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50-State Property Tax Comparison Study

FOR TAXES PAID IN 2021



LINCOLN INSTITUTE
OF LAND POLICY



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50-State Property Tax Comparison Study

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Table of Contents

Executive Summary	1
Introduction	6
Why Property Tax Rates Vary Across Cities	9
Homestead Property Taxes	14
Commercial Property Taxes	20
Industrial Property Taxes	26
Apartment Property Taxes	31
Classification and Preferential Treatment of Homestead Properties	35
Property Tax Assessment Limits	42
Methodology	45

Appendix Tables

1. Why Property Tax Rates Vary Across Cities	
1a. Factors Correlated with Homestead Property Tax Rates in Large U.S. Cities	53
1b. Factors Correlated with Commercial Property Tax Rates in Large U.S. Cities	56
1c. Correlates of Cities' Effective Tax Rates on Homestead Properties	59
1d. Correlates of Cities' Effective Tax Rates on Commercial Properties	60
2. Homestead Property Taxes	
2a. Largest City in Each State: Median Valued Homes	61
2b. Largest City in Each State: Median Valued Homes, with Assessment Limits	63
2c. Largest City in Each State: Homes worth \$150,000 and \$300,000	65
2d. Largest Fifty U.S. Cities: Median Valued Homes	67
2e. Largest Fifty U.S. Cities: Median Valued Homes, with Assessment Limits	69
2f. Largest Fifty U.S. Cities: Homes worth \$150,000 and \$300,000	71
2g. Selected Rural Municipalities: Median Valued Homes	73
2h. Selected Rural Municipalities: Homes worth \$150,000 and \$300,000	75
3. Commercial Property Taxes	
3a. Largest City in Each State	77
3b. Largest Fifty U.S. Cities	79
3c. Selected Rural Municipalities	81
4. Industrial Property Taxes	
4a. Largest City in Each State (Personal Property = 50% of Total Parcel Value)	83
4b. Largest City in Each State (Personal Property = 60% of Total Parcel Value)	85
4c. Largest Fifty U.S. Cities (Personal Property = 50% of Total Parcel Value)	87
4d. Largest Fifty U.S. Cities (Personal Property = 60% of Total Parcel Value)	89
4e. Selected Rural Municipalities (Personal Property = 50% of Total Parcel Value)	91
4f. Selected Rural Municipalities (Personal Property = 60% of Total Parcel Value)	93
4g. Preferential Treatment of Personal Property, Largest City in Each State	95
5. Apartment Property Taxes	
5a. Largest City in Each State	97
5b. Largest Fifty U.S. Cities	99
5c. Selected Rural Municipalities	101
6. Classification and Preferential Treatment of Homestead Properties	
6a. Commercial-Homestead Classification Ratio for Largest City in Each State	103
6b. Apartment-Homestead Classification Ratio for Largest City in Each State	105
7. Impact of Assessment Limits	107

Executive Summary

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

This report provides the most meaningful data available to compare cities' property taxes by calculating the *effective tax rate*: the tax bill as a percent of a property's market value. Data are available for 74 large U.S. cities and a rural municipality in each state, with information on four different property types (homestead, commercial, industrial, and apartment properties), and statistics on both net tax *bills* (i.e. \$3,000) and effective tax *rates* (i.e. 1.5 percent). These data have important implications for cities because the property tax is a key part of the package of taxes and public services that affects cities' competitiveness and quality of life.

Why Property Tax Rates Vary Across Cities

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

Property tax reliance is one of the main reasons why tax rates vary across cities. While some cities raise most of their revenue from property taxes, others rely more on alternative revenue sources. Cities with high local sales or income taxes do not need to raise as much revenue from the property tax, and thus have lower property tax rates on average. For example, this report shows that Bridgeport (CT) has one of the highest effective tax rates on a median valued home, while Birmingham (AL) has one of the lowest rates. However, in Bridgeport, city residents pay no local sales or income taxes, whereas Birmingham residents pay both sales and income taxes to local governments. Consequently, despite the fact that Bridgeport has much higher property taxes, total local taxes are considerably higher in Birmingham (\$3,201 vs. \$2,221 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 \$3,424. 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 – 5.49 percent versus 0.27 percent.

Two additional factors that help explain variation in tax rates are the level of local government spending and whether cities tax homesteads at lower rates than other types of property (referred

to as “classification”). Holding all else equal, cities with higher spending will need to have higher property tax rates. Classification imposes lower property taxes on homesteads, but higher property taxes on business and apartment properties.

Homestead Property Taxes

There are wide variations across the country in property taxes on owner-occupied primary residences, otherwise known as homesteads. An analysis of the largest city in each state shows that the average effective tax rate on a median-valued homestead was 1.33 percent in 2020 for this group of 53 cities.¹ At that rate, a home worth \$200,000 would owe \$2,660 in property taxes (1.33% x \$200,000). On the high end, there are three cities with effective tax rates that are at least 2 times higher than the average – Aurora (IL), Newark, 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), Salt Lake City, Boise, and Cheyenne (WY).

Highest and Lowest Effective Property Tax Rates on a Median Valued Home (2021)

Highest Property Tax Rates				Lowest Property Tax Rates			
1	Detroit (MI)	3.27%	<i>Why:</i> Low property values	49	Charleston (WV)	0.59%	<i>Why:</i> Low property tax reliance, Classification shifts tax to business
2	Newark (NJ)	3.23%	<i>Why:</i> High property tax reliance	50	Denver (CO)	0.53%	<i>Why:</i> Low property tax reliance, classification, high home values
3	Aurora (IL)	3.11%	<i>Why:</i> High property tax reliance	51	Boston (MA)	0.51%	<i>Why:</i> High home values, Classification shifts tax to business
4	Portland (OR)	2.62%	<i>Why:</i> Assessment limit shifts tax to newly built homes	52	Charleston (SC)	0.49%	<i>Why:</i> Classification shifts tax to business, High home values
5	Milwaukee (WI)	2.48%	<i>Why:</i> Low property values	53	Honolulu (HI)	0.30%	<i>Why:</i> High home values, low local gov't spending, classification

Note: Data for all cities: Figure 2 (page 19), Appendix Table 1a (page 53), and Appendix Table 2a (page 61).

The average tax rate for these 53 cities fell 3.6 percent between 2020 and 2021, from 1.379 percent to 1.330 percent. This drop was on the heels of a 4.6 percent decrease over the last two years. From 2020 to 2021, 33 cities had decreases in their effective tax rate for a median valued home, while 20 cities had increases. The largest increase was in Detroit at 15 percent. Another four cities had increases exceeding 5 percent: Louisville, Anchorage, Portland (OR), and Boston.

The largest decreases in effective tax rates were in Manchester (NH) and Burlington (VT), where rates fell more than 30% from 2020 to 2021. In both cases, local mill rates were reduced by nearly 40 percent. The next largest decreases were Portland (ME) and Bridgeport (CT) at more than 20 percent, followed by Jackson (MS) and Boise (ID) at more than 10 percent.

Note that differences in property values across cities mean that some cities with high tax *rates* can still have low tax *bills* on a median valued home if they have low home values, and vice versa. For example, Los Angeles and Wichita (KS) have similar effective tax rates of 1.16 and 1.20 percent on median valued homes, but because the median valued home is worth so much

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.

more in Los Angeles (\$728k vs. \$149k), the tax bill is far higher in Los Angeles (4th highest) than in Wichita (48th highest).

Effective tax rates rise with home values in about half of the cities (24 of 53), and this pattern has a progressive impact on the property tax distribution. Usually, this relationship occurs because of homestead exemptions that are set to a fixed dollar amount. For example, a \$20,000 exemption provides a 20 percent tax cut on a \$100,000 home, a 10 percent cut on a \$200,000 home, and a 5 percent cut on a \$400,000 home. The increase in effective tax rates with home values is steepest in Boston, Atlanta, 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 2021, the effective tax rate on a commercial property worth \$1 million averaged 1.863 percent across the largest cities in each state. The highest rates were in Detroit and Chicago, where effective tax rates remain more than twice the average for these 53 cities. On the other hand, rates were less than half of the average in Cheyenne (WY), Seattle, Charlotte, and Birmingham (AL).

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

Highest Property Tax Rates				Lowest Property Tax Rates			
1	Detroit (MI)	4.21%	<i>Why:</i> Low property values	49	Boise (ID)	0.97%	<i>Why:</i> Low local gov't spending, High property values
2	Chicago (IL)	3.78%	<i>Why:</i> High local gov't spending, Classification shifts tax to business	50	Birmingham (AL)	0.88%	<i>Why:</i> Low property tax reliance
3	Providence (RI)	3.53%	<i>Why:</i> High property tax reliance	51	Charlotte (NC)	0.87%	<i>Why:</i> Low property tax reliance
4	Des Moines (IA)	2.91%	<i>Why:</i> Low property values, High property tax reliance	52	Seattle (WA)	0.82%	<i>Why:</i> High property values, Low property tax reliance
5	Kansas City (MO)	2.84%	<i>Why:</i> Low property values, High property tax reliance	53	Cheyenne (WY)	0.69%	<i>Why:</i> Low property tax reliance

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

Data for all cities: Figure 3 (page 25), Appendix Table 1b (page 56), and Appendix Table 3a (page 77).

The average commercial tax rate for the 53 cities fell 4.9 percent between 2020 and 2021, as 36 cities saw declines versus 16 cities with increases. Only four cities had increases over 5 percent: Honolulu, Louisville, Portland (OR), and Anchorage.

New England led the way in major decreases – just as with homesteads – with Manchester (NH) at 34%; Portland (ME) at 31%; Burlington (VT) at 29%; and Bridgeport (CT) at 28%. Other double-digit decreases were found in Birmingham (AL), Wilmington (DE), Des Moines, and Nashville.

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 1.75, meaning that on average commercial properties experience an effective tax rate that is 75 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 Honolulu at 4.6.

Preferential Treatment of Homeowners: Ratio of Effective Tax Rate on Commercial and Apartment Properties to the Rate on Homestead Properties (2021)

Commercial vs. Homestead Ratio			Apartment vs. Homestead Ratio		
1	Honolulu (HI)	4.63	1	Charleston (SC)	3.75
2	Boston (MA)	4.40	2	New York (NY)	3.59
3	Denver (CO)	3.98	3	Jacksonville (FL)	2.52
4	Charleston (SC)	3.75	4	Indianapolis (IN)	2.43
5	Charleston (WV)	3.16	5	Jackson (MS)	2.21

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 39-40), Appendix Table 6a (Pg. 103), and Appendix Table 6b (Pg. 105).

The average apartment-homestead classification ratio is significantly lower (1.36), with apartments facing an effective tax rate that is 36% higher than homesteads on average. There are seven cities where apartments face an effective tax rate that is more than double that for homesteads, with Charleston (SC) as the biggest outlier where the rate for apartments is 3.75 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. In 20 of these 40 cities, homeowners benefit from at least two of these four statutory preferences. In 11 cities preferential treatment for homeowners is delivered through exemptions or credits alone, while in 9 cities preferences are delivered exclusively through differences in assessment ratios or nominal tax rates. Similarly, 36 cities have statutory preferences favoring homesteads relative to apartments, but only 11 offer more than one preference. Eight 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 17 years and the median home value is \$727,737. Because of the state's assessment limit, someone who has owned their home for 17 years would pay 50 percent less in property taxes than the owner of a newly purchased home, even though both homes are worth \$727,737. 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 54.5 percent higher than the owner of a home built prior to 1981, even though the two homes have identical values (\$709,745). Assessment limits reduce taxes by 30% or more in New York City, eight of nine California cities studied, the two Florida cities studied, Detroit, Phoenix, and Portland (OR). Of the 30 cities in this report that are affected by parcel-specific assessment limits, new homeowners face higher property tax bills than existing homeowners in 24 cities. No 2021 home value was sheltered in six of seven Texas cities studied, with Austin as the lone exception.

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:

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

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.

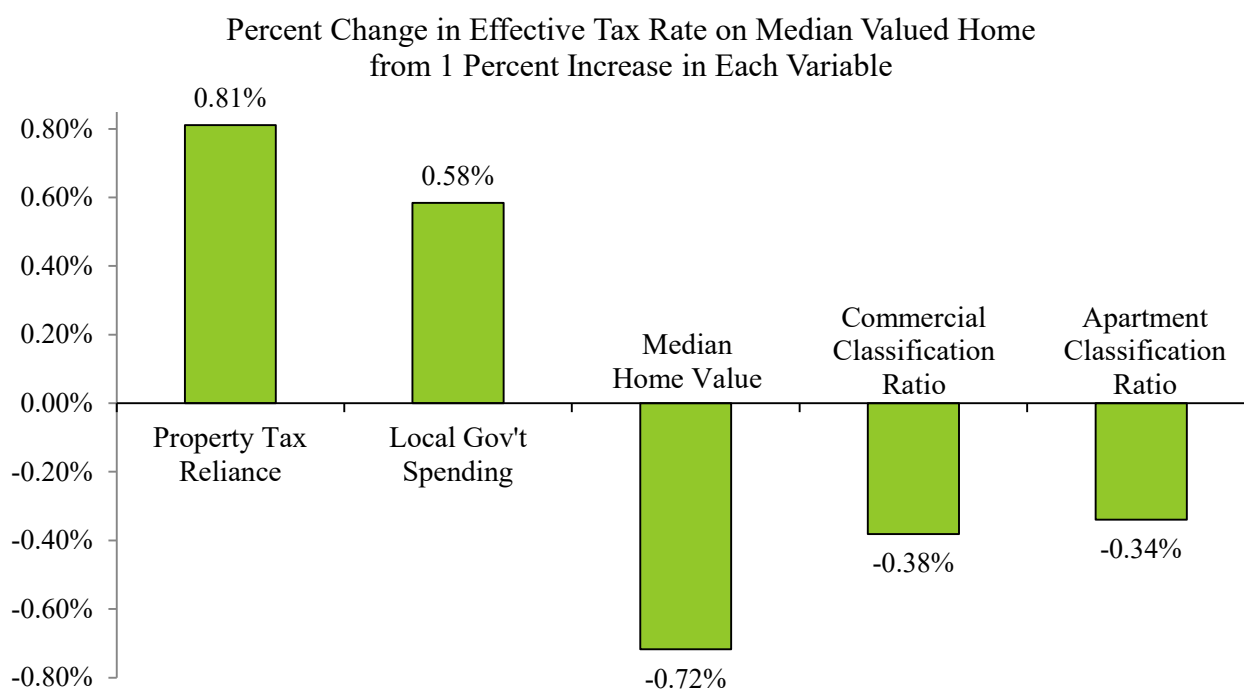
It is important to note that this study provides typical effective tax rates, assuming that the median or average sales ratio represents a typical value for all properties in each class. In practice, the accuracy of assessments varies across properties, so some parcels will have higher effective tax 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 value 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, 22% of the variation in effective tax rates is explained by property tax reliance, 38% is explained by median home values, 6% 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 0.81 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 6th 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 (\$2,188 per capita), city residents pay no local sales or income taxes. In contrast, Birmingham has the 18th 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 (\$960 per capita), but also pay a host of other taxes to local governments, including sales taxes (\$1,209 per capita), income taxes (\$474 per capita), and other local taxes (\$558 per capita).⁸ Consequently, total local taxes are almost 50 percent higher in Birmingham despite the fact that it has much lower property taxes than Bridgeport (\$3,201 per capita vs. \$2,221 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 0.71 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 – \$1,270,826 and \$62,338 respectively. After accounting for assessment limits, the average property tax bill on a median valued home in the 74 large cities in

⁷ Appendix Table 1a.

⁸ Data on per capita tax collections in 2019 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.lincolnst.edu/research-data/data-toolkits/fiscally-standardized-cities>

this report is \$3,424. 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 – 5.49 percent versus 0.27 percent. The effective tax rate on a median valued home is actually just 2.4 times higher in Detroit than San Francisco (2.03% vs. 0.84%), which means San Francisco collects 8.5 times more in property taxes from a median valued home (\$10,734 vs. \$1,268). 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 0.58 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

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 0.38 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 0.34 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 3.75 times higher than a median valued home. As a result, while among the largest cities in each state Charleston has the 18th highest tax rate on apartments and the 26th 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 0.48 percent increase in the commercial property tax rate, and a 1 percent increase in the apartment-homestead classification ratio is associated with a 0.32 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

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 (0.565) and each variable has the same level of statistical significance as in Appendix table 1d with the exception that the coefficient on the apartment-homestead classification ratio is also significant at the 1% level.

¹⁵ Bowman, John H., Daphne A. Kenyon, Adam Langley, and Bethany P. Paquin. 2009. “Property Tax Circuit Breakers: Fair and Cost-Effective Relief for Taxpayers.” Cambridge, MA: Lincoln Institute of Land Policy. Pg. 32.

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

Other Factors

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

It is reasonable to expect that higher state aid will allow local governments to reduce their reliance on property taxes and thus lead to lower property tax rates. But in fact, research shows that the impact of state aid on local property taxes is ambiguous and depends on how state aid is structured. Some state aid formulas can limit local spending, in which case state aid is likely to reduce property taxes. However, other aid formulas like matching grants can encourage higher local spending, and thus state aid may not reduce property taxes in those cases.¹⁶

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

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

¹⁶ Kenyon, Daphne A. 2007. *The Property Tax-School Funding Dilemma*. Cambridge, MA: Lincoln Institute of Land Policy. Page 50.

Homestead Property Taxes

Figure 2 shows property taxes on a median valued home for the largest city in each state. The analysis looks at homesteads, which are owner-occupied primary residences. The average effective tax rate on median-valued homesteads for the 53 cities in Figure 2 is 1.330 percent. At that rate, a home worth \$200,000 would owe \$2,660 in property taxes ($1.330\% \times \$200,000$).

Tax rates vary widely across the 53 cities. The three cities at the top of the chart – Detroit, Newark, and Aurora (IL) – 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, Charleston (SC), Boston, Denver, Charleston (WV), Salt Lake City, Boise (ID), and Cheyenne (WY) – all have effective tax rates that are less than half of the study average.

Overall, the average effective tax rate for all cities fell noticeably between 2020 and 2021, from 1.379 percent of value to 1.330 percent. The effective tax rate on the median-valued homestead climbed in 20 cities and fell in 33 cities. The largest increase was in Detroit at 15 percent, which was mainly due to assessment accuracy on residential property increasing from 81 percent to 94 percent, as mill rates were essentially flat.¹⁷ The remaining four cities that rose more than 5 percent were: Louisville (KY), Anchorage (AK), Portland (OR), and Boston.

Effective rates on median-valued homes fell by one-third in Manchester (NH) at 34 percent and Burlington (VT) at 33 percent. The main reason was mill rate reductions of 28 percent in both cities. Two other significant reductions came in Portland (ME) at 27 percent and Bridgeport (CT) at 25 percent. Jackson (MS) and Boise (ID) also had double digit decreases followed by Minneapolis (9.7%) and Nashville (8.1%).

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 (\$728k vs. \$149k), the tax bill is far higher in Los Angeles (4th highest) than in Wichita (48th highest). In general, cities with high home values can raise considerable property tax

¹⁷ Buffalo's estimated effective tax rate had the largest one-year increase between 2020 and 2021 (47 percent), but it followed a 39 percent *decrease* between 2019 and 2020. In this case, the one-year change is misleading because Buffalo's 2020 citywide reassessment affected the data across the two years. Mill rates fell almost 50 percent between 2019 and 2020 and slightly further in 2021, but increases in assessment accuracy were not reflected in higher sales ratios until 2021 (sales ratios were 68% in 2019, 64% in 2020, and 90% in 2021). Looking at the two-year change between 2019 and 2021 is more meaningful, and shows that the effective tax rate for a median valued home in Buffalo *decreased* from 1.59 percent to 1.43 percent.

In addition, we removed the STAR property tax exemption from our calculations in 2021. The STAR program closed to new applicants beginning with 2016/17 school taxes. Persons buying homes after that applied for a refundable individual income credit and existing STAR users were allowed a choice to transition to the new credit. Data from New York City showed that STAR property tax exemptions were down to 30.5% of owner-occupied units in 2021 as homeowners transfer to the income tax credit. Since this is statewide policy, we are assuming that Buffalo and Warsaw have also dropped well below the 50% threshold. This policy change results in higher property tax bills that are initially offset by similar decreases in state income taxes.

revenue from a median valued home despite modest tax rates, whereas cities with low home values may have fairly low tax bills even with high tax rates. The table below shows cities with the largest differences in their ranking in terms of effective tax rates versus tax bills on a median valued home.

**Cities with Largest Differences in Ranking on Effective Tax Rate vs. Tax Bill
for a Median Valued Home (2021)**

High Home Values			Low Home Values		
Cities with high tax bills despite low tax rates			Cities with low tax bills despite high tax rates		
City	Tax Rate	Tax Bill	City	Tax Rate	Tax Bill
Seattle (WA)	43	6	Detroit (MI)	1	43
Washington (DC)	44	7	Buffalo (NY)	15	49
Los Angeles (CA)	32	4	Jackson (MS)	26	51
Boston (MA)	51	24	Louisville (KY)	17	36
New York (NY)	28	3	Wichita (KS) ¹⁸	30	48

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 in New York City, Jacksonville (FL), Los Angeles, Detroit, and Phoenix. Overall, accounting for assessment limits reduces the average property tax bill for the 53 cities by 9.5 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 nearly half of the time (24 of 53 cities). Usually, effective tax rates rise with homestead value because of homestead exemptions and property tax credits that are set to a fixed dollar amount. Under these programs, the percentage reduction in property taxes falls as home values rise. For example, a \$20,000 exemption provides a 20 percent tax cut on a \$100,000 home, a 10 percent cut on a \$200,000 home, and a 5 percent cut on a \$400,000 home.¹⁹ However, other design elements can create the same effect. For example, Minnesota uses a tiered assessment system, where 1% of a home's market value is taxable up through \$500,000 of value, while 1.5% of value above that is taxable.

Value-driven differences in effective tax rates make the biggest difference in Boston, which in 2021 offered a homestead exemption equal to the lesser of \$295,503 or 90 percent of a property's market value. This results in ultra-low effective tax rates of 0.095% on a \$150,000 home and on a \$300,000 home, and 0.51% for a median-valued home (\$658,754). In addition to a flat \$30,000 exemption, Atlanta's floating exemption (city levy only) has a differential impact if we apply the median value growth to each value: a \$150,000 home receives a \$38,695 exemption; a \$300,000 home receives a \$77,389 exemption; and a median value home

¹⁸ In addition to Wichita, two other cities are 18 places apart between tax rate and tax bill: Wilmington, DE (16; 34) and Kansas City, MO (19; 37).

¹⁹ For information on homestead exemptions in each state, see "How Do States Spell Relief: A National Study of Homestead Exemptions and Property Tax Credits" by Adam H. Langley in *Land Lines* (April 2015).

(\$388,082) receives a \$100,122 exemption. Other cities with the largest differentials in the effective rates between a \$150,000-valued and a \$300,000-valued home also offer substantial homestead exemptions: Honolulu (\$100,000 exemption), New Orleans (effectively \$75,000 of market value), and Washington, DC (\$76,350 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 24).

Appendix Tables 2d through 2f show effective tax rates on homestead properties for a different set of cities. Whereas Tables 2a through 2c focus on the largest city for each state, Tables 2d through 2f show the 50 largest cities in the country regardless of their state. There is considerable overlap between the two groups of cities, but some significant differences as well. In this set of tables, California has nine cities, Texas has seven, Arizona has three, and five states have two cities each (CO, FL, NC, OK, and TN). There are 22 states without any cities in the top 50. As with the tables for the largest city in each state, there are two sets of tables for median-valued homes: one before and one after accounting for the effects of assessment limitations (Tables 2d and 2e respectively).

This year, the average effective tax rate for median valued homes in the 50 largest cities (Table 2d at 1.414%) exceeds the rate for the largest cities in each state (Table 2a at 1.330%). When comparing median value homes after accounting for assessment limitations, however, the 50 largest cities drop to 2.5% below the group of largest cities in each state, with an average effective tax rate of 1.207% (Table 2e) compared to 1.237% (Table 2b). This is because 22 cities of the 50 largest in the country saw reductions from assessment limits in 2021, and only 11 cities of the 53 that make up the largest cities in each state did so.

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

- In the nine California cities, the highest effective tax rate is Oakland (18th highest) and the lowest is Sacramento (37th). California accounts for seven of the 14 cities ranked from 24th to 37th, with effective tax rates clustering in the 1.10 to 1.27 percent range due to the effect of California's Proposition 13 limitations on tax rates.
- In the seven Texas cities, the highest effective tax rate is El Paso (3rd highest) and the lowest is Houston (13th), so Texas accounts for seven of the 11 cities ranked from 3rd 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 12th highest tax rate (1.691%), while Nashville has the 45th highest (0.822%) – a 33 place differential.

- In Arizona: Phoenix has the 29th highest tax rate (1.197%) and Tucson has the 38th highest tax rate (1.068%), while Mesa has the 44th highest (0.843%) – creating a 15-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 1.304% for taxes paid in 2021, up from 1.278 in 2020. As with large cities, the rates for rural municipalities vary considerably around that average. In two municipalities – Warsaw (NY) and Maurice River Township (NJ) – the effective tax rate on a median-valued home is 2 times the average. In contrast, eight municipalities feature effective tax rates of less than half of the average, with the lowest rates in Kauai (HI), Pocahontas (AR), Monroeville (AL), Georgetown (DE), and Natchitoches (LA).

Comparing Tables 2a and 2g shows that effective tax rates on median-valued homesteads are around 3 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 28 states, the effective tax rate on the median-valued home is higher in the largest city²⁰ than in the rural municipality. Delaware had the biggest difference in 2021; the 0.960% rate in Wilmington is 3.4 times the 0.405% 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 3.2 times the rate of Pocahontas, and Oregon (where Portland is 2.3 times the rate of Tillamook).

On the other hand, in 22 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 4.2 times higher than the rate in Boston (2.149% vs. 0.508%), largely because of Boston’s unique (even within Massachusetts) homestead exemption. The only other state where the tax rate in the rural community is at least 2 times higher than the largest city is New York (where Warsaw is 2.4 times the rate of Buffalo).

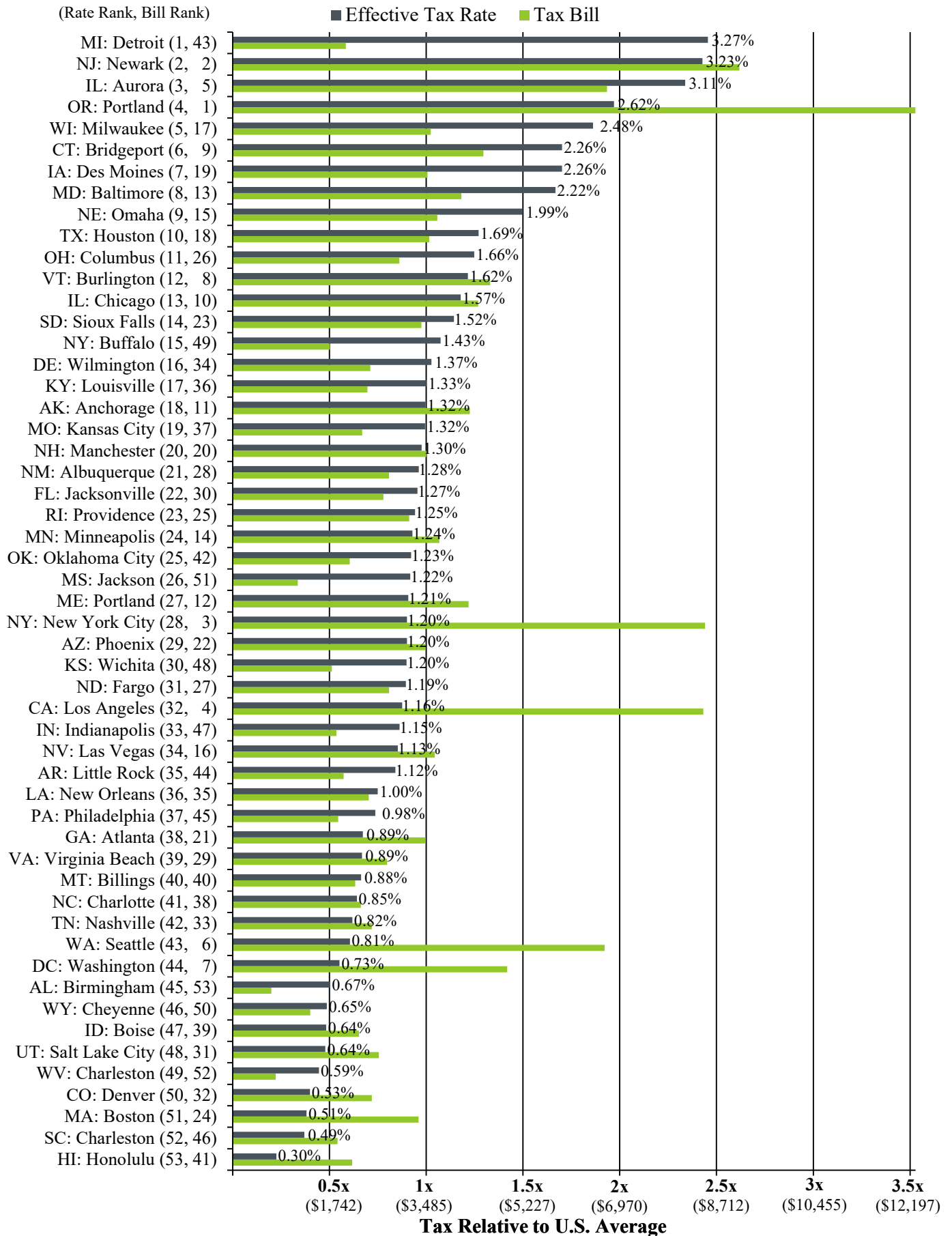
Some readers may want to use findings on effective tax rates from one specific table to reach conclusions on property taxes throughout an entire state. The small differences in tax rates across cities in California and Texas (Appendix Tables 2d-2f) show that the largest city in each state can serve as 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.

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

Readers wishing to determine whether taxes in a state are high, low, or somewhere in between are best served by comparing the rankings for urban and rural municipalities.²¹ For example, in four states (Michigan, Nebraska, New Jersey, and Wisconsin) the effective tax rate on the median-valued home is among the ten highest in both a rural and an urban setting – suggesting that these states are most likely to have the highest homestead property taxes. States where effective tax rates are among the ten lowest in both rural and urban settings are Alabama, Colorado, Hawaii, and West Virginia – suggesting that these states are most likely to have the lowest homestead property taxes.

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

Figure 2: Property Taxes on Median Valued Home for Largest City in Each State (2021)



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 1.863 percent. A property worth \$1 million with \$200,000 in fixtures would thus owe \$22,356 in property taxes ($1.863\% \times \$1.2\text{m}$).

