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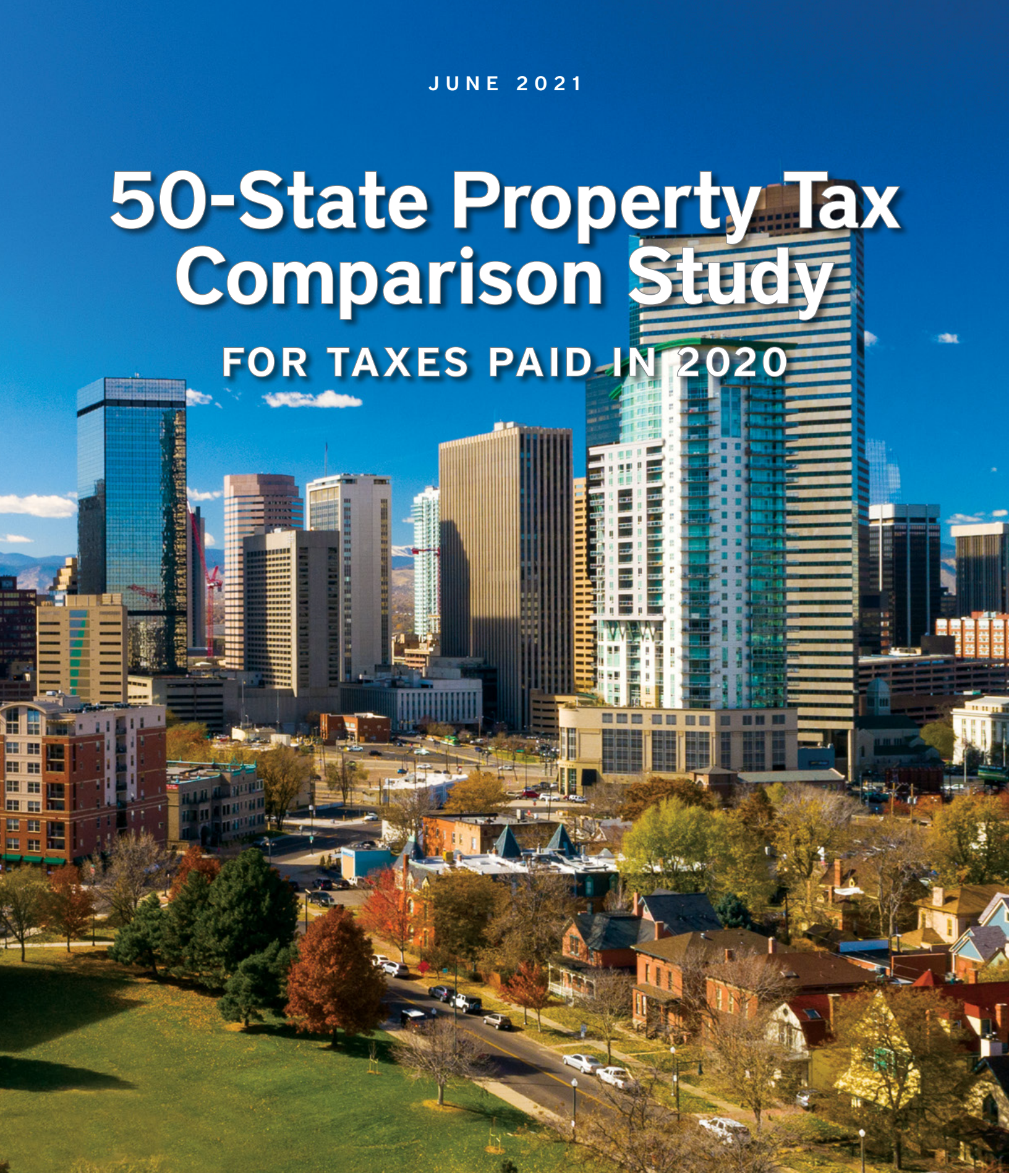
50-State Property Tax Comparison Study

FOR TAXES PAID IN 2020



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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 73 large U.S. cities and a rural municipality in each state, with information on four different property types (homestead, commercial, industrial, and apartment properties), and statistics on both net tax *bills* (i.e. $3,000) and effective tax *rates* (i.e. 1.5 percent). These data have important implications for cities because the property tax is a key part of the package of taxes and public services that affects cities' competitiveness and quality of life.

Why Property Tax Rates Vary Across Cities

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

Property tax reliance is one of the main reasons why tax rates vary across cities. While some cities raise most of their revenue from property taxes, others rely more on alternative revenue sources. Cities with high local sales or income taxes do not need to raise as much revenue from the property tax, and thus have lower property tax rates on average. For example, this report shows that Bridgeport (CT) has one of the highest effective tax rates on a median valued home, while Birmingham (AL) has one of the lowest rates. However, in Bridgeport, city residents pay no local sales or income taxes, whereas Birmingham residents pay both sales and income taxes to local governments. Consequently, despite the fact that Bridgeport has much higher property taxes, total local taxes are considerably higher in Birmingham ($2,995 vs. $2,155 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 $3,379. 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 – 5.74 percent versus 0.28 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 1.379 percent in 2020 for this group of 53 cities.[1] At that rate, a home worth $200,000 would owe $2,758 in property taxes (1.379% x $200,000). On the high end, there are four cities with effective tax rates that are at least 2 times higher than the average – Aurora (IL), Newark, Bridgeport (CT), and Detroit. Conversely, there are eight cities where tax rates are half of the study average or less – Honolulu, Charleston (SC), Boston, Denver, Charleston (WV), Cheyenne (WY), Salt Lake City, and Birmingham (AL).

Highest and Lowest Effective Property Tax Rates on a Median Valued Home (2020)

Highest Property Tax Rates				**Lowest Property Tax Rates**			
1	Aurora (IL)	3.25%	*Why:* High property tax reliance	49	Charleston (WV)	0.59%	*Why:* Classification shifts tax to business, Low property tax reliance
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	Bridgeport (CT)	3.00%	*Why:* High property tax reliance	51	Boston (MA)	0.48%	*Why:* High home values, Classification shifts tax to business
4	Detroit (MI)	2.83%	*Why:* Low property values	52	Charleston (SC)	0.48%	*Why:* Classification shifts tax to business, High home values
5	Portland (OR)	2.48%	*Why:* Assessment limit shifts tax to newly built homes	53	Honolulu (HI)	0.31%	*Why:* High home values, low local gov't spending, classification

Note: Data for all cities: Figure 2 (page 18), Appendix Table 1a (page 51), and Appendix Table 2a (page 59).

The average tax rate for these 53 cities fell 1.1 percent between 2019 and 2020, from 1.395 percent to 1.379 percent. This drop was on the heels of a 3.5 percent decrease in the preceding year. From 2019 to 2020, decreases were large enough in 24 cities to more than offset increases in 29 cities, as many of the increases were very small. The largest increase was in Nashville at nearly 34 percent, due to an increase in the total local mill rate. However, Nashville still has a relatively low effective tax rate, so the city's ranking change is less remarkable: from 47th to 42nd place. The next largest increases were five cities that rose more than 5 percent, led by Jackson (MS) at 8 percent, followed by Seattle, Des Moines, Atlanta, and Newark.

Buffalo led the way in effective tax rate decreases at 39 percent after ranking 15th in 2019. The local mill rates were slashed by one-third overall in 2020, resulting in a drop of 22 places to 37th place. The next largest decreases were in Charleston (WV) at 29 percent, Columbus (OH) at 13 percent, and Portland (ME) at 9 percent.

[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.

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 1.19 and 1.17 percent on median valued homes, but because the median valued home is worth so much more in Los Angeles ($697k vs. $147k), the tax bill is far higher in Los Angeles (3rd highest) than in Wichita (47th highest).

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

Commercial Property Taxes

There are also significant variations across cities in commercial property taxes, which include taxes on office buildings and similar properties. In 2020, the effective tax rate on a commercial property worth $1 million averaged 1.953 percent across the largest cities in each state. The highest rates were in Detroit and Chicago, where effective tax rates were more than twice the average for these 53 cities. On the other hand, rates were less than half of the average in Cheyenne (WY), Seattle, and Charlotte.

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

Highest Property Tax Rates				**Lowest Property Tax Rates**			
1	Detroit (MI)	4.16%	*Why:* Low property values	49	Virginia Beach (VA)	1.03%	*Why:* Low local gov't spending, High property values
2	Chicago (IL)	4.03%	*Why:* High local gov't spending, Classification shifts tax to business	50	Boise (ID)	1.03%	*Why:* Low local gov't spending, High property values
3	Bridgeport (CT)	3.67%	*Why:* High property tax reliance	51	Charlotte (NC)	0.91%	*Why:* Low property tax reliance
4	Providence (RI)	3.61%	*Why:* High property tax reliance	52	Seattle (WA)	0.83%	*Why:* High property values, Low property tax reliance
5	Des Moines (IA)	3.42%	*Why:* Low property values, High property tax reliance	53	Cheyenne (WY)	0.67%	*Why:* Low property tax reliance

Note: Analysis includes an additional $200k in fixtures (office equipment, etc.)
Data for all cities: Figure 3 (page 23), Appendix Table 1b (page 54), and Appendix Table 3a (page 75).

Wilmington (DE) had the largest increase at 41 percent, moving the city up from 47th to 32nd place, returning close to their 2018 ranking of 35th place. Just like homes, the commercial rate rose in Nashville by 34 percent, raising the city's ranking from 48th to 37th place. Other double-digit increases were found in Chicago (15.5 percent), Sioux Falls and Des Moines (13.5 percent), Bridgeport (11.5 percent), and Detroit (10 percent).

The largest rate decrease was found in Buffalo, where a 38 percent decrease produced a drop in ranking from 19th to 41st place. The only other double-digit decrease was Boise (13.5 percent). In addition, Philadelphia, Salt Lake City, Denver, and Portland (ME) all had decreases of more than 5 percent.

Preferential Treatment for Homeowners

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

An analysis of the largest cities in each state shows an average commercial-homestead classification ratio of 1.77, meaning that on average commercial properties experience an effective tax rate that is 77 percent higher than homesteads. Nearly a third of the cities (17 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 Boston at 4.7.

Preferential Treatment of Homeowners: Ratio of Effective Tax Rate on Commercial and Apartment Properties to the Rate on Homestead Properties (2020)

Commercial vs. Homestead Ratio			**Apartment vs. Homestead Ratio**		
1	Boston (MA)	4.72	1	Charleston (SC)	3.66
2	Honolulu (HI)	4.10	2	New York (NY)	2.55
3	Denver (CO)	4.01	3	Indianapolis (IN)	2.43
4	Charleston (SC)	3.66	4	Jacksonville (FL)	2.36
5	Chicago (IL)	3.25	5	Birmingham (AL)	2.16

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 and 6b (Pages 37-38), Appendix Table 6a (Pg. 101), and Appendix Table 6b (Pg. 103).

The average apartment-homestead classification ratio is significantly lower (1.33), with apartments facing an effective tax rate that is 33% higher than homesteads on average. There are six 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 3.7 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. 21 of these 40 cities benefit homeowners using at least two of these four statutory preferences. In 11 cities preferential treatment for homeowners is delivered through exemptions or credits alone, while in 8 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. Seven cities have preferential assessment ratios and/or nominal tax rates only, while 17 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 by calculating the difference in taxes between newly purchased homes and homes that have been owned for the average duration in each city, for median valued homes. For example, in Los Angeles, the average home has been owned for 15 years and the median home value is $697,200. Because of the state's assessment limit, someone who has owned their home for 15 years would pay 47 percent less in property taxes than the owner of a newly purchased home, even though both homes are worth $697,200. The largest discrepancy is in New York City, which has an assessment limit that has capped growth in assessed values for residential properties since 1981, and unlike most assessment limits does not reset when the property is sold. As a result, the owner of a newly built, median-valued home would face an effective tax rate 56 percent higher than the owner of a home built prior to 1981, even though the two homes have identical values ($680,800). Assessment limits reduce taxes by 30% or more in New York City, the eight California cities studied, the two Florida cities studied, Detroit, Phoenix, and Portland (OR). Of the 29 cities in this report that are affected by parcel-specific assessment limits, new homeowners face higher property tax bills than existing homeowners in 22 cities. No 2020 home value was sheltered in all seven Texas cities studied: Arlington, Austin, Dallas, El Paso, Fort Worth, Houston, and San Antonio.

Conclusion

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

Introduction

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

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

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

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

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

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

[2] Ronald C. Fisher. 2009. "What Policy Makers Should Know About Property Taxes." *Land Lines*. Cambridge, MA: Lincoln Institute of Land Policy.
[3] Institute on Taxation and Economic Policy. 2015. "Who Pays? A Distributional Analysis of the Tax Systems in All 50 States."
[4] Bowman, John H., Daphne A. Kenyon, Adam Langley, and Bethany P. Paquin. 2009. "Property Tax Circuit Breakers: Fair and Cost-Effective Relief for Taxpayers." Cambridge, MA: Lincoln Institute of Land Policy.

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

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

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

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

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.

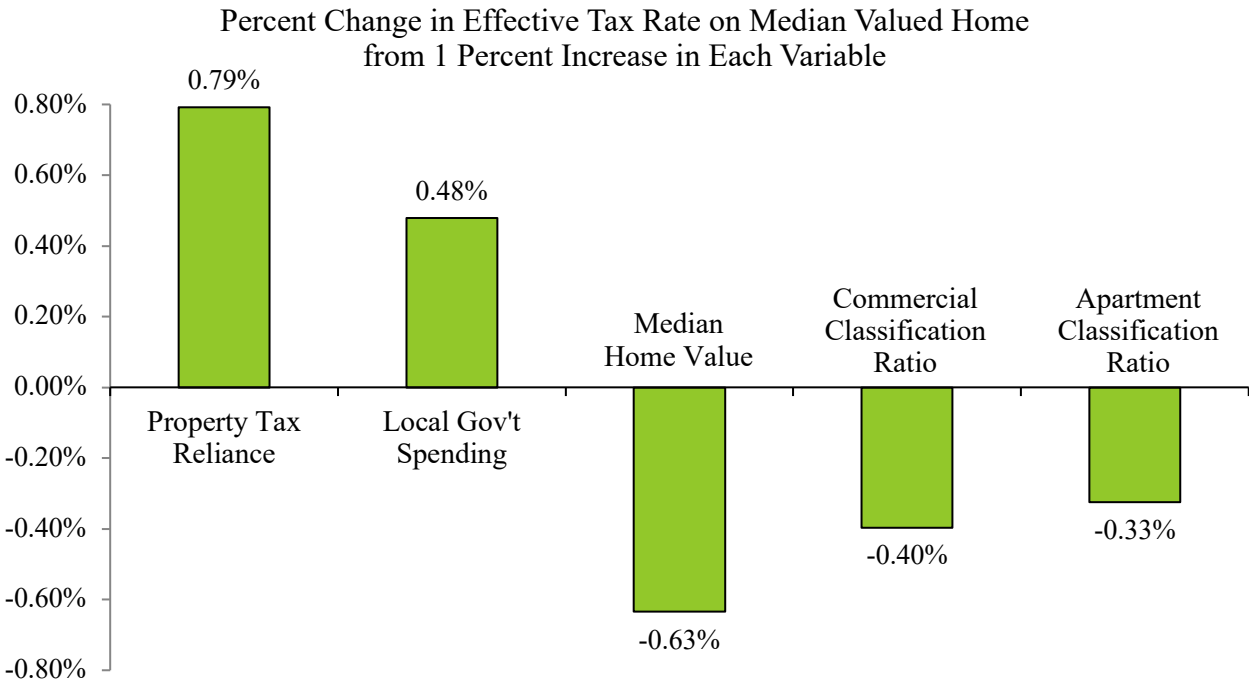
It is important to note that this study provides typical effective tax rates, assuming that the median or average sales ratio represents a typical value for all properties in each class. In practice, the accuracy of assessments varies across properties, so some parcels will have higher effective tax 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 more than 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, 23% of the variation in effective tax rates is explained by property tax reliance, 32% is explained by median home values, 4% by local government spending, 7% by the commercial-homestead classification ratio, and 2% 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 0.79 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 ($2,128 per capita), city residents pay no local sales or income taxes. In contrast, Birmingham has the 13th 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 ($902 per capita), but also pay a host of other taxes to local governments, including sales taxes ($1,148 per capita), income taxes ($434 per capita), and other local taxes ($329 per capita).[8] Consequently, total local taxes are considerably higher in Birmingham despite the fact that it has much lower property taxes than Bridgeport ($2,995 per capita vs. $2,155 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 0.63 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 – $1,217,500 and $58,900 respectively. After accounting for assessment limits, the average property tax bill on a median valued home in the 73 large cities in

[7] Appendix Table 1a.
[8] Data on per capita tax collections in 2017 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 $3,379. 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 – 5.74 percent versus 0.28 percent. The effective tax rate on a median valued home is actually just 2.5 times higher in Detroit than San Francisco (1.77% vs. 0.71%), which means San Francisco collects 8.3 times more in property taxes from a median valued home ($8,608 vs. $1,041). 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 0.48 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 0.40 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 0.33 percent decrease.

Charleston (SC) has the highest classification ratio for apartment buildings relative to homesteads, and the fifth 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 3.7 times higher than a median valued home. As a result, while among the largest cities in each state Charleston has the 19th highest tax rate on apartments and the 27th highest rate on commercial properties, it has a much lower tax rate – the 2nd lowest tax rate – on a median valued home.[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 0.43 percent increase in the commercial property tax rate, and a 1 percent increase in the apartment-homestead classification ratio is associated with a 0.39 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 homesteads relative to apartment buildings will tend to make the property tax system more regressive.

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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 (0.560) 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.

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 1.379 percent. At that rate, a home worth $200,000 would owe $2,758 in property taxes (1.379% x $200,000).

Tax rates vary widely across the 53 cities. The four cities at the top of the chart – Aurora (IL), Newark, Bridgeport (CT), and Detroit – have effective tax rates on a median-valued home that are more than two times higher than the 53-city average. In five other cities, the effective property tax rate is between 1.5 and 2 times the average. Conversely, the bottom eight cities – Honolulu, Boston, Charleston (SC), Denver, Charleston (WV), Cheyenne (WY), Birmingham (AL), and Salt Lake City – 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 2019 and 2020, from 1.395 percent of value to 1.379 percent. The effective tax rate on the median-valued homestead climbed in 29 cities and fell in 24 cities. The largest increase was in Nashville at nearly 34 percent, which mirrors the increase in the total local mill rate. Even after the increase, Nashville's effective tax rate is still 35 percent lower than the 53-city average in 2020, moving up from 47th to 42nd place. The next largest increases were five cities that rose more than 5 percent, led by Jackson (MS) at 8 percent, followed by Seattle, Des Moines, Atlanta, and Newark.

Effective rates on median-valued homes fell the farthest in Buffalo, with a 39 percent decline, from 1.593 percent to 0.971 percent. After ranking 15th in 2019, Buffalo dropped 22 places to 37th in 2020. The local mill rates for the school and city – as well as a sewer mill rate – were slashed by 45 percent from 2019 to 2020. With a slight increase in the county rate, the overall decrease in mills was 32.5 percent. The next largest decreases were in Charleston (WV) at 29 percent, Columbus (OH) at 13 percent, and Portland (ME) at 9 percent.[17] Columbus and Portland both ranked relatively high in 2019, so they each dropped just one place to 13th and 14th place. Already-low Charleston (WV) dropped from 42nd to 49th place. Other cities with more than a 7 percent decrease include Salt Lake City (UT), Charleston (SC), Boise (ID), and Denver.

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 ($697k vs. $147k), the tax bill is far higher in Los Angeles (3rd highest) than in Wichita (47th 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

[17] West Virginia performs annual sales ratio studies, and the Kanawha County assessment to sales comparison dropped from 90% in 2019 to 63.3% in 2020 for improved residential property. The local mill rate actually rose slightly, so the decrease in effective tax rate is mainly due to the drop in the sales ratio.

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 (2020)

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	7	Detroit (MI)	4	48
Washington (DC)	45	11	Jackson (MS)	17	50
Los Angeles (CA)	30	3	Louisville (KY)	24	41
Boston (MA)	51	25	Milwaukee (WI)	6	23
New York (NY)	28	4	Oklahoma City (OK)	25	42

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 10 of the 53 cities, with the largest impacts on New York City, Los Angeles, and Jacksonville (FL). Overall, accounting for assessment limits reduces the average property tax bill for the 53 cities by 6.5 percent. For more details on the impact of assessment limits, see that section of this report.

Appendix Table 2c shows how effective tax rates on homestead properties vary based on their value, showing tax rates for properties worth $150,000 and $300,000 for the largest city in each state. As the table notes, effective tax rates vary with property value about half of the time (26 of 53 cities). Usually, effective tax rates rise with homestead value because of homestead exemptions and property tax credits that are set to a fixed dollar amount. Under these programs, the percentage reduction in property taxes falls as home values rise. For example, a $20,000 exemption provides a 20 percent tax cut on a $100,000 home, a 10 percent cut on a $200,000 home, and a 5 percent cut on a $400,000 home.[18] 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 2019 offered a homestead exemption equal to the lesser of $272,707 or 90 percent of a property's market value. This results in ultra-low effective tax rates of 0.094% on a $150,000 home and on a $300,000 home, versus 0.48% for a median-valued home ($627,000). 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: Atlanta (effectively over $100,000 of market value), Honolulu ($80,000 exemption), New Orleans (effectively $75,000 of market value), and Washington, DC ($75,700 exemption). Readers should use some caution when interpreting the results in Appendix Tables 2c, 2f, and 2h; see the box on comparing property taxes calculated with fixed property values (page 23).

[18] 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).

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

This year, the average effective tax rate for median valued homes in the 50 largest cities (Table 2d at 1.402%) exceeds the rate for the largest cities in each state (Table 2a at 1.379%). When comparing median value homes after accounting for assessment limitations, however, the 50 largest cities drop to 6.3% below the group of largest cities in each state, with an average effective tax rate of 1.22% (Table 2e) compared to 1.30% (Table 2b). This is because 20 cities of the 50 largest in the country saw reductions from assessment limits in 2019, and only 10 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 eight California cities, the highest effective tax rate is Oakland (19th highest) and the lowest is Sacramento (35th). California accounts for seven of the 13 cities ranked from 23rd to 35th, with effective tax rates clustering in the 1.12 to 1.24 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 (2nd highest) and the lowest is Houston (13th), so Texas accounts for seven of the 12 cities ranked from 2nd to 13th. 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 15th highest tax rate (1.596%), while Nashville has the 44th highest (0.895%) – a 29 place differential.
- In Arizona: Phoenix has the 28th highest tax rate (1.215%) and Tucson has the 37th highest tax rate (1.113%), while Mesa has the 45th highest (0.868%) – creating a 17-place differential between the neighboring cities of Phoenix and Mesa.

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

The average effective tax rate on median-valued homes in the 50 rural communities in this report is 1.278% for taxes paid in 2020, down from 1.330 in 2019. As with large cities, the rates for rural municipalities vary considerably around that average. In just one municipality – Maurice River Township (NJ) – the effective tax rate on a median-valued home is 2 times the average. In contrast, nine municipalities feature effective tax rates of less than half of the average, with the lowest rates in Kauai (HI), Pocahontas (AR), Georgetown (DE), Monroeville (AL), and Natchitoches (LA).

Comparing Tables 2a and 2g shows that effective tax rates on median-valued homesteads are around 8 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 31 states, the effective tax rate on the median-valued home is higher in the largest city[19] than in the rural municipality. Delaware had the biggest difference in 2020; the 1.068% rate in Wilmington is 3.9 times the 0.374% rate in Georgetown. Only two other states have a tax rate in the largest city that is at least two times higher than in the rural community: Arkansas (where Little Rock is 3.6 times the rate of Pocahontas, and Oregon (where Portland is 2.1 times the rate of Tillamook).

On the other hand, in 19 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 4.3 times higher than the rate in Boston (2.079% vs. 0.481%), largely because of Boston's unique (even within Massachusetts) homestead exemption. Other states where the tax rate in the rural community is at least 2 times higher than the largest city are New York (where Warsaw is 2.3 times the rate of Buffalo) and Kansas (where Iola is 2 times the rate of Wichita).

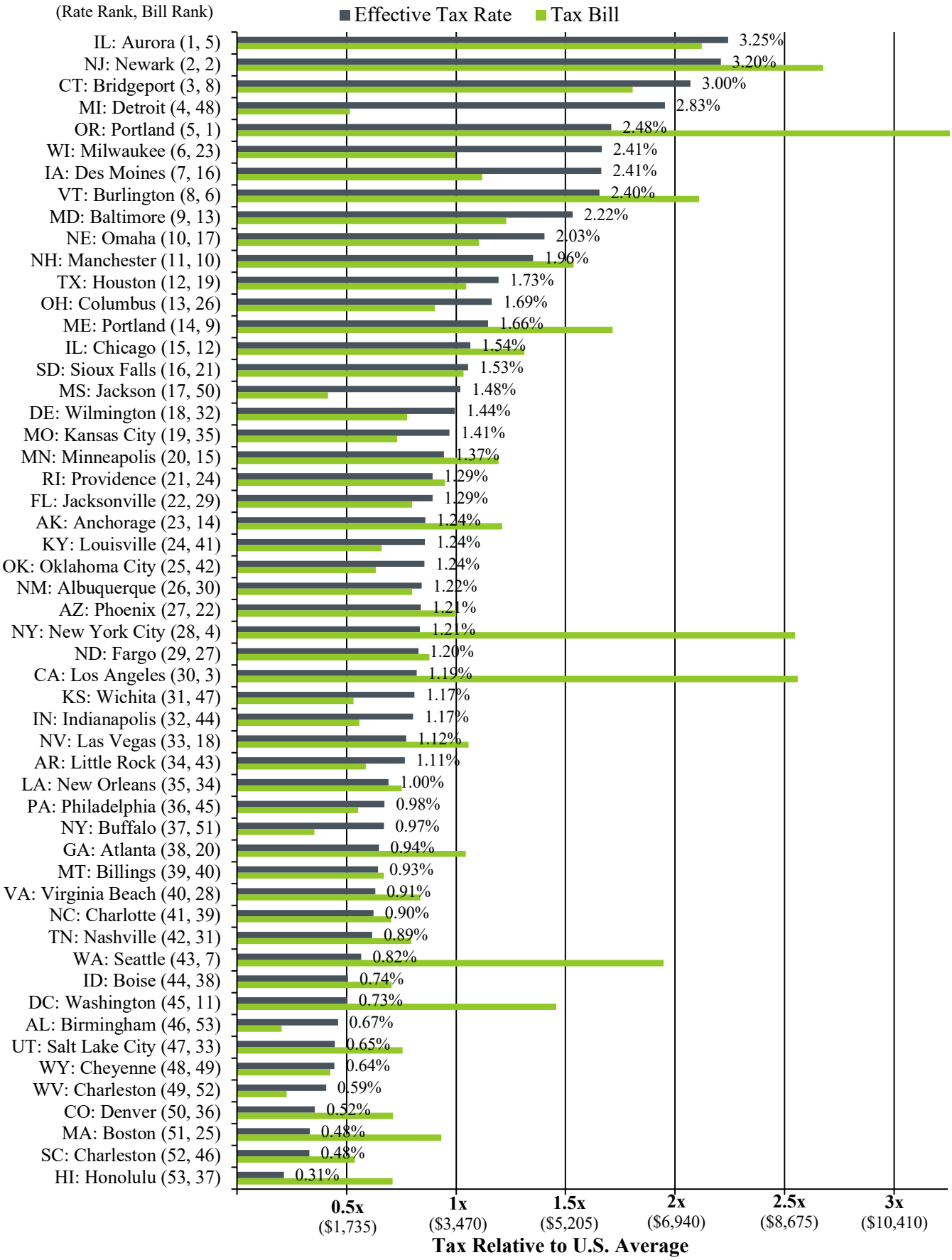
Some readers may want to use findings on effective tax rates from one specific table to reach conclusions on property taxes throughout an entire state. The small differences in tax rates across cities in California and Texas (Appendix Tables 2d-2f) show that the largest city in each state can serve as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

Readers wishing to determine whether taxes in a state are high, low, or somewhere in between are best served by comparing the rankings for urban and rural municipalities[20]. For example, in six states (Illinois[21], 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 –

[19] 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.
[20] Rankings for large cities are adjusted to 1-50 to compare state systems and exclude Chicago, New York City, and Washington DC.
[21] Aurora only.

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, Colorado, Hawaii, Idaho, and West Virginia – suggesting that these states are most likely to have the lowest homestead property taxes.

Figure 2: Property Taxes on Median Valued Home for Largest City in Each State (2020)



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 1.953 percent. A property worth $1 million with $200,000 in fixtures would thus owe $23,436 in property taxes (1.953% x $1.2m).

Tax rates vary widely across the 53 cities. Detroit and Chicago both had effective tax rates that were 2.1 times the average. Bridgeport (CT), Providence, and Des Moines were close behind at 1.9, 1.9, and 1.8 times the average. On the other hand, Cheyenne (WY), Seattle, and Charlotte (NC) have tax rates that are less than half of the average, and a larger group of cities are between 0.53 and 0.56 of the average, including Boise, Virginia Beach, Honolulu, Fargo, and Billings (MT).

Wilmington (DE) had the largest increase at 41 percent, with an effective tax rate change from 1.062 percent in 2019 to 1.501 percent in 2020, moving them up from 47th to 32nd place.[23] The change returns Wilmington close to their 2018 ranking of 35th place. Nashville's rate increased by 34 percent, mirroring the increase in local mill rates, raising their ranking from 48th to 37th place. Other double-digit increases were found in Chicago (15.5 percent), Sioux Falls and Des Moines at 13.5 percent, Bridgeport (CT) at 11.5 percent, and Detroit (10 percent).

The largest rate decrease was found in Buffalo (NY), where a 38 percent decrease produced a drop in ranking from 19th to 41st place. As was the case with homesteads, local mill rates were slashed for non-homestead property, although non-homestead properties do continue to have higher mill rates overall. The only other double-digit decrease was Boise at 13.5 percent, which was achieved by cutting the local mill rate by 12.4%, and. In addition, Philadelphia, Salt Lake City, Denver, and Portland (ME) all had decreases of more than 5 percent.

