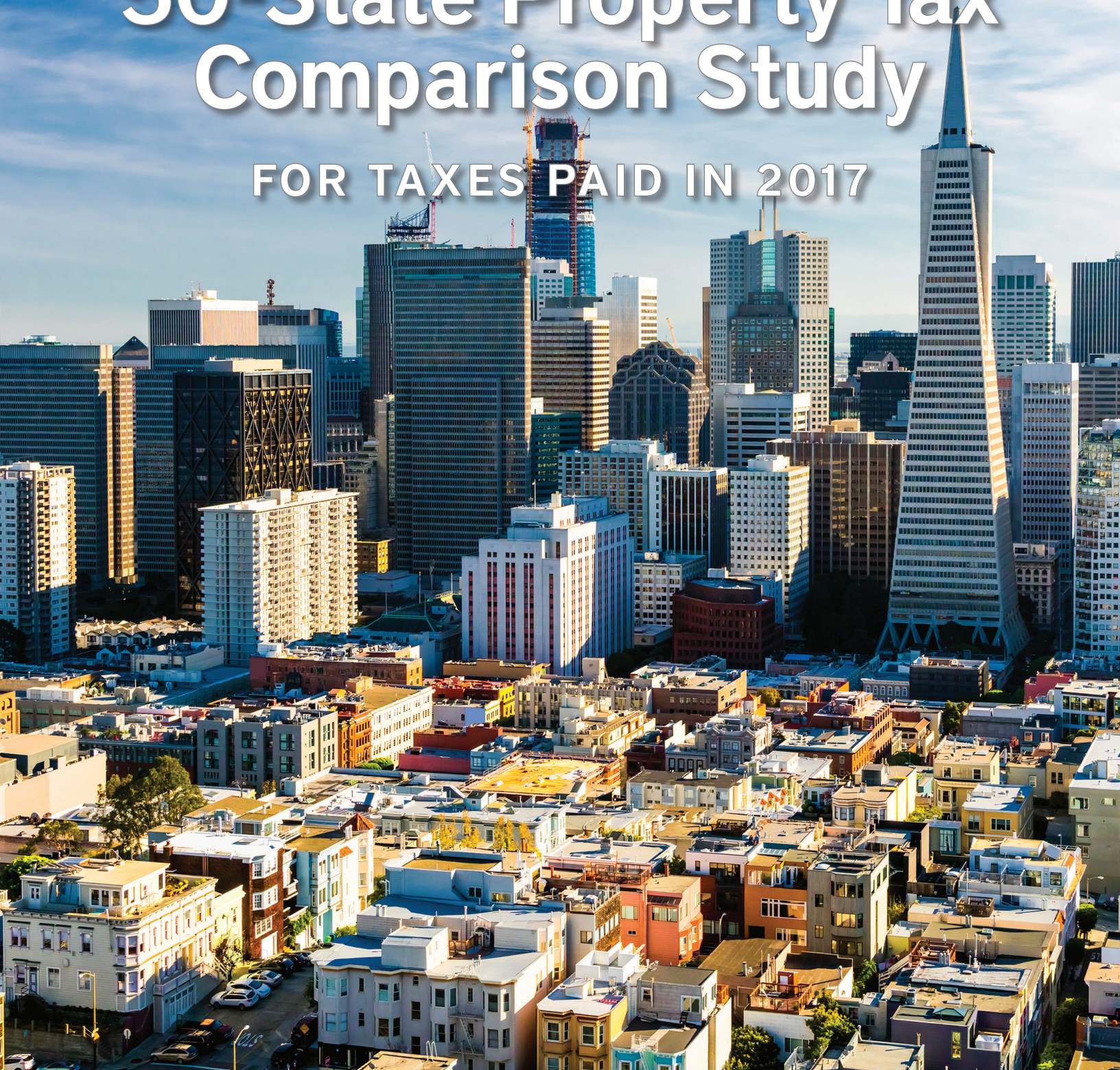APRIL 2018

50-State Property Tax Comparison Study

FOR TAXES PAID IN 2017

LINCOLN INSTITUTE
OF LAND POLICY

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Executive Summary

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

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

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

Property tax reliance is one of the main reasons why tax rates vary across cities. While some cities raise most of their revenue from property taxes, others rely more on alternative revenue sources. Cities with high local sales or income taxes do not need to raise as much revenue from the property tax, and thus have lower property tax rates on average. For example, this report shows that Bridgeport (CT) has one of the highest effective tax rates on a median valued home, while Birmingham (AL) has one of the lowest rates. However, in Bridgeport city residents pay no local sales or income taxes, whereas Birmingham residents pay both sales and income taxes to local governments. Consequently, despite the fact that Bridgeport has much higher property taxes, total local taxes are considerably higher in Birmingham ($2,695 vs. $2,068 per capita).

Property values are the other crucial factor explaining differences in property tax rates. Cities with high property values can impose a lower tax rate and still raise at least as much property tax revenue as a city with low property values. For example, consider San Francisco and Detroit, which have the highest and lowest median home values in this study. After accounting for assessment limits, the average property tax bill on a median valued home for the large cities in this report is $2,992. To raise that amount from a median valued home, the effective tax rate would need to be 24 times higher in Detroit than in San Francisco—6.88 percent versus 0.29 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

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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 1.49 percent in 2017 for this group of 53 cities.[1] At that rate, a home worth $200,000 would owe $2,980 in property taxes (1.50% x $200,000). On the high end, there are three cities with effective tax rates that are roughly 2.5 times higher than the average – Bridgeport, Aurora (IL), and Detroit. Conversely, there are seven cities where tax rates are less than half of the study average – Honolulu, Charleston (SC), Boston, Cheyenne (WY), Denver, Birmingham (AL), and Washington DC.

Highest and Lowest Effective Property Tax Rates on a Median Valued Home (2017)

	Highest Property Tax Rates				Lowest Property Tax Rates		
1	Bridgeport (CT)	3.81%	*Why:* High property tax reliance	49	Denver (CO)	0.66%	*Why:* Low property tax reliance, high home values, classification
2	Aurora (IL)	3.76%	*Why:* High property tax reliance	50	Cheyenne (WY)	0.65%	*Why:* Low property tax reliance
3	Detroit (MI)	3.63%	*Why:* Low property values	51	Boston (MA)	0.51%	*Why:* High home values, Classification shifts tax to business
4	Newark (NJ)	3.16%	*Why:* High property tax reliance	52	Charleston (SC)	0.50%	*Why:* Classification shifts tax to business
5	Milwaukee (WI)	2.57%	*Why:* Low property values, high property tax reliance	53	Honolulu (HI)	0.31%	*Why:* High home values, low local gov't spending, classification

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

The average tax rate for these cities fell very slightly between 2016 and 2017, from 1.497 percent to 1.495 percent, with increases in 24 cities, decreases in 27, and no change in 1 city.[2] The largest increase was in Sioux Falls (SD), where the effective rate rose by about 11 percent, which drove the city's ranking up from 23rd to 20th highest. The next largest increases were in Burlington (VT), Chicago, Billings (MT), Fargo (ND), and Portland (OR). The largest decrease was in Boston, which had a 15.9 percent decline in its effective tax rate. The next largest declines were in Charlotte (NC), Louisville, Portland (ME), and Detroit.

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, Louisville and Los Angeles have similar tax rates on a median valued home, but because the median valued home is worth so much more in Los Angeles ($594k vs. $151k), the tax bill is far higher in Los Angeles (3rd highest) than in Louisville (43rd highest).

Effective tax rates rise with home values in about half of the cities (27 of 53), and this pattern has a progressive impact on the property tax distribution. Usually, this relationship occurs because of

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[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.
[2] The largest city in South Carolina changed from Columbia in 2016 to Charleston in 2017, so the report provides year-to-year changes for only 52 of the 53 "largest cities in each state".

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 2017, the effective tax rate on a commercial property worth $1 million averaged 2.05 percent across the largest cities in each state. The highest rates were in Detroit, New York City, Bridgeport (CT), Chicago, and Providence (RI), all of which had effective tax rates that were at least three-quarters higher than the average for these cities. On the other hand, rates were less than half of the average in Fargo (ND), Virginia Beach, Honolulu, Seattle, and Cheyenne (WY).

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

Highest Property Tax Rates				**Lowest Property Tax Rates**			
1	Detroit (MI)	4.24%	*Why:* Low property values	49	Fargo (ND)	1.01%	*Why:* Low local gov't spending, Low property tax reliance
2	New York (NY)	3.90%	*Why:* High local gov't spending, Classification shifts tax to business	50	Virginia Beach (VA)	0.96%	*Why:* High property values, Low local gov't spending
3	Bridgeport (CT)	3.81%	*Why:* High property tax reliance	51	Honolulu (HI)	0.91%	*Why:* High property values, Low local gov't spending
4	Chicago (IL)	3.78%	*Why:* High local gov't spending, Classification shifts tax to business	52	Seattle (WA)	0.89%	*Why:* High property values, Low property tax reliance
5	Providence (RI)	3.68%	*Why:* High property tax reliance	53	Cheyenne (WY)	0.66%	*Why:* Low property tax reliance

Note: Analysis includes an additional $200k in fixtures (office equipment, etc.)
Data for all cities: Figure 3 (page 23), Appendix Table 1b (page 53), and Appendix Table 3a (page 74).

The cities with the largest drops in their effective tax rates from 2016 to 2017 were Indianapolis, whose rate fell by 14 percent and ranking dropped from 11th to 16th, and Virginia Beach where the effective tax rate fell by 9 percent and whose ranking dropped from 48th to 50th. Salt Lake City is the only other city with a significant decline in its ranking. The largest increase was in Columbus (OH), where the effective tax rate increased by 25 percent, which drove the city's ranking up from 30th to 23rd highest. In Baltimore, the ranking rose five places (from 16th to 11th), while in three other cities (Jackson, MS; Portland, ME; and Sioux Falls, SD), commercial property tax burdens climbed three places.

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 1.64, meaning that on average commercial properties experience an effective tax rate that is 64% higher than homesteads. Roughly a fourth of the cities (14 of 53) have classification ratios above 2.0, meaning that commercial properties face an effective tax rate that is at least double that for homesteads.

Preferential Treatment of Homeowners: Ratio of Effective Tax Rate on Commercial and Apartment Properties to the Rate on Homestead Properties (2017)

	Commercial vs. Homestead Ratio			Apartment vs. Homestead Ratio	
1	Boston (MA)	4.24	1	New York (NY)	4.80
2	New York (NY)	3.97	2	Charleston (SC)	3.10
3	Honolulu (HI	3.56	3	Indianapolis (IN)	2.35
4	Denver (CO)	3.50	4	Charleston (WV)	2.26
5	Charleston (SC)	3.10	5	Birmingham (AL)	2.18

Note: Commercial-homestead ratio compares rate on $1 million commercial building to median valued home.
Apartment-homestead ratio compares rate on $600k apartment building to median valued home.
Data for all cities: Figures 6a and 6b (Page 37-38), and Appendix 6 (Page 100).

The average apartment-homestead classification ratio is significantly lower (1.33), with apartments facing an effective tax rate that is 33% higher than homesteads on average. There are five cities where apartments face an effective tax rate that is at least double that for homesteads, with New York City being a major outlier since the rate on apartments is almost five times higher than the rate on a median valued home. It is important to note that while renters do not pay property tax bills directly, they do pay property taxes indirectly since landlords are able to pass through some or all of their property taxes in the form of higher rents.

There are three types of statutory preferences built into property tax systems that can lead to lower effective tax rates on homesteads than other property types: the assessment ratio, the nominal tax rate, and exemptions and credits. In total, 40 of the 53 cities favor homesteads over commercial properties. 19 of these 40 cities benefit homeowners using at least two of these three statutory preferences. In 13 cities preferential treatment for homeowners is delivered through exemptions or credits alone, while in 8 cities preferences are delivered exclusively through differences in assessment ratios or nominal tax rates. Similarly, 36 cities have statutory preferences favoring homesteads relative to apartments, but only 10 offer more than one preference. Five cities have preferential assessment ratios and/or nominal tax rates only, while 20 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 14 years and the median home value is $593,500. Because of the state's assessment limit, someone who has owned their home for 14 years would pay 44 percent less in property taxes than the owner of a newly-purchased home, even though both homes are worth $593,500. 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 median valued home in New York City ($569,700) built prior to 1981 would face less than half the effective tax rate than the owner of a newly-built median valued home despite them having identical values. Assessment limits have the largest impacts (i.e., taxes reduced by 30% or more) in New York City; seven of the eight California cities studied; the two Florida cities studied; and Portland, Oregon. Of the 29 cities in this report that are affected by parcel-specific assessment limits, new homeowners face higher property tax bills than existing homeowners in 25 cities. All four cities where no home value was sheltered were in Texas: Austin, El Paso, Houston, and San Antonio.

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

Introduction

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

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

The property tax has key strengths as a revenue instrument for local governments: it is the most stable tax source, it is more progressive than alternative revenue options, and it promotes local autonomy. Property taxes are more stable over the business cycle than sales and especially income taxes, so greater property tax reliance helps local governments avoid major revenue shortfalls during recessions. It also helps localities maintain revenue stability in the face of fluctuating state and federal aid.[3] 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.[4]

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.[5]

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

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[3] Ronald C. Fisher. 2009. "What Policy Makers Should Know About Property Taxes." *Land Lines*. Cambridge, MA: Lincoln Institute of Land Policy.

[4] Institute on Taxation and Economic Policy. 2015. "Who Pays? A Distributional Analysis of the Tax Systems in All 50 States."

[5] 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:

Net Tax Bill = {[(Market Value x Sales Ratio) − Exemptions] x Assessment Ratio x Tax Rate} − 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.[6] 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.

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

Why Property Tax Rates Vary Across Cities

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

Figure 1: Key Factors Explaining Differences in Property Tax Rates

Percent Change in Effective Tax Rate on Median Valued Home
from 1 Percent Increase in Each Variable
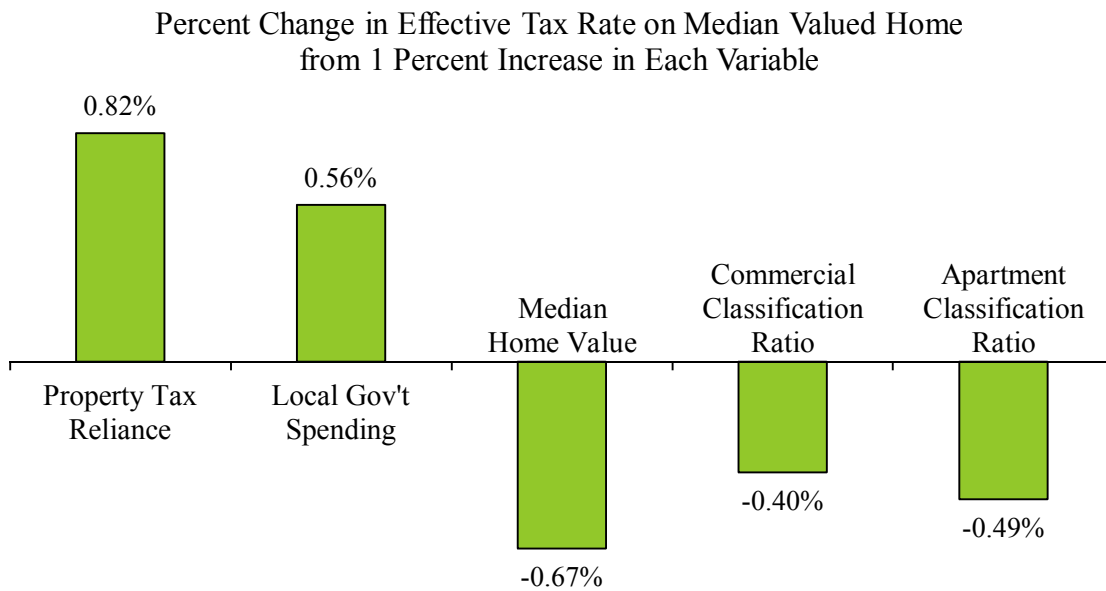
Appendix 1 shows how these variables affect tax rates on homestead and commercial properties for each large city included in this report and details the methodology used for this analysis. This section focuses on homestead property taxes, but our analysis shows that tax rates on business and apartment 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.[7] Cities with high local sales or income taxes do not need to raise as much revenue from the property tax, and thus have lower property tax rates on average. Figure 1 shows that a 1 percent increase in the

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[7] One way to measure the "importance" of each factor is to look at squared semi-partial correlations, which are analogous to estimating the R-square between the effective tax rate on a median valued home and each factor, controlling for the effect of the other factors. For the first regression of Appendix Table 1c, 26% of the variation in effective tax rates is explained by property tax reliance, 38% is explained by median home values, 6% by local government spending, 6% by the commercial-homestead classification ratio, and 4% by the apartment-homestead classification ratios.

share of revenue raised by local governments that comes from the property tax is associated with a 0.82 percent increase in the effective tax rate on a median valued home.