Tax rates vary widely across the 53 cities. Detroit and Chicago both had 2021 effective tax rates that were more than twice the average. Providence is the only other city with a tax rate over 3 percent. On the other hand, Cheyenne (WY), Seattle, Charlotte, and Birmingham (AL) have tax rates less than half of the average.

Only 16 cities had increases in effective tax rate on \$1 million commercial properties in 2021. Increases over 5 percent were Honolulu (9.2%); Louisville (6.6%); Portland, OR (5.8%); and Anchorage (5.7%).²³

One city (Little Rock) had a flat tax rate, and the other 36 cities had decreases led by the northeast: Manchester, NH (34%); Portland, ME (31%); Bridgeport, CT (28%); and Burlington, VT (28%). These were all achieved through mill rate reductions. Birmingham (AL) had a 39 percent decrease, which was entirely due to a decline in the sales ratio from 100 percent to 53 percent.²⁴ Three cities had decreases between 10 and 15 percent: Wilmington (DE), Des Moines

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 Buffalo’s estimated effective tax rate increased significantly between 2020 and 2021 (29 percent), which followed a 38 percent *decrease* between 2019 and 2020. However, the one-year change is misleading because Buffalo’s 2020 citywide reassessment affected the data across the two years (see footnote 17). Looking at the two-year change between 2019 and 2021 is more meaningful, and shows that the effective tax rate on a \$1 million commercial property in Buffalo decreased from 2.18 percent to 1.74 percent.

²⁴ Sales ratios can occasionally cause significant one-year changes in effective tax rates that are not representative of where a city tends to rank over time. It is always best, therefore, to look at multiple years of data whenever there is a major change. In the case of Birmingham commercial sales in 2020, on which the sales ratio for 2021 property taxes are calculated, there may have been multiple factors: a new statewide property reappraisal program was implemented in Alabama; and Birmingham commercial sales came in at much higher value per square foot than the previous three years, running counter to much of the rest of the U.S. in the first year of the global pandemic. We

(IA), and Nashville. Decreases between 5 and 10 percent were led by Minneapolis followed by Boise, Salt Lake City, Chicago, New York City, and Billings (MT).

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

Only 13 of the 53 cities have effective tax rates that vary based on their value. Value-driven differences in effective tax rates make the biggest difference in rankings in Philadelphia. Philadelphia has among the lowest tax rates for commercial properties worth \$100,000 (1.076%, 45th highest), but is above average for commercial properties worth \$25 million (2.000%, 21st highest). The city offers property owners a credit against the first \$2,000 of Business Use and Occupancy Tax (effectively, a property tax imposed only on business properties) assessed against individual properties, and this credit creates this large differential. The credit reduces the tax on a \$100,000-valued property by 46%, but by only 0.3% for a property worth \$25 million.

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

- Washington, DC (37th highest for \$100k, 22nd highest for \$25m)
- Minneapolis (26th highest for \$100k, 13th highest for \$25m)
- Des Moines, IA (16th highest for \$100k, 4th highest for \$25m)

Appendix Table 3b shows effective tax rates on commercial properties for a different set of cities. Whereas Table 3a has the largest city for each state, Table 3b shows the 50 largest cities in the country regardless of their state. There is considerable overlap between the two groups of cities, but some significant differences as well. In Table 3b, California has nine cities, Texas has seven cities, Arizona has three cities, and six states (CO, FL, NC, OK, and TN) have two cities each. There are 22 states without any cities in the top 50 shown in Table 3b. Appendix Table 3b also shows effective tax rates on commercial properties worth \$100,000, \$1 million, and \$25 million (with fixtures worth 20% of the real property value).

In a switch from recent years, the average effective tax rates for commercial properties are slightly higher for the 50 largest cities shown in Table 3b than the cities shown in Table 3a. Of the 36 cities that had an effective tax rate decrease in Table 3a, there were 16 cities that are not on Table 3b, including the top seven cities with the greatest decreases. A majority of the 50 largest cities also had decreases (32 with only 17 cities showing increases), however only one city, Nashville, had a decrease of over 10 percent which was only good for the eighth greatest decrease among cities in Table 3a. In total, the 50 largest cities decreased by 1.3 percent while the group of largest cities in each state decreased by 4.6 percent.

cannot be sure these are the only reasons for the large one-year change, but confirmed the sales ratio data with local experts.

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

- For California's nine cities, the highest tax rate is in Oakland (33rd highest) and the lowest is in Sacramento (46th). California accounts for 8 of the 11 cities ranked from 36th to 46th.
- For Texas's seven cities, the highest tax rate is in San Antonio (3rd highest) and the lowest is in Austin (19th). Texas accounts for four of the seven cities ranked from 13th to 19th.

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

- In Tennessee: Memphis has the 10th highest tax rate, while Nashville has the 40th highest.
- In Arizona: Phoenix has the 17th highest tax rate, while neighboring Mesa has the 27th 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 5 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 1.75% for the rural cities versus 1.85% for the urban cities shown in Appendix Table 3a.²⁵ For 28 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.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 a commercial property worth \$1 million in Georgetown is almost two-thirds lower than the rate in Wilmington (0.44% vs. 1.25%). Yet Wilmington does not rank high – 40th 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 (56% lower), Hawaii (50% lower), Rhode Island (48% lower), Arizona (44% lower), Arkansas (41% lower), and West Virginia (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 New Hampshire, where the tax rate on a commercial property worth \$1 million in Lancaster is nearly twice the rate in Manchester (2.15% vs. 1.08%). Lancaster ranked 16th among rural cities in 2021 and Manchester ranked 45th among urban cities. Other states where the tax rate in the rural municipality is significantly higher than the largest city include: Kansas (92% higher); Maine (74% higher); New York (65% higher), South Carolina (55% higher); and Montana (40% higher).

²⁵ Excluding Washington (DC), Chicago and New York City from the Table 3a average.

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.

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 and Arizona show that caution is needed when extrapolating findings for a single city to an entire state.

Readers wishing to determine whether local property taxes in a state are high, low, or somewhere in between are best served by comparing the rankings for urban and rural municipalities. For example, five states (Connecticut, Indiana, Iowa, Michigan, and New Jersey) 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, two states (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.

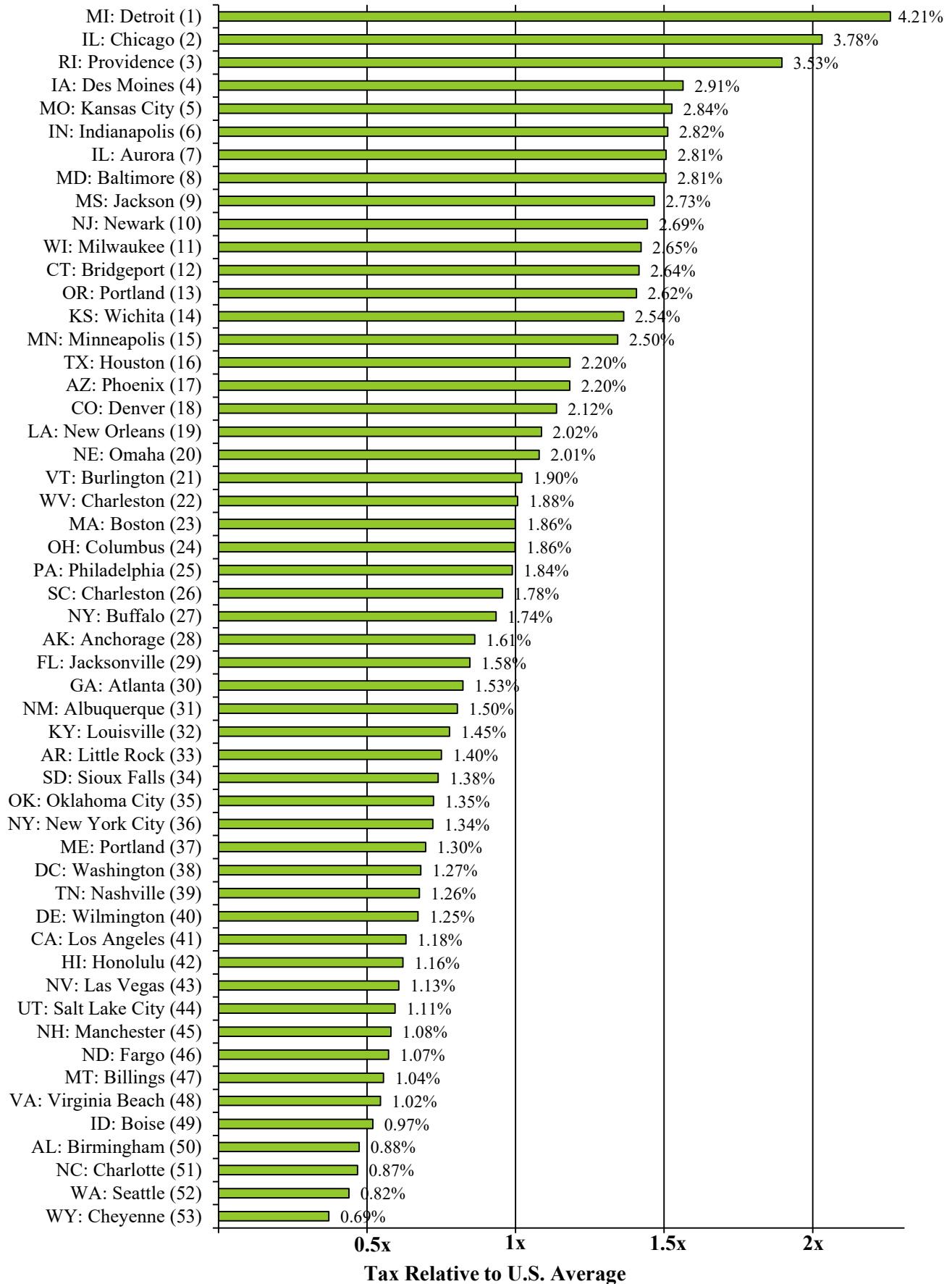
In addition, fixed property values are not problematic from the perspective of a real estate investor looking to invest a certain amount of money—whether it’s a \$1 million condo in New York or a \$1 million apartment complex in Detroit.

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 2021 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 (2021)

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 24).

The average effective tax rate on industrial properties at this value for the 53 cities in Figure 4 is 1.372 percent. A parcel with a real property value of \$1 million that has an additional \$1 million in personal property would thus owe \$27,440 in property taxes ($1.372\% \times \$2\text{m total parcel value}$). For shorthand, this section refers to parcels based on their real property values.

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

Some cities had significant changes in their effective tax rates from 2020 to 2021. The city with the largest increase in its industrial property tax rate was Cheyenne (WY), with a 37% increase, moving up from 53rd to 48th place. Five more cities had increases between 5 and 10 percent: Honolulu, Louisville, Chicago, Portland (OR), and Anchorage.²⁷

As with homestead and commercial property taxes, the largest decreases among urban cities were in the northeast: Manchester (NH); Portland (ME); Bridgeport (CT); and Burlington (VT) all had decreases between 28 and 34%. Four cities followed with decreases between 10 and 20 percent: Wilmington, DE (17%); Nashville (15%); Des Moines, IA (14%); and Billings, MT (10%).

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.

²⁷ Buffalo's estimated effective tax rate increased significantly between 2020 and 2021 (29 percent), which followed a 38 percent *decrease* between 2019 and 2020. However, the one-year change is misleading because Buffalo's 2020 citywide reassessment affected the data across the two years (see footnote 17). Looking at the two-year change between 2019 and 2021 is more meaningful, and shows that the effective tax rate on a \$1 million industrial property in Buffalo decreased from 1.31 percent to 1.04 percent.

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).²⁸

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

²⁸ 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>.

(0.761%, 40th highest), but is substantially above average for industrial properties worth \$25 million (1.841%, 12th highest). The city exempts the first \$225,000 of business personal property, which is effectively a complete personal property exemption for the \$100,000-valued parcel but only exempts 0.9% of the personal property associated with the \$25 million-valued parcel. The exemption reduces the total tax on a \$100,000-valued property by nearly 60% but by less than 1% for a property worth \$25 million.

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

- Philadelphia (48th highest for \$100k, 31st highest for \$25m)
- Phoenix (24th highest for \$100k, 8th highest for \$25m)
- Minneapolis (34th highest for \$100k, 20th highest for \$25m)
- Billings (MT) (50th highest for \$100k, 36th highest for \$25m)
- Des Moines (26th highest for \$100k, 14th highest for \$25m)
- Boise (53rd highest for \$100k, 41st highest for \$25m)

Appendix Table 4c shows effective tax rates on industrial properties for a different set of cities. Whereas Table 4a has the largest city for each state, Table 4c shows the 50 largest cities in the country regardless of their state. There is considerable overlap between the two groups of cities, but some significant differences as well. In Table 4c, California has nine cities, Texas has seven cities, Arizona has three cities, and five states (CO, FL, NC, OK, and TN) have two cities each. There are 22 states without any cities in the top 50 shown in Table 4c. Appendix Table 4c also shows effective tax rates on industrial properties worth \$100,000, \$1 million, and \$25 million (again with personal property equal to 100% of the real property value).

The average effective tax rate for industrial properties is close to 10 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 nine cities, the highest tax rate is in Oakland (35th highest) and the lowest is in Bakersfield (43rd). California accounts for all 9 cities ranking between 35th 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 five of the top six cities.

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

- In Tennessee: Memphis has the 9th highest tax rate (2.367%), while Nashville has the 31st highest (1.151%).
- In Florida: Miami has the 19th highest tax rate (1.519%), while Jacksonville has the 29th highest (1.282%).

- In Arizona: Phoenix has the 14th highest tax rate (1.901%), while neighboring Mesa has the 26th highest (1.394%).

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 8 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 1.261% for the rural cities shown in Appendix Table 4e versus 1.372% for the urban cities shown in Appendix Table 4a. For 27 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.²⁹

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 just above one-third of the rate in Wilmington (0.263% vs. 0.751%). Other states where the tax rate in the rural municipality is significantly lower than the largest city include Oregon (56% lower), Alaska (47% lower), Hawaii (46% lower), Rhode Island (45% lower), Alabama (44% lower), and Arkansas (42% lower).

On the other hand, in 23 states the tax rate is higher in the rural municipality than in the largest city in the state. The biggest difference is in New Hampshire where Lancaster is nearly twice the rate of Manchester (1.29% vs. 0.65%). Other states where the tax rate in the rural municipality is significantly higher than the largest city include: Kansas (94% higher), Maine (74% higher), New York (65% higher), South Carolina (60% higher), and Virginia (49% higher).

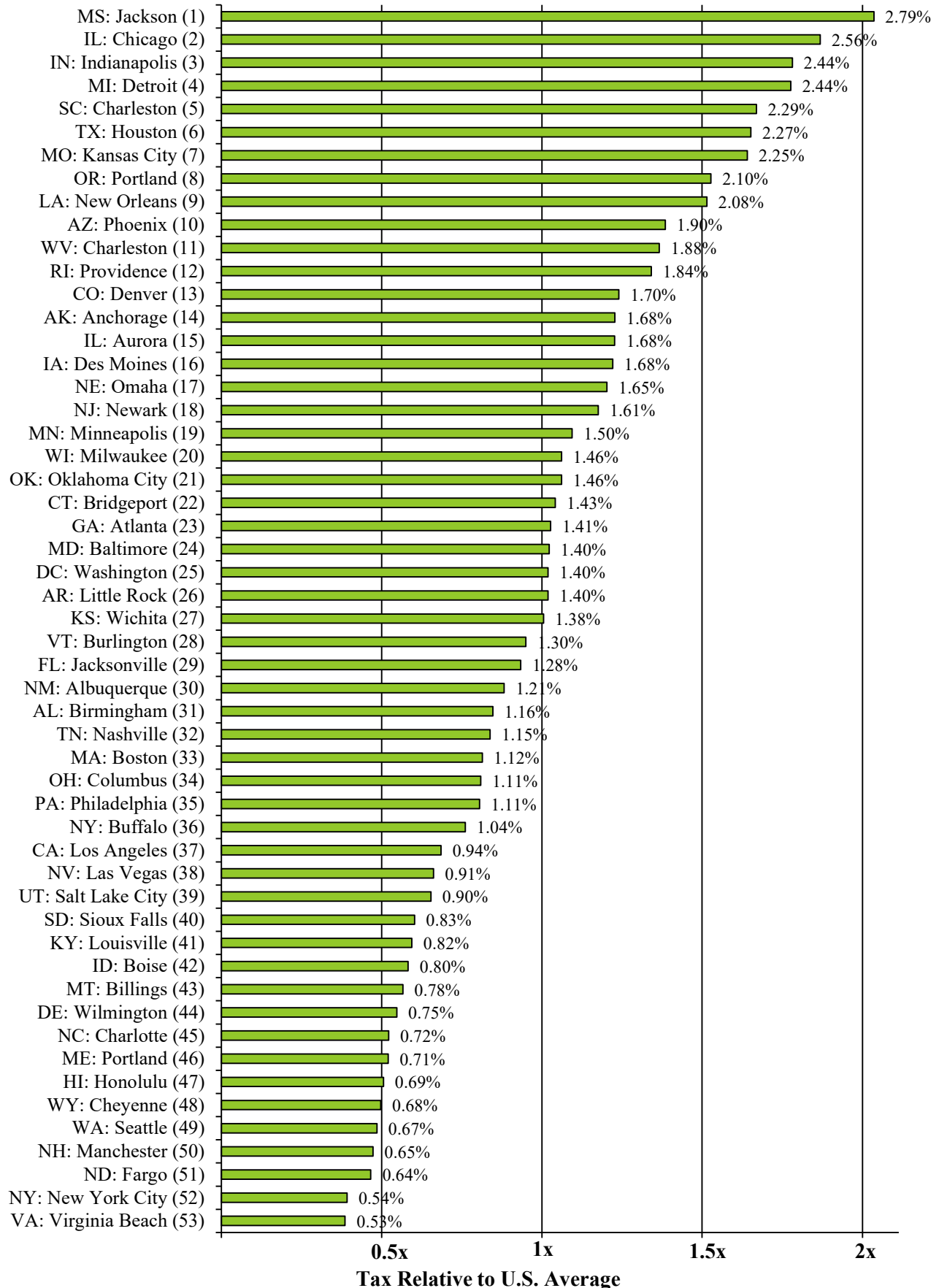
Variation in industrial tax rates across the 50 rural cities is very similar to variation across the largest cities in each state.

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, Florida, and Arizona show that caution is needed when extrapolating findings for a single city to an entire state.

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

²⁹ 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 (2021)
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 24).

The average effective tax rate on apartment properties for the 53 cities in Figure 5 is 1.583 percent. A property worth \$600,000 with \$30,000 in personal property would thus owe \$9,973 in property taxes (1.583% 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 four cities (Newark; Jackson, MS; Des Moines; and Milwaukee) have effective tax rates that are at least 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 (WY), Salt Lake City, Denver, and Washington (DC).

Some cities had significant changes in their effective tax rates from 2020 to 2021. Four cities saw effective tax rates decline over 10 percent, led by Manchester (NH) at 34%, Burlington (VT) at 30%, and Portland (ME) at 29%. Bridgeport (CT) dropped 16%, and nine more cities had decreases between 5 and 10 percent led by Nashville (9%) and Minneapolis (7%).

The most substantial increase was New York City at 45%, leading to a ranking change from 34th to 17th place.³⁰ Detroit had a 15% increase. Four more cities had increases between 5 and 10 percent: Louisville (KY), Des Moines (IA), Portland (OR), and Anchorage (AK).³¹

Appendix Table 5b shows effective tax rates on apartment properties for a different set of cities. Whereas Table 5a has the largest city for each state, Table 5b shows the 50 largest cities in the country regardless of their state. There is considerable overlap between the two groups of cities, but some significant differences as well. In Table 5b, California has nine cities, Texas has seven cities, Arizona has three cities, and five states (CO, FL, NC, OK, and TN) have two cities each. There are 22 states without any cities in the top 50 shown in Table 5b.

The average effective tax rate for apartment properties is 1.5 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:

³⁰ The New York City increase is entirely due to the sales ratio for Class 2 Rentals (20+ units) increasing by more than one-third. The local mill rate remained flat. The number of large apartment sales in 2020 was significantly lower than other recent years and some anomalous sales prices during the COVID-19 pandemic could have had an outsized impact on the sales ratio. We confirmed the sales ratio data with local experts, but will need to wait for future year data to know whether there has been a lasting increase in effective tax rates for apartment buildings in New York City or if it is a one-year jump due to volatility in the estimated sales ratio.

³¹ Buffalo's estimated effective tax rate increased significantly between 2020 and 2021 (29 percent), which followed a 38 percent *decrease* between 2019 and 2020. However, the one-year change is misleading because Buffalo's 2020 citywide reassessment affected the data across the two years (see footnote 17). Looking at the two-year change between 2019 and 2021 is more meaningful, and shows that the effective tax rate on a \$600,000 apartment building in Buffalo decreased from 2.49 percent to 1.99 percent.

- For California's nine cities, the highest tax rate is in Oakland (22nd highest) and the lowest is in Sacramento (41st highest). There is a clustering effect as California accounts for 6 of the 10 cities ranked from 29th to 38th.
- For Texas's seven cities, the highest tax rate is in El Paso (2nd highest) and the lowest is in Austin (13th). Texas accounts for three of the top five cities and five of the top nine.

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

- In Tennessee: Memphis has the 3rd highest tax rate (2.673%), while Nashville has the 27th highest (1.300%).
- In Arizona: Phoenix and Tucson have the 30th and 39th highest rates (1.272% and 1.149%, respectively), while Mesa has the 42nd highest (0.933%).

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 1.5 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 1.559% for the rural cities versus 1.583% for the large cities shown in Appendix Table 5a. For 26 states, the effective tax rate on a \$600,000-valued apartment property is lower in the selected rural municipality than in the state's largest city.³²

The state where the tax rate for the rural municipality is the lowest compared to the rate for the largest city is Delaware, where the tax rate on a \$600,000-valued apartment property in Georgetown is 70% lower than the rate in Wilmington (0.386% vs. 1.300%). Other states where the tax rate in the rural municipality is significantly lower than the largest city include: Oregon (56% lower), Alabama (43% lower), and Arkansas (41% lower).

On the other hand, in 24 states the tax rate is higher in the rural municipality than in the largest city in the state. The biggest difference is in Massachusetts, where the tax rate on an apartment property worth \$600,000 in Adams is taxed at more than twice the rate in Boston (2.047% vs. 0.904%). Other states where the tax rate in the rural municipality is significantly higher than in the largest city include New Hampshire (98%), Kansas (79% higher), Maine (74% higher), Hawaii (72% higher), New York (65% higher), and South Carolina (54% 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

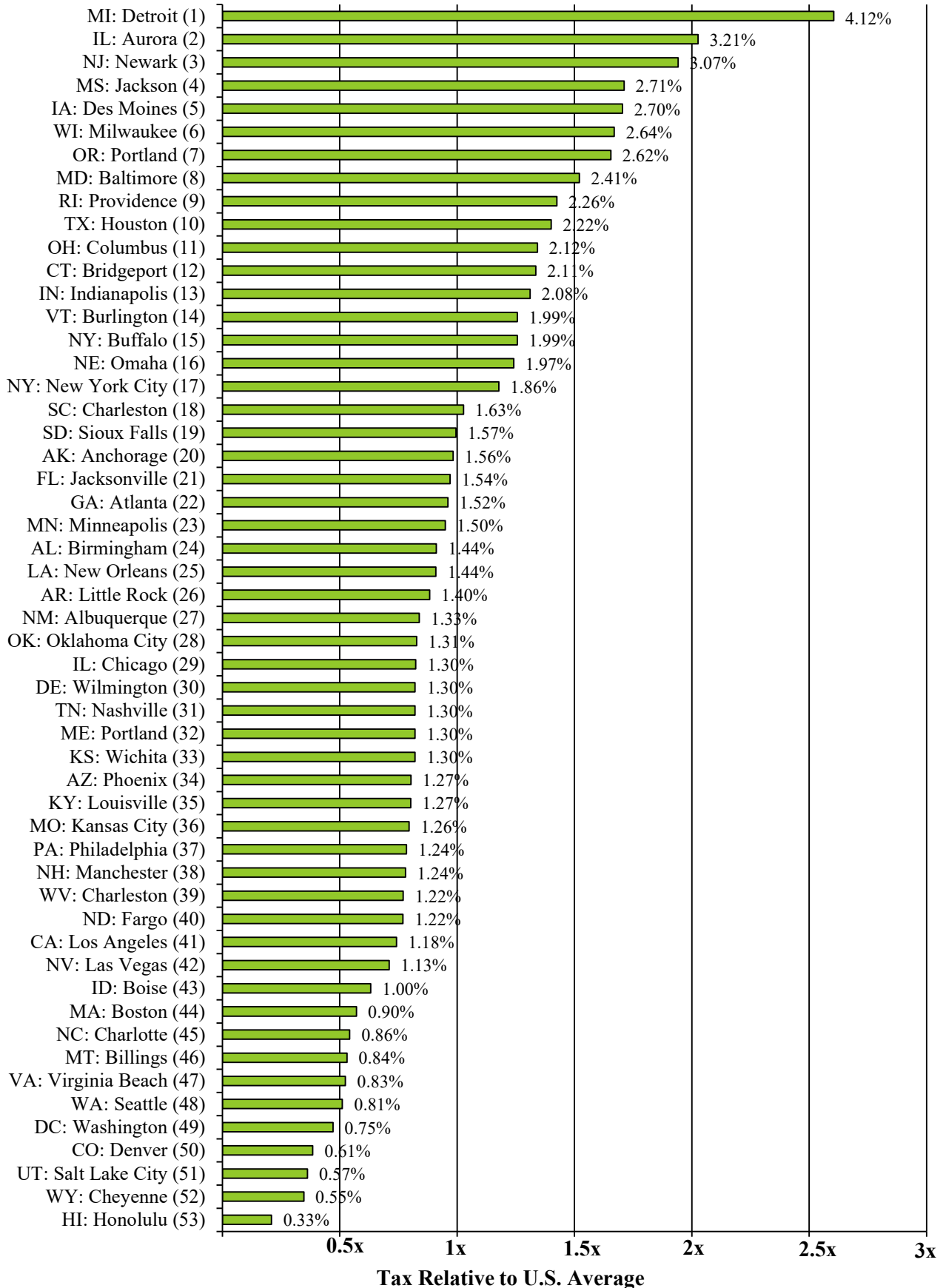
³² Excluding Washington (DC), which has no rural analogue. In Illinois and New York, the differentials are calculated between the rural municipality and the state's second-largest city.

between the largest cities in Tennessee and Arizona show that caution is needed when extrapolating findings for a single city to an entire state.

Readers wishing to determine whether taxes in a state are high, low, or somewhere in between are best served by comparing the rankings for urban and rural municipalities. For example, four states (Iowa, Michigan, New Jersey, and Texas) 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 (2021)

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.³³

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.³⁴

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.

³³ 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).

³⁴ 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.³⁵ 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 1.745, which means that on average commercial properties experience an effective tax rate that is 74.5% higher than homesteads.

The commercial-homestead classification ratio varies widely across the 53 cities. The top two cities of Boston and Honolulu have classification ratios greater than 4.0, and four more cities have classification ratios greater than 3.0 (Denver; Charleston, SC; Charleston, WV; and Chicago). 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 is one city where the classification ratio is slightly below one, meaning the classification system favors commercial properties over homesteads: Las Vegas. The property tax system is not structured to favor commercial properties, but the sales ratio results in a *de facto* classification system since commercial properties are under-assessed relative to homestead properties.

Appendix Table 6a provides additional information about the commercial-homestead classification ratio in each city. Of the 53 cities, 17 have a higher assessment ratio for commercial properties, 14 have a higher nominal tax rate on commercial properties, 27 have exemptions or credits that favor homesteads over commercial properties, and 6 offer homesteads parcel-specific assessment limits not available to commercial properties. Property tax systems often combine these features – in 20 of these cities homeowners benefit from at least two of these four features, and in Albuquerque, Charleston (SC), Chicago, and Minneapolis, homeowners benefit from three of the four. In 11 cities, preferential treatment for homeowners is delivered through exemptions or credits alone, while in 9 cities preferences are delivered exclusively through differences in assessment ratios or nominal tax rates.

On average, tax disparities between commercial and homestead properties decreased by 1.2 percent in 2021: decreasing from 1.766 in 2020 to 1.745 in 2021. The number of cities with more than a 3.0 ratio decreased from seven to six, and those with more than a 2.0 ratio remained at 17 cities.

The classification ratio decreased in 27 cities, with the largest decreases in Boston (0.321), New York City (0.271), and Buffalo (0.204). Birmingham's large decrease (1.030) is the result of significant drop in the sales ratio for commercial property between 2020 and 2021.³⁶

³⁵ See the methodology section for more detail on how these calculations are performed.

³⁶ See footnote 25 for more information about the drop in the commercial sales ratio in Birmingham.

The commercial-homestead classification ratio increased in 16 cities, led by Honolulu (0.529); Jackson, MS (0.395); and Jacksonville, FL (0.157). The classification ratio was unchanged in ten cities.

Figure 6c shows the longer-term picture, with trends in the commercial-homestead classification ratio going back to 1998. In 2021, the ratio decreased from 1.765 in 2020 to 1.745. Locations where residential and commercial properties have “statutory classification”³⁷ and are treated differently in state law remained higher and decreased at a similar rate to the overall average, from 2.001 to 1.979.

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.³⁸ 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 36% 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): Birmingham (AL), Houston, and New York City.

Charleston (SC) and New York City are outliers in the apartment-homestead classification ratio, with effective tax rates on apartments of 3.75 and 3.6 times higher than the median valued home. There are six other cities with classification ratios above or near 2.0: Jacksonville (FL), Indianapolis, Jackson (MS), Birmingham, and Charleston (WV). On the other hand, there are six cities with a classification ratio below 1.0, with the lowest ratios in Cheyenne (WY), Virginia Beach, and Bridgeport (CT). 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 11 offer more than one preference (Charleston, SC is the only city to offer three preferences). Eight cities have preferential assessment ratios and/or nominal tax rates only, while 17 cities offer homestead exemptions or credits alone.

On average, tax disparities between apartments and homesteads increased in 2021, rising from 1.329 in 2020 to 1.362 in 2021. The apartment-homestead classification ratio declined in 22 cities, with the largest drops in Buffalo, NY (-0.204); Boston (-0.086); and Salt Lake City

³⁷ 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.

³⁸ See the methodology section for more detail on how these calculations are performed.

(-0.051). The classification ratio increased in 17 cities, but generally at much higher magnitudes led by New York City (1.044); Jackson, MS (0.395); Jacksonville, FL (0.157); and Des Moines, IA (0.144). As with the commercial-homestead ratios, relative changes in sales ratio often have the biggest impact in year-to-year changes in the apartment-homestead ratios.