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

[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.

[23] Wilmington did have a 9% increase in local mill rates, but the change is mainly due to the sales ratio increasing from 25.9% in 2019 to 33.6% in 2020, which puts the 2020 sales ratio close where it was in 2018 (35.0%).

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 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 Philadelphia. Philadelphia has among the lowest tax rates for commercial properties worth $100,000 (1.089%, 45th highest), but is above average for commercial properties worth $25 million (2.024%, 22nd highest). The city offers property owners a credit against the first $2,000 of Business Use and Occupancy Tax (effectively, a property tax imposed only on business properties) assessed against individual properties, and this credit creates this large differential. The credit reduces the tax on a $100,000-valued property by 46%, but by only 0.3% for a property worth $25 million.

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

- Minneapolis (26th highest for $100k, 7th highest for $25m)
- Washington, DC (41st highest for $100k, 23rd highest for $25m)
- Anchorage (40th highest for $100k, 32nd highest for $25m)
- Des Moines, IA (11th highest for $100k, 4th highest for $25m)
- Jacksonville, FL (36th highest for $100k, 29th highest for $25m)

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

The average effective tax rates for commercial properties are slightly lower for the 50 largest cities shown in Table 3b than the cities shown in Table 3a at roughly 1 to 2 percent lower for the three property values analyzed.

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

- For California's eight cities, the highest tax rate is in Oakland (35th highest) and the lowest is in Sacramento (45th). California accounts for 7 of the 8 cities ranked from 38th to 45th.
- For Texas's seven cities, the highest tax rate is in San Antonio (6th highest) and the lowest is in Austin (18th). Texas accounts for four of the five cities ranked from 14th to 18th.

Interestingly, some states with just two or three cities in the study show a greater variance in rates:

- In Arizona: Phoenix has the 17th highest tax rate, while neighboring Mesa has the 28th highest.
- In Tennessee: Memphis has the 12th highest tax rate, while Nashville has the 34th highest.
- In Colorado: Denver has the 19th highest tax rate, while Colorado Springs is 25th 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 12 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 1.72% for the rural cities versus 1.95% for the urban cities shown in Appendix Table 3a. For 31 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 tax rate between the largest city and the rural municipality is Delaware, where the tax rate on a commercial property worth $1 million in Georgetown is less than one-third the rate in Wilmington (0.46% vs. 1.50%). Yet Wilmington is not particularly high, ranking 32nd in urban cities while Georgetown ranks 50th (lowest) among rural cities. Other states where the tax rate in the rural community is significantly lower than the largest city include Oregon (53% lower), Rhode Island (51% lower), Connecticut (47% lower), Hawaii (46% lower), Arizona (45% lower), and Alabama (43% lower).

On the other hand, in 19 states the tax rate is higher in the rural municipality than in the largest city in the state. The biggest difference is in Kansas, where the tax rate on a commercial property worth $1 million in Iola is more than twice the rate in Wichita (5.24% vs. 2.57%). Iola ranked 1st among rural cities in 2020 and Wichita ranked 15th among urban cities. Other states where the tax rate in the rural municipality is significantly higher than the largest city include: New York (74% higher), South Carolina (54% higher); Washington (39% higher); Florida (29% higher); and New Hampshire (27% higher).

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

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

Readers wishing to determine whether 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

[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.

example, four states (Indiana, Iowa, Michigan, and Minnesota) 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, four states (California, Hawaii, Virginia, and Wyoming) have multiple bottom ten rankings in both urban and rural settings.

Comparing Property Taxes Calculated with Fixed Property Values

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

For taxes on commercial, industrial, and apartment properties, the report solely uses fixed property values. As a result, if the goal is to compare taxes due on properties with similar characteristics (i.e. 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.

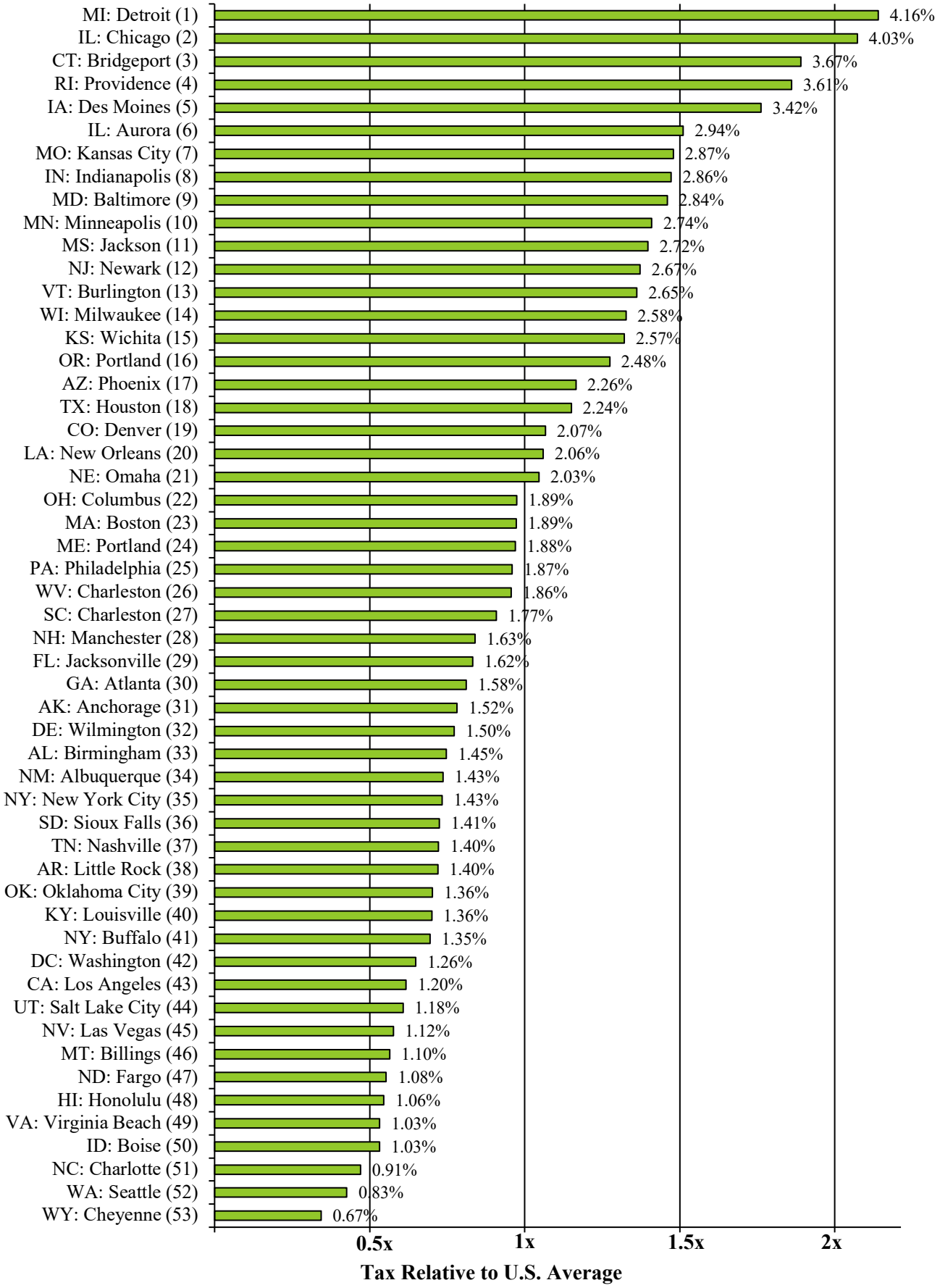
In addition, fixed property values are not problematic from the perspective of a real estate investor looking to invest a certain amount of money—whether it's a $1 million condo in New York or a $1 million apartment complex in Detroit.

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 2020 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 (2020)

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 1.410 percent. A parcel with a real property value of $1 million that has an additional $1 million in personal property would thus owe $28,200 in property taxes (1.410% 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. The top six cities of Jackson (MS), Chicago, Indianapolis, Detroit, Kansas City (MO), and Charleston (SC) all have effective tax rates that are at least 60% higher than the average for these cities. The bottom six cities of Cheyenne (WY), New York City, Virginia Beach, Honolulu, Fargo, and Seattle all have tax rates that are less than half of the average.

Some cities had significant changes in their effective tax rates from 2019 to 2020. The city with the largest increase in its industrial property tax rate was Wilmington (DE), with a 41% increase, moving up from 49th to 41st place. Four other cities had double-digit increases led by Nashville at 34% (moving up from 39th to 29th place) and followed by Chicago at 22% (from 8th to 2nd place), Sioux Falls at 14% (from 46th to 44th place), and Bridgeport (CT) at 12% (from 15th to 9th place).

The largest decrease among urban cities was Buffalo by 38%, leading to a drop from 30th to 45th place. Cheyenne (WY) followed with a 25% decrease (moving down from 47th to 53rd), and Boise's effective tax rate declined 13% (from 43rd to 46th place).

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

Taxes on Personal Property

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

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

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

However, the split between real and personal property varies by industry and location. Our modeling indicates that personal property's share of total parcel value ranges from a low of 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.

(0.757%, 43rd highest), but is substantially above average for industrial properties worth $25 million (1.835%, 15th 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 (27th highest for $100k, 8th highest for $25m)
- Minneapolis (33rd highest for $100k, 18th highest for $25m)
- Billings (MT) (49th highest for $100k, 31st highest for $25m)
- Philadelphia (46th highest for $100k, 33rd highest for $25m)
- Des Moines (IA) (19th highest for $100k, 10th highest for $25m)

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

The average effective tax rate for industrial properties is close to 9 percent higher for the 50 largest cities shown in Table 4c than the cities shown in Table 4a, regardless of which of the three property values is analyzed.

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

- For California's eight cities, the highest tax rate is in Oakland (36th highest) and the lowest is in Sacramento (43rd). California accounts for all 8 cities ranking between 36th and 43rd place.
- For Texas's seven cities, the highest tax rate is in San Antonio (highest among the 50 cities) and the lowest is in Austin (12th). Texas accounts for the four top 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 8th highest tax rate (2.363%), while Nashville has the 30th highest (1.349%).
- In Florida: Miami has the 20th highest tax rate (1.572%), while Jacksonville has the 31st highest (1.308%).
- In Arizona: Phoenix has the 15th highest tax rate (1.958%), while neighboring Mesa has the 29th highest (1.417%).

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 nearly 10 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 1.271% for the rural cities shown in Appendix Table 4e versus 1.410% for the urban cities shown in Appendix Table 4a. For 29 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 less than one-third of the rate in Wilmington (0.277% vs. 0.901%). Other states where the tax rate in the rural municipality is significantly lower than the largest city include Oregon (53% lower), Rhode Island (49% lower), Connecticut (47% lower), Alaska (45% lower), Alabama (43% lower), and Arizona (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 Kansas, where the tax rate on an industrial property worth $1 million in Iola is more than twice the rate in Wichita (2.89% vs. 1.39%). Other states where the tax rate in the rural municipality is significantly higher than the largest city include New York (74% higher), South Carolina (64% higher), Virginia (47% higher), Washington (43% higher), and Wyoming (41% higher).

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

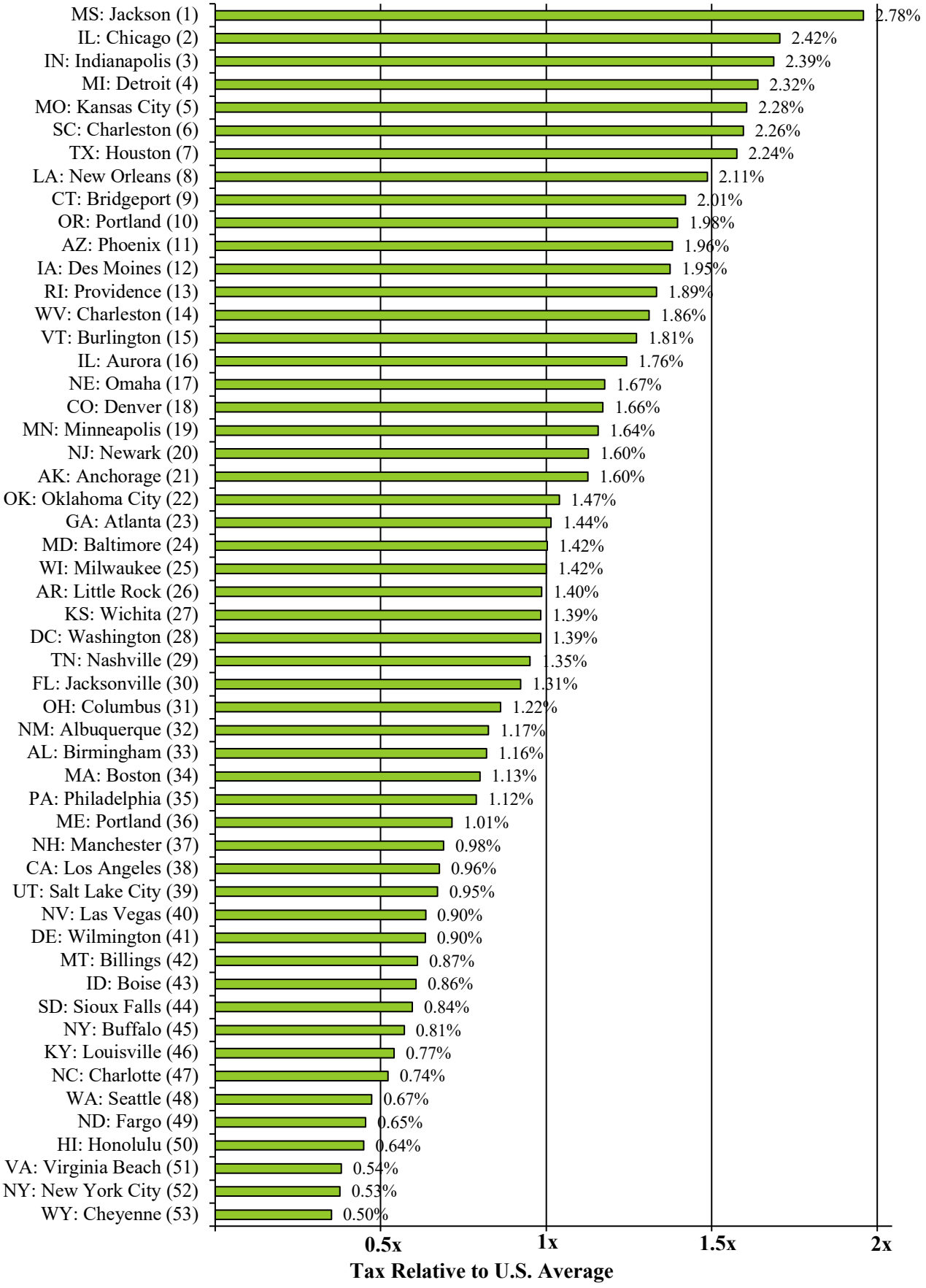
Some readers may want to use findings on effective tax rates from one specific table to reach conclusions on property taxes throughout an entire state. The small differences in tax rates across cities in California and Texas (Appendix Table 4c) show that the largest city in each state can serve as a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

Readers wishing to determine whether taxes in a state are high, low, or somewhere in between are best served by comparing the rankings for urban and rural municipalities. For example, five states (Indiana, Mississippi, Missouri, South Carolina, and Texas) have multiple top ten rankings in both an urban and rural setting under both sets of assumptions – suggesting that these states are most likely to have the highest industrial property taxes. Hawaii, Kentucky, North Dakota, South 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 (2020)

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 1.610 percent. A property worth $600,000 with $30,000 in personal property would thus owe $10,143 in property taxes (1.610% x $630,000 total parcel value).

Tax rates vary widely across the 53 cities. The top two cities of Detroit and Aurora (IL) have effective tax rates that are more than 2 times higher than the average for these cities. The next three cities (Newark, NJ; Burlington, VT; and Jackson, MS) have effective tax rates that are slightly more than two-thirds higher than the average for these cities. Conversely, there are five cities where tax rates on apartments are less than half the average, with the lowest rates in Honolulu, Cheyenne, Denver, Salt Lake City, and Washington (DC).

Some cities had significant changes in their effective tax rates from 2019 to 2020. Four cities saw effective tax rates decline over 10 percent, led by Buffalo at 38% and Charleston (WV) at 34%.[27] Buffalo dropped from 9th to 23rd place, and Charleston dropped from 19th to 39th place. Boise (ID) dropped 14% and Cheyenne (WY) dropped 12%. Other cities with large declines include Bridgeport (10%), Des Moines (8%), and Chicago (7%).

The most substantial increase was Nashville at 34%, leading to a ranking change from 43rd to 27th place. A 14% increase in the Sioux Falls (SD) effective tax rate moved the city's ranking up from 26th to 20th place. Other cities with large increases include New York City (8%), Seattle (8%), Newark (6%), and Burlington (6%).

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

The average effective tax rate for apartment properties is 1.5 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 eight cities, the highest tax rate is in Oakland (23rd highest) and the lowest is in Sacramento (40th highest). There is a clustering effect as California accounts for 7 of the 10 cities ranked from 31st to 40th.
- For Texas's seven cities, the highest tax rate is in Fort Worth (2nd highest) and the lowest is in Austin (12th). Texas accounts for three of the top four cities and seven of the top 12.

[27] Like residential homestead properties in Kanawha County, apartments also saw a large drop in sales ratios, falling from 98.3% in 2019 to 63.3% in 2020.

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 6th highest tax rate (2.535%), while Nashville has the 22nd highest (1.423%).
- In Arizona: Phoenix and Tucson have the 27th and 35th highest rates (1.292% and 1.201%, respectively), while Mesa has the 42nd highest (0.961%).

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 4 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 1.542% for the rural cities versus 1.610% for the large cities shown in Appendix Table 5a. For 28 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.[28]

The state where the tax rate in the largest city is the lowest vis-à-vis the rate for the rural municipality is Delaware, where the tax rate on a $600,000-valued apartment property in Georgetown is 74% lower than the rate in Wilmington (0.356% vs. 1.373%). Other states where the tax rate in the rural municipality is significantly lower than the largest city include: Oregon (53% lower), Alabama (43% lower), and Arkansas (41% lower).

On the other hand, in 22 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 (1.980% vs. 0.895%). Other states where the tax rate in the rural municipality is significantly higher than in the largest city include Kansas (94% higher), New York (74% higher), Hawaii (67% higher), and South Carolina (58% higher).

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

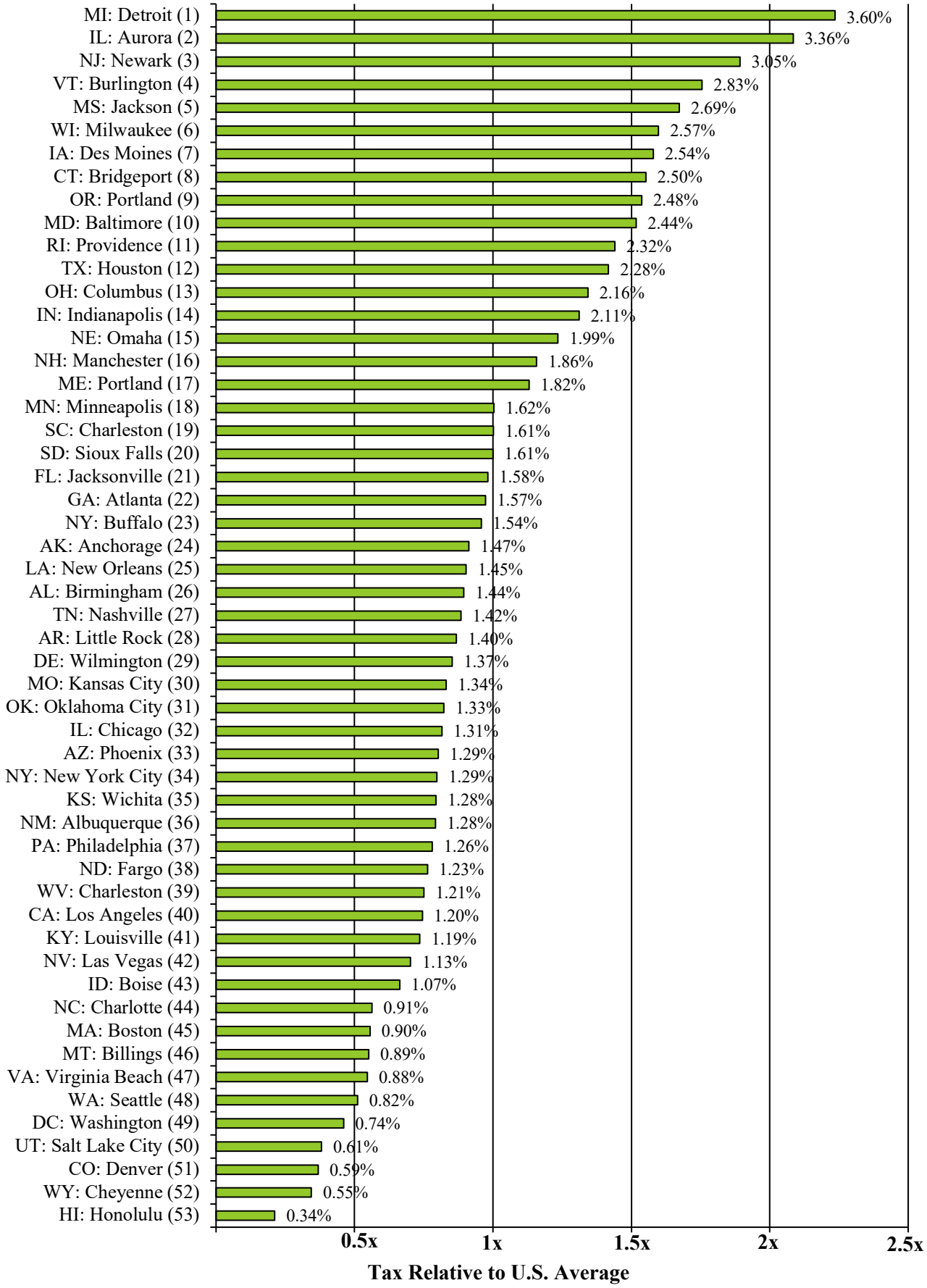
Some readers may want to use findings on effective tax rates from one specific table to reach conclusions on property taxes throughout an entire state. The small differences in tax rates across cities in California and Texas (Appendix Table 5b) show that the largest city in each state can serve as a proxy for property tax rates throughout an entire state. However, the larger differences between the largest cities in Tennessee, Oklahoma, and Arizona show that caution is needed when extrapolating findings for a single city to an entire state.

Readers wishing to determine whether taxes in a state are high, low, or somewhere in between are best served by comparing the rankings for urban and rural municipalities. For example, three

[28] 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.

states (Michigan, New Jersey, and Vermont) have top ten rankings in both an urban and rural setting – suggesting that these states are most likely to have the highest apartment property taxes. Colorado, Hawaii, Utah, Virginia, and Wyoming are the five states that have bottom ten rankings in both urban and rural settings.

Figure 5: Apartment Property Taxes for Largest City in Each State (2020)
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.[29]

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.[30]

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.

[29] 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).

[30] 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.[31] 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 1.765, which means that on average commercial properties experience an effective tax rate that is 76.5% higher than homesteads.

The commercial-homestead classification ratio varies widely across the 53 cities. The top three cities of Boston, Honolulu, and Denver all have classification ratios greater than 4.0, and four more cities – Charleston (SC), Chicago, New York City, and Charleston (WV) – all have classification ratios greater than 3.0. Nearly a third of all cities (17 of 53) have classification ratios above 2.0, meaning that commercial properties face an effective tax rate that is at least double that for homesteads.

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

Appendix Table 6a provides additional information about the commercial-homestead classification ratio in each city. Of the 53 cities, 17 have a higher assessment ratio for commercial properties, 14 have a higher nominal tax rate on commercial properties, 29 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), Chicago, Minneapolis, and New York City, homeowners benefit from three of the four. In 11 cities, preferential treatment for homeowners is delivered through exemptions or credits alone, while in 8 cities preferences are delivered exclusively through differences in assessment ratios or nominal tax rates.

On average, tax disparities between commercial and homestead properties rose nearly 8 percent in 2020: increasing from 1.713 in 2019 to 1.765 in 2020. The number of cities with more than a 3.0 ratio increased from five to seven, and those with more than a 2.0 ratio increased from 16 to 17 cities. The 2020 classification ratio is second highest in the past twenty years, slightly lower than the previous high of 1.79 in 2008 and 2012.

The classification ratio increased in 24 cities, with the largest increases in Charleston, WV (0.935); Chicago (0.480); Boston (0.350); Wilmington, DE (0.331); and Bridgeport, CT (0.221). Boston remained 1st with the highest ratio after a significant increase. Wilmington moved up 20

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

places to 15th, Bridgeport moved up 15 places to 35th, and Sioux Falls moved up 15 places to 36th. Changes in sales ratios appear to be the largest factor in the increases for these three cities.

The commercial-homestead classification ratio declined in 21 cities, with the largest drops in Charleston, SC (-0.405); Boise, ID (-0.110); and Jackson, MS (-0.108). Charleston's significant decline only lowered its ranking from 2nd to 4th, and other ranking changes were similarly marginal. The classification ratio was unchanged in eight cities.

Figure 6c shows the longer-term picture, with trends in the commercial-homestead classification ratio going back to 1998. As mentioned, the 1.765 figure for 2020 is a noticeable increase compared to 1.713 in 2019. Locations where residential and commercial properties have "statutory classification"[32] and are treated differently in state law remained higher and increased at a similar rate to the overall average, rising from 1.945 to 2.001.

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.[33] 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 33% higher than homesteads on average. In nearly all 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): Burlington (VT), Houston, and Las Vegas.

Charleston (SC) is an outlier in the apartment-homestead classification ratio, with an effective tax rate on apartments that is more than 3.7 times higher than the median valued home (the same ratio as commercial-homestead classification). There are six other cities with classification ratios above or near 2.0: New York City, Indianapolis, Jacksonville (FL), Birmingham, Charleston (WV), and Boston. On the other hand, there are six cities with a classification ratio below 1.0, with the lowest ratios in Bridgeport (CT), Virginia Beach, and Cheyenne (WY). 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 and New York City are the only cities to offer three preferences). Seven cities have preferential assessment ratios and/or nominal tax rates only, while 17 cities offer homestead exemptions or credits alone.

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

On average, tax disparities between apartments and homesteads declined slightly in 2020, falling from 1.344 in 2019 to 1.329 in 2020. The apartment-homestead classification ratio declined in 28 cities, with the largest drops in Charleston, SC (-0.405); Des Moines, IA (-0.188); Charleston, WV (-0.186), and Boise, ID (-0.110). The classification ratio increased in 22 cities. Columbus (OH) and Sioux Falls (SD) lead with modest increases of 0.148 and 0.139. 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.