To see how property tax reliance impacts tax rates, compare Bridgeport (CT) and Birmingham (AL). Bridgeport has the highest effective tax rate on a median valued home in large part because it has the highest property tax reliance of any large city included in this report. So while Bridgeport has high property taxes ($2,030 per capita), city residents pay no local sales or income taxes. In contrast, Birmingham has the 11th lowest effective tax rate on a median valued home, but also has the fourth lowest reliance on the property tax. As a result, Birmingham residents have low property taxes ($789 per capita), but also pay a host of other taxes to local governments, including sales taxes ($989 per capita), income taxes ($382 per capita), and other local taxes ($535 per capita).[8] Consequently, total local taxes are considerably higher in Birmingham despite the fact that it has much lower property taxes than Bridgeport ($2,695 per capita vs. $2,068 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 0.67 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—$1,024,000 and $43,500 respectively. After accounting for assessment limits, the average property tax bill on a median valued home in the 73 large cities in this report is $2,992. To raise that amount from a median valued home, the effective tax rate

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[8] Data on per capita tax collections in 2015 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] http://datatoolkits.lincolninst.edu/subcenters/fiscally-standardized-cities

would need to be 24 times higher in Detroit than in San Francisco—6.88 percent versus 0.29 percent. The effective tax rate on a median valued home is actually just 4.2 times higher in Detroit than San Francisco (2.74% vs. 0.65%), which means San Francisco collects more than five times more in property taxes from a median valued home ($6,612 vs. $1,194). 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 0.56 percent increase in the effective tax rate on a median valued home.

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

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

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

Classification and Preferential Treatment of Homestead Properties

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

The "classification ratio" describes these preferences by comparing the effective tax rate for two types of property. For example, if a city has a 3.0% effective tax rate on commercial properties and a 1.5% effective tax rate on homestead properties, then the commercial-homestead classification ratio is 2.0 (3.0% divided by 1.5%). An increase in the classification ratio will be associated with a decrease in the tax rate on homestead properties, because it means that homeowners are collectively bearing a smaller share of the property tax burden while businesses and/or renters pay more. For example, Figure 1 shows that a 1 percent increase in the commercial-homestead classification ratio is associated with a 0.40 percent decrease in the effective tax rate on a median valued home, and a 1 percent increase in the apartment-homestead classification ratio is associated with a 0.49 percent decrease.

New York City 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 New York, a $1 million commercial property faces an effective tax rate that is 3.3 times higher than a median valued home, while a $600,000 apartment building has an effective tax rate that is 4.8 times higher. As a result, among the largest cities in each state, New York City has the 4th lowest tax rate on a median valued home, but the highest tax rate on apartments and the 2nd highest rate on commercial properties.[13] In New York, homeowners are heavily subsidized at the expense of renters and businesses.[14]

The New York City example shows the other side of the classification equation: favoring homeowners by definition means higher property taxes on businesses and apartment buildings. Regression analysis shows that a 1 percent increase in the commercial-homestead classification ratio is associated with a 0.49 percent increase in the commercial property tax rate, and a 1 percent increase in the apartment-homestead classification ratio is associated with a 0.41 percent increase in the apartment tax rate.[15]

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.[16] Since renters have lower incomes than homeowners on average, preferences given to homesteads relative to apartment buildings will tend to make the property tax system more regressive.

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

[14] Josh Barro. 2013. "If You Live in New York and You Rent, You're Paying A Huge Tax You Don't Even Know About." *Business Insider*. June 28.

[15] Results for commercial properties are shown in Appendix Table 1d. The analysis with effective tax rates on apartments as the dependent variable uses the same set of explanatory variables; each variable has the same level of statistical significance as in Appendix table 1d and the R-square is very similar (0.667).

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

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

It is reasonable to expect that higher state aid will allow local governments to reduce their reliance on property taxes and thus lead to lower property tax rates. But in fact, research shows that the impact of state aid on local property taxes is ambiguous, and depends on how state aid is structured. Some state aid formulas can limit local spending, in which case state aid is likely to reduce property taxes. However, other aid formulas like matching grants can encourage higher local spending, and thus state aid may not reduce property taxes in those cases.[17]

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.

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[17] 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 1.495 percent. At that rate, a home worth $200,000 would owe $2,990 in property taxes (1.495% x $200,000).

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

Overall, the average effective tax rate for all cities fell slightly between 2016 and 2017, from 1.497 percent of value to 1.495 percent. The effective tax rate on the median-valued homestead climbed in 24 cities, fell in 27, and remained unchanged in 1 city.[18] The largest increase was in Sioux Falls (SD), where the effective rate rose by 11%, due to changes in assessment quality that eliminated underassessment of homes relative to market values, with a corresponding increase in rank from 23rd to 20th highest. Other cities where effective tax rates climbed by at least 5 percent include: Burlington (VT), Chicago, Billings (MT), Fargo (ND), Phoenix, Portland (OR), and Denver (listed from largest increase to the smallest).

Effective rates on median-valued homesteads fell the farthest in Boston, which had a 15.9 percent decline, from 0.612 percent of value to 0.515 percent. Other cities with declines of at least 5 percent include: Charlotte (NC), Louisville (KY), Portland (ME), and Detroit (listed from largest decrease to the smallest).

Note that in addition to effective tax rates, Figure 2 also reports the tax bill on a median valued home for each city. Because of significant variations in home values across these cities, some cities with modest tax *rates* can still have high tax *bills* on a median valued home relative to other cities, and vice versa. For example, Louisville and Los Angeles have similar tax rates on a median valued home, but because the median valued home is worth so much more in Los Angeles ($594k vs. $151k), the tax bill is far higher in Los Angeles (3rd highest) than in Louisville (43rd highest). In general, cities with high home values can raise considerable property tax revenue from a median valued home despite modest tax rates, whereas cities with low home values may have fairly low tax bills even with high tax rates.

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

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[18] Note: This totals 52 cities: since the South Carolina city is not consistent between this report and the payable 2016 report, measuring changes between the two years would provide misleading information.

**Cities with Largest Differences in Ranking on Effective Tax Rate vs. Tax Bill,
for a Median Valued Home (2017)**

High Home Values Cities with high tax bills despite low tax rates			Low Home Values Cities with low tax bills despite high tax rates		
City	Tax Rate	Tax Bill	City	Tax Rate	Tax Bill
Washington (DC)	47	12	Detroit (MI)	3	46
Seattle (WA)	43	9	Buffalo (NY)	13	45
Los Angeles (CA)	31	3	Jackson (MS)	19	49
Boston (MA)	51	26	Memphis (TN)	15	42
New York (NY)	30	6	Wichita (KS)	28	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 11 of the 53 cities, with the largest impacts on New York City, San Francisco, and Los Angeles. Overall, accounting for assessment limits reduces the average property tax bill for the 53 cities by 7 percent. For more details on the impact of assessment limits, see that section of this report.

Appendix Table 2c shows how effective tax rates on homestead properties vary based on their value, showing tax rates for properties worth $150,000 and $300,000 for the largest city in each state. As the table notes, effective tax rates vary with property value about half of the time (27 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 2016 offered a homestead exemption equal to the lesser of $229,737 or 90 percent of a property's market value. This results in an ultra-low effective tax rate of 0.101% on a $150,000 home, which is roughly half of the effective rate on a $300,000 home (0.195%). The other two cities with the largest differentials in the effective rates between a $150,000-valued home and a $300,000-valued home also offer substantial homestead exemptions: Honolulu ($80,000 exemption) and Atlanta (which effectively exempts $75,000 of market value).

Other cities where effective tax rates are considerably lower on a $150,000 home than a $300,000 home due to fixed dollar credits, exemptions, or other policies, include:
- Philadelphia – seven place difference (35th highest for $150k, 28th highest for $300k)
- New Orleans – six place difference (43rd highest for $150k, 37th highest for $300k)
- Jacksonville – four place difference (26th highest for $150k, 22nd highest for $300k)

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[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).

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

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

The average effective tax rates for homesteads are generally about 4 to 5 percent lower for the 50 largest cities than for the largest city in each state. The exception is when comparing median-valued homes after accounting for assessment limitations. For those cities, the discrepancy is bigger (a 10.2% difference), largely because the share of top 50 cities with assessment limits in effect is much larger than the share on a nationwide basis.

Effective tax rates can be rather homogenous across large cities in a single state. For example, consider the effective rates on median-valued homes in the two largest states shown in Table 2d:
- In the eight California cities, the highest effective tax rate is Oakland (20th highest) and the lowest is Sacramento (36th). However, California accounts for six of the 11 cities ranked between 26th and 36th, with effective tax rates clustering in the 1.1 to 1.2 percent range due to the effect of California's Proposition 13 limitations on tax rates.
- In the seven Texas cities, the highest effective tax rate is El Paso (2nd highest) and the lowest is Houston (14th), with Texas accounting for five of the eight cities ranked between 2nd and 9th. It is more difficult to point to a single feature of Texas' property tax system to explain this clustering. However, it likely reflects the fact that local governments in these six Texas cities have relatively high reliance on property taxes and that Texas has a uniform property tax system that does not allow for different tax rates or assessment ratios on different types of property.

However, in other cases there can be considerable differences in effective tax rates between cities within the same state. For example, Table 2d shows some noticeable differences in effective tax rates and rankings for median-valued homes between these sets of same-state cities:
- In Tennessee: Memphis has the 13th highest tax rate (1.845%), while Nashville has the 46th highest (0.996%) – a 33 place differential.
- In Arizona: Phoenix has the 24th highest tax rate (1.257%) and Tucson has the 25th highest tax rate (1.230%), while Mesa has the 44th highest (0.853%) – a 20 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 1.340% for taxes paid in 2017. As with large cities, the rates for rural municipalities vary considerably around that average. In three municipalities – Warsaw (NY), Ridgway (PA), and Lancaster (NH) – the effective tax rates on median-valued homes are at least 2 times the average. In contrast, nine municipalities feature effective tax rates of less than half of the average, with the lowest rates in Kauai (HI), Pocahontas (AR), Natchitoches (LA), Monroeville (AL), and Elkins (WV).

Comparing Tables 2a and 2g shows that effective tax rates on median-valued homesteads are around 10 percent lower in rural municipalities than in large cities on average. There are two major reasons why rates are lower in rural communities: lower nominal tax rates and homestead exemptions that apply to a fixed amount of value across the state and therefore exempt higher proportions of homestead value from taxation in rural areas, where home values are generally much lower than in large cities.

In 31 states, the effective tax rate on the median-valued home is higher in the largest city[20] than in the rural municipality. Arkansas has the biggest difference; the 1.112% rate in Little Rock is 3.7 times the 0.236% rate in Pocahontas. In four other states the tax rate in the largest city is at least two times higher than in the rural community: Delaware, Louisiana, Oregon, and Tennessee (listed alphabetically).

On the other hand, in 19 states the effective tax rate on median-valued homes is higher in the rural municipality than in the largest city in the state. The biggest difference is in Massachusetts, where the effective tax rate in Adams is over 4 times higher than the rate in Boston (2.12% vs. 0.51%), largely because of Boston's unique (within Massachusetts) homestead exemption. Other states where the tax rate in the rural community is at least 1.5 times higher than the largest city are Kansas, New York, Pennsylvania, and South Carolina (listed alphabetically).

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

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

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[20] When averaging Chicago and Aurora, IL; and Buffalo and New York City, NY.
[21] Aurora only.

Figure 2: Property Taxes on Median Valued Home for Largest City in Each State (2017)

(Rate Rank, Bill Rank)   ■ Effective Tax Rate   ■ Tax Bill

City	Effective Tax Rate
CT: Bridgeport (1, 5)	3.81%
IL: Aurora (2, 7)	3.76%
MI: Detroit (3, 46)	3.63%
NJ: Newark (4, 2)	3.16%
WI: Milwaukee (5, 18)	2.57%
OR: Portland (6, 1)	2.42%
VT: Burlington (7, 4)	2.37%
IA: Des Moines (8, 20)	2.26%
NH: Manchester (9, 10)	2.26%
MD: Baltimore (10, 14)	2.07%
OH: Columbus (11, 22)	2.01%
NE: Omaha (12, 17)	2.01%
NY: Buffalo (13, 45)	1.93%
ME: Portland (14, 8)	1.89%
TN: Memphis (15, 42)	1.85%
TX: Houston (16, 19)	1.79%
RI: Providence (17, 16)	1.69%
IL: Chicago (18, 13)	1.64%
MS: Jackson (19, 49)	1.56%
SD: Sioux Falls (20, 23)	1.55%
MO: Kansas City (21, 31)	1.51%
DE: Wilmington (22, 33)	1.46%
MN: Minneapolis (23, 15)	1.35%
AK: Anchorage (24, 11)	1.34%
NM: Albuquerque (25, 28)	1.27%
FL: Jacksonville (26, 38)	1.26%
AZ: Phoenix (27, 24)	1.26%
KS: Wichita (28, 48)	1.19%
KY: Louisville (29, 43)	1.18%
NY: New York City (30, 6)	1.18%
CA: Los Angeles (31, 3)	1.18%
OK: Oklahoma City (32, 39)	1.17%
NV: Las Vegas (33, 25)	1.14%
AR: Little Rock (34, 41)	1.11%
PA: Philadelphia (35, 44)	1.10%
GA: Atlanta (36, 21)	1.08%
ND: Fargo (37, 35)	1.06%
NC: Charlotte (38, 34)	1.04%
IN: Indianapolis (39, 51)	1.03%
LA: New Orleans (40, 32)	1.00%
MT: Billings (41, 36)	0.95%
VA: Virginia Beach (42, 27)	0.90%
WA: Seattle (43, 9)	0.84%
ID: Boise (44, 40)	0.83%
UT: Salt Lake City (45, 30)	0.79%
WV: Charleston (46, 52)	0.76%
DC: Washington (47, 12)	0.72%
AL: Birmingham (48, 53)	0.67%
CO: Denver (49, 29)	0.66%
WY: Cheyenne (50, 50)	0.65%
MA: Boston (51, 26)	0.51%
SC: Charleston (52, 47)	0.50%
HI: Honolulu (53, 37)	0.31%

0.5x (≈ $1,550)   1x (≈ $3,100)   1.5x (≈ $4,650)   2x (≈ $6,200)   2.5x (≈ $7,750)

Tax Relative to U.S. Average

18

Commercial Property Taxes

Figure 3 shows effective property tax rates for commercial properties worth $1 million dollars for the largest city in each state. This analysis looks specifically at taxes on office buildings, hotels, and other commercial properties without inventory on site. Tax rates for other types of commercial property will often be similar, but will vary in cities where personal property is taxed differently than real property. The analysis assumes each property has an additional $200,000 worth of fixtures, which includes items such as office furniture, equipment, display racks, and tools. Different types of commercial property will have different proportions of real and personal property. Therefore, effective tax rates will change between different types of commercial property in cities where personal property is taxed differently from real property.[22]

The average effective tax rate on commercial properties for the 53 cities in Figure 3 is 2.055 percent. A property worth $1 million with $200,000 in fixtures would thus owe $24,654 in property taxes (2.055% x $1.2m).

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

A few of the cities had significant changes in their effective tax rates from 2016 to 2017. The city with the largest decline in its tax rates was Indianapolis, where a lower nominal tax rate led the effective tax rate on a $1-million valued commercial property to decline by 13.7%, from 2.85% to 2.46%, with the city's ranking falling 5 places from 11th to 16th. The other city with a significant drop in its tax rate rankings was Salt Lake City, UT (from 35th to 40th). [23]

Columbus, OH had the largest increase in effective tax rates on commercial properties from 2016 to 2017. A property tax reappraisal sharply reduced the underassessment of commercial property, and was the main driver in increasing the city's effective tax rate on a commercial property worth $1 million by almost 25%, from 1.75% to 2.15%, so that Columbus' ranking rose from 30th to 23rd. From a rankings perspective, Baltimore's rank rose five places (from 16th to 11th), and the ranking for three cities (Jackson, MS; Portland, ME; and Sioux Falls, SD), climbed by four places.

