-0.10	33	-0.09
Texas	San Antonio	14	2.57	19	0.17	59	0.41	27	0.07	41	-0.17
Utah	Salt Lake City	67	1.00	52	-0.17	16	-0.45	5	0.51	25	0.02
Vermont	Burlington	24	2.02	56	-0.20	29	-0.14	25	0.09	49	-0.24
Virginia	Virginia Beach	68	0.94	15	0.22	30	-0.11	55	-0.19	73	-0.32
Washington	Seattle	71	0.79	66	-0.32	4	-1.08	8	0.39	64	-0.28
West Virginia	Charleston	30	1.86	60	-0.26	68	0.64	33	0.00	13	0.21
Wisconsin	Milwaukee	18	2.38	18	0.17	67	0.62	49	-0.14	46	-0.24

*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	1.135	0.600	Effective tax rate on median valued home, with assessment limits Source: *50-State Property Tax Comparison Study* (Appendix Tables 2b, 2e)
Median Home Value	-0.786*** (0.082)	-0.752*** (0.116)	346,731	229,206	Median home value in city Source: 2021 American Community Survey (U.S. Census Bureau)
Business Classification Ratio	-0.316*** (0.108)	-0.151*** (0.055)	1.675	0.957	Commercial-homestead classification ratio, with taxes on personal property excluded for commercial properties Source: *50-State Property Tax Comparison Study*
Apartments Classification Ratio	-0.415** (0.158)	-0.139 (0.105)	1.365	0.708	Apartment-homestead classification ratio, with taxes on personal property excluded for apartments Source: *50-State Property Tax Comparison Study*
Property Tax Reliance	0.858*** (0.135)	0.0253*** (0.0053)	40.5	13.6	Property taxes as a percent of own source revenue for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2020).
Local Gov't Spending Per Capita (1000s)	0.687*** (0.179)	0.0816*** (0.021)	6.946	2.472	Direct expenditures per capita for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2020).
State and Federal Aid as % Local Gov't Budget	-0.173 (0.153)	-0.00167 (0.0057)	33.7	12.0	Intergovernmental revenue as a percent of general revenue for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2020).
Local as % State-Local Spending	-0.0229 (0.258)	0.00957 (0.0064)	48.4	7.3	Local government direct expenditures as a percent of state and local direct expenditures (State-level variable) Source: 2020 Survey of State and Local Gov't Finances (U.S. Census Bureau)
Constant	0.0803 (1.305)	9.044*** (1.325)			
N	70	70			
R-sq	0.643	0.593			
adj. R-sq	0.602	0.547			
F	27.29	9.873			

* 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	1.803	0.744	Effective tax rate on $1-Million Commercial Property Source: *50-State Property Tax Comparison Study* (Appendix Tables 3a, 3b)
Median Home Value	-0.538*** (0.088)	-1.023*** (0.181)	346,731	229,206	Median home value in city Source: 2021 American Community Survey (U.S. Census Bureau)
Business Classification Ratio	0.507*** (0.101)	0.410*** (0.126)	1.675	0.957	Commercial-homestead classification ratio, with taxes on personal property excluded for commercial properties Source: *50-State Property Tax Comparison Study*
Apartments Classification Ratio	-0.284* (0.145)	-0.322** (0.142)	1.365	0.708	Apartment-homestead classification ratio, with taxes on personal property excluded for apartments Source: *50-State Property Tax Comparison Study*
Property Tax Reliance	0.648*** (0.126)	0.0237*** (0.0045)	40.5	13.6	Property taxes as a percent of own source revenue for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2020).
Local Gov't Spending Per Capita (1000s)	0.650*** (0.179)	0.120*** (0.034)	6.946	2.472	Direct expenditures per capita for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2020).
State and Federal Aid as % Local Gov't Budget	0.143 (0.103)	0.00394 (0.0055)	33.7	12.0	Intergovernmental revenue as a percent of general revenue for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2020).
Local as % State-Local Spending	0.264 (0.253)	0.0156* (0.0089)	48.4	7.3	Local government direct expenditures as a percent of state and local direct expenditures (State-level variable) Source: 2020 Survey of State and Local Gov't Finances (U.S. Census Bureau)
Constant	-2.190* (1.179)	11.75*** (2.194)			
N	70	70			
R-sq	0.584	0.539			
adj. R-sq	0.537	0.487			
F	12.78	10.89			

* 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

		Tax Rate (%)			Tax Bill ($)			Median Home Value
State	City	Rate	Rank	Change from '21	Amount	Rank	Change from '21	
Alabama	Birmingham	0.678%	46	1 ↓	797	53	-	117,600
Alaska	Anchorage	1.245%	22	4 ↓	4,312	13	2 ↓	346,200
Arizona	Phoenix	1.088%	34	5 ↓	3,835	18	4 ↑	352,600
Arkansas	Little Rock	1.141%	30	5 ↑	2,187	46	2 ↓	191,700
California	Los Angeles	1.155%	29	3 ↑	9,392	3	1 ↑	812,800
Colorado	Denver	0.519%	50	-	2,808	33	1 ↓	541,500
Connecticut	Bridgeport	3.042%	4	2 ↑	6,776	7	2 ↑	222,800
DC	Washington	0.729%	44	-	4,883	11	4 ↓	669,900
Delaware	Wilmington	1.254%	21	5 ↓	2,518	37	3 ↓	200,900
Florida	Jacksonville	1.259%	20	2 ↑	3,013	27	3 ↑	239,400
Georgia	Atlanta	0.917%	38	-	3,445	22	1 ↓	375,500
Hawaii	Honolulu	0.293%	53	-	2,287	42	1 ↓	781,600
Idaho	Boise	0.622%	48	1 ↓	2,864	30	9 ↑	460,200
Illinois	Aurora*	3.043%	3	-	7,072	5	-	232,400
Illinois	Chicago	1.524%	14	1 ↓	4,532	12	2 ↓	297,300
Indiana	Indianapolis	1.116%	33	-	2,106	47	-	188,700
Iowa	Des Moines	1.928%	10	3 ↓	3,184	26	7 ↓	165,100
Kansas	Wichita	1.165%	28	2 ↑	1,930	48	-	165,700
Kentucky	Louisville	1.129%	32	15 ↓	2,302	41	5 ↓	203,900
Louisiana	New Orleans	0.941%	36	-	2,627	36	1 ↓	279,100
Maine	Portland	1.172%	27	-	5,192	10	2 ↑	443,000
Maryland	Baltimore	2.133%	7	1 ↑	4,118	15	2 ↓	193,100
Massachusetts	Boston	0.490%	51	-	3,234	25	1 ↓	659,700
Michigan	Detroit	3.206%	1	-	2,222	45	2 ↓	69,300
Minnesota	Minneapolis	1.259%	19	5 ↑	4,017	17	3 ↓	319,100
Mississippi	Jackson	1.238%	23	3 ↑	1,256	52	1 ↓	101,500
Missouri	Kansas City	1.327%	18	1 ↑	2,832	31	6 ↑	213,400
Montana	Billings	0.932%	37	3 ↑	2,704	34	6 ↑	290,000
Nebraska	Omaha	2.006%	9	-	4,251	14	1 ↑	211,900
Nevada	Las Vegas	1.134%	31	3 ↑	4,111	16	-	362,400
New Hampshire	Manchester	1.753%	11	9 ↑	5,632	9	11 ↑	321,300
New Jersey	Newark	3.200%	2	-	10,343	2	-	323,200
New Mexico	Albuquerque	1.361%	16	5 ↑	3,423	23	5 ↑	251,500
New York	Buffalo*	1.439%	15	-	2,233	43	6 ↑	155,200
New York	New York City	1.219%	25	3 ↑	8,356	4	1 ↓	685,700
AVERAGE		**1.321%**			**3,841**			**325,828**

		Tax Rate (%)			Tax Bill ($)			Median Home Value
State	**City**	**Rate**	**Rank**	**Change from '21**	**Amount**	**Rank**	**Change from '21**	
North Carolina	Charlotte	0.717%	45	4 ↓	2,305	40	2 ↓	321,400
North Dakota	Fargo	1.212%	26	5 ↑	2,891	29	2 ↓	238,600
Ohio	Columbus	1.614%	12	1 ↓	3,538	20	6 ↑	219,200
Oklahoma	Oklahoma City	1.232%	24	1 ↑	2,352	39	3 ↑	190,900
Oregon	Portland	2.588%	5	1 ↓	13,461	1	-	520,200
Pennsylvania	Philadelphia	1.011%	35	2 ↑	2,231	44	1 ↑	220,700
Rhode Island	Providence	0.812%	42	19 ↓	2,364	38	13 ↓	291,200
South Carolina	Charleston	0.442%	52	-	1,858	49	3 ↓	420,800
South Dakota	Sioux Falls	1.348%	17	3 ↓	3,364	24	1 ↓	249,600
Tennessee	Nashville	0.814%	41	1 ↑	2,820	32	1 ↑	346,700
Texas	Houston	1.559%	13	3 ↓	3,689	19	1 ↓	236,700
Utah	Salt Lake City	0.577%	49	1 ↓	2,651	35	4 ↓	459,800
Vermont	Burlington	2.090%	8	4 ↑	7,067	6	2 ↑	338,100
Virginia	Virginia Beach	0.885%	39	-	2,907	28	1 ↑	328,500
Washington	Seattle	0.784%	43	-	6,650	8	2 ↓	848,100
West Virginia	Charleston	0.847%	40	9 ↑	1,330	51	1 ↑	157,000
Wisconsin	Milwaukee	2.186%	6	1 ↓	3,500	21	4 ↓	160,100
Wyoming	Cheyenne	0.645%	47	1 ↓	1,780	50	-	276,100
AVERAGE		**1.321%**			**3,841**			**325,828**

* 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: *2021 American Community Survey*, 1-year data, with exceptions of Burlington (VT) and Charleston (WV) which are 5-year data.

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

		Tax Rate (%)			Tax Bill ($)			Median Home Value
State	City	Rate	Rank	Change from '21	Amount	Rank	Change from '21	
Alabama	Birmingham	0.678%	42	-	797	53	-	117,600
Alaska	Anchorage	1.245%	20	2 ↓	4,312	12	4 ↓	346,200
Arizona	Phoenix	0.544%	46	6 ↓	1,918	44	7 ↓	352,600
Arkansas	Little Rock	0.903%	34	3 ↓	1,730	47	3 ↓	191,700
California	Los Angeles	0.533%	47	1 ↑	4,336	11	2 ↓	812,800
Colorado	Denver	0.519%	48	2 ↑	2,808	30	-	541,500
Connecticut	Bridgeport	3.042%	3	1 ↑	6,776	5	2 ↑	222,800
DC	Washington	0.729%	40	1 ↑	4,883	9	4 ↓	669,900
Delaware	Wilmington	1.254%	19	3 ↓	2,518	35	3 ↓	200,900
Florida	Jacksonville	0.449%	51	5 ↓	1,074	52	3 ↓	239,400
Georgia	Atlanta	0.917%	33	1 ↑	3,445	19	2 ↑	375,500
Hawaii	Honolulu	0.293%	52	1 ↑	2,287	39	1 ↑	781,600
Idaho	Boise	0.622%	44	-	2,864	27	11 ↑	460,200
Illinois	Aurora*	3.043%	2	-	7,072	3	-	232,400
Illinois	Chicago	1.524%	13	1 ↑	4,532	10	2 ↑	297,300
Indiana	Indianapolis	1.116%	27	-	2,106	42	1 ↑	188,700
Iowa	Des Moines	1.928%	8	3 ↓	3,184	24	5 ↓	165,100
Kansas	Wichita	1.165%	24	1 ↑	1,930	43	2 ↑	165,700
Kentucky	Louisville	1.129%	26	9 ↓	2,302	38	4 ↓	203,900
Louisiana	New Orleans	0.941%	30	2 ↑	2,627	33	-	279,100
Maine	Portland	1.172%	23	1 ↑	5,192	8	2 ↑	443,000
Maryland	Baltimore	2.133%	5	1 ↑	4,118	14	3 ↓	193,100
Massachusetts	Boston	0.490%	50	1 ↑	3,234	23	-	659,700
Michigan	Detroit	1.708%	10	3 ↓	1,183	50	-	69,300
Minnesota	Minneapolis	1.259%	18	4 ↑	4,017	16	2 ↓	319,100
Mississippi	Jackson	1.238%	21	2 ↑	1,256	49	2 ↑	101,500
Missouri	Kansas City	1.327%	17	2 ↑	2,832	28	7 ↑	213,400
Montana	Billings	0.932%	31	5 ↑	2,704	31	8 ↑	290,000
Nebraska	Omaha	2.006%	7	1 ↑	4,251	13	2 ↑	211,900
Nevada	Las Vegas	1.134%	25	4 ↑	4,111	15	1 ↑	362,400
New Hampshire	Manchester	1.753%	9	11 ↑	5,632	7	13 ↑	321,300
New Jersey	Newark	3.200%	1	-	10,343	1	-	323,200
New Mexico	Albuquerque	1.013%	28	-	2,548	34	5 ↓	251,500
New York	Buffalo*	1.439%	15	-	2,233	40	6 ↑	155,200
New York	New York City	0.492%	49	-	3,376	21	8 ↓	685,700
AVERAGE		**1.200%**			**3,402**			**325,828**

		Tax Rate (%)			Tax Bill ($)			Median Home Value
State	**City**	**Rate**	**Rank**	**Change from '21**	**Amount**	**Rank**	**Change from '21**	
North Carolina	Charlotte	0.717%	41	4 ↓	2,305	37	1 ↓	321,400
North Dakota	Fargo	1.212%	22	4 ↑	2,891	26	-	238,600
Ohio	Columbus	1.614%	11	-	3,538	17	8 ↑	219,200
Oklahoma	Oklahoma City	0.927%	32	2 ↓	1,769	46	4 ↓	190,900
Oregon	Portland	1.542%	12	3 ↓	8,022	2	-	520,200
Pennsylvania	Philadelphia	1.011%	29	4 ↑	2,231	41	-	220,700
Rhode Island	Providence	0.812%	38	17 ↓	2,364	36	12 ↓	291,200
South Carolina	Charleston	0.274%	53	1 ↓	1,152	51	4 ↓	420,800
South Dakota	Sioux Falls	1.348%	16	3 ↓	3,364	22	-	249,600
Tennessee	Nashville	0.814%	37	1 ↑	2,820	29	2 ↑	346,700
Texas	Houston	1.441%	14	4 ↓	3,411	20	2 ↓	236,700
Utah	Salt Lake City	0.577%	45	-	2,651	32	4 ↓	459,800
Vermont	Burlington	2.090%	6	6 ↑	7,067	4	2 ↑	338,100
Virginia	Virginia Beach	0.885%	35	-	2,907	25	2 ↑	328,500
Washington	Seattle	0.784%	39	-	6,650	6	2 ↓	848,100
West Virginia	Charleston	0.847%	36	11 ↑	1,330	48	4 ↑	157,000
Wisconsin	Milwaukee	2.186%	4	1 ↓	3,500	18	1 ↓	160,100
Wyoming	Cheyenne	0.645%	43	-	1,780	45	3 ↑	276,100
AVERAGE		**1.200%**			**3,402**			**325,828**

* 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: *2021 American Community Survey*, 1-year data, with exceptions of Burlington (VT) and Charleston (WV) which are 5-year data.

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

		$150,000 Property Value				$300,000 Property Value				Tax Rate Varies with Property Value
State	City	Tax Rate	Tax Bill	Rank	Change from '21	Tax Rate	Tax Bill	Rank	Change from '21	
Alabama	Birmingham	0.688%	1,032	43	-	0.705%	2,116	45	1 ↓	X
Alaska	Anchorage	1.191%	1,786	24	3 ↓	1.208%	3,624	27	6 ↓	X
Arizona	Phoenix	1.088%	1,631	32	6 ↓	1.088%	3,263	34	4 ↓	
Arkansas	Little Rock	1.087%	1,630	33	2 ↑	1.212%	3,635	25	3 ↑	X
California	Los Angeles	1.111%	1,667	28	4 ↑	1.138%	3,415	30	4 ↑	X
Colorado	Denver	0.519%	778	47	-	0.519%	1,556	49	1 ↑	
Connecticut	Bridgeport	3.042%	4,562	3	3 ↑	3.042%	9,125	4	3 ↑	
DC	Washington	0.383%	574	50	-	0.606%	1,817	47	-	X
Delaware	Wilmington	1.254%	1,880	20	5 ↓	1.254%	3,761	22	5 ↓	
Florida	Jacksonville	1.088%	1,632	31	-	1.316%	3,949	20	2 ↓	X
Georgia	Atlanta	0.286%	428	51	-	0.812%	2,437	41	2 ↑	X
Hawaii	Honolulu	0.200%	300	52	-	0.221%	662	52	-	X
Idaho	Boise	0.430%	645	49	1 ↓	0.496%	1,487	50	1 ↓	X
Illinois	Aurora*	2.913%	4,370	4	1 ↓	3.096%	9,288	3	-	X
Illinois	Chicago	1.303%	1,955	19	3 ↓	1.526%	4,579	14	1 ↓	X
Indiana	Indianapolis	1.104%	1,655	29	-	1.134%	3,401	32	1 ↑	X
Iowa	Des Moines	1.915%	2,873	9	2 ↓	1.985%	5,956	9	3 ↓	X
Kansas	Wichita	1.162%	1,743	25	2 ↑	1.177%	3,532	28	1 ↓	X
Kentucky	Louisville	1.129%	1,693	27	9 ↓	1.129%	3,386	33	14 ↓	
Louisiana	New Orleans	0.646%	969	44	2 ↓	0.965%	2,896	36	1 ↑	X
Maine	Portland	1.035%	1,553	34	-	1.139%	3,416	29	2 ↑	X
Maryland	Baltimore	2.133%	3,199	7	1 ↑	2.133%	6,398	7	1 ↑	
Massachusetts	Boston	0.098%	147	53	-	0.098%	294	53	-	
Michigan	Detroit	3.206%	4,810	1	-	3.206%	9,619	1	-	
Minnesota	Minneapolis	1.094%	1,641	30	3 ↑	1.250%	3,749	23	3 ↑	X
Mississippi	Jackson	1.333%	2,000	17	-	1.433%	4,300	16	1 ↓	X
Missouri	Kansas City	1.327%	1,990	18	1 ↑	1.327%	3,981	19	1 ↑	
Montana	Billings	0.932%	1,399	35	3 ↑	0.932%	2,797	37	2 ↑	
Nebraska	Omaha	2.006%	3,009	8	1 ↑	2.006%	6,019	8	1 ↑	
Nevada	Las Vegas	1.134%	1,701	26	4 ↑	1.134%	3,403	31	4 ↑	
New Hampshire	Manchester	1.753%	2,629	10	10 ↑	1.753%	5,259	11	11 ↑	
New Jersey	Newark	3.200%	4,800	2	-	3.200%	9,601	2	-	
New Mexico	Albuquerque	1.336%	2,003	16	6 ↑	1.367%	4,102	17	6 ↑	X
New York	Buffalo*	1.439%	2,158	14	-	1.439%	4,316	15	1 ↑	
New York	New York City	1.219%	1,828	21	4 ↑	1.219%	3,656	24	5 ↑	
AVERAGE		**1.255%**	**1,882**			**1.314%**	**3,941**			**N = 24**