Figure 6a: Commercial-Homestead Classification Ratio for Largest City in Each State (2020)

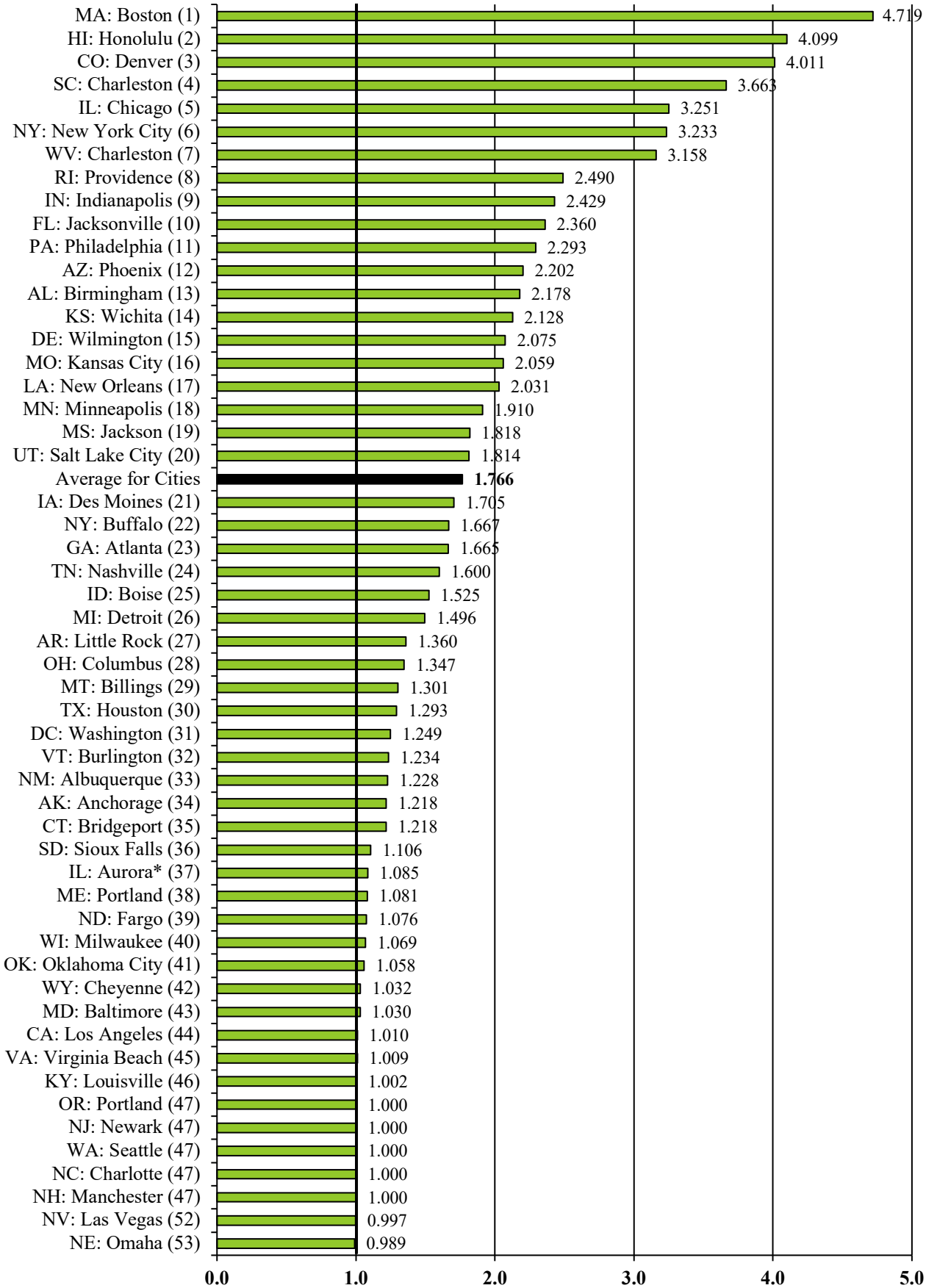


Figure 6b: Apartment-Homestead Classification Ratio for Largest City in Each State (2020)

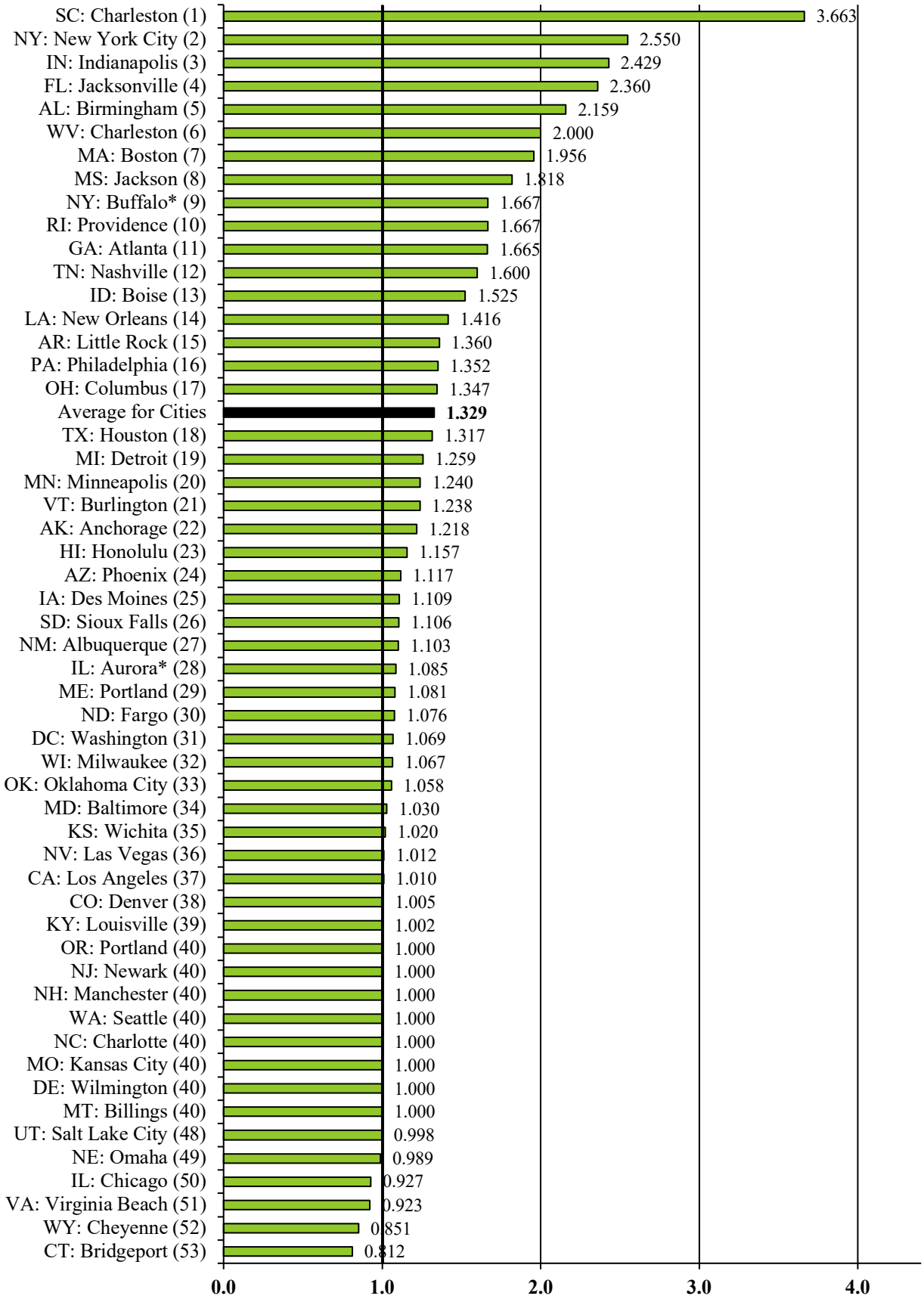
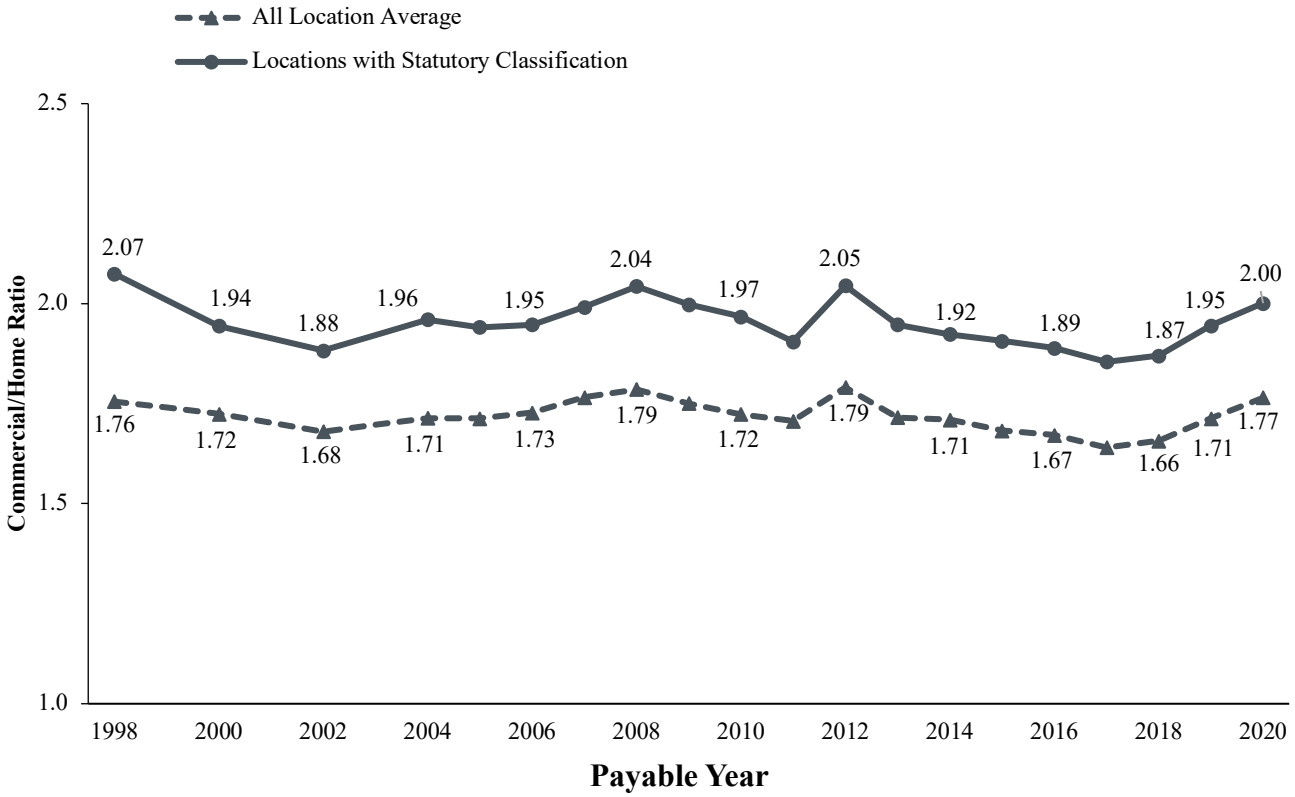


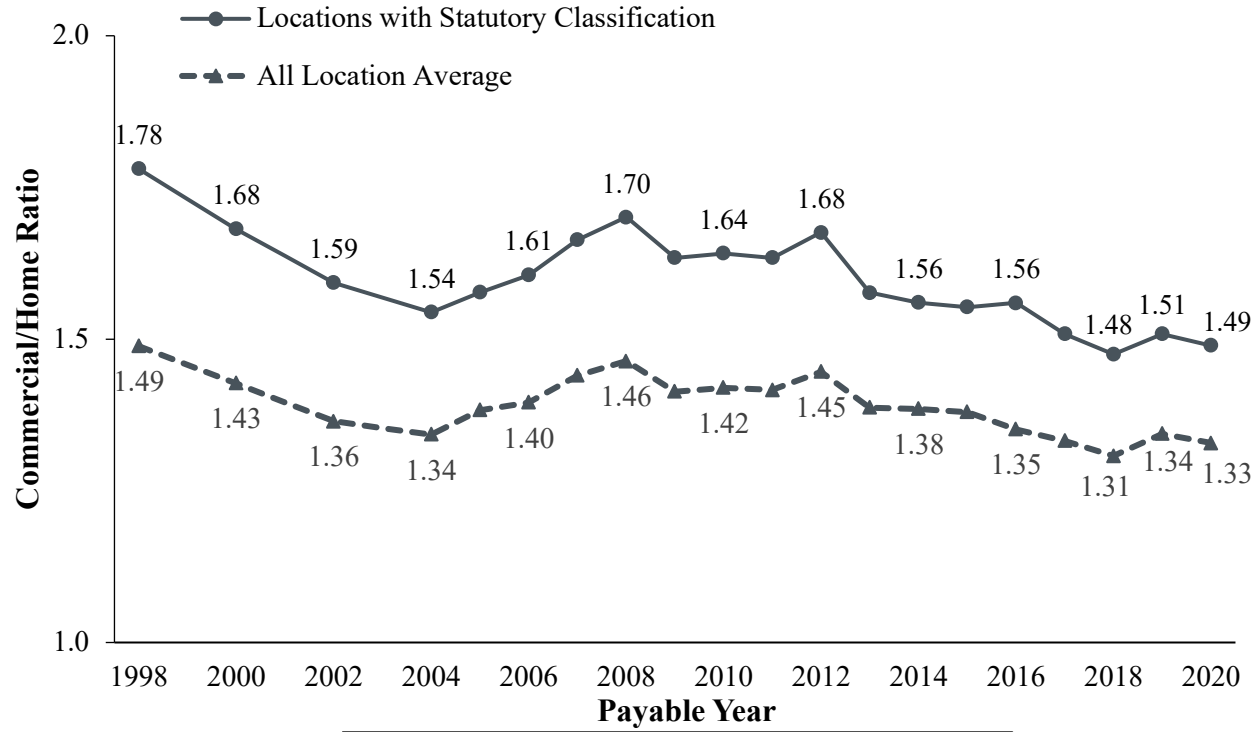
Figure 6c: Commercial-Homestead Classification Ratio for Largest City in Each State (1998 – 2020)



Note: 1.0 denotes unclassified property tax system.

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

Figure 6d: Apartment-Homestead Classification Ratio for Largest City in Each State (1998 – 2020)



Note: 1.0 denotes unclassified property tax

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.[34]

There are many different types of property tax limits, including constraints on tax rates, tax levies, and assessed values.[35] 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*.[36]

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).[37] 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 29 cities[38] modeled. The impact of assessment limits varies widely across cities. The largest effect is in New York City, which has an assessment limit that has capped growth in assessed values for residential properties since 1981, even when a property is sold. Because most homes in New

[34] Paquin, Bethany P. 2015. "Chronicle of the 161-Year History of State-Imposed Property Tax Limitations." Cambridge, MA: Lincoln Institute of Land Policy.
[35] 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.
[36] Haveman, Mark and Terri A. Sexton. 2008. *Property Tax Assessment Limits: Lessons from Thirty Years of Experience*. Cambridge, MA: Lincoln Institute of Land Policy.
[37] 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).
[38] MCFE has been made aware of a property tax abatement in Nevada that is applied if increases for owner-occupied properties exceed 3 percent. We will be researching in the interim if this is a mechanism that can be modelled in the 2021 *50-State Property Tax Comparison Study*.

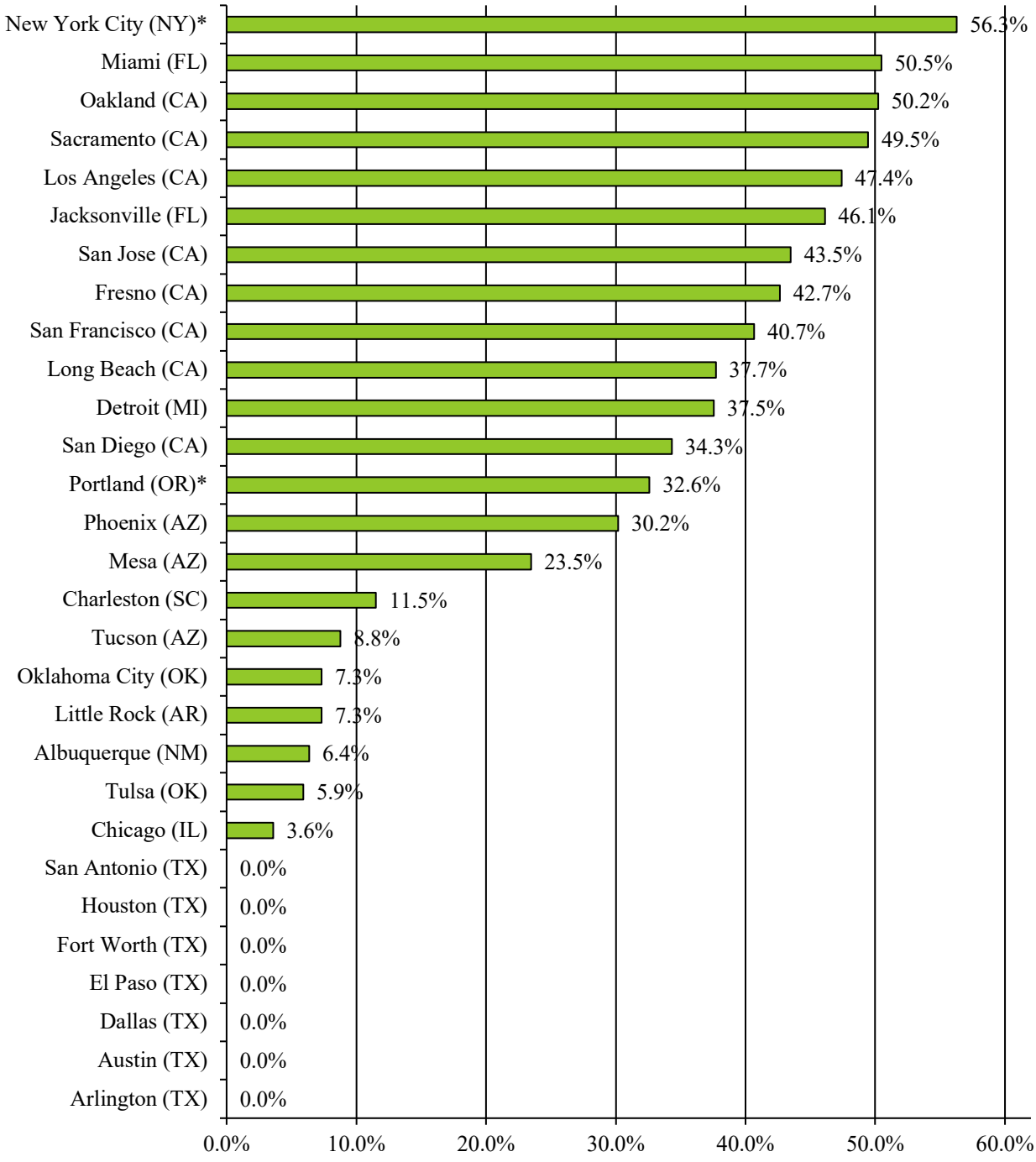
York were built prior to 1981, the average home in New York City has been subject to assessment limits for 38 years. However, effective tax rates on newly built homes are far higher because they do not benefit from the assessment limit. In fact, the owner of a median valued home in New York City ($680,800) built prior to 1981 would face less than half the effective tax rate than the owner of a newly built median-valued home despite them having identical values. Assessment limits also have large impacts in Miami, Oakland, Sacramento, Los Angeles, Jacksonville (FL), San Jose, and Fresno where effective tax rates are 42% – 50% lower for homes that have been owned for the average duration in each city than for newly purchased homes. In contrast, all seven Texas cities have assessment limits that yielded no impact on taxes for the average homeowner in 2020 because growth in market values was within allowable growth under the assessment limit.

Appendix Table 7 also shows the impact of assessment limits in terms of the dollar difference in taxes between newly purchased homes and homes subject to the average assessment limitation in each city, for median valued homes. In 11 cities, the difference in tax bills is at least $1,000 – with differences reaching as high as $5,899 in San Francisco.

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). New York City has the 28th highest effective tax rate for new homeowners, but drops to 49th highest once adjusting for assessment limits. Other cities with large changes include Los Angeles (30th to 47th); Jacksonville, FL (22nd to 43rd); Phoenix (27th to 39th); Portland, OR (5th to 13th); and Detroit (4th to 10th).

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 39 on page 50 for details on the methodology for these two cities)

Methodology

This study updates the *50-State Property Tax Comparison Study: Payable Year 2019*. 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"[39] 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 2019, as appropriate. We intend this comparison to show how differences in local real estate markets affect residential property taxes.

[39] 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[40], 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.

[40] 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*.[41] 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.

[41] *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.[42] 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.

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.[43]

[42] 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 average home was built 67 years ago in New York City and 65 years ago in Portland, and thus 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 $680,800 in New York City and $445,200 in Portland).

[43] 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.

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, for the payable 2020 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.

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 (1-73)	Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Commercial Rank (1-73)	Apartments Rank (1-73)	Impact on Tax Rate
Alabama	Birmingham	61	0.67	70	-0.49	71	0.66	34	-0.01	17	6	-0.34
Alaska	Anchorage	30	1.24	8	0.68	22	-0.17	45	-0.06	40	25	0.09
Arizona	Mesa	62	0.66	47	-0.17	34	-0.03	61	-0.15	15	26	-0.09
Arizona	Phoenix	50	0.85	40	-0.09	33	-0.05	55	-0.12	16	32	-0.08
Arizona	Tucson	39	1.02	27	0.08	56	0.26	67	-0.18	22	30	-0.04
Arkansas	Little Rock	38	1.03	66	-0.44	58	0.27	56	-0.12	32	17	0.03
California	Fresno	56	0.71	37	-0.08	29	-0.07	22	0.09	55	45	0.18
California	Long Beach	53	0.74	62	-0.40	11	-0.64	5	0.26	57	49	0.19
California	Los Angeles	65	0.62	53	-0.22	6	-0.73	8	0.22	59	51	0.19
California	Oakland	60	0.68	56	-0.32	3	-0.84	4	0.40	61	52	0.19
California	Sacramento	67	0.57	64	-0.41	14	-0.30	12	0.13	56	47	0.18
California	San Diego	52	0.80	30	0.05	8	-0.69	28	0.02	58	50	0.19
California	San Francisco	57	0.71	54	-0.28	1	-1.13	2	0.72	63	54	0.19
California	San Jose	59	0.69	38	-0.09	2	-0.99	18	0.09	62	53	0.19
Colorado	Colorado Springs	71	0.47	51	-0.20	21	-0.17	43	-0.06	4	68	-0.40
Colorado	Denver	69	0.52	67	-0.46	12	-0.42	7	0.23	3	55	-0.41
Connecticut	Bridgeport	3	3.00	1	1.21	50	0.18	49	-0.08	41	73	0.20
DC	Washington	55	0.73	60	-0.38	9	-0.68	1	1.20	19	40	-0.04
Delaware	Wilmington	25	1.44	28	0.08	54	0.26	24	0.06	36	57	0.14
Florida	Jacksonville	58	0.70	29	0.08	48	0.16	46	-0.06	12	4	-0.43

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 70th highest property tax reliance (4th lowest), which is predicted to decrease the city's tax rate on a median valued home by 0.49 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 0.49 percentage points higher, which at 1.16% would be 35th highest. Birmingham also has the 71st highest median home value (3rd lowest), which is expected to increase their tax rate by 0.66 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 (34th highest), which is expected to decrease the city's tax rate by 0.01 percentage points relative to a city with average spending. Finally, Birmingham has significantly higher tax rates for commercial properties and apartments than for homestead properties; the classification ratio is 17th highest for commercial properties and 6th highest for apartments. The city's classification ratios are predicted to decrease the property tax rate on a median valued home by 0.34 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 (1-73)	Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Commercial	Apartments	Impact
Florida	Miami	49	0.86	32	0.03	19	-0.26	30	0.01	13	5	-0.40
Georgia	Atlanta	44	0.94	36	-0.07	18	-0.26	13	0.13	27	12	-0.11
Hawaii	Honolulu*	73	0.31	13	0.35	5	-0.78	73	-0.25	2	28	-0.47
Idaho	Boise	54	0.74	14	0.34	23	-0.16	72	-0.22	30	15	-0.05
Illinois	Aurora	1	3.25	4	0.86	46	0.12	59	-0.14	45	37	0.15
Illinois	Chicago	23	1.49	33	0.00	30	-0.07	19	0.09	6	70	-0.24
Indiana	Indianapolis	34	1.17	61	-0.39	62	0.34	44	-0.06	10	3	-0.46
Iowa	Des Moines	7	2.41	16	0.33	64	0.36	37	-0.03	25	33	0.02
Kansas	Wichita	33	1.17	31	0.03	65	0.38	63	-0.16	18	46	-0.04
Kentucky	Louisville	31	1.24	46	-0.16	57	0.27	64	-0.16	64	56	0.19
Louisiana	New Orleans	40	1.00	59	-0.37	37	0.02	60	-0.14	21	16	-0.12
Maine	Portland	20	1.66	9	0.57	20	-0.21	32	-0.01	46	38	0.16
Maryland	Baltimore	11	2.22	34	-0.05	52	0.24	26	0.05	54	44	0.18
Massachusetts	Boston	70	0.48	3	0.90	10	-0.66	36	-0.03	1	8	-0.80
Michigan	Detroit	16	1.77	63	-0.40	73	1.03	52	-0.08	31	22	0.03
Minnesota	Minneapolis	27	1.37	35	-0.06	28	-0.09	15	0.13	11	23	-0.15
Mississippi	Jackson	24	1.48	7	0.70	72	0.72	70	-0.20	23	9	-0.18
Missouri	Kansas City	26	1.41	68	-0.47	60	0.28	35	-0.02	20	57	-0.02
Montana	Billings	45	0.93	20	0.18	40	0.05	68	-0.19	34	57	0.13
Nebraska	Omaha	12	2.03	26	0.10	53	0.25	38	-0.03	72	67	0.20
Nevada	Las Vegas	37	1.12	55	-0.31	24	-0.15	40	-0.04	71	48	0.19
New Hampshire	Manchester	13	1.96	6	0.74	35	-0.01	65	-0.17	65	57	0.19
New Jersey	Newark*	2	3.20	2	1.11	32	-0.06	47	-0.08	65	57	0.19
New Mexico	Albuquerque	36	1.14	48	-0.18	45	0.12	66	-0.18	39	35	0.12
New York	Buffalo	42	0.97	71	-0.50	69	0.54	16	0.12	26	10	-0.11
New York	New York City	68	0.53	49	-0.18	7	-0.72	3	0.57	7	2	-0.65
North Carolina	Charlotte	47	0.90	69	-0.48	36	-0.01	11	0.15	65	57	0.19
North Carolina	Raleigh	43	0.96	19	0.22	31	-0.07	58	-0.14	65	57	0.19
North Dakota	Fargo	32	1.20	43	-0.12	39	0.04	39	-0.04	47	39	0.16
Ohio	Columbus	18	1.69	42	-0.11	55	0.26	29	0.01	33	19	0.03

*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, 2018 Census of Government Finances).

		Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio		
State	**City**	Rank (1-73)	Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Commercial	Apartments	Impact
Oklahoma	Oklahoma City	35	1.15	52	-0.21	61	0.29	71	-0.21	50	43	0.17
Oklahoma	Tulsa	29	1.27	50	-0.18	63	0.35	62	-0.16	49	42	0.16
Oregon	Portland	19	1.67	22	0.15	13	-0.41	27	0.03	65	57	0.19
Pennsylvania	Philadelphia	41	0.98	72	-0.59	51	0.22	14	0.13	14	18	-0.16
Rhode Island	Providence	28	1.29	5	0.81	38	0.04	48	-0.08	9	11	-0.28
South Carolina	Charleston	72	0.42	41	-0.09	17	-0.27	53	-0.09	5	1	-1.02
South Dakota	Sioux Falls	22	1.53	25	0.12	42	0.09	69	-0.19	44	34	0.14
Tennessee	Memphis	21	1.60	39	-0.09	70	0.55	21	0.09	29	14	-0.08
Tennessee	Nashville	48	0.89	44	-0.13	26	-0.10	17	0.10	28	13	-0.08
Texas	Arlington	10	2.30	15	0.33	44	0.11	57	-0.13	51	29	0.15
Texas	Austin	14	1.92	10	0.45	15	-0.30	23	0.07	43	31	0.14
Texas	Dallas	15	1.83	24	0.12	41	0.05	33	-0.01	38	21	0.07
Texas	El Paso	4	2.67	23	0.14	66	0.45	51	-0.08	73	69	0.22
Texas	Fort Worth	9	2.35	12	0.35	47	0.13	50	-0.08	52	27	0.14
Texas	Houston	17	1.73	11	0.38	49	0.17	41	-0.05	35	20	0.05
Texas	San Antonio	5	2.45	18	0.23	59	0.27	25	0.06	42	36	0.15
Utah	Salt Lake City	63	0.65	45	-0.14	15	-0.30	9	0.21	24	66	0.03
Vermont	Burlington	8	2.40	65	-0.44	27	-0.09	20	0.09	37	24	0.08
Virginia	Virginia Beach	46	0.91	17	0.23	25	-0.12	54	-0.12	60	71	0.21
Washington	Seattle	51	0.82	57	-0.36	4	-0.80	6	0.25	65	57	0.19
West Virginia	Charleston	66	0.59	58	-0.36	68	0.50	31	0.00	8	7	-0.50
Wisconsin	Milwaukee	6	2.41	21	0.17	66	0.45	42	-0.05	48	41	0.16
Wyoming	Cheyenne	64	0.64	73	-0.76	43	0.11	10	0.18	53	72	0.22

Appendix Table 1b: Factors Correlated with Commercial Property Tax Rates in Large U.S. Cities

(Effective Tax Rate for $1-Million Valued Commercial Property, with $200k in Fixtures)

		Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio*	
State	City	Rank (1-73)	Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate
Alabama	Birmingham	44	1.45	70	-0.49	71	0.83	34	-0.02	17	0.21
Alaska	Anchorage	42	1.52	8	0.67	22	-0.21	45	-0.10	40	-0.15
Arizona	Mesa	39	1.62	47	-0.17	34	-0.03	61	-0.24	15	0.22
Arizona	Phoenix	24	2.26	40	-0.09	33	-0.06	55	-0.20	16	0.22
Arizona	Tucson	35	1.86	27	0.08	56	0.33	67	-0.31	22	0.13
Arkansas	Little Rock	50	1.40	66	-0.44	58	0.34	56	-0.20	32	-0.09
California	Fresno	55	1.27	37	-0.08	29	-0.09	22	0.14	55	-0.22
California	Long Beach	59	1.20	62	-0.40	11	-0.81	5	0.42	57	-0.22
California	Los Angeles	60	1.20	53	-0.22	6	-0.92	8	0.37	59	-0.22
California	Oakland	51	1.37	56	-0.32	3	-1.06	4	0.66	61	-0.23
California	Sacramento	63	1.14	64	-0.40	14	-0.38	12	0.22	56	-0.22
California	San Diego	58	1.23	30	0.05	8	-0.87	28	0.04	58	-0.22
California	San Francisco	61	1.20	54	-0.28	1	-1.42	2	1.19	63	-0.23
California	San Jose	57	1.24	38	-0.09	2	-1.25	18	0.16	62	-0.23
Colorado	Colorado Springs	33	1.88	51	-0.20	21	-0.22	43	-0.09	4	0.88
Colorado	Denver	26	2.07	67	-0.45	12	-0.52	7	0.38	3	0.89
Connecticut	Bridgeport	3	3.67	1	1.20	50	0.22	49	-0.13	41	-0.15
DC	Washington	56	1.26	60	-0.38	9	-0.86	1	1.98	19	0.17
Delaware	Wilmington	43	1.50	28	0.08	54	0.32	24	0.10	36	-0.14
Florida	Jacksonville	40	1.62	29	0.08	48	0.20	46	-0.10	12	0.28

*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 70th highest property tax reliance (4h lowest), which is predicted to decrease the city's commercial property tax rate by 0.49 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 0.49 percentage points higher. Birmingham also has the 71st highest median home value (3rd lowest), which is expected to increase their tax rate by 0.83 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 (34th highest), and thus is expected to decrease the city's tax rate by 0.02 percentage points relative to a city with average spending. Finally, Birmingham has the 17th highest commercial-homestead classification ratio, which is predicted to increase the commercial property tax rate by 0.21 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 (1-73)	Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Tax Rate
Florida	Miami	29	1.94	32	0.03	19	-0.33	30	0.01	13	0.25
Georgia	Atlanta	41	1.58	36	-0.07	18	-0.33	13	0.22	27	0.02
Hawaii	Honolulu**	67	1.06	13	0.35	5	-0.98	73	-0.41	2	0.92
Idaho	Boise	69	1.03	14	0.34	23	-0.20	72	-0.37	30	-0.03
Illinois	Aurora	6	2.94	4	0.86	46	0.15	59	-0.24	45	-0.20
Illinois	Chicago	2	4.03	33	0.00	30	-0.09	19	0.16	6	0.61
Indiana	Indianapolis	8	2.86	61	-0.39	62	0.43	44	-0.09	10	0.30
Iowa	Des Moines	5	3.42	16	0.33	64	0.46	37	-0.05	25	0.03
Kansas	Wichita	17	2.57	31	0.03	65	0.48	63	-0.27	18	0.19
Kentucky	Louisville	53	1.36	46	-0.16	57	0.33	64	-0.27	64	-0.23
Louisiana	New Orleans	27	2.06	59	-0.37	37	0.02	60	-0.24	21	0.15
Maine	Portland	32	1.88	9	0.57	20	-0.26	32	-0.02	46	-0.20
Maryland	Baltimore	9	2.84	34	-0.05	52	0.30	26	0.09	54	-0.22
Massachusetts	Boston	31	1.89	3	0.90	10	-0.83	36	-0.05	1	1.15
Michigan	Detroit	1	4.16	63	-0.40	73	1.30	52	-0.13	31	-0.04
Minnesota	Minneapolis	11	2.74	35	-0.06	28	-0.11	15	0.21	11	0.29
Mississippi	Jackson	12	2.72	7	0.69	72	0.91	70	-0.33	23	0.08
Missouri	Kansas City	7	2.87	68	-0.47	60	0.35	35	-0.04	20	0.17
Montana	Billings	65	1.10	20	0.18	40	0.06	68	-0.31	34	-0.12
Nebraska	Omaha	28	2.03	26	0.09	53	0.32	38	-0.06	72	-0.23
Nevada	Las Vegas	64	1.12	55	-0.31	24	-0.18	40	-0.07	71	-0.23
New Hampshire	Manchester	38	1.63	6	0.74	35	-0.02	65	-0.28	65	-0.23
New Jersey	Newark**	14	2.67	2	1.11	32	-0.07	47	-0.13	65	-0.23
New Mexico	Albuquerque	45	1.43	48	-0.18	45	0.15	66	-0.30	39	-0.14
New York	Buffalo	54	1.35	71	-0.50	69	0.68	16	0.20	26	0.02
New York	New York City	46	1.43	49	-0.18	7	-0.90	3	0.95	7	0.60
North Carolina	Charlotte	71	0.91	69	-0.48	36	-0.01	11	0.25	65	-0.23
North Carolina	Raleigh	70	0.96	19	0.22	31	-0.08	58	-0.23	65	-0.23
North Dakota	Fargo	66	1.08	43	-0.12	39	0.05	39	-0.06	47	-0.20
Ohio	Columbus	30	1.89	42	-0.11	55	0.33	29	0.01	33	-0.10

*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, 2018 Census of Government Finances).

		Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio*	
State	**City**	Rank (1-73)	Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Tax Rate
Oklahoma	Oklahoma City	52	1.36	52	-0.21	61	0.37	71	-0.35	50	-0.21
Oklahoma	Tulsa	47	1.41	50	-0.18	63	0.44	62	-0.27	49	-0.20
Oregon	Portland	20	2.48	22	0.15	13	-0.52	27	0.05	65	-0.23
Pennsylvania	Philadelphia	34	1.87	72	-0.59	51	0.28	14	0.22	14	0.25
Rhode Island	Providence	4	3.61	5	0.80	38	0.05	48	-0.13	9	0.33
South Carolina	Charleston	37	1.77	41	-0.09	17	-0.34	53	-0.14	5	0.76
South Dakota	Sioux Falls	48	1.41	25	0.12	42	0.12	69	-0.32	44	-0.19
Tennessee	Memphis	19	2.49	39	-0.09	70	0.69	21	0.15	29	-0.01
Tennessee	Nashville	49	1.40	44	-0.13	26	-0.13	17	0.17	28	-0.01
Texas	Arlington	21	2.45	15	0.33	44	0.14	57	-0.21	51	-0.21
Texas	Austin	25	2.16	10	0.45	15	-0.37	23	0.12	43	-0.19
Texas	Dallas	22	2.29	24	0.12	41	0.07	33	-0.02	38	-0.14
Texas	El Paso	13	2.67	23	0.13	66	0.56	51	-0.13	73	-0.24
Texas	Fort Worth	18	2.50	12	0.35	47	0.16	50	-0.13	52	-0.21
Texas	Houston	23	2.27	11	0.38	49	0.22	41	-0.08	35	-0.12
Texas	San Antonio	10	2.80	18	0.23	59	0.34	25	0.10	42	-0.18
Utah	Salt Lake City	62	1.18	45	-0.14	15	-0.37	9	0.35	24	0.07
Vermont	Burlington	15	2.65	65	-0.44	27	-0.12	20	0.15	37	-0.14
Virginia	Virginia Beach	68	1.03	17	0.23	25	-0.15	54	-0.19	60	-0.22
Washington	Seattle	72	0.83	57	-0.35	4	-1.01	6	0.41	65	-0.23
West Virginia	Charleston	36	1.86	58	-0.36	68	0.62	31	0.01	8	0.57
Wisconsin	Milwaukee	16	2.58	21	0.17	66	0.56	42	-0.09	48	-0.20
Wyoming	Cheyenne	73	0.67	73	-0.76	43	0.14	10	0.30	53	-0.22

*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	1.292	0.663	Effective tax rate on median valued home, with assessment limits Source: *50-State Property Tax Comparison Study* (Appendix Tables 2b, 2e)
Median Home Value	-0.635*** -0.0588	-0.714*** -0.106	297,541	211,485	Median home value in city Source: 2019 American Community Survey (U.S. Census Bureau)
Business Classification Ratio	-0.397*** -0.1	-0.201*** -0.0493	1.614	0.835	Commercial-homestead classification ratio, with taxes on personal property excluded for commercial properties Source: *50-State Property Tax Comparison Study*
Apartments Classification Ratio	-0.326** -0.158	-0.255* -0.145	1.271	0.471	Apartment-homestead classification ratio, with taxes on personal property excluded for apartments Source: *50-State Property Tax Comparison Study*
Property Tax Reliance	0.791*** -0.113	0.0278*** -0.00455	40.7	14.3	Property taxes as a percent of own source revenue for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2018).
Local Gov't Spending Per Capita (1000s)	0.479*** -0.146	0.0766*** -0.0263	6.334	2.093	Direct expenditures per capita for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2018).
State and Federal Aid as % Local Gov't Budget	-0.108 -0.124	-0.00335 -0.00574	33.6	11.7	Intergovernmental revenue as a percent of general revenue for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2018).
Local as % State-Local Spending	0.0768 -0.285	0.0099 -0.00891	49.2	7.6	Local government direct expenditures as a percent of state and local direct expenditures (State-level variable) Source: 2018 Survey of State and Local Gov't Finances (U.S. Census Bureau)
Constant	0.145 -1.221	8.829*** -1.155			
N	69	69			
R-sq	0.693	0.634			
adj. R-sq	0.658	0.592			
F	43.63	16.56			

* 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	1.925	0.795	Effective tax rate on $1-Million Commercial Property Source: *50-State Property Tax Comparison Study* (Appendix Tables 3a, 3b)
Median Home Value	-0.441*** -0.0773	-0.899*** -0.193	297,541	211,485	Median home value in city Source: 2019 American Community Survey (U.S. Census Bureau)
Business Classification Ratio	0.434*** -0.0886	0.372*** -0.126	1.614	0.835	Commercial-homestead classification ratio, with taxes on personal property excluded for commercial properties Source: *50-State Property Tax Comparison Study*
Apartments Classification Ratio	-0.23 -0.153	-0.277 -0.205	1.271	0.471	Apartment-homestead classification ratio, with taxes on personal property excluded for apartments Source: *50-State Property Tax Comparison Study*
Property Tax Reliance	0.662*** -0.118	0.0277*** -0.00565	40.7	14.3	Property taxes as a percent of own source revenue for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2018).
Local Gov't Spending Per Capita (1000s)	0.506*** -0.159	0.127*** -0.0402	6.334	2.093	Direct expenditures per capita for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2018).
State and Federal Aid as % Local Gov't Budget	0.0625 -0.11	0.00535 -0.00749	33.6	11.7	Intergovernmental revenue as a percent of general revenue for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2018).
Local as % State-Local Spending	0.201 -0.258	0.0124 -0.0106	49.2	7.6	Local government direct expenditures as a percent of state and local direct expenditures (State-level variable) Source: 2018 Survey of State and Local Gov't Finances (U.S. Census Bureau)
Constant	-2.224* -1.242	10.14*** -2.329			
N	69	69			
R-sq	0.553	0.496			
adj. R-sq	0.502	0.438			
F	13.93	9.163			

* 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 '19**	**Amount**	**Rank**	**Change from '19**	
Alabama	Birmingham	0.667%	46	2 ↑	659	53	-	98,800
Alaska	Anchorage	1.244%	23	5 ↑	3,914	14	1 ↓	314,600
Arizona	Phoenix	1.215%	27	3 ↓	3,238	22	4 ↓	266,600
Arkansas	Little Rock	1.109%	34	-	1,904	43	1 ↓	171,700
California	Los Angeles	1.188%	30	3 ↑	8,283	3	1 ↓	697,200
Colorado	Denver	0.516%	50	-	2,307	36	4 ↓	447,500
Connecticut	Bridgeport	2.999%	3	1 ↓	5,842	8	-	194,800
DC	Washington	0.729%	45	-	4,714	11	-	646,500
Delaware	Wilmington	1.442%	18	-	2,515	32	3 ↑	174,400
Florida	Jacksonville	1.293%	22	1 ↑	2,589	29	4 ↑	200,200
Georgia	Atlanta	0.939%	38	3 ↑	3,376	20	6 ↑	359,500
Hawaii	Honolulu	0.310%	53	-	2,296	37	1 ↑	739,700
Idaho	Boise	0.735%	44	1 ↓	2,286	38	2 ↓	310,900
Illinois	Aurora*	3.246%	1	-	6,863	5	1 ↑	211,400
Illinois	Chicago	1.542%	15	2 ↑	4,243	12	-	275,200
Indiana	Indianapolis	1.165%	32	-	1,811	44	2 ↑	155,400
Iowa	Des Moines	2.409%	7	1 ↑	3,618	16	4 ↑	150,200
Kansas	Wichita	1.174%	31	1 ↓	1,722	47	-	146,700
Kentucky	Louisville	1.242%	24	3 ↑	2,138	41	2 ↓	172,100
Louisiana	New Orleans	1.002%	35	1 ↑	2,434	34	3 ↓	242,900
Maine	Portland	1.660%	14	1 ↓	5,547	9	-	334,200
Maryland	Baltimore	2.220%	9	-	3,975	13	1 ↑	179,100
Massachusetts	Boston	0.481%	51	1 ↑	3,013	25	-	627,000
Michigan	Detroit	2.829%	4	-	1,667	48	2 ↑	58,900
Minnesota	Minneapolis	1.368%	20	-	3,861	15	-	282,200
Mississippi	Jackson	1.477%	17	4 ↑	1,346	50	1 ↑	91,100
Missouri	Kansas City	1.406%	19	-	2,368	35	1 ↓	168,400
Montana	Billings	0.932%	39	1 ↑	2,169	40	-	232,700
Nebraska	Omaha	2.034%	10	1 ↑	3,576	17	1 ↓	175,800
Nevada	Las Vegas	1.118%	33	2 ↑	3,420	18	1 ↓	305,900
New Hampshire	Manchester	1.958%	11	1 ↓	4,971	10	-	253,900
New Jersey	Newark	3.199%	2	1 ↑	8,656	2	2 ↑	270,600
New Mexico	Albuquerque	1.222%	26	-	2,587	30	1 ↓	211,800
New York	Buffalo*	0.971%	37	22 ↓	1,141	51	2 ↓	117,500
New York	New York City	1.210%	28	3 ↑	8,240	4	1 ↓	680,800
AVERAGE		**1.379%**			**3,470**			**281,581**

		Tax Rate (%)			Tax Bill ($)			Median Home Value
State	**City**	**Rate**	**Rank**	**Change from '19**	**Amount**	**Rank**	**Change from '19**	
North Carolina	Charlotte	0.903%	41	3 ↓	2,277	39	2 ↓	252,100
North Dakota	Fargo	1.199%	29	-	2,839	27	-	236,800
Ohio	Columbus	1.686%	13	1 ↓	2,921	26	7 ↓	173,300
Oklahoma	Oklahoma City	1.238%	25	-	2,051	42	1 ↓	165,700
Oregon	Portland	2.476%	5	-	11,022	1	-	445,200
Pennsylvania	Philadelphia	0.976%	36	1 ↑	1,788	45	-	183,200
Rhode Island	Providence	1.294%	21	1 ↑	3,069	24	-	237,200
South Carolina	Charleston	0.479%	52	1 ↓	1,742	46	3 ↓	363,600
South Dakota	Sioux Falls	1.528%	16	-	3,344	21	2 ↑	218,900
Tennessee	Nashville	0.895%	42	5 ↑	2,570	31	13 ↑	287,300
Texas	Houston	1.729%	12	2 ↑	3,385	19	2 ↑	195,800
Utah	Salt Lake City	0.646%	47	1 ↓	2,445	33	3 ↓	378,300
Vermont	Burlington	2.397%	8	1 ↓	6,821	6	1 ↓	284,500
Virginia	Virginia Beach	0.913%	40	1 ↓	2,706	28	-	296,200
Washington	Seattle	0.821%	43	1 ↑	6,300	7	-	767,000
West Virginia	Charleston	0.589%	49	7 ↓	733	52	-	124,600
Wisconsin	Milwaukee	2.412%	6	-	3,222	23	1 ↓	133,600
Wyoming	Cheyenne	0.644%	48	1 ↑	1,381	49	1 ↓	214,300
AVERAGE		**1.379%**			**3,470**			**281,581**

* 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: *2019 American Community Survey*, 1-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 '19	Amount	Rank	Change from '19	
Alabama	Birmingham	0.667%	44	2 ↑	659	53	-	98,800
Alaska	Anchorage	1.244%	22	2 ↑	3,914	13	1 ↓	314,600
Arizona	Phoenix	0.848%	39	2 ↓	2,261	38	4 ↓	266,600
Arkansas	Little Rock	1.028%	30	1 ↑	1,764	44	3 ↓	171,700
California	Los Angeles	0.625%	47	1 ↑	4,356	10	-	697,200
Colorado	Denver	0.516%	50	1 ↓	2,307	34	3 ↓	447,500
Connecticut	Bridgeport	2.999%	3	1 ↓	5,842	6	-	194,800
DC	Washington	0.729%	42	-	4,714	9	-	646,500
Delaware	Wilmington	1.442%	18	-	2,515	29	4 ↑	174,400
Florida	Jacksonville	0.697%	43	1 ↑	1,395	47	3 ↑	200,200
Georgia	Atlanta	0.939%	34	4 ↑	3,376	20	5 ↑	359,500
Hawaii	Honolulu	0.310%	53	-	2,296	35	2 ↑	739,700
Idaho	Boise	0.735%	41	1 ↓	2,286	36	1 ↓	310,900
Illinois	Aurora*	3.246%	1	-	6,863	3	1 ↑	211,400
Illinois	Chicago	1.486%	16	1 ↑	4,090	11	-	275,200
Indiana	Indianapolis	1.165%	26	3 ↑	1,811	42	2 ↑	155,400
Iowa	Des Moines	2.409%	5	1 ↑	3,618	15	4 ↑	150,200
Kansas	Wichita	1.174%	25	2 ↑	1,722	45	-	146,700
Kentucky	Louisville	1.242%	23	-	2,138	40	2 ↓	172,100
Louisiana	New Orleans	1.002%	31	1 ↑	2,434	31	2 ↓	242,900
Maine	Portland	1.660%	14	2 ↓	5,547	7	-	334,200
Maryland	Baltimore	2.220%	7	-	3,975	12	1 ↑	179,100
Massachusetts	Boston	0.481%	51	-	3,013	24	-	627,000
Michigan	Detroit	1.767%	10	1 ↑	1,041	51	1 ↑	58,900
Minnesota	Minneapolis	1.368%	20	-	3,861	14	-	282,200
Mississippi	Jackson	1.477%	17	4 ↑	1,346	49	-	91,100
Missouri	Kansas City	1.406%	19	-	2,368	33	1 ↓	168,400
Montana	Billings	0.932%	35	1 ↑	2,169	39	-	232,700
Nebraska	Omaha	2.034%	8	1 ↑	3,576	17	2 ↓	175,800
Nevada	Las Vegas	1.118%	29	1 ↑	3,420	18	1 ↓	305,900
New Hampshire	Manchester	1.958%	9	1 ↓	4,971	8	-	253,900
New Jersey	Newark	3.199%	2	1 ↑	8,656	1	-	270,600
New Mexico	Albuquerque	1.144%	28	3 ↓	2,423	32	2 ↓	211,800
New York	Buffalo*	0.971%	33	18 ↓	1,141	50	3 ↓	117,500
New York	New York City	0.529%	49	1 ↑	3,603	16	-	680,800
AVERAGE		**1.295%**			**3,173**			**281,581**

		Tax Rate (%)			Tax Bill ($)			Median Home Value
State	**City**	**Rate**	**Rank**	**Change from '19**	**Amount**	**Rank**	**Change from '19**	
North Carolina	Charlotte	0.903%	37	3 ↓	2,277	37	1 ↓	252,100
North Dakota	Fargo	1.199%	24	2 ↑	2,839	26	-	236,800
Ohio	Columbus	1.686%	12	2 ↓	2,921	25	7 ↓	173,300
Oklahoma	Oklahoma City	1.147%	27	1 ↑	1,901	41	1 ↓	165,700
Oregon	Portland	1.669%	13	1 ↑	7,429	2	-	445,200
Pennsylvania	Philadelphia	0.976%	32	1 ↑	1,788	43	-	183,200
Rhode Island	Providence	1.294%	21	1 ↑	3,069	23	-	237,200
South Carolina	Charleston	0.424%	52	-	1,542	46	2 ↑	363,600
South Dakota	Sioux Falls	1.528%	15	1 ↑	3,344	21	1 ↑	218,900
Tennessee	Nashville	0.895%	38	7 ↑	2,570	28	14 ↑	287,300
Texas	Houston	1.729%	11	2 ↑	3,385	19	1 ↑	195,800
Utah	Salt Lake City	0.646%	45	2 ↓	2,445	30	2 ↓	378,300
Vermont	Burlington	2.397%	6	1 ↓	6,821	4	1 ↓	284,500
Virginia	Virginia Beach	0.913%	36	1 ↓	2,706	27	-	296,200
Washington	Seattle	0.821%	40	1 ↑	6,300	5	-	767,000
West Virginia	Charleston	0.589%	48	9 ↓	733	52	1 ↓	124,600
Wisconsin	Milwaukee	2.412%	4	-	3,222	22	1 ↓	133,600
Wyoming	Cheyenne	0.644%	46	1 ↑	1,381	48	2 ↓	214,300
AVERAGE		**1.295%**			**3,173**			**281,581**

* 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: *2019 American Community Survey*, 1-year data

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

		$150,000 Property Value				$300,000 Property Value				Tax Rate Varies with Property Value
State	**City**	**Tax Rate**	**Tax Bill**	**Rank**	**Change from '19**	**Tax Rate**	**Tax Bill**	**Rank**	**Change from '19**	
Alabama	Birmingham	0.686%	1,028	43	1 ↑	0.703%	2,110	45	1 ↑	X
Alaska	Anchorage	1.213%	1,819	25	6 ↑	1.231%	3,692	26	6 ↑	X
Arizona	Phoenix	1.215%	1,822	24	2 ↓	1.215%	3,644	27	2 ↓	
Arkansas	Little Rock	1.077%	1,616	33	1 ↑	1.202%	3,607	28	1 ↓	X
California	Los Angeles	1.144%	1,716	31	1 ↑	1.172%	3,516	32	2 ↑	X
Colorado	Denver	0.516%	773	48	-	0.516%	1,547	50	-	
Connecticut	Bridgeport	2.999%	4,499	3	2 ↓	2.999%	8,997	3	1 ↓	
DC	Washington	0.400%	600	50	-	0.614%	1,843	48	1 ↑	X
Delaware	Wilmington	1.442%	2,163	17	1 ↑	1.442%	4,326	18	2 ↑	
Florida	Jacksonville	1.176%	1,764	28	2 ↑	1.410%	4,231	19	-	X
Georgia	Atlanta	0.063%	95	53	2 ↓	0.815%	2,446	43	2 ↓	X
Hawaii	Honolulu	0.162%	242	51	1 ↑	0.255%	765	52	-	X
Idaho	Boise	0.560%	841	47	-	0.721%	2,164	44	1 ↓	X
Illinois	Aurora*	3.133%	4,699	2	-	3.328%	9,985	1	-	X
Illinois	Chicago	1.333%	1,999	19	1 ↑	1.562%	4,687	16	1 ↑	X
Indiana	Indianapolis	1.163%	1,744	30	1 ↓	1.198%	3,594	30	1 ↓	X
Iowa	Des Moines	2.409%	3,613	7	-	2.485%	7,455	6	1 ↑	X
Kansas	Wichita	1.175%	1,762	29	1 ↓	1.190%	3,570	31	1 ↓	X
Kentucky	Louisville	1.242%	1,863	21	5 ↑	1.242%	3,727	24	4 ↑	
Louisiana	New Orleans	0.744%	1,116	42	1 ↓	1.081%	3,244	37	1 ↓	X
Maine	Portland	1.494%	2,241	16	3 ↓	1.644%	4,933	15	2 ↓	X
Maryland	Baltimore	2.220%	3,329	8	-	2.220%	6,659	9	-	
Massachusetts	Boston	0.094%	141	52	1 ↑	0.094%	282	53	-	
Michigan	Detroit	2.829%	4,244	4	-	2.829%	8,488	4	-	
Minnesota	Minneapolis	1.219%	1,828	23	1 ↑	1.378%	4,135	21	-	X
Mississippi	Jackson	1.606%	2,410	14	3 ↑	1.706%	5,119	13	3 ↑	X
Missouri	Kansas City	1.406%	2,109	18	1 ↑	1.406%	4,218	20	2 ↑	
Montana	Billings	0.932%	1,398	36	3 ↑	0.932%	2,796	38	2 ↑	
Nebraska	Omaha	2.034%	3,051	10	-	2.034%	6,102	10	1 ↑	
Nevada	Las Vegas	1.118%	1,677	32	1 ↑	1.118%	3,354	34	3 ↑	
New Hampshire	Manchester	1.958%	2,937	11	2 ↓	1.958%	5,874	11	1 ↓	
New Jersey	Newark	3.199%	4,798	1	2 ↑	3.199%	9,597	2	1 ↑	
New Mexico	Albuquerque	1.205%	1,808	26	1 ↓	1.233%	3,700	25	1 ↑	X
New York	Buffalo*	1.018%	1,527	35	21 ↓	1.102%	3,306	36	21 ↓	X
New York	New York City	1.057%	1,585	34	1 ↑	1.155%	3,466	33	2 ↑	X
AVERAGE		**1.316%**	**1,974**			**1.388%**	**4,163**			**N = 26**

		$150,000 Property Value				$300,000 Property Value				Tax Rate Varies with Property Value
State	**City**	**Tax Rate**	**Tax Bill**	**Rank**	**Change from '19**	**Tax Rate**	**Tax Bill**	**Rank**	**Change from '19**	
North Carolina	Charlotte	0.903%	1,355	38	1 ↓	0.903%	2,710	40	2 ↓	
North Dakota	Fargo	1.199%	1,798	27	-	1.199%	3,597	29	2 ↑	
Ohio	Columbus	1.686%	2,528	12	1 ↓	1.686%	5,057	14	2 ↓	
Oklahoma	Oklahoma City	1.230%	1,846	22	1 ↑	1.270%	3,811	23	1 ↑	X
Oregon	Portland	2.476%	3,713	5	-	2.476%	7,427	7	1 ↓	
Pennsylvania	Philadelphia	0.900%	1,350	39	3 ↓	1.110%	3,330	35	2 ↓	X
Rhode Island	Providence	1.294%	1,941	20	1 ↑	1.294%	3,881	22	1 ↑	
South Carolina	Charleston	0.479%	719	49	-	0.479%	1,438	51	-	
South Dakota	Sioux Falls	1.528%	2,291	15	1 ↑	1.528%	4,583	17	1 ↑	
Tennessee	Nashville	0.895%	1,342	40	5 ↑	0.895%	2,684	41	6 ↑	
Texas	Houston	1.685%	2,527	13	2 ↑	1.784%	5,352	12	2 ↑	X
Utah	Salt Lake City	0.646%	969	44	1 ↓	0.646%	1,939	46	1 ↓	
Vermont	Burlington	2.179%	3,268	9	3 ↑	2.415%	7,245	8	-	X
Virginia	Virginia Beach	0.913%	1,370	37	1 ↑	0.913%	2,740	39	-	
Washington	Seattle	0.821%	1,232	41	1 ↑	0.821%	2,464	42	2 ↑	
West Virginia	Charleston	0.589%	883	46	6 ↓	0.589%	1,766	49	7 ↓	
Wisconsin	Milwaukee	2.431%	3,646	6	-	2.507%	7,522	5	-	X
Wyoming	Cheyenne	0.644%	966	45	1 ↑	0.644%	1,933	47	1 ↑	
AVERAGE		**1.316%**	**1,974**			**1.388%**	**4,163**			**N = 26**

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

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

		Tax Rate (%)			Tax Bill ($)			Median Home Value
State	City	Rate	Rank	Change from '19	Amount	Rank	Change from '19	
Arizona	Mesa	0.868%	45	1 ↓	2,250	40	1 ↑	259,300
Arizona	Phoenix	1.215%	28	5 ↓	3,238	27	2 ↓	266,600
Arizona	Tucson	1.113%	37	2 ↓	1,923	44	1 ↓	172,700
California	Fresno	1.240%	23	4 ↑	3,429	23	1 ↑	276,600
California	Long Beach	1.187%	32	3 ↓	7,291	8	-	614,400
California	Los Angeles	1.188%	31	2 ↑	8,283	5	1 ↑	697,200
California	Oakland	1.362%	19	1 ↑	10,998	4	-	807,600
California	Sacramento	1.118%	35	1 ↑	4,257	15	1 ↑	380,600
California	San Diego	1.217%	27	1 ↓	8,011	7	2 ↓	658,400
California	San Francisco	1.192%	30	2 ↑	14,507	1	-	1,217,500
California	San Jose	1.229%	25	4 ↓	12,291	2	-	999,900
Colorado	Colorado Springs	0.469%	50	1 ↓	1,493	50	-	318,200
Colorado	Denver	0.516%	48	-	2,307	38	3 ↓	447,500
DC	Washington	0.729%	47	1 ↓	4,714	14	2 ↓	646,500
Florida	Jacksonville	1.293%	21	1 ↑	2,589	33	3 ↑	200,200
Florida	Miami	1.732%	12	2 ↑	6,208	11	1 ↓	358,500
Georgia	Atlanta	0.939%	41	2 ↑	3,376	26	4 ↑	359,500
Illinois	Chicago	1.542%	16	-	4,243	16	2 ↓	275,200
Indiana	Indianapolis	1.165%	34	-	1,811	46	1 ↑	155,400
Kansas	Wichita	1.174%	33	3 ↓	1,722	48	-	146,700
Kentucky	Louisville	1.242%	22	6 ↑	2,138	41	2 ↓	172,100
Louisiana	New Orleans	1.002%	38	-	2,434	36	2 ↓	242,900
Maryland	Baltimore	2.220%	8	2 ↓	3,975	19	-	179,100
Massachusetts	Boston	0.481%	49	1 ↑	3,013	29	-	627,000
Michigan	Detroit	2.829%	1	-	1,667	49	-	58,900
Minnesota	Minneapolis	1.368%	18	1 ↑	3,861	20	-	282,200
Missouri	Kansas City	1.406%	17	1 ↑	2,368	37	-	168,400
Nebraska	Omaha	2.034%	9	1 ↑	3,576	21	1 ↑	175,800
Nevada	Las Vegas	1.118%	36	1 ↑	3,420	24	1 ↓	305,900
New Mexico	Albuquerque	1.222%	26	1 ↓	2,587	34	1 ↓	211,800
New York	New York City	1.210%	29	2 ↑	8,240	6	1 ↑	680,800
North Carolina	Charlotte	0.903%	43	2 ↓	2,277	39	1 ↓	252,100
North Carolina	Raleigh	0.956%	40	-	2,621	32	1 ↓	274,200
Ohio	Columbus	1.686%	14	3 ↓	2,921	30	4 ↓	173,300
Oklahoma	Oklahoma City	1.238%	24	-	2,051	43	1 ↓	165,700
AVERAGE		**1.402%**			**4,322**			**346,206**

		Tax Rate (%)			Tax Bill ($)			Median Home Value
State	**City**	**Rate**	**Rank**	**Change from '19**	**Amount**	**Rank**	**Change from '19**	
Oklahoma	Tulsa	1.348%	20	3 ↓	2,058	42	2 ↓	152,700
Oregon	Portland	2.476%	3	-	11,022	3	-	445,200
Pennsylvania	Philadelphia	0.976%	39	-	1,788	47	2 ↓	183,200
Tennessee	Memphis	1.596%	15	-	1,849	45	1 ↑	115,900
Tennessee	Nashville	0.895%	44	3 ↑	2,570	35	9 ↑	287,300
Texas	Arlington	2.305%	7	1 ↑	4,928	12	5 ↑	213,800
Texas	Austin	1.917%	10	2 ↑	7,254	9	-	378,300
Texas	Dallas	1.827%	11	2 ↓	4,228	17	4 ↓	231,400
Texas	El Paso	2.672%	2	-	3,570	22	1 ↓	133,600
Texas	Fort Worth	2.351%	6	1 ↑	4,923	13	2 ↑	209,400
Texas	Houston	1.729%	13	-	3,385	25	2 ↑	195,800
Texas	San Antonio	2.453%	4	-	4,196	18	-	171,100
Virginia	Virginia Beach	0.913%	42	-	2,706	31	1 ↑	296,200
Washington	Seattle	0.821%	46	1 ↓	6,300	10	1 ↑	767,000
Wisconsin	Milwaukee	2.412%	5	-	3,222	28	-	133,600
AVERAGE		**1.402%**			**4,322**			**346,206**