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

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[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] The ranking for the city representing South Carolina fell precipitously, but since the largest city in the state changed from Columbia to Charleston year to year changes are not meaningful.

generally do not vary based on property values, unlike homestead properties, where exemptions or other tax relief programs often create significantly lower rates on lower valued properties.

Only 11 of the 53 cities have effective tax rates that vary based on their value. Value-driven differences in effective tax rates make the biggest difference in rankings in Philadelphia. Philadelphia has among the lowest tax rates for commercial properties worth $100,000 (1.143%, 44th highest), but is just slightly above average for commercial properties worth $25 million (2.125%, 24th 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 (by at least ten places between the $100,000-valued and $25 million-valued parcels) because of beneficial tax treatment provided to lower-valued properties through credits, exemptions, or preferential assessment practices include:
- Des Moines (20th highest for $100k, 7th highest for $25m)
- Minneapolis (21st highest for $100k, 8th highest for $25m)
- Washington, DC (39th highest for $100k, 28th highest for $25m)

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

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

In some states, tax rates do not vary too much across the largest cities. For example, consider tax rates for commercial properties worth $1 million in the two largest states:
- For California's eight cities, the highest tax rate is in Oakland (34th highest) and the lowest is in Sacramento (46th). California accounts for 6 of the 8 cities ranked between 39th and 46th.
- For Texas's seven cities, the highest tax rate is in El Paso (4th highest) and the lowest is in Austin (21st). Texas accounts for four of the seven cities ranked between 11th and 17th.

However, in other cases there can be considerable differences in effective tax rates between cities within the same state. There are actually larger differences in tax rates for states with just two or three cities:
- In Arizona: Phoenix has the 20th highest tax rate, while neighboring Mesa as the 30th highest.

- In Tennessee: Memphis has the 6th highest tax rate, while Nashville has the 41st highest.
- In Colorado: Denver has the 19th highest tax rate, while Colorado Springs has the 29th highest.

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

On average, commercial tax rates are about 15 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 2.05% for the urban cities shown in Appendix Table 3a. For 30 states, the effective tax rate on a $1-million valued commercial property is lower in the selected rural municipality than in the state's largest city.

The state with the biggest difference in the tax rate in the largest city and the rural municipality is Tennessee, where the tax rate on a commercial property worth $1 million in Savannah (TN) is about a third of the rate in Memphis (1.00% vs. 2.83%). Other states where the tax rate in the rural community is significantly lower than the largest city include Delaware (59% lower), Connecticut (58% lower), Oregon (52% lower), and Arkansas (48% lower).

On the other hand, in 20 states the tax rate is higher in the rural municipality than in the largest city in the state. The biggest difference is in South Carolina, where the tax rate on a commercial property worth $1 million in Mullins is 59 percent higher than the rate in Charleston (2.82% vs. 1.77%). Other states where the tax rate in the rural municipality is significantly higher than the largest city include Kansas (48% higher), Washington (42% higher), Montana (42% higher), and Florida (31% higher).

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

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

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

Comparing Property Taxes Calculated with Fixed Property Values

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

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

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

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

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

Figure 3: Commercial Property Taxes for Largest City in Each State (2017)

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

City	Tax Rate
MI: Detroit (1)	4.24%
NY: New York City (2)	3.90%
CT: Bridgeport (3)	3.81%
IL: Chicago (4)	3.78%
RI: Providence (5)	3.68%
IL: Aurora (6)	3.43%
IA: Des Moines (7)	3.00%
MN: Minneapolis (8)	2.85%
MS: Jackson (9)	2.84%
TN: Memphis (10)	2.83%
MD: Baltimore (11)	2.78%
MO: Kansas City (12)	2.77%
WI: Milwaukee (13)	2.75%
KS: Wichita (14)	2.68%
NJ: Newark (15)	2.64%
IN: Indianapolis (16)	2.46%
OR: Portland (17)	2.42%
TX: Houston (18)	2.36%
NY: Buffalo (19)	2.35%
VT: Burlington (20)	2.35%
CO: Denver (21)	2.31%
AZ: Phoenix (22)	2.20%
OH: Columbus (23)	2.15%
NE: Omaha (24)	2.07%
ME: Portland (25)	2.06%
LA: New Orleans (26)	2.05%
PA: Philadelphia (27)	1.97%
NH: Manchester (28)	1.88%
MA: Boston (29)	1.82%
SC: Charleston (30)	1.77%
FL: Jacksonville (31)	1.68%
WV: Charleston (32)	1.61%
GA: Atlanta (33)	1.59%
NM: Albuquerque (34)	1.49%
SD: Sioux Falls (35)	1.45%
AL: Birmingham (36)	1.45%
AK: Anchorage (37)	1.44%
ID: Boise (38)	1.42%
AR: Little Rock (39)	1.40%
UT: Salt Lake City (40)	1.39%
OK: Oklahoma City (41)	1.30%
DC: Washington (42)	1.30%
KY: Louisville (43)	1.26%
CA: Los Angeles (44)	1.19%
NV: Las Vegas (45)	1.14%
MT: Billings (46)	1.14%
NC: Charlotte (47)	1.08%
DE: Wilmington (48)	1.07%
ND: Fargo (49)	0.96%
VA: Virginia Beach (50)	0.96%
HI: Honolulu (51)	0.91%
WA: Seattle (52)	0.85%
WY: Cheyenne (53)	0.61%

Tax Relative to U.S. Average (axis: 0.5x, 1x, 1.5x, 2x)

Industrial Property Taxes

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

The average effective tax rate on industrial properties for the 53 cities in Figure 4 is 1.499 percent. A parcel with a real property value of $1 million that has an additional $1 million in personal property would thus owe $29,984 in property taxes (1.499% x $2m total parcel value). For shorthand, this section refers to parcels based on their real property values.

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

Some cities had significant changes in their effective tax rates from 2016 to 2017. Similarly to commercial properties, the city with the largest decline in its industrial property tax rates was Indianapolis, where a lower nominal tax rate dropped the effective tax rate by nearly 15%, from 2.31% to 2.00%, so that the city's ranking dropped from 7th to 12th. Other cities with significant ranking declines include Salt Lake City, which fell four places from 36th highest to 40th in the rankings; Boston, which fell from 38th highest to 41st; and Buffalo, which fell from 25th highest to 28th.

Chicago had the largest increase in effective tax rates on industrial properties from 2016 to 2017. A reduction in the underassessment of industrial properties and a higher nominal tax rate increased the effective tax rate on an industrial property in the city worth $1 million by 18%, from 1.92% to 2.27%, so that the city's ranking rose from 14th to 7th. Four other cities experienced ranking three-place increase in their ranking: Anchorage (AK) rose from 27th highest to 24th; Birmingham (AL) rose from 40th highest to 37th; Manchester (NH) rose from 41st highest to 38th; and Oklahoma City rose from 30th highest to 27th.

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

Taxes on Personal Property

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

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

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

However, the split between real and personal property varies by industry and location. Our modeling indicates that personal property's share of total parcel value ranges from a low of 33.0% for apparel manufacturers to a high of 68.0% 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).[24]

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

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

(0.780%, 43rd highest), but is above average for industrial properties worth $25 million (1.867%, 17th 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 the rankings vary significantly because of beneficial tax treatment provided to lower-valued properties through credits, exemptions, or preferential assessment practices include:
- Phoenix (31st highest for $100k, 8th highest for $25m)
- Billings (MT) (50th highest for $100k, 35th highest for $25m)
- Des Moines (30th highest for $100k, 16th highest for $25m)
- Philadelphia (47th highest for $100k, 34th highest for $25m)

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

The average effective tax rate for industrial properties is higher for the 50 largest cities shown in Table 4c than the cities shown in Table 4a—roughly 6-7 percent higher, regardless of which of the three property values is analyzed.

In some states, tax rates do not vary too much across the largest cities. For example, consider tax rates for industrial properties worth $1 million in the two largest states:
- For California's eight cities, the highest tax rate is in Oakland (37th highest) and the lowest is in Sacramento (45th). California accounts for 8 of the 9 cities ranked between 37th and 45th.
- For Texas's seven cities, the highest tax rate is in El Paso (highest among the 50) and the lowest is in Austin (11th). Texas accounts for the four of the top five cities and six of the top eight.

However, in other cases there can be considerable differences in effective tax rates between cities within the same state. Consider these noticeable differences in ranking (with the associated effective tax rates) for the $1 million-valued industrial properties in states with two or three cities among the nation's largest fifty:
- In Tennessee: Memphis has the 7th highest tax rate (2.583%), while Nashville has the 34th highest (1.104%).
- In Colorado: Denver has the 18th highest tax rate (1.860%), while Colorado Springs has the 31st highest (1.316%).

- In Arizona: Phoenix has the 16th highest tax rate (1.953%), while neighboring Mesa has the 26th highest (1.417%).

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

On average, industrial tax rates are about 13 to 14 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 1.297% for the rural cities versus 1.499% for the urban cities shown in Appendix Table 4a. For 28 states, the effective tax rate on a $1-million valued industrial property is lower in the selected rural municipality than in the state's largest city.

The state with the biggest difference in the tax rate in the largest city and the rural municipality is Tennessee, where the tax rate on an industrial property worth $1 million in Savannah (TN) is about a third of the rate in Memphis (0.94% vs. 2.58%). Other states where the tax rate in the rural municipality is significantly lower than the largest city include Connecticut (59% lower), Delaware (48% lower), Oregon (52% lower), and Arkansas (48% 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 South Carolina, where the tax rate on an industrial property worth $1 million in Mullins is 61 percent higher than the rate in Charleston (3.67% vs. 2.28%). Other states where the tax rate in the rural municipality is significantly higher than the largest city include Virginia (53% higher), Kansas (47% higher), Washington (42% higher), and Montana (35% higher).

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

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

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

Figure 4: Industrial Property Taxes for Largest City in Each State (2017)

Effective Tax Rate for $1-Million Valued Property (plus $1 Million in Personal Property)

City	Tax Relative to U.S. Average
MS: Jackson (1)	2.84%
MI: Detroit (2)	2.73%
TN: Memphis (3)	2.58%
TX: Houston (4)	2.53%
NY: New York City (5)	2.34%
SC: Charleston (6)	2.28%
IL: Chicago (7)	2.27%
MO: Kansas City (8)	2.19%
LA: New Orleans (9)	2.10%
CT: Bridgeport (10)	2.09%
IL: Aurora (11)	2.06%
IN: Indianapolis (12)	2.00%
AZ: Phoenix (13)	1.95%
OR: Portland (14)	1.94%
RI: Providence (15)	1.93%
CO: Denver (16)	1.86%
MN: Minneapolis (17)	1.79%
IA: Des Moines (18)	1.73%
NE: Omaha (19)	1.69%
WV: Charleston (20)	1.63%
VT: Burlington (21)	1.60%
NJ: Newark (22)	1.58%
WI: Milwaukee (23)	1.51%
AK: Anchorage (24)	1.49%
GA: Atlanta (25)	1.47%
KS: Wichita (26)	1.46%
DC: Washington (27)	1.42%
NY: Buffalo (28)	1.41%
OK: Oklahoma City (29)	1.40%
AR: Little Rock (30)	1.40%
MD: Baltimore (31)	1.39%
FL: Jacksonville (32)	1.36%
OH: Columbus (33)	1.30%
NM: Albuquerque (34)	1.21%
PA: Philadelphia (35)	1.18%
ID: Boise (36)	1.17%
AL: Birmingham (37)	1.16%
NH: Manchester (38)	1.13%
ME: Portland (39)	1.13%
UT: Salt Lake City (40)	1.12%
MA: Boston (41)	1.10%
CA: Los Angeles (42)	0.95%
NV: Las Vegas (43)	0.91%
NC: Charlotte (44)	0.91%
MT: Billings (45)	0.89%
SD: Sioux Falls (46)	0.87%
KY: Louisville (47)	0.71%
WA: Seattle (48)	0.69%
WY: Cheyenne (49)	0.66%
DE: Wilmington (50)	0.64%
HI: Honolulu (51)	0.60%
ND: Fargo (52)	0.57%
VA: Virginia Beach (53)	0.49%

Tax Relative to U.S. Average

(axis: 0.5x, 1x, 1.5x, 2x)

Apartment Property Taxes

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

The average effective tax rate on apartment properties for the 53 cities in Figure 5 is 1.834 percent. A property worth $600,000 with $30,000 in personal property would thus owe $11,554 in property taxes (1.834% x $630,000 total parcel value).

Tax rates vary widely across the 53 cities. The top two cities of New York City and Detroit have effective tax rates that are 2.5 to 3 times higher than the average for these cities. The next three cities (Aurora, IL; Bridgeport, CT; and Des Moines, IA) have effective tax rates that are roughly double the average for these cities. Conversely, there are eight cities where tax rates on apartments are less than half the average, with the lowest rates in Honolulu, Cheyenne, Salt Lake City, Denver, and Washington (DC).

Some cities had significant changes in their effective tax rates from 2016 to 2017. The cities where property tax rates on apartment properties declined by at least 7% were Des Moines (IA) and Louisville. A phased-in reduction in the assessment ratio of apartment properties – part of a larger property tax reform effort – substantially influenced the effective tax rate reduction for apartments in Des Moines; while growing underassessment of apartment properties drove the decline in Louisville. However, these changes had no effect on Des Moines' ranking (which remains at 5th highest) and resulted in only a two-place decline in Louisville's rank, from 41st highest to 43rd. In fact, when excluding South Carolina because of the change in cities, no city fell more than two places in rank from 2016.

The effective tax rate on apartments increased by 23% between 2016 and 2017 in Columbus (OH) as property tax reappraisal sharply reduced the underassessment of apartment properties, driving the city's ranking up 7 places, from 19th to 12th. Five other cities had notable increases in the effective tax rankings for apartments: Charleston (WV) rose from 25th to 21st, Phoenix rose from 37th to 34th, Jackson (MS) rose from 11th to 8th, Las Vegas rose from 44th to 41st, and Sioux Falls (SD) rose from 26th to 23rd.

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

The average effective tax rates for apartment properties is about 6 percent lower for the 50 largest cities shown in Table 5b than the cities shown in Table 5a. In some states, tax rates do not

vary too much across the largest cities. For example, consider tax rates for apartment properties worth $600,000 in the two largest states:

- For California's eight cities, the highest tax rate is in Oakland (24th highest) and the lowest is in Sacramento (39th highest). There is a clustering effect as California accounts for 6 of the 8 cities ranked between 32nd and 39th.
- For Texas's seven cities, the highest tax rate is in Fort Worth (3rd highest) and the lowest is in Austin (13th). Texas accounts for five of the seven cities ranked between 3rd and 9th.

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 4th highest tax rate (2.917%), while Nashville has the 33rd highest (1.247%).
- In Oklahoma: Tulsa has the 21st highest tax rate (1.501%), while Oklahoma City has the 31st highest (1.262%).
- In Arizona: Phoenix and Tucson have the 25th and 27th highest rates (1.343% and 1.325%, respectively), while Mesa has the 44th highest (0.960%).

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 15 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 1.623% for the rural cities versus 1.834% for the large cities shown in Appendix Table 5a. For 28 states, the effective tax rate on a $600,000-valued apartment property is lower in the selected rural municipality than in the state's largest city.

The state where the tax rate in the largest city is the lowest vis-à-vis the rate for the rural municipality is Tennessee, where the tax rate on a $600,000-valued apartment property in Savannah is about a third of the rate in Memphis (1.03% vs. 2.92%). Other states where the tax rate in the rural municipality is significantly lower than the largest city include Delaware (57% lower), Oregon (52% lower), Arkansas (49% lower) and Connecticut (47% 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 Pennsylvania, where the tax rate on an apartment property worth $600,000 in Ridgway is nearly 120 percent higher than the rate in Philadelphia (2.85% vs. 1.31%). Other states where the tax rate in the rural municipality is significantly higher than in the largest city include Massachusetts (110% higher), Hawaii (77% higher), Kansas (70% higher), and South Carolina (59% higher).

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

Some readers may want to use findings on effective tax rates from one specific table to reach conclusions on property taxes throughout an entire state. The small differences in tax rates across

cities in California and Texas (Appendix Table 5b) show that the largest city in each state can serve as a proxy for property tax rates throughout an entire state. However, the large differences between the largest cities in Tennessee, Oklahoma, and Arizona show that caution is needed when extrapolating findings for a single city to an entire state.