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

Figure 6a: Commercial-Homestead Classification Ratio for Largest City in Each State (2021)

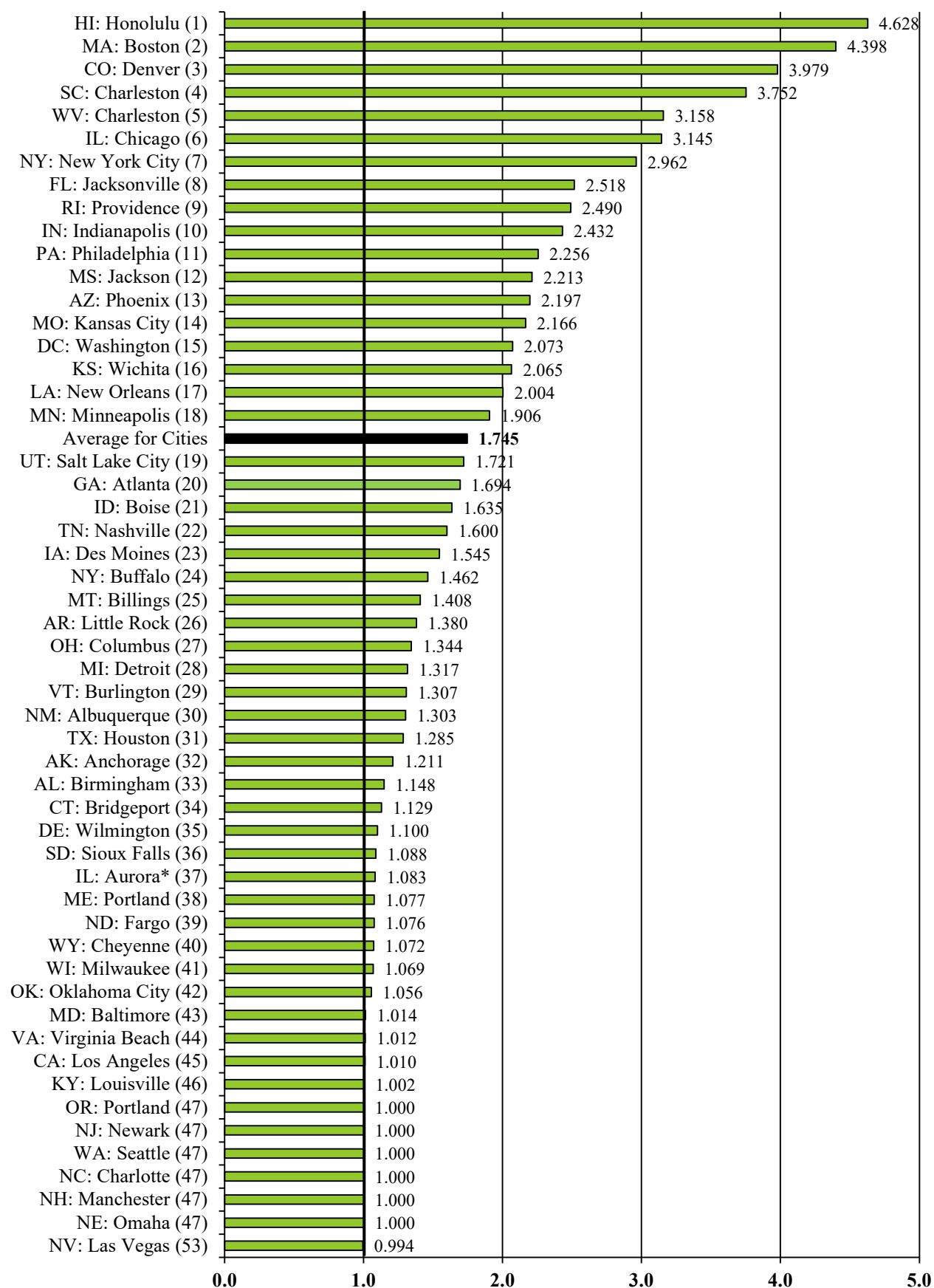


Figure 6b: Apartment-Homestead Classification Ratio for Largest City in Each State (2021)

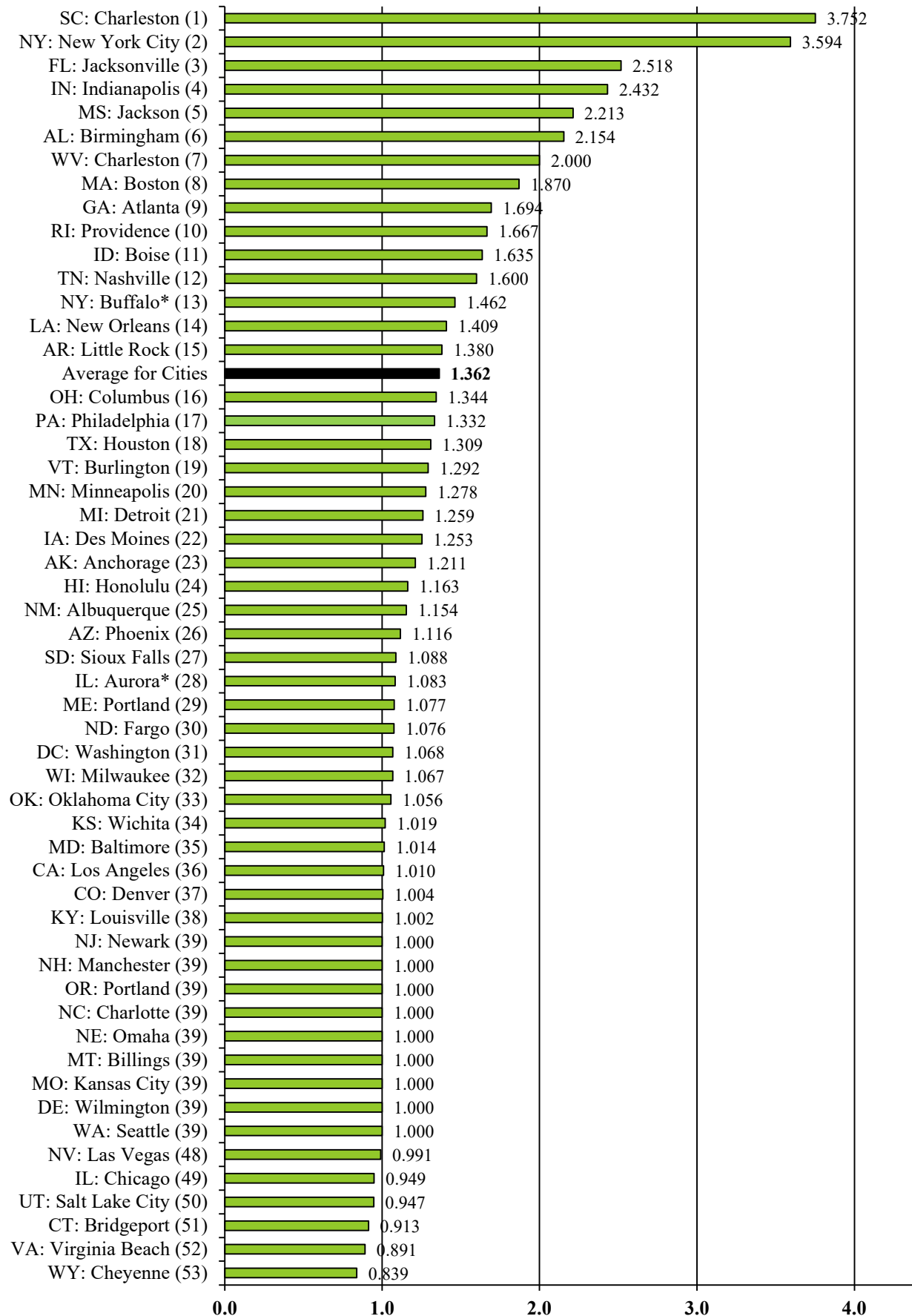
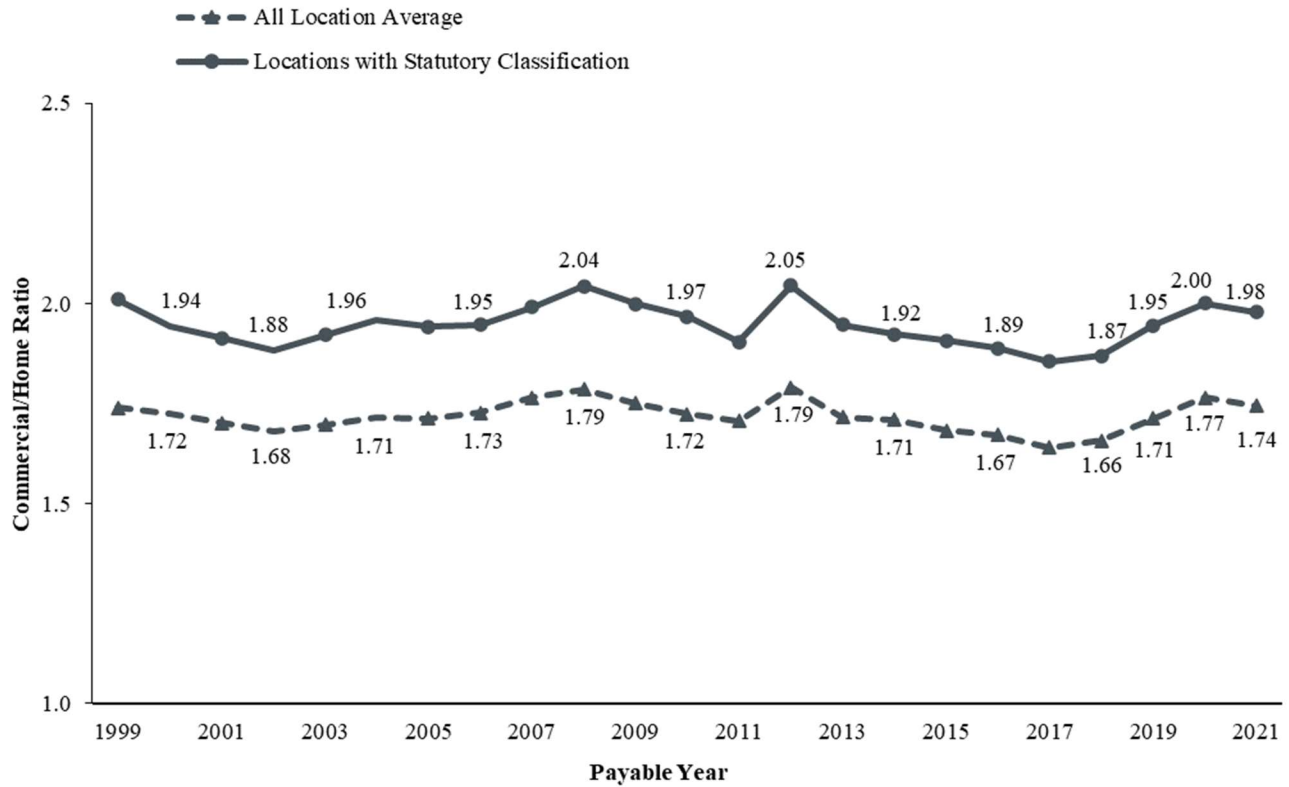


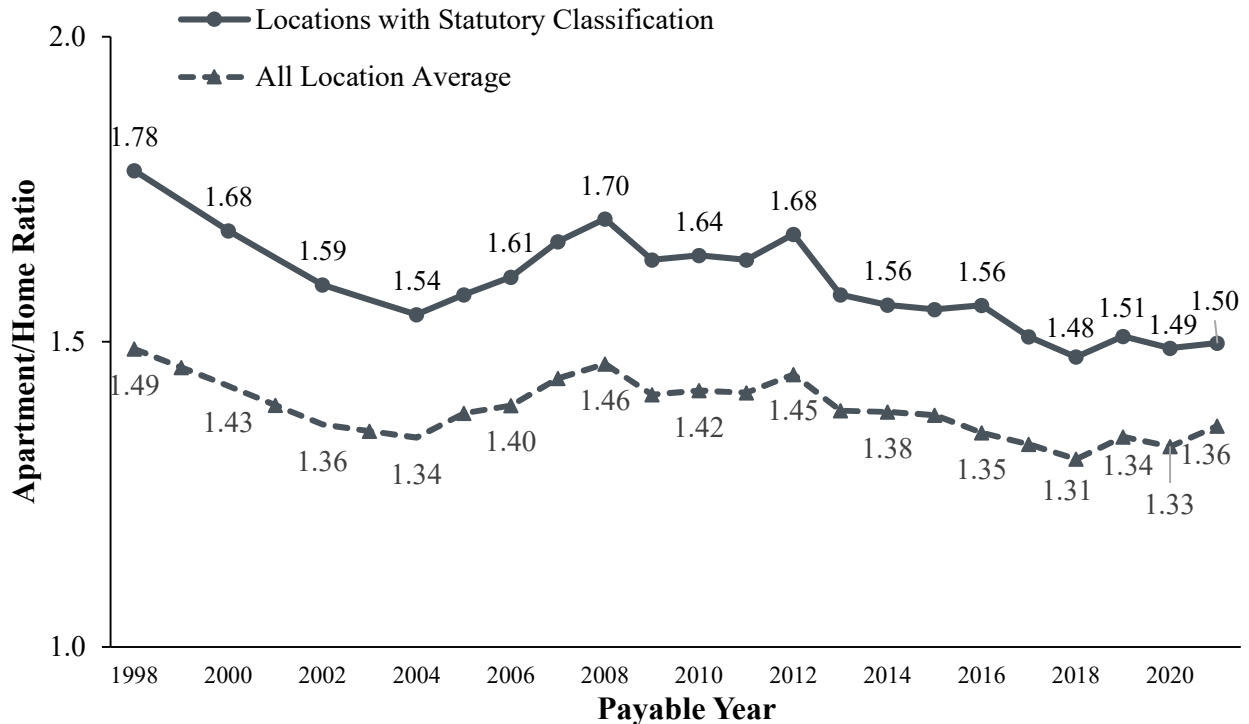
Figure 6c: Commercial-Homestead Classification Ratio for Largest City in Each State (1998 – 2021)



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 – 2021)



Note: 1.0 denotes unclassified property tax system.

Property Tax Assessment Limits

Property tax limitations have become an increasingly important feature of the local government finance landscape since the late 1970s, when rapid property value growth provoked Californians to adopt the now-iconic Proposition 13. Since that time, limitations on property taxes have become increasingly popular, especially during the late 1990s and early 2000s, when property values again appreciated significantly.³⁹

There are many different types of property tax limits, including constraints on tax rates, tax levies, and assessed values.⁴⁰ 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*.⁴¹

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).⁴² One key difference between assessment limits and other types of property tax limits, however, is that tax savings from assessment limits vary widely across individual taxpayers within the same city. Tax savings will be greater than average for homeowners whose home values have grown faster than average for the city and have owned their homes longer than average. States with parcel-specific assessment limits include Arizona, Arkansas, California, Florida, Illinois (Cook County only), Michigan, New Mexico, New York (New York City and Nassau County only), Oklahoma, Oregon, South Carolina, and Texas.

Figure 7 shows the impact of assessment limits for a median valued home in the 30 cities modeled. The impact of assessment limits varies widely across cities. The largest effect is in New York City, which has an assessment limit that has capped growth in assessed values for residential properties since 1981, even when a property is sold. Because most homes in New York were built prior to 1981, the average home in New York City has been subject to assessment limits for 40 years. However, effective tax rates on newly built homes are far higher

³⁹ Paquin, Bethany P. 2015. "Chronicle of the 161-Year History of State-Imposed Property Tax Limitations." Cambridge, MA: Lincoln Institute of Land Policy.

⁴⁰ The Lincoln Institute of Land Policy maintains a comprehensive database of property tax limits on its website: https://www.lincolnst.edu/subcenters/significant-features-property-tax/Report_Tax_Limits.aspx.

⁴¹ Haveman, Mark and Terri A. Sexton. 2008. *Property Tax Assessment Limits: Lessons from Thirty Years of Experience*. Cambridge, MA: Lincoln Institute of Land Policy.

⁴² 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).

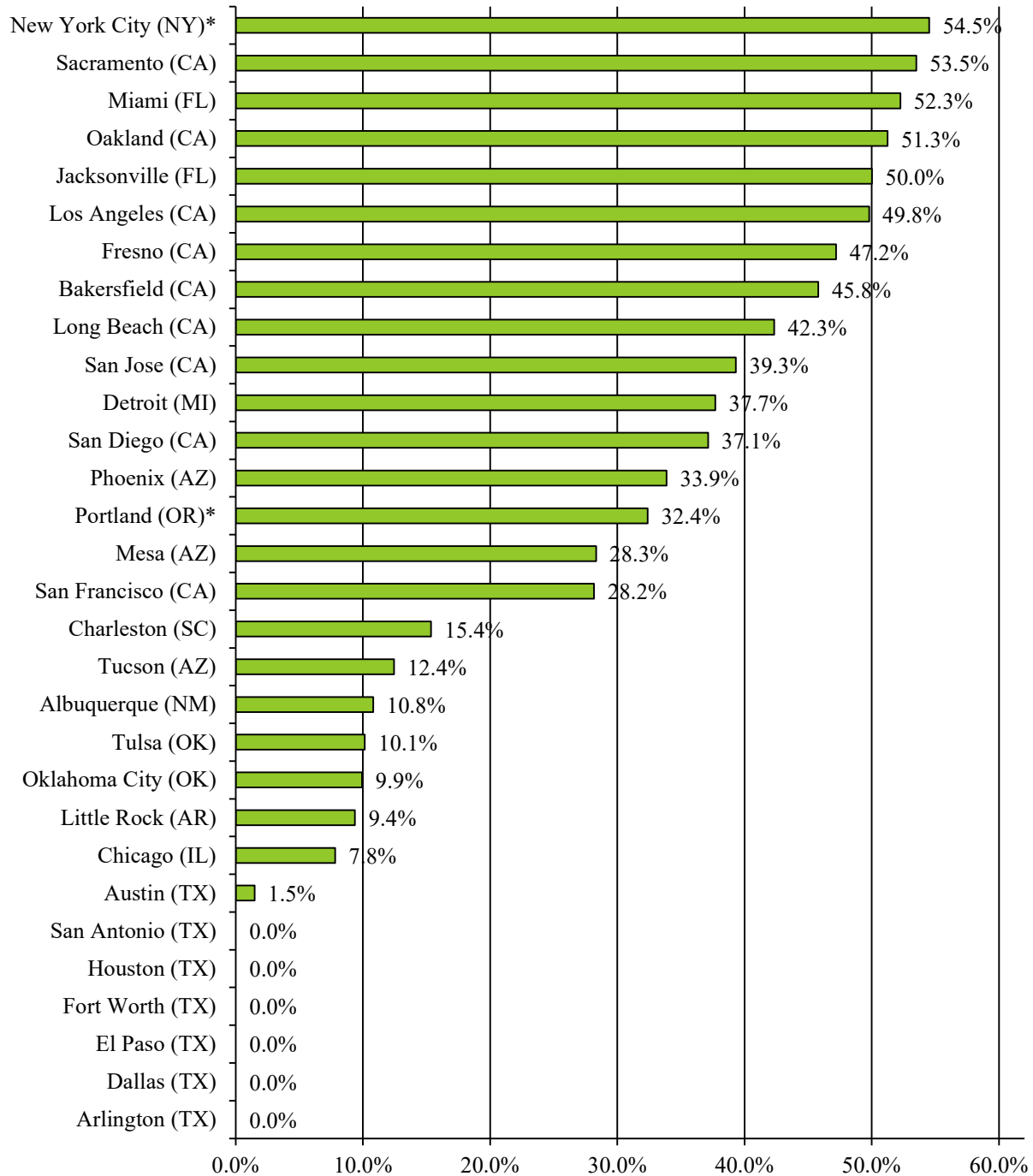
because they do not benefit from the assessment limit. In fact, the owner of a median valued home in New York City (\$709,745) built prior to 1981 would face less than half the effective tax rate than the owner of a newly built median-valued home despite them having identical values. This is also true in four other cities when a homeowner exceeds the average duration of home ownership on a median value home: Sacramento, Miami, Oakland, and Jacksonville (FL). Assessment limits also have large impacts in Los Angeles, Fresno, and Bakersfield where effective tax rates are 45% – 50% lower for homes that have been owned for the average duration compared to newly purchased homes. In contrast, six of seven Texas cities have assessment limits that yielded no impact on taxes for the average homeowner in 2021 because growth in market values was within allowable growth under the assessment limit. Only Austin has a minimal 1.5% reduction.

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 14 cities, the difference in tax bills is at least \$1,000 – with differences reaching as high as \$5,888 in Oakland.

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 (32nd to 48th); Jacksonville, FL (22nd to 46th); Phoenix (29th to 40th); Detroit (1st to 7th); and Portland, OR (4th to 9th).

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 46 on page 51 for details on the methodology for these two cities)

Methodology

This study updates the *50-State Property Tax Comparison Study: Payable Year 2020*. It examines four distinct classes of property using a standard set of assumptions about their “true” market values and the split between real and personal property. The report calculates property taxes for parcels with a range of property values in three sets of cities:

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

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

A. Components of the Property Tax Calculation

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

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

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

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

Component 1: True Market Value (TMV)

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

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

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

Component 2: Sales Ratios (SR)

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

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

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

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

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

Component 3: Exemptions (E)

Many states provide exemptions that reduce the amount of property value subject to taxation. In some cases, these exemptions are provided on a blanket basis across a state; in other cases, the exemptions are 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”⁴³ 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 would typically come from the one-year or five-year data in the Census Bureau's *American Community Survey* for 2020, however, due to the global pandemic, the ACS was only able to provide experimental data for 2020, which was statewide – not city specific. Therefore, we took the percentage change in statewide median value from 2019

⁴³ 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.

to 2020 and applied that percentage to the 2019 values for cities to establish a 2020 median value. We intend this comparison to show how differences in local real estate markets affect residential property taxes.

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-valued⁴⁴, medium-valued, and high-valued parcel.

⁴⁴ Note that the study no longer includes the \$70,000 “low-valued” home.

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.

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*.⁴⁵ 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				Total
	Real	Mach. & Equip.	Inventories	Fixtures	
Homestead	\$150,000	\$0	\$0	\$0	\$150,000
	\$300,000	\$0	\$0	\$0	\$300,000
Apartments	\$600,000	\$0	\$0	\$30,000	\$630,000
Commercial	\$100,000	\$0	\$0	\$20,000	\$120,000
	\$1,000,000	\$0	\$0	\$200,000	\$1,200,000
	\$25,000,000	\$0	\$0	\$5,000,000	\$30,000,000
Industrial (50% Personal)	\$100,000	\$50,000	\$40,000	\$10,000	\$200,000
	\$1,000,000	\$500,000	\$400,000	\$100,000	\$2,000,000
	\$25,000,000	\$12,500,000	\$10,000,000	\$2,500,000	\$50,000,000
Industrial (60% Personal)	\$100,000	\$75,000	\$60,000	\$15,000	\$250,000
	\$1,000,000	\$750,000	\$600,000	\$150,000	\$2,500,000
	\$25,000,000	\$18,750,000	\$15,000,000	\$3,750,000	\$62,500,000

⁴⁵ *Tax Incidence Studies* are available on the website of the Minnesota Department of Revenue: <https://www.revenue.state.mn.us/tax-incidence-studies>.

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.

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.⁴⁶ 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.

⁴⁶ 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

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.⁴⁷

E. Classification Ratios

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

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

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

implemented. The analysis compares a newly-built and older home with identical market values (the median valued home is \$709,745 in New York City and \$468,929 in Portland).

⁴⁷ Twait, Aaron. 2012. “Property Assessment Limits: Effects on Homestead Property Tax Burdens and National Property Tax Rankings.” Cambridge, MA: Lincoln Institute of Land Policy. April.

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

State	City	Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio		
		Rank (1-74)	Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Commercial Rank (1-74)	Apartments Rank (1-74)	Impact on Tax Rate
Alabama	Birmingham**	57	0.67	71	-0.46	72	0.79	39	-0.04	18	7	-0.35
Alaska	Anchorage	25	1.32	6	0.70	23	-0.17	49	-0.09	38	26	0.10
Arizona	Mesa	65	0.60	47	-0.16	33	-0.06	63	-0.18	14	30	-0.10
Arizona	Phoenix	52	0.79	37	-0.06	29	-0.08	57	-0.15	17	35	-0.07
Arizona	Tucson	42	0.94	28	0.08	53	0.29	66	-0.21	20	34	-0.05
Arkansas	Little Rock	39	1.01	69	-0.43	60	0.33	58	-0.15	32	17	0.02
California	Bakersfield	64	0.63	38	-0.07	35	-0.04	30	0.00	55	44	0.18
California	Fresno	59	0.65	39	-0.07	30	-0.08	25	0.06	56	45	0.18
California	Long Beach	56	0.68	59	-0.32	11	-0.76	5	0.35	60	50	0.19
California	Los Angeles	67	0.58	49	-0.17	5	-0.86	8	0.27	62	52	0.19
California	Oakland	58	0.66	58	-0.31	3	-0.99	4	0.45	63	53	0.19
California	Sacramento	70	0.51	63	-0.38	16	-0.35	17	0.12	57	48	0.19
California	San Diego	49	0.83	31	0.04	8	-0.82	29	0.02	61	51	0.19
California	San Francisco	48	0.84	53	-0.22	1	-1.34	2	1.03	65	55	0.19
California	San Jose	54	0.77	40	-0.08	2	-1.17	12	0.15	64	54	0.19
Colorado	Colorado Springs	72	0.47	51	-0.19	22	-0.21	43	-0.06	3	58	-0.40
Colorado	Denver	69	0.53	67	-0.41	12	-0.50	9	0.24	4	56	-0.39
Connecticut	Bridgeport	8	2.26	1	1.15	51	0.23	50	-0.10	42	72	0.19

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 71st highest property tax reliance (4th lowest), which is predicted to decrease the city's tax rate on a median valued home by 0.46 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 0.46 percentage points higher, which at 1.13% would be 37th highest. Birmingham also has the 72nd highest median home value (3rd lowest), which is expected to increase their tax rate by 0.79 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 (39th highest), which is expected to decrease the city's tax rate by 0.04 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 18th highest for commercial properties and 7th highest for apartments. The city's classification ratios are predicted to decrease the property tax rate on a median valued home by 0.35 percentage points compared to a city with the average classification ratio.**

**This analysis uses the 2020 commercial-homestead classification ratio for Birmingham (2.18), because the steep drop in the commercial sales ratio in Birmingham between 2020 and 2021 appears to be a one-year anomaly driven by the COVID-19 pandemic that would not be expected to impact homestead property tax rates (See footnote 24 on page 20).

State	City	Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio		
		Rank (1-74)	Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Commercial Rank (1-74)	Apartments Rank (1-74)	Impact
DC	Washington	55	0.73	62	-0.36	9	-0.80	1	1.40	21	40	-0.03
Delaware	Wilmington	23	1.37	32	0.02	58	0.32	22	0.08	43	58	0.18
Florida	Jacksonville	63	0.63	26	0.10	49	0.18	47	-0.09	9	3	-0.51
Florida	Miami	53	0.78	30	0.05	19	-0.32	34	-0.01	13	5	-0.45
Georgia	Atlanta	44	0.90	35	-0.02	17	-0.33	16	0.12	25	10	-0.13
Hawaii	Honolulu*	74	0.30	15	0.31	6	-0.85	74	-0.28	1	29	-0.56
Idaho	Boise	61	0.64	10	0.37	20	-0.25	73	-0.26	26	12	-0.10
Illinois	Aurora	2	3.11	4	0.81	47	0.16	64	-0.19	45	37	0.16
Illinois	Chicago	21	1.44	36	-0.05	34	-0.06	14	0.14	7	70	-0.21
Indiana	Indianapolis	35	1.15	64	-0.38	63	0.41	33	-0.01	12	4	-0.47
Iowa	Des Moines	9	2.26	16	0.30	65	0.45	36	-0.03	29	25	0.02
Kansas	Wichita	33	1.20	27	0.09	66	0.48	67	-0.21	22	46	-0.02
Kentucky	Louisville	24	1.33	48	-0.16	57	0.31	60	-0.16	66	57	0.19
Louisiana	New Orleans	40	1.00	54	-0.23	41	0.06	53	-0.10	23	16	-0.11
Maine	Portland	32	1.21	8	0.52	21	-0.25	38	-0.03	46	38	0.16
Maryland	Baltimore	10	2.22	43	-0.12	54	0.30	15	0.12	58	49	0.19
Massachusetts	Boston	71	0.51	3	0.84	10	-0.78	41	-0.04	2	9	-0.70
Michigan	Detroit	12	2.03	66	-0.39	74	1.22	51	-0.10	34	24	0.06
Minnesota	Minneapolis	29	1.24	34	0.00	27	-0.12	21	0.08	11	22	-0.16
Mississippi	Jackson	31	1.22	7	0.68	73	0.86	69	-0.23	16	6	-0.37
Missouri	Kansas City	26	1.32	68	-0.43	61	0.34	42	-0.04	19	58	-0.03
Montana	Billings	46	0.88	19	0.21	39	0.04	71	-0.24	31	58	0.12
Nebraska	Omaha	13	1.99	29	0.07	55	0.30	44	-0.06	67	58	0.19
Nevada	Las Vegas	37	1.13	57	-0.30	24	-0.17	37	-0.03	74	69	0.20
New Hampshire	Manchester	27	1.30	12	0.36	37	-0.02	65	-0.19	67	58	0.19
New Jersey	Newark*	1	3.23	2	1.09	32	-0.06	55	-0.11	67	58	0.19
New Mexico	Albuquerque	36	1.14	50	-0.18	46	0.15	70	-0.23	36	31	0.09
New York	Buffalo	22	1.43	72	-0.47	71	0.65	20	0.10	30	15	-0.02
New York	New York City	68	0.54	44	-0.12	7	-0.84	3	0.63	8	2	-0.89

*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, 2019 Census of Government Finances).

		Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio		
State	City	Rank (1-74)	Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Commercial Rank (1-74)	Apartments Rank (1-74)	Impact
North Carolina	Charlotte	47	0.85	70	-0.45	36	-0.02	11	0.17	67	58	0.19
North Carolina	Raleigh	43	0.93	20	0.18	28	-0.10	59	-0.15	67	58	0.19
North Dakota	Fargo	34	1.19	42	-0.11	42	0.09	52	-0.10	47	39	0.16
Ohio	Columbus	18	1.66	45	-0.14	59	0.32	32	-0.01	33	18	0.03
Oklahoma	Oklahoma City	38	1.10	55	-0.24	62	0.36	72	-0.24	51	43	0.17
Oklahoma	Tulsa	30	1.23	52	-0.19	64	0.43	62	-0.16	50	42	0.17
Oregon	Portland	15	1.77	22	0.17	13	-0.49	27	0.04	67	58	0.19
Pennsylvania	Philadelphia	41	0.98	73	-0.55	52	0.26	13	0.14	15	19	-0.14
Rhode Island	Providence	28	1.25	5	0.74	38	0.03	54	-0.11	10	11	-0.28
South Carolina	Charleston	73	0.42	33	0.00	18	-0.32	28	0.02	5	1	-1.09
South Dakota	Sioux Falls	20	1.52	23	0.16	45	0.14	68	-0.23	44	36	0.15
Tennessee	Memphis	16	1.69	41	-0.10	70	0.65	24	0.06	28	14	-0.08
Tennessee	Nashville	50	0.82	46	-0.15	26	-0.12	19	0.11	27	13	-0.08
Texas	Arlington	7	2.28	14	0.33	43	0.12	61	-0.16	52	33	0.15
Texas	Austin	14	1.79	9	0.45	15	-0.37	23	0.07	40	27	0.12
Texas	Dallas	11	2.12	24	0.15	40	0.05	35	-0.02	41	23	0.10
Texas	El Paso	3	2.60	25	0.11	68	0.52	40	-0.04	39	28	0.12
Texas	Fort Worth	6	2.31	13	0.34	44	0.14	48	-0.09	53	32	0.15
Texas	Houston	17	1.69	11	0.36	50	0.19	46	-0.09	37	20	0.06
Texas	San Antonio	4	2.54	18	0.22	56	0.31	26	0.04	54	47	0.18
Utah	Salt Lake City	62	0.64	56	-0.29	14	-0.38	6	0.28	24	71	0.07
Vermont	Burlington	19	1.62	65	-0.39	31	-0.07	18	0.11	35	21	0.06
Virginia	Virginia Beach	45	0.89	17	0.22	25	-0.15	56	-0.14	59	73	0.22
Washington	Seattle	51	0.81	61	-0.35	4	-0.98	7	0.27	67	58	0.19
West Virginia	Charleston	66	0.59	60	-0.33	69	0.60	31	-0.01	6	8	-0.50
Wisconsin	Milwaukee	5	2.48	21	0.18	67	0.51	45	-0.08	49	41	0.16
Wyoming	Cheyenne	60	0.65	74	-0.67	48	0.17	10	0.19	48	74	0.22

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

State	City	Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio*	
		Rank (1-74)	Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate
Alabama	Birmingham	71	0.88	71	-0.45	72	0.94	39	-0.05	40	-0.18
Alaska	Anchorage	39	1.61	6	0.69	23	-0.21	49	-0.14	37	-0.16
Arizona	Mesa	38	1.61	47	-0.16	33	-0.07	63	-0.26	14	0.27
Arizona	Phoenix	23	2.20	37	-0.06	29	-0.10	57	-0.22	17	0.24
Arizona	Tucson	31	1.87	28	0.08	53	0.34	66	-0.31	19	0.19
Arkansas	Little Rock	45	1.40	69	-0.43	60	0.39	58	-0.23	31	-0.09
California	Bakersfield	57	1.20	38	-0.07	35	-0.05	30	0.01	55	-0.23
California	Fresno	54	1.26	39	-0.07	30	-0.09	25	0.09	56	-0.23
California	Long Beach	58	1.19	59	-0.31	11	-0.91	5	0.52	60	-0.24
California	Los Angeles	60	1.18	49	-0.17	5	-1.03	8	0.40	62	-0.24
California	Oakland	47	1.37	58	-0.31	3	-1.18	4	0.67	63	-0.24
California	Sacramento	63	1.12	63	-0.38	16	-0.42	17	0.17	57	-0.24
California	San Diego	50	1.33	31	0.04	8	-0.98	29	0.03	61	-0.24
California	San Francisco	59	1.18	53	-0.22	1	-1.60	2	1.53	65	-0.24
California	San Jose	52	1.27	40	-0.08	2	-1.40	12	0.23	64	-0.24
Colorado	Colorado Springs	28	1.92	51	-0.19	22	-0.25	43	-0.09	3	0.98
Colorado	Denver	24	2.12	67	-0.41	12	-0.59	9	0.36	4	0.95
Connecticut	Bridgeport	14	2.64	1	1.14	51	0.28	50	-0.14	42	-0.19
DC	Washington	53	1.27	62	-0.36	9	-0.95	1	2.08	20	0.19
Delaware	Wilmington	56	1.25	32	0.02	58	0.38	22	0.12	43	-0.20

*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 71st highest property tax reliance (4th lowest), which is predicted to decrease the city's commercial property tax rate by 0.45 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 0.45 percentage points higher. Birmingham also has the 72nd highest median home value (3rd lowest), which is expected to increase their tax rate by 0.94 percentage points relative to a scenario where the city had the average home value for all cities in this analysis. Local government spending per capita is slightly below average in Birmingham (39th highest), and thus is expected to decrease the city's tax rate by 0.05 percentage points relative to a city with average spending. Finally, Birmingham had the 40th highest commercial-homestead classification ratio in 2021 (See note for Appendix Table 1a), which is predicted to decrease the commercial property tax rate by 0.18 percentage points compared to a city with the average classification ratio.

State	City	Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio*	
		Rank (1-74)	Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate
Florida	Jacksonville	40	1.58	26	0.10	49	0.21	47	-0.13	9	0.37
Florida	Miami	34	1.85	30	0.05	19	-0.38	34	-0.02	13	0.31
Georgia	Atlanta	41	1.53	35	-0.02	17	-0.40	16	0.18	24	0.03
Hawaii	Honolulu**	61	1.16	15	0.30	6	-1.02	74	-0.42	1	1.21
Idaho	Boise	69	0.97	10	0.37	20	-0.30	73	-0.38	25	0.01
Illinois	Aurora	8	2.81	4	0.80	47	0.20	64	-0.28	45	-0.21
Illinois	Chicago	2	3.78	36	-0.05	34	-0.07	14	0.20	7	0.62
Indiana	Indianapolis	7	2.82	64	-0.38	63	0.49	33	-0.02	12	0.33
Iowa	Des Moines	5	2.91	16	0.30	65	0.54	36	-0.04	28	-0.02
Kansas	Wichita	17	2.54	27	0.09	66	0.57	67	-0.31	21	0.18
Kentucky	Louisville	43	1.45	48	-0.16	57	0.37	60	-0.23	66	-0.24
Louisiana	New Orleans	26	2.02	54	-0.22	41	0.07	53	-0.15	22	0.16
Maine	Portland	51	1.30	8	0.52	21	-0.30	38	-0.05	46	-0.21
Maryland	Baltimore	9	2.81	43	-0.12	54	0.35	15	0.18	58	-0.24
Massachusetts	Boston	32	1.86	3	0.83	10	-0.93	41	-0.06	2	1.12
Michigan	Detroit	1	4.21	66	-0.39	74	1.46	51	-0.14	33	-0.12
Minnesota	Minneapolis	18	2.50	34	0.00	27	-0.14	21	0.12	11	0.33
Mississippi	Jackson	10	2.73	7	0.68	73	1.02	69	-0.34	16	0.24
Missouri	Kansas City	6	2.84	68	-0.43	61	0.41	42	-0.06	18	0.22
Montana	Billings	67	1.04	19	0.21	39	0.05	71	-0.35	30	-0.08
Nebraska	Omaha	27	2.01	29	0.07	55	0.36	44	-0.09	67	-0.24
Nevada	Las Vegas	62	1.13	57	-0.30	24	-0.20	37	-0.05	74	-0.25
New Hampshire	Manchester	65	1.08	12	0.36	37	-0.02	65	-0.29	67	-0.24
New Jersey	Newark**	11	2.69	2	1.08	32	-0.07	55	-0.16	67	-0.24
New Mexico	Albuquerque	42	1.50	50	-0.18	46	0.18	70	-0.35	35	-0.12
New York	Buffalo	37	1.74	72	-0.46	71	0.78	20	0.14	29	-0.06
New York	New York City	49	1.34	44	-0.12	7	-1.01	3	0.94	8	0.54
North Carolina	Charlotte	72	0.87	70	-0.44	36	-0.03	11	0.25	67	-0.24
North Carolina	Raleigh	70	0.94	20	0.18	28	-0.11	59	-0.23	67	-0.24
North Dakota	Fargo	66	1.07	42	-0.10	42	0.11	52	-0.15	47	-0.21

*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, 2019 Census of Government Finances).

State	City	Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio*	
		Rank (1-74)	Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate	Rank (1-74)	Impact on Tax Rate
Ohio	Columbus	33	1.86	45	-0.14	59	0.38	32	-0.01	32	-0.11
Oklahoma	Oklahoma City	48	1.35	55	-0.24	62	0.43	72	-0.35	51	-0.22
Oklahoma	Tulsa	44	1.43	52	-0.19	64	0.51	62	-0.24	50	-0.22
Oregon	Portland	15	2.62	22	0.17	13	-0.59	27	0.06	67	-0.24
Pennsylvania	Philadelphia	35	1.84	73	-0.54	52	0.31	13	0.20	15	0.26
Rhode Island	Providence	3	3.53	5	0.74	38	0.04	54	-0.16	10	0.35
South Carolina	Charleston	36	1.78	33	0.00	18	-0.38	28	0.03	5	0.86
South Dakota	Sioux Falls	46	1.38	23	0.15	45	0.16	68	-0.34	44	-0.21
Tennessee	Memphis	16	2.59	41	-0.10	70	0.77	24	0.09	27	0.00
Tennessee	Nashville	55	1.26	46	-0.15	26	-0.15	19	0.16	26	0.00
Texas	Arlington	21	2.42	14	0.32	43	0.14	61	-0.24	52	-0.23
Texas	Austin	25	2.08	9	0.44	15	-0.44	23	0.10	39	-0.18
Texas	Dallas	19	2.47	24	0.15	40	0.06	35	-0.03	41	-0.19
Texas	El Paso	4	3.02	25	0.11	68	0.62	40	-0.06	38	-0.18
Texas	Fort Worth	20	2.45	13	0.34	44	0.16	48	-0.13	53	-0.23
Texas	Houston	22	2.20	11	0.36	50	0.23	46	-0.13	36	-0.13
Texas	San Antonio	12	2.65	18	0.22	56	0.37	26	0.06	54	-0.23
Utah	Salt Lake City	64	1.11	56	-0.29	14	-0.46	6	0.42	23	0.05
Vermont	Burlington	29	1.90	65	-0.39	31	-0.09	18	0.16	34	-0.12
Virginia	Virginia Beach	68	1.02	17	0.22	25	-0.18	56	-0.20	59	-0.24
Washington	Seattle	73	0.82	61	-0.34	4	-1.17	7	0.41	67	-0.24
West Virginia	Charleston	30	1.88	60	-0.33	69	0.71	31	-0.01	6	0.62
Wisconsin	Milwaukee	12	2.65	21	0.18	67	0.61	45	-0.12	49	-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	1.237	0.623	Effective tax rate on median valued home, with assessment limits Source: <i>50-State Property Tax Comparison Study</i> (Appendix Tables 2b, 2e)
Median Home Value	-0.718*** -0.0645	-0.849*** -0.106	312,798	220,388	Median home value in city Source: 2019 and 2020 American Community Survey (U.S. Census Bureau)
Business Classification Ratio	-0.382*** -0.0865	-0.195*** -0.0375	1.592	0.825	Commercial-homestead classification ratio, with taxes on personal property excluded for commercial properties Source: <i>50-State Property Tax Comparison Study</i>
Apartments Classification Ratio	-0.340** -0.151	-0.271** -0.12	1.282	0.488	Apartment-homestead classification ratio, with taxes on personal property excluded for apartments Source: <i>50-State Property Tax Comparison Study</i>
Property Tax Reliance	0.811*** -0.118	0.0264*** -0.00424	40.1	13.9	Property taxes as a percent of own source revenue for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2019).
Local Gov't Spending Per Capita (1000s)	0.584*** -0.137	0.0863*** -0.0228	6.645	2.292	Direct expenditures per capita for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2019).
State and Federal Aid as % Local Gov't Budget	-0.193 -0.122	-0.00911* -0.00457	33.2	11.6	Intergovernmental revenue as a percent of general revenue for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2019).
Local as % State-Local Spending	0.168 -0.25	0.0154** -0.00646	49.4	7.3	Local government direct expenditures as a percent of state and local direct expenditures (State-level variable) Source: 2019 Survey of State and Local Gov't Finances (U.S. Census Bureau)
Constant	0.238 -1.046	10.41*** -1.169			
N	70	70			
R-sq	0.692	0.66			
adj. R-sq	0.657	0.622			
F	40.8	19.77			

* 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. This analysis uses the 2020 commercial-homestead classification ratio for Birmingham (See note for Appendix Table 1a).

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	1.850	0.762	Effective tax rate on \$1-Million Commercial Property Source: <i>50-State Property Tax Comparison Study</i> (Appendix Tables 3a, 3b)
Median Home Value	-0.513*** -0.0834	-1.015*** -0.2	312,798	220,388	Median home value in city Source: 2019 and 2020 American Community Survey (U.S. Census Bureau)
Business Classification Ratio	0.480*** -0.0856	0.401*** -0.107	1.592	0.825	Commercial-homestead classification ratio, with taxes on personal property excluded for commercial properties Source: <i>50-State Property Tax Comparison Study</i>
Apartments Classification Ratio	-0.271* -0.151	-0.303* -0.17	1.282	0.488	Apartment-homestead classification ratio, with taxes on personal property excluded for apartments Source: <i>50-State Property Tax Comparison Study</i>
Property Tax Reliance	0.692*** -0.119	0.0262*** -0.00509	40.1	13.9	Property taxes as a percent of own source revenue for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2019).
Local Gov't Spending Per Capita (1000s)	0.616*** -0.154	0.128*** -0.0366	6.645	2.292	Direct expenditures per capita for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2019).
State and Federal Aid as % Local Gov't Budget	0.0381 -0.0993	0.000375 -0.00596	33.2	11.6	Intergovernmental revenue as a percent of general revenue for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2019).
Local as % State-Local Spending	0.358 -0.25	0.0193* -0.00966	49.4	7.3	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	-2.211* -1.158	11.40*** -2.412			
N	70	70			
R-sq	0.569	0.51			
adj. R-sq	0.52	0.455			
F	15.43	10.21			

* 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 '20	Amount	Rank	Change from '20	
Alabama	Birmingham	0.670%	45	1 ↑	698	53	-	104,125
Alaska	Anchorage	1.324%	18	5 ↑	4,268	11	3 ↑	322,320
Arizona	Phoenix	1.197%	29	2 ↓	3,473	22	-	290,041
Arkansas	Little Rock	1.117%	35	1 ↓	1,997	44	1 ↓	178,760
California	Los Angeles	1.164%	32	2 ↓	8,470	4	1 ↓	727,737
Colorado	Denver	0.531%	50	-	2,503	32	4 ↑	471,429
Connecticut	Bridgeport	2.263%	6	3 ↓	4,515	9	1 ↓	199,519
DC	Washington	0.735%	44	1 ↑	4,943	7	4 ↑	672,700
Delaware	Wilmington	1.365%	16	2 ↑	2,476	34	2 ↓	181,397
Florida	Jacksonville	1.270%	22	-	2,712	30	1 ↓	213,596
Georgia	Atlanta	0.895%	38	-	3,473	21	1 ↓	388,082
Hawaii	Honolulu	0.300%	53	-	2,149	41	4 ↓	716,267
Idaho	Boise	0.643%	47	3 ↓	2,273	39	1 ↓	353,783
Illinois	Aurora*	3.109%	3	2 ↓	6,735	5	-	216,657
Illinois	Chicago	1.566%	13	2 ↑	4,417	10	2 ↑	282,044
Indiana	Indianapolis	1.146%	33	1 ↓	1,867	47	3 ↓	162,871
Iowa	Des Moines	2.262%	7	-	3,507	19	3 ↓	155,021
Kansas	Wichita	1.195%	30	1 ↑	1,786	48	1 ↓	149,397
Kentucky	Louisville	1.331%	17	7 ↑	2,426	36	5 ↑	182,310
Louisiana	New Orleans	0.997%	36	1 ↓	2,448	35	1 ↓	245,582
Maine	Portland	1.207%	27	13 ↓	4,244	12	3 ↓	351,702
Maryland	Baltimore	2.217%	8	1 ↑	4,117	13	-	185,671
Massachusetts	Boston	0.508%	51	-	3,346	24	1 ↑	658,754
Michigan	Detroit	3.265%	1	3 ↑	2,035	43	5 ↑	62,338
Minnesota	Minneapolis	1.235%	24	4 ↓	3,720	14	1 ↑	301,189
Mississippi	Jackson	1.221%	26	9 ↓	1,172	51	1 ↓	96,003
Missouri	Kansas City	1.322%	19	-	2,333	37	2 ↓	176,419
Montana	Billings	0.882%	40	1 ↓	2,207	40	-	250,134
Nebraska	Omaha	1.990%	9	1 ↑	3,684	15	2 ↑	185,165
Nevada	Las Vegas	1.134%	34	1 ↓	3,636	16	2 ↑	320,531
New Hampshire	Manchester	1.298%	20	9 ↓	3,487	20	10 ↓	268,697
New Jersey	Newark	3.227%	2	-	9,119	2	-	282,625
New Mexico	Albuquerque	1.278%	21	5 ↑	2,814	28	2 ↑	220,113
New York	Buffalo*	1.428%	15	22 ↑	1,749	49	2 ↑	122,496
New York	New York City	1.198%	28	-	8,501	3	1 ↑	709,745
AVERAGE		1.329%			3,485			294,997

		Tax Rate (%)			Tax Bill (\$)			Median Home Value
State	City	Rate	Rank	Change from '20	Amount	Rank	Change from '20	
North Carolina	Charlotte	0.854%	41	-	2,310	38	1 ↑	270,499
North Dakota	Fargo	1.190%	31	2 ↓	2,814	27	-	236,569
Ohio	Columbus	1.660%	11	2 ↑	3,001	26	-	180,796
Oklahoma	Oklahoma City	1.226%	25	-	2,108	42	-	171,900
Oregon	Portland	2.620%	4	1 ↑	12,287	1	-	468,929
Pennsylvania	Philadelphia	0.980%	37	1 ↓	1,899	45	-	193,853
Rhode Island	Providence	1.254%	23	2 ↓	3,176	25	1 ↓	253,293
South Carolina	Charleston	0.493%	52	-	1,888	46	-	383,216
South Dakota	Sioux Falls	1.520%	14	2 ↑	3,398	23	2 ↓	223,515
Tennessee	Nashville	0.822%	42	-	2,503	33	2 ↓	304,517
Texas	Houston	1.689%	10	2 ↑	3,539	18	1 ↑	209,479
Utah	Salt Lake City	0.637%	48	1 ↓	2,632	31	2 ↑	413,232
Vermont	Burlington	1.617%	12	4 ↓	4,635	8	2 ↓	286,696
Virginia	Virginia Beach	0.888%	39	1 ↑	2,780	29	1 ↓	312,918
Washington	Seattle	0.806%	43	-	6,694	6	1 ↑	830,125
West Virginia	Charleston	0.594%	49	-	775	52	-	130,500
Wisconsin	Milwaukee	2.476%	5	1 ↑	3,566	17	6 ↑	144,033
Wyoming	Cheyenne	0.647%	46	2 ↑	1,396	50	1 ↓	215,576
AVERAGE		1.329%			3,485			294,997

* 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, and *2020 American Community Survey*, 1-year experimental data (statewide).

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

State	City	Tax Rate (%)			Tax Bill (\$)			Median Home Value
		Rate	Rank	Change from '20	Amount	Rank	Change from '20	
Alabama	Birmingham	0.670%	42	2 ↑	698	53	-	104,125
Alaska	Anchorage	1.324%	18	4 ↑	4,268	8	5 ↑	322,320
Arizona	Phoenix	0.792%	40	1 ↓	2,296	37	1 ↑	290,041
Arkansas	Little Rock	1.013%	31	1 ↓	1,811	44	-	178,760
California	Los Angeles	0.584%	48	1 ↓	4,252	9	1 ↑	727,737
Colorado	Denver	0.531%	50	-	2,503	30	4 ↑	471,429
Connecticut	Bridgeport	2.263%	4	1 ↓	4,515	7	1 ↓	199,519
DC	Washington	0.735%	41	1 ↑	4,943	5	4 ↑	672,700
Delaware	Wilmington	1.365%	16	2 ↑	2,476	32	3 ↓	181,397
Florida	Jacksonville	0.635%	46	3 ↓	1,356	49	2 ↓	213,596
Georgia	Atlanta	0.895%	34	-	3,473	21	1 ↓	388,082
Hawaii	Honolulu	0.300%	53	-	2,149	40	5 ↓	716,267
Idaho	Boise	0.643%	44	3 ↓	2,273	38	2 ↓	353,783
Illinois	Aurora*	3.109%	2	1 ↓	6,735	3	-	216,657
Illinois	Chicago	1.444%	14	2 ↑	4,072	12	1 ↓	282,044
Indiana	Indianapolis	1.146%	27	1 ↓	1,867	43	1 ↓	162,871
Iowa	Des Moines	2.262%	5	-	3,507	19	4 ↓	155,021
Kansas	Wichita	1.195%	25	-	1,786	45	-	149,397
Kentucky	Louisville	1.331%	17	6 ↑	2,426	34	6 ↑	182,310
Louisiana	New Orleans	0.997%	32	1 ↓	2,448	33	2 ↓	245,582
Maine	Portland	1.207%	24	10 ↓	4,244	10	3 ↓	351,702
Maryland	Baltimore	2.217%	6	1 ↑	4,117	11	1 ↑	185,671
Massachusetts	Boston	0.508%	51	-	3,346	23	1 ↑	658,754
Michigan	Detroit	2.034%	7	3 ↑	1,268	50	1 ↑	62,338
Minnesota	Minneapolis	1.235%	22	2 ↓	3,720	14	-	301,189
Mississippi	Jackson	1.221%	23	6 ↓	1,172	51	2 ↓	96,003
Missouri	Kansas City	1.322%	19	-	2,333	35	2 ↓	176,419
Montana	Billings	0.882%	36	1 ↓	2,207	39	-	250,134
Nebraska	Omaha	1.990%	8	-	3,684	15	2 ↑	185,165
Nevada	Las Vegas	1.134%	29	-	3,636	16	2 ↑	320,531
New Hampshire	Manchester	1.298%	20	11 ↓	3,487	20	12 ↓	268,697
New Jersey	Newark	3.227%	1	1 ↑	9,119	1	-	282,625
New Mexico	Albuquerque	1.140%	28	-	2,510	29	3 ↑	220,113
New York	Buffalo*	1.428%	15	18 ↑	1,749	46	4 ↑	122,496
New York	New York City	0.545%	49	-	3,866	13	3 ↑	709,745
AVERAGE		1.237%			3,155			294,997

		Tax Rate (%)			Tax Bill (\$)			Median Home Value
State	City	Rate	Rank	Change from '20	Amount	Rank	Change from '20	
North Carolina	Charlotte	0.854%	37	-	2,310	36	1 ↑	270,499
North Dakota	Fargo	1.190%	26	2 ↓	2,814	26	-	236,569
Ohio	Columbus	1.660%	11	1 ↑	3,001	25	-	180,796
Oklahoma	Oklahoma City	1.104%	30	3 ↓	1,899	42	1 ↓	171,900
Oregon	Portland	1.771%	9	4 ↑	8,307	2	-	468,929
Pennsylvania	Philadelphia	0.980%	33	1 ↓	1,899	41	2 ↑	193,853
Rhode Island	Providence	1.254%	21	-	3,176	24	1 ↓	253,293
South Carolina	Charleston	0.417%	52	-	1,598	47	1 ↓	383,216
South Dakota	Sioux Falls	1.520%	13	2 ↑	3,398	22	1 ↓	223,515
Tennessee	Nashville	0.822%	38	-	2,503	31	3 ↓	304,517
Texas	Houston	1.689%	10	1 ↑	3,539	18	1 ↑	209,479
Utah	Salt Lake City	0.637%	45	-	2,632	28	2 ↑	413,232
Vermont	Burlington	1.617%	12	6 ↓	4,635	6	2 ↓	286,696
Virginia	Virginia Beach	0.888%	35	1 ↑	2,780	27	-	312,918
Washington	Seattle	0.806%	39	1 ↑	6,694	4	1 ↑	830,125
West Virginia	Charleston	0.594%	47	1 ↑	775	52	-	130,500
Wisconsin	Milwaukee	2.476%	3	1 ↑	3,566	17	5 ↑	144,033
Wyoming	Cheyenne	0.647%	43	3 ↑	1,396	48	-	215,576
AVERAGE		1.237%			3,155			294,997

* 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, and *2020 American Community Survey*, 1-year experimental data (statewide).

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

State	City	\$150,000 Property Value				\$300,000 Property Value				Tax Rate Varies with Property Value
		Tax Rate	Tax Bill	Rank	Change from '20	Tax Rate	Tax Bill	Rank	Change from '20	
Alabama	Birmingham	0.686%	1,028	43	-	0.703%	2,110	44	1 ↑	X
Alaska	Anchorage	1.283%	1,925	21	4 ↑	1.303%	3,910	21	5 ↑	X
Arizona	Phoenix	1.197%	1,796	26	2 ↓	1.197%	3,592	30	3 ↓	
Arkansas	Little Rock	1.077%	1,616	35	2 ↓	1.202%	3,607	28	-	X
California	Los Angeles	1.120%	1,681	32	1 ↓	1.148%	3,443	34	2 ↓	X
Colorado	Denver	0.531%	797	47	1 ↑	0.531%	1,593	50	-	
Connecticut	Bridgeport	2.263%	3,394	6	3 ↓	2.263%	6,789	7	4 ↓	
DC	Washington	0.399%	598	50	-	0.615%	1,845	47	1 ↑	X
Delaware	Wilmington	1.365%	2,048	15	2 ↑	1.365%	4,096	17	1 ↑	
Florida	Jacksonville	1.131%	1,696	31	3 ↓	1.364%	4,093	18	1 ↑	X
Georgia	Atlanta	0.246%	370	51	-	0.776%	2,328	43	1 ↓	X
Hawaii	Honolulu	0.200%	300	52	-	0.232%	697	52	-	X
Idaho	Boise	0.516%	775	48	1 ↓	0.573%	1,718	49	5 ↓	X
Illinois	Aurora*	2.994%	4,490	3	1 ↓	3.181%	9,542	3	2 ↓	X
Illinois	Chicago	1.350%	2,026	16	3 ↑	1.581%	4,742	13	3 ↑	X
Indiana	Indianapolis	1.141%	1,712	29	1 ↑	1.172%	3,516	33	3 ↓	X
Iowa	Des Moines	2.258%	3,386	7	-	2.329%	6,987	6	-	X
Kansas	Wichita	1.195%	1,793	27	2 ↑	1.211%	3,632	27	4 ↑	X
Kentucky	Louisville	1.331%	1,996	18	3 ↑	1.331%	3,992	19	5 ↑	
Louisiana	New Orleans	0.737%	1,106	42	-	1.071%	3,213	37	-	X
Maine	Portland	1.083%	1,624	34	18 ↓	1.191%	3,572	31	16 ↓	X
Maryland	Baltimore	2.217%	3,326	8	-	2.217%	6,652	8	1 ↑	
Massachusetts	Boston	0.095%	142	53	-	0.095%	285	53	-	
Michigan	Detroit	3.265%	4,898	1	3 ↑	3.265%	9,796	1	3 ↑	
Minnesota	Minneapolis	1.088%	1,631	33	10 ↓	1.235%	3,704	26	5 ↓	X
Mississippi	Jackson	1.333%	2,000	17	3 ↓	1.433%	4,299	15	2 ↓	X
Missouri	Kansas City	1.322%	1,984	19	1 ↓	1.322%	3,967	20	-	
Montana	Billings	0.882%	1,324	38	2 ↓	0.882%	2,647	39	1 ↓	
Nebraska	Omaha	1.990%	2,984	9	1 ↑	1.990%	5,969	9	1 ↑	
Nevada	Las Vegas	1.134%	1,701	30	2 ↑	1.134%	3,403	35	1 ↓	
New Hampshire	Manchester	1.298%	1,947	20	9 ↓	1.298%	3,893	22	11 ↓	
New Jersey	Newark	3.227%	4,840	2	1 ↓	3.227%	9,680	2	-	
New Mexico	Albuquerque	1.261%	1,891	22	4 ↑	1.288%	3,865	23	2 ↑	X
New York	Buffalo*	1.428%	2,142	14	21 ↑	1.428%	4,284	16	20 ↑	
New York	New York City	1.198%	1,797	25	9 ↑	1.198%	3,593	29	4 ↑	
AVERAGE		1.283%	1,924			1.332%	3,997			N = 24

		\$150,000 Property Value				\$300,000 Property Value				Tax Rate Varies with Property Value
State	City	Tax Rate	Tax Bill	Rank	Change from '20	Tax Rate	Tax Bill	Rank	Change from '20	
North Carolina	Charlotte	0.854%	1,281	39	1 ↓	0.854%	2,562	40	-	X
North Dakota	Fargo	1.190%	1,784	28	1 ↓	1.190%	3,569	32	3 ↓	
Ohio	Columbus	1.660%	2,490	11	1 ↑	1.660%	4,980	11	3 ↑	
Oklahoma	Oklahoma City	1.216%	1,824	24	2 ↓	1.255%	3,766	24	1 ↓	
Oregon	Portland	2.620%	3,930	4	1 ↑	2.620%	7,861	4	3 ↑	
Pennsylvania	Philadelphia	0.885%	1,327	37	2 ↑	1.095%	3,284	36	1 ↓	X
Rhode Island	Providence	1.254%	1,881	23	3 ↓	1.254%	3,761	25	3 ↓	
South Carolina	Charleston	0.493%	739	49	-	0.493%	1,478	51	-	
South Dakota	Sioux Falls	1.520%	2,280	13	2 ↑	1.520%	4,560	14	3 ↑	
Tennessee	Nashville	0.822%	1,233	40	-	0.822%	2,466	41	-	
Texas	Houston	1.638%	2,456	12	1 ↑	1.729%	5,186	10	2 ↑	X
Utah	Salt Lake City	0.637%	955	45	1 ↓	0.637%	1,911	46	-	
Vermont	Burlington	1.941%	2,911	10	1 ↓	1.631%	4,893	12	4 ↓	
Virginia	Virginia Beach	0.888%	1,333	36	1 ↑	0.888%	2,665	38	1 ↑	
Washington	Seattle	0.806%	1,210	41	-	0.806%	2,419	42	1 ↑	
West Virginia	Charleston	0.594%	891	46	-	0.594%	1,781	48	1 ↑	X
Wisconsin	Milwaukee	2.483%	3,724	5	1 ↑	2.569%	7,707	5	-	
Wyoming	Cheyenne	0.647%	971	44	1 ↑	0.647%	1,942	45	2 ↑	
AVERAGE		1.283%	1,924			1.332%	3,997			N = 24