		$150,000 Property Value				$300,000 Property Value				Tax Rate Varies with Property Value
State	**City**	**Tax Rate**	**Tax Bill**	**Rank**	**Change from '21**	**Tax Rate**	**Tax Bill**	**Rank**	**Change from '21**	
North Carolina	Charlotte	0.717%	1,076	42	3 ↓	0.717%	2,152	44	4 ↓	
North Dakota	Fargo	1.212%	1,817	23	5 ↑	1.212%	3,635	26	6 ↑	
Ohio	Columbus	1.614%	2,421	12	1 ↓	1.614%	4,842	12	1 ↓	
Oklahoma	Oklahoma City	1.216%	1,823	22	2 ↑	1.255%	3,764	21	3 ↑	X
Oregon	Portland	2.588%	3,882	5	1 ↓	2.588%	7,763	5	1 ↓	
Pennsylvania	Philadelphia	0.876%	1,314	37	-	1.086%	3,259	35	1 ↑	X
Rhode Island	Providence	0.812%	1,218	40	17 ↓	0.812%	2,435	42	17 ↓	
South Carolina	Charleston	0.442%	662	48	1 ↑	0.442%	1,325	51	-	
South Dakota	Sioux Falls	1.348%	2,022	15	2 ↓	1.348%	4,044	18	4 ↓	
Tennessee	Nashville	0.814%	1,220	39	1 ↑	0.814%	2,441	40	1 ↑	
Texas	Houston	1.457%	2,186	13	1 ↓	1.595%	4,786	13	3 ↓	X
Utah	Salt Lake City	0.577%	865	46	1 ↓	0.577%	1,730	48	2 ↓	
Vermont	Burlington	1.726%	2,589	11	1 ↓	1.868%	5,603	10	2 ↑	X
Virginia	Virginia Beach	0.885%	1,328	36	-	0.885%	2,655	38	-	
Washington	Seattle	0.784%	1,176	41	-	0.784%	2,352	43	1 ↓	
West Virginia	Charleston	0.847%	1,271	38	8 ↑	0.847%	2,541	39	9 ↑	
Wisconsin	Milwaukee	2.173%	3,260	6	1 ↓	2.278%	6,834	6	1 ↓	X
Wyoming	Cheyenne	0.645%	967	45	1 ↓	0.645%	1,934	46	1 ↓	
AVERAGE		**1.255%**	**1,882**			**1.314%**	**3,941**			**N = 24**

* 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

		Tax Rate (%)			Tax Bill ($)			Median Home Value
State	City	Rate	Rank	Change from '21	Amount	Rank	Change from '21	
Arizona	Mesa	0.769%	45	1 ↓	2,692	39	-	350,100
Arizona	Phoenix	1.088%	37	8 ↓	3,835	24	4 ↑	352,600
Arizona	Tucson	0.983%	39	1 ↓	2,210	46	-	224,800
California	Bakersfield	1.161%	31	2 ↑	3,698	25	5 ↑	318,600
California	Fresno	1.247%	24	2 ↑	4,007	23	2 ↑	321,300
California	Long Beach	1.177%	28	3 ↑	8,164	8	-	693,600
California	Los Angeles	1.155%	32	2 ↑	9,392	5	2 ↑	812,800
California	Oakland	1.366%	18	-	11,590	4	-	848,600
California	Sacramento	1.133%	34	3 ↑	5,093	14	4 ↑	449,600
California	San Diego	1.205%	27	6 ↓	9,266	6	1 ↓	768,800
California	San Francisco	1.173%	29	3 ↑	15,330	1	-	1,306,400
California	San Jose	1.278%	21	3 ↑	14,308	2	-	1,119,500
Colorado	Colorado Springs	0.399%	50	-	1,560	50	-	390,500
Colorado	Denver	0.523%	48	-	2,833	35	1 ↑	541,500
DC	Washington	0.729%	46	1 ↑	4,883	15	-	669,900
Florida	Jacksonville	1.259%	23	-	3,013	33	2 ↑	239,400
Florida	Miami	1.623%	11	4 ↑	6,674	10	1 ↑	411,300
Georgia	Atlanta	0.917%	40	1 ↑	3,445	30	3 ↓	375,500
Illinois	Chicago	1.524%	15	1 ↑	4,532	17	-	297,300
Indiana	Indianapolis	1.116%	36	1 ↓	2,106	48	-	188,700
Kansas	Wichita	1.165%	30	-	1,930	49	-	165,700
Kentucky	Louisville	1.129%	35	16 ↓	2,302	43	5 ↓	203,900
Maryland	Baltimore	2.133%	7	1 ↑	4,118	20	1 ↓	193,100
Massachusetts	Boston	0.490%	49	-	3,234	32	3 ↓	659,700
Michigan	Detroit	3.206%	1	-	2,222	45	-	69,300
Minnesota	Minneapolis	1.259%	22	3 ↑	4,017	22	2 ↓	319,100
Missouri	Kansas City	1.327%	20	-	2,832	36	4 ↑	213,400
Nebraska	Omaha	2.006%	9	1 ↑	4,251	18	4 ↑	211,900
Nevada	Las Vegas	1.134%	33	3 ↑	4,111	21	2 ↑	362,400
New Mexico	Albuquerque	1.361%	19	3 ↑	3,423	31	1 ↑	251,500
New York	New York City	1.219%	26	2 ↑	8,356	7	1 ↓	685,700
North Carolina	Charlotte	0.717%	47	4 ↓	2,305	42	1 ↓	321,400
North Carolina	Raleigh	0.815%	42	2 ↓	2,774	38	4 ↓	340,200
Ohio	Columbus	1.614%	12	2 ↑	3,538	28	3 ↑	219,200
Oklahoma	Oklahoma City	1.232%	25	2 ↑	2,352	41	2 ↑	190,900
AVERAGE		**1.349%**			**4,822**			**393,372**

		Tax Rate (%)			Tax Bill ($)			Median Home Value
State	**City**	**Rate**	**Rank**	**Change from '21**	**Amount**	**Rank**	**Change from '21**	
Oklahoma	Tulsa	1.389%	17	-	2,389	40	2 ↑	172,000
Oregon	Portland	2.588%	2	-	13,461	3	-	520,200
Pennsylvania	Philadelphia	1.011%	38	1 ↑	2,231	44	3 ↑	220,700
Tennessee	Memphis	1.523%	16	4 ↓	2,175	47	3 ↓	142,800
Tennessee	Nashville	0.814%	43	2 ↑	2,820	37	-	346,700
Texas	Arlington	2.097%	8	1 ↓	5,342	12	1 ↑	254,700
Texas	Austin	1.634%	10	1 ↑	7,889	9	-	482,900
Texas	Dallas	1.562%	13	4 ↓	4,181	19	7 ↓	267,600
Texas	El Paso	2.347%	3	-	3,587	27	6 ↓	152,800
Texas	Fort Worth	2.133%	6	-	5,312	13	1 ↑	249,000
Texas	Houston	1.559%	14	1 ↓	3,689	26	-	236,700
Texas	San Antonio	2.316%	4	-	4,577	16	-	197,600
Virginia	Virginia Beach	0.885%	41	1 ↑	2,907	34	1 ↓	328,500
Washington	Seattle	0.784%	44	2 ↑	6,650	11	1 ↓	848,100
Wisconsin	Milwaukee	2.186%	5	-	3,500	29	5 ↓	160,100
AVERAGE		**1.349%**			**4,822**			**393,372**

Source for median home values: *2021 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

		Tax Rate (%)			Tax Bill ($)			Median Home Value
State	City	Rate	Rank	Change from '21	Amount	Rank	Change from '21	
Arizona	Mesa	0.419%	49	5 ↓	1,467	48	1 ↓	350,100
Arizona	Phoenix	0.544%	40	5 ↓	1,918	41	5 ↓	352,600
Arizona	Tucson	0.687%	34	8 ↓	1,545	47	2 ↓	224,800
California	Bakersfield	0.516%	44	1 ↓	1,643	45	1 ↑	318,600
California	Fresno	0.520%	43	2 ↓	1,670	44	2 ↓	321,300
California	Long Beach	0.585%	38	1 ↑	4,056	16	3 ↓	693,600
California	Los Angeles	0.533%	41	4 ↑	4,336	12	2 ↑	812,800
California	Oakland	0.573%	39	1 ↑	4,859	7	-	848,600
California	Sacramento	0.428%	48	-	1,922	40	2 ↓	449,600
California	San Diego	0.630%	36	4 ↓	4,844	8	2 ↓	768,800
California	San Francisco	0.900%	27	4 ↑	11,756	1	-	1,306,400
California	San Jose	0.685%	35	2 ↑	7,668	3	-	1,119,500
Colorado	Colorado Springs	0.399%	50	-	1,560	46	2 ↑	390,500
Colorado	Denver	0.523%	42	5 ↑	2,833	28	3 ↑	541,500
DC	Washington	0.729%	32	6 ↑	4,883	6	5 ↑	669,900
Florida	Jacksonville	0.449%	47	5 ↓	1,074	50	1 ↓	239,400
Florida	Miami	0.598%	37	1 ↓	2,461	33	6 ↓	411,300
Georgia	Atlanta	0.917%	26	2 ↑	3,445	22	2 ↑	375,500
Illinois	Chicago	1.524%	11	4 ↑	4,532	9	7 ↑	297,300
Indiana	Indianapolis	1.116%	21	-	2,106	38	5 ↑	188,700
Kansas	Wichita	1.165%	18	2 ↑	1,930	39	5 ↑	165,700
Kentucky	Louisville	1.129%	20	4 ↓	2,302	35	2 ↓	203,900
Maryland	Baltimore	2.133%	3	3 ↑	4,118	14	1 ↑	193,100
Massachusetts	Boston	0.490%	46	3 ↑	3,234	26	1 ↓	659,700
Michigan	Detroit	1.708%	8	-	1,183	49	1 ↑	69,300
Minnesota	Minneapolis	1.259%	16	2 ↑	4,017	17	1 ↑	319,100
Missouri	Kansas City	1.327%	15	2 ↑	2,832	29	5 ↑	213,400
Nebraska	Omaha	2.006%	5	4 ↑	4,251	13	7 ↑	211,900
Nevada	Las Vegas	1.134%	19	4 ↑	4,111	15	6 ↑	362,400
New Mexico	Albuquerque	1.013%	23	1 ↓	2,548	32	2 ↓	251,500
New York	New York City	0.492%	45	1 ↑	3,376	24	7 ↓	685,700
North Carolina	Charlotte	0.717%	33	3 ↓	2,305	34	1 ↑	321,400
North Carolina	Raleigh	0.815%	29	2 ↓	2,774	31	2 ↓	340,200
Ohio	Columbus	1.614%	9	5 ↑	3,538	20	6 ↑	219,200
Oklahoma	Oklahoma City	0.927%	25	1 ↓	1,769	43	2 ↓	190,900
AVERAGE		**1.054%**			**3,481**			**393,372**

		Tax Rate (%)			Tax Bill ($)			Median Home Value
State	**City**	**Rate**	**Rank**	**Change from '21**	**Amount**	**Rank**	**Change from '21**	
Oklahoma	Tulsa	1.031%	22	3 ↓	1,773	42	3 ↓	172,000
Oregon	Portland	1.542%	10	1 ↑	8,022	2	-	520,200
Pennsylvania	Philadelphia	1.011%	24	1 ↑	2,231	36	4 ↑	220,700
Tennessee	Memphis	1.523%	12	-	2,175	37	-	142,800
Tennessee	Nashville	0.814%	30	3 ↑	2,820	30	2 ↑	346,700
Texas	Arlington	1.739%	7	2 ↓	4,428	11	2 ↓	254,700
Texas	Austin	1.226%	17	7 ↓	5,920	5	1 ↓	482,900
Texas	Dallas	1.330%	14	7 ↓	3,560	19	11 ↓	267,600
Texas	El Paso	2.202%	1	-	3,365	25	6 ↓	152,800
Texas	Fort Worth	1.781%	6	2 ↓	4,434	10	-	249,000
Texas	Houston	1.441%	13	-	3,411	23	-	236,700
Texas	San Antonio	2.012%	4	2 ↓	3,976	18	6 ↓	197,600
Virginia	Virginia Beach	0.885%	28	1 ↑	2,907	27	1 ↑	328,500
Washington	Seattle	0.784%	31	3 ↑	6,650	4	1 ↑	848,100
Wisconsin	Milwaukee	2.186%	2	1 ↑	3,500	21	1 ↑	160,100
AVERAGE		**1.054%**			**3,481**			**393,372**

Source for median home values: *2021 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

		$150,000 Property Value				$300,000 Property Value				Tax Rate Varies with Property Value
State	City	Rate	Tax Bill	Rank	Change from '21	Tax Rate	Tax Bill	Rank	Change from '21	
Arizona	Mesa	0.769%	1,154	44	1 ↓	0.769%	2,307	45	2 ↓	
Arizona	Phoenix	1.088%	1,631	37	10 ↓	1.088%	3,263	37	7 ↓	
Arizona	Tucson	0.983%	1,475	38	1 ↓	0.983%	2,950	39	-	
California	Bakersfield	1.131%	1,697	29	-	1.159%	3,477	30	2 ↑	X
California	Fresno	1.215%	1,823	24	1 ↑	1.245%	3,735	25	1 ↑	X
California	Long Beach	1.134%	1,700	28	3 ↑	1.161%	3,484	29	4 ↑	X
California	Los Angeles	1.111%	1,667	32	3 ↑	1.138%	3,415	32	3 ↑	X
California	Oakland	1.313%	1,969	18	1 ↑	1.345%	4,035	19	-	X
California	Sacramento	1.097%	1,645	34	4 ↑	1.124%	3,371	36	2 ↑	X
California	San Diego	1.160%	1,739	26	5 ↓	1.188%	3,564	27	5 ↓	X
California	San Francisco	1.125%	1,687	31	3 ↑	1.152%	3,457	31	3 ↑	X
California	San Jose	1.226%	1,839	21	3 ↑	1.256%	3,768	22	3 ↑	X
Colorado	Colorado Springs	0.399%	599	47	-	0.399%	1,198	49	-	
Colorado	Denver	0.523%	785	46	-	0.523%	1,570	48	-	
DC	Washington	0.383%	574	48	-	0.606%	1,817	47	-	X
Florida	Jacksonville	1.088%	1,632	36	3 ↓	1.316%	3,949	21	3 ↓	X
Florida	Miami	1.270%	1,906	20	-	1.548%	4,643	14	2 ↑	X
Georgia	Atlanta	0.286%	428	49	-	0.812%	2,437	43	3 ↑	X
Illinois	Chicago	1.303%	1,955	19	3 ↓	1.526%	4,579	15	-	X
Indiana	Indianapolis	1.104%	1,655	33	3 ↓	1.134%	3,401	34	3 ↓	X
Kansas	Wichita	1.162%	1,743	25	3 ↑	1.177%	3,532	28	-	X
Kentucky	Louisville	1.129%	1,693	30	13 ↓	1.129%	3,386	35	15 ↓	
Maryland	Baltimore	2.133%	3,199	6	1 ↑	2.133%	6,398	7	1 ↑	
Massachusetts	Boston	0.098%	147	50	-	0.098%	294	50	-	
Michigan	Detroit	3.206%	4,810	1	-	3.206%	9,619	1	-	
Minnesota	Minneapolis	1.094%	1,641	35	1 ↑	1.250%	3,749	24	3 ↑	X
Missouri	Kansas City	1.327%	1,990	17	1 ↑	1.327%	3,981	20	1 ↑	
Nebraska	Omaha	2.006%	3,009	7	3 ↑	2.006%	6,019	9	1 ↑	
Nevada	Las Vegas	1.134%	1,701	27	5 ↑	1.134%	3,403	33	3 ↑	
New Mexico	Albuquerque	1.336%	2,003	16	6 ↑	1.367%	4,102	18	5 ↑	X
New York	New York City	1.219%	1,828	22	4 ↑	1.219%	3,656	26	3 ↑	
North Carolina	Charlotte	0.717%	1,076	45	3 ↓	0.717%	2,152	46	4 ↓	
North Carolina	Raleigh	0.815%	1,223	41	2 ↓	0.815%	2,446	41	1 ↓	
Ohio	Columbus	1.614%	2,421	10	3 ↑	1.614%	4,842	10	4 ↑	
Oklahoma	Oklahoma City	1.216%	1,823	23	-	1.255%	3,764	23	1 ↑	X
AVERAGE		**1.276%**	**1,914**			**1.346%**	**4,038**			**N = 29**

		$150,000 Property Value				$300,000 Property Value				Tax Rate Varies with Property Value
State	**City**	**Rate**	**Tax Bill**	**Rank**	**Change from '21**	**Tax Rate**	**Tax Bill**	**Rank**	**Change from '21**	
Oklahoma	Tulsa	1.378%	2,066	15	-	1.422%	4,266	17	-	X
Oregon	Portland	2.588%	3,882	2	-	2.588%	7,763	2	1 ↑	
Pennsylvania	Philadelphia	0.876%	1,314	40	1 ↑	1.086%	3,259	38	1 ↓	X
Tennessee	Memphis	1.523%	2,284	11	1 ↑	1.523%	4,569	16	3 ↓	
Tennessee	Nashville	0.814%	1,220	42	2 ↑	0.814%	2,441	42	2 ↑	
Texas	Arlington	1.954%	2,931	9	1 ↓	2.128%	6,385	8	1 ↓	X
Texas	Austin	1.448%	2,172	13	2 ↓	1.583%	4,748	12	1 ↓	X
Texas	Dallas	1.429%	2,143	14	5 ↓	1.581%	4,742	13	4 ↓	X
Texas	El Paso	2.340%	3,510	3	-	2.537%	7,610	3	1 ↓	X
Texas	Fort Worth	1.998%	2,996	8	2 ↓	2.168%	6,505	6	-	X
Texas	Houston	1.457%	2,186	12	2 ↑	1.595%	4,786	11	1 ↑	X
Texas	San Antonio	2.225%	3,337	4	-	2.415%	7,244	4	-	X
Virginia	Virginia Beach	0.885%	1,328	39	1 ↑	0.885%	2,655	40	1 ↑	
Washington	Seattle	0.784%	1,176	43	2 ↑	0.784%	2,352	44	1 ↑	
Wisconsin	Milwaukee	2.173%	3,260	5	-	2.278%	6,834	5	-	X
AVERAGE		**1.276%**	**1,914**			**1.346%**	**4,038**			**N = 29**