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

Figure 5: Apartment Property Taxes for Largest City in Each State (2017)

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

City	Tax Rate
NY: New York City (1)	5.40%
MI: Detroit (2)	4.55%
IL: Aurora (3)	3.92%
CT: Bridgeport (4)	3.81%
IA: Des Moines (5)	3.34%
NJ: Newark (6)	3.01%
TN: Memphis (7)	2.92%
MS: Jackson (8)	2.84%
WI: Milwaukee (9)	2.75%
NY: Buffalo (10)	2.69%
VT: Burlington (11)	2.52%
OH: Columbus (12)	2.46%
OR: Portland (13)	2.42%
MD: Baltimore (14)	2.38%
TX: Houston (15)	2.35%
NH: Manchester (16)	2.15%
ME: Portland (17)	2.04%
NE: Omaha (18)	2.03%
RI: Providence (19)	1.88%
IN: Indianapolis (20)	1.84%
WV: Charleston (21)	1.71%
MN: Minneapolis (22)	1.69%
SD: Sioux Falls (23)	1.66%
FL: Jacksonville (24)	1.65%
SC: Charleston (25)	1.62%
GA: Atlanta (26)	1.57%
LA: New Orleans (27)	1.49%
ID: Boise (28)	1.47%
AL: Birmingham (29)	1.45%
MO: Kansas City (30)	1.44%
AR: Little Rock (31)	1.40%
AK: Anchorage (32)	1.40%
DE: Wilmington (33)	1.39%
AZ: Phoenix (34)	1.34%
NM: Albuquerque (35)	1.33%
PA: Philadelphia (36)	1.31%
KS: Wichita (37)	1.31%
OK: Oklahoma City (38)	1.26%
IL: Chicago (39)	1.24%
CA: Los Angeles (40)	1.19%
NV: Las Vegas (41)	1.10%
ND: Fargo (42)	1.10%
KY: Louisville (43)	1.08%
NC: Charlotte (44)	1.05%
MA: Boston (45)	0.96%
MT: Billings (46)	0.90%
WA: Seattle (47)	0.84%
VA: Virginia Beach (48)	0.83%
DC: Washington (49)	0.77%
CO: Denver (50)	0.76%
UT: Salt Lake City (51)	0.72%
WY: Cheyenne (52)	0.60%
HI: Honolulu (53)	0.33%

Tax Relative to U.S. Average

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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.[25]

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.[26]

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.

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[25] 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).

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

Commercial-Homestead Classification Ratio

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

The average classification ratio for the 53 cities shown in Figure 6a is 1.640, which means that on average commercial properties experience an effective tax rate that is 64% higher than homesteads.

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

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

Appendix Table 6a provides additional information about the commercial-homestead classification ratio in each city. Of the 53 cities, 16 have a higher assessment ratio for commercial properties, 14 have a higher nominal tax rate on commercial properties, and 30 have exemptions or credits that favor homesteads over commercial properties. Property tax systems often combine these features – in 19 of these cities homeowners benefit from at least two of these three features (in Minneapolis, homeowners benefit from all three). In 13 cities preferential treatment for homeowners is delivered through exemptions or credits alone, while in 8 cities preferences are delivered exclusively through differences in assessment ratios or nominal tax rates.

On average, tax disparities between commercial and homestead properties fell slightly in 2017— declining to 1.640 from 1.672 in 2016. The commercial-homestead classification ratio declined in 29 cities[27], with the largest drops in Chicago (-0.349); Indianapolis (-0.245); Phoenix (-0.202); Virginia Beach (-0.143); and Fargo (-0.138). Relative changes in sales ratios for commercial versus homestead properties tend to have the biggest impact on short-term changes in classification ratios. However, policy decisions that change the underlying property tax structure can sometimes come into play – for example, policymakers' decision in North Dakota to end the state-paid 12% credit against homestead taxes plays a large role in Fargo's lower classification ratio. From a rankings perspective, Virginia Beach (KY) fell 13 places, from 38th to 51st highest, and Cheyenne (WY) fell 10 places (from 42nd to 52nd highest).

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[27] Excluding South Carolina, where the city change renders comparisons between this report and the last misleading.

The classification ratio increased in 15 cities, with the largest rises in Boston (0.469); Columbus, OH (0.259); Detroit (0.105); and Baltimore (0.066). Here, the decline is largely driven again by sales ratio changes, although the large increase in Boston's homestead exemption results in a much higher classification ratio for that city.

Figure 6c shows the longer-term picture, with trends in the commercial-homestead classification ratio going back to 1998. The 1.640 figure for 2017 is the lowest we have measured, about 2% lower than the 1.678 from last year's report and the 1.680 in 2002. There was a roughly equivalent drop, on a proportional basis, from 2016 to 2017 when looking solely at locations where residential and commercial properties are treated differently in statute. For cities with "statutory classification,"[28] the average dropped from 1.889 to 1.854.

Apartment-Homestead Classification Ratio
Figure 6b shows the apartment-homestead classification ratio for the largest city in each state, by comparing the effective tax rate on a $600,000 apartment building to the effective tax rate on a median-value homestead. This classification ratio shows the degree of subsidy provided to homeowners at the expense of renters. The apartment-homestead classification ratio shows that apartments subsidize homestead property taxes at about half the rate that commercial properties do, with apartments facing an effective tax rate that is 33% higher than homesteads on average. In nearly all locations studied, the apartment-homestead classification ratio is smaller than or equal to the commercial-homestead classification ratio, with the exceptions of (in alphabetical order): Burlington (VT), Charleston (WV), Cheyenne (WY), Detroit, Houston, New York City, and Wilmington (DE).

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

Appendix Table 6b provides more details about the apartment-homestead classification ratio in each city. As with commercial properties, a large majority of cities have higher effective tax rates on apartments than homesteads. However, the preferences given to homesteads relative to apartments are caused more by homestead exemptions and credits than by differences in assessment ratios or nominal tax rates. In total, 36 of the 53 cities have statutory preferences for homesteads relative to apartments, but only 10 offer more than one preference. Five cities have preferential assessment ratios and/or nominal tax rates only, while 20 cities offer homestead exemptions or credits alone.

On average, tax disparities between apartments and homesteads fell about 1-2% in 2017—declining to 1.332 from 1.351 in 2016. The apartment-homestead classification ratio declined in

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[28] 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.

28 cities[29], with the largest drops in Indianapolis (-0.245); New York City (-0.175); Fargo, ND (-0.138); Sioux Falls, SD (-0.123); and Burlington, VT (-0.116). The classification ratio increased in 11 cities, with the largest rises in Columbus, OH (0.259); Boston (0.246); Baltimore (0.066); Denver (0.044); and Portland, ME (0.019). As with the commercial-homestead ratios, relative changes in sales ratio have the biggest impact in year-to-year changes in the apartment-homestead ratios. However, policymakers' decisions influenced some changes in the apartment-homestead classification ratios; in Fargo, the same factors affecting changes in the commercial-homestead classification ratio come into play. **Figure 6d** provides information on how the apartment-homestead classification ratio has changed since 1998.

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[29] Again excluding South Carolina because of the change in cities.

Figure 6a: Commercial-Homestead Classification Ratio for Largest City in Each State (2017)

City	Ratio
MA: Boston (1)	4.237
NY: New York City (2)	3.968
HI: Honolulu (3)	3.561
CO: Denver (4)	3.499
SC: Charleston (5)	3.101
IL: Chicago (6)	2.766
IN: Indianapolis (7)	2.353
KS: Wichita (8)	2.205
AL: Birmingham (9)	2.180
DC: Washington (10)	2.168
PA: Philadelphia (11)	2.141
WV: Charleston (12)	2.109
LA: New Orleans (13)	2.037
AZ: Phoenix (14)	1.996
RI: Providence (15)	1.952
MN: Minneapolis (16)	1.937
ID: Boise (17)	1.863
MO: Kansas City (18)	1.847
MS: Jackson (19)	1.827
UT: Salt Lake City (20)	1.753
Average for Cities	**1.640**
TN: Memphis (21)	1.600
IA: Des Moines (22)	1.590
NY: Buffalo (23)	1.463
GA: Atlanta (24)	1.437
FL: Jacksonville (25)	1.363
MT: Billings (26)	1.329
TX: Houston (27)	1.287
OH: Columbus (28)	1.284
AR: Little Rock (29)	1.259
MI: Detroit (30)	1.193
NM: Albuquerque (31)	1.162
SD: Sioux Falls (32)	1.126
VT: Burlington (33)	1.106
IL: Aurora (34)	1.096
ND: Fargo (35)	1.087
ME: Portland (36)	1.077
AK: Anchorage (37)	1.073
WI: Milwaukee (38)	1.071
MD: Baltimore (39)	1.070
OK: Oklahoma City (40)	1.063
NE: Omaha (41)	1.022
CA: Los Angeles (42)	1.012
NH: Manchester (43)	1.000
WA: Seattle (44)	1.000
OR: Portland (45)	1.000
NC: Charlotte (46)	1.000
NJ: Newark (47)	1.000
CT: Bridgeport (48)	1.000
NV: Las Vegas (49)	0.997
KY: Louisville (50)	0.959
VA: Virginia Beach (51)	0.922
WY: Cheyenne (52)	0.916
DE: Wilmington (53)	0.879

Figure 6b: Apartment-Homestead Classification Ratio for Largest City in Each State (2017)

City	Ratio
NY: New York City (1)	4.800
SC: Charleston (2)	3.101
IN: Indianapolis (3)	2.353
WV: Charleston (4)	2.255
AL: Birmingham (5)	2.180
MA: Boston (6)	1.954
ID: Boise (7)	1.863
MS: Jackson (8)	1.827
TN: Memphis (9)	1.600
IA: Des Moines (10)	1.549
NY: Buffalo (11)	1.463
LA: New Orleans (12)	1.461
GA: Atlanta (13)	1.437
FL: Jacksonville (14)	1.363
Average for Cities	**1.332**
MN: Minneapolis (15)	1.310
TX: Houston (16)	1.303
OH: Columbus (17)	1.284
AR: Little Rock (18)	1.259
MI: Detroit (19)	1.257
PA: Philadelphia (20)	1.245
SD: Sioux Falls (21)	1.126
AZ: Phoenix (22)	1.122
HI: Honolulu (23)	1.118
DC: Washington (24)	1.117
VT: Burlington (25)	1.115
IL: Aurora (26)	1.096
ND: Fargo (27)	1.087
ME: Portland (28)	1.077
AK: Anchorage (29)	1.073
MD: Baltimore (30)	1.070
WI: Milwaukee (31)	1.069
OK: Oklahoma City (32)	1.061
CO: Denver (33)	1.038
NM: Albuquerque (34)	1.034
KS: Wichita (35)	1.025
NE: Omaha (36)	1.022
CA: Los Angeles (37)	1.012
MO: Kansas City (38)	1.000
DE: Wilmington (39)	1.000
WA: Seattle (40)	1.000
RI: Providence (41)	1.000
OR: Portland (42)	1.000
NJ: Newark (43)	1.000
NH: Manchester (44)	1.000
MT: Billings (45)	1.000
CT: Bridgeport (46)	1.000
NC: Charlotte (47)	1.000
NV: Las Vegas (48)	0.966
UT: Salt Lake City (49)	0.964
KY: Louisville (50)	0.959
WY: Cheyenne (51)	0.920
VA: Virginia Beach (52)	0.875
IL: Chicago (53)	0.795

Figure 6c: Commercial-Homestead Classification Ratio for Largest City in Each State (1998 – 2017)

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 – 2017)
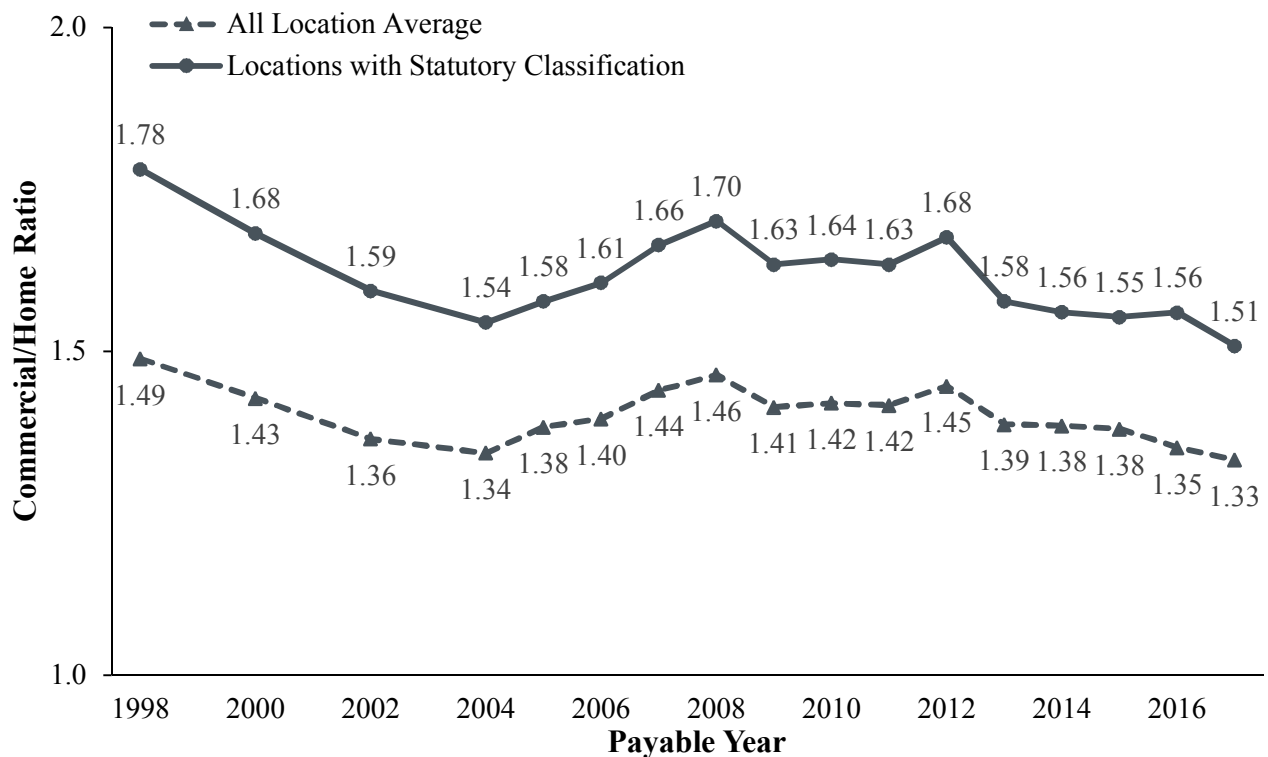
Note: 1.0 denotes unclassified property tax system.

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.[30]

There are many different types of property tax limits, including constraints on tax rates, tax levies, and assessed values.[31] This report accounts for the impact of limits on tax rates and levies implicitly, because of how these laws impact cities' tax rates. However, accounting for the impact of assessment limits requires an explicit modeling strategy.

Assessment limits typically restrict growth in the assessed value for individual parcels and then reset the taxable value of properties when they are sold. Therefore, the level of tax savings provided from assessment limits largely depends on two factors: how long a homeowner has owned her home and appreciation of the home's *market value* relative to the allowable growth of its *assessed value*.[32]

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

Figure 7 shows the impact of assessment limits for a median valued home in the 29 cities 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 36 years. However, effective tax rates on newly built homes are far higher,

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

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

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

[33] 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 65 years in New York City and 64 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 ($569,700) built prior to 1981 would face less than half the effective tax rate than the owner of a newly built median valued home despite them having identical values. Assessment limits also have large impacts in San Francisco, Los Angeles, Oakland, Miami, and Sacramento, where effective tax rates are 40-45% lower for homes that have been owned for the average duration in each city than for newly purchased homes. In contrast, in four cities assessment limits have no impact on taxes for the average homeowner, because growth in market values is less than allowable growth under the assessment limit.

Appendix Table 7 also shows the impact of assessment limits in terms of the dollar difference in taxes between newly purchased homes and homes subject to the average assessment limitation in each city, for median valued homes. In 9 cities, the difference in tax bills is at least $1,000.