Source for median home values: *2019 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 '19	Amount	Rank	Change from '19	
Arizona	Mesa	0.664%	44	1 ↓	1,722	47	-	259,300
Arizona	Phoenix	0.848%	34	3 ↓	2,261	36	2 ↓	266,600
Arizona	Tucson	1.016%	25	-	1,754	45	3 ↓	172,700
California	Fresno	0.711%	39	1 ↓	1,967	39	1 ↑	276,600
California	Long Beach	0.739%	37	1 ↓	4,542	11	3 ↓	614,400
California	Los Angeles	0.625%	45	1 ↓	4,356	12	2 ↓	697,200
California	Oakland	0.678%	43	2 ↓	5,475	6	1 ↑	807,600
California	Sacramento	0.565%	46	-	2,152	37	1 ↓	380,600
California	San Diego	0.799%	36	2 ↓	5,262	7	1 ↓	658,400
California	San Francisco	0.707%	40	5 ↑	8,608	1	1 ↑	1,217,500
California	San Jose	0.695%	42	2 ↓	6,948	4	-	999,900
Colorado	Colorado Springs	0.469%	50	2 ↓	1,493	48	-	318,200
Colorado	Denver	0.516%	48	1 ↓	2,307	34	2 ↓	447,500
DC	Washington	0.729%	38	1 ↓	4,714	10	1 ↓	646,500
Florida	Jacksonville	0.697%	41	2 ↓	1,395	49	-	200,200
Florida	Miami	0.858%	33	-	3,074	25	1 ↓	358,500
Georgia	Atlanta	0.939%	29	3 ↑	3,376	23	4 ↑	359,500
Illinois	Chicago	1.486%	15	-	4,090	15	3 ↓	275,200
Indiana	Indianapolis	1.165%	21	2 ↑	1,811	43	2 ↑	155,400
Kansas	Wichita	1.174%	20	1 ↑	1,722	46	-	146,700
Kentucky	Louisville	1.242%	19	-	2,138	38	1 ↓	172,100
Louisiana	New Orleans	1.002%	26	-	2,434	31	1 ↓	242,900
Maryland	Baltimore	2.220%	6	2 ↓	3,975	16	-	179,100
Massachusetts	Boston	0.481%	49	1 ↑	3,013	26	-	627,000
Michigan	Detroit	1.767%	10	-	1,041	50	-	58,900
Minnesota	Minneapolis	1.368%	17	-	3,861	17	-	282,200
Missouri	Kansas City	1.406%	16	-	2,368	33	-	168,400
Nebraska	Omaha	2.034%	7	1 ↑	3,576	19	-	175,800
Nevada	Las Vegas	1.118%	24	-	3,420	21	-	305,900
New Mexico	Albuquerque	1.144%	23	3 ↓	2,423	32	1 ↓	211,800
New York	New York City	0.529%	47	2 ↑	3,603	18	2 ↑	680,800
North Carolina	Charlotte	0.903%	31	2 ↓	2,277	35	-	252,100
North Carolina	Raleigh	0.956%	28	-	2,621	29	1 ↓	274,200
Ohio	Columbus	1.686%	12	3 ↓	2,921	27	5 ↓	173,300
Oklahoma	Oklahoma City	1.147%	22	-	1,901	41	2 ↓	165,700
AVERAGE		**1.218%**			**3,418**			**346,206**

		Tax Rate (%)			Tax Bill ($)			Median Home Value
State	**City**	**Rate**	**Rank**	**Change from '19**	**Amount**	**Rank**	**Change from '19**	
Oklahoma	Tulsa	1.268%	18	-	1,936	40	2 ↓	152,700
Oregon	Portland	1.669%	13	-	7,429	2	1 ↓	445,200
Pennsylvania	Philadelphia	0.976%	27	-	1,788	44	1 ↓	183,200
Tennessee	Memphis	1.596%	14	-	1,849	42	2 ↑	115,900
Tennessee	Nashville	0.895%	32	10 ↑	2,570	30	11 ↑	287,300
Texas	Arlington	2.305%	5	1 ↑	4,928	8	6 ↑	213,800
Texas	Austin	1.917%	8	3 ↑	7,254	3	-	378,300
Texas	Dallas	1.827%	9	2 ↓	4,228	13	2 ↓	231,400
Texas	El Paso	2.672%	1	-	3,570	20	2 ↓	133,600
Texas	Fort Worth	2.351%	4	1 ↑	4,923	9	4 ↑	209,400
Texas	Houston	1.729%	11	1 ↑	3,385	22	1 ↑	195,800
Texas	San Antonio	2.453%	2	-	4,196	14	1 ↑	171,100
Virginia	Virginia Beach	0.913%	30	-	2,706	28	1 ↑	296,200
Washington	Seattle	0.821%	35	-	6,300	5	-	767,000
Wisconsin	Milwaukee	2.412%	3	-	3,222	24	1 ↑	133,600
AVERAGE		**1.218%**			**3,418**			**346,206**

Source for median home values: *2019 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 '19	Tax Rate	Tax Bill	Rank	Change from '19	
Arizona	Mesa	0.868%	1,302	43	1 ↓	0.868%	2,604	44	-	
Arizona	Phoenix	1.215%	1,822	23	3 ↓	1.215%	3,644	26	3 ↓	
Arizona	Tucson	1.113%	1,670	35	3 ↓	1.113%	3,340	36	2 ↓	
California	Fresno	1.213%	1,819	24	2 ↑	1.242%	3,727	23	3 ↑	X
California	Long Beach	1.144%	1,717	31	-	1.172%	3,517	31	-	X
California	Los Angeles	1.144%	1,716	32	2 ↑	1.172%	3,516	32	3 ↑	X
California	Oakland	1.310%	1,964	19	-	1.342%	4,025	21	-	X
California	Sacramento	1.086%	1,629	36	-	1.113%	3,338	37	2 ↑	X
California	San Diego	1.172%	1,759	29	1 ↓	1.201%	3,603	28	1 ↑	X
California	San Francisco	1.143%	1,714	33	-	1.170%	3,511	33	-	X
California	San Jose	1.180%	1,770	26	1 ↓	1.209%	3,627	27	2 ↓	X
Colorado	Colorado Springs	0.469%	704	47	-	0.469%	1,408	49	-	
Colorado	Denver	0.516%	773	46	-	0.516%	1,547	48	-	
DC	Washington	0.400%	600	48	-	0.614%	1,843	47	-	X
Florida	Jacksonville	1.176%	1,764	27	3 ↑	1.410%	4,231	17	1 ↑	X
Florida	Miami	1.401%	2,102	16	1 ↑	1.685%	5,056	14	-	X
Georgia	Atlanta	0.063%	95	50	1 ↓	0.815%	2,446	46	3 ↓	X
Illinois	Chicago	1.333%	1,999	18	-	1.562%	4,687	16	-	X
Indiana	Indianapolis	1.163%	1,744	30	1 ↓	1.198%	3,594	29	1 ↓	X
Kansas	Wichita	1.175%	1,762	28	1 ↓	1.190%	3,570	30	-	X
Kentucky	Louisville	1.242%	1,863	20	4 ↑	1.242%	3,727	24	3 ↑	
Louisiana	New Orleans	0.744%	1,116	45	2 ↓	1.081%	3,244	39	2 ↓	X
Maryland	Baltimore	2.220%	3,329	8	2 ↓	2.220%	6,659	8	1 ↓	
Massachusetts	Boston	0.094%	141	49	1 ↑	0.094%	282	50	-	
Michigan	Detroit	2.829%	4,244	1	-	2.829%	8,488	2	1 ↓	
Minnesota	Minneapolis	1.219%	1,828	22	-	1.378%	4,135	20	1 ↓	X
Missouri	Kansas City	1.406%	2,109	15	1 ↑	1.406%	4,218	18	2 ↑	
Nebraska	Omaha	2.034%	3,051	9	1 ↑	2.034%	6,102	9	1 ↑	
Nevada	Las Vegas	1.118%	1,677	34	1 ↑	1.118%	3,354	35	3 ↑	
New Mexico	Albuquerque	1.205%	1,808	25	2 ↓	1.233%	3,700	25	1 ↓	X
New York	New York City	1.057%	1,585	37	-	1.155%	3,466	34	2 ↑	X
North Carolina	Charlotte	0.903%	1,355	40	-	0.903%	2,710	42	1 ↓	
North Carolina	Raleigh	0.956%	1,434	38	-	0.956%	2,868	40	-	
Ohio	Columbus	1.686%	2,529	12	1 ↓	1.686%	5,057	13	2 ↓	
Oklahoma	Oklahoma City	1.230%	1,846	21	-	1.270%	3,811	22	-	X
AVERAGE		**1.330%**	**1,995**			**1.405%**	**4,216**			**N = 30**

		$150,000 Property Value				$300,000 Property Value				Tax Rate Varies with Property Value
State	**City**	**Rate**	**Tax Bill**	**Rank**	**Change from '19**	**Tax Rate**	**Tax Bill**	**Rank**	**Change from '19**	
Oklahoma	Tulsa	1.346%	2,019	17	2 ↓	1.390%	4,169	19	2 ↓	X
Oregon	Portland	2.476%	3,713	3	-	2.476%	7,427	5	-	
Pennsylvania	Philadelphia	0.900%	1,350	41	2 ↓	1.110%	3,330	38	6 ↓	X
Tennessee	Memphis	1.596%	2,393	14	-	1.596%	4,787	15	-	
Tennessee	Nashville	0.895%	1,342	42	3 ↑	0.895%	2,684	43	3 ↑	
Texas	Arlington	2.236%	3,354	7	1 ↑	2.351%	7,054	7	1 ↑	X
Texas	Austin	1.804%	2,707	10	2 ↑	1.898%	5,694	10	2 ↑	X
Texas	Dallas	1.756%	2,634	11	2 ↓	1.857%	5,572	11	2 ↓	X
Texas	El Paso	2.705%	4,057	2	-	2.838%	8,514	1	1 ↑	X
Texas	Fort Worth	2.286%	3,429	6	1 ↑	2.401%	7,203	6	-	X
Texas	Houston	1.685%	2,527	13	-	1.779%	5,337	12	1 ↑	X
Texas	San Antonio	2.422%	3,632	5	1 ↓	2.547%	7,642	3	-	X
Virginia	Virginia Beach	0.913%	1,370	39	2 ↑	0.913%	2,740	41	1 ↑	
Washington	Seattle	0.821%	1,232	44	-	0.821%	2,464	45	-	
Wisconsin	Milwaukee	2.431%	3,646	4	1 ↑	2.507%	7,522	4	-	X
AVERAGE		**1.330%**	**1,995**			**1.405%**	**4,216**			**N = 30**

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 '19**	**Amount**	**Rank**	**Change from '19**	
Alabama	Monroeville	0.379%	47	1 ↑	480	49	2 ↓	126,500
Alaska	Ketchikan	1.098%	27	-	2,807	11	2 ↑	255,600
Arizona	Safford	0.774%	36	-	1,167	32	-	150,700
Arkansas	Pocahontas	0.307%	49	-	246	50	-	80,100
California	Yreka	1.007%	30	1 ↓	1,593	23	1 ↓	158,200
Colorado	Walsenburg	0.564%	44	1 ↑	510	47	1 ↓	90,400
Connecticut	Litchfield	1.939%	11	3 ↑	6,087	1	-	313,900
Delaware	Georgetown	0.374%	48	4 ↓	826	39	11 ↓	220,800
Florida	Moore Haven	0.738%	38	5 ↑	515	46	3 ↑	69,800
Georgia	Fitzgerald	1.547%	19	-	1,264	29	1 ↑	81,700
Hawaii	Kauai	0.216%	50	-	1,235	30	5 ↑	570,700
Idaho	Saint Anthony	0.570%	43	1 ↓	732	42	2 ↓	128,400
Illinois	Galena	2.052%	9	4 ↓	3,096	9	2 ↓	150,900
Indiana	North Vernon	0.933%	33	-	872	37	1 ↑	93,500
Iowa	Hampton	1.787%	13	3 ↑	1,503	26	1 ↓	84,100
Kansas	Iola	2.303%	3	3 ↑	1,880	20	2 ↓	81,600
Kentucky	Morehead	1.138%	24	1 ↓	1,951	17	2 ↓	171,500
Louisiana	Natchitoches	0.506%	46	1 ↑	834	38	3 ↑	164,700
Maine	Rockland	1.906%	12	5 ↓	3,294	7	2 ↓	172,800
Maryland	Denton	1.754%	15	2 ↑	3,399	5	3 ↑	193,800
Massachusetts	Adams	2.079%	8	5 ↑	3,290	8	1 ↑	158,300
Michigan	Manistique	2.146%	7	3 ↑	1,309	27	2 ↑	61,000
Minnesota	Glencoe	1.289%	20	2 ↑	1,899	18	1 ↑	147,300
Mississippi	Philadelphia	0.991%	32	2 ↓	798	40	1 ↓	80,600
Missouri	Boonville	1.002%	31	1 ↑	1,134	33	2 ↓	113,200
Montana	Glasgow	1.031%	29	2 ↑	1,549	24	3 ↑	150,200
Nebraska	Sidney	2.194%	6	2 ↑	2,436	14	-	111,000
Nevada	Fallon	1.270%	22	1 ↓	2,136	16	1 ↑	168,200
New Hampshire	Lancaster	2.484%	2	2 ↑	3,321	6	-	133,700
New Jersey	Maurice River Twp	2.846%	1	1 ↑	4,463	3	1 ↑	156,800
New Mexico	Santa Rosa	0.878%	34	1 ↑	731	43	-	83,300
New York	Warsaw	2.277%	4	3 ↓	2,612	13	3 ↓	114,700
North Carolina	Edenton	1.124%	25	3 ↑	1,882	19	2 ↑	167,500
North Dakota	Devils Lake	1.288%	21	1 ↓	1,786	21	5 ↑	138,600
Ohio	Bryan	1.550%	18	-	1,529	25	1 ↓	98,600
AVERAGE		**1.278%**			**1,834**			**146,902**

		Tax Rate (%)			Tax Bill ($)			Median Home Value
State	**City**	**Rate**	**Rank**	**Change from '19**	**Amount**	**Rank**	**Change from '19**	
Oklahoma	Mangum	0.766%	37	-	508	48	-	66,400
Oregon	Tillamook	1.154%	23	1 ↑	2,189	15	1 ↑	189,700
Pennsylvania	Ridgway	1.599%	17	6 ↓	1,210	31	11 ↓	75,700
Rhode Island	Hopkinton	1.752%	16	7 ↓	3,923	4	1 ↓	223,900
South Carolina	Mullins	0.806%	35	1 ↓	592	45	1 ↓	73,500
South Dakota	Vermillion	1.778%	14	1 ↑	2,838	10	1 ↑	159,600
Tennessee	Savannah	0.638%	42	3 ↓	734	41	1 ↑	115,000
Texas	Fort Stockton	1.032%	28	2 ↓	992	35	1 ↓	96,100
Utah	Richfield	0.709%	39	2 ↑	1,283	28	5 ↑	180,900
Vermont	Hartford	2.267%	5	2 ↓	5,396	2	-	238,000
Virginia	Wise	0.653%	41	1 ↓	889	36	1 ↑	136,000
Washington	Okanogan	1.116%	26	1 ↓	1,660	22	1 ↑	148,700
West Virginia	Elkins	0.523%	45	1 ↑	642	44	1 ↑	122,800
Wisconsin	Rice Lake	2.035%	10	2 ↑	2,649	12	-	130,200
Wyoming	Worland	0.709%	40	2 ↓	1,034	34	2 ↑	145,900
AVERAGE		1.278%			1,834			146,902

Source for median home values: *2019 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 '19	Tax Rate	Tax Bill	Rank	Change from '19	
Alabama	Monroeville	0.386%	579	48	1 ↑	0.404%	1,213	48	1 ↑	X
Alaska	Ketchikan	1.098%	1,647	30	1 ↓	1.098%	3,295	30	1 ↓	
Arizona	Safford	0.774%	1,162	38	-	0.774%	2,323	38	-	
Arkansas	Pocahontas	0.525%	787	45	1 ↑	0.650%	1,950	43	2 ↑	X
California	Yreka	1.004%	1,506	32	1 ↓	1.029%	3,086	32	1 ↓	X
Colorado	Walsenburg	0.564%	847	44	1 ↑	0.564%	1,693	46	1 ↑	
Connecticut	Litchfield	1.939%	2,909	11	3 ↑	1.939%	5,817	13	1 ↑	
Delaware	Georgetown	0.374%	561	49	5 ↓	0.374%	1,123	49	3 ↓	
Florida	Moore Haven	1.471%	2,207	20	-	1.790%	5,371	14	3 ↑	X
Georgia	Fitzgerald	1.663%	2,495	18	1 ↑	1.733%	5,198	19	-	X
Hawaii	Kauai	0.050%	75	50	-	0.139%	418	50	-	X
Idaho	Saint Anthony	0.570%	855	43	-	0.634%	1,903	45	6 ↓	X
Illinois	Galena	2.050%	3,075	10	6 ↓	2.190%	6,570	7	3 ↓	X
Indiana	North Vernon	0.933%	1,400	34	-	0.933%	2,799	34	-	
Iowa	Hampton	1.885%	2,828	12	4 ↑	1.948%	5,843	12	3 ↑	X
Kansas	Iola	2.329%	3,494	4	2 ↑	2.345%	7,034	5	3 ↑	X
Kentucky	Morehead	1.138%	1,707	27	1 ↓	1.138%	3,413	27	1 ↓	
Louisiana	Natchitoches	0.463%	694	47	1 ↑	0.708%	2,124	41	1 ↓	X
Maine	Rockland	1.857%	2,785	13	4 ↓	2.043%	6,130	11	6 ↓	X
Maryland	Denton	1.754%	2,631	15	2 ↑	1.754%	5,262	17	1 ↑	
Massachusetts	Adams	2.079%	3,118	8	5 ↑	2.079%	6,236	10	3 ↑	
Michigan	Manistique	2.146%	3,219	6	6 ↑	2.146%	6,439	9	3 ↑	
Minnesota	Glencoe	1.296%	1,944	21	-	1.487%	4,461	21	-	X
Mississippi	Philadelphia	1.163%	1,744	24	1 ↑	1.263%	3,789	24	1 ↓	X
Missouri	Boonville	1.002%	1,502	33	-	1.002%	3,005	33	-	
Montana	Glasgow	1.031%	1,547	31	1 ↑	1.031%	3,093	31	1 ↑	
Nebraska	Sidney	2.194%	3,292	5	3 ↑	2.194%	6,583	6	4 ↑	
Nevada	Fallon	1.270%	1,905	23	1 ↑	1.270%	3,810	23	2 ↑	
New Hampshire	Lancaster	2.484%	3,726	2	1 ↑	2.484%	7,452	4	1 ↓	
New Jersey	Maurice River Twp	2.846%	4,269	1	1 ↑	2.846%	8,538	1	1 ↑	
New Mexico	Santa Rosa	0.908%	1,362	35	1 ↑	0.927%	2,782	35	-	X
New York	Warsaw	2.404%	3,606	3	2 ↓	2.609%	7,828	2	1 ↓	X
North Carolina	Edenton	1.124%	1,686	28	2 ↑	1.124%	3,371	28	2 ↑	
North Dakota	Devils Lake	1.288%	1,933	22	-	1.288%	3,865	22	2 ↑	
Ohio	Bryan	1.550%	2,326	19	1 ↓	1.550%	4,651	20	-	
AVERAGE		**1.307%**	**1,960**			**1.357%**	**4,071**			**N = 21**

		$150,000 Property Value				$300,000 Property Value				Tax Rate Varies with Property Value
State	**City**	**Tax Rate**	**Tax Bill**	**Rank**	**Change from '19**	**Tax Rate**	**Tax Bill**	**Rank**	**Change from '19**	
Oklahoma	Mangum	0.827%	1,240	36	1 ↑	0.851%	2,554	36	1 ↑	X
Oregon	Tillamook	1.154%	1,731	25	2 ↑	1.154%	3,462	26	1 ↑	
Pennsylvania	Ridgway	1.720%	2,580	17	12 ↓	1.782%	5,345	15	9 ↓	X
Rhode Island	Hopkinton	1.752%	2,628	16	6 ↓	1.752%	5,256	18	7 ↓	
South Carolina	Mullins	0.806%	1,208	37	2 ↓	0.806%	2,417	37	1 ↓	
South Dakota	Vermillion	1.778%	2,667	14	1 ↑	1.778%	5,335	16	-	
Tennessee	Savannah	0.638%	957	42	2 ↓	0.638%	1,915	44	2 ↓	
Texas	Fort Stockton	1.141%	1,711	26	3 ↓	1.237%	3,711	25	3 ↓	X
Utah	Richfield	0.709%	1,064	39	3 ↑	0.709%	2,128	39	5 ↑	
Vermont	Hartford	2.126%	3,190	7	-	2.508%	7,523	3	4 ↑	X
Virginia	Wise	0.653%	980	41	-	0.653%	1,960	42	1 ↑	
Washington	Okanogan	1.116%	1,675	29	1 ↓	1.116%	3,349	29	1 ↓	
West Virginia	Elkins	0.523%	784	46	1 ↑	0.523%	1,568	47	1 ↑	
Wisconsin	Rice Lake	2.061%	3,091	9	2 ↑	2.148%	6,443	8	1 ↑	X
Wyoming	Worland	0.709%	1,063	40	1 ↓	0.709%	2,127	40	1 ↑	
AVERAGE		**1.307%**	**1,960**			**1.357%**	**4,071**			**N = 21**

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	1.452%	1,743	30 (-)	1.452%	17,429	33 (-)	1.452%	435,725	34 (-)		
Alaska	Anchorage	1.263%	1,516	40 (-)	1.520%	18,235	31 (1 ↑)	1.547%	464,094	32 (1 ↑)	X	X
Arizona	Phoenix	2.229%	2,674	17 (3 ↑)	2.264%	27,166	17 (3 ↑)	2.707%	812,249	12 (1 ↑)	X	X
Arkansas	Little Rock	1.398%	1,678	35 (3 ↓)	1.398%	16,779	38 (3 ↓)	1.398%	419,475	39 (3 ↓)		
California	Los Angeles	1.200%	1,440	42 (1 ↓)	1.200%	14,402	43 (-)	1.200%	360,039	43 (-)		
Colorado	Denver	2.072%	2,487	18 (1 ↓)	2.072%	24,866	19 (1 ↓)	2.072%	621,658	19 (-)		
Connecticut	Bridgeport	3.673%	4,408	3 (1 ↑)	3.673%	44,077	3 (1 ↑)	3.673%	1,101,936	3 (1 ↑)		
DC	Washington	1.261%	1,513	41 (3 ↓)	1.261%	15,131	42 (2 ↓)	1.925%	577,633	23 (3 ↑)	X	X
Delaware	Wilmington	1.501%	1,801	29 (17 ↑)	1.501%	18,011	32 (15 ↑)	1.501%	450,274	33 (14 ↑)		X
Florida	Jacksonville	1.371%	1,645	36 (3 ↓)	1.617%	19,405	29 (1 ↑)	1.651%	495,267	29 (2 ↑)	X	X
Georgia	Atlanta	1.576%	1,891	28 (1 ↑)	1.576%	18,914	30 (1 ↑)	1.576%	472,850	31 (1 ↑)		
Hawaii	Honolulu	1.060%	1,272	47 (1 ↑)	1.060%	12,722	48 (1 ↑)	1.060%	318,060	49 (-)		X
Idaho	Boise	0.934%	1,121	50 (6 ↓)	1.034%	12,410	50 (8 ↓)	1.130%	339,018	46 (6 ↓)	X	X
Illinois	Aurora*	2.937%	3,524	5 (-)	2.937%	35,238	6 (-)	2.937%	880,950	6 (-)		X
Illinois	Chicago	4.027%	4,832	2 (1 ↑)	4.027%	48,319	2 (1 ↑)	4.027%	1,207,986	2 (1 ↑)		X
Indiana	Indianapolis	2.359%	2,831	15 (9 ↓)	2.861%	34,334	8 (1 ↓)	2.861%	858,350	9 (1 ↓)	X	
Iowa	Des Moines	2.614%	3,137	11 (4 ↑)	3.423%	41,071	5 (-)	3.641%	1,092,406	4 (1 ↑)	X	X
Kansas	Wichita	2.568%	3,081	12 (2 ↓)	2.568%	30,811	15 (2 ↓)	2.568%	770,282	16 (2 ↓)		
Kentucky	Louisville	1.360%	1,632	38 (3 ↓)	1.360%	16,323	40 (3 ↓)	1.360%	408,084	41 (3 ↓)		
Louisiana	New Orleans	2.059%	2,471	19 (-)	2.059%	24,711	20 (1 ↑)	2.059%	617,763	20 (1 ↑)		
Maine	Portland	1.884%	2,261	22 (1 ↓)	1.884%	22,611	24 (1 ↓)	1.884%	565,268	26 (2 ↓)		
Maryland	Baltimore	2.836%	3,404	7 (1 ↑)	2.836%	34,037	9 (-)	2.836%	850,931	10 (-)		
Massachusetts	Boston	1.890%	2,268	21 (5 ↑)	1.890%	22,677	23 (5 ↑)	1.890%	566,930	25 (4 ↑)		X
Michigan	Detroit	4.158%	4,989	1 (-)	4.158%	49,892	1 (-)	4.158%	1,247,302	1 (-)		X
Minnesota	Minneapolis	1.763%	2,116	26 (1 ↑)	2.739%	32,872	10 (-)	2.881%	864,372	7 (-)	X	X
Mississippi	Jackson	2.716%	3,259	8 (1 ↑)	2.716%	32,594	11 (-)	2.716%	814,840	11 (-)		
Missouri	Kansas City	2.874%	3,449	6 (1 ↑)	2.874%	34,487	7 (1 ↑)	2.874%	862,172	8 (1 ↑)		X
Montana	Billings	1.011%	1,213	49 (1 ↑)	1.098%	13,171	46 (-)	1.181%	354,268	45 (1 ↓)	X	X
Nebraska	Omaha	1.864%	2,237	23 (-)	2.032%	24,387	21 (1 ↑)	2.050%	615,048	21 (2 ↑)	X	X
Nevada	Las Vegas	1.120%	1,344	44 (1 ↓)	1.120%	13,441	45 (1 ↓)	1.120%	336,016	47 (2 ↓)		
New Hampshire	Manchester	1.632%	1,958	27 (1 ↑)	1.632%	19,580	28 (1 ↑)	1.632%	489,501	30 (-)		X
New Jersey	Newark	2.666%	3,199	9 (4 ↑)	2.666%	31,988	12 (3 ↑)	2.666%	799,710	13 (3 ↑)		X
New Mexico	Albuquerque	1.431%	1,717	31 (-)	1.431%	17,170	34 (-)	1.431%	429,238	35 (-)		
New York	Buffalo*	1.349%	1,619	39 (21 ↓)	1.349%	16,191	41 (22 ↓)	1.349%	404,779	42 (22 ↓)		X
New York	New York City	1.426%	1,711	32 (4 ↑)	1.426%	17,110	35 (3 ↑)	1.426%	427,760	36 (3 ↑)		X
AVERAGE		**1.878%**	**2,253**		**1.953%**	**23,439**		**1.989%**	**596,684**		**N = 12**	**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	0.914%	1,096	51 (-)	0.914%	10,962	51 (-)	0.914%	274,060	51 (-)		
North Dakota	Fargo	1.075%	1,290	46 (1 ↓)	1.075%	12,904	47 (2 ↓)	1.075%	322,610	48 (2 ↓)		X
Ohio	Columbus	1.892%	2,271	20 (2 ↑)	1.892%	22,709	22 (3 ↑)	1.892%	567,716	24 (1 ↑)		X
Oklahoma	Oklahoma City	1.364%	1,637	37 (3 ↓)	1.364%	16,374	39 (3 ↓)	1.364%	409,338	40 (3 ↓)		
Oregon	Portland	2.476%	2,971	14 (-)	2.476%	29,708	16 (-)	2.476%	742,693	17 (-)		
Pennsylvania	Philadelphia	1.089%	1,307	45 (3 ↓)	1.865%	22,384	25 (1 ↓)	2.024%	607,128	22 (-)	X	X
Rhode Island	Providence	3.615%	4,338	4 (2 ↓)	3.615%	43,379	4 (2 ↓)	3.615%	1,084,473	5 (3 ↓)		
South Carolina	Charleston	1.766%	2,119	25 (1 ↓)	1.766%	21,188	27 (1 ↓)	1.766%	529,688	28 (1 ↓)		
South Dakota	Sioux Falls	1.408%	1,690	33 (6 ↑)	1.408%	16,897	36 (5 ↑)	1.408%	422,435	37 (5 ↑)		X
Tennessee	Nashville	1.404%	1,685	34 (13 ↑)	1.404%	16,845	37 (11 ↑)	1.404%	421,129	38 (10 ↑)		X
Texas	Houston	2.235%	2,682	16 (-)	2.235%	26,820	18 (1 ↓)	2.235%	670,511	18 (-)		
Utah	Salt Lake City	1.181%	1,417	43 (6 ↓)	1.181%	14,171	44 (5 ↓)	1.181%	354,277	44 (3 ↓)		
Vermont	Burlington	2.646%	3,175	10 (1 ↑)	2.646%	31,750	13 (1 ↑)	2.646%	793,752	14 (1 ↑)		X
Virginia	Virginia Beach	1.035%	1,242	48 (1 ↑)	1.035%	12,417	49 (1 ↑)	1.035%	310,413	50 (-)		
Washington	Seattle	0.829%	995	52 (-)	0.829%	9,946	52 (-)	0.829%	248,641	52 (-)		
West Virginia	Charleston	1.858%	2,230	24 (1 ↑)	1.858%	22,301	26 (1 ↑)	1.858%	557,529	27 (1 ↑)		
Wisconsin	Milwaukee	2.528%	3,034	13 (1 ↓)	2.579%	30,943	14 (2 ↓)	2.584%	775,177	15 (3 ↓)	X	
Wyoming	Cheyenne	0.668%	802	53 (-)	0.668%	8,018	53 (-)	0.668%	200,459	53 (-)		
AVERAGE		**1.878%**	**2,253**		**1.953%**	**23,439**		**1.989%**	**596,684**		**N = 12**	**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	1.594%	1,913	27 (-)	1.620%	19,444	28 (1 ↑)	1.951%	585,282	25 (3 ↑)	X	X
Arizona	Phoenix	2.229%	2,674	16 (3 ↑)	2.264%	27,166	17 (1 ↑)	2.707%	812,249	8 (3 ↑)	X	X
Arizona	Tucson	1.827%	2,193	24 (1 ↓)	1.859%	22,306	27 (2 ↓)	2.255%	676,482	18 (2 ↓)	X	X
California	Fresno	1.272%	1,526	37 (1 ↑)	1.272%	15,264	38 (1 ↑)	1.272%	381,592	39 (-)		
California	Long Beach	1.200%	1,440	41 (1 ↓)	1.200%	14,405	42 (1 ↓)	1.200%	360,122	42 (1 ↓)		
California	Los Angeles	1.200%	1,440	42 (-)	1.200%	14,402	43 (-)	1.200%	360,039	43 (-)		
California	Oakland	1.374%	1,648	33 (2 ↓)	1.374%	16,484	35 (2 ↓)	1.374%	412,110	36 (2 ↓)		
California	Sacramento	1.139%	1,367	44 (-)	1.139%	13,673	45 (1 ↓)	1.139%	341,820	45 (1 ↓)		
California	San Diego	1.230%	1,476	40 (1 ↓)	1.230%	14,758	41 (1 ↓)	1.230%	368,946	41 (1 ↓)		
California	San Francisco	1.198%	1,438	43 (2 ↓)	1.198%	14,382	44 (2 ↓)	1.198%	359,539	44 (2 ↓)		
California	San Jose	1.238%	1,485	39 (3 ↓)	1.238%	14,855	40 (3 ↓)	1.238%	371,370	40 (2 ↓)		
Colorado	Colorado Springs	1.880%	2,257	22 (2 ↓)	1.880%	22,565	25 (3 ↓)	1.880%	564,132	29 (5 ↓)		
Colorado	Denver	2.072%	2,487	18 (2 ↓)	2.072%	24,866	19 (2 ↓)	2.072%	621,658	20 (1 ↓)		
DC	Washington	1.261%	1,513	38 (1 ↓)	1.261%	15,131	39 (1 ↓)	1.925%	577,633	26 (1 ↑)	X	X
Florida	Jacksonville	1.371%	1,645	34 (2 ↓)	1.617%	19,405	29 (1 ↓)	1.651%	495,267	30 (-)	X	X
Florida	Miami	1.641%	1,969	26 (-)	1.939%	23,268	22 (4 ↑)	1.980%	593,961	24 (1 ↑)	X	X
Georgia	Atlanta	1.576%	1,891	28 (-)	1.576%	18,914	30 (-)	1.576%	472,850	31 (-)		
Illinois	Chicago	4.027%	4,832	2 (-)	4.027%	48,319	2 (-)	4.027%	1,207,986	2 (-)		X
Indiana	Indianapolis	2.861%	3,433	4 (1 ↓)	2.861%	34,334	4 (1 ↓)	2.861%	858,350	5 (1 ↓)		
Kansas	Wichita	2.568%	3,081	8 (1 ↓)	2.568%	30,811	10 (2 ↓)	2.568%	770,282	11 (3 ↓)		
Kentucky	Louisville	1.360%	1,632	36 (2 ↓)	1.360%	16,323	37 (2 ↓)	1.360%	408,084	38 (2 ↓)		
Louisiana	New Orleans	2.059%	2,471	19 (2 ↓)	2.059%	24,711	20 (1 ↓)	2.059%	617,763	21 (1 ↓)		
Maryland	Baltimore	2.836%	3,404	5 (1 ↑)	2.836%	34,037	5 (1 ↑)	2.836%	850,931	6 (1 ↑)		
Massachusetts	Boston	1.890%	2,268	21 (3 ↑)	1.890%	22,677	24 (3 ↑)	1.890%	566,930	28 (1 ↑)		X
Michigan	Detroit	4.158%	4,989	1 (-)	4.158%	49,892	1 (-)	4.158%	1,247,302	1 (-)		X
Minnesota	Minneapolis	1.763%	2,116	25 (-)	2.739%	32,872	7 (-)	2.881%	864,372	3 (-)	X	X
Missouri	Kansas City	2.874%	3,449	3 (2 ↑)	2.874%	34,487	3 (2 ↑)	2.874%	862,172	4 (2 ↑)		X
Nebraska	Omaha	1.864%	2,237	23 (1 ↓)	2.032%	24,387	21 (-)	2.050%	615,048	22 (1 ↑)	X	X
Nevada	Las Vegas	1.120%	1,344	45 (-)	1.120%	13,441	46 (1 ↓)	1.120%	336,016	46 (1 ↓)		
New Mexico	Albuquerque	1.431%	1,717	29 (1 ↑)	1.431%	17,170	31 (1 ↑)	1.431%	429,238	32 (1 ↑)		
New York	New York City	1.426%	1,711	30 (5 ↑)	1.426%	17,110	32 (4 ↑)	1.426%	427,760	33 (4 ↑)		X
North Carolina	Charlotte	0.914%	1,096	49 (-)	0.914%	10,962	49 (-)	0.914%	274,060	49 (-)		
North Carolina	Raleigh	0.956%	1,147	48 (1 ↓)	0.956%	11,470	48 (1 ↓)	0.956%	286,751	48 (1 ↓)		
Ohio	Columbus	1.892%	2,271	20 (1 ↑)	1.892%	22,709	23 (1 ↑)	1.892%	567,716	27 (1 ↓)		X
Oklahoma	Oklahoma City	1.364%	1,637	35 (2 ↓)	1.364%	16,374	36 (2 ↓)	1.364%	409,338	37 (2 ↓)		
AVERAGE		**1.861%**	**2,234**		**1.914%**	**22,963**		**1.958%**	**587,482**		**N = 10**	**N = 18**