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

		Tax Rate (%)			Tax Bill ($)			Median Home Value
State	City	Rate	Rank	Change from '21	Amount	Rank	Change from '21	
Alabama	Monroeville	0.378%	49	1 ↓	408	49	1 ↓	107,900
Alaska	Ketchikan	1.104%	26	-	3,481	6	4 ↑	315,200
Arizona	Safford	0.616%	41	-	932	37	4 ↓	151,300
Arkansas	Pocahontas	0.390%	47	2 ↑	354	50	-	90,700
California	Yreka	1.007%	31	-	1,845	22	2 ↑	183,300
Colorado	Walsenburg	0.644%	39	5 ↑	680	44	3 ↑	105,600
Connecticut	Litchfield	1.445%	19	5 ↓	4,505	3	2 ↓	311,800
Delaware	Georgetown	0.463%	46	1 ↑	1,053	35	3 ↑	227,400
Florida	Moore Haven	0.912%	33	1 ↑	727	41	4 ↑	79,700
Georgia	Fitzgerald	1.480%	18	1 ↑	1,259	32	2 ↓	85,100
Hawaii	Kauai	0.228%	50	-	1,442	28	4 ↑	632,900
Idaho	Saint Anthony	0.383%	48	10 ↓	584	47	11 ↓	152,500
Illinois	Galena	2.199%	5	6 ↑	3,383	7	4 ↑	153,800
Indiana	North Vernon	0.901%	34	1 ↓	821	38	1 ↑	91,100
Iowa	Hampton	1.797%	15	3 ↓	1,447	27	1 ↓	80,500
Kansas	Iola	2.179%	6	1 ↑	1,669	23	1 ↓	76,600
Kentucky	Morehead	1.065%	28	4 ↓	1,643	25	8 ↓	154,300
Louisiana	Natchitoches	0.479%	45	1 ↑	785	39	2 ↑	163,900
Maine	Rockland	2.077%	7	3 ↑	3,607	5	4 ↑	173,600
Maryland	Denton	1.527%	17	2 ↓	3,055	10	3 ↓	200,000
Massachusetts	Adams	2.026%	8	2 ↓	3,116	9	1 ↓	153,800
Michigan	Manistique	1.947%	9	1 ↓	1,316	30	2 ↓	67,600
Minnesota	Glencoe	1.382%	20	-	2,346	16	2 ↑	169,800
Mississippi	Philadelphia	1.044%	29	1 ↑	984	36	4 ↑	94,200
Missouri	Boonville	0.933%	32	-	1,271	31	3 ↑	136,200
Montana	Glasgow	1.142%	25	2 ↑	1,887	21	-	165,300
Nebraska	Sidney	2.248%	4	-	2,354	15	1 ↓	104,700
Nevada	Fallon	1.270%	22	-	2,437	14	2 ↑	191,900
New Hampshire	Lancaster	1.846%	11	8 ↓	2,651	13	7 ↓	143,600
New Jersey	Maurice River Twp	2.685%	2	-	4,515	2	1 ↑	168,200
New Mexico	Santa Rosa	0.664%	38	3 ↓	707	42	1 ↑	106,500
New York	Warsaw	2.744%	1	-	3,181	8	3 ↓	115,900
North Carolina	Edenton	1.077%	27	2 ↑	2,142	19	-	198,800
North Dakota	Devils Lake	1.331%	21	-	1,904	20	-	143,000
Ohio	Bryan	1.549%	16	2 ↑	1,563	26	1 ↓	100,900
AVERAGE		**1.257%**			**1,901**			**157,878**

		Tax Rate (%)			Tax Bill ($)			Median Home Value
State	**City**	**Rate**	**Rank**	**Change from '21**	**Amount**	**Rank**	**Change from '21**	
Oklahoma	Mangum	0.852%	35	1 ↑	561	48	1 ↑	65,800
Oregon	Tillamook	1.153%	24	1 ↑	2,328	17	2 ↓	201,900
Pennsylvania	Ridgway	1.815%	13	4 ↑	1,328	29	-	73,200
Rhode Island	Hopkinton	1.823%	12	1 ↑	4,435	4	-	243,300
South Carolina	Mullins	0.835%	36	1 ↑	668	45	1 ↑	80,000
South Dakota	Vermillion	1.799%	14	2 ↑	3,050	11	2 ↑	169,500
Tennessee	Savannah	0.560%	43	-	682	43	1 ↓	121,700
Texas	Fort Stockton	1.167%	23	-	1,661	24	7 ↑	142,400
Utah	Richfield	0.587%	42	2 ↓	1,189	33	6 ↓	202,600
Vermont	Hartford	2.313%	3	2 ↑	5,590	1	1 ↑	241,700
Virginia	Wise	0.639%	40	2 ↑	738	40	3 ↓	115,500
Washington	Okanogan	1.034%	30	2 ↓	2,147	18	5 ↑	207,600
West Virginia	Elkins	0.505%	44	1 ↑	586	46	2 ↓	116,200
Wisconsin	Rice Lake	1.892%	10	1 ↓	2,879	12	-	152,200
Wyoming	Worland	0.709%	37	2 ↑	1,153	34	1 ↑	162,700
AVERAGE		**1.257%**			**1,901**			**157,878**

Source for median home values: *2021 American Community Survey*, 5-year data.

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

		$150,000 Property Value				$300,000 Property Value				Tax Rate Varies with Property Value
State	City	Tax Rate	Tax Bill	Rank	Change from '21	Tax Rate	Tax Bill	Rank	Change from '21	
Alabama	Monroeville	0.393%	589	48	1 ↑	0.411%	1,233	48	-	X
Alaska	Ketchikan	1.104%	1,657	28	-	1.104%	3,313	28	-	
Arizona	Safford	0.616%	924	41	-	0.616%	1,848	43	1 ↓	
Arkansas	Pocahontas	0.553%	830	44	1 ↑	0.678%	2,035	39	4 ↑	X
California	Yreka	0.998%	1,496	32	-	1.022%	3,066	32	-	X
Colorado	Walsenburg	0.644%	966	39	5 ↑	0.644%	1,933	41	5 ↑	
Connecticut	Litchfield	1.445%	2,167	20	6 ↓	1.445%	4,334	21	6 ↓	
Delaware	Georgetown	0.463%	694	46	2 ↑	0.463%	1,389	47	2 ↑	
Florida	Moore Haven	1.455%	2,182	19	1 ↑	1.763%	5,288	15	1 ↑	X
Georgia	Fitzgerald	1.580%	2,371	16	2 ↑	1.647%	4,940	16	3 ↑	X
Hawaii	Kauai	0.050%	75	50	-	0.142%	427	50	-	X
Idaho	Saint Anthony	0.383%	574	49	11 ↓	0.383%	1,149	49	12 ↓	
Illinois	Galena	2.192%	3,288	5	7 ↑	2.346%	6,003	3	9 ↑	X
Indiana	North Vernon	0.901%	1,352	35	1 ↓	0.901%	2,703	35	1 ↓	
Iowa	Hampton	1.909%	2,864	10	-	1.974%	5,921	9	2 ↑	X
Kansas	Iola	2.209%	3,313	4	1 ↑	2.224%	6,672	6	-	X
Kentucky	Morehead	1.065%	1,597	30	4 ↓	1.065%	3,194	30	4 ↓	
Louisiana	Natchitoches	0.439%	658	47	-	0.676%	2,027	40	-	X
Maine	Rockland	2.023%	3,034	7	4 ↑	2.225%	6,674	5	5 ↑	X
Maryland	Denton	1.527%	2,291	18	2 ↓	1.527%	4,582	19	2 ↓	
Massachusetts	Adams	2.026%	3,039	6	-	2.026%	6,079	7	-	
Michigan	Manistique	1.947%	2,921	9	2 ↓	1.947%	5,842	10	1 ↓	
Minnesota	Glencoe	1.339%	2,009	21	1 ↑	1.520%	4,561	20	1 ↑	X
Mississippi	Philadelphia	1.163%	1,744	25	-	1.263%	3,789	25	-	X
Missouri	Boonville	0.933%	1,400	33	-	0.933%	2,800	34	1 ↓	
Montana	Glasgow	1.142%	1,712	27	2 ↑	1.142%	3,425	27	2 ↑	
Nebraska	Sidney	2.248%	3,372	3	1 ↑	2.248%	6,745	4	1 ↑	
Nevada	Fallon	1.270%	1,905	23	-	1.270%	3,810	23	1 ↑	
New Hampshire	Lancaster	1.846%	2,769	12	9 ↓	1.846%	5,538	11	8 ↓	
New Jersey	Maurice River Twp	2.685%	4,027	2	-	2.685%	8,054	2	-	
New Mexico	Santa Rosa	0.677%	1,016	38	3 ↓	0.693%	2,080	38	3 ↓	X
New York	Warsaw	2.744%	4,117	1	-	2.744%	8,233	1	-	
North Carolina	Edenton	1.077%	1,616	29	2 ↑	1.077%	3,232	29	2 ↑	
North Dakota	Devils Lake	1.331%	1,997	22	1 ↓	1.331%	3,994	22	1 ↑	
Ohio	Bryan	1.549%	2,324	17	2 ↑	1.549%	4,648	18	2 ↑	
AVERAGE		**1.267%**	**1,900**			**1.295%**	**3,886**			**N = 18**

		$150,000 Property Value				$300,000 Property Value				Tax Rate Varies with Property Value
State	**City**	**Tax Rate**	**Tax Bill**	**Rank**	**Change from '21**	**Tax Rate**	**Tax Bill**	**Rank**	**Change from '21**	
Oklahoma	Mangum	0.922%	1,383	34	2 ↑	0.949%	2,847	33	3 ↑	X
Oregon	Tillamook	1.153%	1,730	26	1 ↑	1.153%	3,459	26	1 ↑	
Pennsylvania	Ridgway	1.815%	2,722	14	1 ↑	1.815%	5,444	13	-	
Rhode Island	Hopkinton	1.823%	2,734	13	-	1.823%	5,469	12	2 ↑	
South Carolina	Mullins	0.835%	1,252	36	1 ↑	0.835%	2,504	36	2 ↑	
South Dakota	Vermillion	1.799%	2,699	15	2 ↑	1.799%	5,398	14	4 ↑	
Tennessee	Savannah	0.560%	841	43	-	0.560%	1,681	45	-	
Texas	Fort Stockton	1.176%	1,765	24	-	1.268%	3,804	24	2 ↓	X
Utah	Richfield	0.587%	880	42	2 ↓	0.587%	1,760	44	3 ↓	
Vermont	Hartford	1.968%	2,951	8	-	1.560%	4,681	17	13 ↓	X
Virginia	Wise	0.639%	959	40	2 ↑	0.639%	1,918	42	2 ↑	
Washington	Okanogan	1.034%	1,551	31	1 ↓	1.034%	3,102	31	1 ↓	
West Virginia	Elkins	0.505%	757	45	1 ↑	0.505%	1,514	46	1 ↑	
Wisconsin	Rice Lake	1.889%	2,833	11	2 ↓	2.004%	6,011	8	-	X
Wyoming	Worland	0.709%	1,063	37	2 ↑	0.709%	2,127	37	2 ↑	
AVERAGE		**1.267%**	**1,900**			**1.295%**	**3,886**			**N = 18**

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	1.311%	1,573	34 (15 ↑)	1.311%	15,728	37 (13 ↑)	1.311%	393,204	38 (12 ↑)		
Alaska	Anchorage	1.241%	1,489	39 (5 ↓)	1.493%	17,918	31 (3 ↓)	1.520%	456,027	32 (3 ↓)	X	X
Arizona	Phoenix	1.899%	2,279	18 (3 ↓)	1.899%	22,787	21 (4 ↓)	2.322%	696,660	16 (5 ↓)	X	X
Arkansas	Little Rock	1.408%	1,690	31 (1 ↓)	1.408%	16,899	34 (1 ↓)	1.408%	422,471	35 (1 ↓)		
California	Los Angeles	1.166%	1,399	41 (1 ↓)	1.166%	13,986	42 (1 ↓)	1.166%	349,656	43 (1 ↓)		
Colorado	Denver	1.776%	2,131	25 (8 ↓)	2.137%	25,642	16 (2 ↑)	2.137%	641,062	17 (1 ↑)	X	
Connecticut	Bridgeport	3.042%	3,650	4 (5 ↑)	3.042%	36,498	4 (8 ↑)	3.042%	912,450	5 (9 ↑)		
DC	Washington	1.191%	1,429	40 (3 ↓)	1.191%	14,289	41 (3 ↓)	1.845%	553,535	25 (3 ↓)	X	X
Delaware	Wilmington	1.130%	1,356	43 (4 ↓)	1.130%	13,557	44 (4 ↓)	1.130%	338,920	45 (5 ↓)		X
Florida	Jacksonville	1.287%	1,545	35 (-)	1.526%	18,311	30 (1 ↓)	1.559%	467,584	30 (-)	X	X
Georgia	Atlanta	1.543%	1,851	28 (1 ↓)	1.543%	18,511	29 (1 ↑)	1.543%	462,774	31 (-)		
Hawaii	Honolulu	0.906%	1,087	48 (7 ↓)	0.906%	10,875	49 (7 ↓)	0.906%	271,870	49 (6 ↓)		X
Idaho	Boise	0.661%	794	52 (2 ↓)	0.661%	7,938	52 (3 ↓)	0.799%	239,653	50 (2 ↓)	X	X
Illinois	Aurora*	2.732%	3,279	6 (1 ↓)	2.732%	32,787	7 (-)	2.732%	819,682	7 (-)		X
Illinois	Chicago	4.005%	4,806	1 (1 ↑)	4.005%	48,061	1 (1 ↑)	4.005%	1,201,518	1 (1 ↑)		X
Indiana	Indianapolis	2.222%	2,667	13 (-)	2.717%	32,602	9 (3 ↓)	2.717%	815,046	9 (3 ↓)	X	
Iowa	Des Moines	2.033%	2,440	15 (1 ↑)	2.855%	34,265	5 (1 ↓)	3.062%	918,472	4 (-)	X	X
Kansas	Wichita	2.568%	3,082	11 (1 ↑)	2.568%	30,822	13 (1 ↑)	2.568%	770,544	14 (2 ↑)		
Kentucky	Louisville	1.343%	1,611	33 (4 ↓)	1.343%	16,111	36 (4 ↓)	1.343%	402,765	37 (4 ↓)		
Louisiana	New Orleans	1.979%	2,375	17 (1 ↑)	1.979%	23,748	20 (1 ↓)	1.979%	593,703	22 (2 ↓)		
Maine	Portland	1.242%	1,490	38 (2 ↓)	1.242%	14,904	40 (3 ↓)	1.242%	372,600	42 (4 ↓)		
Maryland	Baltimore	2.633%	3,159	9 (3 ↓)	2.633%	31,595	11 (3 ↓)	2.633%	789,863	11 (3 ↓)		
Massachusetts	Boston	1.780%	2,136	24 (3 ↓)	1.780%	21,359	27 (4 ↓)	1.780%	533,963	28 (3 ↓)		X
Michigan	Detroit	3.912%	4,694	2 (1 ↓)	3.912%	46,939	2 (1 ↓)	3.912%	1,173,483	2 (1 ↓)		X
Minnesota	Minneapolis	1.555%	1,866	27 (1 ↓)	2.450%	29,405	14 (1 ↑)	2.583%	775,038	13 (-)	X	X
Mississippi	Jackson	2.732%	3,279	7 (-)	2.732%	32,786	8 (1 ↑)	2.732%	819,651	8 (1 ↑)		
Missouri	Kansas City	2.851%	3,421	5 (1 ↓)	2.851%	34,209	6 (1 ↓)	2.851%	855,227	6 (1 ↓)		X
Montana	Billings	1.094%	1,313	45 (2 ↑)	1.094%	13,130	46 (1 ↑)	1.250%	374,867	40 (1 ↑)	X	X
Nebraska	Omaha	1.876%	2,252	20 (3 ↑)	2.045%	24,534	18 (2 ↑)	2.062%	618,735	19 (-)	X	X
Nevada	Las Vegas	1.131%	1,357	42 (-)	1.131%	13,572	43 (-)	1.131%	339,306	44 (-)		
New Hampshire	Manchester	1.461%	1,753	29 (15 ↑)	1.461%	17,529	32 (13 ↑)	1.461%	438,216	33 (13 ↑)		X
New Jersey	Newark	2.667%	3,200	8 (-)	2.667%	32,003	10 (-)	2.667%	800,064	10 (-)		X
New Mexico	Albuquerque	1.632%	1,958	26 (2 ↑)	1.632%	19,582	28 (3 ↑)	1.632%	489,550	29 (3 ↑)		
New York	Buffalo*	1.781%	2,137	22 (3 ↑)	1.781%	21,373	25 (2 ↑)	1.781%	534,333	26 (2 ↑)		X
New York	New York City	1.420%	1,704	30 (3 ↑)	1.420%	17,036	33 (3 ↑)	1.420%	425,893	34 (3 ↑)		X
AVERAGE		**1.756%**	**2,108**		**1.836%**	**22,032**		**1.873%**	**561,851**		**N = 14**	**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	0.759%	910	51 (-)	0.759%	9,103	51 (-)	0.759%	227,571	52 (1 ↓)		
North Dakota	Fargo	1.122%	1,346	44 (2 ↑)	1.122%	13,462	45 (1 ↑)	1.122%	336,549	46 (1 ↑)		X
Ohio	Columbus	1.894%	2,273	19 (3 ↑)	1.894%	22,730	22 (2 ↑)	1.894%	568,258	23 (3 ↑)		X
Oklahoma	Oklahoma City	1.348%	1,617	32 (-)	1.348%	16,174	35 (-)	1.348%	404,353	36 (-)		
Oregon	Portland	2.588%	3,105	10 (-)	2.588%	31,052	12 (1 ↑)	2.588%	776,309	12 (3 ↑)		
Pennsylvania	Philadelphia	1.069%	1,283	46 (1 ↓)	1.829%	21,945	24 (1 ↑)	1.987%	596,147	21 (-)	X	X
Rhode Island	Providence	3.336%	4,003	3 (-)	3.336%	40,034	3 (-)	3.336%	1,000,842	3 (-)		
South Carolina	Charleston	1.781%	2,137	23 (1 ↑)	1.781%	21,370	26 (-)	1.781%	534,248	27 (-)		
South Dakota	Sioux Falls	1.281%	1,537	36 (5 ↓)	1.281%	15,370	38 (4 ↓)	1.281%	384,262	39 (4 ↓)		X
Tennessee	Nashville	1.247%	1,497	37 (1 ↑)	1.247%	14,968	39 (-)	1.247%	374,210	41 (2 ↓)		X
Texas	Houston	2.098%	2,517	14 (-)	2.098%	25,174	17 (1 ↓)	2.098%	629,344	18 (1 ↓)		
Utah	Salt Lake City	0.827%	993	49 (6 ↓)	1.003%	12,033	47 (3 ↓)	1.003%	300,831	47 (2 ↓)	X	
Vermont	Burlington	2.022%	2,426	16 (3 ↑)	2.022%	24,264	19 (2 ↑)	2.022%	606,595	20 (3 ↑)		X
Virginia	Virginia Beach	0.935%	1,122	47 (1 ↑)	0.935%	11,221	48 (-)	0.935%	280,525	48 (1 ↑)		
Washington	Seattle	0.793%	951	50 (2 ↑)	0.793%	9,515	50 (2 ↑)	0.793%	237,864	51 (1 ↑)		
West Virginia	Charleston	1.856%	2,228	21 (1 ↓)	1.856%	22,276	23 (1 ↓)	1.856%	556,899	24 (-)		
Wisconsin	Milwaukee	2.325%	2,791	12 (1 ↓)	2.377%	28,530	15 (4 ↓)	2.383%	714,903	15 (3 ↓)	X	
Wyoming	Cheyenne	0.600%	720	53 (-)	0.600%	7,200	53 (-)	0.600%	179,999	53 (-)		
AVERAGE		**1.756%**	**2,108**		**1.836%**	**22,032**		**1.873%**	**561,851**		**N = 14**	**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.