Accounting for assessment limits can lead to major differences in city's tax rate rankings. For example, consider effective tax rates for median valued homes in the largest city in each state (See Appendix Tables 2a and 2b). New York City has the 30th highest effective tax rate for new homeowners, but drops to 50th highest once adjusting for assessment limits. Other cities with large changes include Los Angeles (31st to 47th); Jacksonville (26th to 41st); Portland, OR (6th to 17th); and Phoenix (27th to 36th).

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)

City	Percentage
New York City (NY)*	53.8%
San Francisco (CA)	44.5%
Los Angeles (CA)	43.7%
Oakland (CA)	43.4%
Miami (FL)	43.4%
Sacramento (CA)	41.2%
Long Beach (CA)	38.1%
San Jose (CA)	37.0%
Jacksonville (FL)	34.1%
Portland (OR)*	32.1%
Fresno (CA)	31.3%
San Diego (CA)	27.6%
Detroit (MI)	24.4%
Phoenix (AZ)	18.8%
Mesa (AZ)	15.8%
Charleston (SC)	13.2%
Chicago (IL)	6.1%
Little Rock (AR)	4.5%
Oklahoma City (OK)	3.4%
Tulsa (OK)	2.2%
Albuquerque (NM)	1.7%
Tucson (AZ)	0.9%
Dallas (TX)	0.5%
Arlington (TX)	0.5%
Fort Worth (TX)	0.5%
Austin (TX)	0.0%
El Paso (TX)	0.0%
Houston (TX)	0.0%
San Antonio (TX)	0.0%

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 (See footnote 33 on page 40 for details on the methodology for these two cities).

Methodology

This study updates the *50-State Property Tax Comparison Study: Payable Year 2016*. It examines four distinct classes of property using a standard set of assumptions about their "true" market values and the split between real and personal property. The report calculates property taxes for parcels with a range of property values in three sets of cities:

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

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

A. Components of the Property Tax Calculation

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

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

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

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

Component 1: True Market Value (TMV)

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

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

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

Component 2: Sales Ratios (SR)

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

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

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

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

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

Component 3: Exemptions (E)

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

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

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

Component 4: Classification Rates (CR)

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

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

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

Component 5: Total Local Tax Rate (TR)

The study defines "payable 2017 tax rate" as the rate used to calculate the property taxes with a lien date in 2017, 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"[34] on the U.S. Department rural-urban measurement continuum (controlling for geographical relationships to urban areas)

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

Data on Median-Valued Homes

This study compares homeowner property taxes using a "median value analysis", which sets the home value in each city equal to the median value of owner-occupied housing units in the city, or for smaller cities, in the relevant county. This data comes from the one-year or five-year data in the Census Bureau's *American Community Survey* for 2016, as appropriate. We intend this comparison to show how differences in local real estate markets affect residential property taxes.

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

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

<u>Special Property Tax Provisions</u>

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

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

C. Property Classes and Assumptions About Value

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

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

<u>Selection of Fixed Values</u>

This report compares the tax burdens various property tax systems across the nation impose on a fixed amount of value. Holding property values constant across all jurisdictions controls for the effects differences in property values have on effective tax rates. The specific fixed values the study uses for homes, commercial, and industrial properties were largely chosen between 1995 and 2000 to represent a low-valued[35], medium-valued, and high-valued parcel.

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

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[35] Note that the study no longer includes the $70,000 "low-valued" home.

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

Real and Personal Property

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

Making these assumptions is challenging because the specific mix of real and personal property obviously varies by industry and location. With the permission of the Minnesota Department of Revenue's Research Division, we have borrowed the methodology they use to determine shares of real and personal business property in their biennial *Tax Incidence Study*.[36] 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 45.5% land and buildings (real property) and 54.5% personal property. Overall, the split ranges from 41.0% real/59.0% personal (Michigan) to 49.6% real/50.4% personal (Massachusetts).

PROPERTY CLASSES AND TRUE MARKET VALUES
Values of Property

Class	Real	Mach. & Equip.	Inventories	Fixtures	Total
Homestead	$150,000	$0	$0	$0	**$150,000**
	$300,000	$0	$0	$0	**$300,000**
Apartments	$600,000	$0	$0	$30,000	**$630,000**
Commercial	$100,000	$0	$0	$20,000	**$120,000**
	$1,000,000	$0	$0	$200,000	**$1,200,000**
	$25,000,000	$0	$0	$5,000,000	**$30,000,000**
Industrial (50% Personal)	$100,000	$50,000	$40,000	$10,000	**$200,000**
	$1,000,000	$500,000	$400,000	$100,000	**$2,000,000**
	$25,000,000	$12,500,000	$10,000,000	$2,500,00	**$50,000,000**
Industrial (60% Personal)	$100,000	$75,000	$60,000	$15,000	**$250,000**
	$1,000,000	$750,000	$600,000	$150,000	**$2,500,000**
	$25,000,000	$18,750,000	$15,000,000	$3,750,000	**$62,500,000**

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

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

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

<u>Definitions of Real and Personal Property</u>

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

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

D. Estimates of Assessment Limitation Effects

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

One final key assumption: in most instances the model represents the experience of a homeowner with an "average" length of tenure.[37] Therefore, if the model returns no excluded value, then we assume that the provision does not apply to half or more of homeowners and thus does not apply.

MCFE prepared a working paper for the Lincoln Institute of Land Policy on this subject where there is considerably more detailed information on the methodology underlying this analysis.[38]

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[37] Except for New York City and Portland (OR). In those cities the assessment limitations do no reset upon sale of the property, and so the duration of the assessment limitation is set equal to the lesser of the average age of an owner-occupied home (i.e. number of years since average home was constructed, which is 65 years in New York City and 64 years in Portland) or the period during which assessment limitations have been in effect (since 1981 in New York City and 1996 in Portland).

[38] 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 Rank (1-73)	Tax Rate	Property Tax Reliance Rank (1-73)	Property Tax Reliance Impact on Tax Rate	Median Home Value Rank (1-73)	Median Home Value Impact on Tax Rate	Local Gov't Spending Rank (1-73)	Local Gov't Spending Impact on Tax Rate	Classification Ratio Commercial Rank (1-73)	Classification Ratio Apartments Rank (1-73)	Classification Ratio Impact on Tax Rate
Alabama	Birmingham	63	0.67	70	-0.60	70	0.73	32	0.00	10	5	-0.53
Alaska	Anchorage	31	1.34	9	0.58	14	-0.37	39	-0.03	46	39	0.16
Arizona	Mesa	62	0.72	47	-0.20	38	0.00	66	-0.23	16	27	-0.09
Arizona	Phoenix	44	1.01	48	-0.20	35	-0.02	54	-0.18	22	30	-0.04
Arizona	Tucson	33	1.22	39	-0.07	59	0.31	63	-0.22	15	28	-0.08
Arkansas	Little Rock	40	1.06	65	-0.51	47	0.22	57	-0.20	31	20	0.04
California	Fresno	52	0.83	43	-0.11	30	-0.08	35	-0.02	51	46	0.18
California	Long Beach	60	0.74	62	-0.45	10	-0.78	6	0.35	55	50	0.19
California	Los Angeles	64	0.66	50	-0.26	6	-0.90	5	0.43	57	52	0.19
California	Oakland	59	0.75	56	-0.34	4	-0.97	4	0.65	58	53	0.19
California	Sacramento	66	0.65	57	-0.37	16	-0.33	12	0.21	53	48	0.19
California	San Diego	51	0.84	32	0.07	9	-0.86	31	0.01	56	51	0.19
California	San Francisco	68	0.65	55	-0.32	1	-1.36	2	1.04	61	55	0.20
California	San Jose	55	0.82	40	-0.08	2	-1.15	18	0.11	60	54	0.19
Colorado	Colorado Springs	71	0.45	71	-0.60	25	-0.13	25	0.06	1	67	-0.47
Colorado	Denver	65	0.66	69	-0.58	13	-0.47	7	0.34	4	44	-0.46
Connecticut	Bridgeport	1	3.81	1	1.27	43	0.14	38	-0.03	62	56	0.20
DC	Washington	61	0.72	64	-0.51	7	-0.87	1	1.68	19	32	-0.05
Delaware	Wilmington	28	1.46	33	-0.01	58	0.30	20	0.10	73	56	0.27
Florida	Jacksonville	53	0.83	37	-0.04	48	0.24	34	-0.01	28	15	-0.02

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

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

For example, consider Birmingham, Alabama. The city has the 70th highest property tax reliance (4th lowest), which is predicted to decrease the city's tax rate on a median valued home by 0.60 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 0.60 percentage points higher, which at 1.26% would be 32nd highest. Birmingham also has the 70th highest median home value (4th lowest), which is expected to increase their tax rate by 0.73 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 in Birmingham (32nd highest) equals the average for the cities in this analysis, and thus is not expected to affect the city's tax rate. Finally, Birmingham has significantly higher tax rates for commercial properties and apartments than for homestead properties; the classification ratio is 10th highest for commercial properties and 5th highest for apartments. The city's classification ratios are predicted to decrease the property tax rate on a median valued home by 0.53 percentage points compared to a city with the average classification ratio.

State	City	Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio		
		Rank (1-73)	Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Commercial	Apartments	Impact
Florida	Miami	48	0.90	34	-0.01	21	-0.25	27	0.05	37	24	0.08
Georgia	Atlanta	39	1.08	42	-0.11	23	-0.20	9	0.32	26	14	-0.08
Hawaii	Honolulu*	73	0.31	16	0.35	3	-0.99	73	-0.41	6	31	-0.35
Idaho	Boise	54	0.83	11	0.44	33	-0.04	72	-0.38	23	7	-0.30
Illinois	Aurora	2	3.76	4	0.99	44	0.14	60	-0.22	68	35	0.19
Illinois	Chicago	26	1.54	38	-0.06	24	-0.14	10	0.32	8	73	-0.06
Indiana	Indianapolis	43	1.03	41	-0.08	63	0.41	41	-0.05	7	3	-0.64
Iowa	Des Moines	9	2.26	13	0.38	64	0.43	49	-0.11	29	11	-0.08
Kansas	Wichita	34	1.19	24	0.16	66	0.45	58	-0.20	9	47	-0.13
Kentucky	Louisville	35	1.18	53	-0.31	55	0.27	67	-0.24	47	70	0.20
Louisiana	New Orleans	45	1.00	58	-0.38	31	-0.05	40	-0.03	14	13	-0.24
Maine	Portland	19	1.89	8	0.67	20	-0.26	46	-0.09	44	37	0.15
Maryland	Baltimore	13	2.07	30	0.09	53	0.26	21	0.09	27	40	0.09
Massachusetts	Boston	70	0.51	3	1.14	11	-0.74	29	0.02	3	6	-0.79
Michigan	Detroit	4	2.74	63	-0.49	73	1.34	19	0.11	40	21	0.06
Minnesota	Minneapolis	30	1.35	35	-0.03	27	-0.10	23	0.09	13	16	-0.20
Mississippi	Jackson	24	1.56	7	0.73	70	0.73	61	-0.22	18	8	-0.31
Missouri	Kansas City	27	1.51	67	-0.54	57	0.30	30	0.01	17	56	-0.01
Montana	Billings	47	0.95	22	0.19	34	-0.03	69	-0.27	36	56	0.15
Nebraska	Omaha	16	2.01	23	0.18	56	0.28	36	-0.02	52	49	0.18
Nevada	Las Vegas	36	1.14	54	-0.31	29	-0.08	48	-0.10	64	68	0.21
New Hampshire	Manchester	10	2.26	6	0.76	32	-0.05	59	-0.21	72	56	0.24
New Jersey	Newark*	3	3.16	2	1.27	27	-0.10	47	-0.10	71	56	0.24
New Mexico	Albuquerque	32	1.25	46	-0.17	41	0.07	70	-0.29	39	45	0.14
New York	Buffalo	17	1.93	66	-0.54	72	0.78	17	0.14	33	12	-0.02
New York	New York City	69	0.55	51	-0.30	8	-0.86	3	0.86	5	1	-1.77
North Carolina	Charlotte	42	1.04	68	-0.57	39	0.03	13	0.18	50	56	0.19
North Carolina	Raleigh	46	0.98	17	0.29	26	-0.13	62	-0.22	59	56	0.20
North Dakota	Fargo	41	1.06	45	-0.17	40	0.05	56	-0.18	69	36	0.19
Ohio	Columbus	15	2.01	44	-0.14	60	0.33	44	-0.08	70	42	0.20

*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, 2015 Census of Government Finances).

State	City	Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio		
		Rank (1-73)	Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Commercial	Apartments	Impact
Oklahoma	Oklahoma City	37	1.13	52	-0.30	49	0.24	71	-0.29	43	43	0.15
Oklahoma	Tulsa	29	1.37	49	-0.26	62	0.40	64	-0.23	49	38	0.16
Oregon	Portland	23	1.64	20	0.20	12	-0.55	33	0.00	62	56	0.20
Pennsylvania	Philadelphia	38	1.10	72	-0.70	52	0.26	16	0.14	20	22	-0.09
Rhode Island	Providence	22	1.69	5	0.90	42	0.13	42	-0.06	11	56	-0.10
South Carolina	Charleston	72	0.44	36	-0.03	17	-0.31	45	-0.09	2	2	-1.21
South Dakota	Sioux Falls	25	1.55	25	0.15	45	0.16	68	-0.24	67	29	0.17
Tennessee	Memphis	20	1.85	31	0.09	69	0.65	15	0.14	24	9	-0.15
Tennessee	Nashville	56	0.79	27	0.13	36	-0.01	26	0.05	24	9	-0.15
Texas	Arlington	12	2.14	14	0.38	51	0.25	65	-0.23	34	23	0.06
Texas	Austin	18	1.90	10	0.50	15	-0.34	24	0.07	42	26	0.10
Texas	Dallas	14	2.02	29	0.12	49	0.24	28	0.03	32	19	0.04
Texas	El Paso	5	2.60	18	0.28	65	0.43	52	-0.15	41	34	0.12
Texas	Fort Worth	11	2.25	12	0.38	54	0.27	51	-0.15	35	18	0.04
Texas	Houston	21	1.79	15	0.35	46	0.20	43	-0.07	30	17	0.01
Texas	San Antonio	7	2.39	21	0.19	61	0.38	22	0.09	38	25	0.09
Utah	Salt Lake City	57	0.79	28	0.12	19	-0.27	55	-0.18	21	69	0.02
Vermont	Burlington	8	2.37	61	-0.41	18	-0.29	14	0.16	65	33	0.16
Virginia	Virginia Beach	49	0.90	26	0.13	22	-0.23	53	-0.17	48	72	0.23
Washington	Seattle	50	0.84	59	-0.38	5	-0.91	11	0.21	54	56	0.20
West Virginia	Charleston	58	0.76	60	-0.39	67	0.48	50	-0.14	12	4	-0.54
Wisconsin	Milwaukee	6	2.57	19	0.22	68	0.51	37	-0.02	45	41	0.16
Wyoming	Cheyenne	67	0.65	73	-0.90	37	-0.01	8	0.32	66	71	0.24

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

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

State	City	Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio*	
		Rank (1-73)	Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate
Alabama	Birmingham	47	1.45	70	-0.64	70	0.91	32	0.00	10	0.33
Alaska	Anchorage	48	1.44	9	0.63	14	-0.46	39	-0.05	46	-0.18
Arizona	Mesa	41	1.62	47	-0.22	38	-0.01	66	-0.36	16	0.20
Arizona	Phoenix	28	2.20	48	-0.22	35	-0.03	54	-0.28	22	0.13
Arizona	Tucson	26	2.33	39	-0.07	59	0.39	63	-0.35	15	0.20
Arkansas	Little Rock	50	1.40	65	-0.55	47	0.27	57	-0.31	31	-0.09
California	Fresno	57	1.25	43	-0.12	30	-0.10	35	-0.02	51	-0.19
California	Long Beach	58	1.22	62	-0.49	10	-0.98	6	0.55	55	-0.20
California	Los Angeles	60	1.19	50	-0.28	6	-1.12	5	0.66	57	-0.20
California	Oakland	52	1.35	56	-0.36	4	-1.22	4	1.01	58	-0.20
California	Sacramento	65	1.14	57	-0.40	16	-0.42	12	0.33	53	-0.20
California	San Diego	62	1.17	32	0.08	9	-1.07	31	0.01	56	-0.20
California	San Francisco	61	1.17	55	-0.35	1	-1.70	2	1.62	61	-0.20
California	San Jose	53	1.32	40	-0.09	2	-1.44	18	0.18	60	-0.20
Colorado	Colorado Springs	40	1.63	71	-0.65	25	-0.17	25	0.09	1	0.99
Colorado	Denver	27	2.31	69	-0.63	13	-0.59	7	0.53	4	0.94
Connecticut	Bridgeport	3	3.81	1	1.37	43	0.17	38	-0.04	62	-0.21
DC	Washington	55	1.30	64	-0.55	7	-1.09	1	2.62	19	0.16
Delaware	Wilmington	67	1.07	33	-0.01	58	0.38	20	0.16	73	-0.33
Florida	Jacksonville	39	1.68	37	-0.04	48	0.30	34	-0.02	28	-0.05

*Table shows impact of the commercial-homestead classification ratio

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

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

For example, consider Birmingham, Alabama. The city has the 70th highest property tax reliance (4th lowest), which is predicted to decrease the city's commercial property tax rate by 0.64 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 0.64 percentage points higher. Birmingham also has the 70th highest median home value (4th lowest), which is expected to increase their tax rate by 0.91 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 in Birmingham equals the average for the cities in this analysis (32nd highest), and thus is not expected to affect the city's tax rate. Finally, Birmingham has the 10th highest commercial-homestead classification ratio, which is predicted to increase the commercial property tax rate by 0.33 percentage points compared to a city with the average classification ratio.