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

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

		Tax Rate (%)			Tax Bill (\$)			Median Home Value
State	City	Rate	Rank	Change from '20	Amount	Rank	Change from '20	
Arizona	Mesa	0.843%	44	1 ↑	2,378	39	1 ↑	282,099
Arizona	Phoenix	1.197%	29	1 ↓	3,473	28	1 ↓	290,041
Arizona	Tucson	1.068%	38	1 ↓	2,007	46	2 ↓	187,885
California	Bakersfield	1.168%	33	n/a	3,224	30	n/a	276,085
California	Fresno	1.234%	26	3 ↓	3,562	25	2 ↓	288,715
California	Long Beach	1.178%	31	1 ↑	7,555	8	-	641,310
California	Los Angeles	1.164%	34	3 ↓	8,470	7	2 ↓	727,737
California	Oakland	1.363%	18	1 ↑	11,487	4	-	842,972
California	Sacramento	1.097%	37	2 ↓	4,358	18	3 ↓	397,270
California	San Diego	1.319%	21	6 ↑	9,062	5	2 ↑	687,238
California	San Francisco	1.176%	32	2 ↓	14,945	1	-	1,270,826
California	San Jose	1.265%	24	1 ↑	13,198	2	-	1,043,695
Colorado	Colorado Springs	0.472%	50	-	1,583	50	-	335,215
Colorado	Denver	0.531%	48	-	2,503	36	2 ↑	471,429
DC	Washington	0.735%	47	-	4,943	15	1 ↓	672,700
Florida	Jacksonville	1.270%	23	2 ↓	2,712	35	2 ↓	213,596
Florida	Miami	1.642%	15	3 ↓	6,279	11	-	382,488
Georgia	Atlanta	0.895%	41	-	3,473	27	1 ↓	388,082
Illinois	Chicago	1.566%	16	-	4,417	17	1 ↓	282,044
Indiana	Indianapolis	1.146%	35	1 ↓	1,867	48	2 ↓	162,871
Kansas	Wichita	1.195%	30	3 ↑	1,786	49	1 ↓	149,397
Kentucky	Louisville	1.331%	19	3 ↑	2,426	38	3 ↑	182,310
Maryland	Baltimore	2.217%	8	-	4,117	19	-	185,671
Massachusetts	Boston	0.508%	49	-	3,346	29	-	658,754
Michigan	Detroit	3.265%	1	-	2,035	45	4 ↑	62,338
Minnesota	Minneapolis	1.235%	25	7 ↓	3,720	20	-	301,189
Missouri	Kansas City	1.322%	20	3 ↓	2,333	40	3 ↓	176,419
Nebraska	Omaha	1.990%	10	1 ↓	3,684	22	1 ↓	185,165
Nevada	Las Vegas	1.134%	36	-	3,636	23	1 ↑	320,531
New Mexico	Albuquerque	1.278%	22	4 ↑	2,814	32	2 ↑	220,113
New York	New York City	1.198%	28	1 ↑	8,501	6	-	709,745
North Carolina	Charlotte	0.854%	43	-	2,310	41	2 ↓	270,499
North Carolina	Raleigh	0.931%	40	-	2,740	34	2 ↓	294,211
Ohio	Columbus	1.660%	14	-	3,001	31	1 ↓	180,796
Oklahoma	Oklahoma City	1.226%	27	3 ↓	2,108	43	-	171,900
AVERAGE		1.414%			4,579			361,790

		Tax Rate (%)			Tax Bill (\$)			Median Home Value
State	City	Rate	Rank	Change from '20	Amount	Rank	Change from '20	
Oklahoma	Tulsa	1.369%	17	3 ↑	2,169	42	-	158,413
Oregon	Portland	2.620%	2	1 ↑	12,287	3	-	468,929
Pennsylvania	Philadelphia	0.980%	39	-	1,899	47	-	193,853
Tennessee	Memphis	1.691%	12	3 ↑	2,077	44	1 ↑	122,846
Tennessee	Nashville	0.822%	45	1 ↓	2,503	37	2 ↓	304,517
Texas	Arlington	2.285%	7	-	5,226	13	1 ↓	228,736
Texas	Austin	1.818%	11	1 ↓	7,358	9	-	404,728
Texas	Dallas	2.116%	9	2 ↑	5,240	12	5 ↑	247,566
Texas	El Paso	2.600%	3	1 ↓	3,717	21	1 ↑	142,933
Texas	Fort Worth	2.315%	6	-	5,186	14	1 ↓	224,029
Texas	Houston	1.689%	13	-	3,539	26	1 ↓	209,479
Texas	San Antonio	2.538%	4	-	4,647	16	2 ↑	183,053
Virginia	Virginia Beach	0.888%	42	-	2,780	33	2 ↓	312,918
Washington	Seattle	0.806%	46	-	6,694	10	-	830,125
Wisconsin	Milwaukee	2.476%	5	-	3,566	24	4 ↑	144,033
AVERAGE		1.414%			4,579			361,790

Source for median home values: 2019 American Community Survey, 1-year data, and 2020 American Community Survey, 1-year experimental data (statewide).

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 '20	Amount	Rank	Change from '20	
Arizona	Mesa	0.604%	44	-	1,704	47	-	282,099
Arizona	Phoenix	0.792%	35	1 ↓	2,296	36	-	290,041
Arizona	Tucson	0.935%	26	1 ↓	1,757	45	-	187,885
California	Bakersfield	0.633%	43	n/a	1,747	46	n/a	276,085
California	Fresno	0.651%	41	2 ↓	1,880	42	3 ↓	288,715
California	Long Beach	0.679%	39	2 ↓	4,356	13	2 ↓	641,310
California	Los Angeles	0.584%	45	-	4,252	14	2 ↓	727,737
California	Oakland	0.664%	40	3 ↑	5,599	7	1 ↓	842,972
California	Sacramento	0.510%	48	2 ↓	2,026	38	1 ↓	397,270
California	San Diego	0.829%	32	4 ↑	5,696	6	1 ↑	687,238
California	San Francisco	0.845%	31	9 ↑	10,734	1	-	1,270,826
California	San Jose	0.767%	37	5 ↑	8,008	3	1 ↑	1,043,695
Colorado	Colorado Springs	0.472%	50	-	1,583	48	-	335,215
Colorado	Denver	0.531%	47	1 ↑	2,503	31	3 ↑	471,429
DC	Washington	0.735%	38	-	4,943	11	1 ↓	672,700
Florida	Jacksonville	0.635%	42	1 ↓	1,356	49	-	213,596
Florida	Miami	0.784%	36	3 ↓	2,998	27	2 ↓	382,488
Georgia	Atlanta	0.895%	28	1 ↑	3,473	24	1 ↓	388,082
Illinois	Chicago	1.444%	15	-	4,072	16	1 ↓	282,044
Indiana	Indianapolis	1.146%	21	-	1,867	43	-	162,871
Kansas	Wichita	1.195%	20	-	1,786	44	2 ↑	149,397
Kentucky	Louisville	1.331%	16	3 ↑	2,426	33	5 ↑	182,310
Maryland	Baltimore	2.217%	6	-	4,117	15	1 ↑	185,671
Massachusetts	Boston	0.508%	49	-	3,346	25	1 ↑	658,754
Michigan	Detroit	2.034%	8	2 ↑	1,268	50	-	62,338
Minnesota	Minneapolis	1.235%	18	1 ↓	3,720	18	1 ↓	301,189
Missouri	Kansas City	1.322%	17	1 ↓	2,333	34	1 ↓	176,419
Nebraska	Omaha	1.990%	9	2 ↓	3,684	20	1 ↓	185,165
Nevada	Las Vegas	1.134%	23	1 ↑	3,636	21	-	320,531
New Mexico	Albuquerque	1.140%	22	1 ↑	2,510	30	2 ↑	220,113
New York	New York City	0.545%	46	1 ↑	3,866	17	1 ↑	709,745
North Carolina	Charlotte	0.854%	30	1 ↑	2,310	35	-	270,499
North Carolina	Raleigh	0.931%	27	1 ↑	2,740	29	-	294,211
Ohio	Columbus	1.660%	14	2 ↓	3,001	26	1 ↑	180,796
Oklahoma	Oklahoma City	1.104%	24	2 ↓	1,899	41	-	171,900
AVERAGE		1.207%			3,601			361,790

		Tax Rate (%)			Tax Bill (\$)			Median Home Value
State	City	Rate	Rank	Change from '20	Amount	Rank	Change from '20	
Oklahoma	Tulsa	1.230%	19	1 ↓	1,949	39	1 ↑	158,413
Oregon	Portland	1.771%	11	2 ↑	8,307	2	-	468,929
Pennsylvania	Philadelphia	0.980%	25	2 ↑	1,899	40	4 ↑	193,853
Tennessee	Memphis	1.691%	12	2 ↑	2,077	37	5 ↑	122,846
Tennessee	Nashville	0.822%	33	1 ↓	2,503	32	2 ↓	304,517
Texas	Arlington	2.285%	5	-	5,226	9	1 ↓	228,736
Texas	Austin	1.791%	10	2 ↓	7,249	4	1 ↓	404,728
Texas	Dallas	2.116%	7	2 ↑	5,240	8	5 ↑	247,566
Texas	El Paso	2.600%	1	-	3,717	19	1 ↑	142,933
Texas	Fort Worth	2.315%	4	-	5,186	10	1 ↓	224,029
Texas	Houston	1.689%	13	2 ↓	3,539	23	1 ↓	209,479
Texas	San Antonio	2.538%	2	-	4,647	12	2 ↑	183,053
Virginia	Virginia Beach	0.888%	29	1 ↑	2,780	28	-	312,918
Washington	Seattle	0.806%	34	1 ↑	6,694	5	-	830,125
Wisconsin	Milwaukee	2.476%	3	-	3,566	22	2 ↑	144,033
AVERAGE		1.207%			3,601			361,790

Source for median home values: 2019 American Community Survey, 1-year data, and 2020 American Community Survey, 1-year experimental data (statewide).

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 '20	Tax Rate	Tax Bill	Rank	Change from '20	
Arizona	Mesa	0.843%	1,264	43	-	0.843%	2,529	43	1 ↑	
Arizona	Phoenix	1.197%	1,796	27	4 ↓	1.197%	3,592	30	4 ↓	
Arizona	Tucson	1.068%	1,602	37	2 ↓	1.068%	3,205	39	3 ↓	
California	Bakersfield	1.142%	1,713	29	n/a	1.170%	3,510	32	n/a	X
California	Fresno	1.205%	1,808	25	1 ↓	1.235%	3,705	26	3 ↓	X
California	Long Beach	1.136%	1,703	31	-	1.163%	3,490	33	2 ↓	X
California	Los Angeles	1.120%	1,681	35	3 ↓	1.148%	3,443	35	3 ↓	X
California	Oakland	1.310%	1,965	19	-	1.342%	4,026	19	2 ↑	X
California	Sacramento	1.065%	1,597	38	2 ↓	1.091%	3,272	38	1 ↓	X
California	San Diego	1.270%	1,905	21	8 ↑	1.301%	3,903	22	6 ↑	X
California	San Francisco	1.127%	1,691	34	1 ↓	1.155%	3,465	34	1 ↓	X
California	San Jose	1.214%	1,820	24	2 ↑	1.243%	3,730	25	2 ↑	X
Colorado	Colorado Springs	0.472%	708	47	-	0.472%	1,417	49	-	
Colorado	Denver	0.531%	797	46	-	0.531%	1,593	48	-	
DC	Washington	0.399%	598	48	-	0.615%	1,845	47	-	X
Florida	Jacksonville	1.131%	1,696	33	6 ↓	1.364%	4,093	18	1 ↓	X
Florida	Miami	1.297%	1,945	20	4 ↓	1.580%	4,741	16	2 ↓	X
Georgia	Atlanta	0.246%	370	49	-	0.776%	2,328	46	1 ↓	X
Illinois	Chicago	1.350%	2,026	16	2 ↑	1.581%	4,742	15	1 ↑	X
Indiana	Indianapolis	1.141%	1,712	30	-	1.172%	3,516	31	2 ↓	X
Kansas	Wichita	1.195%	1,793	28	-	1.211%	3,632	28	2 ↑	X
Kentucky	Louisville	1.331%	1,996	17	3 ↑	1.331%	3,992	20	4 ↑	
Maryland	Baltimore	2.217%	3,326	7	1 ↑	2.217%	6,652	8	-	
Massachusetts	Boston	0.095%	142	50	-	0.095%	285	50	-	
Michigan	Detroit	3.265%	4,898	1	-	3.265%	9,796	1	1 ↑	
Minnesota	Minneapolis	1.088%	1,631	36	14 ↓	1.235%	3,704	27	7 ↓	X
Missouri	Kansas City	1.322%	1,984	18	3 ↓	1.322%	3,967	21	3 ↓	
Nebraska	Omaha	1.990%	2,984	10	1 ↓	1.990%	5,969	10	1 ↓	
Nevada	Las Vegas	1.134%	1,701	32	2 ↑	1.134%	3,403	36	1 ↓	
New Mexico	Albuquerque	1.261%	1,891	22	3 ↑	1.288%	3,865	23	2 ↑	X
New York	New York City	1.198%	1,797	26	11 ↑	1.198%	3,593	29	5 ↑	
North Carolina	Charlotte	0.854%	1,281	42	2 ↓	0.854%	2,562	42	-	
North Carolina	Raleigh	0.931%	1,397	39	1 ↓	0.931%	2,794	40	-	
Ohio	Columbus	1.660%	2,490	13	1 ↓	1.660%	4,980	14	1 ↓	
Oklahoma	Oklahoma City	1.216%	1,824	23	2 ↓	1.255%	3,766	24	2 ↓	X
AVERAGE		1.350%	2,025			1.413%	4,238			N = 29

		\$150,000 Property Value				\$300,000 Property Value				Tax Rate Varies with Property Value
State	City	Rate	Tax Bill	Rank	Change from '20	Tax Rate	Tax Bill	Rank	Change from '20	
Oklahoma	Tulsa	1.365%	2,047	15	2 ↑	1.409%	4,226	17	2 ↑	X
Oregon	Portland	2.620%	3,930	2	1 ↑	2.620%	7,861	3	2 ↑	
Pennsylvania	Philadelphia	0.885%	1,327	41	-	1.095%	3,284	37	1 ↑	X
Tennessee	Memphis	1.691%	2,536	12	2 ↑	1.691%	5,072	13	2 ↑	
Tennessee	Nashville	0.822%	1,233	44	2 ↓	0.822%	2,466	44	1 ↓	
Texas	Arlington	2.207%	3,310	8	1 ↓	2.320%	6,961	7	-	X
Texas	Austin	1.704%	2,557	11	1 ↓	1.795%	5,384	11	1 ↓	X
Texas	Dallas	2.036%	3,055	9	2 ↑	2.138%	6,414	9	2 ↑	X
Texas	El Paso	2.614%	3,920	3	1 ↓	2.749%	8,248	2	1 ↓	X
Texas	Fort Worth	2.241%	3,361	6	-	2.353%	7,058	6	-	X
Texas	Houston	1.638%	2,456	14	1 ↓	1.729%	5,186	12	-	X
Texas	San Antonio	2.493%	3,740	4	1 ↑	2.618%	7,855	4	1 ↓	X
Virginia	Virginia Beach	0.888%	1,333	40	1 ↓	0.888%	2,665	41	-	
Washington	Seattle	0.806%	1,210	45	1 ↓	0.806%	2,419	45	1 ↑	
Wisconsin	Milwaukee	2.483%	3,724	5	1 ↓	2.569%	7,707	5	1 ↓	X
AVERAGE		1.350%	2,025			1.413%	4,238			N = 29

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

		Tax Rate (%)			Tax Bill (\$)			Median Home Value
State	City	Rate	Rank	Change from '20	Amount	Rank	Change from '20	
Alabama	Monroeville	0.398%	48	1 ↓	531	48	1 ↑	133,318
Alaska	Ketchikan	1.117%	26	1 ↑	2,926	10	1 ↑	261,872
Arizona	Safford	0.691%	41	5 ↓	1,134	33	1 ↓	163,950
Arkansas	Pocahontas	0.354%	49	-	295	50	-	83,393
California	Yreka	1.005%	31	1 ↓	1,660	24	1 ↓	165,129
Colorado	Walsenburg	0.583%	44	-	555	47	-	95,234
Connecticut	Litchfield	1.805%	14	3 ↓	5,802	1	-	321,504
Delaware	Georgetown	0.405%	47	1 ↑	931	38	1 ↑	229,659
Florida	Moore Haven	0.830%	34	4 ↑	618	45	1 ↑	74,470
Georgia	Fitzgerald	1.515%	19	-	1,336	30	1 ↓	88,196
Hawaii	Kauai	0.214%	50	-	1,181	32	2 ↓	552,620
Idaho	Saint Anthony	0.710%	38	5 ↑	1,037	36	6 ↑	146,110
Illinois	Galena	1.869%	11	2 ↓	2,890	11	2 ↓	154,653
Indiana	North Vernon	0.902%	33	-	884	39	2 ↓	97,995
Iowa	Hampton	1.855%	12	1 ↑	1,610	26	-	86,799
Kansas	Iola	2.136%	7	4 ↓	1,775	22	2 ↓	83,100
Kentucky	Morehead	1.153%	24	-	2,095	17	-	181,675
Louisiana	Natchitoches	0.511%	46	-	851	41	3 ↓	166,518
Maine	Rockland	1.949%	10	2 ↑	3,545	9	2 ↓	181,849
Maryland	Denton	1.782%	15	-	3,579	7	2 ↓	200,911
Massachusetts	Adams	2.149%	6	2 ↑	3,574	8	-	166,317
Michigan	Manistique	2.106%	8	1 ↓	1,359	28	1 ↓	64,561
Minnesota	Glencoe	1.321%	20	-	2,077	18	-	157,212
Mississippi	Philadelphia	1.010%	30	2 ↑	858	40	-	84,938
Missouri	Boonville	0.929%	32	1 ↓	1,102	34	1 ↓	118,590
Montana	Glasgow	1.100%	27	2 ↑	1,776	21	3 ↑	161,453
Nebraska	Sidney	2.268%	4	2 ↑	2,651	14	-	116,913
Nevada	Fallon	1.270%	22	-	2,238	16	-	176,245
New Hampshire	Lancaster	2.574%	3	1 ↓	3,643	6	-	141,492
New Jersey	Maurice River Twp	2.879%	2	1 ↓	4,714	3	-	163,768
New Mexico	Santa Rosa	0.823%	35	1 ↓	713	43	-	86,569
New York	Warsaw	3.445%	1	3 ↑	4,119	5	8 ↑	119,577
North Carolina	Edenton	1.049%	29	4 ↓	1,885	19	-	179,724
North Dakota	Devils Lake	1.310%	21	-	1,814	20	1 ↑	138,465
Ohio	Bryan	1.566%	18	-	1,611	25	-	102,865
AVERAGE		1.304%			1,946			153,170

		Tax Rate (%)			Tax Bill (\$)			Median Home Value
State	City	Rate	Rank	Change from '20	Amount	Rank	Change from '20	
Oklahoma	Mangum	0.753%	36	1 ↑	519	49	1 ↓	68,884
Oregon	Tillamook	1.152%	25	2 ↓	2,302	15	-	199,811
Pennsylvania	Ridgway	1.679%	17	-	1,345	29	2 ↑	80,102
Rhode Island	Hopkinton	1.826%	13	3 ↑	4,365	4	-	239,090
South Carolina	Mullins	0.743%	37	2 ↓	575	46	1 ↓	77,465
South Dakota	Vermillion	1.750%	16	2 ↓	2,851	13	3 ↓	162,965
Tennessee	Savannah	0.638%	43	1 ↓	778	42	1 ↓	121,892
Texas	Fort Stockton	1.176%	23	5 ↑	1,209	31	4 ↑	102,814
Utah	Richfield	0.697%	40	1 ↓	1,378	27	1 ↑	197,604
Vermont	Hartford	2.232%	5	-	5,353	2	-	239,837
Virginia	Wise	0.666%	42	1 ↓	957	37	1 ↓	143,676
Washington	Okanogan	1.064%	28	2 ↓	1,712	23	1 ↓	160,938
West Virginia	Elkins	0.523%	45	-	672	44	-	128,615
Wisconsin	Rice Lake	2.035%	9	1 ↑	2,856	12	-	140,368
Wyoming	Worland	0.709%	39	1 ↑	1,041	35	1 ↓	146,768
AVERAGE		1.304%			1,946			153,170

Source for median home values: 2019 American Community Survey, 5-year data, and 2020 American Community Survey, 1-year experimental data (statewide).

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 '20	Tax Rate	Tax Bill	Rank	Change from '20	
Alabama	Monroeville	0.403%	604	49	1 ↓	0.422%	1,265	48	-	X
Alaska	Ketchikan	1.117%	1,676	28	2 ↑	1.117%	3,352	28	2 ↑	
Arizona	Safford	0.691%	1,037	41	3 ↓	0.691%	2,074	42	4 ↓	
Arkansas	Pocahontas	0.553%	830	45	-	0.678%	2,035	43	-	X
California	Yreka	1.001%	1,501	32	-	1.025%	3,075	32	-	X
Colorado	Walsenburg	0.583%	875	44	-	0.583%	1,750	46	-	
Connecticut	Litchfield	1.805%	2,707	14	3 ↓	1.805%	5,414	15	2 ↓	
Delaware	Georgetown	0.405%	608	48	1 ↑	0.405%	1,216	49	-	
Florida	Moore Haven	1.473%	2,210	20	-	1.790%	5,371	16	2 ↓	X
Georgia	Fitzgerald	1.612%	2,417	18	-	1.680%	5,041	19	-	X
Hawaii	Kauai	0.050%	75	50	-	0.139%	418	50	-	X
Idaho	Saint Anthony	0.710%	1,065	38	5 ↑	0.831%	2,492	37	8 ↑	X
Illinois	Galena	1.860%	2,790	12	2 ↓	2.001%	6,003	12	5 ↓	X
Indiana	North Vernon	0.902%	1,353	34	-	0.902%	2,706	34	-	
Iowa	Hampton	1.947%	2,921	10	2 ↑	2.011%	6,032	11	1 ↑	X
Kansas	Iola	2.160%	3,241	5	1 ↓	2.176%	6,527	6	1 ↓	X
Kentucky	Morehead	1.153%	1,730	26	1 ↑	1.153%	3,459	26	1 ↑	
Louisiana	Natchitoches	0.463%	694	47	-	0.708%	2,124	40	1 ↑	X
Maine	Rockland	1.883%	2,825	11	2 ↑	2.072%	6,215	10	1 ↑	X
Maryland	Denton	1.782%	2,672	16	1 ↓	1.782%	5,345	17	-	
Massachusetts	Adams	2.149%	3,223	6	2 ↑	2.149%	6,447	7	3 ↑	
Michigan	Manistique	2.106%	3,158	7	1 ↓	2.106%	6,317	9	-	
Minnesota	Glencoe	1.304%	1,956	22	1 ↓	1.490%	4,470	21	-	X
Mississippi	Philadelphia	1.163%	1,744	25	1 ↓	1.263%	3,789	25	1 ↓	X
Missouri	Boonville	0.929%	1,394	33	-	0.929%	2,788	33	-	
Montana	Glasgow	1.100%	1,650	29	2 ↑	1.100%	3,300	29	2 ↑	
Nebraska	Sidney	2.268%	3,402	4	1 ↑	2.268%	6,803	5	1 ↑	
Nevada	Fallon	1.270%	1,905	23	-	1.270%	3,810	24	1 ↓	
New Hampshire	Lancaster	2.574%	3,862	3	1 ↓	2.574%	7,723	3	1 ↑	
New Jersey	Maurice River Twp	2.879%	4,318	2	1 ↓	2.879%	8,636	2	1 ↓	
New Mexico	Santa Rosa	0.850%	1,275	35	-	0.868%	2,605	35	-	X
New York	Warsaw	3.445%	5,167	1	2 ↑	3.445%	10,334	1	1 ↑	
North Carolina	Edenton	1.049%	1,573	31	3 ↓	1.049%	3,146	31	3 ↓	
North Dakota	Devils Lake	1.310%	1,965	21	1 ↑	1.310%	3,929	23	1 ↓	
Ohio	Bryan	1.566%	2,349	19	-	1.566%	4,698	20	-	
AVERAGE		1.325%	1,988			1.373%	4,118			N = 20

		\$150,000 Property Value				\$300,000 Property Value				Tax Rate Varies with Property Value
State	City	Tax Rate	Tax Bill	Rank	Change from '20	Tax Rate	Tax Bill	Rank	Change from '20	
Oklahoma	Mangum	0.809%	1,213	36	-	0.833%	2,498	36	-	X
Oregon	Tillamook	1.152%	1,728	27	2 ↓	1.152%	3,457	27	1 ↓	X
Pennsylvania	Ridgway	1.790%	2,686	15	2 ↑	1.854%	5,563	13	2 ↑	
Rhode Island	Hopkinton	1.826%	2,738	13	3 ↑	1.826%	5,477	14	4 ↑	
South Carolina	Mullins	0.743%	1,114	37	-	0.743%	2,228	38	1 ↓	
South Dakota	Vermillion	1.750%	2,624	17	3 ↓	1.750%	5,249	18	2 ↓	X
Tennessee	Savannah	0.638%	957	43	1 ↓	0.638%	1,915	45	1 ↓	
Texas	Fort Stockton	1.262%	1,893	24	2 ↑	1.356%	4,068	22	3 ↑	
Utah	Richfield	0.697%	1,046	40	1 ↓	0.697%	2,092	41	2 ↓	
Vermont	Hartford	2.062%	3,093	8	1 ↓	2.455%	7,366	4	1 ↓	X
Virginia	Wise	0.666%	999	42	1 ↓	0.666%	1,998	44	2 ↓	X
Washington	Okanogan	1.064%	1,596	30	1 ↓	1.064%	3,191	30	1 ↓	
West Virginia	Elkins	0.523%	784	46	-	0.523%	1,568	47	-	
Wisconsin	Rice Lake	2.047%	3,070	9	-	2.135%	6,406	8	-	
Wyoming	Worland	0.709%	1,063	39	1 ↑	0.709%	2,127	39	1 ↑	
AVERAGE		1.325%	1,988			1.373%	4,118			N = 20