		Land and Building Value: $100,000			Land and Building Value: $1 Million			Land and Building Value: $25 Million			Tax Rate Varies with Property Value	Lower Tax Rate on Personal Property
State	**City**	**Tax Rate**	**Tax Bill**	**Rank**	**Tax Rate**	**Tax Bill**	**Rank**	**Tax Rate**	**Tax Bill**	**Rank**		
Oklahoma	Tulsa	1.411%	1,694	31 (2 ↓)	1.411%	16,935	33 (2 ↓)	1.411%	423,378	34 (2 ↓)		X
Oregon	Portland	2.476%	2,971	12 (-)	2.476%	29,708	13 (-)	2.476%	742,693	14 (-)		
Pennsylvania	Philadelphia	1.089%	1,307	46 (3 ↓)	1.865%	22,384	26 (3 ↓)	2.024%	607,128	23 (2 ↓)	X	X
Tennessee	Memphis	2.490%	2,988	11 (-)	2.490%	29,877	12 (-)	2.490%	746,916	13 (-)		X
Tennessee	Nashville	1.404%	1,685	32 (14 ↑)	1.404%	16,845	34 (12 ↑)	1.404%	421,129	35 (11 ↑)		X
Texas	Arlington	2.447%	2,936	13 (2 ↑)	2.447%	29,365	14 (2 ↑)	2.447%	734,121	15 (3 ↑)		
Texas	Austin	2.164%	2,597	17 (1 ↑)	2.164%	25,966	18 (2 ↑)	2.164%	649,140	19 (3 ↑)		
Texas	Dallas	2.293%	2,752	14 (5 ↓)	2.293%	27,516	15 (4 ↓)	2.293%	687,911	16 (4 ↓)		
Texas	El Paso	2.668%	3,201	7 (1 ↑)	2.668%	32,011	8 (1 ↑)	2.668%	800,265	9 (-)		
Texas	Fort Worth	2.503%	3,004	10 (3 ↑)	2.503%	30,037	11 (3 ↑)	2.503%	750,925	12 (3 ↑)		
Texas	Houston	2.268%	2,722	15 (1 ↓)	2.268%	27,216	16 (1 ↓)	2.268%	680,409	17 (-)		
Texas	San Antonio	2.802%	3,363	6 (2 ↓)	2.802%	33,629	6 (2 ↓)	2.802%	840,722	7 (2 ↓)		
Virginia	Virginia Beach	1.035%	1,242	47 (1 ↑)	1.035%	12,417	47 (1 ↑)	1.035%	310,413	47 (1 ↑)		
Washington	Seattle	0.829%	995	50 (-)	0.829%	9,946	50 (-)	0.829%	248,641	50 (-)		
Wisconsin	Milwaukee	2.528%	3,034	9 (1 ↑)	2.579%	30,943	9 (1 ↑)	2.584%	775,177	10 (-)	X	
AVERAGE		**1.861%**	**2,234**		**1.914%**	**22,963**		**1.958%**	**587,482**		**N = 10**	**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	0.818%	982	47 (3 ↓)	0.818%	9,818	47 (3 ↓)	0.818%	245,447	47 (3 ↓)		
Alaska	Ketchikan	0.915%	1,098	43 (-)	1.084%	13,012	40 (1 ↓)	1.108%	332,253	40 (2 ↓)	X	X
Arizona	Safford	1.215%	1,458	33 (3 ↓)	1.239%	14,868	34 (5 ↓)	1.537%	461,145	25 (2 ↑)	X	X
Arkansas	Pocahontas	0.828%	994	46 (1 ↑)	0.828%	9,937	46 (1 ↑)	0.828%	248,428	46 (1 ↑)		
California	Yreka	1.053%	1,264	41 (1 ↓)	1.053%	12,640	42 (1 ↓)	1.053%	315,988	42 (1 ↓)		
Colorado	Walsenburg	2.308%	2,769	7 (1 ↑)	2.308%	27,692	10 (1 ↑)	2.308%	692,288	10 (2 ↑)		
Connecticut	Litchfield	1.939%	2,327	20 (9 ↓)	1.939%	23,268	22 (9 ↓)	1.939%	581,700	22 (7 ↓)		
Delaware	Georgetown	0.462%	555	50 (-)	0.462%	5,545	50 (-)	0.462%	138,628	50 (-)		X
Florida	Moore Haven	1.758%	2,109	23 (1 ↓)	2.079%	24,948	17 (2 ↓)	2.123%	636,920	16 (3 ↓)	X	X
Georgia	Fitzgerald	1.799%	2,159	21 (4 ↑)	1.799%	21,592	23 (3 ↑)	1.799%	539,790	23 (3 ↑)		
Hawaii	Kauai	0.574%	689	49 (-)	0.574%	6,885	49 (-)	0.574%	172,125	49 (-)		X
Idaho	Saint Anthony	1.164%	1,397	35 (2 ↑)	1.290%	15,484	30 (4 ↑)	1.412%	423,505	29 (2 ↑)	X	X
Illinois	Galena	1.942%	2,330	19 (5 ↓)	1.942%	23,299	21 (4 ↓)	1.942%	582,477	21 (4 ↓)		X
Indiana	North Vernon	2.330%	2,796	6 (3 ↓)	2.830%	33,960	3 (-)	2.830%	849,000	3 (-)	X	
Iowa	Hampton	1.719%	2,062	24 (3 ↑)	2.527%	30,328	6 (8 ↑)	2.746%	823,851	6 (2 ↑)	X	X
Kansas	Iola	5.242%	6,290	1 (-)	5.242%	62,903	1 (-)	5.242%	1,572,584	1 (-)		
Kentucky	Morehead	1.266%	1,519	30 (1 ↓)	1.266%	15,193	32 (2 ↓)	1.266%	379,834	33 (1 ↓)		
Louisiana	Natchitoches	1.393%	1,671	27 (1 ↑)	1.393%	16,713	27 (1 ↑)	1.393%	417,815	30 (1 ↓)		
Maine	Rockland	2.230%	2,676	8 (2 ↓)	2.230%	26,760	11 (4 ↓)	2.230%	669,000	12 (5 ↓)		
Maryland	Denton	2.148%	2,578	14 (5 ↑)	2.148%	25,775	15 (7 ↑)	2.148%	644,380	15 (7 ↑)		
Massachusetts	Adams	2.058%	2,469	17 (-)	2.058%	24,691	19 (1 ↑)	2.058%	617,263	19 (1 ↑)		X
Michigan	Manistique	2.803%	3,364	3 (2 ↑)	2.803%	33,637	5 (-)	2.803%	840,915	5 (-)		X
Minnesota	Glencoe	2.216%	2,659	9 (15 ↑)	3.333%	39,993	2 (4 ↑)	3.497%	1,048,952	2 (4 ↑)	X	X
Mississippi	Philadelphia	2.044%	2,453	18 (-)	2.044%	24,532	20 (1 ↑)	2.044%	613,305	20 (1 ↑)		
Missouri	Boonville	2.095%	2,514	15 (1 ↑)	2.095%	25,139	16 (3 ↑)	2.095%	628,486	17 (2 ↑)		X
Montana	Glasgow	1.237%	1,485	32 (1 ↑)	1.340%	16,081	28 (3 ↑)	1.439%	431,681	28 (2 ↑)	X	X
Nebraska	Sidney	2.148%	2,578	13 (1 ↓)	2.331%	27,974	9 (-)	2.351%	705,199	8 (1 ↑)	X	X
Nevada	Fallon	1.269%	1,523	29 (2 ↑)	1.269%	15,226	31 (1 ↑)	1.269%	380,640	32 (1 ↑)		
New Hampshire	Lancaster	2.070%	2,484	16 (1 ↓)	2.070%	24,839	18 (-)	2.070%	620,974	18 (-)		X
New Jersey	Maurice River Twp	2.372%	2,846	4 (3 ↑)	2.372%	28,461	7 (1 ↑)	2.372%	711,518	7 (3 ↑)		X
New Mexico	Santa Rosa	1.061%	1,273	40 (2 ↑)	1.061%	12,728	41 (2 ↑)	1.061%	318,188	41 (2 ↑)		
New York	Warsaw	2.345%	2,815	5 (3 ↓)	2.345%	28,145	8 (6 ↓)	2.345%	703,636	9 (7 ↓)		X
North Carolina	Edenton	1.138%	1,366	38 (-)	1.138%	13,657	38 (-)	1.138%	341,425	38 (1 ↑)		
North Dakota	Devils Lake	1.168%	1,401	34 (-)	1.168%	14,012	35 (-)	1.168%	350,288	35 (-)		X
Ohio	Bryan	1.446%	1,735	26 (-)	1.446%	17,353	26 (1 ↑)	1.446%	433,829	27 (1 ↑)		X
AVERAGE		**1.654%**	**1,984**		**1.722%**	**20,662**		**1.742%**	**522,515**		**N = 10**	**N = 24**

		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	0.851%	1,021	45 (1 ↑)	0.851%	10,214	45 (1 ↑)	0.851%	255,360	45 (1 ↑)		X
Oregon	Tillamook	1.154%	1,385	36 (1 ↓)	1.154%	13,849	36 (-)	1.154%	346,232	36 (-)		
Pennsylvania	Ridgway	1.536%	1,843	25 (4 ↓)	1.536%	18,435	25 (1 ↓)	1.536%	460,867	26 (2 ↓)		X
Rhode Island	Hopkinton	1.765%	2,118	22 (9 ↓)	1.765%	21,176	24 (8 ↓)	1.765%	529,404	24 (8 ↓)		
South Carolina	Mullins	2.811%	3,374	2 (2 ↑)	2.811%	33,735	4 (-)	2.811%	843,375	4 (-)		
South Dakota	Vermillion	1.244%	1,493	31 (8 ↓)	1.244%	14,927	33 (8 ↓)	1.244%	373,179	34 (9 ↓)		X
Tennessee	Savannah	0.989%	1,187	42 (3 ↓)	0.989%	11,868	43 (3 ↓)	0.989%	296,700	43 (3 ↓)		X
Texas	Fort Stockton	2.170%	2,604	12 (8 ↑)	2.170%	26,039	14 (9 ↑)	2.170%	650,964	14 (9 ↑)		
Utah	Richfield	1.339%	1,606	28 (4 ↑)	1.339%	16,062	29 (4 ↑)	1.339%	401,550	31 (3 ↑)		
Vermont	Hartford	2.209%	2,651	10 (-)	2.209%	26,508	13 (1 ↓)	2.209%	662,706	13 (1 ↑)		X
Virginia	Wise	0.872%	1,046	44 (1 ↑)	0.872%	10,462	44 (1 ↑)	0.872%	261,538	44 (1 ↑)		
Washington	Okanogan	1.152%	1,383	37 (1 ↓)	1.152%	13,826	37 (-)	1.152%	345,645	37 (-)		
West Virginia	Elkins	1.112%	1,334	39 (2 ↑)	1.112%	13,339	39 (3 ↑)	1.112%	333,477	39 (3 ↑)		
Wisconsin	Rice Lake	2.171%	2,605	11 (2 ↓)	2.228%	26,737	12 (2 ↓)	2.234%	670,256	11 (-)	X	
Wyoming	Worland	0.737%	884	48 (-)	0.737%	8,841	48 (-)	0.737%	221,025	48 (-)		
AVERAGE		**1.654%**	**1,984**		**1.722%**	**20,662**		**1.742%**	**522,515**		**N = 10**	**N = 24**

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	1.162%	2,324	30 (2 ↓)	1.162%	23,244	33 (1 ↓)	1.162%	581,088	35 (2 ↓)	
Alaska	Anchorage	1.442%	2,884	20 (4 ↑)	1.596%	31,915	21 (1 ↓)	1.612%	806,094	21 (-)	X
Arizona	Phoenix	1.337%	2,674	27 (-)	1.958%	39,164	11 (1 ↓)	2.226%	1,112,837	8 (-)	X
Arkansas	Little Rock	1.399%	2,798	23 (3 ↓)	1.399%	27,979	26 (1 ↓)	1.399%	699,475	27 (1 ↓)	
California	Los Angeles	0.960%	1,920	36 (2 ↑)	0.960%	19,202	38 (3 ↑)	0.960%	480,052	39 (3 ↑)	
Colorado	Denver	1.662%	3,323	15 (1 ↓)	1.662%	33,232	18 (2 ↓)	1.662%	830,794	20 (3 ↓)	
Connecticut	Bridgeport	2.015%	4,030	9 (4 ↑)	2.015%	40,298	9 (6 ↑)	2.015%	1,007,453	11 (5 ↑)	
DC	Washington	0.757%	1,513	43 (1 ↓)	1.394%	27,881	28 (1 ↓)	1.835%	917,633	15 (1 ↓)	X
Delaware	Wilmington	0.901%	1,801	39 (9 ↑)	0.901%	18,011	41 (8 ↑)	0.901%	450,274	43 (6 ↑)	
Florida	Jacksonville	1.118%	2,236	32 (1 ↓)	1.308%	26,166	30 (1 ↓)	1.329%	664,300	30 (1 ↓)	X
Georgia	Atlanta	1.439%	2,879	21 (2 ↓)	1.439%	28,787	23 (1 ↑)	1.439%	719,674	24 (1 ↑)	
Hawaii	Honolulu	0.636%	1,272	48 (2 ↑)	0.636%	12,722	50 (1 ↑)	0.636%	318,060	50 (1 ↑)	
Idaho	Boise	0.561%	1,121	50 (4 ↓)	0.860%	17,204	43 (3 ↓)	0.918%	458,855	41 (3 ↓)	X
Illinois	Aurora*	1.762%	3,524	14 (2 ↓)	1.762%	35,238	16 (3 ↓)	1.762%	880,950	17 (2 ↓)	
Illinois	Chicago	2.419%	4,838	2 (5 ↑)	2.419%	48,380	2 (6 ↑)	2.419%	1,209,493	2 (7 ↑)	
Indiana	Indianapolis	2.393%	4,787	3 (-)	2.393%	47,869	3 (-)	2.393%	1,196,717	3 (-)	
Iowa	Des Moines	1.464%	2,927	19 (6 ↑)	1.949%	38,978	12 (2 ↑)	2.080%	1,040,085	10 (1 ↑)	X
Kansas	Wichita	1.395%	2,790	24 (2 ↓)	1.395%	27,896	27 (1 ↑)	1.395%	697,408	28 (-)	
Kentucky	Louisville	0.767%	1,534	42 (2 ↓)	0.767%	15,336	46 (2 ↓)	0.767%	383,409	46 (2 ↓)	
Louisiana	New Orleans	2.108%	4,216	7 (1 ↓)	2.108%	42,156	8 (1 ↓)	2.108%	1,053,903	9 (2 ↓)	
Maine	Portland	1.014%	2,028	34 (2 ↓)	1.014%	20,280	36 (1 ↓)	1.014%	506,993	37 (1 ↓)	
Maryland	Baltimore	1.422%	2,845	22 (1 ↓)	1.422%	28,445	24 (2 ↑)	1.422%	711,133	25 (2 ↑)	
Massachusetts	Boston	1.134%	2,268	31 (2 ↑)	1.134%	22,677	34 (2 ↑)	1.134%	566,930	36 (1 ↑)	
Michigan	Detroit	2.085%	4,171	8 (1 ↑)	2.324%	46,480	4 (2 ↑)	2.324%	1,161,997	4 (2 ↑)	X
Minnesota	Minneapolis	1.056%	2,111	33 (1 ↑)	1.640%	32,793	19 (-)	1.725%	862,328	18 (-)	X
Mississippi	Jackson	2.778%	5,555	1 (-)	2.778%	55,551	1 (-)	2.778%	1,388,772	1 (-)	
Missouri	Kansas City	2.278%	4,556	4 (1 ↑)	2.278%	45,556	5 (-)	2.278%	1,138,889	5 (-)	
Montana	Billings	0.606%	1,213	49 (2 ↑)	0.867%	17,336	42 (1 ↑)	1.227%	613,552	31 (1 ↑)	X
Nebraska	Omaha	1.567%	3,134	17 (1 ↓)	1.668%	33,359	17 (1 ↑)	1.679%	839,361	19 (1 ↑)	X
Nevada	Las Vegas	0.902%	1,803	38 (1 ↑)	0.902%	18,030	40 (2 ↑)	0.902%	450,753	42 (1 ↑)	
New Hampshire	Manchester	0.979%	1,958	35 (1 ↑)	0.979%	19,580	37 (1 ↑)	0.979%	489,501	38 (2 ↑)	
New Jersey	Newark	1.599%	3,199	16 (1 ↑)	1.599%	31,988	20 (1 ↑)	1.599%	799,710	22 (-)	
New Mexico	Albuquerque	1.171%	2,341	29 (-)	1.171%	23,413	32 (1 ↑)	1.171%	585,325	34 (-)	
New York	Buffalo*	0.810%	1,619	41 (15 ↓)	0.810%	16,191	45 (15 ↓)	0.810%	404,779	45 (15 ↓)	
New York	New York City	0.535%	1,069	52 (-)	0.535%	10,694	52 (-)	0.535%	267,350	52 (-)	
AVERAGE		**1.333%**	**2,666**		**1.410%**	**28,192**		**1.438%**	**718,840**		**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	0.741%	1,482	44 (3 ↓)	0.741%	14,822	47 (2 ↓)	0.741%	370,560	47 (2 ↓)	
North Dakota	Fargo	0.645%	1,290	47 (-)	0.645%	12,904	49 (1 ↓)	0.645%	322,610	49 (1 ↓)	
Ohio	Columbus	1.222%	2,444	28 (2 ↑)	1.222%	24,436	31 (3 ↑)	1.222%	610,912	32 (3 ↑)	
Oklahoma	Oklahoma City	1.474%	2,947	18 (-)	1.474%	29,472	22 (-)	1.474%	736,808	23 (-)	
Oregon	Portland	1.981%	3,961	10 (2 ↓)	1.981%	39,610	10 (1 ↓)	1.981%	990,257	12 (2 ↓)	
Pennsylvania	Philadelphia	0.653%	1,307	46 (2 ↓)	1.119%	22,384	35 (4 ↓)	1.214%	607,128	33 (2 ↓)	X
Rhode Island	Providence	1.890%	3,780	11 (1 ↓)	1.890%	37,799	13 (2 ↓)	1.890%	944,973	13 (1 ↓)	
South Carolina	Charleston	2.263%	4,526	5 (3 ↓)	2.263%	45,260	6 (4 ↓)	2.263%	1,131,500	6 (4 ↓)	
South Dakota	Sioux Falls	0.845%	1,690	40 (3 ↑)	0.845%	16,897	44 (2 ↑)	0.845%	422,435	44 (2 ↑)	
Tennessee	Nashville	1.349%	2,698	26 (11 ↑)	1.349%	26,976	29 (10 ↑)	1.349%	674,389	29 (12 ↑)	
Texas	Houston	2.235%	4,470	6 (2 ↓)	2.235%	44,701	7 (3 ↓)	2.235%	1,117,519	7 (3 ↓)	
Utah	Salt Lake City	0.953%	1,906	37 (2 ↓)	0.953%	19,062	39 (2 ↓)	0.953%	476,547	40 (1 ↓)	
Vermont	Burlington	1.805%	3,611	13 (2 ↑)	1.805%	36,107	15 (2 ↑)	1.805%	902,668	16 (3 ↑)	
Virginia	Virginia Beach	0.541%	1,082	51 (2 ↑)	0.541%	10,817	51 (2 ↑)	0.541%	270,413	51 (2 ↑)	
Washington	Seattle	0.670%	1,341	45 (4 ↑)	0.670%	13,409	48 (2 ↑)	0.670%	335,213	48 (2 ↑)	
West Virginia	Charleston	1.858%	3,717	12 (1 ↓)	1.858%	37,169	14 (2 ↓)	1.858%	929,214	14 (1 ↓)	
Wisconsin	Milwaukee	1.388%	2,775	25 (2 ↓)	1.418%	28,359	25 (2 ↓)	1.421%	710,573	26 (2 ↓)	X
Wyoming	Cheyenne	0.498%	996	53 (8 ↓)	0.498%	9,955	53 (6 ↓)	0.498%	248,883	53 (6 ↓)	
AVERAGE		**1.333%**	**2,666**		**1.410%**	**28,192**		**1.438%**	**718,840**		**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	1.104%	2,759	28 (2 ↓)	1.104%	27,594	32 (1 ↓)	1.104%	689,838	33 (1 ↓)	
Alaska	Anchorage	1.495%	3,739	17 (1 ↑)	1.619%	40,465	14 (1 ↑)	1.632%	1,019,844	15 (1 ↑)	X
Arizona	Phoenix	1.070%	2,674	30 (-)	1.926%	48,161	9 (1 ↓)	2.140%	1,337,760	6 (1 ↑)	X
Arkansas	Little Rock	1.399%	3,498	20 (1 ↓)	1.399%	34,979	23 (1 ↓)	1.399%	874,475	23 (-)	
California	Los Angeles	0.912%	2,280	32 (3 ↑)	0.912%	22,802	34 (5 ↑)	0.912%	570,061	36 (4 ↑)	
Colorado	Denver	1.580%	3,951	13 (4 ↓)	1.580%	39,506	16 (5 ↓)	1.580%	987,647	18 (6 ↓)	
Connecticut	Bridgeport	1.688%	4,219	11 (3 ↑)	1.688%	42,188	12 (5 ↑)	1.688%	1,054,695	13 (5 ↑)	
DC	Washington	0.605%	1,513	45 (2 ↓)	1.523%	38,081	19 (3 ↓)	1.876%	1,172,633	11 (2 ↓)	X
Delaware	Wilmington	0.720%	1,801	39 (10 ↑)	0.720%	18,011	43 (7 ↑)	0.720%	450,274	43 (7 ↑)	
Florida	Jacksonville	1.097%	2,743	29 (2 ↓)	1.249%	31,237	28 (3 ↓)	1.266%	791,074	27 (2 ↓)	X
Georgia	Atlanta	1.414%	3,536	18 (2 ↑)	1.414%	35,362	21 (2 ↑)	1.414%	884,052	21 (3 ↑)	
Hawaii	Honolulu	0.509%	1,272	48 (2 ↑)	0.509%	12,722	50 (1 ↑)	0.509%	318,060	50 (1 ↑)	
Idaho	Boise	0.448%	1,121	52 (5 ↓)	0.832%	20,799	40 (5 ↓)	0.878%	548,733	39 (4 ↓)	X
Illinois	Aurora*	1.410%	3,524	19 (2 ↓)	1.410%	35,238	22 (2 ↓)	1.410%	880,950	22 (1 ↓)	
Illinois	Chicago	1.935%	4,838	7 (5 ↑)	1.935%	48,380	8 (6 ↑)	1.935%	1,209,493	9 (6 ↑)	
Indiana	Indianapolis	2.276%	5,691	2 (1 ↑)	2.276%	56,912	2 (1 ↑)	2.276%	1,422,797	2 (1 ↑)	
Iowa	Des Moines	1.171%	2,927	25 (3 ↑)	1.559%	38,978	18 (3 ↑)	1.664%	1,040,085	14 (3 ↑)	X
Kansas	Wichita	1.174%	2,935	24 (1 ↓)	1.174%	29,354	30 (1 ↓)	1.174%	733,845	31 (1 ↓)	
Kentucky	Louisville	0.671%	1,678	42 (1 ↓)	0.671%	16,780	46 (1 ↓)	0.671%	419,496	46 (1 ↓)	
Louisiana	New Orleans	2.122%	5,306	6 (1 ↓)	2.122%	53,060	6 (1 ↓)	2.122%	1,326,491	7 (2 ↓)	
Maine	Portland	0.858%	2,145	36 (2 ↓)	0.858%	21,445	39 (1 ↓)	0.858%	536,130	41 (2 ↓)	
Maryland	Baltimore	1.250%	3,124	23 (2 ↓)	1.250%	31,241	27 (1 ↓)	1.250%	781,032	28 (2 ↓)	
Massachusetts	Boston	0.907%	2,268	34 (3 ↑)	0.907%	22,677	36 (5 ↑)	0.907%	566,930	38 (4 ↑)	
Michigan	Detroit	1.732%	4,330	10 (1 ↑)	2.018%	50,456	7 (-)	2.018%	1,261,405	8 (-)	X
Minnesota	Minneapolis	0.844%	2,111	37 (1 ↑)	1.312%	32,793	25 (1 ↓)	1.380%	862,328	24 (2 ↓)	X
Mississippi	Jackson	2.796%	6,990	1 (-)	2.796%	69,899	1 (-)	2.796%	1,747,479	1 (-)	
Missouri	Kansas City	2.154%	5,386	4 (2 ↑)	2.154%	53,857	4 (2 ↑)	2.154%	1,346,427	4 (2 ↑)	
Montana	Billings	0.485%	1,213	50 (1 ↑)	0.818%	20,460	41 (2 ↑)	1.232%	769,747	29 (1 ↓)	X
Nebraska	Omaha	1.523%	3,807	15 (2 ↓)	1.604%	40,089	15 (2 ↓)	1.612%	1,007,596	17 (4 ↓)	X
Nevada	Las Vegas	0.859%	2,147	35 (1 ↑)	0.859%	21,472	38 (2 ↑)	0.859%	536,805	40 (1 ↑)	
New Hampshire	Manchester	0.783%	1,958	38 (1 ↑)	0.783%	19,580	42 (-)	0.783%	489,501	42 (1 ↑)	
New Jersey	Newark	1.280%	3,199	22 (-)	1.280%	31,988	26 (1 ↑)	1.280%	799,710	26 (1 ↑)	
New Mexico	Albuquerque	1.124%	2,810	27 (2 ↓)	1.124%	28,096	31 (1 ↓)	1.124%	702,390	32 (1 ↓)	
New York	Buffalo*	0.648%	1,619	43 (14 ↓)	0.648%	16,191	47 (15 ↓)	0.648%	404,779	47 (14 ↓)	
New York	New York City	0.428%	1,069	53 (1 ↓)	0.428%	10,694	53 (1 ↓)	0.428%	267,350	53 (1 ↓)	
AVERAGE		**1.202%**	**3,005**		**1.285%**	**32,120**		**1.310%**	**818,515**		**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	0.709%	1,772	40 (-)	0.709%	17,717	44 (-)	0.709%	442,935	44 (-)	
North Dakota	Fargo	0.516%	1,290	47 (1 ↑)	0.516%	12,904	49 (-)	0.516%	322,610	49 (-)	
Ohio	Columbus	0.977%	2,444	31 (2 ↑)	0.977%	24,436	33 (4 ↑)	0.977%	610,912	34 (4 ↑)	
Oklahoma	Oklahoma City	1.506%	3,766	16 (-)	1.506%	37,659	20 (1 ↓)	1.506%	941,476	20 (-)	
Oregon	Portland	1.881%	4,704	8 (1 ↓)	1.881%	47,037	10 (1 ↓)	1.881%	1,175,931	10 (-)	
Pennsylvania	Philadelphia	0.523%	1,307	46 (-)	0.895%	22,384	37 (1 ↓)	0.971%	607,128	35 (1 ↓)	X
Rhode Island	Providence	1.624%	4,059	12 (2 ↓)	1.624%	40,589	13 (1 ↓)	1.624%	1,014,723	16 (2 ↓)	
South Carolina	Charleston	2.150%	5,375	5 (1 ↓)	2.150%	53,746	5 (1 ↓)	2.150%	1,343,656	5 (1 ↓)	
South Dakota	Sioux Falls	0.676%	1,690	41 (3 ↑)	0.676%	16,897	45 (2 ↑)	0.676%	422,435	45 (2 ↑)	
Tennessee	Nashville	1.332%	3,331	21 (10 ↑)	1.332%	33,307	24 (9 ↑)	1.332%	832,677	25 (11 ↑)	
Texas	Houston	2.235%	5,588	3 (1 ↓)	2.235%	55,876	3 (1 ↓)	2.235%	1,396,898	3 (1 ↓)	
Utah	Salt Lake City	0.909%	2,273	33 (1 ↓)	0.909%	22,730	35 (1 ↓)	0.909%	568,250	37 (-)	
Vermont	Burlington	1.574%	3,935	14 (1 ↑)	1.574%	39,347	17 (1 ↑)	1.574%	983,686	19 (-)	
Virginia	Virginia Beach	0.465%	1,162	51 (2 ↑)	0.465%	11,617	52 (1 ↑)	0.465%	290,413	52 (1 ↑)	
Washington	Seattle	0.640%	1,601	44 (1 ↑)	0.640%	16,006	48 (-)	0.640%	400,142	48 (-)	
West Virginia	Charleston	1.858%	4,646	9 (1 ↓)	1.858%	46,461	11 (1 ↓)	1.858%	1,161,518	12 (1 ↓)	
Wisconsin	Milwaukee	1.162%	2,905	26 (2 ↓)	1.186%	29,651	29 (1 ↓)	1.189%	742,875	30 (1 ↓)	X
Wyoming	Cheyenne	0.498%	1,244	49 (7 ↓)	0.498%	12,444	51 (5 ↓)	0.498%	311,104	51 (5 ↓)	
AVERAGE		**1.202%**	**3,005**		**1.285%**	**32,120**		**1.310%**	**818,515**		**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	0.956%	1,913	40 (-)	1.417%	28,341	26 (3 ↑)	1.615%	807,702	21 (2 ↑)	X
Arizona	Phoenix	1.337%	2,674	26 (1 ↓)	1.958%	39,164	15 (-)	2.226%	1,112,837	12 (-)	X
Arizona	Tucson	1.096%	2,193	32 (3 ↓)	1.648%	32,964	18 (1 ↓)	1.886%	942,927	16 (-)	X
California	Fresno	1.018%	2,035	34 (1 ↑)	1.018%	20,352	37 (1 ↑)	1.018%	508,790	37 (1 ↑)	
California	Long Beach	0.960%	1,921	37 (-)	0.960%	19,206	40 (-)	0.960%	480,162	40 (-)	
California	Los Angeles	0.960%	1,920	38 (1 ↑)	0.960%	19,202	41 (1 ↑)	0.960%	480,052	41 (1 ↑)	
California	Oakland	1.099%	2,198	31 (1 ↓)	1.099%	21,979	36 (2 ↓)	1.099%	549,480	36 (2 ↓)	
California	Sacramento	0.912%	1,823	41 (-)	0.912%	18,230	43 (-)	0.912%	455,760	43 (-)	
California	San Diego	0.984%	1,968	36 (-)	0.984%	19,677	39 (-)	0.984%	491,928	39 (-)	
California	San Francisco	0.959%	1,918	39 (1 ↓)	0.959%	19,175	42 (1 ↓)	0.959%	479,385	42 (1 ↓)	
California	San Jose	0.990%	1,981	35 (2 ↓)	0.990%	19,806	38 (2 ↓)	0.990%	495,160	38 (2 ↓)	
Colorado	Colorado Springs	1.521%	3,041	17 (1 ↓)	1.521%	30,414	21 (1 ↓)	1.521%	760,352	23 (2 ↓)	
Colorado	Denver	1.662%	3,323	15 (-)	1.662%	33,232	17 (1 ↓)	1.662%	830,794	20 (2 ↓)	
DC	Washington	0.757%	1,513	45 (1 ↑)	1.394%	27,881	28 (-)	1.835%	917,633	17 (-)	X
Florida	Jacksonville	1.118%	2,236	30 (2 ↓)	1.308%	26,166	31 (1 ↓)	1.329%	664,300	31 (1 ↓)	X
Florida	Miami	1.342%	2,685	25 (1 ↓)	1.572%	31,446	20 (1 ↑)	1.597%	798,423	22 (-)	X
Georgia	Atlanta	1.439%	2,879	19 (2 ↑)	1.439%	28,787	23 (3 ↑)	1.439%	719,674	25 (3 ↑)	
Illinois	Chicago	2.419%	4,838	5 (7 ↑)	2.419%	48,380	5 (8 ↑)	2.419%	1,209,493	5 (9 ↑)	
Indiana	Indianapolis	2.393%	4,787	6 (1 ↑)	2.393%	47,869	6 (1 ↑)	2.393%	1,196,717	6 (1 ↑)	
Kansas	Wichita	1.395%	2,790	21 (2 ↓)	1.395%	27,896	27 (4 ↓)	1.395%	697,408	28 (3 ↓)	
Kentucky	Louisville	0.767%	1,534	43 (1 ↑)	0.767%	15,336	45 (1 ↑)	0.767%	383,409	45 (1 ↑)	
Louisiana	New Orleans	2.108%	4,216	12 (2 ↓)	2.108%	42,156	13 (2 ↓)	2.108%	1,053,903	14 (3 ↓)	
Maryland	Baltimore	1.422%	2,845	20 (2 ↑)	1.422%	28,445	24 (3 ↑)	1.422%	711,133	26 (3 ↑)	
Massachusetts	Boston	1.134%	2,268	29 (2 ↑)	1.134%	22,677	34 (1 ↑)	1.134%	566,930	35 (-)	
Michigan	Detroit	2.085%	4,171	13 (1 ↑)	2.324%	46,480	10 (-)	2.324%	1,161,997	10 (-)	X
Minnesota	Minneapolis	1.056%	2,111	33 (1 ↓)	1.640%	32,793	19 (-)	1.725%	862,328	18 (1 ↑)	X
Missouri	Kansas City	2.278%	4,556	10 (1 ↓)	2.278%	45,556	11 (2 ↓)	2.278%	1,138,889	11 (2 ↓)	
Nebraska	Omaha	1.567%	3,134	16 (1 ↑)	1.668%	33,359	16 (2 ↑)	1.679%	839,361	19 (1 ↑)	X
Nevada	Las Vegas	0.902%	1,803	42 (-)	0.902%	18,030	44 (-)	0.902%	450,753	44 (-)	
New Mexico	Albuquerque	1.171%	2,341	28 (2 ↓)	1.171%	23,413	33 (1 ↓)	1.171%	585,325	34 (2 ↓)	
New York	New York City	0.535%	1,069	50 (1 ↓)	0.535%	10,694	50 (1 ↓)	0.535%	267,350	50 (1 ↓)	
North Carolina	Charlotte	0.741%	1,482	46 (1 ↓)	0.741%	14,822	47 (-)	0.741%	370,560	47 (-)	
North Carolina	Raleigh	0.765%	1,529	44 (1 ↓)	0.765%	15,291	46 (1 ↓)	0.765%	382,271	46 (1 ↓)	
Ohio	Columbus	1.222%	2,444	27 (-)	1.222%	24,436	32 (1 ↑)	1.222%	610,912	32 (1 ↑)	
Oklahoma	Oklahoma City	1.474%	2,947	18 (-)	1.474%	29,472	22 (-)	1.474%	736,808	24 (-)	
AVERAGE		**1.454%**	**2,908**		**1.536%**	**30,729**		**1.564%**	**782,066**		**N = 11**