State	City	Tax Rate		Property Tax Reliance		Median Home Value		Local Gov't Spending		Classification Ratio*	
		Rank (1-73)	Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Impact on Tax Rate	Rank (1-73)	Tax Rate
Florida	Miami	35	1.88	34	-0.02	21	-0.31	27	0.08	37	-0.12
Georgia	Atlanta	43	1.59	42	-0.11	23	-0.25	9	0.50	26	0.00
Hawaii	Honolulu**	71	0.91	16	0.37	3	-1.24	73	-0.64	6	0.69
Idaho	Boise	49	1.42	11	0.47	33	-0.06	72	-0.59	23	0.12
Illinois	Aurora	6	3.43	4	1.07	44	0.18	60	-0.34	68	-0.25
Illinois	Chicago	4	3.78	38	-0.07	24	-0.17	10	0.49	8	0.39
Indiana	Indianapolis	21	2.46	41	-0.09	63	0.52	41	-0.08	7	0.42
Iowa	Des Moines	7	3.00	13	0.41	64	0.53	49	-0.17	29	-0.06
Kansas	Wichita	17	2.68	24	0.17	66	0.56	58	-0.31	9	0.36
Kentucky	Louisville	56	1.26	53	-0.34	55	0.34	67	-0.37	47	-0.18
Louisiana	New Orleans	32	2.05	58	-0.41	31	-0.06	40	-0.05	14	0.28
Maine	Portland	31	2.06	8	0.72	20	-0.32	46	-0.14	44	-0.17
Maryland	Baltimore	13	2.78	30	0.09	53	0.32	21	0.15	27	-0.05
Massachusetts	Boston	36	1.82	3	1.22	11	-0.93	29	0.04	3	0.95
Michigan	Detroit	1	4.24	63	-0.53	73	1.67	19	0.17	40	-0.13
Minnesota	Minneapolis	9	2.85	35	-0.03	27	-0.13	23	0.14	13	0.30
Mississippi	Jackson	10	2.84	7	0.79	70	0.91	61	-0.35	18	0.17
Missouri	Kansas City	14	2.77	67	-0.58	57	0.38	30	0.02	17	0.17
Montana	Billings	64	1.14	22	0.20	34	-0.04	69	-0.42	36	-0.12
Nebraska	Omaha	30	2.07	23	0.20	56	0.35	36	-0.03	52	-0.19
Nevada	Las Vegas	63	1.14	54	-0.34	29	-0.10	48	-0.15	64	-0.21
New Hampshire	Manchester	34	1.88	6	0.82	32	-0.06	59	-0.33	72	-0.28
New Jersey	Newark**	18	2.64	2	1.37	27	-0.13	47	-0.15	71	-0.28
New Mexico	Albuquerque	44	1.49	46	-0.19	41	0.09	70	-0.44	39	-0.13
New York	Buffalo	24	2.35	66	-0.58	72	0.98	17	0.21	33	-0.11
New York	New York City	2	3.90	51	-0.32	8	-1.08	3	1.34	5	0.85
North Carolina	Charlotte	66	1.08	68	-0.61	39	0.03	13	0.28	50	-0.19
North Carolina	Raleigh	68	0.99	17	0.31	26	-0.16	62	-0.35	59	-0.20
North Dakota	Fargo	69	0.96	45	-0.18	40	0.06	56	-0.29	69	-0.25
Ohio	Columbus	37	1.79	44	-0.15	60	0.42	44	-0.12	70	-0.26

*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 Citie s database, so statewide data on all local governments is used instead (Source: U.S. Census Bureau, 2015 Census of Government Finances).

State	City	Tax Rate Rank (1-73)	Tax Rate	Property Tax Reliance Rank (1-73)	Property Tax Reliance Impact on Tax Rate	Median Home Value Rank (1-73)	Median Home Value Impact on Tax Rate	Local Gov't Spending Rank (1-73)	Local Gov't Spending Impact on Tax Rate	Classification Ratio* Rank (1-73)	Classification Ratio* Tax Rate
Oklahoma	Oklahoma City	54	1.30	52	-0.33	49	0.30	71	-0.45	43	-0.16
Oklahoma	Tulsa	45	1.49	49	-0.28	62	0.50	64	-0.35	49	-0.18
Oregon	Portland	22	2.42	20	0.21	12	-0.69	33	0.00	62	-0.21
Pennsylvania	Philadelphia	33	1.97	72	-0.75	52	0.32	16	0.22	20	0.15
Rhode Island	Providence	5	3.68	5	0.97	42	0.16	42	-0.10	11	0.33
South Carolina	Charleston	38	1.77	36	-0.04	17	-0.38	45	-0.13	2	0.95
South Dakota	Sioux Falls	46	1.45	25	0.16	45	0.19	68	-0.38	67	-0.23
Tennessee	Memphis	11	2.83	31	0.09	69	0.82	15	0.22	24	0.04
Tennessee	Nashville	59	1.21	27	0.14	36	-0.01	26	0.08	24	0.04
Texas	Arlington	19	2.59	14	0.40	51	0.31	65	-0.36	34	-0.11
Texas	Austin	29	2.13	10	0.53	15	-0.42	24	0.10	42	-0.15
Texas	Dallas	20	2.55	29	0.13	49	0.30	28	0.05	32	-0.09
Texas	El Paso	8	2.96	18	0.30	65	0.54	52	-0.24	41	-0.14
Texas	Fort Worth	16	2.71	12	0.41	54	0.34	51	-0.24	35	-0.11
Texas	Houston	23	2.36	15	0.38	46	0.26	43	-0.11	30	-0.06
Texas	San Antonio	12	2.81	21	0.20	61	0.47	22	0.15	38	-0.13
Utah	Salt Lake City	51	1.39	28	0.13	19	-0.34	55	-0.28	21	0.14
Vermont	Burlington	25	2.35	61	-0.45	18	-0.37	14	0.24	65	-0.21
Virginia	Virginia Beach	70	0.96	26	0.14	22	-0.28	53	-0.27	48	-0.18
Washington	Seattle	72	0.85	59	-0.41	5	-1.14	11	0.33	54	-0.20
West Virginia	Charleston	42	1.61	60	-0.42	67	0.60	50	-0.22	12	0.30
Wisconsin	Milwaukee	15	2.75	19	0.24	68	0.64	37	-0.03	45	-0.17
Wyoming	Cheyenne	73	0.61	73	-0.97	37	-0.01	8	0.50	66	-0.23

*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	1.387	0.728	Effective tax rate on median valued home, with assessment limits Source: *50-State Property Tax Comparison Study* (Appendix Tables 2b, 2e)
Median Home Value	-0.671*** (0.059)	-0.854*** (0.112)	246,958	173,615	Median home value in city Source: 2016 American Community Survey (U.S. Census Bureau)
Business Classification Ratio	-0.397*** (0.100)	-0.256*** (0.090)	1.453	0.670	Commercial-homestead classification ratio, with taxes on personal property excluded for commercial properties Source: *50-State Property Tax Comparison Study*
Apartments Classification Ratio	-0.494*** (0.128)	-0.362* (0.182)	1.231	0.395	Apartment-homestead classification ratio, with taxes on personal property excluded for apartments Source: *50-State Property Tax Comparison Study*
Property Tax Reliance	0.820*** (0.097)	0.0325*** (0.006)	40.5	13.8	Property taxes as a percent of own source revenue for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2015).
Local Gov't Spending Per Capita (1000s)	0.562*** (0.149)	0.120*** (0.034)	6.167	1.963	Direct expenditures per capita for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2015).
State and Federal Aid as % Local Gov't Budget	-0.0485 (0.115)	0.00148 (0.006)	34.8	10.1	Intergovernmental revenue as a percent of general revenue for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2015).
Local as % State-Local Spending	-0.142 (0.337)	-0.000225 (0.010)	49.6	7.5	Local government direct expenditures as a percent of state and local direct expenditures (State-level variable) Source: 2015 Survey of State and Local Gov't Finances (U.S. Census Bureau)
Constant	-0.228 (1.332)	10.57*** (1.419)			
N	69	69			
R-sq	0.74	0.678			
adj. R-sq	0.71	0.641			
F	34.09	12.47			

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; robust standard errors in parenthesis.
Regression #1 shows elasticities with all variables measured in natural logs; these coefficients are reported in figure 1.
Regression #2 measures all variables in levels except for median home value, which is measured as the natural log; these coefficients are used in appendix table 1a.

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

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

	(1)	(2)	Mean	St. Dev.	Data
Tax Rate on Commercial Property	N/A	N/A	1.961	0.813	Effective tax rate on $1-Million Commercial Property Source: *50-State Property Tax Comparison Study* (Appendix Tables 3a, 3b)
Median Home Value	-0.500*** (0.070)	-1.069*** (0.185)	246,958	173,615	Median home value in city Source: 2016 American Community Survey (U.S. Census Bureau)
Business Classification Ratio	0.493*** (0.097)	0.456*** (0.136)	1.453	0.670	Commercial-homestead classification ratio, with taxes on personal property excluded for commercial properties Source: *50-State Property Tax Comparison Study*
Apartments Classification Ratio	-0.352*** (0.125)	-0.501** (0.198)	1.231	0.395	Apartment-homestead classification ratio, with taxes on personal property excluded for apartments Source: *50-State Property Tax Comparison Study*
Property Tax Reliance	0.752*** (0.107)	0.0350*** (0.005)	40.5	13.8	Property taxes as a percent of own source revenue for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2015).
Local Gov't Spending Per Capita (1000s)	0.640*** (0.153)	0.186*** (0.047)	6.167	1.963	Direct expenditures per capita for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2015).
State and Federal Aid as % Local Gov't Budget	0.0997 (0.098)	0.00711 (0.006)	34.8	10.1	Intergovernmental revenue as a percent of general revenue for the fiscally standardized city (FiSC) Source: Lincoln Institute of Land Policy. FiSC database (2015).
Local as % State-Local Spending	0.129 (0.305)	0.00787 (0.012)	49.6	7.5	Local government direct expenditures as a percent of state and local direct expenditures (State-level variable) Source: 2015 Survey of State and Local Gov't Finances (U.S. Census Bureau)
Constant	-2.615** (1.266)	11.79*** (2.432)			
N	69	69			
R-sq	0.653	0.636			
adj. R-sq	0.614	0.595			
F	25.01	14.67			

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; robust standard errors in parenthesis.
Regression #1 shows elasticities with all variables measured in natural logs.
Regression #2 measures all variables in levels except for median home value, which is measured as the natural log; these coefficients are used in appendix table 1b.

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

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

State	City	Tax Rate (%)			Tax Bill ($)			Median Home Value
		Rate	Rank	Change from '16	Rate	Rank	Change from '16	
Alabama	Birmingham	0.665%	48	1 ↑	589	53	-	88,500
Alaska	Anchorage	1.344%	24	-	4,313	11	1 ↑	320,800
Arizona	Phoenix	1.257%	27	2 ↑	2,681	24	2 ↑	213,300
Arkansas	Little Rock	1.112%	34	1 ↓	1,790	41	4 ↓	161,000
California	Los Angeles	1.179%	31	1 ↓	6,997	3	-	593,500
Colorado	Denver	0.658%	49	2 ↑	2,373	29	5 ↑	360,900
Connecticut	Bridgeport	3.806%	1	1 ↑	6,752	5	1 ↓	177,400
DC	Washington	0.719%	47	1 ↑	4,144	12	1 ↓	576,100
Delaware	Wilmington	1.459%	22	1 ↓	2,124	33	3 ↓	145,600
Florida	Jacksonville	1.258%	26	1 ↑	1,984	38	1 ↑	157,800
Georgia	Atlanta	1.083%	36	1 ↓	2,845	21	1 ↑	262,600
Hawaii	Honolulu	0.306%	53	-	2,024	37	2 ↓	661,700
Idaho	Boise	0.828%	44	1 ↑	1,816	40	3 ↑	219,200
Illinois	Aurora*	3.756%	2	1 ↑	6,618	7	2 ↓	176,200
Illinois	Chicago	1.642%	18	2 ↑	4,004	13	-	243,900
Indiana	Indianapolis	1.032%	39	1 ↓	1,323	51	2 ↓	128,200
Iowa	Des Moines	2.262%	8	2 ↓	2,852	20	1 ↑	126,100
Kansas	Wichita	1.194%	28	-	1,475	48	2 ↓	123,500
Kentucky	Louisville	1.183%	29	3 ↓	1,786	43	5 ↓	150,900
Louisiana	New Orleans	0.997%	40	1 ↓	2,190	32	3 ↓	219,700
Maine	Portland	1.890%	14	1 ↓	5,303	8	-	280,600
Maryland	Baltimore	2.073%	10	-	3,183	14	-	153,500
Massachusetts	Boston	0.515%	51	1 ↑	2,551	26	6 ↓	495,400
Michigan	Detroit	3.629%	3	2 ↓	1,579	46	1 ↓	43,500
Minnesota	Minneapolis	1.351%	23	1 ↓	3,178	15	-	235,200
Mississippi	Jackson	1.555%	19	1 ↓	1,376	49	1 ↓	88,500
Missouri	Kansas City	1.512%	21	2 ↓	2,213	31	2 ↑	146,300
Montana	Billings	0.947%	41	2 ↑	2,040	36	4 ↑	215,500
Nebraska	Omaha	2.010%	12	-	3,012	17	1 ↑	149,900
Nevada	Las Vegas	1.141%	33	1 ↑	2,604	25	-	228,300
New Hampshire	Manchester	2.257%	9	1 ↓	4,950	10	1 ↓	219,300
New Jersey	Newark	3.163%	4	-	7,440	2	-	235,200
New Mexico	Albuquerque	1.274%	25	-	2,441	28	4 ↓	191,600
New York	Buffalo*	1.929%	13	1 ↑	1,610	45	2 ↑	83,500
New York	New York City	1.181%	30	2 ↑	6,726	6	-	569,700
AVERAGE		**1.495%**			**3,111**			**235,815**

State	City	Tax Rate (%)			Tax Bill ($)			Median Home Value
		Rate	Rank	Change from '16	Rate	Rank	Change from '16	
North Carolina	Charlotte	1.036%	38	2 ↓	2,087	34	2 ↓	201,500
North Dakota	Fargo	1.058%	37	3 ↑	2,078	35	1 ↑	196,400
Ohio	Columbus	2.010%	11	-	2,829	22	3 ↓	140,700
Oklahoma	Oklahoma City	1.175%	32	1 ↓	1,845	39	2 ↑	157,100
Oregon	Portland	2.424%	6	1 ↑	9,577	1	-	395,100
Pennsylvania	Philadelphia	1.102%	35	2 ↑	1,697	44	-	154,000
Rhode Island	Providence	1.692%	17	-	3,036	16	1 ↑	179,400
South Carolina	Charleston**	0.502%	52	NA	1,493	47	NA	297,700
South Dakota	Sioux Falls	1.548%	20	3 ↑	2,684	23	5 ↑	173,400
Tennessee	Memphis	1.845%	15	-	1,786	42	-	96,800
Texas	Houston	1.795%	16	-	2,938	19	4 ↑	163,700
Utah	Salt Lake City	0.787%	45	1 ↓	2,243	30	1 ↑	285,100
Vermont	Burlington	2.373%	7	2 ↑	6,951	4	3 ↑	292,900
Virginia	Virginia Beach	0.900%	42	1 ↓	2,444	27	-	271,400
Washington	Seattle	0.838%	43	1 ↓	5,079	9	1 ↑	606,200
West Virginia	Charleston	0.761%	46	-	906	52	-	119,000
Wisconsin	Milwaukee	2.568%	5	-	2,945	18	2 ↓	114,700
Wyoming	Cheyenne	0.650%	50	-	1,366	50	-	210,200
AVERAGE		**1.495%**			**3,111**			**235,815**