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	0.882%	1,059	49 (19 ↓)	0.882%	10,589	50 (17 ↓)	0.882%	264,734	50 (16 ↓)		
Alaska	Anchorage	1.336%	1,604	34 (6 ↑)	1.607%	19,281	28 (3 ↑)	1.636%	490,685	29 (3 ↑)	X	X
Arizona	Phoenix	2.192%	2,631	15 (2 ↑)	2.202%	26,425	17 (-)	2.656%	796,807	11 (1 ↑)	X	X
Arkansas	Little Rock	1.398%	1,678	30 (5 ↑)	1.398%	16,779	33 (5 ↑)	1.398%	419,475	34 (5 ↑)		
California	Los Angeles	1.175%	1,410	40 (2 ↑)	1.175%	14,102	41 (2 ↑)	1.175%	352,562	42 (1 ↑)		
Colorado	Denver	2.119%	2,543	17 (1 ↑)	2.119%	25,433	18 (1 ↑)	2.119%	635,814	18 (1 ↑)		
Connecticut	Bridgeport	2.636%	3,163	9 (6 ↓)	2.636%	31,629	12 (9 ↓)	2.636%	790,714	14 (11 ↓)		
DC	Washington	1.269%	1,523	37 (4 ↑)	1.269%	15,230	38 (4 ↑)	1.935%	580,468	22 (1 ↑)	X	X
Delaware	Wilmington	1.251%	1,502	39 (10 ↓)	1.251%	15,017	40 (8 ↓)	1.251%	375,430	40 (7 ↓)		X
Florida	Jacksonville	1.331%	1,598	35 (1 ↑)	1.576%	18,918	29 (-)	1.610%	483,022	30 (1 ↓)	X	X
Georgia	Atlanta	1.533%	1,840	27 (1 ↑)	1.533%	18,400	30 (-)	1.533%	459,991	31 (-)		
Hawaii	Honolulu	1.157%	1,389	41 (6 ↑)	1.157%	13,888	42 (6 ↑)	1.157%	347,200	43 (6 ↑)		X
Idaho	Boise	0.876%	1,051	50 (-)	0.968%	11,613	49 (1 ↑)	1.056%	316,825	48 (2 ↓)	X	X
Illinois	Aurora*	2.807%	3,368	5 (-)	2.807%	33,680	7 (1 ↓)	2.807%	841,997	7 (1 ↓)		X
Illinois	Chicago	3.783%	4,540	2 (-)	3.783%	45,400	2 (-)	3.783%	1,135,009	2 (-)		X
Indiana	Indianapolis	2.322%	2,787	13 (2 ↑)	2.816%	33,792	6 (2 ↑)	2.816%	844,796	6 (3 ↑)	X	
Iowa	Des Moines	2.160%	2,592	16 (5 ↓)	2.913%	34,951	4 (1 ↑)	3.134%	940,228	4 (-)	X	X
Kansas	Wichita	2.541%	3,049	12 (-)	2.541%	30,487	14 (1 ↑)	2.541%	762,182	16 (-)		
Kentucky	Louisville	1.449%	1,739	29 (9 ↑)	1.449%	17,393	32 (8 ↑)	1.449%	434,835	33 (8 ↑)		
Louisiana	New Orleans	2.025%	2,429	18 (1 ↑)	2.025%	24,295	19 (1 ↑)	2.025%	607,374	20 (-)		
Maine	Portland	1.299%	1,559	36 (14 ↓)	1.299%	15,588	37 (13 ↓)	1.299%	389,700	38 (12 ↓)		
Maryland	Baltimore	2.805%	3,366	6 (1 ↑)	2.805%	33,661	8 (1 ↑)	2.805%	841,536	8 (2 ↑)		
Massachusetts	Boston	1.862%	2,234	21 (-)	1.862%	22,341	23 (-)	1.862%	558,513	25 (-)		X
Michigan	Detroit	4.212%	5,055	1 (-)	4.212%	50,548	1 (-)	4.212%	1,263,712	1 (-)		X
Minnesota	Minneapolis	1.591%	1,909	26 (-)	2.503%	30,041	15 (5 ↓)	2.637%	791,218	13 (6 ↓)	X	X
Mississippi	Jackson	2.732%	3,278	7 (1 ↑)	2.732%	32,782	9 (2 ↑)	2.732%	819,560	9 (2 ↑)		
Missouri	Kansas City	2.842%	3,411	4 (2 ↑)	2.842%	34,110	5 (2 ↑)	2.842%	852,747	5 (3 ↑)		X
Montana	Billings	1.036%	1,243	47 (2 ↑)	1.036%	12,427	47 (1 ↓)	1.199%	359,617	41 (4 ↑)	X	X
Nebraska	Omaha	1.843%	2,212	23 (-)	2.010%	24,122	20 (1 ↑)	2.028%	608,378	19 (2 ↑)	X	X
Nevada	Las Vegas	1.131%	1,357	42 (2 ↑)	1.131%	13,572	43 (2 ↑)	1.131%	339,294	44 (3 ↑)		
New Hampshire	Manchester	1.081%	1,298	44 (17 ↓)	1.081%	12,977	45 (17 ↓)	1.081%	324,428	46 (16 ↓)		X
New Jersey	Newark	2.689%	3,227	8 (1 ↑)	2.689%	32,265	10 (2 ↑)	2.689%	806,637	10 (3 ↑)		X
New Mexico	Albuquerque	1.498%	1,797	28 (3 ↑)	1.498%	17,973	31 (3 ↑)	1.498%	449,334	32 (3 ↑)		
New York	Buffalo*	1.740%	2,088	25 (14 ↑)	1.740%	20,884	27 (14 ↑)	1.740%	522,092	28 (14 ↑)		X
New York	New York City	1.344%	1,613	33 (1 ↓)	1.344%	16,133	36 (1 ↓)	1.344%	403,313	37 (1 ↓)		X
AVERAGE		1.792%	2,150		1.863%	22,351		1.900%	569,930		N = 13	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	0.872%	1,047	51 (-)	0.872%	10,469	51 (-)	0.872%	261,732	51 (-)		
North Dakota	Fargo	1.066%	1,280	46 (-)	1.066%	12,795	46 (1 ↑)	1.066%	319,876	47 (1 ↑)		X
Ohio	Columbus	1.859%	2,231	22 (2 ↓)	1.859%	22,308	24 (2 ↓)	1.859%	557,703	26 (2 ↓)		X
Oklahoma	Oklahoma City	1.349%	1,618	32 (5 ↑)	1.349%	16,184	35 (4 ↑)	1.349%	404,594	36 (4 ↑)		
Oregon	Portland	2.620%	3,144	10 (4 ↑)	2.620%	31,443	13 (3 ↑)	2.620%	786,064	15 (2 ↑)		
Pennsylvania	Philadelphia	1.076%	1,292	45 (-)	1.842%	22,100	25 (-)	2.000%	600,023	21 (1 ↑)	X	X
Rhode Island	Providence	3.532%	4,238	3 (1 ↑)	3.532%	42,384	3 (1 ↑)	3.532%	1,059,609	3 (2 ↑)		
South Carolina	Charleston	1.781%	2,137	24 (1 ↑)	1.781%	21,373	26 (1 ↑)	1.781%	534,315	27 (1 ↑)		
South Dakota	Sioux Falls	1.378%	1,654	31 (2 ↑)	1.378%	16,537	34 (2 ↑)	1.378%	413,437	35 (2 ↑)		X
Tennessee	Nashville	1.260%	1,512	38 (4 ↓)	1.260%	15,125	39 (2 ↓)	1.260%	378,120	39 (1 ↓)		X
Texas	Houston	2.203%	2,644	14 (2 ↑)	2.203%	26,437	16 (2 ↑)	2.203%	660,917	17 (1 ↑)		
Utah	Salt Lake City	1.108%	1,329	43 (-)	1.108%	13,291	44 (-)	1.108%	332,265	45 (1 ↓)		
Vermont	Burlington	1.901%	2,281	19 (9 ↓)	1.901%	22,813	21 (8 ↓)	1.901%	570,337	23 (9 ↓)		X
Virginia	Virginia Beach	1.016%	1,219	48 (-)	1.016%	12,191	48 (1 ↑)	1.016%	304,780	49 (1 ↑)		
Washington	Seattle	0.818%	982	52 (-)	0.818%	9,818	52 (-)	0.818%	245,443	52 (-)	X	
West Virginia	Charleston	1.875%	2,250	20 (4 ↑)	1.875%	22,501	22 (4 ↑)	1.875%	562,513	24 (3 ↑)		
Wisconsin	Milwaukee	2.593%	3,111	11 (2 ↑)	2.649%	31,786	11 (3 ↑)	2.655%	796,456	12 (3 ↑)	X	
Wyoming	Cheyenne	0.693%	832	53 (-)	0.693%	8,315	53 (-)	0.693%	207,887	53 (-)		
AVERAGE		1.792%	2,150		1.863%	22,351		1.900%	569,930		N = 13	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	1.601%	1,921	24 (3 ↑)	1.608%	19,298	27 (1 ↑)	1.944%	583,336	23 (2 ↑)	X	X
Arizona	Phoenix	2.192%	2,631	16 (-)	2.202%	26,425	17 (-)	2.656%	796,807	7 (1 ↑)	X	X
Arizona	Tucson	1.856%	2,227	22 (2 ↑)	1.865%	22,380	22 (5 ↑)	2.275%	682,529	17 (1 ↑)	X	X
California	Bakersfield	1.198%	1,438	40 (n/a)	1.198%	14,375	41 (n/a)	1.198%	359,387	41 (n/a)		
California	Fresno	1.264%	1,517	38 (1 ↓)	1.264%	15,173	39 (1 ↓)	1.264%	379,317	39 (-)		
California	Long Beach	1.191%	1,429	41 (-)	1.191%	14,293	42 (-)	1.191%	357,327	42 (-)		
California	Los Angeles	1.175%	1,410	43 (1 ↓)	1.175%	14,102	44 (1 ↓)	1.175%	352,562	44 (1 ↓)		
California	Oakland	1.374%	1,649	31 (2 ↑)	1.374%	16,489	33 (2 ↑)	1.374%	412,230	34 (2 ↑)		
California	Sacramento	1.117%	1,340	45 (1 ↓)	1.117%	13,400	46 (1 ↓)	1.117%	335,010	46 (1 ↓)		
California	San Diego	1.332%	1,599	34 (6 ↑)	1.332%	15,986	36 (5 ↑)	1.332%	399,657	37 (4 ↑)		
California	San Francisco	1.182%	1,419	42 (1 ↑)	1.182%	14,190	43 (1 ↑)	1.182%	354,745	43 (1 ↑)		
California	San Jose	1.273%	1,528	36 (3 ↑)	1.273%	15,277	37 (3 ↑)	1.273%	381,918	38 (2 ↑)		
Colorado	Colorado Springs	1.924%	2,309	19 (3 ↑)	1.924%	23,088	21 (4 ↑)	1.924%	577,200	25 (4 ↑)		
Colorado	Denver	2.119%	2,543	17 (1 ↑)	2.119%	25,433	18 (1 ↑)	2.119%	635,814	19 (1 ↑)		
DC	Washington	1.269%	1,523	37 (1 ↑)	1.269%	15,230	38 (1 ↑)	1.935%	580,468	24 (2 ↑)	X	X
Florida	Jacksonville	1.331%	1,598	35 (1 ↓)	1.576%	18,918	28 (1 ↑)	1.610%	483,022	29 (1 ↑)	X	X
Florida	Miami	1.554%	1,864	26 (-)	1.851%	22,212	25 (3 ↓)	1.892%	567,539	26 (2 ↓)	X	X
Georgia	Atlanta	1.533%	1,840	27 (1 ↑)	1.533%	18,400	29 (1 ↑)	1.533%	459,991	30 (1 ↑)		
Illinois	Chicago	3.783%	4,540	2 (-)	3.783%	45,400	2 (-)	3.783%	1,135,009	2 (-)		X
Indiana	Indianapolis	2.816%	3,379	5 (1 ↓)	2.816%	33,792	5 (1 ↓)	2.816%	844,796	5 (-)		
Kansas	Wichita	2.541%	3,049	11 (3 ↓)	2.541%	30,487	11 (1 ↓)	2.541%	762,182	13 (2 ↓)		
Kentucky	Louisville	1.449%	1,739	29 (7 ↑)	1.449%	17,393	31 (6 ↑)	1.449%	434,835	32 (6 ↑)		
Maryland	Baltimore	2.805%	3,366	6 (1 ↓)	2.805%	33,661	6 (1 ↓)	2.805%	841,536	6 (-)		
Massachusetts	Boston	1.862%	2,234	20 (1 ↑)	1.862%	22,341	23 (1 ↑)	1.862%	558,513	27 (1 ↑)		X
Michigan	Detroit	4.212%	5,055	1 (-)	4.212%	50,548	1 (-)	4.212%	1,263,712	1 (-)		X
Minnesota	Minneapolis	1.591%	1,909	25 (-)	2.503%	30,041	12 (5 ↓)	2.637%	791,218	10 (7 ↓)	X	X
Missouri	Kansas City	2.842%	3,411	4 (1 ↓)	2.842%	34,110	4 (1 ↓)	2.842%	852,747	4 (-)		X
Nebraska	Omaha	1.843%	2,212	23 (-)	2.010%	24,122	20 (1 ↑)	2.028%	608,378	21 (1 ↑)	X	X
Nevada	Las Vegas	1.131%	1,357	44 (1 ↑)	1.131%	13,572	45 (1 ↑)	1.131%	339,294	45 (1 ↑)		
New Mexico	Albuquerque	1.498%	1,797	28 (1 ↑)	1.498%	17,973	30 (1 ↑)	1.498%	449,334	31 (1 ↑)		
New York	New York City	1.344%	1,613	33 (3 ↓)	1.344%	16,133	35 (3 ↓)	1.344%	403,313	36 (3 ↓)		X
North Carolina	Charlotte	0.872%	1,047	49 (-)	0.872%	10,469	49 (-)	0.872%	261,732	49 (-)		
North Carolina	Raleigh	0.938%	1,126	48 (-)	0.938%	11,261	48 (-)	0.938%	281,513	48 (-)		
Ohio	Columbus	1.859%	2,231	21 (1 ↓)	1.859%	22,308	24 (1 ↓)	1.859%	557,703	28 (1 ↓)		X
Oklahoma	Oklahoma City	1.349%	1,618	32 (3 ↑)	1.349%	16,184	34 (2 ↑)	1.349%	404,594	35 (2 ↑)		
AVERAGE		1.838%	2,206		1.888%	22,653		1.933%	579,874		N = 11	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	1.431%	1,717	30 (1 ↑)	1.431%	17,169	32 (1 ↑)	1.431%	429,228	33 (1 ↑)	X	X
Oregon	Portland	2.620%	3,144	8 (4 ↑)	2.620%	31,443	9 (4 ↑)	2.620%	786,064	11 (3 ↑)		
Pennsylvania	Philadelphia	1.076%	1,292	46 (-)	1.842%	22,100	26 (-)	2.000%	600,023	22 (1 ↑)		X
Tennessee	Memphis	2.593%	3,111	10 (1 ↑)	2.593%	31,110	10 (2 ↑)	2.593%	777,751	12 (1 ↑)		X
Tennessee	Nashville	1.260%	1,512	39 (7 ↓)	1.260%	15,125	40 (6 ↓)	1.260%	378,120	40 (5 ↓)		X
Texas	Arlington	2.415%	2,898	14 (1 ↓)	2.415%	28,981	15 (1 ↓)	2.415%	724,514	16 (1 ↓)		
Texas	Austin	2.076%	2,492	18 (1 ↓)	2.076%	24,917	19 (1 ↓)	2.076%	622,933	20 (1 ↓)		
Texas	Dallas	2.469%	2,963	12 (2 ↑)	2.469%	29,632	13 (2 ↑)	2.469%	740,793	14 (2 ↑)		
Texas	El Paso	3.024%	3,628	3 (4 ↑)	3.024%	36,283	3 (5 ↑)	3.024%	907,083	3 (6 ↑)		
Texas	Fort Worth	2.452%	2,943	13 (3 ↓)	2.452%	29,426	14 (3 ↓)	2.452%	735,655	15 (3 ↓)		
Texas	Houston	2.203%	2,644	15 (-)	2.203%	26,437	16 (-)	2.203%	660,917	18 (1 ↓)	X X	
Texas	San Antonio	2.649%	3,179	7 (1 ↓)	2.649%	31,787	7 (1 ↓)	2.649%	794,678	9 (2 ↓)		
Virginia	Virginia Beach	1.016%	1,219	47 (-)	1.016%	12,191	47 (-)	1.016%	304,780	47 (-)		
Washington	Seattle	0.818%	982	50 (-)	0.818%	9,818	50 (-)	0.818%	245,443	50 (-)		
Wisconsin	Milwaukee	2.593%	3,111	9 (-)	2.649%	31,786	8 (1 ↑)	2.655%	796,456	8 (2 ↑)		
AVERAGE		1.838%	2,206		1.888%	22,653		1.933%	579,874		N = 11	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 (-)	0.818%	9,818	47 (-)	0.818%	245,447	47 (-)		
Alaska	Ketchikan	0.931%	1,117	43 (-)	1.103%	13,240	39 (1 ↑)	1.127%	338,070	37 (3 ↑)	X	X
Arizona	Safford	1.236%	1,483	32 (1 ↑)	1.243%	14,916	32 (2 ↑)	1.553%	465,880	28 (3 ↓)	X	X
Arkansas	Pocahontas	0.819%	983	46 (-)	0.819%	9,828	46 (-)	0.819%	245,693	46 (-)		
California	Yreka	1.049%	1,259	40 (1 ↑)	1.049%	12,594	41 (1 ↑)	1.049%	314,850	41 (1 ↑)		
Colorado	Walsenburg	2.304%	2,764	8 (1 ↓)	2.304%	27,643	10 (-)	2.304%	691,085	10 (-)		
Connecticut	Litchfield	2.415%	2,899	6 (14 ↑)	2.415%	28,986	8 (14 ↑)	2.415%	724,645	8 (14 ↑)		
Delaware	Georgetown	0.439%	526	50 (-)	0.439%	5,263	50 (-)	0.439%	131,568	50 (-)		X
Florida	Moore Haven	1.756%	2,107	23 (-)	2.075%	24,895	20 (3 ↓)	2.118%	635,483	19 (3 ↓)	X	X
Georgia	Fitzgerald	1.753%	2,104	24 (3 ↓)	1.753%	21,039	24 (1 ↓)	1.753%	525,987	24 (1 ↓)		
Hawaii	Kauai	0.574%	689	49 (-)	0.574%	6,885	49 (-)	0.574%	172,125	49 (-)		X
Idaho	Saint Anthony	1.085%	1,302	38 (3 ↓)	1.203%	14,430	34 (4 ↓)	1.316%	394,670	32 (3 ↓)	X	X
Illinois	Galena	1.785%	2,142	22 (3 ↓)	1.785%	21,418	23 (2 ↓)	1.785%	535,456	23 (2 ↓)		X
Indiana	North Vernon	2.265%	2,718	9 (3 ↓)	2.765%	33,180	5 (2 ↓)	2.765%	829,500	6 (3 ↓)	X	
Iowa	Hampton	2.813%	3,375	4 (20 ↑)	3.565%	42,783	2 (4 ↑)	3.787%	1,136,037	2 (4 ↑)	X	X
Kansas	Iola	4.869%	5,843	1 (-)	4.869%	58,433	1 (-)	4.869%	1,460,837	1 (-)		
Kentucky	Morehead	1.378%	1,653	29 (1 ↑)	1.378%	16,533	29 (3 ↑)	1.378%	413,315	30 (3 ↑)		
Louisiana	Natchitoches	1.361%	1,633	30 (3 ↓)	1.361%	16,331	30 (3 ↓)	1.361%	408,276	31 (1 ↓)		
Maine	Rockland	2.260%	2,712	10 (2 ↓)	2.260%	27,120	12 (1 ↓)	2.260%	678,000	12 (-)		
Maryland	Denton	2.132%	2,559	15 (1 ↓)	2.132%	25,587	17 (2 ↓)	2.132%	639,665	17 (2 ↓)		
Massachusetts	Adams	2.129%	2,555	16 (1 ↑)	2.129%	25,546	18 (1 ↑)	2.129%	638,638	18 (1 ↑)		X
Michigan	Manistique	2.858%	3,429	3 (-)	2.858%	34,291	4 (1 ↑)	2.858%	857,270	5 (-)		X
Minnesota	Glencoe	1.787%	2,145	21 (12 ↓)	2.725%	32,706	7 (5 ↓)	2.868%	860,269	4 (2 ↓)	X	X
Mississippi	Philadelphia	2.044%	2,453	19 (1 ↓)	2.044%	24,532	21 (1 ↓)	2.044%	613,305	21 (1 ↓)		
Missouri	Boonville	2.081%	2,497	18 (3 ↓)	2.081%	24,973	19 (3 ↓)	2.081%	624,314	20 (3 ↓)		X
Montana	Glasgow	1.455%	1,746	27 (5 ↑)	1.455%	17,459	27 (1 ↑)	1.650%	494,851	26 (2 ↑)	X	X
Nebraska	Sidney	2.094%	2,512	17 (4 ↓)	2.277%	27,323	11 (2 ↓)	2.296%	688,948	11 (3 ↓)	X	X
Nevada	Fallon	1.269%	1,523	31 (2 ↓)	1.269%	15,226	31 (-)	1.269%	380,640	33 (1 ↓)		
New Hampshire	Lancaster	2.145%	2,574	14 (2 ↑)	2.145%	25,745	16 (2 ↑)	2.145%	643,619	16 (2 ↑)		X
New Jersey	Maurice River Twp	2.399%	2,879	7 (3 ↓)	2.399%	28,785	9 (2 ↓)	2.399%	719,632	9 (2 ↓)		X
New Mexico	Santa Rosa	1.011%	1,213	41 (1 ↓)	1.011%	12,127	42 (1 ↓)	1.011%	303,163	42 (1 ↓)		
New York	Warsaw	2.871%	3,445	2 (3 ↑)	2.871%	34,447	3 (5 ↑)	2.871%	861,178	3 (6 ↑)		X
North Carolina	Edenton	1.081%	1,298	39 (1 ↓)	1.081%	12,977	40 (2 ↓)	1.081%	324,422	40 (2 ↓)		
North Dakota	Devils Lake	1.226%	1,471	33 (1 ↑)	1.226%	14,709	33 (2 ↑)	1.226%	367,737	34 (1 ↑)		X
Ohio	Bryan	1.440%	1,728	28 (2 ↓)	1.440%	17,279	28 (2 ↓)	1.440%	431,980	29 (2 ↓)		X
AVERAGE		1.687%	2,025		1.748%	20,981		1.770%	530,961		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	0.833%	999	45 (-)	0.833%	9,993	45 (-)	0.833%	249,830	45 (-)		X
Oregon	Tillamook	1.152%	1,383	35 (1 ↑)	1.152%	13,828	36 (-)	1.152%	345,691	36 (-)		
Pennsylvania	Ridgway	1.599%	1,918	26 (1 ↓)	1.599%	19,184	26 (1 ↓)	1.599%	479,608	27 (1 ↓)		X
Rhode Island	Hopkinton	1.830%	2,196	20 (2 ↑)	1.830%	21,962	22 (2 ↑)	1.830%	549,044	22 (2 ↑)		
South Carolina	Mullins	2.762%	3,314	5 (3 ↓)	2.762%	33,143	6 (2 ↓)	2.762%	828,585	7 (3 ↓)		
South Dakota	Vermillion	1.704%	2,045	25 (6 ↑)	1.704%	20,448	25 (8 ↑)	1.704%	511,190	25 (9 ↑)		X
Tennessee	Savannah	0.989%	1,187	42 (-)	0.989%	11,868	43 (-)	0.989%	296,700	43 (-)		X
Texas	Fort Stockton	2.167%	2,601	12 (-)	2.167%	26,006	15 (1 ↓)	2.167%	650,145	15 (1 ↓)		
Utah	Richfield	1.183%	1,420	34 (6 ↓)	1.183%	14,198	35 (6 ↓)	1.183%	354,962	35 (4 ↓)		
Vermont	Hartford	2.230%	2,675	11 (1 ↓)	2.230%	26,755	13 (-)	2.230%	668,872	13 (-)		X
Virginia	Wise	0.862%	1,034	44 (-)	0.862%	10,338	44 (-)	0.862%	258,450	44 (-)		
Washington	Okanogan	1.105%	1,326	37 (-)	1.105%	13,255	38 (1 ↓)	1.105%	331,375	39 (2 ↓)		
West Virginia	Elkins	1.112%	1,334	36 (3 ↑)	1.112%	13,339	37 (2 ↑)	1.112%	333,477	38 (1 ↑)		
Wisconsin	Rice Lake	2.160%	2,592	13 (2 ↓)	2.218%	26,611	14 (2 ↓)	2.224%	667,127	14 (3 ↓)	X	
Wyoming	Worland	0.755%	906	48 (-)	0.755%	9,058	48 (-)	0.755%	226,451	48 (-)		
AVERAGE		1.687%	2,025		1.748%	20,981		1.770%	530,961		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	28 (2 ↑)	1.162%	23,244	31 (2 ↑)	1.162%	581,088	32 (3 ↑)	X
Alaska	Anchorage	1.523%	3,045	16 (4 ↑)	1.685%	33,697	14 (7 ↑)	1.702%	851,085	15 (6 ↑)	
Arizona	Phoenix	1.315%	2,631	24 (3 ↑)	1.901%	38,013	10 (1 ↑)	2.173%	1,086,512	8 (-)	X
Arkansas	Little Rock	1.399%	2,798	22 (1 ↑)	1.399%	27,979	26 (-)	1.399%	699,475	26 (1 ↑)	
California	Los Angeles	0.940%	1,880	35 (1 ↑)	0.940%	18,803	37 (1 ↑)	0.940%	470,083	38 (1 ↑)	
Colorado	Denver	1.702%	3,404	12 (3 ↑)	1.702%	34,039	13 (5 ↑)	1.702%	850,980	16 (4 ↑)	
Connecticut	Bridgeport	1.429%	2,859	18 (9 ↓)	1.429%	28,587	22 (13 ↓)	1.429%	714,676	23 (12 ↓)	X
DC	Washington	0.761%	1,523	40 (3 ↑)	1.399%	27,980	25 (3 ↑)	1.841%	920,468	12 (3 ↑)	
Delaware	Wilmington	0.751%	1,502	41 (2 ↓)	0.751%	15,017	44 (3 ↓)	0.751%	375,430	44 (1 ↓)	X
Florida	Jacksonville	1.093%	2,186	32 (-)	1.282%	25,638	29 (1 ↑)	1.302%	651,030	29 (1 ↑)	
Georgia	Atlanta	1.410%	2,820	20 (1 ↑)	1.410%	28,200	23 (-)	1.410%	704,991	24 (-)	
Hawaii	Honolulu	0.694%	1,389	44 (4 ↑)	0.694%	13,888	47 (3 ↑)	0.694%	347,200	47 (3 ↑)	
Idaho	Boise	0.525%	1,051	53 (3 ↓)	0.800%	15,993	42 (1 ↑)	0.852%	426,161	41 (-)	X
Illinois	Aurora*	1.684%	3,368	13 (1 ↑)	1.684%	33,680	15 (1 ↑)	1.684%	841,997	17 (-)	
Illinois	Chicago	2.564%	5,128	2 (-)	2.564%	51,281	2 (-)	2.564%	1,282,037	2 (-)	
Indiana	Indianapolis	2.445%	4,890	3 (-)	2.445%	48,896	3 (-)	2.445%	1,222,400	3 (-)	
Iowa	Des Moines	1.224%	2,448	26 (7 ↓)	1.675%	33,510	16 (4 ↓)	1.808%	904,196	14 (4 ↓)	X
Kansas	Wichita	1.379%	2,758	23 (1 ↑)	1.379%	27,584	27 (-)	1.379%	689,593	27 (1 ↑)	
Kentucky	Louisville	0.816%	1,631	39 (3 ↑)	0.816%	16,314	41 (5 ↑)	0.816%	407,860	43 (3 ↑)	
Louisiana	New Orleans	2.078%	4,157	9 (2 ↓)	2.078%	41,569	9 (1 ↓)	2.078%	1,039,224	10 (1 ↓)	
Maine	Portland	0.714%	1,429	43 (9 ↓)	0.714%	14,289	46 (10 ↓)	0.714%	357,225	46 (9 ↓)	
Maryland	Baltimore	1.403%	2,807	21 (1 ↑)	1.403%	28,070	24 (-)	1.403%	701,738	25 (-)	
Massachusetts	Boston	1.117%	2,234	30 (1 ↑)	1.117%	22,341	33 (1 ↑)	1.117%	558,513	34 (2 ↑)	X
Michigan	Detroit	2.279%	4,557	5 (3 ↑)	2.438%	48,753	4 (-)	2.438%	1,218,817	4 (-)	
Minnesota	Minneapolis	0.954%	1,909	34 (1 ↓)	1.502%	30,041	19 (-)	1.582%	791,218	20 (2 ↓)	X
Mississippi	Jackson	2.794%	5,587	1 (-)	2.794%	55,873	1 (-)	2.794%	1,396,817	1 (-)	
Missouri	Kansas City	2.252%	4,504	7 (3 ↓)	2.252%	45,040	7 (2 ↓)	2.252%	1,126,001	7 (2 ↓)	
Montana	Billings	0.621%	1,243	50 (1 ↓)	0.778%	15,551	43 (1 ↓)	1.109%	554,312	36 (5 ↓)	
Nebraska	Omaha	1.551%	3,102	15 (2 ↑)	1.651%	33,018	17 (-)	1.662%	830,790	18 (1 ↑)	X
Nevada	Las Vegas	0.908%	1,816	36 (2 ↑)	0.908%	18,161	38 (2 ↑)	0.908%	454,031	39 (3 ↑)	
New Hampshire	Manchester	0.649%	1,298	47 (12 ↓)	0.649%	12,977	50 (13 ↓)	0.649%	324,428	50 (12 ↓)	
New Jersey	Newark	1.613%	3,227	14 (2 ↑)	1.613%	32,265	18 (2 ↑)	1.613%	806,637	19 (3 ↑)	
New Mexico	Albuquerque	1.211%	2,422	27 (2 ↑)	1.211%	24,217	30 (2 ↑)	1.211%	605,421	30 (4 ↑)	
New York	Buffalo*	1.044%	2,088	33 (8 ↑)	1.044%	20,884	36 (9 ↑)	1.044%	522,092	37 (8 ↑)	
New York	New York City	0.538%	1,076	51 (1 ↑)	0.538%	10,755	52 (-)	0.538%	268,875	52 (-)	
AVERAGE		1.301%	2,602		1.372%	27,441		1.400%	699,777		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	0.716%	1,433	42 (2 ↑)	0.716%	14,329	45 (2 ↑)	0.716%	358,232	45 (2 ↑)	
North Dakota	Fargo	0.640%	1,280	49 (2 ↓)	0.640%	12,795	51 (2 ↓)	0.640%	319,876	51 (2 ↓)	
Ohio	Columbus	1.111%	2,221	31 (3 ↓)	1.111%	22,210	34 (3 ↓)	1.111%	555,255	35 (3 ↓)	
Oklahoma	Oklahoma	1.457%	2,913	17 (1 ↑)	1.457%	29,131	21 (1 ↑)	1.457%	728,269	22 (1 ↑)	
Oregon	Portland	2.096%	4,192	8 (2 ↑)	2.096%	41,923	8 (2 ↑)	2.096%	1,048,085	9 (3 ↑)	
Pennsylvania	Philadelphia	0.646%	1,292	48 (2 ↓)	1.105%	22,100	35 (-)	1.200%	600,023	31 (2 ↑)	X
Rhode Island	Providence	1.840%	3,680	11 (-)	1.840%	36,804	12 (1 ↑)	1.840%	920,109	13 (-)	
South Carolina	Charleston	2.291%	4,581	4 (1 ↑)	2.291%	45,813	5 (1 ↑)	2.291%	1,145,320	5 (1 ↑)	
South Dakota	Sioux Falls	0.827%	1,654	38 (2 ↑)	0.827%	16,537	40 (4 ↑)	0.827%	413,437	42 (2 ↑)	
Tennessee	Nashville	1.151%	2,302	29 (3 ↓)	1.151%	23,016	32 (3 ↓)	1.151%	575,400	33 (4 ↓)	
Texas	Houston	2.267%	4,534	6 (-)	2.267%	45,343	6 (1 ↑)	2.267%	1,133,576	6 (1 ↑)	
Utah	Salt Lake	0.897%	1,795	37 (-)	0.897%	17,946	39 (-)	0.897%	448,645	40 (-)	
Vermont	Burlington	1.304%	2,608	25 (12 ↓)	1.304%	26,077	28 (13 ↓)	1.304%	651,917	28 (12 ↓)	
Virginia	Virginia	0.530%	1,059	52 (1 ↓)	0.530%	10,591	53 (2 ↓)	0.530%	264,780	53 (2 ↓)	
Washington	Seattle	0.666%	1,333	46 (1 ↓)	0.666%	13,326	49 (1 ↓)	0.666%	333,155	49 (1 ↓)	
West Virginia	Charleston	1.875%	3,750	10 (2 ↑)	1.875%	37,501	11 (3 ↑)	1.875%	937,521	11 (3 ↑)	X