Note: $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	1.371%	1,645	30 (6 ↓)	1.371%	16,453	33 (6 ↓)	1.685%	505,407	27 (4 ↓)	X	X
Arizona	Phoenix	1.899%	2,279	16 (-)	1.899%	22,787	19 (2 ↓)	2.322%	696,660	14 (7 ↓)	X	X
Arizona	Tucson	1.733%	2,079	22 (-)	1.733%	20,791	25 (3 ↓)	2.122%	636,587	17 (-)	X	X
California	Bakersfield	1.187%	1,424	41 (1 ↓)	1.187%	14,241	42 (1 ↓)	1.187%	356,025	42 (1 ↓)		
California	Fresno	1.275%	1,530	36 (2 ↑)	1.275%	15,297	37 (2 ↑)	1.275%	382,432	38 (1 ↑)		
California	Long Beach	1.189%	1,427	40 (1 ↑)	1.189%	14,269	41 (1 ↑)	1.189%	356,734	41 (1 ↑)		
California	Los Angeles	1.166%	1,399	43 (-)	1.166%	13,986	44 (-)	1.166%	349,656	44 (-)		
California	Oakland	1.377%	1,653	29 (2 ↑)	1.377%	16,525	32 (1 ↑)	1.377%	413,130	34 (-)		
California	Sacramento	1.151%	1,381	44 (1 ↑)	1.151%	13,807	45 (1 ↑)	1.151%	345,180	45 (1 ↑)		
California	San Diego	1.216%	1,460	38 (4 ↓)	1.216%	14,596	39 (3 ↓)	1.216%	364,908	40 (3 ↓)		
California	San Francisco	1.180%	1,416	42 (-)	1.180%	14,157	43 (-)	1.180%	353,921	43 (-)		
California	San Jose	1.286%	1,543	35 (1 ↑)	1.286%	15,433	36 (1 ↑)	1.286%	385,830	37 (1 ↑)		
Colorado	Colorado Springs	1.369%	1,643	31 (12 ↓)	1.654%	19,850	26 (5 ↓)	1.654%	496,257	28 (3 ↓)	X	
Colorado	Denver	1.776%	2,131	21 (4 ↓)	2.137%	25,642	15 (3 ↑)	2.137%	641,062	16 (3 ↑)	X	
DC	Washington	1.191%	1,429	39 (2 ↓)	1.191%	14,289	40 (2 ↓)	1.845%	553,535	25 (1 ↓)	X	X
Florida	Jacksonville	1.287%	1,545	34 (1 ↑)	1.526%	18,311	29 (1 ↓)	1.559%	467,584	30 (1 ↓)	X	X
Florida	Miami	1.521%	1,825	26 (-)	1.809%	21,710	23 (2 ↑)	1.849%	554,631	24 (2 ↑)	X	X
Georgia	Atlanta	1.543%	1,851	25 (2 ↑)	1.543%	18,511	28 (1 ↑)	1.543%	462,774	31 (1 ↓)		
Illinois	Chicago	4.005%	4,806	1 (1 ↑)	4.005%	48,061	1 (1 ↑)	4.005%	1,201,518	1 (1 ↑)		X
Indiana	Indianapolis	2.222%	2,667	13 (8 ↓)	2.717%	32,602	5 (-)	2.717%	815,046	5 (-)	X	
Kansas	Wichita	2.568%	3,082	8 (3 ↑)	2.568%	30,822	9 (2 ↑)	2.568%	770,544	10 (3 ↑)		
Kentucky	Louisville	1.343%	1,611	33 (4 ↓)	1.343%	16,111	35 (4 ↓)	1.343%	402,765	36 (4 ↓)		
Maryland	Baltimore	2.633%	3,159	5 (1 ↑)	2.633%	31,595	6 (-)	2.633%	789,863	6 (-)		
Massachusetts	Boston	1.780%	2,136	20 (-)	1.780%	21,359	24 (1 ↓)	1.780%	533,963	26 (1 ↑)		X
Michigan	Detroit	3.912%	4,694	2 (1 ↓)	3.912%	46,939	2 (1 ↓)	3.912%	1,173,483	2 (1 ↓)		X
Minnesota	Minneapolis	1.555%	1,866	24 (1 ↑)	2.450%	29,405	10 (2 ↑)	2.583%	775,038	8 (2 ↑)	X	X
Missouri	Kansas City	2.851%	3,421	4 (-)	2.851%	34,209	4 (-)	2.851%	855,227	4 (-)		X
Nebraska	Omaha	1.876%	2,252	19 (4 ↑)	2.045%	24,534	17 (3 ↑)	2.062%	618,735	19 (2 ↑)	X	X
Nevada	Las Vegas	1.131%	1,357	45 (1 ↓)	1.131%	13,572	46 (1 ↓)	1.131%	339,294	46 (1 ↓)		
New Mexico	Albuquerque	1.632%	1,958	23 (5 ↑)	1.632%	19,582	27 (3 ↑)	1.632%	489,550	29 (2 ↑)		
New York	New York City	1.420%	1,704	28 (5 ↑)	1.420%	17,036	31 (4 ↑)	1.420%	425,893	33 (3 ↑)		X
North Carolina	Charlotte	0.759%	910	50 (1 ↓)	0.759%	9,103	50 (1 ↓)	0.759%	227,571	50 (1 ↓)		
North Carolina	Raleigh	0.848%	1,018	48 (-)	0.848%	10,178	48 (-)	0.848%	254,441	48 (-)		
Ohio	Columbus	1.894%	2,273	17 (4 ↑)	1.894%	22,730	20 (4 ↑)	1.894%	568,258	22 (6 ↑)		X
Oklahoma	Oklahoma City	1.348%	1,617	32 (-)	1.348%	16,174	34 (-)	1.348%	404,353	35 (-)		
AVERAGE		**1.747%**	**2,097**		**1.818%**	**21,815**		**1.861%**	**558,395**		**N = 13**	**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	1.444%	1,733	27 (3 ↑)	1.444%	17,332	30 (2 ↑)	1.444%	433,290	32 (1 ↑)		X
Oregon	Portland	2.588%	3,105	6 (2 ↑)	2.588%	31,052	7 (2 ↑)	2.588%	776,309	7 (4 ↑)		
Pennsylvania	Philadelphia	1.069%	1,283	46 (-)	1.829%	21,945	22 (4 ↑)	1.987%	596,147	20 (2 ↑)	X	X
Tennessee	Memphis	2.335%	2,802	10 (-)	2.335%	28,022	13 (3 ↓)	2.335%	700,539	13 (1 ↓)		X
Tennessee	Nashville	1.247%	1,497	37 (2 ↑)	1.247%	14,968	38 (2 ↑)	1.247%	374,210	39 (1 ↑)		X
Texas	Arlington	2.289%	2,747	12 (2 ↑)	2.289%	27,472	14 (1 ↑)	2.289%	686,788	15 (1 ↑)		
Texas	Austin	1.884%	2,261	18 (-)	1.884%	22,608	21 (2 ↓)	1.884%	565,193	23 (3 ↓)		
Texas	Dallas	1.973%	2,367	15 (3 ↓)	1.973%	23,673	18 (5 ↓)	1.973%	591,833	21 (7 ↓)		
Texas	El Paso	2.864%	3,437	3 (-)	2.864%	34,374	3 (-)	2.864%	859,347	3 (-)		
Texas	Fort Worth	2.450%	2,940	9 (4 ↑)	2.450%	29,396	11 (3 ↑)	2.450%	734,891	11 (4 ↑)		
Texas	Houston	2.098%	2,517	14 (1 ↑)	2.098%	25,174	16 (-)	2.098%	629,344	18 (-)		
Texas	San Antonio	2.569%	3,083	7 (-)	2.569%	30,828	8 (1 ↓)	2.569%	770,706	9 (-)		
Virginia	Virginia Beach	0.935%	1,122	47 (-)	0.935%	11,221	47 (-)	0.935%	280,525	47 (-)		
Washington	Seattle	0.793%	951	49 (1 ↑)	0.793%	9,515	49 (1 ↑)	0.793%	237,864	49 (1 ↑)		
Wisconsin	Milwaukee	2.325%	2,791	11 (2 ↓)	2.377%	28,530	12 (4 ↓)	2.383%	714,903	12 (4 ↓)	X	
AVERAGE		**1.747%**	**2,097**		**1.818%**	**21,815**		**1.861%**	**558,395**		**N = 13**	**N = 18**

Note: $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	**City**	**Tax Rate**	**Tax Bill**	**Rank**	**Tax Rate**	**Tax Bill**	**Rank**	**Tax Rate**	**Tax Bill**	**Rank**		
Alabama	Monroeville	0.876%	1,051	42 (5 ↑)	0.876%	10,511	43 (4 ↑)	0.876%	262,769	44 (3 ↑)		
Alaska	Ketchikan	0.920%	1,104	40 (3 ↑)	1.092%	13,110	34 (5 ↑)	1.116%	334,825	35 (2 ↑)	X	X
Arizona	Safford	0.938%	1,126	39 (7 ↓)	0.938%	11,261	41 (9 ↓)	1.211%	363,313	32 (4 ↓)	X	X
Arkansas	Pocahontas	0.819%	983	45 (1 ↑)	0.819%	9,828	46 (-)	0.819%	245,693	47 (1 ↓)		
California	Yreka	1.046%	1,256	37 (3 ↑)	1.046%	12,558	38 (3 ↑)	1.046%	313,944	39 (2 ↑)		
Colorado	Walsenburg	2.181%	2,618	9 (1 ↓)	2.618%	31,413	6 (4 ↑)	2.618%	785,323	7 (3 ↑)	X	
Connecticut	Litchfield	1.765%	2,118	19 (13 ↓)	1.765%	21,180	21 (13 ↓)	1.765%	529,501	21 (13 ↓)		
Delaware	Georgetown	0.470%	564	50 (-)	0.470%	5,642	50 (-)	0.470%	141,055	50 (-)		X
Florida	Moore Haven	1.725%	2,070	21 (2 ↑)	2.033%	24,396	19 (1 ↑)	2.075%	622,553	15 (4 ↑)	X	X
Georgia	Fitzgerald	1.728%	2,073	20 (4 ↑)	1.728%	20,733	22 (2 ↑)	1.728%	518,328	22 (2 ↑)		
Hawaii	Kauai	0.675%	810	48 (1 ↑)	0.675%	8,100	48 (1 ↑)	0.675%	202,500	48 (1 ↑)		X
Idaho	Saint Anthony	0.740%	888	47 (9 ↓)	0.740%	8,881	47 (13 ↓)	0.917%	275,005	42 (10 ↓)	X	X
Illinois	Galena	2.083%	2,500	11 (11 ↑)	2.083%	24,996	14 (9 ↑)	2.083%	624,895	14 (9 ↑)		X
Indiana	North Vernon	2.498%	2,997	5 (4 ↑)	2.998%	35,970	3 (2 ↑)	2.998%	899,250	3 (3 ↑)	X	
Iowa	Hampton	2.852%	3,422	4 (-)	3.674%	44,086	2 (-)	3.880%	1,163,992	2 (-)	X	X
Kansas	Iola	3.956%	4,747	1 (-)	3.956%	47,467	1 (-)	3.956%	1,186,676	1 (-)		X
Kentucky	Morehead	1.162%	1,395	32 (3 ↓)	1.162%	13,948	32 (3 ↓)	1.162%	348,712	33 (3 ↓)		
Louisiana	Natchitoches	1.306%	1,568	29 (1 ↑)	1.306%	15,675	29 (1 ↑)	1.306%	391,882	29 (2 ↑)		
Maine	Rockland	2.427%	2,912	6 (4 ↑)	2.427%	29,124	8 (4 ↑)	2.427%	728,100	8 (4 ↑)		
Maryland	Denton	2.051%	2,461	15 (-)	2.051%	24,610	16 (1 ↑)	2.051%	615,249	17 (-)		
Massachusetts	Adams	1.689%	2,026	22 (6 ↓)	1.689%	20,263	23 (5 ↓)	1.689%	506,583	24 (6 ↓)		X
Michigan	Manistique	2.935%	3,522	3 (-)	2.935%	35,225	5 (1 ↓)	2.935%	880,616	5 (-)		X
Minnesota	Glencoe	1.643%	1,971	23 (2 ↓)	2.514%	30,170	7 (-)	2.649%	794,664	6 (2 ↓)	X	X
Mississippi	Philadelphia	2.044%	2,453	17 (2 ↑)	2.044%	24,532	18 (3 ↑)	2.044%	613,305	19 (2 ↑)		
Missouri	Boonville	2.049%	2,459	16 (2 ↑)	2.049%	24,590	17 (2 ↑)	2.049%	614,755	18 (2 ↑)		X
Montana	Glasgow	1.510%	1,812	27 (-)	1.510%	18,117	27 (-)	1.704%	511,296	23 (3 ↑)	X	X
Nebraska	Sidney	2.076%	2,491	12 (5 ↑)	2.257%	27,088	10 (1 ↑)	2.277%	683,025	10 (1 ↑)	X	X
Nevada	Fallon	1.269%	1,523	30 (1 ↑)	1.269%	15,226	30 (1 ↑)	1.269%	380,640	30 (3 ↑)		
New Hampshire	Lancaster	1.538%	1,846	25 (11 ↓)	1.538%	18,460	25 (9 ↓)	1.538%	461,510	26 (10 ↓)		X
New Jersey	Maurice River Twp	2.237%	2,685	8 (1 ↓)	2.237%	26,845	11 (2 ↓)	2.237%	671,130	11 (2 ↓)		X
New Mexico	Santa Rosa	0.827%	993	44 (3 ↓)	0.827%	9,927	45 (3 ↓)	0.827%	248,183	46 (4 ↓)		
New York	Warsaw	2.287%	2,744	7 (5 ↓)	2.287%	27,444	9 (6 ↓)	2.287%	686,101	9 (6 ↓)		X
North Carolina	Edenton	1.092%	1,310	34 (5 ↑)	1.092%	13,103	35 (5 ↑)	1.092%	327,565	36 (4 ↑)		
North Dakota	Devils Lake	1.233%	1,479	31 (2 ↑)	1.233%	14,791	31 (2 ↑)	1.233%	369,780	31 (3 ↑)		X
Ohio	Bryan	1.560%	1,872	24 (4 ↑)	1.560%	18,721	24 (4 ↑)	1.560%	468,027	25 (4 ↑)		X
AVERAGE		**1.591%**	**1,909**		**1.662%**	**19,941**		**1.683%**	**504,993**		**N = 12**	**N = 25**

		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	Mangum	0.949%	1,139	38 (7 ↑)	0.949%	11,386	40 (5 ↑)	0.949%	284,655	41 (4 ↑)		X
Oregon	Tillamook	1.153%	1,384	33 (2 ↑)	1.153%	13,837	33 (3 ↑)	1.153%	345,929	34 (2 ↑)		
Pennsylvania	Ridgway	1.512%	1,815	26 (-)	1.512%	18,146	26 (-)	1.512%	453,649	27 (-)		X
Rhode Island	Hopkinton	1.828%	2,194	18 (2 ↑)	1.828%	21,936	20 (2 ↑)	1.828%	548,395	20 (2 ↑)		
South Carolina	Mullins	2.944%	3,533	2 (3 ↑)	2.944%	35,332	4 (2 ↑)	2.944%	883,290	4 (3 ↑)		
South Dakota	Vermillion	1.319%	1,583	28 (3 ↓)	1.319%	15,828	28 (3 ↓)	1.319%	395,695	28 (3 ↓)		X
Tennessee	Savannah	0.885%	1,062	41 (1 ↑)	0.885%	10,624	42 (1 ↑)	0.885%	265,595	43 (-)		X
Texas	Fort Stockton	2.073%	2,488	13 (1 ↓)	2.073%	24,879	15 (-)	2.073%	621,972	16 (1 ↓)		
Utah	Richfield	0.813%	976	46 (12 ↓)	0.996%	11,950	39 (4 ↓)	0.996%	298,743	40 (5 ↓)	X	
Vermont	Hartford	2.154%	2,585	10 (1 ↑)	2.154%	25,849	12 (1 ↑)	2.154%	646,216	12 (1 ↑)		X
Virginia	Wise	0.848%	1,018	43 (1 ↑)	0.848%	10,175	44 (-)	0.848%	254,379	45 (1 ↓)		
Washington	Okanogan	1.076%	1,291	36 (1 ↑)	1.076%	12,911	37 (1 ↑)	1.076%	322,771	38 (1 ↑)		
West Virginia	Elkins	1.082%	1,298	35 (1 ↑)	1.082%	12,979	36 (1 ↑)	1.082%	324,464	37 (1 ↑)		
Wisconsin	Rice Lake	2.056%	2,467	14 (1 ↓)	2.113%	25,352	13 (1 ↑)	2.119%	635,626	13 (1 ↑)	X	
Wyoming	Worland	0.658%	790	49 (1 ↓)	0.658%	7,901	49 (1 ↓)	0.658%	197,514	49 (1 ↓)		
AVERAGE		**1.591%**	**1,909**		**1.662%**	**19,941**		**1.683%**	**504,993**		**N = 12**	**N = 25**