		Land and Building Value: $100,000			Land and Building Value: $1 Million			Land and Building Value: $25 Million			Tax Rate Varies with Property Value
State	**City**	**Tax Rate**	**Tax Bill**	**Rank**	**Tax Rate**	**Tax Bill**	**Rank**	**Tax Rate**	**Tax Bill**	**Rank**	
Oklahoma	Tulsa	1.368%	2,736	23 (3 ↓)	1.368%	27,357	29 (5 ↓)	1.368%	683,918	29 (3 ↓)	
Oregon	Portland	1.981%	3,961	14 (1 ↓)	1.981%	39,610	14 (-)	1.981%	990,257	15 (-)	
Pennsylvania	Philadelphia	0.653%	1,307	48 (1 ↓)	1.119%	22,384	35 (4 ↓)	1.214%	607,128	33 (2 ↓)	X
Tennessee	Memphis	2.363%	4,727	8 (2 ↓)	2.363%	47,267	8 (2 ↓)	2.363%	1,181,675	8 (2 ↓)	
Tennessee	Nashville	1.349%	2,698	24 (10 ↑)	1.349%	26,976	30 (7 ↑)	1.349%	674,389	30 (7 ↑)	
Texas	Arlington	2.537%	5,074	4 (1 ↑)	2.537%	50,743	4 (1 ↑)	2.537%	1,268,571	4 (1 ↑)	
Texas	Austin	2.216%	4,432	11 (-)	2.216%	44,324	12 (-)	2.216%	1,108,100	13 (-)	
Texas	Dallas	2.375%	4,749	7 (4 ↓)	2.375%	47,492	7 (4 ↓)	2.375%	1,187,298	7 (4 ↓)	
Texas	El Paso	2.869%	5,738	2 (-)	2.869%	57,381	2 (-)	2.869%	1,434,520	2 (-)	
Texas	Fort Worth	2.613%	5,226	3 (1 ↑)	2.613%	52,257	3 (1 ↑)	2.613%	1,306,421	3 (1 ↑)	
Texas	Houston	2.334%	4,668	9 (1 ↓)	2.334%	46,680	9 (1 ↓)	2.334%	1,167,006	9 (1 ↓)	
Texas	San Antonio	2.914%	5,828	1 (-)	2.914%	58,276	1 (-)	2.914%	1,456,895	1 (-)	
Virginia	Virginia Beach	0.541%	1,082	49 (1 ↑)	0.541%	10,817	49 (1 ↑)	0.541%	270,413	49 (1 ↑)	
Washington	Seattle	0.670%	1,341	47 (1 ↑)	0.670%	13,409	48 (-)	0.670%	335,213	48 (-)	
Wisconsin	Milwaukee	1.388%	2,775	22 (1 ↑)	1.418%	28,359	25 (-)	1.421%	710,573	27 (-)	X
AVERAGE		**1.454%**	**2,908**		**1.536%**	**30,729**		**1.564%**	**782,066**		**N = 11**

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	0.765%	1,913	42 (1 ↑)	1.401%	35,013	24 (1 ↑)	1.559%	974,518	20 (1 ↑)	X
Arizona	Phoenix	1.070%	2,674	28 (-)	1.926%	48,161	14 (1 ↓)	2.140%	1,337,760	11 (1 ↑)	X
Arizona	Tucson	0.877%	2,193	38 (2 ↓)	1.638%	40,958	16 (-)	1.828%	1,142,761	17 (3 ↓)	X
California	Fresno	0.967%	2,417	31 (-)	0.967%	24,168	35 (-)	0.967%	604,188	36 (-)	
California	Long Beach	0.912%	2,281	34 (-)	0.912%	22,808	38 (1 ↑)	0.912%	570,193	39 (-)	
California	Los Angeles	0.912%	2,280	35 (2 ↑)	0.912%	22,802	39 (2 ↑)	0.912%	570,061	40 (1 ↑)	
California	Oakland	1.044%	2,610	29 (2 ↓)	1.044%	26,100	33 (1 ↓)	1.044%	652,508	33 (1 ↓)	
California	Sacramento	0.866%	2,165	39 (1 ↓)	0.866%	21,649	43 (1 ↓)	0.866%	541,215	43 (1 ↓)	
California	San Diego	0.935%	2,337	33 (1 ↓)	0.935%	23,367	37 (-)	0.935%	584,165	38 (1 ↓)	
California	San Francisco	0.911%	2,277	36 (1 ↓)	0.911%	22,771	40 (-)	0.911%	569,270	41 (1 ↓)	
California	San Jose	0.941%	2,352	32 (2 ↓)	0.941%	23,520	36 (2 ↓)	0.941%	588,003	37 (2 ↓)	
Colorado	Colorado Springs	1.452%	3,630	18 (2 ↓)	1.452%	36,301	22 (3 ↓)	1.452%	907,517	23 (3 ↓)	
Colorado	Denver	1.580%	3,951	15 (2 ↓)	1.580%	39,506	18 (3 ↓)	1.580%	987,647	19 (2 ↓)	
DC	Washington	0.605%	1,513	47 (1 ↓)	1.523%	38,081	19 (1 ↑)	1.876%	1,172,633	16 (1 ↓)	X
Florida	Jacksonville	1.097%	2,743	27 (1 ↓)	1.249%	31,237	29 (2 ↓)	1.266%	791,074	28 (1 ↓)	X
Florida	Miami	1.319%	3,298	22 (1 ↓)	1.503%	37,580	21 (1 ↑)	1.523%	951,769	21 (1 ↑)	X
Georgia	Atlanta	1.414%	3,536	19 (1 ↑)	1.414%	35,362	23 (1 ↑)	1.414%	884,052	24 (2 ↑)	
Illinois	Chicago	1.935%	4,838	12 (3 ↑)	1.935%	48,380	13 (5 ↑)	1.935%	1,209,493	14 (5 ↑)	
Indiana	Indianapolis	2.276%	5,691	8 (-)	2.276%	56,912	8 (-)	2.276%	1,422,797	8 (-)	
Kansas	Wichita	1.174%	2,935	24 (2 ↓)	1.174%	29,354	31 (3 ↓)	1.174%	733,845	31 (3 ↓)	
Kentucky	Louisville	0.671%	1,678	45 (-)	0.671%	16,780	47 (-)	0.671%	419,496	47 (-)	
Louisiana	New Orleans	2.122%	5,306	11 (2 ↓)	2.122%	53,060	11 (2 ↓)	2.122%	1,326,491	12 (3 ↓)	
Maryland	Baltimore	1.250%	3,124	23 (-)	1.250%	31,241	28 (1 ↑)	1.250%	781,032	29 (-)	
Massachusetts	Boston	0.907%	2,268	37 (3 ↑)	0.907%	22,677	41 (3 ↑)	0.907%	566,930	42 (2 ↑)	
Michigan	Detroit	1.732%	4,330	14 (-)	2.018%	50,456	12 (-)	2.018%	1,261,405	13 (-)	X
Minnesota	Minneapolis	0.844%	2,111	41 (-)	1.312%	32,793	27 (1 ↓)	1.380%	862,328	25 (-)	X
Missouri	Kansas City	2.154%	5,386	10 (1 ↑)	2.154%	53,857	10 (1 ↑)	2.154%	1,346,427	10 (1 ↑)	
Nebraska	Omaha	1.523%	3,807	16 (1 ↑)	1.604%	40,089	17 (-)	1.612%	1,007,596	18 (-)	X
Nevada	Las Vegas	0.859%	2,147	40 (1 ↓)	0.859%	21,472	44 (1 ↓)	0.859%	536,805	44 (1 ↓)	
New Mexico	Albuquerque	1.124%	2,810	26 (1 ↓)	1.124%	28,096	32 (1 ↓)	1.124%	702,390	32 (1 ↓)	
New York	New York City	0.428%	1,069	50 (1 ↓)	0.428%	10,694	50 (1 ↓)	0.428%	267,350	50 (1 ↓)	
North Carolina	Charlotte	0.709%	1,772	44 (-)	0.709%	17,717	46 (-)	0.709%	442,935	46 (-)	
North Carolina	Raleigh	0.726%	1,816	43 (1 ↓)	0.726%	18,156	45 (-)	0.726%	453,911	45 (-)	
Ohio	Columbus	0.977%	2,444	30 (3 ↑)	0.977%	24,436	34 (4 ↑)	0.977%	610,912	34 (4 ↑)	
Oklahoma	Oklahoma City	1.506%	3,766	17 (1 ↑)	1.506%	37,659	20 (1 ↑)	1.506%	941,476	22 (1 ↑)	
AVERAGE		**1.367%**	**3,417**		**1.462%**	**36,540**		**1.484%**	**927,338**		**N = 11**

		Land and Building Value: $100,000			Land and Building Value: $1 Million			Land and Building Value: $25 Million			Tax Rate Varies with Property Value
State	**City**	**Tax Rate**	**Tax Bill**	**Rank**	**Tax Rate**	**Tax Bill**	**Rank**	**Tax Rate**	**Tax Bill**	**Rank**	
Oklahoma	Tulsa	1.355%	3,387	20 (1 ↓)	1.355%	33,870	25 (2 ↓)	1.355%	846,755	26 (2 ↓)	
Oregon	Portland	1.881%	4,704	13 (1 ↓)	1.881%	47,037	15 (1 ↓)	1.881%	1,175,931	15 (1 ↑)	
Pennsylvania	Philadelphia	0.523%	1,307	48 (-)	0.895%	22,384	42 (6 ↓)	0.971%	607,128	35 (2 ↓)	X
Tennessee	Memphis	2.325%	5,814	7 (1 ↓)	2.325%	58,136	7 (1 ↓)	2.325%	1,453,400	7 (1 ↓)	
Tennessee	Nashville	1.332%	3,331	21 (8 ↑)	1.332%	33,307	26 (7 ↑)	1.332%	832,677	27 (7 ↑)	
Texas	Arlington	2.564%	6,410	4 (1 ↑)	2.564%	64,104	4 (1 ↑)	2.564%	1,602,602	4 (1 ↑)	
Texas	Austin	2.232%	5,580	9 (1 ↑)	2.232%	55,798	9 (1 ↑)	2.232%	1,394,950	9 (1 ↑)	
Texas	Dallas	2.399%	5,998	5 (2 ↓)	2.399%	59,977	5 (2 ↓)	2.399%	1,499,414	5 (2 ↓)	
Texas	El Paso	2.929%	7,324	2 (-)	2.929%	73,237	2 (-)	2.929%	1,830,929	2 (-)	
Texas	Fort Worth	2.646%	6,614	3 (1 ↑)	2.646%	66,144	3 (1 ↑)	2.646%	1,653,605	3 (1 ↑)	
Texas	Houston	2.354%	5,885	6 (1 ↑)	2.354%	58,845	6 (1 ↑)	2.354%	1,471,130	6 (1 ↑)	
Texas	San Antonio	2.947%	7,368	1 (-)	2.947%	73,680	1 (-)	2.947%	1,842,003	1 (-)	
Virginia	Virginia Beach	0.465%	1,162	49 (1 ↑)	0.465%	11,617	49 (1 ↑)	0.465%	290,413	49 (1 ↑)	
Washington	Seattle	0.640%	1,601	46 (1 ↑)	0.640%	16,006	48 (-)	0.640%	400,142	48 (-)	
Wisconsin	Milwaukee	1.162%	2,905	25 (1 ↓)	1.186%	29,651	30 (-)	1.189%	742,875	30 (-)	X
AVERAGE		1.367%	3,417		1.462%	36,540		1.484%	927,338		N = 11

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	0.668%	1,336	48 (1 ↓)	0.668%	13,360	48 (-)	0.668%	334,007	48 (-)	
Alaska	Ketchikan	0.752%	1,504	40 (3 ↑)	0.883%	17,652	39 (1 ↑)	0.897%	448,253	39 (1 ↑)	X
Arizona	Safford	0.729%	1,458	43 (2 ↓)	1.145%	22,891	23 (2 ↓)	1.323%	661,737	18 (4 ↓)	X
Arkansas	Pocahontas	0.821%	1,642	38 (1 ↑)	0.821%	16,419	42 (1 ↑)	0.821%	410,468	42 (1 ↑)	
California	Yreka	0.843%	1,685	37 (-)	0.843%	16,853	41 (-)	0.843%	421,317	41 (-)	
Colorado	Walsenburg	1.858%	3,715	6 (-)	1.858%	37,151	8 (1 ↓)	1.858%	928,766	8 (1 ↓)	
Connecticut	Litchfield	1.066%	2,133	26 (4 ↓)	1.066%	21,329	29 (4 ↓)	1.066%	533,225	30 (4 ↓)	
Delaware	Georgetown	0.277%	555	50 (-)	0.277%	5,545	50 (-)	0.277%	138,628	50 (-)	
Florida	Moore Haven	1.440%	2,880	11 (1 ↑)	1.688%	33,756	10 (1 ↑)	1.714%	857,117	9 (2 ↑)	X
Georgia	Fitzgerald	1.581%	3,163	9 (2 ↑)	1.581%	31,628	12 (1 ↑)	1.581%	790,710	13 (-)	
Hawaii	Kauai	0.377%	753	49 (-)	0.377%	7,533	49 (-)	0.377%	188,325	49 (-)	
Idaho	Saint Anthony	0.698%	1,397	47 (1 ↑)	1.078%	21,550	27 (3 ↑)	1.150%	575,150	25 (4 ↑)	X
Illinois	Galena	1.165%	2,330	21 (5 ↓)	1.165%	23,299	22 (4 ↓)	1.165%	582,477	24 (4 ↓)	
Indiana	North Vernon	2.298%	4,596	3 (1 ↑)	2.298%	45,960	3 (1 ↑)	2.298%	1,149,000	3 (1 ↑)	
Iowa	Hampton	1.031%	2,062	27 (9 ↑)	1.516%	30,328	13 (4 ↑)	1.648%	823,851	12 (5 ↑)	X
Kansas	Iola	2.893%	5,786	2 (-)	2.893%	57,859	2 (-)	2.893%	1,446,475	2 (-)	
Kentucky	Morehead	0.724%	1,449	44 (2 ↓)	0.724%	14,490	45 (-)	0.724%	362,241	45 (-)	
Louisiana	Natchitoches	1.425%	2,849	12 (1 ↑)	1.425%	28,494	14 (-)	1.425%	712,355	15 (1 ↑)	
Maine	Rockland	1.227%	2,453	19 (2 ↓)	1.227%	24,530	20 (1 ↓)	1.227%	613,250	23 (1 ↓)	
Maryland	Denton	1.091%	2,183	24 (4 ↑)	1.091%	21,825	26 (5 ↑)	1.091%	545,630	28 (4 ↑)	
Massachusetts	Adams	1.235%	2,469	18 (1 ↑)	1.235%	24,691	19 (4 ↑)	1.235%	617,263	21 (3 ↑)	
Michigan	Manistique	1.553%	3,105	10 (-)	1.687%	33,749	11 (2 ↓)	1.687%	843,733	11 (1 ↓)	X
Minnesota	Glencoe	1.348%	2,696	15 (10 ↑)	2.023%	40,456	6 (4 ↑)	2.122%	1,060,948	5 (3 ↑)	X
Mississippi	Philadelphia	2.044%	4,089	5 (-)	2.044%	40,887	5 (-)	2.044%	1,022,175	6 (1 ↓)	
Missouri	Boonville	1.708%	3,415	8 (1 ↑)	1.708%	34,151	9 (3 ↑)	1.708%	853,766	10 (2 ↑)	
Montana	Glasgow	0.742%	1,485	42 (3 ↑)	1.051%	21,023	30 (3 ↑)	1.479%	739,333	14 (1 ↑)	X
Nebraska	Sidney	1.776%	3,553	7 (1 ↑)	1.886%	37,721	7 (1 ↓)	1.898%	948,865	7 (1 ↓)	X
Nevada	Fallon	1.017%	2,035	28 (1 ↑)	1.017%	20,350	31 (1 ↑)	1.017%	508,740	31 (2 ↑)	
New Hampshire	Lancaster	1.242%	2,484	17 (1 ↑)	1.242%	24,839	18 (4 ↑)	1.242%	620,974	20 (3 ↑)	
New Jersey	Maurice River Twp	1.423%	2,846	13 (1 ↑)	1.423%	28,461	15 (-)	1.423%	711,518	16 (2 ↑)	
New Mexico	Santa Rosa	0.850%	1,700	36 (2 ↑)	0.850%	16,999	40 (2 ↑)	0.850%	424,971	40 (2 ↑)	
New York	Warsaw	1.407%	2,815	14 (7 ↓)	1.407%	28,145	16 (8 ↓)	1.407%	703,636	17 (8 ↓)	
North Carolina	Edenton	0.925%	1,850	32 (3 ↑)	0.925%	18,497	35 (4 ↑)	0.925%	462,425	35 (4 ↑)	
North Dakota	Devils Lake	0.701%	1,401	46 (-)	0.701%	14,012	47 (-)	0.701%	350,288	47 (-)	
Ohio	Bryan	1.130%	2,260	22 (1 ↓)	1.130%	22,604	24 (-)	1.130%	565,092	26 (1 ↓)	
AVERAGE		**1.212%**	**2,425**		**1.271%**	**25,414**		**1.290%**	**644,993**		**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	0.985%	1,970	29 (2 ↑)	0.985%	19,699	32 (3 ↑)	0.985%	492,480	32 (3 ↑)	
Oregon	Tillamook	0.923%	1,847	34 (-)	0.923%	18,466	37 (1 ↑)	0.923%	461,642	37 (1 ↑)	
Pennsylvania	Ridgway	0.922%	1,843	35 (12 ↓)	0.922%	18,435	38 (12 ↓)	0.922%	460,867	38 (11 ↓)	
Rhode Island	Hopkinton	0.967%	1,935	30 (6 ↓)	0.967%	19,348	33 (6 ↓)	0.967%	483,704	33 (5 ↓)	
South Carolina	Mullins	3.704%	7,408	1 (-)	3.704%	74,080	1 (-)	3.704%	1,852,000	1 (-)	
South Dakota	Vermillion	0.746%	1,493	41 (15 ↓)	0.746%	14,927	44 (16 ↓)	0.746%	373,179	44 (14 ↓)	
Tennessee	Savannah	0.925%	1,849	33 (1 ↓)	0.925%	18,492	36 (-)	0.925%	462,300	36 (-)	
Texas	Fort Stockton	2.242%	4,485	4 (1 ↓)	2.242%	44,846	4 (1 ↓)	2.242%	1,121,144	4 (1 ↓)	
Utah	Richfield	1.071%	2,142	25 (5 ↑)	1.071%	21,416	28 (6 ↑)	1.071%	535,400	29 (5 ↑)	
Vermont	Hartford	1.321%	2,642	16 (1 ↓)	1.321%	26,420	17 (1 ↓)	1.321%	660,501	19 (-)	
Virginia	Wise	0.793%	1,586	39 (1 ↑)	0.793%	15,862	43 (1 ↑)	0.793%	396,538	43 (1 ↑)	
Washington	Okanogan	0.957%	1,915	31 (2 ↑)	0.957%	19,148	34 (3 ↑)	0.957%	478,706	34 (3 ↑)	
West Virginia	Elkins	1.100%	2,199	23 (4 ↑)	1.100%	21,991	25 (4 ↑)	1.100%	549,787	27 (4 ↑)	
Wisconsin	Rice Lake	1.191%	2,382	20 (-)	1.225%	24,503	21 (1 ↓)	1.229%	614,395	22 (1 ↓)	X
Wyoming	Worland	0.701%	1,401	45 (1 ↓)	0.701%	14,012	46 (-)	0.701%	350,290	46 (-)	
AVERAGE		**1.212%**	**2,425**		**1.271%**	**25,414**		**1.290%**	**644,993**		**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	0.633%	1,582	42 (2 ↑)	0.633%	15,820	45 (2 ↑)	0.633%	395,507	45 (2 ↑)	
Alaska	Ketchikan	0.741%	1,852	39 (1 ↑)	0.845%	21,132	37 (3 ↑)	0.856%	535,253	37 (2 ↑)	X
Arizona	Safford	0.583%	1,458	46 (1 ↓)	1.156%	28,909	15 (-)	1.299%	812,181	16 (-)	X
Arkansas	Pocahontas	0.819%	2,047	34 (2 ↑)	0.819%	20,470	38 (3 ↑)	0.819%	511,743	38 (3 ↑)	
California	Yreka	0.801%	2,001	38 (-)	0.801%	20,013	42 (1 ↑)	0.801%	500,314	42 (1 ↑)	
Colorado	Walsenburg	1.770%	4,424	6 (-)	1.770%	44,245	7 (-)	1.770%	1,106,124	7 (-)	
Connecticut	Litchfield	0.892%	2,230	30 (7 ↓)	0.892%	22,299	34 (7 ↓)	0.892%	557,463	34 (6 ↓)	
Delaware	Georgetown	0.222%	555	50 (-)	0.222%	5,545	50 (-)	0.222%	138,628	50 (-)	
Florida	Moore Haven	1.416%	3,541	11 (-)	1.614%	40,362	10 (2 ↓)	1.636%	1,022,265	10 (2 ↓)	X
Georgia	Fitzgerald	1.537%	3,843	9 (-)	1.537%	38,432	11 (-)	1.537%	960,790	11 (-)	
Hawaii	Kauai	0.301%	753	49 (-)	0.301%	7,533	49 (-)	0.301%	188,325	49 (-)	
Idaho	Saint Anthony	0.559%	1,397	48 (-)	1.044%	26,100	20 (3 ↑)	1.102%	688,884	19 (-)	X
Illinois	Galena	0.932%	2,330	26 (7 ↓)	0.932%	23,299	30 (8 ↓)	0.932%	582,477	30 (6 ↓)	
Indiana	North Vernon	2.198%	5,496	4 (-)	2.198%	54,960	4 (-)	2.198%	1,374,000	4 (-)	
Iowa	Hampton	0.825%	2,062	33 (9 ↑)	1.213%	30,328	14 (7 ↑)	1.318%	823,851	15 (2 ↑)	X
Kansas	Iola	2.415%	6,038	2 (1 ↑)	2.415%	60,381	2 (1 ↑)	2.415%	1,509,529	2 (1 ↑)	
Kentucky	Morehead	0.632%	1,579	43 (-)	0.632%	15,791	46 (-)	0.632%	394,787	46 (-)	
Louisiana	Natchitoches	1.434%	3,586	10 (-)	1.434%	35,858	13 (1 ↓)	1.434%	896,442	14 (1 ↓)	
Maine	Rockland	1.026%	2,565	18 (3 ↓)	1.026%	25,645	21 (4 ↓)	1.026%	641,125	23 (2 ↓)	
Maryland	Denton	0.952%	2,380	25 (5 ↑)	0.952%	23,800	29 (6 ↑)	0.952%	595,005	29 (6 ↑)	
Massachusetts	Adams	0.988%	2,469	23 (2 ↓)	0.988%	24,691	27 (2 ↓)	0.988%	617,263	27 (1 ↓)	
Michigan	Manistique	1.278%	3,195	12 (1 ↑)	1.440%	35,997	12 (2 ↓)	1.440%	899,920	13 (3 ↓)	X
Minnesota	Glencoe	1.078%	2,696	16 (17 ↑)	1.618%	40,456	9 (5 ↑)	1.698%	1,060,948	8 (4 ↑)	X
Mississippi	Philadelphia	2.044%	5,111	5 (-)	2.044%	51,109	5 (-)	2.044%	1,277,719	5 (-)	
Missouri	Boonville	1.636%	4,091	8 (-)	1.636%	40,909	8 (1 ↑)	1.636%	1,022,726	9 (-)	
Montana	Glasgow	0.594%	1,485	45 (1 ↑)	0.989%	24,730	26 (5 ↑)	1.479%	924,666	12 (3 ↑)	X
Nebraska	Sidney	1.714%	4,284	7 (-)	1.801%	45,031	6 (-)	1.811%	1,131,614	6 (-)	X
Nevada	Fallon	0.968%	2,419	24 (2 ↑)	0.968%	24,193	28 (2 ↑)	0.968%	604,815	28 (3 ↑)	
New Hampshire	Lancaster	0.994%	2,484	22 (2 ↓)	0.994%	24,839	25 (1 ↓)	0.994%	620,974	26 (1 ↓)	
New Jersey	Maurice River Twp	1.138%	2,846	13 (1 ↑)	1.138%	28,461	16 (-)	1.138%	711,518	17 (1 ↑)	
New Mexico	Santa Rosa	0.808%	2,020	37 (2 ↑)	0.808%	20,202	41 (3 ↑)	0.808%	505,058	41 (3 ↑)	
New York	Warsaw	1.126%	2,815	14 (2 ↓)	1.126%	28,145	17 (4 ↓)	1.126%	703,636	18 (4 ↓)	
North Carolina	Edenton	0.885%	2,213	31 (3 ↑)	0.885%	22,127	35 (3 ↑)	0.885%	553,175	35 (3 ↑)	
North Dakota	Devils Lake	0.560%	1,401	47 (-)	0.560%	14,012	48 (-)	0.560%	350,288	48 (-)	
Ohio	Bryan	0.904%	2,260	29 (4 ↓)	0.904%	22,604	33 (4 ↓)	0.904%	565,092	33 (3 ↓)	
AVERAGE		**1.094%**	**2,734**		**1.153%**	**28,824**		**1.171%**	**732,112**		**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	1.007%	2,517	20 (2 ↑)	1.007%	25,171	24 (2 ↑)	1.007%	629,280	25 (2 ↑)	
Oregon	Tillamook	0.877%	2,193	32 (-)	0.877%	21,928	36 (1 ↑)	0.877%	548,200	36 (1 ↑)	
Pennsylvania	Ridgway	0.737%	1,843	40 (12 ↓)	0.737%	18,435	43 (10 ↓)	0.737%	460,867	43 (10 ↓)	
Rhode Island	Hopkinton	0.810%	2,026	35 (11 ↓)	0.810%	20,262	39 (11 ↓)	0.810%	506,554	39 (10 ↓)	
South Carolina	Mullins	3.519%	8,797	1 (-)	3.519%	87,970	1 (-)	3.519%	2,199,250	1 (-)	
South Dakota	Vermillion	0.597%	1,493	44 (9 ↓)	0.597%	14,927	47 (8 ↓)	0.597%	373,179	47 (7 ↓)	
Tennessee	Savannah	0.905%	2,263	28 (1 ↑)	0.905%	22,632	32 (2 ↑)	0.905%	565,800	32 (2 ↑)	
Texas	Fort Stockton	2.264%	5,660	3 (1 ↓)	2.264%	56,600	3 (1 ↓)	2.264%	1,415,007	3 (1 ↓)	
Utah	Richfield	1.017%	2,543	19 (8 ↑)	1.017%	25,432	23 (9 ↑)	1.017%	635,788	24 (8 ↑)	
Vermont	Hartford	1.057%	2,642	17 (-)	1.057%	26,420	19 (1 ↑)	1.057%	660,501	21 (2 ↑)	
Virginia	Wise	0.808%	2,021	36 (1 ↑)	0.808%	20,212	40 (2 ↑)	0.808%	505,288	40 (2 ↑)	
Washington	Okanogan	0.926%	2,314	27 (4 ↑)	0.926%	23,140	31 (5 ↑)	0.926%	578,502	31 (5 ↑)	
West Virginia	Elkins	1.096%	2,740	15 (1 ↑)	1.096%	27,399	18 (-)	1.096%	684,980	20 (2 ↑)	
Wisconsin	Rice Lake	0.997%	2,494	21 (3 ↓)	1.025%	25,620	22 (3 ↓)	1.028%	642,325	22 (2 ↓)	X
Wyoming	Worland	0.666%	1,664	41 (-)	0.666%	16,639	44 (1 ↑)	0.666%	415,969	44 (1 ↑)	
AVERAGE		**1.094%**	**2,734**		**1.153%**	**28,824**		**1.171%**	**732,112**		**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 (2020)