Wisconsin	Milwaukee	1.423%	2,846	19 (6 ↑)	1.457%	29,131	20 (5 ↑)	1.460%	730,078	21 (5 ↑)	
Wyoming	Cheyenne	0.682%	1,364	45 (8 ↑)	0.682%	13,643	48 (5 ↑)	0.682%	341,083	48 (5 ↑)	
AVERAGE		1.301%	2,602		1.372%	27,441		1.400%	699,777		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	27 (1 ↑)	1.104%	27,594	32 (-)	1.104%	689,838	33 (-)	X
Alaska	Anchorage	1.579%	3,946	13 (4 ↑)	1.708%	42,707	12 (2 ↑)	1.722%	1,076,335	13 (2 ↑)	
Arizona	Phoenix	1.052%	2,631	29 (1 ↑)	1.868%	46,704	11 (2 ↓)	2.086%	1,303,790	7 (1 ↓)	X
Arkansas	Little Rock	1.399%	3,498	16 (4 ↑)	1.399%	34,979	18 (5 ↑)	1.399%	874,475	19 (4 ↑)	
California	Los Angeles	0.893%	2,233	32 (-)	0.893%	22,329	34 (-)	0.893%	558,224	36 (-)	
Colorado	Denver	1.620%	4,049	11 (2 ↑)	1.620%	40,494	13 (3 ↑)	1.620%	1,012,354	14 (4 ↑)	
Connecticut	Bridgeport	1.204%	3,011	21 (10 ↓)	1.204%	30,108	26 (14 ↓)	1.204%	752,695	27 (14)	
DC	Washington	0.609%	1,523	43 (2 ↑)	1.527%	38,180	16 (3 ↑)	1.881%	1,175,468	11 (-)	X
Delaware	Wilmington	0.601%	1,502	44 (5 ↓)	0.601%	15,017	47 (4 ↓)	0.601%	375,430	47 (4 ↓)	
Florida	Jacksonville	1.076%	2,690	28 (1 ↑)	1.227%	30,678	24 (4 ↑)	1.243%	777,036	24 (3 ↑)	X
Georgia	Atlanta	1.389%	3,472	17 (1 ↑)	1.389%	34,720	19 (2 ↑)	1.389%	868,001	20 (1 ↑)	
Hawaii	Honolulu	0.556%	1,389	46 (2 ↑)	0.556%	13,888	49 (1 ↑)	0.556%	347,200	49 (1 ↑)	
Idaho	Boise	0.420%	1,051	53 (1 ↓)	0.771%	19,284	40 (-)	0.813%	508,428	41 (2 ↓)	X
Illinois	Aurora*	1.347%	3,368	18 (1 ↑)	1.347%	33,680	20 (2 ↑)	1.347%	841,997	21 (1 ↑)	
Illinois	Chicago	2.051%	5,128	7 (-)	2.051%	51,281	8 (-)	2.051%	1,282,037	9 (-)	
Indiana	Indianapolis	2.311%	5,778	2 (-)	2.311%	57,781	2 (-)	2.311%	1,444,520	2 (-)	
Iowa	Des Moines	0.979%	2,448	30 (5 ↓)	1.340%	33,510	21 (3 ↓)	1.447%	904,196	18 (4 ↓)	
Kansas	Wichita	1.161%	2,904	23 (1 ↑)	1.161%	29,036	28 (2 ↑)	1.161%	725,888	28 (3 ↑)	
Kentucky	Louisville	0.712%	1,780	38 (4 ↑)	0.712%	17,804	42 (4 ↑)	0.712%	445,098	42 (4 ↑)	
Louisiana	New Orleans	2.095%	5,237	6 (-)	2.095%	52,365	6 (-)	2.095%	1,309,130	6 (1 ↑)	
Maine	Portland	0.598%	1,494	45 (9 ↓)	0.598%	14,939	48 (9 ↓)	0.598%	373,463	48 (7 ↓)	
Maryland	Baltimore	1.235%	3,087	20 (3 ↑)	1.235%	30,865	23 (4 ↑)	1.235%	771,637	25 (3 ↑)	
Massachusetts	Boston	0.894%	2,234	31 (3 ↑)	0.894%	22,341	33 (3 ↑)	0.894%	558,513	35 (3 ↑)	
Michigan	Detroit	1.886%	4,716	9 (1 ↑)	2.077%	51,934	7 (-)	2.077%	1,298,342	8 (-)	X
Minnesota	Minneapolis	0.763%	1,909	37 (-)	1.202%	30,041	27 (2 ↓)	1.266%	791,218	23 (1 ↑)	X
Mississippi	Jackson	2.812%	7,030	1 (-)	2.812%	70,304	1 (-)	2.812%	1,757,602	1 (-)	
Missouri	Kansas City	2.130%	5,324	5 (1 ↓)	2.130%	53,238	5 (1 ↓)	2.130%	1,330,941	5 (1 ↓)	
Montana	Billings	0.497%	1,243	50 (-)	0.747%	18,674	41 (-)	1.137%	710,485	31 (2 ↓)	X
Nebraska	Omaha	1.508%	3,769	14 (1 ↑)	1.588%	39,690	14 (1 ↑)	1.596%	997,599	15 (2 ↑)	X
Nevada	Las Vegas	0.864%	2,160	34 (1 ↑)	0.864%	21,603	37 (1 ↑)	0.864%	540,083	38 (2 ↑)	
New Hampshire	Manchester	0.519%	1,298	47 (9 ↓)	0.519%	12,977	50 (8 ↓)	0.519%	324,428	50 (8 ↓)	
New Jersey	Newark	1.291%	3,227	19 (3 ↑)	1.291%	32,265	22 (4 ↑)	1.291%	806,637	22 (4 ↑)	
New Mexico	Albuquerque	1.156%	2,890	24 (3 ↑)	1.156%	28,899	29 (2 ↑)	1.156%	722,486	29 (3 ↑)	
New York	Buffalo*	0.835%	2,088	36 (7 ↑)	0.835%	20,884	39 (8 ↑)	0.835%	522,092	40 (7 ↑)	
New York	New York City	0.430%	1,076	52 (1 ↑)	0.430%	10,755	53 (-)	0.430%	268,875	53 (-)	
AVERAGE		1.175%	2,938		1.252%	31,309		1.277%	797,957		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	0.689%	1,722	39 (1 ↑)	0.689%	17,224	43 (1 ↑)	0.689%	430,607	43 (1 ↑)	
North Dakota	Fargo	0.512%	1,280	49 (2 ↓)	0.512%	12,795	51 (2 ↓)	0.512%	319,876	51 (2 ↓)	
Ohio	Columbus	0.888%	2,221	33 (2 ↓)	0.888%	22,210	35 (2 ↓)	0.888%	555,255	37 (3 ↓)	
Oklahoma	Oklahoma City	1.489%	3,722	15 (1 ↑)	1.489%	37,223	17 (3 ↑)	1.489%	930,566	17 (3 ↑)	
Oregon	Portland	1.991%	4,978	8 (-)	1.991%	49,784	9 (1 ↑)	1.991%	1,244,601	10 (-)	
Pennsylvania	Philadelphia	0.517%	1,292	48 (2 ↓)	0.884%	22,100	36 (1 ↑)	0.960%	600,023	34 (1 ↑)	X
Rhode Island	Providence	1.584%	3,959	12 (-)	1.584%	39,594	15 (2 ↓)	1.584%	989,859	16 (-)	
South Carolina	Charleston	2.176%	5,440	4 (1 ↑)	2.176%	54,403	4 (1 ↑)	2.176%	1,360,068	4 (1 ↑)	
South Dakota	Sioux Falls	0.661%	1,654	40 (1 ↑)	0.661%	16,537	44 (1 ↑)	0.661%	413,437	44 (1 ↑)	
Tennessee	Nashville	1.118%	2,795	26 (5 ↓)	1.118%	27,948	31 (7 ↓)	1.118%	698,700	32 (7 ↓)	
Texas	Houston	2.286%	5,716	3 (-)	2.286%	57,159	3 (-)	2.286%	1,428,987	3 (-)	
Utah	Salt Lake City	0.857%	2,144	35 (2 ↓)	0.857%	21,437	38 (3 ↓)	0.857%	535,930	39 (2 ↓)	
Vermont	Burlington	1.144%	2,860	25 (11 ↓)	1.144%	28,597	30 (13 ↓)	1.144%	714,926	30 (11)	
Virginia	Virginia Beach	0.456%	1,139	51 (-)	0.456%	11,391	52 (-)	0.456%	284,780	52 (-)	
Washington	Seattle	0.638%	1,596	42 (2 ↑)	0.638%	15,958	46 (2 ↑)	0.638%	398,938	46 (2 ↑)	
West Virginia	Charleston	1.875%	4,688	10 (1 ↓)	1.875%	46,876	10 (1 ↑)	1.875%	1,171,901	12 (-)	X
Wisconsin	Milwaukee	1.191%	2,978	22 (4 ↑)	1.218%	30,459	25 (4 ↑)	1.221%	763,267	26 (4 ↑)	
Wyoming	Cheyenne	0.646%	1,614	41 (8 ↑)	0.646%	16,139	45 (6 ↑)	0.646%	403,476	45 (6 ↑)	
AVERAGE		1.175%	2,938		1.252%	31,309		1.277%	797,957		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	0.960%	1,921	35 (5 ↑)	1.394%	27,883	26 (-)	1.596%	797,963	19 (2 ↑)	X
Arizona	Phoenix	1.315%	2,631	23 (3 ↑)	1.901%	38,013	14 (1 ↑)	2.173%	1,086,512	12 (-)	X
Arizona	Tucson	1.114%	2,227	28 (4 ↑)	1.642%	32,848	17 (1 ↑)	1.888%	944,243	15 (1 ↑)	X
California	Bakersfield	0.907%	1,815	41 (n/a)	0.907%	18,149	43 (n/a)	0.907%	453,726	43 (n/a)	
California	Fresno	1.012%	2,023	34 (-)	1.012%	20,230	38 (1 ↓)	1.012%	505,756	38 (1 ↓)	
California	Long Beach	0.953%	1,906	37 (-)	0.953%	19,057	39 (1 ↑)	0.953%	476,436	39 (1 ↑)	
California	Los Angeles	0.940%	1,880	39 (1 ↓)	0.940%	18,803	41 (-)	0.940%	470,083	41 (-)	
California	Oakland	1.099%	2,199	30 (1 ↑)	1.099%	21,986	35 (1 ↑)	1.099%	549,640	35 (1 ↑)	
California	Sacramento	0.893%	1,787	42 (1 ↓)	0.893%	17,867	44 (1 ↓)	0.893%	446,680	44 (1 ↓)	
California	San Diego	1.066%	2,132	32 (4 ↑)	1.066%	21,315	36 (3 ↑)	1.066%	532,876	36 (3 ↑)	
California	San Francisco	0.946%	1,892	38 (1 ↑)	0.946%	18,920	40 (2 ↑)	0.946%	472,994	40 (2 ↑)	
California	San Jose	1.018%	2,037	33 (2 ↑)	1.018%	20,369	37 (1 ↑)	1.018%	509,224	37 (1 ↑)	
Colorado	Colorado Springs	1.548%	3,096	16 (1 ↑)	1.548%	30,961	18 (3 ↑)	1.548%	774,029	21 (2 ↑)	
Colorado	Denver	1.702%	3,404	14 (1 ↑)	1.702%	34,039	15 (2 ↑)	1.702%	850,980	17 (3 ↑)	
DC	Washington	0.761%	1,523	44 (1 ↑)	1.399%	27,980	25 (3 ↑)	1.841%	920,468	16 (1 ↑)	X
Florida	Jacksonville	1.093%	2,186	31 (1 ↓)	1.282%	25,638	29 (2 ↑)	1.302%	651,030	29 (2 ↑)	X
Florida	Miami	1.289%	2,578	24 (1 ↑)	1.519%	30,371	19 (1 ↑)	1.543%	771,507	22 (-)	X
Georgia	Atlanta	1.410%	2,820	19 (-)	1.410%	28,200	23 (-)	1.410%	704,991	25 (-)	
Illinois	Chicago	2.564%	5,128	4 (1 ↑)	2.564%	51,281	4 (1 ↑)	2.564%	1,282,037	4 (1 ↑)	
Indiana	Indianapolis	2.445%	4,890	7 (1 ↓)	2.445%	48,896	7 (1 ↓)	2.445%	1,222,400	7 (1 ↓)	
Kansas	Wichita	1.379%	2,758	22 (1 ↓)	1.379%	27,584	28 (1 ↓)	1.379%	689,593	28 (-)	
Kentucky	Louisville	0.816%	1,631	43 (-)	0.816%	16,314	45 (-)	0.816%	407,860	45 (-)	
Maryland	Baltimore	1.403%	2,807	20 (-)	1.403%	28,070	24 (-)	1.403%	701,738	26 (-)	
Massachusetts	Boston	1.117%	2,234	27 (2 ↑)	1.117%	22,341	32 (2 ↑)	1.117%	558,513	33 (2 ↑)	
Michigan	Detroit	2.279%	4,557	9 (4 ↑)	2.438%	48,753	8 (2 ↑)	2.438%	1,218,817	8 (2 ↑)	X
Minnesota	Minneapolis	0.954%	1,909	36 (3 ↓)	1.502%	30,041	20 (1 ↓)	1.582%	791,218	20 (2 ↓)	X
Missouri	Kansas City	2.252%	4,504	11 (1 ↓)	2.252%	45,040	11 (-)	2.252%	1,126,001	11 (-)	
Nebraska	Omaha	1.551%	3,102	15 (1 ↑)	1.651%	33,018	16 (-)	1.662%	830,790	18 (1 ↑)	X
Nevada	Las Vegas	0.908%	1,816	40 (2 ↑)	0.908%	18,161	42 (2 ↑)	0.908%	454,031	42 (2 ↑)	
New Mexico	Albuquerque	1.211%	2,422	25 (3 ↑)	1.211%	24,217	30 (3 ↑)	1.211%	605,421	30 (4 ↑)	
New York	New York City	0.538%	1,076	49 (1 ↑)	0.538%	10,755	49 (1 ↑)	0.538%	268,875	49 (1 ↑)	
North Carolina	Charlotte	0.716%	1,433	46 (-)	0.716%	14,329	47 (-)	0.716%	358,232	47 (-)	
North Carolina	Raleigh	0.758%	1,515	45 (1 ↓)	0.758%	15,153	46 (-)	0.758%	378,813	46 (-)	
Ohio	Columbus	1.111%	2,221	29 (2 ↓)	1.111%	22,210	33 (1 ↓)	1.111%	555,255	34 (2 ↓)	
Oklahoma	Oklahoma City	1.457%	2,913	17 (1 ↑)	1.457%	29,131	22 (-)	1.457%	728,269	24 (-)	
AVERAGE		1.431%	2,861		1.509%	30,172		1.537%	768,256		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	1.387%	2,773	21 (2 ↑)	1.387%	27,735	27 (2 ↑)	1.387%	693,368	27 (2 ↑)	X
Oregon	Portland	2.096%	4,192	13 (1 ↑)	2.096%	41,923	13 (1 ↑)	2.096%	1,048,085	14 (1 ↑)	
Pennsylvania	Philadelphia	0.646%	1,292	48 (-)	1.105%	22,100	34 (1 ↑)	1.200%	600,023	31 (2 ↑)	
Tennessee	Memphis	2.367%	4,734	8 (-)	2.367%	47,341	9 (1 ↓)	2.367%	1,183,534	9 (1 ↓)	
Tennessee	Nashville	1.151%	2,302	26 (2 ↓)	1.151%	23,016	31 (1 ↓)	1.151%	575,400	32 (2 ↓)	
Texas	Arlington	2.504%	5,008	6 (2 ↓)	2.504%	50,079	6 (2 ↓)	2.504%	1,251,970	6 (2 ↓)	
Texas	Austin	2.110%	4,220	12 (1 ↓)	2.110%	42,204	12 (-)	2.110%	1,055,091	13 (-)	
Texas	Dallas	2.588%	5,176	3 (4 ↑)	2.588%	51,757	3 (4 ↑)	2.588%	1,293,914	3 (4 ↑)	
Texas	El Paso	3.030%	6,061	1 (1 ↑)	3.030%	60,608	1 (1 ↑)	3.030%	1,515,190	1 (1 ↑)	
Texas	Fort Worth	2.560%	5,119	5 (2 ↓)	2.560%	51,194	5 (2 ↓)	2.560%	1,279,854	5 (2 ↓)	
Texas	Houston	2.267%	4,534	10 (1 ↓)	2.267%	45,343	10 (1 ↓)	2.267%	1,133,576	10 (1 ↓)	X
Texas	San Antonio	2.716%	5,431	2 (1 ↓)	2.716%	54,312	2 (1 ↓)	2.716%	1,357,803	2 (1 ↓)	
Virginia	Virginia Beach	0.530%	1,059	50 (1 ↓)	0.530%	10,591	50 (1 ↓)	0.530%	264,780	50 (1 ↓)	
Washington	Seattle	0.666%	1,333	47 (-)	0.666%	13,326	48 (-)	0.666%	333,155	48 (-)	
Wisconsin	Milwaukee	1.423%	2,846	18 (4 ↑)	1.457%	29,131	21 (4 ↑)	1.460%	730,078	23 (4 ↑)	
AVERAGE		1.431%	2,861		1.509%	30,172		1.537%	768,256		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	0.768%	1,921	41 (1 ↑)	1.373%	34,321	24 (-)	1.534%	958,933	19 (1 ↑)	X
Arizona	Phoenix	1.052%	2,631	27 (1 ↑)	1.868%	46,704	14 (-)	2.086%	1,303,790	11 (-)	X
Arizona	Tucson	0.891%	2,227	36 (2 ↑)	1.628%	40,700	15 (1 ↑)	1.825%	1,140,529	16 (1 ↑)	X
California	Bakersfield	0.849%	2,123	39 (n/a)	0.849%	21,234	43 (n/a)	0.849%	530,845	43 (n/a)	
California	Fresno	0.961%	2,402	31 (-)	0.961%	24,023	35 (-)	0.961%	600,585	35 (1 ↑)	
California	Long Beach	0.905%	2,263	32 (2 ↑)	0.905%	22,631	36 (2 ↑)	0.905%	565,767	37 (2 ↑)	
California	Los Angeles	0.893%	2,233	35 (-)	0.893%	22,329	39 (-)	0.893%	558,224	40 (-)	
California	Oakland	1.044%	2,611	28 (1 ↑)	1.044%	26,108	32 (1 ↑)	1.044%	652,698	32 (1 ↑)	
California	Sacramento	0.849%	2,122	40 (1 ↓)	0.849%	21,217	44 (1 ↓)	0.849%	530,433	44 (1 ↓)	
California	San Diego	1.012%	2,531	29 (4 ↑)	1.012%	25,312	33 (4 ↑)	1.012%	632,790	33 (5 ↑)	
California	San Francisco	0.899%	2,247	33 (3 ↑)	0.899%	22,467	37 (3 ↑)	0.899%	561,680	38 (3 ↑)	
California	San Jose	0.968%	2,419	30 (2 ↑)	0.968%	24,188	34 (2 ↑)	0.968%	604,704	34 (3 ↑)	
Colorado	Colorado Springs	1.475%	3,687	17 (1 ↑)	1.475%	36,866	20 (2 ↑)	1.475%	921,651	22 (1 ↑)	
Colorado	Denver	1.620%	4,049	14 (1 ↑)	1.620%	40,494	16 (2 ↑)	1.620%	1,012,354	17 (2 ↑)	
DC	Washington	0.609%	1,523	47 (-)	1.527%	38,180	18 (1 ↑)	1.881%	1,175,468	15 (1 ↑)	X
Florida	Jacksonville	1.076%	2,690	26 (1 ↑)	1.227%	30,678	26 (3 ↑)	1.243%	777,036	26 (2 ↑)	X
Florida	Miami	1.276%	3,190	20 (2 ↑)	1.460%	36,490	21 (-)	1.479%	924,482	21 (-)	X
Georgia	Atlanta	1.389%	3,472	18 (1 ↑)	1.389%	34,720	22 (1 ↑)	1.389%	868,001	23 (1 ↑)	
Illinois	Chicago	2.051%	5,128	11 (1 ↑)	2.051%	51,281	12 (1 ↑)	2.051%	1,282,037	13 (1 ↑)	
Indiana	Indianapolis	2.311%	5,778	6 (2 ↑)	2.311%	57,781	6 (2 ↑)	2.311%	1,444,520	6 (2 ↑)	
Kansas	Wichita	1.161%	2,904	23 (1 ↑)	1.161%	29,036	29 (2 ↑)	1.161%	725,888	29 (2 ↑)	
Kentucky	Louisville	0.712%	1,780	44 (1 ↑)	0.712%	17,804	46 (1 ↑)	0.712%	445,098	46 (1 ↑)	
Maryland	Baltimore	1.235%	3,087	21 (2 ↑)	1.235%	30,865	25 (3 ↑)	1.235%	771,637	27 (2 ↑)	
Massachusetts	Boston	0.894%	2,234	34 (3 ↑)	0.894%	22,341	38 (3 ↑)	0.894%	558,513	39 (3 ↑)	
Michigan	Detroit	1.886%	4,716	13 (1 ↑)	2.077%	51,934	11 (1 ↑)	2.077%	1,298,342	12 (1 ↑)	X
Minnesota	Minneapolis	0.763%	1,909	42 (1 ↓)	1.202%	30,041	28 (1 ↓)	1.266%	791,218	25 (-)	X
Missouri	Kansas City	2.130%	5,324	9 (1 ↑)	2.130%	53,238	9 (1 ↑)	2.130%	1,330,941	9 (1 ↑)	
Nebraska	Omaha	1.508%	3,769	15 (1 ↑)	1.588%	39,690	17 (-)	1.596%	997,599	18 (-)	X
Nevada	Las Vegas	0.864%	2,160	38 (2 ↑)	0.864%	21,603	42 (2 ↑)	0.864%	540,083	42 (2 ↑)	
New Mexico	Albuquerque	1.156%	2,890	24 (2 ↑)	1.156%	28,899	30 (2 ↑)	1.156%	722,486	30 (2 ↑)	
New York	New York City	0.430%	1,076	50 (-)	0.430%	10,755	50 (-)	0.430%	268,875	50 (-)	
North Carolina	Charlotte	0.689%	1,722	45 (1 ↓)	0.689%	17,224	47 (1 ↓)	0.689%	430,607	47 (1 ↓)	
North Carolina	Raleigh	0.723%	1,807	43 (-)	0.723%	18,072	45 (-)	0.723%	451,788	45 (-)	
Ohio	Columbus	0.888%	2,221	37 (7 ↓)	0.888%	22,210	40 (6 ↓)	0.888%	555,255	41 (7 ↓)	
Oklahoma	Oklahoma City	1.489%	3,722	16 (1 ↑)	1.489%	37,223	19 (1 ↑)	1.489%	930,566	20 (2 ↑)	
AVERAGE		1.339%	3,347		1.429%	35,723		1.451%	907,035		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	1.374%	3,434	19 (1 ↑)	1.374%	34,338	23 (2 ↑)	1.374%	858,455	24 (2 ↑)	X
Oregon	Portland	1.991%	4,978	12 (1 ↑)	1.991%	49,784	13 (2 ↑)	1.991%	1,244,601	14 (1 ↑)	
Pennsylvania	Philadelphia	0.517%	1,292	48 (-)	0.884%	22,100	41 (1 ↑)	0.960%	600,023	36 (1 ↓)	
Tennessee	Memphis	2.299%	5,749	7 (-)	2.299%	57,486	7 (-)	2.299%	1,437,148	7 (-)	
Tennessee	Nashville	1.118%	2,795	25 (4 ↓)	1.118%	27,948	31 (5 ↓)	1.118%	698,700	31 (4 ↓)	
Texas	Arlington	2.531%	6,327	5 (1 ↓)	2.531%	63,265	5 (1 ↓)	2.531%	1,581,630	5 (1 ↓)	
Texas	Austin	2.120%	5,301	10 (1 ↓)	2.120%	53,008	10 (1 ↓)	2.120%	1,325,189	10 (1 ↓)	
Texas	Dallas	2.623%	6,558	3 (2 ↑)	2.623%	65,585	3 (2 ↑)	2.623%	1,639,615	3 (2 ↑)	
Texas	El Paso	3.032%	7,581	1 (1 ↑)	3.032%	75,810	1 (1 ↑)	3.032%	1,895,257	1 (1 ↑)	
Texas	Fort Worth	2.592%	6,480	4 (1 ↓)	2.592%	64,799	4 (1 ↓)	2.592%	1,619,978	4 (1 ↓)	
Texas	Houston	2.286%	5,716	8 (2 ↓)	2.286%	57,159	8 (2 ↓)	2.286%	1,428,987	8 (2 ↓)	X
Texas	San Antonio	2.736%	6,839	2 (1 ↓)	2.736%	68,390	2 (1 ↓)	2.736%	1,709,757	2 (1 ↓)	
Virginia	Virginia Beach	0.456%	1,139	49 (-)	0.456%	11,391	49 (-)	0.456%	284,780	49 (-)	
Washington	Seattle	0.638%	1,596	46 (-)	0.638%	15,958	48 (-)	0.638%	398,938	48 (-)	
Wisconsin	Milwaukee	1.191%	2,978	22 (3 ↑)	1.218%	30,459	27 (3 ↑)	1.221%	763,267	28 (2 ↑)	
AVERAGE		1.339%	3,347		1.429%	35,723		1.451%	907,035		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	0.656%	1,312	47 (1 ↑)	0.656%	13,120	48 (-)	0.656%	328,000	48 (-)	X
Alaska	Ketchikan	0.765%	1,530	43 (3 ↓)	0.898%	17,960	39 (-)	0.912%	456,070	39 (-)	
Arizona	Safford	0.742%	1,483	44 (1 ↓)	1.141%	22,828	24 (1 ↓)	1.327%	663,671	20 (2 ↓)	X
Arkansas	Pocahontas	0.815%	1,631	38 (-)	0.815%	16,309	42 (-)	0.815%	407,733	42 (-)	
California	Yreka	0.840%	1,679	37 (-)	0.840%	16,792	41 (-)	0.840%	419,800	41 (-)	
Colorado	Walsenburg	1.843%	3,686	6 (-)	1.843%	36,858	7 (1 ↑)	1.843%	921,446	7 (1 ↑)	X
Connecticut	Litchfield	1.353%	2,705	14 (12 ↑)	1.353%	27,054	16 (13 ↑)	1.353%	676,345	18 (12 ↑)	
Delaware	Georgetown	0.263%	526	50 (-)	0.263%	5,263	50 (-)	0.263%	131,568	50 (-)	
Florida	Moore Haven	1.436%	2,872	12 (1 ↓)	1.682%	33,630	10 (-)	1.708%	853,861	10 (1 ↓)	
Georgia	Fitzgerald	1.550%	3,100	10 (1 ↓)	1.550%	31,001	12 (-)	1.550%	775,035	12 (1 ↑)	
Hawaii	Kauai	0.377%	753	49 (-)	0.377%	7,533	49 (-)	0.377%	188,325	49 (-)	X
Idaho	Saint Anthony	0.651%	1,302	48 (1 ↓)	1.004%	20,083	32 (5 ↓)	1.072%	535,989	28 (3 ↓)	
Illinois	Galena	1.071%	2,142	25 (4 ↓)	1.071%	21,418	27 (5 ↓)	1.071%	535,456	29 (5 ↓)	
Indiana	North Vernon	2.259%	4,518	3 (-)	2.259%	45,180	3 (-)	2.259%	1,129,500	3 (-)	X
Iowa	Hampton	0.784%	1,568	41 (14 ↓)	1.236%	24,710	21 (8 ↓)	1.368%	684,208	17 (5 ↓)	
Kansas	Iola	2.670%	5,341	2 (-)	2.670%	53,409	2 (-)	2.670%	1,335,228	2 (-)	X
Kentucky	Morehead	0.781%	1,561	42 (2 ↑)	0.781%	15,612	45 (-)	0.781%	390,308	45 (-)	
Louisiana	Natchitoches	1.406%	2,811	13 (1 ↓)	1.406%	28,113	15 (1 ↓)	1.406%	702,816	16 (1 ↓)	
Maine	Rockland	1.243%	2,486	19 (-)	1.243%	24,860	20 (-)	1.243%	621,500	23 (-)	
Maryland	Denton	1.082%	2,164	23 (1 ↑)	1.082%	21,637	26 (-)	1.082%	540,915	27 (1 ↑)	
Massachusetts	Adams	1.277%	2,555	18 (-)	1.277%	25,546	19 (-)	1.277%	638,638	22 (1 ↓)	X
Michigan	Manistique	1.338%	2,676	15 (5 ↓)	1.428%	28,553	14 (3 ↓)	1.428%	713,836	15 (4 ↓)	
Minnesota	Glencoe	1.072%	2,145	24 (9 ↓)	1.635%	32,706	11 (5 ↓)	1.721%	860,269	9 (4 ↓)	X
Mississippi	Philadelphia	2.044%	4,089	5 (-)	2.044%	40,887	5 (-)	2.044%	1,022,175	5 (1 ↑)	
Missouri	Boonville	1.696%	3,392	9 (1 ↓)	1.696%	33,919	9 (-)	1.696%	847,980	11 (1 ↓)	
Montana	Glasgow	0.873%	1,746	36 (6 ↑)	1.058%	21,165	28 (2 ↑)	1.451%	725,588	13 (1 ↑)	X
Nebraska	Sidney	1.745%	3,490	7 (-)	1.855%	37,105	6 (1 ↑)	1.867%	933,486	6 (1 ↑)	X
Nevada	Fallon	1.017%	2,035	27 (1 ↑)	1.017%	20,350	30 (1 ↑)	1.017%	508,740	31 (-)	
New Jersey	Lancaster	1.287%	2,574	17 (-)	1.287%	25,745	18 (-)	1.287%	643,619	21 (1 ↓)	
New Jersey	Maurice River	1.439%	2,879	11 (2 ↑)	1.439%	28,785	13 (2 ↑)	1.439%	719,632	14 (2 ↑)	
New Mexico	Santa Rosa	0.814%	1,629	39 (3 ↓)	0.814%	16,289	43 (3 ↓)	0.814%	407,226	43 (3 ↓)	
New York	Warsaw	1.722%	3,445	8 (6 ↑)	1.722%	34,447	8 (8 ↑)	1.722%	861,178	8 (9 ↑)	
North Carolina	Edenton	0.898%	1,796	35 (3 ↓)	0.898%	17,957	40 (5 ↓)	0.898%	448,922	40 (5 ↓)	
North Dakota	Devils Lake	0.735%	1,471	45 (1 ↑)	0.735%	14,709	46 (1 ↑)	0.735%	367,737	46 (1 ↑)	
Ohio	Bryan	1.205%	2,409	20 (2 ↑)	1.205%	24,091	23 (1 ↑)	1.205%	602,280	25 (1 ↑)	
AVERAGE		1.210%	2,419		1.261%	25,218		1.279%	639,646		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	0.964%	1,927	30 (1 ↓)	0.964%	19,273	34 (2 ↓)	0.964%	481,815	34 (2 ↓)	
Oregon	Tillamook	0.922%	1,844	34 (-)	0.922%	18,437	38 (1 ↓)	0.922%	460,921	38 (1 ↓)	
Pennsylvania	Ridgway	0.959%	1,918	31 (4 ↑)	0.959%	19,184	35 (3 ↑)	0.959%	479,608	35 (3 ↑)	
Rhode Island	Hopkinton	1.005%	2,011	28 (2 ↑)	1.005%	20,109	31 (2 ↑)	1.005%	502,719	32 (1 ↑)	
South Carolina	Mullins	3.671%	7,341	1 (-)	3.671%	73,411	1 (-)	3.671%	1,835,280	1 (-)	
South Dakota	Vermillion	1.022%	2,045	26 (15 ↑)	1.022%	20,448	29 (15 ↑)	1.022%	511,190	30 (14 ↑)	
Tennessee	Savannah	0.925%	1,849	32 (1 ↑)	0.925%	18,492	36 (-)	0.925%	462,300	36 (-)	
Texas	Fort Stockton	2.256%	4,512	4 (-)	2.256%	45,124	4 (-)	2.256%	1,128,105	4 (-)	
Utah	Richfield	0.970%	1,940	29 (4 ↓)	0.970%	19,404	33 (5 ↓)	0.970%	485,092	33 (4 ↓)	
Vermont	Hartford	1.338%	2,675	16 (-)	1.338%	26,755	17 (-)	1.338%	668,872	19 (-)	
Virginia	Wise	0.787%	1,574	40 (1 ↓)	0.787%	15,738	44 (1 ↓)	0.787%	393,450	44 (1 ↓)	X
Washington	Okanogan	0.925%	1,849	33 (2 ↓)	0.925%	18,491	37 (3 ↓)	0.925%	462,272	37 (3 ↓)	
West Virginia	Elkins	1.100%	2,199	22 (1 ↑)	1.100%	21,991	25 (-)	1.100%	549,787	26 (1 ↑)	
Wisconsin	Rice Lake	1.185%	2,369	21 (1 ↓)	1.219%	24,387	22 (1 ↓)	1.223%	611,526	24 (2 ↓)	
Wyoming	Worland	0.701%	1,401	46 (1 ↓)	0.701%	14,012	47 (1 ↓)	0.701%	350,290	47 (1 ↓)	
AVERAGE		1.210%	2,419		1.261%	25,218		1.279%	639,646		N = 10