Note: $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	1.173%	2,347	27 (1 ↑)	1.173%	23,467	32 (1 ↓)	1.173%	586,670	33 (1 ↓)	
Alaska	Anchorage	1.418%	2,836	18 (2 ↓)	1.569%	31,390	19 (5 ↓)	1.586%	792,827	20 (5 ↓)	X
Arizona	Phoenix	1.139%	2,279	29 (5 ↓)	1.660%	33,190	15 (5 ↓)	1.923%	961,624	10 (2 ↓)	X
Arkansas	Little Rock	1.409%	2,818	20 (2 ↑)	1.409%	28,179	22 (4 ↑)	1.409%	704,471	24 (2 ↑)	
California	Los Angeles	0.932%	1,865	34 (1 ↑)	0.932%	18,648	37 (-)	0.932%	466,208	38 (-)	
Colorado	Denver	1.715%	3,430	12 (-)	1.715%	34,298	12 (1 ↑)	1.715%	857,454	15 (1 ↑)	
Connecticut	Bridgeport	1.673%	3,346	13 (5 ↑)	1.673%	33,457	14 (8 ↑)	1.673%	836,413	17 (6 ↑)	
DC	Washington	0.714%	1,429	42 (2 ↓)	1.352%	27,039	26 (1 ↓)	1.787%	893,535	12 (-)	X
Delaware	Wilmington	0.678%	1,356	44 (3 ↓)	0.678%	13,557	46 (2 ↓)	0.678%	338,920	46 (2 ↓)	
Florida	Jacksonville	1.059%	2,117	33 (1 ↓)	1.243%	24,851	30 (1 ↓)	1.262%	631,075	30 (1 ↓)	X
Georgia	Atlanta	1.413%	2,827	19 (1 ↑)	1.413%	28,266	21 (2 ↑)	1.413%	706,654	23 (1 ↑)	
Hawaii	Honolulu	0.544%	1,087	51 (7 ↓)	0.544%	10,875	52 (5 ↓)	0.544%	271,870	52 (5 ↓)	
Idaho	Boise	0.397%	794	53 (-)	0.549%	10,974	51 (9 ↓)	0.653%	326,396	48 (7 ↓)	X
Illinois	Aurora*	1.639%	3,279	14 (1 ↓)	1.639%	32,787	17 (2 ↓)	1.639%	819,682	18 (1 ↓)	
Illinois	Chicago	2.429%	4,858	2 (-)	2.429%	48,584	2 (-)	2.429%	1,214,589	2 (-)	
Indiana	Indianapolis	2.329%	4,657	3 (-)	2.329%	46,574	3 (-)	2.329%	1,164,351	3 (-)	
Iowa	Des Moines	1.150%	2,299	28 (2 ↓)	1.643%	32,857	16 (-)	1.767%	883,279	13 (1 ↑)	X
Kansas	Wichita	1.397%	2,794	21 (2 ↑)	1.397%	27,944	24 (3 ↑)	1.397%	698,598	25 (2 ↑)	
Kentucky	Louisville	0.756%	1,512	41 (2 ↓)	0.756%	15,119	44 (3 ↓)	0.756%	377,963	44 (1 ↓)	
Louisiana	New Orleans	2.032%	4,063	9 (-)	2.032%	40,633	9 (-)	2.032%	1,015,833	9 (1 ↑)	
Maine	Portland	0.683%	1,366	43 (-)	0.683%	13,662	45 (1 ↑)	0.683%	341,550	45 (1 ↑)	
Maryland	Baltimore	1.300%	2,600	24 (3 ↓)	1.300%	26,003	29 (5 ↓)	1.300%	650,066	29 (4 ↓)	
Massachusetts	Boston	1.068%	2,136	32 (2 ↓)	1.068%	21,359	36 (3 ↓)	1.068%	533,963	37 (3 ↓)	
Michigan	Detroit	2.247%	4,493	6 (1 ↓)	2.326%	46,520	4 (-)	2.326%	1,163,002	4 (-)	X
Minnesota	Minneapolis	0.889%	1,778	36 (2 ↓)	1.400%	27,997	23 (4 ↓)	1.477%	738,581	21 (1 ↓)	X
Mississippi	Jackson	2.794%	5,588	1 (-)	2.794%	55,879	1 (-)	2.794%	1,396,971	1 (-)	
Missouri	Kansas City	2.259%	4,518	5 (2 ↑)	2.259%	45,177	6 (1 ↑)	2.259%	1,129,417	6 (1 ↑)	
Montana	Billings	0.657%	1,313	46 (4 ↑)	0.805%	16,105	41 (2 ↑)	1.121%	560,305	35 (1 ↑)	X
Nebraska	Omaha	1.574%	3,148	16 (1 ↓)	1.675%	33,499	13 (4 ↑)	1.686%	842,856	16 (2 ↑)	X
Nevada	Las Vegas	0.908%	1,816	35 (1 ↑)	0.908%	18,161	38 (-)	0.908%	454,031	39 (-)	
New Hampshire	Manchester	0.876%	1,753	37 (10 ↑)	0.876%	17,529	39 (11 ↑)	0.876%	438,216	40 (10 ↑)	
New Jersey	Newark	1.600%	3,200	15 (1 ↓)	1.600%	32,003	18 (-)	1.600%	800,064	19 (-)	
New Mexico	Albuquerque	1.341%	2,682	23 (4 ↑)	1.341%	26,823	27 (3 ↑)	1.341%	670,580	27 (3 ↑)	
New York	Buffalo*	1.069%	2,137	31 (2 ↑)	1.069%	21,373	35 (1 ↑)	1.069%	534,333	36 (1 ↑)	
New York	New York City	0.585%	1,171	50 (1 ↑)	0.585%	11,708	50 (2 ↑)	0.585%	292,712	51 (1 ↑)	
AVERAGE		**1.280%**	**2,561**		**1.346%**	**26,914**		**1.373%**	**686,661**		**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	0.648%	1,296	47 (5 ↓)	0.648%	12,963	48 (3 ↓)	0.648%	324,071	49 (4 ↓)	
North Dakota	Fargo	0.673%	1,346	45 (4 ↑)	0.673%	13,462	47 (4 ↑)	0.673%	336,549	47 (4 ↑)	
Ohio	Columbus	1.215%	2,430	26 (5 ↑)	1.215%	24,297	31 (3 ↑)	1.215%	607,432	31 (4 ↑)	
Oklahoma	Oklahoma	1.456%	2,911	17 (-)	1.456%	29,113	20 (1 ↑)	1.456%	727,836	22 (-)	
Oregon	Portland	2.070%	4,140	8 (-)	2.070%	41,403	8 (-)	2.070%	1,035,079	8 (1 ↑)	
Pennsylvania	Philadelphia	0.642%	1,283	49 (1 ↓)	1.097%	21,945	34 (1 ↑)	1.192%	596,147	32 (1 ↓)	X
Rhode Island	Providence	1.735%	3,469	11 (-)	1.735%	34,694	11 (1 ↑)	1.735%	867,342	14 (1 ↓)	
South Carolina	Charleston	2.318%	4,637	4 (-)	2.318%	46,367	5 (-)	2.318%	1,159,180	5 (-)	
South Dakota	Sioux Falls	0.769%	1,537	39 (1 ↓)	0.769%	15,370	42 (2 ↓)	0.769%	384,262	42 (-)	
Tennessee	Nashville	1.139%	2,278	30 (1 ↓)	1.139%	22,778	33 (1 ↓)	1.139%	569,450	34 (1 ↓)	
Texas	Houston	2.100%	4,200	7 (1 ↓)	2.100%	42,003	7 (1 ↓)	2.100%	1,050,081	7 (1 ↓)	
Utah	Salt Lake	0.812%	1,625	38 (1 ↓)	0.812%	16,248	40 (1 ↓)	0.812%	406,201	41 (1 ↓)	
Vermont	Burlington	1.392%	2,784	22 (3 ↑)	1.392%	27,835	25 (3 ↑)	1.392%	695,887	26 (2 ↑)	
Virginia	Virginia	0.481%	962	52 (-)	0.481%	9,621	53 (-)	0.481%	240,525	53 (-)	
Washington	Seattle	0.643%	1,286	48 (2 ↓)	0.643%	12,863	49 (-)	0.643%	321,567	50 (1 ↓)	
West Virginia	Charleston	1.883%	3,765	10 (-)	1.883%	37,651	10 (1 ↑)	1.883%	941,265	11 (-)	
Wisconsin	Milwaukee	1.276%	2,552	25 (6 ↓)	1.307%	26,146	28 (8 ↓)	1.311%	655,322	28 (7 ↓)	X
Wyoming	Cheyenne	0.760%	1,519	40 (5 ↑)	0.760%	15,190	43 (5 ↑)	0.760%	379,757	43 (5 ↑)	
AVERAGE		**1.280%**	**2,561**		**1.346%**	**26,914**		**1.373%**	**686,661**		**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.

Note:
$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	1.113%	2,782	25 (2 ↑)	1.113%	27,817	30 (2 ↑)	1.113%	695,420	31 (2 ↑)	
Alaska	Anchorage	1.471%	3,678	15 (2 ↓)	1.592%	39,810	14 (2 ↓)	1.605%	1,003,327	15 (2 ↓)	X
Arizona	Phoenix	0.911%	2,279	31 (2 ↓)	1.646%	41,139	11 (-)	1.857%	1,160,347	11 (4 ↓)	X
Arkansas	Little Rock	1.409%	3,523	16 (-)	1.409%	35,229	18 (-)	1.409%	880,721	19 (-)	
California	Los Angeles	0.886%	2,214	32 (-)	0.886%	22,145	34 (-)	0.886%	553,622	36 (-)	
Colorado	Denver	1.632%	4,079	11 (-)	1.632%	40,790	12 (1 ↑)	1.632%	1,019,748	13 (1 ↑)	
Connecticut	Bridgeport	1.399%	3,498	17 (4 ↑)	1.399%	34,977	19 (7 ↑)	1.399%	874,431	20 (7 ↑)	
DC	Washington	0.572%	1,429	44 (1 ↓)	1.490%	37,239	16 (-)	1.838%	1,148,535	12 (1 ↓)	X
Delaware	Wilmington	0.542%	1,356	46 (2 ↓)	0.542%	13,557	49 (2 ↓)	0.542%	338,920	49 (2 ↓)	
Florida	Jacksonville	1.043%	2,608	28 (-)	1.190%	29,755	26 (2 ↓)	1.206%	753,693	26 (2 ↓)	X
Georgia	Atlanta	1.391%	3,476	18 (1 ↓)	1.391%	34,763	20 (1 ↓)	1.391%	869,064	21 (1 ↓)	
Hawaii	Honolulu	0.435%	1,087	51 (5 ↓)	0.435%	10,875	52 (3 ↓)	0.435%	271,870	52 (3 ↓)	
Idaho	Boise	0.318%	794	53 (-)	0.543%	13,576	48 (8 ↓)	0.626%	391,453	45 (4 ↓)	X
Illinois	Aurora*	1.311%	3,279	19 (1 ↓)	1.311%	32,787	22 (2 ↓)	1.311%	819,682	22 (1 ↓)	
Illinois	Chicago	1.943%	4,858	8 (1 ↓)	1.943%	48,584	9 (1 ↓)	1.943%	1,214,589	9 (-)	
Indiana	Indianapolis	2.219%	5,547	2 (-)	2.219%	55,474	2 (-)	2.219%	1,386,839	2 (-)	
Iowa	Des Moines	0.920%	2,299	30 (-)	1.314%	32,857	21 (-)	1.413%	883,279	18 (-)	X
Kansas	Wichita	1.175%	2,938	23 (-)	1.175%	29,383	27 (1 ↑)	1.175%	734,571	28 (-)	
Kentucky	Louisville	0.663%	1,656	40 (2 ↓)	0.663%	16,565	43 (1 ↓)	0.663%	414,114	43 (1 ↓)	
Louisiana	New Orleans	2.047%	5,119	6 (-)	2.047%	51,187	6 (-)	2.047%	1,279,665	6 (-)	
Maine	Portland	0.571%	1,428	45 (-)	0.571%	14,283	47 (1 ↑)	0.571%	357,075	48 (-)	
Maryland	Baltimore	1.152%	2,880	24 (4 ↓)	1.152%	28,799	28 (5 ↓)	1.152%	719,964	29 (4 ↓)	
Massachusetts	Boston	0.854%	2,136	35 (4 ↓)	0.854%	21,359	38 (5 ↓)	0.854%	533,963	39 (4 ↓)	
Michigan	Detroit	1.861%	4,652	10 (1 ↓)	1.956%	48,904	8 (1 ↓)	1.956%	1,222,611	8 (-)	X
Minnesota	Minneapolis	0.711%	1,778	37 (-)	1.120%	27,997	29 (2 ↓)	1.182%	738,581	27 (4 ↓)	X
Mississippi	Jackson	2.812%	7,031	1 (-)	2.812%	70,312	1 (-)	2.812%	1,757,796	1 (-)	
Missouri	Kansas City	2.136%	5,340	4 (1 ↑)	2.136%	53,402	4 (1 ↑)	2.136%	1,335,059	4 (1 ↑)	
Montana	Billings	0.525%	1,313	48 (2 ↑)	0.763%	19,080	40 (1 ↑)	1.134%	709,053	30 (1 ↑)	X
Nebraska	Omaha	1.528%	3,821	12 (2 ↑)	1.609%	40,223	13 (1 ↑)	1.618%	1,010,947	14 (1 ↑)	X
Nevada	Las Vegas	0.864%	2,160	33 (1 ↑)	0.864%	21,603	36 (1 ↑)	0.864%	540,083	37 (1 ↑)	
New Hampshire	Manchester	0.701%	1,753	39 (8 ↑)	0.701%	17,529	42 (8 ↑)	0.701%	438,216	42 (8 ↑)	
New Jersey	Newark	1.280%	3,200	21 (2 ↓)	1.280%	32,003	24 (2 ↓)	1.280%	800,064	24 (2 ↓)	
New Mexico	Albuquerque	1.290%	3,225	20 (4 ↑)	1.290%	32,254	23 (6 ↑)	1.290%	806,353	23 (6 ↑)	
New York	Buffalo*	0.855%	2,137	34 (2 ↑)	0.855%	21,373	37 (2 ↑)	0.855%	534,333	38 (2 ↑)	
New York	New York City	0.468%	1,171	50 (2 ↑)	0.468%	11,708	51 (2 ↑)	0.468%	292,712	51 (2 ↑)	
AVERAGE		**1.157%**	**2,893**		**1.228%**	**30,696**		**1.252%**	**782,628**		**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	0.634%	1,586	41 (2 ↓)	0.634%	15,858	44 (1 ↓)	0.634%	396,446	44 (1 ↓)	
North Dakota	Fargo	0.538%	1,346	47 (2 ↑)	0.538%	13,462	50 (1 ↑)	0.538%	336,549	50 (1 ↑)	
Ohio	Columbus	0.972%	2,430	29 (4 ↑)	0.972%	24,297	33 (2 ↑)	0.972%	607,432	34 (3 ↑)	
Oklahoma	Oklahoma City	1.488%	3,720	14 (1 ↑)	1.488%	37,200	17 (-)	1.488%	930,012	17 (-)	
Oregon	Portland	1.967%	4,917	7 (1 ↑)	1.967%	49,166	7 (2 ↑)	1.967%	1,229,157	7 (3 ↑)	
Pennsylvania	Philadelphia	0.513%	1,283	49 (1 ↓)	0.878%	21,945	35 (1 ↑)	0.954%	596,147	35 (1 ↓)	X
Rhode Island	Providence	1.495%	3,736	13 (1 ↓)	1.495%	37,364	15 (-)	1.495%	934,092	16 (-)	
South Carolina	Charleston	2.202%	5,506	3 (1 ↑)	2.202%	55,061	3 (1 ↑)	2.202%	1,376,526	3 (1 ↑)	
South Dakota	Sioux Falls	0.615%	1,537	43 (3 ↓)	0.615%	15,370	46 (2 ↓)	0.615%	384,262	47 (3 ↓)	
Tennessee	Nashville	1.106%	2,766	26 (-)	1.106%	27,659	31 (-)	1.106%	691,475	32 (-)	
Texas	Houston	2.101%	5,252	5 (2 ↓)	2.101%	52,522	5 (2 ↓)	2.101%	1,313,041	5 (2 ↓)	
Utah	Salt Lake City	0.776%	1,941	36 (1 ↓)	0.776%	19,409	39 (1 ↓)	0.776%	485,229	40 (1 ↓)	
Vermont	Burlington	1.215%	3,039	22 (3 ↑)	1.215%	30,386	25 (5 ↑)	1.215%	759,652	25 (5 ↑)	
Virginia	Virginia Beach	0.417%	1,042	52 (1 ↓)	0.417%	10,421	53 (1 ↓)	0.417%	260,525	53 (1 ↓)	
Washington	Seattle	0.615%	1,537	42 (-)	0.615%	15,374	45 (1 ↑)	0.615%	384,344	46 (-)	
West Virginia	Charleston	1.883%	4,706	9 (1 ↑)	1.883%	47,063	10 (-)	1.883%	1,176,581	10 (2 ↑)	
Wisconsin	Milwaukee	1.069%	2,671	27 (5 ↓)	1.094%	27,338	32 (7 ↓)	1.096%	685,112	33 (7 ↓)	X
Wyoming	Cheyenne	0.707%	1,768	38 (3 ↑)	0.707%	17,680	41 (4 ↑)	0.707%	442,012	41 (4 ↑)	
AVERAGE		**1.157%**	**2,893**		**1.228%**	**30,696**		**1.252%**	**782,628**		**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.