* 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.
** Charleston, SC is now the largest city in the state and replaces Columbia, SC.
Source for median home values: *2016 American Community Survey*, 1-year data

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

State	City	Tax Rate (%)			Tax Bill ($)			Median Home Value
		Rate	Rank	Change from '16	Rate	Rank	Change from '16	
Alabama	Birmingham	0.665%	46	2 ↑	589	53	-	88,500
Alaska	Anchorage	1.344%	24	-	4,313	9	1 ↑	320,800
Arizona	Phoenix	1.007%	36	1 ↑	2,148	32	3 ↑	213,300
Arkansas	Little Rock	1.062%	32	-	1,710	42	4 ↓	161,000
California	Los Angeles	0.664%	47	1 ↓	3,943	11	-	593,500
Colorado	Denver	0.658%	48	2 ↑	2,373	28	5 ↑	360,900
Connecticut	Bridgeport	3.806%	1	-	6,752	3	1 ↓	177,400
DC	Washington	0.719%	45	2 ↑	4,144	10	1 ↓	576,100
Delaware	Wilmington	1.459%	22	1 ↓	2,124	33	4 ↓	145,600
Florida	Jacksonville	0.829%	41	3 ↓	1,308	49	2 ↓	157,800
Georgia	Atlanta	1.083%	31	1 ↓	2,845	21	1 ↑	262,600
Hawaii	Honolulu	0.306%	53	-	2,024	37	3 ↓	661,700
Idaho	Boise	0.828%	42	1 ↑	1,816	38	4 ↑	219,200
Illinois	Aurora*	3.756%	2	-	6,618	4	1 ↓	176,200
Illinois	Chicago	1.542%	20	-	3,760	12	-	243,900
Indiana	Indianapolis	1.032%	35	1 ↓	1,323	48	1 ↑	128,200
Iowa	Des Moines	2.262%	7	1 ↓	2,852	20	1 ↑	126,100
Kansas	Wichita	1.194%	26	1 ↑	1,475	45	1 ↓	123,500
Kentucky	Louisville	1.183%	27	1 ↓	1,786	40	3 ↓	150,900
Louisiana	New Orleans	0.997%	37	2 ↓	2,190	31	3 ↓	219,700
Maine	Portland	1.890%	13	1 ↓	5,303	6	-	280,600
Maryland	Baltimore	2.073%	9	-	3,183	13	-	153,500
Massachusetts	Boston	0.515%	51	-	2,551	25	5 ↓	495,400
Michigan	Detroit	2.744%	4	-	1,194	51	3 ↓	43,500
Minnesota	Minneapolis	1.351%	23	1 ↓	3,178	14	-	235,200
Mississippi	Jackson	1.555%	18	-	1,376	46	-	88,500
Missouri	Kansas City	1.512%	21	2 ↓	2,213	30	2 ↑	146,300
Montana	Billings	0.947%	38	3 ↑	2,040	36	3 ↑	215,500
Nebraska	Omaha	2.010%	11	-	3,012	17	1 ↑	149,900
Nevada	Las Vegas	1.141%	28	-	2,604	24	1 ↑	228,300
New Hampshire	Manchester	2.257%	8	1 ↓	4,950	8	1 ↓	219,300
New Jersey	Newark	3.163%	3	-	7,440	1	-	235,200
New Mexico	Albuquerque	1.252%	25	-	2,399	27	3 ↓	191,600
New York	Buffalo*	1.929%	12	1 ↑	1,610	44	1 ↑	83,500
New York	New York City	0.546%	50	2 ↑	3,109	15	-	569,700
AVERAGE		**1.424%**			**2,885**			**235,185**

State	City	Tax Rate (%)			Tax Bill ($)			Median Home Value
		Rate	Rank	Change from '16	Rate	Rank	Change from '16	
North Carolina	Charlotte	1.036%	34	3 ↓	2,087	34	3 ↓	201,500
North Dakota	Fargo	1.058%	33	3 ↑	2,078	35	1 ↑	196,400
Ohio	Columbus	2.010%	10	-	2,829	22	3 ↓	140,700
Oklahoma	Oklahoma City	1.135%	29	-	1,782	41	-	157,100
Oregon	Portland	1.645%	17	-	6,498	5	-	395,100
Pennsylvania	Philadelphia	1.102%	30	3 ↑	1,697	43	-	154,000
Rhode Island	Providence	1.692%	16	-	3,036	16	1 ↑	179,400
South Carolina	Charleston**	0.435%	52	NA	1,296	50	NA	297,700
South Dakota	Sioux Falls	1.548%	19	4 ↑	2,684	23	4 ↑	173,400
Tennessee	Memphis	1.845%	14	-	1,786	39	1 ↑	96,800
Texas	Houston	1.795%	15	-	2,938	19	4 ↑	163,700
Utah	Salt Lake City	0.787%	43	1 ↓	2,243	29	1 ↑	285,100
Vermont	Burlington	2.373%	6	2 ↑	6,951	2	2 ↑	292,900
Virginia	Virginia Beach	0.900%	39	-	2,444	26	-	271,400
Washington	Seattle	0.838%	40	-	5,079	7	1 ↑	606,200
West Virginia	Charleston	0.761%	44	-	906	52	-	119,000
Wisconsin	Milwaukee	2.568%	5	-	2,945	18	2 ↓	114,700
Wyoming	Cheyenne	0.650%	49	-	1,366	47	3 ↑	210,200
AVERAGE		**1.424%**			**2,885**			**235,185**

* 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.
** Charleston, SC is now the largest city in the state and replaces Columbia, SC.
Source for median home values: *2016 American Community Survey*, 1-year data

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

State	City	$150,000 Property Value				$300,000 Property Value				Tax Rate Varies with Property Value
		Tax Rate	Tax Bill	Rank	Change from '16	Tax Rate	Tax Bill	Rank	Change from '16	
Alabama	Birmingham	0.690%	1,035	47	1 ↑	0.707%	2,122	47	1 ↑	X
Alaska	Anchorage	1.298%	1,947	23	4 ↑	1.338%	4,013	25	-	X
Arizona	Phoenix	1.257%	1,885	25	4 ↑	1.257%	3,771	27	6 ↑	
Arkansas	Little Rock	1.096%	1,644	33	-	1.212%	3,637	30	2 ↓	X
California	Los Angeles	1.137%	1,706	32	-	1.165%	3,496	33	2 ↑	X
Colorado	Denver	0.658%	986	48	2 ↑	0.658%	1,973	48	2 ↑	
Connecticut	Bridgeport	3.806%	5,709	1	1 ↑	3.806%	11,418	2	1 ↑	
DC	Washington	0.416%	623	51	-	0.621%	1,863	50	1 ↑	X
Delaware	Wilmington	1.459%	2,189	22	2 ↓	1.459%	4,377	23	-	
Florida	Jacksonville	1.234%	1,851	26	-	1.474%	4,421	22	2 ↓	X
Georgia	Atlanta	0.721%	1,081	46	2 ↓	1.142%	3,427	35	5 ↓	X
Hawaii	Honolulu	0.162%	242	52	-	0.255%	765	52	1 ↑	X
Idaho	Boise	0.782%	1,173	44	1 ↑	1.026%	3,079	41	1 ↓	X
Illinois	Aurora*	3.693%	5,540	2	1 ↑	3.906%	11,717	1	-	X
Illinois	Chicago	1.513%	2,270	20	1 ↑	1.680%	5,040	19	-	X
Indiana	Indianapolis	1.034%	1,551	38	3 ↓	1.042%	3,126	39	-	X
Iowa	Des Moines	2.291%	3,436	7	1 ↓	2.368%	7,103	7	1 ↓	X
Kansas	Wichita	1.201%	1,801	28	-	1.216%	3,649	29	-	X
Kentucky	Louisville	1.183%	1,775	29	5 ↓	1.183%	3,550	32	5 ↓	
Louisiana	New Orleans	0.783%	1,175	43	-	1.120%	3,359	37	3 ↓	X
Maine	Portland	1.764%	2,646	16	2 ↓	1.899%	5,698	14	-	X
Maryland	Baltimore	2.073%	3,110	10	-	2.073%	6,220	10	1 ↑	
Massachusetts	Boston	0.101%	151	53	-	0.195%	585	53	1 ↓	X
Michigan	Detroit	3.629%	5,444	3	2 ↓	3.629%	10,888	3	1 ↓	
Minnesota	Minneapolis	1.231%	1,847	27	4 ↓	1.397%	4,191	24	2 ↓	X
Mississippi	Jackson	1.694%	2,541	17	1 ↑	1.794%	5,383	17	-	X
Missouri	Kansas City	1.512%	2,269	21	2 ↓	1.512%	4,537	21	-	
Montana	Billings	0.947%	1,420	39	2 ↑	0.947%	2,840	42	2 ↑	
Nebraska	Omaha	2.010%	3,014	12	1 ↑	2.010%	6,029	13	-	
Nevada	Las Vegas	1.141%	1,711	31	-	1.141%	3,422	36	-	
New Hampshire	Manchester	2.257%	3,386	8	-	2.257%	6,772	8	-	
New Jersey	Newark	3.163%	4,745	4	-	3.163%	9,490	4	-	
New Mexico	Albuquerque	1.262%	1,893	24	1 ↑	1.290%	3,870	26	-	X
New York	Buffalo*	2.007%	3,010	13	2 ↓	2.055%	6,166	11	1 ↓	X
New York	New York City	1.096%	1,644	34	3 ↑	1.153%	3,460	34	3 ↑	X
AVERAGE		**1.455%**	**2,182**			**1.516%**	**4,548**			**N = 27**

		$150,000 Property Value				$300,000 Property Value				Tax Rate Varies with Property Value
State	City	Tax Rate	Tax Bill	Rank	Change from '16	Tax Rate	Tax Bill	Rank	Change from '16	
North Carolina	Charlotte	1.036%	1,553	37	3 ↓	1.036%	3,107	40	2 ↓	
North Dakota	Fargo	1.058%	1,587	36	2 ↑	1.058%	3,174	38	3 ↑	
Ohio	Columbus	2.010%	3,016	11	1 ↑	2.010%	6,031	12	-	
Oklahoma	Oklahoma City	1.171%	1,757	30	-	1.209%	3,627	31	1 ↑	X
Oregon	Portland	2.424%	3,636	6	1 ↑	2.424%	7,272	6	1 ↑	
Pennsylvania	Philadelphia	1.095%	1,642	35	1 ↑	1.233%	3,700	28	3 ↑	X
Rhode Island	Providence	1.692%	2,539	18	1 ↓	1.692%	5,077	18	-	
South Carolina	Charleston**	0.502%	752	50	NA	0.502%	1,505	51	NA	
South Dakota	Sioux Falls	1.548%	2,322	19	3 ↑	1.548%	4,644	20	4 ↑	
Tennessee	Memphis	1.845%	2,768	14	1 ↑	1.845%	5,536	16	-	
Texas	Houston	1.778%	2,667	15	1 ↑	1.879%	5,636	15	-	X
Utah	Salt Lake City	0.787%	1,180	42	-	0.787%	2,360	45	-	
Vermont	Burlington	2.104%	3,156	9	-	2.133%	6,399	9	-	X
Virginia	Virginia Beach	0.900%	1,351	40	1 ↓	0.900%	2,701	43	1 ↓	
Washington	Seattle	0.838%	1,257	41	1 ↓	0.838%	2,514	44	1 ↓	
West Virginia	Charleston	0.761%	1,141	45	1 ↑	0.761%	2,283	46	-	
Wisconsin	Milwaukee	2.612%	3,918	5	-	2.685%	8,055	5	-	X
Wyoming	Cheyenne	0.650%	975	49	-	0.650%	1,950	49	-	
AVERAGE		**1.455%**	**2,182**			**1.516%**	**4,548**			**N = 27**

* 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.
** Charleston, SC is now the largest city in the state and replaces Columbia, SC.

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

State	City	Tax Rate (%)			Tax Bill ($)			Median Home Value
		Rate	Rank	Change from '16	Rate	Rank	Change from '16	
Arizona	Mesa	0.853%	44	1 ↑	1,783	43	2 ↑	209,000
Arizona	Phoenix	1.257%	24	4 ↑	2,681	28	3 ↑	213,300
Arizona	Tucson	1.230%	25	2 ↓	1,771	44	2 ↓	144,000
California	Fresno	1.209%	26	1 ↑	2,750	27	1 ↑	227,500
California	Long Beach	1.202%	27	7 ↑	6,237	8	-	518,900
California	Los Angeles	1.179%	31	2 ↓	6,997	5	-	593,500
California	Oakland	1.334%	20	-	8,667	4	-	649,700
California	Sacramento	1.111%	36	2 ↑	3,408	15	-	306,900
California	San Diego	1.155%	34	2 ↓	6,555	7	-	567,400
California	San Francisco	1.164%	33	2 ↓	11,922	1	-	1,024,000
California	San Jose	1.306%	21	3 ↑	10,471	2	-	802,000
Colorado	Colorado Springs	0.450%	50	-	1,097	50	-	243,600
Colorado	Denver	0.658%	48	-	2,373	34	3 ↑	360,900
DC	Washington	0.719%	47	-	4,144	12	-	576,100
Florida	Jacksonville	1.258%	23	2 ↑	1,984	38	3 ↑	157,800
Florida	Miami	1.592%	16	1 ↓	4,420	11	-	277,700
Georgia	Atlanta	1.083%	38	2 ↓	2,845	25	1 ↑	262,600
Illinois	Chicago	1.642%	15	2 ↑	4,004	13	-	243,900
Indiana	Indianapolis	1.032%	40	-	1,323	49	-	128,200
Kansas	Wichita	1.194%	28	2 ↓	1,475	48	-	123,500
Kentucky	Louisville	1.183%	29	7 ↓	1,786	42	2 ↓	150,900
Louisiana	New Orleans	0.997%	41	-	2,190	36	2 ↓	219,700
Maryland	Baltimore	2.073%	8	1 ↓	3,183	20	6 ↓	153,500
Massachusetts	Boston	0.515%	49	-	2,551	30	5 ↓	495,400
Michigan	Detroit	3.629%	1	-	1,579	47	-	43,500
Minnesota	Minneapolis	1.351%	19	1 ↓	3,178	21	5 ↓	235,200
Missouri	Kansas City	1.512%	17	1 ↓	2,213	35	1 ↑	146,300
Nebraska	Omaha	2.010%	11	-	3,012	22	-	149,900
Nevada	Las Vegas	1.141%	35	-	2,604	29	1 ↑	228,300
New Mexico	Albuquerque	1.274%	22	1 ↓	2,441	32	3 ↓	191,600
New York	New York City	1.181%	30	3 ↑	6,726	6	-	569,700
North Carolina	Charlotte	1.036%	39	2 ↓	2,087	37	2 ↓	201,500
North Carolina	Raleigh	0.981%	42	-	2,379	33	1 ↓	242,500
Ohio	Columbus	2.010%	10	1 ↓	2,829	26	2 ↓	140,700
Oklahoma	Oklahoma City	1.175%	32	2 ↓	1,845	39	4 ↑	157,100
AVERAGE		**1.434%**			**3,594**			**282,592**