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		***	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**	**22**	**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**	**22**	**No = 7**

* Preferential treatment means there are statutory provisions that result in lower property taxes on personal property than on real property, which could be due to exemptions/credits, the nominal tax rate, or the assessment ratio. Preferences are usually fairly uniform within a state.
** A dash ("-") indicates that real property is treated preferentially to personal property.
*** In the District of Columbia and Nebraska, there is a personal property exemption which is capped at a fixed value amount. This provides personal property with preferential treatment for a $100,000-valued property but the non-preferential treatment embedded in the tax system overwhelms that benefit at higher values.
*** In Montana, whether personal property is treated preferentially to real property depends on the total value of a parcel. At low values, machinery and equipment and fixtures are taxed preferentially, because of Montana's exemption of the first $100,000 of property value. But at high values, personal property is being taxed more heavily than real property because the state has a system of tiered assessment ratios.

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

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

		Land and Building Value: $600,000				Lower Tax Rate on Personal Property
State	**City**	**Tax Rate**	**Tax Bill**	**Rank**	**Change from '19**	
Alabama	Birmingham	1.441%	9,079	26	1 ↓	
Alaska	Anchorage	1.471%	9,265	24	4 ↑	X
Arizona	Phoenix	1.292%	8,138	33	3 ↓	X
Arkansas	Little Rock	1.398%	8,807	28	1 ↑	
California	Los Angeles	1.200%	7,561	40	1 ↑	
Colorado	Denver	0.593%	3,737	51	-	
Connecticut	Bridgeport	2.499%	15,747	8	4 ↓	
DC	Washington	0.742%	4,677	49	-	X
Delaware	Wilmington	1.373%	8,652	29	3 ↑	X
Florida	Jacksonville	1.580%	9,953	21	1 ↑	X
Georgia	Atlanta	1.567%	9,874	22	2 ↑	
Hawaii	Honolulu	0.342%	2,155	53	-	X
Idaho	Boise	1.068%	6,727	43	6 ↓	X
Illinois	Aurora*	3.356%	21,143	2	-	X
Illinois	Chicago	1.313%	8,270	32	5 ↓	X
Indiana	Indianapolis	2.111%	13,301	14	1 ↑	X
Iowa	Des Moines	2.544%	16,024	7	2 ↓	X
Kansas	Wichita	1.280%	8,061	35	-	
Kentucky	Louisville	1.186%	7,470	41	2 ↓	X
Louisiana	New Orleans	1.455%	9,166	25	2 ↓	
Maine	Portland	1.820%	11,469	17	-	
Maryland	Baltimore	2.443%	15,390	10	1 ↑	
Massachusetts	Boston	0.895%	5,639	45	-	X
Michigan	Detroit	3.600%	22,680	1	-	
Minnesota	Minneapolis	1.616%	10,183	18	3 ↑	X
Mississippi	Jackson	2.694%	16,973	5	2 ↑	
Missouri	Kansas City	1.339%	8,436	30	3 ↑	X
Montana	Billings	0.888%	5,593	46	1 ↑	X
Nebraska	Omaha	1.988%	12,523	15	1 ↑	X
Nevada	Las Vegas	1.132%	7,130	42	-	
New Hampshire	Manchester	1.865%	11,748	16	2 ↑	X
New Jersey	Newark	3.047%	19,193	3	-	X
New Mexico	Albuquerque	1.276%	8,036	36	-	
New York	Buffalo*	1.542%	9,715	23	14 ↓	X
New York	New York City	1.285%	8,096	34	6 ↑	X
AVERAGE		**1.610%**	**10,142**			**N = 28**

		Land and Building Value: $600,000				Lower Tax Rate on Personal Property
State	**City**	**Tax Rate**	**Tax Bill**	**Rank**	**Change from '19**	
North Carolina	Charlotte	0.906%	5,709	44	-	
North Dakota	Fargo	1.229%	7,743	38	-	X
Ohio	Columbus	2.163%	13,625	13	1 ↑	X
Oklahoma	Oklahoma City	1.325%	8,350	31	-	
Oregon	Portland	2.476%	15,597	9	1 ↑	
Pennsylvania	Philadelphia	1.257%	7,920	37	3 ↓	X
Rhode Island	Providence	2.319%	14,611	11	1 ↑	
South Carolina	Charleston	1.614%	10,167	19	1 ↑	
South Dakota	Sioux Falls	1.609%	10,138	20	6 ↑	X
Tennessee	Nashville	1.423%	8,967	27	16 ↑	X
Texas	Houston	2.283%	14,381	12	1 ↑	
Utah	Salt Lake City	0.614%	3,869	50	-	X
Vermont	Burlington	2.827%	17,809	4	2 ↑	X
Virginia	Virginia Beach	0.879%	5,539	47	1 ↓	
Washington	Seattle	0.824%	5,188	48	-	
West Virginia	Charleston	1.209%	7,620	39	20 ↓	
Wisconsin	Milwaukee	2.574%	16,213	6	2 ↑	
Wyoming	Cheyenne	0.555%	3,495	52	-	
AVERAGE		**1.610%**	**10,142**			**N = 28**

* 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 '19**	
Arizona	Mesa	0.961%	6,057	42	2 ↑	X
Arizona	Phoenix	1.292%	8,138	27	3 ↓	X
Arizona	Tucson	1.201%	7,567	35	3 ↓	X
California	Fresno	1.272%	8,013	31	-	
California	Long Beach	1.200%	7,563	36	2 ↓	
California	Los Angeles	1.200%	7,561	37	1 ↑	
California	Oakland	1.374%	8,654	23	-	
California	Sacramento	1.139%	7,178	40	1 ↓	
California	San Diego	1.230%	7,748	34	1 ↓	
California	San Francisco	1.198%	7,550	38	1 ↓	
California	San Jose	1.238%	7,799	33	3 ↓	
Colorado	Colorado Springs	0.531%	3,346	50	-	
Colorado	Denver	0.593%	3,737	49	-	
DC	Washington	0.742%	4,677	48	-	X
Florida	Jacksonville	1.580%	9,953	18	-	X
Florida	Miami	1.891%	11,916	16	-	X
Georgia	Atlanta	1.567%	9,874	19	2 ↑	
Illinois	Chicago	1.313%	8,270	26	4 ↓	X
Indiana	Indianapolis	2.111%	13,301	14	1 ↓	X
Kansas	Wichita	1.280%	8,061	29	1 ↓	
Kentucky	Louisville	1.186%	7,470	39	4 ↓	X
Louisiana	New Orleans	1.455%	9,166	20	1 ↓	
Maryland	Baltimore	2.443%	15,390	9	1 ↑	
Massachusetts	Boston	0.895%	5,639	45	-	X
Michigan	Detroit	3.600%	22,680	1	-	
Minnesota	Minneapolis	1.616%	10,183	17	-	X
Missouri	Kansas City	1.339%	8,436	24	2 ↑	X
Nebraska	Omaha	1.988%	12,523	15	-	X
Nevada	Las Vegas	1.132%	7,130	41	1 ↓	
New Mexico	Albuquerque	1.276%	8,036	30	1 ↓	
New York	New York City	1.285%	8,096	28	8 ↑	X
North Carolina	Charlotte	0.906%	5,709	44	1 ↓	
North Carolina	Raleigh	0.956%	6,022	43	1 ↓	X
Ohio	Columbus	2.163%	13,625	13	1 ↓	X
Oklahoma	Oklahoma City	1.325%	8,350	25	-	
AVERAGE		**1.585%**	**9,988**			**N = 22**

		Land and Building Value: $600,000				Lower Tax Rate on Personal Property
State	**City**	**Tax Rate**	**Tax Bill**	**Rank**	**Change from '19**	
Oklahoma	Tulsa	1.427%	8,989	21	1 ↓	X
Oregon	Portland	2.476%	15,597	8	1 ↑	
Pennsylvania	Philadelphia	1.257%	7,920	32	5 ↓	X
Tennessee	Memphis	2.535%	15,970	6	1 ↑	X
Tennessee	Nashville	1.423%	8,967	22	19 ↑	X
Texas	Arlington	2.637%	16,612	4	1 ↑	X
Texas	Austin	2.171%	13,675	12	2 ↑	
Texas	Dallas	2.399%	15,114	10	6 ↓	
Texas	El Paso	2.511%	15,819	7	1 ↑	
Texas	Fort Worth	2.722%	17,150	2	-	X
Texas	Houston	2.283%	14,381	11	-	
Texas	San Antonio	2.674%	16,846	3	-	
Virginia	Virginia Beach	0.879%	5,539	46	-	
Washington	Seattle	0.824%	5,188	47	-	
Wisconsin	Milwaukee	2.574%	16,213	5	1 ↑	
AVERAGE		**1.585%**	**9,988**			**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 '19**	
Alabama	Monroeville	0.820%	5,166	44	-	
Alaska	Ketchikan	1.055%	6,647	34	1 ↑	X
Arizona	Safford	0.873%	5,503	42	1 ↓	X
Arkansas	Pocahontas	0.831%	5,233	43	-	X
California	Yreka	1.053%	6,636	35	1 ↑	
Colorado	Walsenburg	0.668%	4,208	48	-	
Connecticut	Litchfield	1.939%	12,216	17	1 ↑	
Delaware	Georgetown	0.356%	2,246	50	-	X
Florida	Moore Haven	2.027%	12,767	15	-	X
Georgia	Fitzgerald	1.801%	11,349	19	5 ↑	X
Hawaii	Kauai	0.570%	3,594	49	-	X
Idaho	Saint Anthony	1.330%	8,381	27	1 ↓	X
Illinois	Galena	2.219%	13,979	12	5 ↓	X
Indiana	North Vernon	1.775%	11,184	20	2 ↑	X
Iowa	Hampton	2.034%	12,817	14	3 ↑	X
Kansas	Iola	2.480%	15,626	6	3 ↑	
Kentucky	Morehead	1.132%	7,132	30	1 ↓	X
Louisiana	Natchitoches	0.978%	6,163	38	1 ↓	
Maine	Rockland	2.230%	14,049	10	-	
Maryland	Denton	1.890%	11,910	18	5 ↑	
Massachusetts	Adams	1.980%	12,472	16	4 ↑	X
Michigan	Manistique	3.064%	19,301	1	1 ↑	X
Minnesota	Glencoe	1.659%	10,452	23	5 ↑	X
Mississippi	Philadelphia	2.044%	12,879	13	3 ↑	
Missouri	Boonville	0.954%	6,010	39	-	X
Montana	Glasgow	0.982%	6,186	37	1 ↑	X
Nebraska	Sidney	2.301%	14,494	9	3 ↑	X
Nevada	Fallon	1.257%	7,917	28	1 ↓	
New Hampshire	Lancaster	2.366%	14,903	7	1 ↑	X
New Jersey	Maurice River Twp	2.711%	17,076	2	1 ↑	X
New Mexico	Santa Rosa	0.952%	5,999	40	-	
New York	Warsaw	2.681%	16,887	3	2 ↓	X
North Carolina	Edenton	1.128%	7,105	31	2 ↑	
North Dakota	Devils Lake	1.334%	8,407	26	1 ↓	X
Ohio	Bryan	1.653%	10,412	24	3 ↓	X
AVERAGE		**1.542%**	**9,717**			**N = 28**

		Land and Building Value: $600,000				Lower Tax Rate on Personal Property
State	**City**	**Tax Rate**	**Tax Bill**	**Rank**	**Change from '19**	
Oklahoma	Mangum	0.886%	5,581	41	1 ↑	
Oregon	Tillamook	1.154%	7,271	29	1 ↑	
Pennsylvania	Ridgway	1.756%	11,061	21	8 ↓	X
Rhode Island	Hopkinton	1.756%	11,060	22	8 ↓	
South Carolina	Mullins	2.551%	16,074	4	-	
South Dakota	Vermillion	1.422%	8,956	25	6 ↓	X
Tennessee	Savannah	1.012%	6,376	36	2 ↓	X
Texas	Fort Stockton	2.351%	14,811	8	2 ↓	
Utah	Richfield	0.701%	4,417	47	-	X
Vermont	Hartford	2.516%	15,852	5	-	X
Virginia	Wise	0.736%	4,635	45	-	
Washington	Okanogan	1.127%	7,098	32	1 ↓	
West Virginia	Elkins	1.082%	6,814	33	1 ↓	
Wisconsin	Rice Lake	2.222%	14,001	11	-	
Wyoming	Worland	0.723%	4,558	46	-	
AVERAGE		**1.542%**	**9,717**			**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 '19**	**Assessment Ratio**	**Nominal Tax Rate**	**Exemptions & Credits**	**Assessment Limits**	**Sales Ratio**
Alabama	Birmingham	13	2.178	-0.010	X		X		+
Alaska	Anchorage	34	1.218	0.007			X		
Arizona	Phoenix	12	2.202	0.203	X	X			+
Arkansas	Little Rock	27	1.360	0.084			X	X	+
California	Los Angeles	44	1.010	0.000			X		
Colorado	Denver	3	4.011	0.028	X				-
Connecticut	Bridgeport	35	1.218	0.221					+
DC	Washington	15	2.075	-0.001		X	X		-
Delaware	Wilmington	31	1.249	0.331					+
Florida	Jacksonville	10	2.360	-0.004			X	X	
Georgia	Atlanta	23	1.665	-0.026			X		
Hawaii	Honolulu	2	4.099	0.132		X	X		+
Idaho	Boise	25	1.525	-0.110			X		+
Illinois	Aurora*	37	1.085	-0.008			X		
Illinois	Chicago	5	3.251	0.480	X		X	X	
Indiana	Indianapolis	9	2.429	-0.037			X		-
Iowa	Des Moines	21	1.705	0.090	X		-		+
Kansas	Wichita	14	2.128	0.024	X		X		-
Kentucky	Louisville	46	1.002	-0.032					+
Louisiana	New Orleans	17	2.031	-0.002	X		X		+
Maine	Portland	38	1.081	0.010			X		
Maryland	Baltimore	43	1.030	0.021					+
Massachusetts	Boston	1	4.719	0.350		X	X		+
Michigan	Detroit	26	1.496	0.204		X			+
Minnesota	Minneapolis	18	1.910	0.043	X	X	X		-
Mississippi	Jackson	19	1.818	-0.108	X		X		-
Missouri	Kansas City	16	2.059	-0.006	X	X			+
Montana	Billings	29	1.301	0.000	X				-
Nebraska	Omaha	53	0.989	-0.021					-
Nevada	Las Vegas	52	0.997	-0.006					-
New Hampshire	Manchester	47	1.000	0.000					
New Jersey	Newark	47	1.000	0.000					
New Mexico	Albuquerque	33	1.228	0.042		X	X	X	
New York	Buffalo*	22	1.667	0.025		X	X		
New York	New York City	6	3.233	0.096	X	-	X	X	-

		Classification Ratio			Causes of Preferential Treatment of Homesteads				
State	**City**	**Rank**	**Ratio**	**Change from '19**	**Assessment Ratio**	**Nominal Tax Rate**	**Exemptions & Credits**	**Assessment Limits**	**Sales Ratio**
North Carolina	Charlotte	47	1.000	0.000					
North Dakota	Fargo	39	1.076	-0.011	X				-
Ohio	Columbus	28	1.347	0.148		X	X		-
Oklahoma	Oklahoma City	41	1.058	-0.002			X		
Oregon	Portland	47	1.000	0.000					
Pennsylvania	Philadelphia	11	2.293	-0.067		X	X		
Rhode Island	Providence	8	2.490	0.000	X	X			
South Carolina	Charleston	4	3.663	-0.405	X		X	X	
South Dakota	Sioux Falls	36	1.106	0.139		X			-
Tennessee	Nashville	24	1.600	0.000	X				
Texas	Houston	30	1.293	-0.040			X		-
Utah	Salt Lake City	20	1.814	0.038			X		-
Vermont	Burlington	32	1.234	0.005	X	-	X		-
Virginia	Virginia Beach	45	1.009	0.060					+
Washington	Seattle	47	1.000	0.000					
West Virginia	Charleston	7	3.158	0.935		X			+
Wisconsin	Milwaukee	40	1.069	-0.004			X		
Wyoming	Cheyenne	42	1.032	-0.021					+
TOTAL/AVERAGE			**1.766**	**0.053**	**17**	**14**	**29**	**6**	**17 (+), 16 (-)**

*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 '19**	**Assessment Ratio**	**Nominal Tax Rate**	**Exemptions & Credits**	**Assessment Limits**	**Sales Ratio**
Alabama	Birmingham	5	2.159	-0.027	X		X		-
Alaska	Anchorage	22	1.218	0.007			X		
Arizona	Phoenix	24	1.117	0.000		X			
Arkansas	Little Rock	15	1.360	0.084			X	X	+
California	Los Angeles	37	1.010	0.000			X		
Colorado	Denver	38	1.005	-0.003					+
Connecticut	Bridgeport	53	0.812	-0.036					-
DC	Washington	31	1.069	-0.001			X		-
Delaware	Wilmington	40	1.000	0.000					
Florida	Jacksonville	4	2.360	-0.004			X	X	
Georgia	Atlanta	11	1.665	-0.026			X		
Hawaii	Honolulu	23	1.157	0.049			X		+
Idaho	Boise	13	1.525	-0.110			X		+
Illinois	Aurora*	28	1.085	-0.008			X		
Illinois	Chicago	50	0.927	-0.049	-		X		
Indiana	Indianapolis	3	2.429	-0.037			X		-
Iowa	Des Moines	25	1.109	-0.188	X		X		-
Kansas	Wichita	35	1.020	-0.001			X		
Kentucky	Louisville	39	1.002	-0.032					+
Louisiana	New Orleans	14	1.416	-0.002			X		
Maine	Portland	29	1.081	0.010			X		
Maryland	Baltimore	34	1.030	0.021					+
Massachusetts	Boston	7	1.956	-0.016			X		
Michigan	Detroit	19	1.259	-0.008		X			
Minnesota	Minneapolis	20	1.240	-0.029	X		X		-
Mississippi	Jackson	8	1.818	-0.108	X		X		-
Missouri	Kansas City	40	1.000	0.000					
Montana	Billings	40	1.000	0.000					
Nebraska	Omaha	49	0.989	-0.021					-
Nevada	Las Vegas	36	1.012	-0.006					+
New Hampshire	Manchester	40	1.000	0.000					
New Jersey	Newark	40	1.000	0.000					
New Mexico	Albuquerque	27	1.103	0.038			X	X	
New York	Buffalo*	9	1.667	0.025		X	X		
New York	New York City	2	2.550	0.074	X	-	X	X	-

		Classification Ratio			Causes of Preferential Treatment of Homesteads				
State	**City**	**Rank**	**Ratio**	**Change from '19**	**Assessment Ratio**	**Nominal Tax Rate**	**Exemptions & Credits**	**Assessment Limits**	**Sales Ratio**
North Carolina	Charlotte	40	1.000	0.000					
North Dakota	Fargo	30	1.076	-0.011	X				-
Ohio	Columbus	17	1.347	0.148		X	X		-
Oklahoma	Oklahoma City	33	1.058	-0.002			X		
Oregon	Portland	40	1.000	0.000					
Pennsylvania	Philadelphia	16	1.352	-0.020			X		
Rhode Island	Providence	10	1.667	0.000	X				
South Carolina	Charleston	1	3.663	-0.405	X		X	X	
South Dakota	Sioux Falls	26	1.106	0.139		X			-
Tennessee	Nashville	12	1.600	0.000	X				
Texas	Houston	18	1.317	-0.030			X		-
Utah	Salt Lake City	48	0.998	0.021					-
Vermont	Burlington	21	1.238	0.023	X	-	X		-
Virginia	Virginia Beach	51	0.923	0.011					-
Washington	Seattle	40	1.000	0.000					
West Virginia	Charleston	6	2.000	-0.186		X			
Wisconsin	Milwaukee	32	1.067	-0.004			X		
Wyoming	Cheyenne	52	0.851	-0.107					-
TOTAL/AVERAGE			**1.329**	**-0.016**	**10**	**6**	**29**	**5**	**7 (+), 17 (-)**

* 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	0.868%	0.664%	0.204%	2,250	1,722	528	23.5%
Arizona	Phoenix	1.215%	0.848%	0.366%	3,238	2,261	977	30.2%
Arizona	Tucson	1.113%	1.016%	0.098%	1,923	1,754	169	8.8%
Arkansas	Little Rock	1.109%	1.028%	0.081%	1,904	1,764	139	7.3%
California	Fresno	1.240%	0.711%	0.529%	3,429	1,967	1,463	42.7%
California	Long Beach	1.187%	0.739%	0.447%	7,291	4,542	2,749	37.7%
California	Los Angeles	1.188%	0.625%	0.563%	8,283	4,356	3,927	47.4%
California	Oakland	1.362%	0.678%	0.684%	10,998	5,475	5,523	50.2%
California	Sacramento	1.118%	0.565%	0.553%	4,257	2,152	2,105	49.5%
California	San Diego	1.217%	0.799%	0.418%	8,011	5,262	2,749	34.3%
California	San Francisco	1.192%	0.707%	0.485%	14,507	8,608	5,899	40.7%
California	San Jose	1.229%	0.695%	0.534%	12,291	6,948	5,343	43.5%
Florida	Jacksonville	1.293%	0.697%	0.596%	2,589	1,395	1,194	46.1%
Florida	Miami	1.732%	0.858%	0.874%	6,208	3,074	3,133	50.5%
Illinois	Chicago	1.542%	1.486%	0.056%	4,243	4,090	153	3.6%
Michigan	Detroit	2.829%	1.767%	1.062%	1,667	1,041	626	37.5%
New Mexico	Albuquerque	1.222%	1.144%	0.078%	2,587	2,423	165	6.4%
New York	New York City*	1.210%	0.529%	0.681%	8,240	3,603	4,637	56.3%
Oklahoma	Oklahoma City	1.238%	1.147%	0.091%	2,051	1,901	150	7.3%
Oklahoma	Tulsa	1.348%	1.268%	0.080%	2,058	1,936	121	5.9%
Oregon	Portland*	2.476%	1.669%	0.807%	11,022	7,429	3,592	32.6%
South Carolina	Charleston	0.479%	0.424%	0.055%	1,742	1,542	201	11.5%
Texas	Arlington	2.305%	2.305%	0.000%	4,928	4,928	0	0.0%
Texas	Austin	1.917%	1.917%	0.000%	7,254	7,254	0	0.0%
Texas	Dallas	1.827%	1.827%	0.000%	4,228	4,228	0	0.0%
Texas	El Paso	2.672%	2.672%	0.000%	3,570	3,570	0	0.0%
Texas	Fort Worth	2.351%	2.351%	0.000%	4,923	4,923	0	0.0%
Texas	Houston	1.729%	1.729%	0.000%	3,385	3,385	0	0.0%
Texas	San Antonio	2.453%	2.453%	0.000%	4,196	4,196	0	0.0%
AVERAGE		**1.540%**	**1.218%**	**0.322%**	**5,285**	**3,715**	**1,571**	**29.7%**

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 42 on page 50 for details on the methodology for these two cities.)