Note:
$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	0.823%	1,645	42 (7 ↓)	1.208%	24,161	31 (5 ↓)	1.403%	701,738	23 (4 ↓)	X
Arizona	Phoenix	1.139%	2,279	25 (2 ↓)	1.660%	33,190	16 (2 ↓)	1.923%	961,624	13 (1 ↓)	X
Arizona	Tucson	1.040%	2,079	30 (2 ↓)	1.518%	30,361	17 (-)	1.761%	880,325	16 (1 ↓)	X
California	Bakersfield	0.899%	1,798	40 (1 ↑)	0.899%	17,979	44 (1 ↓)	0.899%	449,481	44 (1 ↓)	
California	Fresno	1.020%	2,040	32 (2 ↑)	1.020%	20,396	37 (1 ↑)	1.020%	509,909	37 (1 ↑)	
California	Long Beach	0.951%	1,903	34 (3 ↑)	0.951%	19,026	39 (-)	0.951%	475,645	39 (-)	
California	Los Angeles	0.932%	1,865	36 (3 ↑)	0.932%	18,648	41 (-)	0.932%	466,208	41 (-)	
California	Oakland	1.102%	2,203	27 (3 ↑)	1.102%	22,034	33 (2 ↑)	1.102%	550,840	34 (1 ↑)	
California	Sacramento	0.920%	1,841	37 (5 ↑)	0.920%	18,410	42 (2 ↑)	0.920%	460,240	42 (2 ↑)	
California	San Diego	0.973%	1,946	33 (1 ↓)	0.973%	19,462	38 (2 ↓)	0.973%	486,544	38 (2 ↓)	
California	San Francisco	0.944%	1,888	35 (3 ↑)	0.944%	18,876	40 (-)	0.944%	471,895	40 (-)	
California	San Jose	1.029%	2,058	31 (2 ↑)	1.029%	20,578	36 (1 ↑)	1.029%	514,440	36 (1 ↑)	
Colorado	Colorado Springs	0.907%	1,814	39 (23 ↓)	1.292%	25,840	28 (10 ↓)	1.333%	666,525	27 (6 ↓)	X
Colorado	Denver	1.174%	2,348	24 (10 ↓)	1.661%	33,216	15 (-)	1.713%	856,372	17 (-)	X
DC	Washington	0.714%	1,429	44 (-)	1.352%	27,039	24 (1 ↑)	1.787%	893,535	15 (1 ↑)	X
Florida	Jacksonville	1.059%	2,117	29 (2 ↑)	1.243%	24,851	29 (-)	1.262%	631,075	30 (1 ↓)	X
Florida	Miami	1.259%	2,517	22 (2 ↑)	1.481%	29,627	18 (1 ↑)	1.505%	752,537	19 (3 ↑)	X
Georgia	Atlanta	1.413%	2,827	16 (3 ↑)	1.413%	28,266	20 (3 ↑)	1.413%	706,654	22 (3 ↑)	
Illinois	Chicago	2.429%	4,858	4 (-)	2.429%	48,584	4 (-)	2.429%	1,214,589	4 (-)	
Indiana	Indianapolis	2.329%	4,657	6 (1 ↑)	2.329%	46,574	6 (1 ↑)	2.329%	1,164,351	6 (1 ↑)	
Kansas	Wichita	1.397%	2,794	18 (4 ↑)	1.397%	27,944	23 (5 ↑)	1.397%	698,598	25 (3 ↑)	
Kentucky	Louisville	0.756%	1,512	43 (-)	0.756%	15,119	45 (-)	0.756%	377,963	45 (-)	
Maryland	Baltimore	1.300%	2,600	20 (-)	1.300%	26,003	27 (3 ↓)	1.300%	650,066	29 (3 ↓)	
Massachusetts	Boston	1.068%	2,136	28 (1 ↓)	1.068%	21,359	35 (3 ↓)	1.068%	533,963	35 (2 ↓)	
Michigan	Detroit	2.247%	4,493	8 (1 ↑)	2.326%	46,520	7 (1 ↑)	2.326%	1,163,002	7 (1 ↑)	X
Minnesota	Minneapolis	0.889%	1,778	41 (5 ↓)	1.400%	27,997	22 (2 ↓)	1.477%	738,581	20 (-)	X
Missouri	Kansas City	2.259%	4,518	7 (4 ↑)	2.259%	45,177	8 (3 ↑)	2.259%	1,129,417	8 (3 ↑)	
Nebraska	Omaha	1.574%	3,148	14 (1 ↑)	1.675%	33,499	14 (2 ↑)	1.686%	842,856	18 (-)	X
Nevada	Las Vegas	0.908%	1,816	38 (2 ↑)	0.908%	18,161	43 (1 ↓)	0.908%	454,031	43 (1 ↓)	
New Mexico	Albuquerque	1.341%	2,682	19 (6 ↑)	1.341%	26,823	25 (5 ↑)	1.341%	670,580	26 (4 ↑)	
New York	New York City	0.585%	1,171	49 (-)	0.585%	11,708	49 (-)	0.585%	292,712	49 (-)	
North Carolina	Charlotte	0.648%	1,296	46 (-)	0.648%	12,963	47 (-)	0.648%	324,071	47 (-)	
North Carolina	Raleigh	0.709%	1,419	45 (-)	0.709%	14,188	46 (-)	0.709%	354,704	46 (-)	
Ohio	Columbus	1.215%	2,430	23 (6 ↑)	1.215%	24,297	30 (3 ↑)	1.215%	607,432	31 (3 ↑)	
Oklahoma	Oklahoma City	1.456%	2,912	15 (2 ↑)	1.456%	29,121	19 (3 ↑)	1.456%	728,028	21 (3 ↑)	
AVERAGE		**1.353%**	**2,707**		**1.443%**	**28,859**		**1.472%**	**736,064**		**N = 13**

		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	1.400%	2,800	17 (4 ↑)	1.400%	27,997	21 (6 ↑)	1.400%	699,930	24 (3 ↑)	
Oregon	Portland	2.070%	4,140	11 (2 ↑)	2.070%	41,403	11 (2 ↑)	2.070%	1,035,079	11 (3 ↑)	
Pennsylvania	Philadelphia	0.642%	1,283	48 (-)	1.097%	21,945	34 (-)	1.192%	596,147	32 (1 ↓)	X
Tennessee	Memphis	2.132%	4,264	9 (1 ↓)	2.132%	42,641	9 (-)	2.132%	1,066,037	9 (-)	
Tennessee	Nashville	1.139%	2,278	26 (-)	1.139%	22,778	32 (1 ↓)	1.139%	569,450	33 (1 ↓)	
Texas	Arlington	2.378%	4,755	5 (1 ↑)	2.378%	47,553	5 (1 ↑)	2.378%	1,188,833	5 (1 ↑)	
Texas	Austin	1.915%	3,829	13 (1 ↓)	1.915%	38,292	13 (1 ↓)	1.915%	957,295	14 (1 ↓)	
Texas	Dallas	2.067%	4,135	12 (9 ↓)	2.067%	41,349	12 (9 ↓)	2.067%	1,033,730	12 (9 ↓)	
Texas	El Paso	2.871%	5,742	1 (-)	2.871%	57,418	1 (-)	2.871%	1,435,451	1 (-)	
Texas	Fort Worth	2.513%	5,026	3 (2 ↑)	2.513%	50,255	3 (2 ↑)	2.513%	1,256,378	3 (2 ↑)	
Texas	Houston	2.100%	4,200	10 (-)	2.100%	42,003	10 (-)	2.100%	1,050,081	10 (-)	
Texas	San Antonio	2.634%	5,267	2 (-)	2.634%	52,674	2 (-)	2.634%	1,316,843	2 (-)	
Virginia	Virginia Beach	0.481%	962	50 (-)	0.481%	9,621	50 (-)	0.481%	240,525	50 (-)	
Washington	Seattle	0.643%	1,286	47 (-)	0.643%	12,863	48 (-)	0.643%	321,567	48 (-)	
Wisconsin	Milwaukee	1.276%	2,552	21 (3 ↓)	1.307%	26,146	26 (5 ↓)	1.311%	655,322	28 (5 ↓)	X
AVERAGE		**1.353%**	**2,707**		**1.443%**	**28,859**		**1.472%**	**736,064**		**N = 13**

Note:
$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	0.658%	1,645	44 (3 ↓)	1.202%	30,051	25 (1 ↓)	1.358%	848,986	23 (4 ↓)	X
Arizona	Phoenix	0.911%	2,279	32 (5 ↓)	1.646%	41,139	14 (-)	1.857%	1,160,347	14 (3 ↓)	X
Arizona	Tucson	0.832%	2,079	40 (4 ↓)	1.507%	37,673	17 (2 ↓)	1.701%	1,063,129	16 (-)	X
California	Bakersfield	0.841%	2,104	39 (-)	0.841%	21,035	44 (1 ↓)	0.841%	525,878	44 (1 ↓)	
California	Fresno	0.969%	2,422	29 (2 ↑)	0.969%	24,221	35 (-)	0.969%	605,517	35 (-)	
California	Long Beach	0.904%	2,259	33 (1 ↓)	0.904%	22,593	37 (1 ↓)	0.904%	564,829	38 (1 ↓)	
California	Los Angeles	0.886%	2,214	35 (-)	0.886%	22,145	39 (-)	0.886%	553,622	40 (-)	
California	Oakland	1.047%	2,616	25 (3 ↑)	1.047%	26,165	32 (-)	1.047%	654,123	32 (-)	
California	Sacramento	0.874%	2,186	36 (4 ↑)	0.874%	21,861	41 (3 ↑)	0.874%	546,535	41 (3 ↑)	
California	San Diego	0.924%	2,311	31 (2 ↓)	0.924%	23,111	36 (3 ↓)	0.924%	577,771	37 (4 ↓)	
California	San Francisco	0.897%	2,242	34 (1 ↓)	0.897%	22,415	38 (1 ↓)	0.897%	560,375	39 (1 ↓)	
California	San Jose	0.977%	2,444	27 (3 ↑)	0.977%	24,436	33 (1 ↑)	0.977%	610,898	33 (1 ↑)	
Colorado	Colorado Springs	0.931%	2,327	30 (13 ↓)	1.239%	30,973	24 (4 ↓)	1.272%	794,867	25 (3 ↓)	X
Colorado	Denver	1.199%	2,997	20 (6 ↓)	1.588%	39,708	16 (-)	1.630%	1,018,666	17 (-)	X
DC	Washington	0.572%	1,429	47 (-)	1.490%	37,239	18 (-)	1.838%	1,148,535	15 (-)	X
Florida	Jacksonville	1.043%	2,608	26 (-)	1.190%	29,755	26 (-)	1.206%	753,693	26 (-)	X
Florida	Miami	1.244%	3,111	19 (1 ↑)	1.423%	35,564	20 (1 ↑)	1.442%	900,967	20 (1 ↑)	X
Georgia	Atlanta	1.391%	3,476	16 (2 ↑)	1.391%	34,763	21 (1 ↑)	1.391%	869,064	21 (2 ↑)	
Illinois	Chicago	1.943%	4,858	11 (-)	1.943%	48,584	12 (-)	1.943%	1,214,589	12 (1 ↑)	
Indiana	Indianapolis	2.219%	5,547	5 (1 ↑)	2.219%	55,474	5 (1 ↑)	2.219%	1,386,839	5 (1 ↑)	
Kansas	Wichita	1.175%	2,938	21 (2 ↑)	1.175%	29,383	27 (2 ↑)	1.175%	734,571	28 (1 ↑)	
Kentucky	Louisville	0.663%	1,656	43 (1 ↑)	0.663%	16,565	46 (-)	0.663%	414,114	46 (-)	
Maryland	Baltimore	1.152%	2,880	22 (1 ↓)	1.152%	28,799	28 (3 ↓)	1.152%	719,964	29 (2 ↓)	
Massachusetts	Boston	0.854%	2,136	38 (4 ↓)	0.854%	21,359	43 (5 ↓)	0.854%	533,963	43 (4 ↓)	
Michigan	Detroit	1.861%	4,652	13 (-)	1.956%	48,904	11 (-)	1.956%	1,222,611	11 (1 ↑)	X
Minnesota	Minneapolis	0.711%	1,778	41 (1 ↑)	1.120%	27,997	29 (1 ↓)	1.182%	738,581	27 (2 ↓)	X
Missouri	Kansas City	2.136%	5,340	6 (3 ↑)	2.136%	53,402	6 (3 ↑)	2.136%	1,335,059	6 (3 ↑)	
Nebraska	Omaha	1.528%	3,821	14 (1 ↑)	1.609%	40,223	15 (2 ↑)	1.618%	1,010,947	18 (-)	X
Nevada	Las Vegas	0.864%	2,160	37 (1 ↑)	0.864%	21,603	42 (-)	0.864%	540,083	42 (-)	
New Mexico	Albuquerque	1.290%	3,225	18 (6 ↑)	1.290%	32,254	23 (7 ↑)	1.290%	806,353	24 (6 ↑)	
New York	New York City	0.468%	1,171	49 (1 ↑)	0.468%	11,708	49 (1 ↑)	0.468%	292,712	49 (1 ↑)	
North Carolina	Charlotte	0.634%	1,586	45 (-)	0.634%	15,858	47 (-)	0.634%	396,446	47 (-)	
North Carolina	Raleigh	0.688%	1,721	42 (1 ↑)	0.688%	17,206	45 (-)	0.688%	430,148	45 (-)	
Ohio	Columbus	0.972%	2,430	28 (9 ↑)	0.972%	24,297	34 (6 ↑)	0.972%	607,432	34 (7 ↑)	
Oklahoma	Oklahoma City	1.488%	3,721	15 (1 ↑)	1.488%	37,208	19 (-)	1.488%	930,205	19 (1 ↑)	
AVERAGE		**1.269%**	**3,174**		**1.367%**	**34,171**		**1.390%**	**868,883**		**N = 13**

		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	1.387%	3,466	17 (2 ↑)	1.387%	34,663	22 (1 ↑)	1.387%	866,580	22 (2 ↑)	
Oregon	Portland	1.967%	4,917	10 (2 ↑)	1.967%	49,166	10 (3 ↑)	1.967%	1,229,157	10 (4 ↑)	
Pennsylvania	Philadelphia	0.513%	1,283	48 (-)	0.878%	21,945	40 (1 ↑)	0.954%	596,147	36 (-)	X
Tennessee	Memphis	2.071%	5,178	9 (2 ↓)	2.071%	51,779	9 (2 ↓)	2.071%	1,294,474	9 (2 ↓)	
Tennessee	Nashville	1.106%	2,766	23 (2 ↑)	1.106%	27,659	30 (1 ↑)	1.106%	691,475	30 (1 ↑)	
Texas	Arlington	2.404%	6,010	4 (1 ↑)	2.404%	60,104	4 (1 ↑)	2.404%	1,502,612	4 (1 ↑)	
Texas	Austin	1.924%	4,809	12 (2 ↓)	1.924%	48,094	13 (3 ↓)	1.924%	1,202,358	13 (3 ↓)	
Texas	Dallas	2.096%	5,240	8 (5 ↓)	2.096%	52,397	8 (5 ↓)	2.096%	1,309,917	8 (5 ↓)	
Texas	El Paso	2.873%	7,182	1 (-)	2.873%	71,821	1 (-)	2.873%	1,795,517	1 (-)	
Texas	Fort Worth	2.532%	6,329	3 (1 ↑)	2.532%	63,292	3 (1 ↑)	2.532%	1,582,306	3 (1 ↑)	
Texas	Houston	2.101%	5,252	7 (1 ↑)	2.101%	52,522	7 (1 ↑)	2.101%	1,313,041	7 (1 ↑)	
Texas	San Antonio	2.653%	6,633	2 (-)	2.653%	66,327	2 (-)	2.653%	1,658,179	2 (-)	
Virginia	Virginia Beach	0.417%	1,042	50 (1 ↓)	0.417%	10,421	50 (1 ↓)	0.417%	260,525	50 (1 ↓)	
Washington	Seattle	0.615%	1,537	46 (-)	0.615%	15,374	48 (-)	0.615%	384,344	48 (-)	
Wisconsin	Milwaukee	1.069%	2,671	24 (2 ↓)	1.094%	27,338	31 (4 ↓)	1.096%	685,112	31 (3 ↓)	X
AVERAGE		**1.269%**	**3,174**		**1.367%**	**34,171**		**1.390%**	**868,883**		**N = 13**