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

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

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

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

		Land and Building Value: \$100,000			Land and Building Value: \$1 Million			Land and Building Value: \$25 Million			Tax Rate Varies with Property Value
State	City	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Alabama	Monroeville	0.623%	1,558	45 (3 ↓)	0.623%	15,580	47 (2 ↓)	0.623%	389,500	47 (2 ↓)	X
Alaska	Ketchikan	0.754%	1,884	40 (1 ↓)	0.860%	21,500	36 (1 ↑)	0.871%	544,570	35 (2 ↑)	
Arizona	Safford	0.593%	1,483	46 (-)	1.150%	28,761	16 (1 ↓)	1.299%	812,014	15 (1 ↑)	X
Arkansas	Pocahontas	0.814%	2,036	35 (1 ↓)	0.814%	20,360	40 (2 ↓)	0.814%	509,008	40 (2 ↓)	
California	Yreka	0.798%	1,994	37 (1 ↑)	0.798%	19,940	42 (-)	0.798%	498,512	42 (-)	
Colorado	Walsenburg	1.751%	4,377	6 (-)	1.751%	43,769	7 (-)	1.751%	1,094,217	7 (-)	X
Connecticut	Litchfield	1.121%	2,802	14 (16 ↑)	1.121%	28,020	17 (17 ↑)	1.121%	700,495	18 (16	
Delaware	Georgetown	0.211%	526	50 (-)	0.211%	5,263	50 (-)	0.211%	131,568	50 (-)	
Florida	Moore Haven	1.411%	3,527	11 (-)	1.607%	40,182	9 (1 ↑)	1.628%	1,017,646	8 (2 ↑)	
Georgia	Fitzgerald	1.510%	3,776	9 (-)	1.510%	37,757	10 (1 ↑)	1.510%	943,918	10 (1 ↑)	
Hawaii	Kauai	0.301%	753	49 (-)	0.301%	7,533	49 (-)	0.301%	188,325	49 (-)	X
Idaho	Saint Anthony	0.521%	1,302	48 (-)	0.973%	24,322	27 (7 ↓)	1.027%	641,979	24 (5 ↓)	
Illinois	Galena	0.857%	2,142	32 (6 ↓)	0.857%	21,418	37 (7 ↓)	0.857%	535,456	37 (7 ↓)	
Indiana	North Vernon	2.167%	5,418	4 (-)	2.167%	54,180	4 (-)	2.167%	1,354,500	4 (-)	X
Iowa	Hampton	0.627%	1,568	44 (11 ↓)	0.988%	24,710	25 (11 ↓)	1.095%	684,208	20 (5 ↓)	
Kansas	Iola	2.237%	5,592	3 (1 ↓)	2.237%	55,921	3 (1 ↓)	2.237%	1,398,032	3 (1 ↓)	X
Kentucky	Morehead	0.681%	1,702	42 (1 ↑)	0.681%	17,022	45 (1 ↑)	0.681%	425,561	45 (1 ↑)	
Louisiana	Natchitoches	1.419%	3,548	10 (-)	1.419%	35,476	11 (2 ↑)	1.419%	886,903	12 (2 ↑)	
Maine	Rockland	1.040%	2,599	18 (-)	1.040%	25,990	20 (1 ↑)	1.040%	649,750	22 (1 ↑)	
Maryland	Denton	0.944%	2,361	25 (-)	0.944%	23,612	30 (1 ↓)	0.944%	590,290	30 (1 ↓)	
Massachusetts	Adams	1.022%	2,555	20 (3 ↑)	1.022%	25,546	22 (5 ↑)	1.022%	638,638	26 (1 ↑)	X
Michigan	Manistique	1.106%	2,766	15 (3 ↓)	1.214%	30,346	14 (2 ↓)	1.214%	758,661	16 (3 ↓)	
Minnesota	Glencoe	0.858%	2,145	31 (15 ↓)	1.308%	32,706	13 (4 ↓)	1.376%	860,269	14 (6 ↓)	X
Mississippi	Philadelphia	2.044%	5,111	5 (-)	2.044%	51,109	5 (-)	2.044%	1,277,719	5 (-)	
Missouri	Boonville	1.625%	4,063	8 (-)	1.625%	40,629	8 (-)	1.625%	1,015,730	9 (-)	
Montana	Glasgow	0.698%	1,746	41 (4 ↑)	0.995%	24,872	24 (2 ↑)	1.457%	910,921	11 (1 ↑)	X
Nebraska	Sidney	1.690%	4,224	7 (-)	1.778%	44,441	6 (-)	1.787%	1,116,889	6 (-)	X
Nevada	Fallon	0.968%	2,419	23 (1 ↑)	0.968%	24,193	28 (-)	0.968%	604,815	28 (-)	
New	Lancaster	1.030%	2,574	19 (3 ↑)	1.030%	25,745	21 (4 ↑)	1.030%	643,619	23 (3 ↑)	
New Jersey	Maurice River	1.151%	2,879	13 (-)	1.151%	28,785	15 (1 ↑)	1.151%	719,632	17 (-)	
New Mexico	Santa Rosa	0.776%	1,941	38 (1 ↓)	0.776%	19,411	43 (2 ↓)	0.776%	485,273	43 (2 ↓)	
New York	Warsaw	1.378%	3,445	12 (2 ↑)	1.378%	34,447	12 (5 ↑)	1.378%	861,178	13 (5 ↑)	
North Carolina	Edenton	0.868%	2,169	30 (1 ↑)	0.868%	21,692	35 (-)	0.868%	542,297	36 (1 ↓)	
North Dakota	Devils Lake	0.588%	1,471	47 (-)	0.588%	14,709	48 (-)	0.588%	367,737	48 (-)	
Ohio	Bryan	0.964%	2,409	24 (5 ↑)	0.964%	24,091	29 (4 ↑)	0.964%	602,280	29 (4 ↑)	
AVERAGE		1.091%	2,728		1.144%	28,604		1.162%	726,166		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%	2,463	22 (2 ↓)	0.985%	24,626	26 (2 ↓)	0.985%	615,653	27 (2 ↓)	
Oregon	Tillamook	0.876%	2,189	29 (3 ↑)	0.876%	21,894	34 (2 ↑)	0.876%	547,343	34 (2 ↑)	
Pennsylvania	Ridgway	0.767%	1,918	39 (1 ↑)	0.767%	19,184	44 (1 ↓)	0.767%	479,608	44 (1 ↓)	
Rhode Island	Hopkinton	0.841%	2,104	33 (2 ↑)	0.841%	21,035	38 (1 ↑)	0.841%	525,881	38 (1 ↑)	
South Carolina	Mullins	3.487%	8,718	1 (-)	3.487%	87,176	1 (-)	3.487%	2,179,395	1 (-)	
South Dakota	Vermillion	0.818%	2,045	34 (10 ↑)	0.818%	20,448	39 (8 ↑)	0.818%	511,190	39 (8 ↑)	
Tennessee	Savannah	0.905%	2,263	27 (1 ↑)	0.905%	22,632	32 (-)	0.905%	565,800	32 (-)	
Texas	Fort Stockton	2.283%	5,707	2 (1 ↑)	2.283%	57,073	2 (1 ↑)	2.283%	1,426,830	2 (1 ↑)	
Utah	Richfield	0.932%	2,331	26 (7 ↓)	0.932%	23,308	31 (8 ↓)	0.932%	582,690	31 (7 ↓)	
Vermont	Hartford	1.070%	2,675	17 (-)	1.070%	26,755	19 (-)	1.070%	668,872	21 (-)	
Virginia	Wise	0.804%	2,009	36 (-)	0.804%	20,088	41 (1 ↓)	0.804%	502,200	41 (1 ↓)	X
Washington	Okanogan	0.897%	2,242	28 (1 ↓)	0.897%	22,418	33 (2 ↓)	0.897%	560,445	33 (2 ↓)	
West Virginia	Elkins	1.096%	2,740	16 (1 ↓)	1.096%	27,399	18 (-)	1.096%	684,980	19 (1 ↑)	
Wisconsin	Rice Lake	0.992%	2,481	21 (-)	1.020%	25,499	23 (1 ↓)	1.023%	639,327	25 (3 ↓)	
Wyoming	Worland	0.666%	1,664	43 (2 ↓)	0.666%	16,639	46 (2 ↓)	0.666%	415,969	46 (2 ↓)	
AVERAGE		1.091%	2,728		1.144%	28,604		1.162%	726,166		N = 10

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

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

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

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

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

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

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

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

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

*** In Montana, whether personal property is treated preferentially to real property depends on the total value of a parcel. At low values, machinery and equipment and fixtures are taxed preferentially, because of Montana's exemption of the first \$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 '20	
Alabama	Birmingham	1.444%	9,095	24	2 ↑	
Alaska	Anchorage	1.556%	9,803	20	4 ↑	X
Arizona	Phoenix	1.272%	8,015	34	1 ↓	X
Arkansas	Little Rock	1.398%	8,807	26	2 ↑	
California	Los Angeles	1.175%	7,404	41	1 ↓	
Colorado	Denver	0.610%	3,844	50	1 ↑	
Connecticut	Bridgeport	2.113%	13,314	12	4 ↓	
DC	Washington	0.747%	4,707	49	-	X
Delaware	Wilmington	1.300%	8,191	30	1 ↓	X
Florida	Jacksonville	1.535%	9,671	21	-	X
Georgia	Atlanta	1.521%	9,581	22	-	
Hawaii	Honolulu	0.332%	2,094	53	-	X
Idaho	Boise	1.001%	6,305	43	-	X
Illinois	Aurora*	3.208%	20,208	2	-	X
Illinois	Chicago	1.305%	8,220	29	3 ↑	X
Indiana	Indianapolis	2.075%	13,074	13	1 ↑	X
Iowa	Des Moines	2.699%	17,001	5	2 ↑	X
Kansas	Wichita	1.299%	8,182	33	2 ↑	
Kentucky	Louisville	1.270%	8,001	35	6 ↑	X
Louisiana	New Orleans	1.441%	9,076	25	-	
Maine	Portland	1.299%	8,184	32	15 ↓	
Maryland	Baltimore	2.407%	15,164	8	2 ↑	
Massachusetts	Boston	0.904%	5,698	44	1 ↑	X
Michigan	Detroit	4.122%	25,971	1	-	
Minnesota	Minneapolis	1.503%	9,470	23	5 ↓	X
Mississippi	Jackson	2.710%	17,072	4	1 ↑	
Missouri	Kansas City	1.259%	7,934	36	6 ↓	X
Montana	Billings	0.840%	5,295	46	-	X
Nebraska	Omaha	1.965%	12,382	16	1 ↓	X
Nevada	Las Vegas	1.126%	7,091	42	-	
New Hampshire	Manchester	1.236%	7,786	38	22 ↓	X
New Jersey	Newark	3.073%	19,359	3	-	X
New Mexico	Albuquerque	1.328%	8,364	27	9 ↑	
New York	Buffalo*	1.989%	12,530	15	8 ↑	X
New York	New York City	1.864%	11,746	17	17 ↑	X
AVERAGE		1.583%	9,972			N = 28

		Land and Building Value: \$600,000				Lower Tax Rate on Personal Property
State	City	Tax Rate	Tax Bill	Rank	Change from '20	
North Carolina	Charlotte	0.859%	5,413	45	1 ↓	X
North Dakota	Fargo	1.219%	7,677	40	2 ↓	
Ohio	Columbus	2.125%	13,385	11	2 ↑	
Oklahoma	Oklahoma City	1.310%	8,254	28	3 ↑	
Oregon	Portland	2.620%	16,507	7	2 ↑	
Pennsylvania	Philadelphia	1.242%	7,828	37	-	X
Rhode Island	Providence	2.256%	14,211	9	2 ↑	
South Carolina	Charleston	1.626%	10,247	18	1 ↑	X
South Dakota	Sioux Falls	1.575%	9,922	19	1 ↑	
Tennessee	Nashville	1.300%	8,187	31	4 ↓	X
Texas	Houston	2.217%	13,969	10	2 ↑	X
Utah	Salt Lake City	0.574%	3,618	51	1 ↓	
Vermont	Burlington	1.990%	12,535	14	10 ↓	X
Virginia	Virginia Beach	0.830%	5,232	47	-	
Washington	Seattle	0.810%	5,101	48	-	
West Virginia	Charleston	1.220%	7,688	39	-	
Wisconsin	Milwaukee	2.643%	16,652	6	-	
Wyoming	Cheyenne	0.550%	3,464	52	-	
AVERAGE		1.583%	9,972			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 '20	
Arizona	Mesa	0.933%	5,881	42	-	X
Arizona	Phoenix	1.272%	8,015	30	3 ↓	X
Arizona	Tucson	1.149%	7,241	39	4 ↓	X
California	Bakersfield	1.198%	7,547	35	n/a	
California	Fresno	1.264%	7,966	32	1 ↓	
California	Long Beach	1.191%	7,504	36	-	
California	Los Angeles	1.175%	7,404	38	1 ↓	
California	Oakland	1.374%	8,657	22	1 ↑	
California	Sacramento	1.117%	7,035	41	1 ↓	
California	San Diego	1.332%	8,393	23	11 ↑	
California	San Francisco	1.182%	7,450	37	1 ↑	
California	San Jose	1.273%	8,020	29	4 ↑	
Colorado	Colorado Springs	0.543%	3,424	50	-	
Colorado	Denver	0.610%	3,844	49	-	
DC	Washington	0.747%	4,707	48	-	X
Florida	Jacksonville	1.535%	9,671	18	-	X
Florida	Miami	1.792%	11,288	17	1 ↓	X
Georgia	Atlanta	1.521%	9,581	19	-	
Illinois	Chicago	1.305%	8,220	26	-	X
Indiana	Indianapolis	2.075%	13,074	14	-	X
Kansas	Wichita	1.299%	8,182	28	1 ↑	
Kentucky	Louisville	1.270%	8,001	31	8 ↑	X
Maryland	Baltimore	2.407%	15,164	10	1 ↓	
Massachusetts	Boston	0.904%	5,698	44	1 ↑	X
Michigan	Detroit	4.122%	25,971	1	-	
Minnesota	Minneapolis	1.503%	9,470	20	3 ↓	X
Missouri	Kansas City	1.259%	7,934	33	9 ↓	X
Nebraska	Omaha	1.965%	12,382	15	-	X
Nevada	Las Vegas	1.126%	7,091	40	1 ↑	
New Mexico	Albuquerque	1.328%	8,364	24	6 ↑	
New York	New York City	1.864%	11,746	16	12 ↑	X
North Carolina	Charlotte	0.859%	5,413	45	1 ↓	
North Carolina	Raleigh	0.933%	5,881	43	-	
Ohio	Columbus	2.125%	13,385	12	1 ↑	X
Oklahoma	Oklahoma City	1.310%	8,254	25	-	
AVERAGE		1.607%	10,124			N = 21

		Land and Building Value: \$600,000				Lower Tax Rate on Personal Property
State	City	Tax Rate	Tax Bill	Rank	Change from '19	
Oklahoma	Tulsa	1.446%	9,113	21	-	X
Oregon	Portland	2.620%	16,507	7	1 ↑	
Pennsylvania	Philadelphia	1.242%	7,828	34	2 ↓	X
Tennessee	Memphis	2.673%	16,840	3	3 ↑	X
Tennessee	Nashville	1.300%	8,187	27	5 ↓	X
Texas	Arlington	2.602%	16,394	8	4 ↓	X
Texas	Austin	2.120%	13,357	13	1 ↓	
Texas	Dallas	2.666%	16,797	5	5 ↑	
Texas	El Paso	3.054%	19,239	2	5 ↑	
Texas	Fort Worth	2.667%	16,801	4	2 ↓	X
Texas	Houston	2.217%	13,969	11	-	
Texas	San Antonio	2.595%	16,347	9	6 ↓	
Virginia	Virginia Beach	0.830%	5,232	46	-	
Washington	Seattle	0.810%	5,101	47	-	
Wisconsin	Milwaukee	2.643%	16,652	6	1 ↓	
AVERAGE		1.607%	10,124			N = 21

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 '20	
Alabama	Monroeville	0.820%	5,166	43	1 ↑	
Alaska	Ketchikan	1.074%	6,764	33	1 ↑	X
Arizona	Safford	0.777%	4,892	44	2 ↓	X
Arkansas	Pocahontas	0.820%	5,167	42	1 ↑	X
California	Yreka	1.049%	6,612	35	-	
Colorado	Walsenburg	0.651%	4,099	47	1 ↑	
Connecticut	Litchfield	1.811%	11,408	21	4 ↓	
Delaware	Georgetown	0.386%	2,432	50	-	X
Florida	Moore Haven	2.024%	12,753	16	1 ↓	X
Georgia	Fitzgerald	1.750%	11,027	22	3 ↓	
Hawaii	Kauai	0.570%	3,594	49	-	X
Idaho	Saint Anthony	1.240%	7,810	28	1 ↓	X
Illinois	Galena	2.040%	12,851	15	3 ↓	X
Indiana	North Vernon	1.726%	10,872	23	3 ↓	X
Iowa	Hampton	2.461%	15,501	6	8 ↑	X
Kansas	Iola	2.319%	14,607	9	3 ↓	
Kentucky	Morehead	1.218%	7,675	29	1 ↑	X
Louisiana	Natchitoches	0.978%	6,163	38	-	
Maine	Rockland	2.260%	14,238	10	-	
Maryland	Denton	1.873%	11,797	18	-	
Massachusetts	Adams	2.047%	12,893	13	3 ↑	X
Michigan	Manistique	3.010%	18,964	2	1 ↓	X
Minnesota	Glencoe	1.608%	10,130	25	2 ↓	X
Mississippi	Philadelphia	2.044%	12,879	14	1 ↓	
Missouri	Boonville	0.885%	5,576	40	1 ↓	X
Montana	Glasgow	1.048%	6,601	36	1 ↑	X
Nebraska	Sidney	2.242%	14,126	11	2 ↓	X
Nevada	Fallon	1.257%	7,917	27	1 ↑	
New Hampshire	Lancaster	2.452%	15,447	7	-	X
New Jersey	Maurice River Twp	2.741%	17,271	3	1 ↓	X
New Mexico	Santa Rosa	0.894%	5,633	39	1 ↑	
New York	Warsaw	3.281%	20,668	1	2 ↑	X
North Carolina	Edenton	1.058%	6,666	34	3 ↓	
North Dakota	Devils Lake	1.401%	8,826	26	-	X
Ohio	Bryan	1.646%	10,368	24	-	X
AVERAGE		1.559%	9,824			N = 27

		Land and Building Value: \$600,000				Lower Tax Rate on Personal Property
State	City	Tax Rate	Tax Bill	Rank	Change from '20	
Oklahoma	Mangum	0.867%	5,461	41	-	X
Oregon	Tillamook	1.152%	7,260	30	1 ↓	
Pennsylvania	Ridgway	1.827%	11,511	19	2 ↑	
Rhode Island	Hopkinton	1.827%	11,509	20	2 ↑	
South Carolina	Mullins	2.501%	15,757	5	1 ↓	
South Dakota	Vermillion	1.947%	12,269	17	8 ↑	X
Tennessee	Savannah	1.012%	6,376	37	1 ↓	X
Texas	Fort Stockton	2.390%	15,056	8	-	X
Utah	Richfield	0.607%	3,827	48	1 ↓	
Vermont	Hartford	2.548%	16,053	4	1 ↑	X
Virginia	Wise	0.736%	4,635	45	-	
Washington	Okanogan	1.075%	6,775	32	-	
West Virginia	Elkins	1.082%	6,814	31	2 ↑	
Wisconsin	Rice Lake	2.212%	13,934	12	1 ↓	
Wyoming	Worland	0.723%	4,558	46	-	
AVERAGE		1.559%	9,824			N = 27

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 '20	Assessment Ratio	Nominal Tax Rate	Exemptions & Credits	Assessment Limits	Sales Ratio
Alabama	Birmingham	33	1.148	-1.030	X		X		-
Alaska	Anchorage	32	1.211	-0.007			X		
Arizona	Phoenix	13	2.197	-0.005	X	X			+
Arkansas	Little Rock	26	1.380	0.020			X	X	+
California	Los Angeles	45	1.010	0.000			X		
Colorado	Denver	3	3.979	-0.032	X				-
Connecticut	Bridgeport	34	1.129	-0.089					+
DC	Washington	15	2.073	-0.002		X	X		-
Delaware	Wilmington	35	1.100	-0.149					+
Florida	Jacksonville	8	2.518	0.157			X	X	
Georgia	Atlanta	20	1.694	0.029			X		
Hawaii	Honolulu	1	4.628	0.529		X	X		+
Idaho	Boise	21	1.635	0.111			X		+
Illinois	Aurora*	37	1.083	-0.002			X		
Illinois	Chicago	6	3.145	-0.106	X		X	X	
Indiana	Indianapolis	10	2.432	0.003			X		-
Iowa	Des Moines	23	1.545	-0.160	X		-		-
Kansas	Wichita	16	2.065	-0.063	X		X		-
Kentucky	Louisville	46	1.002	0.000					+
Louisiana	New Orleans	17	2.004	-0.027	X		X		+
Maine	Portland	38	1.077	-0.005			X		
Maryland	Baltimore	43	1.014	-0.016					+
Massachusetts	Boston	2	4.398	-0.321		X	X		+
Michigan	Detroit	28	1.317	-0.180		X			+
Minnesota	Minneapolis	18	1.906	-0.003	X	X	X		-
Mississippi	Jackson	12	2.213	0.395	X		X		+
Missouri	Kansas City	14	2.166	0.107	X	X			+
Montana	Billings	25	1.408	0.107	X				+
Nebraska	Omaha	49	1.000	0.011					
Nevada	Las Vegas	53	0.994	-0.003					-
New Hampshire	Manchester	47	1.000	0.000					
New Jersey	Newark	47	1.000	0.000					
New Mexico	Albuquerque	30	1.303	0.074		X	X	X	
New York	Buffalo*	24	1.462	-0.204		X			
New York	New York City	7	2.962	-0.271	X	-		X	-

		Classification Ratio			Causes of Preferential Treatment of Homesteads				
State	City	Rank	Ratio	Change from '20	Assessment Ratio	Nominal Tax Rate	Exemptions & Credits	Assessment Limits	Sales Ratio
North Carolina	Charlotte	47	1.000	0.000	X	X	X		-
North Dakota	Fargo	39	1.076	-0.001					
Ohio	Columbus	27	1.344	-0.003					
Oklahoma	Oklahoma City	42	1.056	-0.002					
Oregon	Portland	47	1.000	0.000					
Pennsylvania	Philadelphia	11	2.256	-0.037	X	X	X	X	
Rhode Island	Providence	9	2.490	0.000					
South Carolina	Charleston	4	3.752	0.089					
South Dakota	Sioux Falls	36	1.088	-0.018					
Tennessee	Nashville	22	1.600	0.000					
Texas	Houston	31	1.285	-0.008	X		X		-
Utah	Salt Lake City	19	1.721	-0.093					
Vermont	Burlington	29	1.307	0.073					
Virginia	Virginia Beach	44	1.012	0.003					
Washington	Seattle	47	1.000	0.000					
West Virginia	Charleston	5	3.158	0.000		X			+
Wisconsin	Milwaukee	41	1.069	0.001					
Wyoming	Cheyenne	40	1.072	0.040					
TOTAL/AVERAGE			1.745	-0.021	17	14	27	6	18 (+), 14 (-)

*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 '20	Assessment Ratio	Nominal Tax Rate	Exemptions & Credits	Assessment Limits	Sales Ratio
Alabama	Birmingham	6	2.154	-0.005	X		X		+
Alaska	Anchorage	23	1.211	-0.007			X		
Arizona	Phoenix	26	1.116	-0.001		X			
Arkansas	Little Rock	15	1.380	0.020			X	X	+
California	Los Angeles	36	1.010	0.000			X		
Colorado	Denver	37	1.004	-0.001					+
Connecticut	Bridgeport	51	0.913	0.101					-
DC	Washington	31	1.068	-0.001			X		-
Delaware	Wilmington	40	1.000	0.000					
Florida	Jacksonville	3	2.518	0.157			X	X	
Georgia	Atlanta	9	1.694	0.029			X		
Hawaii	Honolulu	24	1.163	0.006			X		
Idaho	Boise	11	1.635	0.111			X		+
Illinois	Aurora*	28	1.083	-0.002			X		
Illinois	Chicago	49	0.949	0.022	-		X		
Indiana	Indianapolis	4	2.432	0.003			X		-
Iowa	Des Moines	22	1.253	0.144	X		X		-
Kansas	Wichita	34	1.019	-0.001			X		
Kentucky	Louisville	38	1.002	0.000					+
Louisiana	New Orleans	14	1.409	-0.007			X		
Maine	Portland	29	1.077	-0.005			X		
Maryland	Baltimore	35	1.014	-0.016					+
Massachusetts	Boston	8	1.870	-0.086			X		
Michigan	Detroit	21	1.259	0.000		X			
Minnesota	Minneapolis	20	1.278	0.038	X		X		+
Mississippi	Jackson	5	2.213	0.395	X		X		+
Missouri	Kansas City	40	1.000	0.000					
Montana	Billings	40	1.000	0.000					
Nebraska	Omaha	41	1.000	0.011					
Nevada	Las Vegas	48	0.991	-0.020					-
New Hampshire	Manchester	40	1.000	0.000					
New Jersey	Newark	39	1.000	0.000					
New Mexico	Albuquerque	25	1.154	0.051			X	X	
New York	Buffalo*	13	1.462	-0.204		X			
New York	New York City	2	3.594	1.044	X	-		X	-

		Classification Ratio			Causes of Preferential Treatment of Homesteads				
State	City	Rank	Ratio	Change from '20	Assessment Ratio	Nominal Tax Rate	Exemptions & Credits	Assessment Limits	Sales Ratio
North Carolina	Charlotte	40	1.000	0.000	X	X	X	X	-
North Dakota	Fargo	30	1.076	-0.001					
Ohio	Columbus	16	1.344	-0.003					
Oklahoma	Oklahoma City	33	1.056	-0.002					
Oregon	Portland	40	1.000	0.000					
Pennsylvania	Philadelphia	17	1.332	-0.021	X	X	X	X	-
Rhode Island	Providence	10	1.667	0.000					
South Carolina	Charleston	1	3.752	0.089					
South Dakota	Sioux Falls	27	1.088	-0.018					
Tennessee	Nashville	12	1.600	0.000					
Texas	Houston	18	1.309	-0.008	X	-	X	X	-
Utah	Salt Lake City	50	0.947	-0.051					
Vermont	Burlington	19	1.292	0.054					
Virginia	Virginia Beach	52	0.891	-0.032					
Washington	Seattle	40	1.000	0.000					
West Virginia	Charleston	7	2.000	0.000	X	X	X	X	-
Wisconsin	Milwaukee	32	1.067	0.001					
Wyoming	Cheyenne	53	0.839	-0.012					
TOTAL/AVERAGE			1.362	0.033	10	6	27	5	8 (+), 14 (-)

* 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	0.843%	0.604%	0.239%	2,378	1,704	674	28.3%
Arizona	Phoenix	1.197%	0.792%	0.406%	3,473	2,296	1,176	33.9%
Arizona	Tucson	1.068%	0.935%	0.133%	2,007	1,757	250	12.4%
Arkansas	Little Rock	1.117%	1.013%	0.105%	1,997	1,811	187	9.4%
California	Bakersfield	1.168%	0.633%	0.535%	3,224	1,747	1,476	45.8%
California	Fresno	1.234%	0.651%	0.582%	3,562	1,880	1,682	47.2%
California	Long Beach	1.178%	0.679%	0.499%	7,555	4,356	3,199	42.3%
California	Los Angeles	1.164%	0.584%	0.580%	8,470	4,252	4,218	49.8%
California	Oakland	1.363%	0.664%	0.699%	11,487	5,599	5,888	51.3%
California	Sacramento	1.097%	0.510%	0.587%	4,358	2,026	2,332	53.5%
California	San Diego	1.319%	0.829%	0.490%	9,062	5,696	3,366	37.1%
California	San Francisco	1.176%	0.845%	0.331%	14,945	10,734	4,210	28.2%
California	San Jose	1.265%	0.767%	0.497%	13,198	8,008	5,190	39.3%
Florida	Jacksonville	1.270%	0.635%	0.635%	2,712	1,356	1,356	50.0%
Florida	Miami	1.642%	0.784%	0.858%	6,279	2,998	3,281	52.3%
Illinois	Chicago	1.566%	1.444%	0.122%	4,417	4,072	345	7.8%
Michigan	Detroit	3.265%	2.034%	1.231%	2,035	1,268	767	37.7%
New Mexico	Albuquerque	1.278%	1.140%	0.138%	2,814	2,510	304	10.8%
New York	New York City*	1.198%	0.545%	0.653%	8,501	3,866	4,635	54.5%
Oklahoma	Oklahoma City	1.226%	1.104%	0.122%	2,108	1,899	209	9.9%
Oklahoma	Tulsa	1.369%	1.230%	0.139%	2,169	1,949	220	10.1%
Oregon	Portland*	2.620%	1.771%	0.849%	12,287	8,307	3,980	32.4%
South Carolina	Charleston	0.493%	0.417%	0.076%	1,888	1,598	290	15.4%
Texas	Arlington	2.285%	2.285%	0.000%	5,226	5,226	0	0.0%
Texas	Austin	1.818%	1.791%	0.027%	7,358	7,249	109	1.5%
Texas	Dallas	2.116%	2.116%	0.000%	5,240	5,240	0	0.0%
Texas	El Paso	2.600%	2.600%	0.000%	3,717	3,717	0	0.0%
Texas	Fort Worth	2.315%	2.315%	0.000%	5,186	5,186	0	0.0%
Texas	Houston	1.689%	1.689%	0.000%	3,539	3,539	0	0.0%
Texas	San Antonio	2.538%	2.538%	0.000%	4,647	4,647	0	0.0%
AVERAGE		1.549%	1.198%	0.351%	5,528	3,883	1,645	29.8%

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 46 on page 51 for details on the methodology for these two cities.)