Note:
$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	**City**	**Tax Rate**	**Tax Bill**	**Rank**	**Tax Rate**	**Tax Bill**	**Rank**	**Tax Rate**	**Tax Bill**	**Rank**	
Alabama	Monroeville	0.656%	1,312	45 (2 ↑)	0.656%	13,120	46 (2 ↑)	0.656%	328,000	47 (1 ↑)	
Alaska	Ketchikan	0.759%	1,517	41 (2 ↑)	0.891%	17,830	35 (4 ↑)	0.906%	452,825	34 (5 ↑)	X
Arizona	Safford	0.563%	1,126	47 (3 ↓)	0.898%	17,961	34 (10 ↓)	1.068%	533,942	24 (4 ↓)	X
Arkansas	Pocahontas	0.815%	1,631	37 (1 ↑)	0.815%	16,309	40 (2 ↑)	0.815%	407,733	40 (2 ↑)	
California	Yreka	0.837%	1,674	35 (2 ↑)	0.837%	16,744	38 (3 ↑)	0.837%	418,592	38 (3 ↑)	
Colorado	Walsenburg	2.094%	4,188	4 (2 ↑)	2.094%	41,884	4 (3 ↑)	2.094%	1,047,097	4 (3 ↑)	
Connecticut	Litchfield	0.965%	1,930	27 (13 ↓)	0.965%	19,304	29 (13 ↓)	0.965%	482,601	30 (12 ↓)	
Delaware	Georgetown	0.282%	564	50 (-)	0.282%	5,642	50 (-)	0.282%	141,055	50 (-)	
Florida	Moore Haven	1.404%	2,809	11 (1 ↑)	1.642%	32,837	10 (-)	1.667%	833,588	10 (-)	X
Georgia	Fitzgerald	1.535%	3,070	10 (-)	1.535%	30,702	11 (1 ↑)	1.535%	767,544	12 (-)	
Hawaii	Kauai	0.405%	810	49 (-)	0.405%	8,100	49 (-)	0.405%	202,500	49 (-)	
Idaho	Saint Anthony	0.444%	888	48 (-)	0.639%	12,785	48 (16 ↓)	0.773%	386,570	43 (15 ↓)	X
Illinois	Galena	1.250%	2,500	17 (8 ↑)	1.250%	24,996	19 (8 ↑)	1.250%	624,895	20 (9 ↑)	
Indiana	North Vernon	2.399%	4,797	2 (1 ↑)	2.399%	47,970	2 (1 ↑)	2.399%	1,199,250	2 (1 ↑)	
Iowa	Hampton	0.785%	1,571	39 (2 ↑)	1.279%	25,572	18 (3 ↑)	1.402%	701,148	14 (3 ↑)	X
Kansas	Iola	2.130%	4,261	3 (1 ↓)	2.130%	42,608	3 (1 ↓)	2.130%	1,065,201	3 (1 ↓)	
Kentucky	Morehead	0.651%	1,302	46 (4 ↓)	0.651%	13,016	47 (2 ↓)	0.651%	325,402	48 (3 ↓)	
Louisiana	Natchitoches	1.353%	2,707	13 (-)	1.353%	27,066	14 (1 ↑)	1.353%	676,642	16 (-)	
Maine	Rockland	1.335%	2,670	15 (4 ↑)	1.335%	26,697	16 (4 ↑)	1.335%	667,425	18 (5 ↑)	
Maryland	Denton	1.033%	2,066	21 (2 ↑)	1.033%	20,660	24 (2 ↑)	1.033%	516,499	25 (2 ↑)	
Massachusetts	Adams	1.013%	2,026	23 (5 ↓)	1.013%	20,263	26 (7 ↓)	1.013%	506,583	27 (5 ↓)	
Michigan	Manistique	1.632%	3,264	9 (6 ↑)	1.677%	33,535	9 (5 ↑)	1.677%	838,380	9 (6 ↑)	X
Minnesota	Glencoe	0.986%	1,971	25 (1 ↓)	1.508%	30,170	12 (1 ↓)	1.589%	794,664	11 (2 ↓)	X
Mississippi	Philadelphia	2.044%	4,089	6 (1 ↓)	2.044%	40,887	6 (1 ↓)	2.044%	1,022,175	6 (1 ↓)	
Missouri	Boonville	1.679%	3,357	8 (1 ↑)	1.679%	33,574	8 (1 ↑)	1.679%	839,349	8 (3 ↑)	
Montana	Glasgow	0.906%	1,812	31 (5 ↑)	1.092%	21,843	22 (6 ↑)	1.487%	743,578	13 (-)	X
Nebraska	Sidney	1.730%	3,460	7 (-)	1.839%	36,786	7 (1 ↓)	1.851%	925,458	7 (1 ↓)	X
Nevada	Fallon	1.017%	2,035	22 (5 ↑)	1.017%	20,350	25 (5 ↑)	1.017%	508,740	26 (5 ↑)	
New	Lancaster	0.923%	1,846	28 (11 ↓)	0.923%	18,460	30 (12 ↓)	0.923%	461,510	31 (10 ↓)	
New Jersey	Maurice River	1.342%	2,685	14 (3 ↓)	1.342%	26,845	15 (2 ↓)	1.342%	671,130	17 (3 ↓)	
New Mexico	Santa Rosa	0.682%	1,364	44 (5 ↓)	0.682%	13,636	45 (2 ↓)	0.682%	340,910	46 (3 ↓)	
New York	Warsaw	1.372%	2,744	12 (4 ↓)	1.372%	27,444	13 (5 ↓)	1.372%	686,101	15 (7 ↓)	
North Carolina	Edenton	0.888%	1,776	33 (2 ↑)	0.888%	17,763	36 (4 ↑)	0.888%	444,065	36 (4 ↑)	
North Dakota	Devils Lake	0.740%	1,479	42 (3 ↑)	0.740%	14,791	43 (3 ↑)	0.740%	369,780	44 (2 ↑)	
Ohio	Bryan	0.978%	1,956	26 (6 ↓)	0.978%	19,564	28 (5 ↓)	0.978%	489,110	29 (4 ↓)	
AVERAGE		**1.158%**	**2,315**		**1.204%**	**24,071**		**1.223%**	**611,354**		**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	Mangum	1.098%	2,196	19 (11 ↑)	1.098%	21,959	21 (13 ↑)	1.098%	548,978	22 (12 ↑)	
Oregon	Tillamook	0.922%	1,845	29 (5 ↑)	0.922%	18,450	31 (7 ↑)	0.922%	461,239	32 (6 ↑)	
Pennsylvania	Ridgway	0.907%	1,815	30 (1 ↑)	0.907%	18,146	32 (3 ↑)	0.907%	453,649	33 (2 ↑)	
Rhode Island	Hopkinton	1.004%	2,008	24 (4 ↑)	1.004%	20,083	27 (4 ↑)	1.004%	502,070	28 (4 ↑)	
South Carolina	Mullins	3.897%	7,795	1 (-)	3.897%	77,949	1 (-)	3.897%	1,948,720	1 (-)	
South Dakota	Vermillion	0.791%	1,583	38 (12 ↓)	0.791%	15,828	41 (12 ↓)	0.791%	395,695	41 (11 ↓)	
Tennessee	Savannah	0.862%	1,725	34 (2 ↓)	0.862%	17,248	37 (1 ↓)	0.862%	431,195	37 (1 ↓)	
Texas	Fort Stockton	2.075%	4,149	5 (1 ↓)	2.075%	41,492	5 (1 ↓)	2.075%	1,037,312	5 (1 ↓)	
Utah	Richfield	0.817%	1,633	36 (7 ↓)	0.817%	16,331	39 (6 ↓)	0.817%	408,263	39 (6 ↓)	
Vermont	Hartford	1.292%	2,585	16 (-)	1.292%	25,849	17 (-)	1.292%	646,216	19 (-)	
Virginia	Wise	0.779%	1,558	40 (-)	0.779%	15,575	42 (2 ↑)	0.779%	389,379	42 (2 ↑)	
Washington	Okanogan	0.902%	1,805	32 (1 ↑)	0.902%	18,050	33 (4 ↑)	0.902%	451,240	35 (2 ↑)	
West Virginia	Elkins	1.082%	2,163	20 (2 ↑)	1.082%	21,631	23 (2 ↑)	1.082%	540,774	23 (3 ↑)	
Wisconsin	Rice Lake	1.127%	2,255	18 (3 ↑)	1.162%	23,233	20 (2 ↑)	1.165%	582,651	21 (3 ↑)	X
Wyoming	Worland	0.701%	1,401	43 (3 ↑)	0.701%	14,012	44 (3 ↑)	0.701%	350,290	45 (2 ↑)	
AVERAGE		**1.158%**	**2,315**		**1.204%**	**24,071**		**1.223%**	**611,354**		**N = 10**

$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	City	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 (1 ↑)	0.623%	389,500	46 (1 ↑)	
Alaska	Ketchikan	0.749%	1,871	36 (4 ↑)	0.855%	21,370	30 (6 ↑)	0.866%	541,325	29 (6 ↑)	X
Arizona	Safford	0.450%	1,126	47 (1 ↓)	0.923%	23,080	25 (9 ↓)	1.059%	661,913	21 (6 ↓)	X
Arkansas	Pocahontas	0.814%	2,036	28 (7 ↑)	0.814%	20,360	33 (7 ↑)	0.814%	509,008	33 (7 ↑)	
California	Yreka	0.795%	1,988	32 (5 ↑)	0.795%	19,883	37 (5 ↑)	0.795%	497,078	37 (5 ↑)	
Colorado	Walsenburg	1.989%	4,974	5 (1 ↑)	1.989%	49,737	5 (2 ↑)	1.989%	1,243,428	5 (2 ↑)	
Connecticut	Litchfield	0.810%	2,024	30 (16 ↓)	0.810%	20,242	35 (18 ↓)	0.810%	506,051	35 (17 ↓)	
Delaware	Georgetown	0.226%	564	50 (-)	0.226%	5,642	50 (-)	0.226%	141,055	50 (-)	
Florida	Moore Haven	1.377%	3,442	10 (1 ↑)	1.567%	39,168	9 (-)	1.587%	991,864	9 (1 ↓)	X
Georgia	Fitzgerald	1.500%	3,749	9 (-)	1.500%	37,489	10 (-)	1.500%	937,224	10 (-)	
Hawaii	Kauai	0.324%	810	49 (-)	0.324%	8,100	49 (-)	0.324%	202,500	49 (-)	
Idaho	Saint Anthony	0.355%	888	48 (-)	0.645%	16,132	44 (17 ↓)	0.752%	470,243	40 (16 ↓)	X
Illinois	Galena	1.000%	2,500	19 (13 ↑)	1.000%	24,996	22 (15 ↑)	1.000%	624,895	23 (14 ↑)	
Indiana	North Vernon	2.279%	5,697	2 (2 ↑)	2.279%	56,970	2 (2 ↑)	2.279%	1,424,250	2 (2 ↑)	
Iowa	Hampton	0.628%	1,571	43 (1 ↑)	1.023%	25,572	20 (5 ↑)	1.122%	701,148	16 (4 ↑)	X
Kansas	Iola	1.808%	4,520	6 (3 ↓)	1.808%	45,203	6 (3 ↓)	1.808%	1,130,074	6 (3 ↓)	
Kentucky	Morehead	0.577%	1,443	46 (4 ↓)	0.577%	14,432	48 (3 ↓)	0.577%	360,807	48 (3 ↓)	
Louisiana	Natchitoches	1.367%	3,418	11 (1 ↓)	1.367%	34,185	12 (1 ↓)	1.367%	854,617	13 (1 ↓)	
Maine	Rockland	1.116%	2,791	14 (4 ↑)	1.116%	27,911	15 (5 ↑)	1.116%	697,763	17 (5 ↑)	
Maryland	Denton	0.905%	2,263	22 (3 ↑)	0.905%	22,635	26 (4 ↑)	0.905%	565,874	26 (4 ↑)	
Massachusetts	Adams	0.811%	2,026	29 (9 ↓)	0.811%	20,263	34 (12 ↓)	0.811%	506,583	34 (8 ↓)	
Michigan	Manistique	1.341%	3,354	12 (3 ↑)	1.395%	34,880	11 (3 ↑)	1.395%	871,998	12 (4 ↑)	X
Minnesota	Glencoe	0.788%	1,971	33 (2 ↓)	1.207%	30,170	13 (-)	1.271%	794,664	14 (-)	X
Mississippi	Philadelphia	2.044%	5,111	4 (1 ↑)	2.044%	51,109	4 (1 ↑)	2.044%	1,277,719	4 (1 ↑)	
Missouri	Boonville	1.612%	4,031	8 (-)	1.612%	40,312	8 (-)	1.612%	1,007,794	8 (1 ↑)	
Montana	Glasgow	0.725%	1,812	39 (2 ↑)	1.023%	25,569	21 (3 ↑)	1.488%	929,900	11 (-)	X
Nebraska	Sidney	1.675%	4,188	7 (-)	1.762%	44,059	7 (1 ↓)	1.772%	1,107,282	7 (1 ↓)	X
Nevada	Fallon	0.968%	2,419	20 (3 ↑)	0.968%	24,193	24 (4 ↑)	0.968%	604,815	25 (3 ↑)	
New Hampshire	Lancaster	0.738%	1,846	37 (18 ↓)	0.738%	18,460	40 (19 ↓)	0.738%	461,510	41 (18 ↓)	
New Jersey	Maurice River	1.074%	2,685	17 (4 ↓)	1.074%	26,845	18 (3 ↓)	1.074%	671,130	20 (3 ↓)	
New Mexico	Santa Rosa	0.657%	1,642	41 (3 ↓)	0.657%	16,418	43 (-)	0.657%	410,455	44 (1 ↓)	
New York	Warsaw	1.098%	2,744	15 (3 ↓)	1.098%	27,444	16 (4 ↓)	1.098%	686,101	18 (5 ↓)	
North Carolina	Edenton	0.850%	2,126	26 (4 ↑)	0.850%	21,258	31 (4 ↑)	0.850%	531,440	31 (5 ↑)	
North Dakota	Devils Lake	0.592%	1,479	45 (2 ↑)	0.592%	14,791	47 (1 ↑)	0.592%	369,780	47 (1 ↑)	
Ohio	Bryan	0.783%	1,956	35 (11 ↓)	0.783%	19,564	39 (10 ↓)	0.783%	489,110	39 (10 ↓)	
AVERAGE		**1.049%**	**2,623**		**1.096%**	**27,401**		**1.114%**	**696,476**		**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	Mangum	1.122%	2,806	13 (9 ↑)	1.122%	28,059	14 (12 ↑)	1.122%	701,471	15 (12 ↑)	
Oregon	Tillamook	0.876%	2,191	23 (6 ↑)	0.876%	21,909	27 (7 ↑)	0.876%	547,721	27 (7 ↑)	
Pennsylvania	Ridgway	0.726%	1,815	38 (1 ↑)	0.726%	18,146	41 (3 ↑)	0.726%	453,649	42 (2 ↑)	
Rhode Island	Hopkinton	0.840%	2,101	27 (6 ↑)	0.840%	21,009	32 (6 ↑)	0.840%	525,233	32 (6 ↑)	
South Carolina	Mullins	3.703%	9,256	1 (-)	3.703%	92,564	1 (-)	3.703%	2,314,105	1 (-)	
South Dakota	Vermillion	0.633%	1,583	42 (8 ↓)	0.633%	15,828	45 (6 ↓)	0.633%	395,695	45 (6 ↓)	
Tennessee	Savannah	0.856%	2,139	25 (2 ↑)	0.856%	21,388	29 (3 ↑)	0.856%	534,695	30 (2 ↑)	
Texas	Fort Stockton	2.075%	5,188	3 (1 ↓)	2.075%	51,876	3 (1 ↓)	2.075%	1,296,899	3 (1 ↓)	
Utah	Richfield	0.785%	1,962	34 (8 ↓)	0.785%	19,616	38 (7 ↓)	0.785%	490,403	38 (7 ↓)	
Vermont	Hartford	1.034%	2,585	18 (1 ↓)	1.034%	25,849	19 (-)	1.034%	646,216	22 (1 ↓)	
Virginia	Wise	0.797%	1,993	31 (5 ↑)	0.797%	19,925	36 (5 ↑)	0.797%	498,129	36 (5 ↑)	
Washington	Okanogan	0.876%	2,190	24 (4 ↑)	0.876%	21,904	28 (5 ↑)	0.876%	547,591	28 (5 ↑)	
West Virginia	Elkins	1.082%	2,704	16 (-)	1.082%	27,039	17 (1 ↑)	1.082%	675,968	19 (-)	
Wisconsin	Rice Lake	0.944%	2,361	21 (-)	0.972%	24,293	23 (-)	0.975%	609,138	24 (1 ↑)	X
Wyoming	Worland	0.666%	1,664	40 (3 ↑)	0.666%	16,639	42 (4 ↑)	0.666%	415,969	43 (3 ↑)	
AVERAGE		**1.049%**	**2,623**		**1.096%**	**27,401**		**1.114%**	**696,476**		**N = 10**

$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

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?
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	Aurora*	X	X	X	X	X	X	Yes
Illinois	Chicago	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	Buffalo*	X	X	X	X	X	X	Yes
New York	New York City	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	Charleston			X	X			Yes
South Dakota	Sioux Falls	X	X	X	X	X	X	Yes
Tennessee	Nashville		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 $300,000 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 '21**	
Alabama	Birmingham	1.432%	9,020	27	3 ↓	
Alaska	Anchorage	1.454%	9,161	26	6 ↓	X
Arizona	Phoenix	1.240%	7,813	37	3 ↓	X
Arkansas	Little Rock	1.408%	8,870	28	2 ↓	
California	Los Angeles	1.166%	7,343	40	1 ↑	
Colorado	Denver	0.488%	3,072	52	2 ↓	X
Connecticut	Bridgeport	3.042%	19,161	4	8 ↑	
DC	Washington	0.701%	4,417	49	-	X
Delaware	Wilmington	1.194%	7,521	39	9 ↓	X
Florida	Jacksonville	1.484%	9,352	23	2 ↓	X
Georgia	Atlanta	1.532%	9,650	22	-	
Hawaii	Honolulu	0.321%	2,024	53	-	X
Idaho	Boise	0.756%	4,763	46	3 ↓	X
Illinois	Aurora*	3.123%	19,672	2	-	X
Illinois	Chicago	1.616%	10,183	21	8 ↑	X
Indiana	Indianapolis	1.975%	12,443	16	3 ↓	X
Iowa	Des Moines	2.489%	15,683	7	2 ↓	X
Kansas	Wichita	1.266%	7,974	34	1 ↓	
Kentucky	Louisville	1.164%	7,336	41	6 ↓	X
Louisiana	New Orleans	1.324%	8,341	30	5 ↓	
Maine	Portland	1.242%	7,825	36	4 ↓	
Maryland	Baltimore	2.210%	13,924	9	1 ↓	
Massachusetts	Boston	0.935%	5,890	43	1 ↑	X
Michigan	Detroit	3.999%	25,196	1	-	
Minnesota	Minneapolis	1.484%	9,351	24	1 ↓	X
Mississippi	Jackson	2.710%	17,074	5	1 ↓	
Missouri	Kansas City	1.264%	7,961	35	1 ↑	X
Montana	Billings	0.888%	5,594	44	2 ↑	X
Nebraska	Omaha	2.002%	12,614	14	2 ↑	X
Nevada	Las Vegas	1.126%	7,091	42	-	
New Hampshire	Manchester	1.669%	10,517	18	20 ↑	X
New Jersey	Newark	3.048%	19,202	3	-	X
New Mexico	Albuquerque	1.408%	8,870	29	2 ↓	
New York	Buffalo*	2.036%	12,824	13	2 ↑	X
New York	New York City	1.986%	12,513	15	2 ↑	X
AVERAGE		**1.577%**	**9,938**			**N = 29**

		Land and Building Value: $600,000				Lower Tax Rate on Personal Property
State	**City**	**Tax Rate**	**Tax Bill**	**Rank**	**Change from '21**	
North Carolina	Charlotte	0.729%	4,593	47	2 ↓	
North Dakota	Fargo	1.282%	8,077	33	7 ↑	X
Ohio	Columbus	2.165%	13,638	11	-	X
Oklahoma	Oklahoma City	1.309%	8,249	31	3 ↓	
Oregon	Portland	2.588%	16,302	6	1 ↑	
Pennsylvania	Philadelphia	1.234%	7,777	38	1 ↓	X
Rhode Island	Providence	1.660%	10,458	19	10 ↓	
South Carolina	Charleston	1.621%	10,214	20	2 ↓	
South Dakota	Sioux Falls	1.464%	9,222	25	6 ↓	X
Tennessee	Nashville	1.286%	8,102	32	1 ↓	X
Texas	Houston	2.127%	13,398	12	2 ↓	
Utah	Salt Lake City	0.520%	3,276	51	-	X
Vermont	Burlington	2.165%	13,641	10	4 ↑	X
Virginia	Virginia Beach	0.710%	4,474	48	1 ↓	
Washington	Seattle	0.787%	4,955	45	3 ↑	
West Virginia	Charleston	1.823%	11,484	17	22 ↑	
Wisconsin	Milwaukee	2.372%	14,945	8	2 ↓	
Wyoming	Cheyenne	0.581%	3,662	50	2 ↑	
AVERAGE		**1.577%**	**9,938**			**N = 29**

* 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.

Note: 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**	**Change from '21**	
Arizona	Mesa	0.895%	5,641	43	1 ↓	X
Arizona	Phoenix	1.240%	7,813	31	1 ↓	X
Arizona	Tucson	1.131%	7,128	40	1 ↓	X
California	Bakersfield	1.187%	7,477	35	-	
California	Fresno	1.275%	8,031	28	4 ↑	
California	Long Beach	1.189%	7,491	34	2 ↑	
California	Los Angeles	1.166%	7,343	37	1 ↑	
California	Oakland	1.377%	8,676	24	2 ↓	
California	Sacramento	1.151%	7,249	39	2 ↑	
California	San Diego	1.216%	7,663	33	10 ↓	
California	San Francisco	1.180%	7,432	36	1 ↑	
California	San Jose	1.286%	8,102	27	2 ↑	
Colorado	Colorado Springs	0.367%	2,311	50	-	X
Colorado	Denver	0.488%	3,072	49	-	X
DC	Washington	0.701%	4,417	48	-	X
Florida	Jacksonville	1.484%	9,352	20	2 ↓	X
Florida	Miami	1.754%	11,047	17	-	X
Georgia	Atlanta	1.532%	9,650	19	-	
Illinois	Chicago	1.616%	10,183	18	8 ↑	X
Indiana	Indianapolis	1.975%	12,443	15	1 ↓	X
Kansas	Wichita	1.266%	7,974	29	1 ↓	
Kentucky	Louisville	1.164%	7,336	38	7 ↓	X
Maryland	Baltimore	2.210%	13,924	9	1 ↑	
Massachusetts	Boston	0.935%	5,890	42	2 ↑	X
Michigan	Detroit	3.999%	25,196	1	-	
Minnesota	Minneapolis	1.484%	9,351	21	1 ↓	X
Missouri	Kansas City	1.264%	7,961	30	3 ↑	X
Nebraska	Omaha	2.002%	12,614	13	2 ↑	X
Nevada	Las Vegas	1.126%	7,091	41	1 ↓	
New Mexico	Albuquerque	1.408%	8,870	23	1 ↑	
New York	New York City	1.986%	12,513	14	2 ↑	X
North Carolina	Charlotte	0.729%	4,593	46	1 ↓	
North Carolina	Raleigh	0.825%	5,195	44	1 ↓	
Ohio	Columbus	2.165%	13,638	10	2 ↑	X
Oklahoma	Oklahoma City	1.309%	8,249	25	-	
AVERAGE		**1.547%**	**9,744**			**N = 22**

		Land and Building Value: $600,000				Lower Tax Rate on Personal Property
State	**City**	**Tax Rate**	**Tax Bill**	**Rank**	**Change from '21**	
Oklahoma	Tulsa	1.460%	9,199	22	1 ↓	X
Oregon	Portland	2.619%	16,498	3	4 ↑	X
Pennsylvania	Philadelphia	1.234%	7,777	32	2 ↑	X
Tennessee	Memphis	2.408%	15,168	5	2 ↓	X
Tennessee	Nashville	1.286%	8,102	26	1 ↑	X
Texas	Arlington	2.386%	15,032	7	1 ↑	
Texas	Austin	1.924%	12,119	16	3 ↓	
Texas	Dallas	2.130%	13,419	11	6 ↓	
Texas	El Paso	2.893%	18,226	2	-	
Texas	Fort Worth	2.397%	15,103	6	2 ↓	
Texas	Houston	2.127%	13,398	12	1 ↓	
Texas	San Antonio	2.517%	15,854	4	5 ↑	
Virginia	Virginia Beach	0.710%	4,474	47	1 ↓	
Washington	Seattle	0.787%	4,955	45	2 ↑	
Wisconsin	Milwaukee	2.372%	14,945	8	2 ↓	
AVERAGE		**1.547%**	**9,744**			**N = 22**

Note: 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	**City**	**Tax Rate**	**Tax Bill**	**Rank**	**Change from '21**	
Alabama	Monroeville	0.820%	5,166	42	1 ↑	
Alaska	Ketchikan	1.061%	6,686	32	1 ↑	X
Arizona	Safford	0.711%	4,481	45	1 ↓	X
Arkansas	Pocahontas	0.820%	5,167	41	1 ↑	X
California	Yreka	1.046%	6,593	33	2 ↑	
Colorado	Walsenburg	0.585%	3,683	47	-	X
Connecticut	Litchfield	1.479%	9,315	25	4 ↓	
Delaware	Georgetown	0.441%	2,778	50	-	X
Florida	Moore Haven	1.988%	12,527	14	2 ↑	X
Georgia	Fitzgerald	1.717%	10,817	22	-	
Hawaii	Kauai	0.576%	3,630	48	1 ↑	X
Idaho	Saint Anthony	0.846%	5,328	40	12 ↓	X
Illinois	Galena	2.381%	14,997	7	8 ↑	X
Indiana	North Vernon	1.903%	11,988	16	7 ↑	X
Iowa	Hampton	2.380%	14,997	8	2 ↓	X
Kansas	Iola	2.372%	14,947	9	-	
Kentucky	Morehead	0.970%	6,110	36	7 ↓	X
Louisiana	Natchitoches	0.937%	5,906	37	1 ↑	
Maine	Rockland	2.427%	15,290	6	4 ↑	
Maryland	Denton	1.780%	11,211	19	1 ↓	
Massachusetts	Adams	1.930%	12,158	15	2 ↓	X
Michigan	Manistique	2.795%	17,606	1	1 ↑	
Minnesota	Glencoe	1.574%	9,915	23	2 ↑	X
Mississippi	Philadelphia	2.044%	12,879	13	1 ↑	
Missouri	Boonville	0.889%	5,600	39	1 ↑	X
Montana	Glasgow	1.087%	6,850	30	6 ↑	X
Nebraska	Sidney	2.218%	13,974	10	1 ↑	X
Nevada	Fallon	1.257%	7,917	27	-	
New Hampshire	Lancaster	1.758%	11,076	20	13 ↓	X
New Jersey	Maurice River Twp	2.557%	16,107	4	1 ↓	X
New Mexico	Santa Rosa	0.720%	4,537	44	5 ↓	
New York	Warsaw	2.614%	16,466	3	2 ↓	X
North Carolina	Edenton	1.081%	6,813	31	3 ↑	
North Dakota	Devils Lake	1.409%	8,875	26	-	X
Ohio	Bryan	1.783%	11,233	18	6 ↑	X
AVERAGE		**1.490%**	**9,385**			**N = 28**

		Land and Building Value: $600,000				Lower Tax Rate on Personal Property
State	**City**	**Tax Rate**	**Tax Bill**	**Rank**	**Change from '21**	
Oklahoma	Mangum	0.988%	6,222	35	6 ↑	
Oregon	Tillamook	1.153%	7,265	29	1 ↑	
Pennsylvania	Ridgway	1.728%	10,888	21	2 ↓	X
Rhode Island	Hopkinton	1.824%	11,494	17	3 ↑	
South Carolina	Mullins	2.669%	16,814	2	3 ↑	
South Dakota	Vermillion	1.507%	9,497	24	7 ↓	X
Tennessee	Savannah	0.894%	5,629	38	1 ↓	X
Texas	Fort Stockton	2.077%	13,083	12	4 ↓	
Utah	Richfield	0.511%	3,221	49	1 ↓	X
Vermont	Hartford	2.462%	15,509	5	1 ↓	X
Virginia	Wise	0.736%	4,635	43	2 ↑	
Washington	Okanogan	1.046%	6,590	34	2 ↓	
West Virginia	Elkins	1.185%	7,463	28	3 ↑	X
Wisconsin	Rice Lake	2.107%	13,274	11	1 ↑	
Wyoming	Worland	0.641%	4,037	46	-	
AVERAGE		**1.490%**	**9,385**			**N = 28**

Note: 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				
State	City	Rank	Ratio	Change from '21	Assessment Ratio	Nominal Tax Rate	Exemptions & Credits	Assessment Limits	Sales Ratio
Alabama	Birmingham	18	1.892	0.745	X		X		-
Alaska	Anchorage	32	1.195	-0.016			X		
Arizona	Phoenix	15	2.095	-0.102	X	X			+
Arkansas	Little Rock	25	1.560	0.180			X	X	+
California	Los Angeles	43	1.009	-0.001			X		
Colorado	Denver	3	4.110	0.131	X				-
Connecticut	Bridgeport	46	1.000	-0.129					
DC	Washington	17	1.960	-0.112		X	X		-
Delaware	Wilmington	37	1.081	-0.019					+
Florida	Jacksonville	7	3.443	0.925			X	X	
Georgia	Atlanta	22	1.665	-0.029			X		
Hawaii	Honolulu	4	3.716	-0.912		X	X		-
Idaho	Boise	30	1.276	-0.360			X		-
Illinois	Aurora*	39	1.078	-0.006			X		
Illinois	Chicago	8	3.153	0.008	X		X		
Indiana	Indianapolis	9	2.390	-0.042			X		-
Iowa	Des Moines	20	1.777	0.232	X		-		+
Kansas	Wichita	14	2.152	0.087	X		X		-
Kentucky	Louisville	36	1.083	0.081					+
Louisiana	New Orleans	16	2.074	0.071	X		X		+
Maine	Portland	40	1.060	-0.017			X		
Maryland	Baltimore	51	0.957	-0.057					-
Massachusetts	Boston	2	4.356	-0.042		X	X		-
Michigan	Detroit	31	1.232	-0.085		X			-
Minnesota	Minneapolis	19	1.832	-0.075	X	X	X		-
Mississippi	Jackson	11	2.183	-0.030	X		X		+
Missouri	Kansas City	13	2.165	-0.001	X	X			+
Montana	Billings	29	1.408	0.000	X				+
Nebraska	Omaha	42	1.011	0.011					+
Nevada	Las Vegas	50	0.994	0.000					-
New Hampshire	Manchester	47	1.000	0.000					
New Jersey	Newark	46	1.000	0.000					
New Mexico	Albuquerque	24	1.575	0.273		X	X	X	
New York	Buffalo*	26	1.486	0.023		X			
New York	New York City	6	3.460	0.498	X	-		X	-

		Classification Ratio			Causes of Preferential Treatment of Homesteads				
State	**City**	**Rank**	**Ratio**	**Change from '21**	**Assessment Ratio**	**Nominal Tax Rate**	**Exemptions & Credits**	**Assessment Limits**	**Sales Ratio**
North Carolina	Charlotte	47	1.000	0.000					
North Dakota	Fargo	34	1.111	0.035	X				
Ohio	Columbus	28	1.408	0.065		X	X		-
Oklahoma	Oklahoma City	41	1.050	-0.006			X		
Oregon	Portland	44	1.000	0.000					
Pennsylvania	Philadelphia	12	2.171	-0.085		X	X		
Rhode Island	Providence	5	3.616	1.125	X	X			
South Carolina	Charleston	1	5.690	1.938	X		X	X	
South Dakota	Sioux Falls	33	1.140	0.052		X			-
Tennessee	Nashville	23	1.600	0.000	X				
Texas	Houston	27	1.455	0.170			X	X	-
Utah	Salt Lake City	21	1.721	0.000			X		-
Vermont	Burlington	38	1.079	-0.228	X	-	X		-
Virginia	Virginia Beach	52	0.906	-0.106					-
Washington	Seattle	47	1.000	0.000					
West Virginia	Charleston	10	2.185	-0.973		X			+
Wisconsin	Milwaukee	35	1.087	0.017			X		
Wyoming	Cheyenne	53	0.904	-0.168					-
TOTAL/AVERAGE			**1.803**	**0.058**	**17**	**14**	**27**	**6**	**11 (+), 20 (-)**

*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				
State	City	Rank	Ratio	Change from '21	Assessment Ratio	Nominal Tax Rate	Exemptions & Credits	Assessment Limits	Sales Ratio
Alabama	Birmingham	7	2.110	-0.044	X		X		-
Alaska	Anchorage	23	1.203	-0.008			X		+
Arizona	Phoenix	24	1.197	0.081		X			+
Arkansas	Little Rock	12	1.560	0.180			X	X	+
California	Los Angeles	38	1.009	-0.001			X		
Colorado	Denver	49	0.987	-0.017	-				+
Connecticut	Bridgeport	42	1.000	0.087					
DC	Washington	37	1.010	-0.058			X		-
Delaware	Wilmington	40	1.000	0.000					
Florida	Jacksonville	3	3.443	0.925			X	X	
Georgia	Atlanta	10	1.665	-0.029			X		
Hawaii	Honolulu	25	1.153	-0.010			X		
Idaho	Boise	20	1.276	-0.360			X		-
Illinois	Aurora*	32	1.078	-0.006			X		
Illinois	Chicago	27	1.113	0.164	-		X		
Indiana	Indianapolis	4	2.390	-0.042			X		-
Iowa	Des Moines	18	1.356	0.103	X		X		+
Kansas	Wichita	35	1.017	-0.002			X		
Kentucky	Louisville	31	1.083	0.081					+
Louisiana	New Orleans	17	1.365	-0.044			X		
Maine	Portland	33	1.060	-0.017			X		
Maryland	Baltimore	50	0.957	-0.057					-
Massachusetts	Boston	8	2.002	0.132			X		
Michigan	Detroit	21	1.242	-0.016		X			
Minnesota	Minneapolis	22	1.238	-0.040	X		X		-
Mississippi	Jackson	5	2.183	-0.030	X		X		+
Missouri	Kansas City	40	1.000	0.000					
Montana	Billings	40	1.000	0.000					
Nebraska	Omaha	36	1.011	0.011					+
Nevada	Las Vegas	48	0.991	0.000					-
New Hampshire	Manchester	40	1.000	0.000					
New Jersey	Newark	42	1.000	0.000					
New Mexico	Albuquerque	16	1.381	0.227			X	X	
New York	Buffalo*	13	1.486	0.023		X			
New York	New York City	2	4.236	0.642	X	-		X	-

		Classification Ratio			Causes of Preferential Treatment of Homesteads				
State	**City**	**Rank**	**Ratio**	**Change from '21**	**Assessment Ratio**	**Nominal Tax Rate**	**Exemptions & Credits**	**Assessment Limits**	**Sales Ratio**
North Carolina	Charlotte	40	1.000	0.000					
North Dakota	Fargo	28	1.111	0.035	X				
Ohio	Columbus	15	1.408	0.065		X	X		-
Oklahoma	Oklahoma City	34	1.050	-0.006			X		
Oregon	Portland	40	1.000	0.000					
Pennsylvania	Philadelphia	19	1.282	-0.049			X		
Rhode Island	Providence	9	1.818	0.152	X				
South Carolina	Charleston	1	5.690	1.938	X		X	X	
South Dakota	Sioux Falls	26	1.140	0.052		X			-
Tennessee	Nashville	11	1.600	0.000	X				
Texas	Houston	14	1.473	0.164			X	X	-
Utah	Salt Lake City	51	0.947	0.000					-
Vermont	Burlington	29	1.088	-0.205	X	-	X		-
Virginia	Virginia Beach	53	0.752	-0.139					-
Washington	Seattle	40	1.000	0.000					
West Virginia	Charleston	6	2.148	0.148		X			+
Wisconsin	Milwaukee	30	1.085	0.017			X		
Wyoming	Cheyenne	52	0.894	0.055					-
TOTAL/AVERAGE			**1.439**	**0.077**	**10**	**6**	**27**	**6**	**9 (+), 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 Subject to 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	0.769%	0.419%	0.350%	2,692	1,467	1,225	45.5%
Arizona	Phoenix	1.088%	0.544%	0.544%	3,835	1,918	1,917	50.0%
Arizona	Tucson	0.983%	0.687%	0.296%	2,210	1,545	665	30.1%
Arkansas	Little Rock	1.141%	0.903%	0.238%	2,187	1,730	457	20.9%
California	Bakersfield	1.161%	0.516%	0.645%	3,698	1,643	2,055	55.6%
California	Fresno	1.247%	0.520%	0.727%	4,007	1,670	2,337	58.3%
California	Long Beach	1.177%	0.585%	0.592%	8,164	4,056	4,108	50.3%
California	Los Angeles	1.155%	0.533%	0.622%	9,392	4,336	5,056	53.8%
California	Oakland	1.366%	0.573%	0.793%	11,590	4,859	6,731	58.1%
California	Sacramento	1.133%	0.428%	0.705%	5,093	1,922	3,170	62.2%
California	San Diego	1.205%	0.630%	0.575%	9,266	4,844	4,422	47.7%
California	San Francisco	1.173%	0.900%	0.274%	15,330	11,756	3,574	23.3%
California	San Jose	1.278%	0.685%	0.593%	14,308	7,668	6,640	46.4%
Florida	Jacksonville	1.259%	0.449%	0.810%	3,013	1,074	1,939	64.3%
Florida	Miami	1.623%	0.598%	1.024%	6,674	2,461	4,212	63.1%
Illinois	Chicago	1.524%	1.524%	0.000%	4,532	4,532	0	0.0%
Michigan	Detroit	3.206%	1.708%	1.499%	2,222	1,183	1,039	46.7%
New Mexico	Albuquerque	1.361%	1.013%	0.348%	3,423	2,548	875	25.6%
New York	New York City*	1.219%	0.492%	0.726%	8,356	3,376	4,979	59.6%
Oklahoma	Oklahoma City	1.232%	0.927%	0.306%	2,352	1,769	583	24.8%
Oklahoma	Tulsa	1.389%	1.031%	0.358%	2,389	1,773	616	25.8%
Oregon	Portland*	2.588%	1.542%	1.046%	13,461	8,022	5,439	40.4%
South Carolina	Charleston	0.442%	0.274%	0.168%	1,858	1,152	707	38.0%
Texas	Arlington	2.097%	1.739%	0.359%	5,342	4,428	914	17.1%
Texas	Austin	1.634%	1.226%	0.408%	7,889	5,920	1,968	24.9%
Texas	Dallas	1.562%	1.330%	0.232%	4,181	3,560	620	14.8%
Texas	El Paso	2.347%	2.202%	0.145%	3,587	3,365	222	6.2%
Texas	Fort Worth	2.133%	1.781%	0.353%	5,312	4,434	878	16.5%
Texas	Houston	1.559%	1.441%	0.118%	3,689	3,411	278	7.5%
Texas	San Antonio	2.316%	2.012%	0.304%	4,577	3,976	600	13.1%
	AVERAGE	**1.479%**	**0.974%**	**0.505%**	**5,821**	**3,547**	**2,274**	**39.1%**

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.

* New York City and Portland (OR) have unique assessment limits, because they do not reset when a property is sold like in other cities. For these cities, table 7 shows the difference in property taxes for a newly-built home versus a home built prior to the implementation of assessment limits (1981 in New York City; 1996 in Portland). (See footnote 40 on page 49 for details on the methodology for these two cities.)