State	City	Tax Rate (%)			Tax Bill ($)			Median Home Value
		Rate	Rank	Change from '16	Rate	Rank	Change from '16	
Oklahoma	Tulsa	1.403%	18	1 ↑	1,825	40	1 ↓	130,100
Oregon	Portland	2.424%	4	1 ↑	9,577	3	-	395,100
Pennsylvania	Philadelphia	1.102%	37	2 ↑	1,697	45	1 ↑	154,000
Tennessee	Memphis	1.845%	13	-	1,786	41	3 ↑	96,800
Tennessee	Nashville	0.789%	46	3 ↓	1,661	46	8 ↓	210,600
Texas	Arlington	2.148%	7	1 ↑	3,327	16	4 ↑	154,900
Texas	Austin	1.898%	12	-	5,855	9	-	308,500
Texas	Dallas	2.028%	9	1 ↑	3,186	19	2 ↓	157,100
Texas	El Paso	2.603%	2	1 ↑	3,261	17	1 ↑	125,300
Texas	Fort Worth	2.259%	6	-	3,411	14	9 ↑	151,000
Texas	Houston	1.795%	14	-	2,938	24	3 ↑	163,700
Texas	San Antonio	2.389%	5	1 ↓	3,198	18	3 ↑	133,900
Virginia	Virginia Beach	0.900%	43	1 ↑	2,444	31	2 ↑	271,400
Washington	Seattle	0.838%	45	1 ↑	5,079	10	-	606,200
Wisconsin	Milwaukee	2.568%	3	1 ↓	2,945	23	4 ↓	114,700
AVERAGE		**1.434%**			**3,594**			**282,592**

Source for median home values: *2016 American Community Survey*, 1-year data

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

State	City	Tax Rate (%)			Tax Bill ($)			Median Home Value
		Rate	Rank	Change from '16	Rate	Rank	Change from '16	
Arizona	Mesa	0.719%	43	1 ↓	1,502	45	1 ↑	209,000
Arizona	Phoenix	1.007%	29	4 ↑	2,148	34	2 ↑	213,300
Arizona	Tucson	1.219%	20	1 ↑	1,755	42	2 ↓	144,000
California	Fresno	0.830%	36	2 ↑	1,889	37	5 ↑	227,500
California	Long Beach	0.744%	41	2 ↓	3,862	10	2 ↓	518,900
California	Los Angeles	0.664%	44	1 ↓	3,943	9	1 ↑	593,500
California	Oakland	0.755%	40	-	4,902	6	1 ↑	649,700
California	Sacramento	0.653%	46	2 ↓	2,005	36	2 ↓	306,900
California	San Diego	0.837%	35	-	4,746	7	2 ↓	567,400
California	San Francisco	0.646%	47	1 ↓	6,612	1	-	1,024,000
California	San Jose	0.823%	38	3 ↑	6,599	2	-	802,000
Colorado	Colorado Springs	0.450%	50	-	1,097	50	-	243,600
Colorado	Denver	0.658%	45	2 ↑	2,373	31	4 ↑	360,900
DC	Washington	0.719%	42	3 ↑	4,144	8	1 ↑	576,100
Florida	Jacksonville	0.829%	37	3 ↓	1,308	48	1 ↓	157,800
Florida	Miami	0.901%	32	-	2,502	27	5 ↓	277,700
Georgia	Atlanta	1.083%	26	1 ↓	2,845	23	2 ↑	262,600
Illinois	Chicago	1.542%	15	1 ↑	3,760	11	-	243,900
Indiana	Indianapolis	1.032%	28	-	1,323	47	2 ↑	128,200
Kansas	Wichita	1.194%	21	1 ↑	1,475	46	1 ↓	123,500
Kentucky	Louisville	1.183%	22	2 ↓	1,786	39	1 ↓	150,900
Louisiana	New Orleans	0.997%	30	1 ↓	2,190	33	2 ↓	219,700
Maryland	Baltimore	2.073%	7	1 ↓	3,183	16	4 ↓	153,500
Massachusetts	Boston	0.515%	49	1 ↓	2,551	26	2 ↓	495,400
Michigan	Detroit	2.744%	1	-	1,194	49	1 ↓	43,500
Minnesota	Minneapolis	1.351%	18	1 ↓	3,178	17	4 ↓	235,200
Missouri	Kansas City	1.512%	16	1 ↓	2,213	32	1 ↑	146,300
Nebraska	Omaha	2.010%	10	1 ↓	3,012	20	-	149,900
Nevada	Las Vegas	1.141%	23	-	2,604	25	3 ↑	228,300
New Mexico	Albuquerque	1.252%	19	-	2,399	29	2 ↓	191,600
New York	New York City	0.546%	48	1 ↑	3,109	19	5 ↓	569,700
North Carolina	Charlotte	1.036%	27	1 ↓	2,087	35	3 ↓	201,500
North Carolina	Raleigh	0.981%	31	1 ↓	2,379	30	1 ↓	242,500
Ohio	Columbus	2.010%	9	1 ↓	2,829	24	1 ↓	140,700
Oklahoma	Oklahoma City	1.135%	24	-	1,782	41	2 ↑	157,100
AVERAGE		**1.279%**			**2,926**			**282,592**

State	City	Tax Rate (%)			Tax Bill ($)			Median Home Value
		Rate	Rank	Change from '16	Rate	Rank	Change from '16	
Oklahoma	Tulsa	1.372%	17	1 ↑	1,785	40	1 ↓	130,100
Oregon	Portland	1.645%	14	-	6,498	3	-	395,100
Pennsylvania	Philadelphia	1.102%	25	2 ↑	1,697	43	1 ↑	154,000
Tennessee	Memphis	1.845%	12	-	1,786	38	3 ↑	96,800
Tennessee	Nashville	0.789%	39	8 ↓	1,661	44	7 ↓	210,600
Texas	Arlington	2.138%	6	1 ↑	3,311	13	5 ↑	154,900
Texas	Austin	1.898%	11	-	5,855	4	-	308,500
Texas	Dallas	2.018%	8	2 ↑	3,170	18	3 ↓	157,100
Texas	El Paso	2.603%	2	1 ↑	3,261	14	2 ↑	125,300
Texas	Fort Worth	2.248%	5	-	3,394	12	9 ↑	151,000
Texas	Houston	1.795%	13	-	2,938	22	4 ↑	163,700
Texas	San Antonio	2.389%	4	-	3,198	15	4 ↑	133,900
Virginia	Virginia Beach	0.900%	33	3 ↑	2,444	28	2 ↑	271,400
Washington	Seattle	0.838%	34	3 ↑	5,079	5	1 ↑	606,200
Wisconsin	Milwaukee	2.568%	3	1 ↓	2,945	21	4 ↓	114,700
AVERAGE		**1.279%**			**2,926**			**282,592**

Source for median home values: *2016 American Community Survey*, 1-year data

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

State	City	$150,000 Property Value				$300,000 Property Value				Tax Rate Varies with Property Value
		Tax Rate	Tax Bill	Rank	Change from '16	Tax Rate	Tax Bill	Rank	Change from '16	
Arizona	Mesa	0.853%	1,280	42	1 ↑	0.853%	2,560	44	1 ↑	
Arizona	Phoenix	1.257%	1,885	21	6 ↑	1.257%	3,771	24	7 ↑	
Arizona	Tucson	1.230%	1,845	25	1 ↓	1.230%	3,690	26	2 ↓	
California	Fresno	1.189%	1,784	27	2 ↑	1.218%	3,654	27	3 ↑	X
California	Long Beach	1.162%	1,742	30	5 ↑	1.190%	3,570	30	7 ↑	X
California	Los Angeles	1.137%	1,706	32	1 ↓	1.165%	3,496	32	1 ↑	X
California	Oakland	1.286%	1,928	19	-	1.317%	3,951	21	-	X
California	Sacramento	1.083%	1,625	37	-	1.110%	3,330	39	1 ↑	X
California	San Diego	1.115%	1,673	34	1 ↓	1.142%	3,427	36	1 ↓	X
California	San Francisco	1.118%	1,676	33	1 ↓	1.145%	3,435	34	-	X
California	San Jose	1.256%	1,883	22	4 ↑	1.286%	3,859	23	3 ↑	X
Colorado	Colorado Springs	0.450%	676	48	-	0.450%	1,351	49	-	
Colorado	Denver	0.658%	986	47	-	0.658%	1,973	47	-	
DC	Washington	0.416%	623	49	-	0.621%	1,863	48	-	X
Florida	Jacksonville	1.234%	1,851	23	-	1.474%	4,421	18	1 ↓	X
Florida	Miami	1.331%	1,997	18	-	1.614%	4,843	16	1 ↓	X
Georgia	Atlanta	0.721%	1,081	46	-	1.142%	3,427	35	8 ↓	X
Illinois	Chicago	1.513%	2,270	15	2 ↑	1.680%	5,040	15	1 ↑	X
Indiana	Indianapolis	1.034%	1,551	39	3 ↓	1.042%	3,126	40	1 ↑	X
Kansas	Wichita	1.201%	1,801	26	1 ↓	1.216%	3,649	28	3 ↓	X
Kentucky	Louisville	1.183%	1,775	28	7 ↓	1.183%	3,550	31	8 ↓	
Louisiana	New Orleans	0.783%	1,175	45	-	1.120%	3,359	38	6 ↓	X
Maryland	Baltimore	2.073%	3,110	8	1 ↓	2.073%	6,220	9	-	
Massachusetts	Boston	0.101%	151	50	-	0.195%	585	50	-	X
Michigan	Detroit	3.629%	5,444	1	-	3.629%	10,888	1	-	
Minnesota	Minneapolis	1.231%	1,847	24	4 ↓	1.397%	4,191	20	1 ↓	X
Missouri	Kansas City	1.512%	2,269	16	1 ↓	1.512%	4,537	17	1 ↑	
Nebraska	Omaha	2.010%	3,014	11	-	2.010%	6,029	11	-	
Nevada	Las Vegas	1.141%	1,711	31	1 ↓	1.141%	3,422	37	1 ↓	
New Mexico	Albuquerque	1.262%	1,893	20	2 ↑	1.290%	3,870	22	-	X
New York	New York City	1.096%	1,644	35	4 ↑	1.153%	3,460	33	5 ↑	X
North Carolina	Charlotte	1.036%	1,553	38	4 ↓	1.036%	3,107	41	2 ↓	
North Carolina	Raleigh	0.981%	1,472	40	-	0.981%	2,943	42	-	
Ohio	Columbus	2.010%	3,016	10	1 ↓	2.010%	6,031	10	-	
Oklahoma	Oklahoma City	1.171%	1,757	29	1 ↓	1.209%	3,627	29	-	X
AVERAGE		**1.389%**	**2,083**			**1.456%**	**4,367**			**N = 31**

State	City	$150,000 Property Value				$300,000 Property Value				Tax Rate Varies with Property Value
		Tax Rate	Tax Bill	Rank	Change from '16	Tax Rate	Tax Bill	Rank	Change from '16	
Oklahoma	Tulsa	1.416%	2,125	17	1 ↓	1.462%	4,387	19	1 ↑	X
Oregon	Portland	2.424%	3,636	4	1 ↑	2.424%	7,272	5	-	
Pennsylvania	Philadelphia	1.095%	1,642	36	2 ↑	1.233%	3,700	25	3 ↑	X
Tennessee	Memphis	1.845%	2,768	12	-	1.845%	5,536	14	-	
Tennessee	Nashville	0.789%	1,183	44	3 ↓	0.789%	2,366	46	3 ↓	
Texas	Arlington	2.141%	3,211	7	1 ↑	2.255%	6,765	7	-	X
Texas	Austin	1.794%	2,691	13	-	1.895%	5,686	12	-	X
Texas	Dallas	2.019%	3,028	9	1 ↑	2.119%	6,357	8	-	X
Texas	El Paso	2.654%	3,981	2	1 ↑	2.784%	8,352	2	1 ↑	X
Texas	Fort Worth	2.257%	3,386	6	-	2.370%	7,110	6	-	X
Texas	Houston	1.778%	2,667	14	-	1.879%	5,636	13	-	X
Texas	San Antonio	2.419%	3,629	5	1 ↓	2.548%	7,643	4	-	X
Virginia	Virginia Beach	0.900%	1,351	41	1 ↑	0.900%	2,701	43	1 ↑	
Washington	Seattle	0.838%	1,257	43	1 ↑	0.838%	2,514	45	1 ↑	
Wisconsin	Milwaukee	2.612%	3,918	3	1 ↓	2.685%	8,055	3	1 ↓	X
AVERAGE		**1.389%**	**2,083**			**1.456%**	**4,367**			**N = 31**

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

State	City	Tax Rate (%)			Tax Bill ($)			Median Home Value
		Rate	Rank	Change from '16	Rate	Rank	Change from '16	
Alabama	Monroeville	0.369%	47	1 ↑	391	49	-	105,800
Alaska	Ketchican	1.087%	28	2 ↑	2,527	13	-	232,500
Arizona	Safford	0.760%	40	-	1,038	33	1 ↑	136,600
Arkansas	Pocahontas	0.236%	49	-	175	50	-	74,300
California	Yreka	1.007%	32	-	1,509	23	3 ↓	149,800
Colorado	Walsenburg	0.577%	44	1 ↑	526	47	1 ↑	91,200
Connecticut	Litchfield	2.005%	12	2 ↑	7,019	1	-	350,000
Delaware	Georgetown	0.621%	43	-	1,242	30	-	199,800
Florida	Moore Haven	0.927%	33	-	681	42	1 ↓	73,400
Georgia	Fitzgerald	1.558%	18	1 ↑	1,330	27	2 ↑	85,400
Hawaii	Kauai	0.203%	50	-	974	36	1 ↓	479,200
Idaho	Saint Anthony	0.834%	36	-	898	37	-	107,700
Illinois	Galena	2.162%	8	1 ↓	3,247	6	-	150,200
Indiana	North Vernon	0.872%	34	-	742	39	-	85,100
Iowa	Hampton	1.701%	17	2 ↓	1,393	25	4 ↓	81,900
Kansas	Iola	2.051%	10	2 ↑	1,579	20	7 ↑	77,000
Kentucky	Morehead	1.103%	27	2 ↓	1,844	17	-	167,100
Louisiana	Natchitoches	0.351%	48	1 ↓	494	48	1 ↓	140,900
Maine	Rockland	1.947%	14	1 ↓	3,088	8	-	158,600
Maryland	Denton	1.550%	19	1 ↑	2,730	9	-	176,100
Massachusetts	Adams	2.116%	9	-	3,135	7	-	148,200
Michigan	Manistique	2.035%	11	3 ↓	1,261	28	2 ↓	62,000
Minnesota	Glencoe	1.251%	22	1 ↓	1,553	21	3 ↓	124,100
Mississippi	Philadelphia	1.075%	30	1 ↑	985	35	3 ↑	91,600
Missouri	Boonville	1.131%	25	3 ↑	1,251	29	3 ↑	110,600
Montana	Glasgow	1.060%	31	2 ↓	1,607	19	5 ↑	151,600
Nebraska	Sidney	2.169%	7	4 ↑	2,727	10	-	125,700
Nevada	Fallon	1.270%	21	1 ↑	1,695	18	1 ↑	133,500
New Hampshire	Lancaster	2.718%	3	2 ↓	4,553	4	1 ↑	167,500
New Jersey	Maurice River Twp	2.611%	4	-	4,384	5	1 ↓	167,900
New Mexico	Santa Rosa	0.811%	37	2 ↓	725	40	-	89,400
New York	Warsaw	2.830%	1	2 ↑	2,725	11	1 ↑	96,300
North Carolina	Edenton	1.112%	26	1 ↑	1,240	31	3 ↓	111,500
North Dakota	Devils Lake	1.086%	29	3 ↓	1,008	34	1 ↓	92,800
Ohio	Bryan	1.523%	20	2 ↓	1,433	24	2 ↓	94,100
AVERAGE		**1.340%**			**1,826**			**135,926**

State	City	Tax Rate (%)			Tax Bill ($)			Median Home Value
		Rate	Rank	Change from '16	Rate	Rank	Change from '16	
Oklahoma	Mangum	0.783%	38	1 ↑	610	43	2 ↑	77,900
Oregon	Tillamook	1.167%	24	-	2,066	15	1 ↓	177,100
Pennsylvania	Ridgway	2.731%	2	-	1,942	16	1 ↓	71,100
Rhode Island	Hopkinton	1.973%	13	3 ↓	4,947	3	-	250,800
South Carolina	Mullins	0.845%	35	2 ↑	573	44	-	67,900
South Dakota	Vermillion	1.908%	15	1 ↑	2,538	12	4 ↑	133,000
Tennessee	Savannah	0.648%	42	-	567	45	2 ↓	87,500
Texas	Fort Stockton	1.747%	16	1 ↑	1,522	22	3 ↑	87,100
Utah	Richfield	0.767%	39	1 ↓	1,163	32	1 ↓	151,600
Vermont	Hartford	2.543%	5	-	5,772	2	-	227,000
Virginia	Wise	0.571%	45	1 ↓	699	41	1 ↑	122,400
Washington	Okanogan	1.191%	23	-	1,377	26	3 ↓	115,600
West Virginia	Elkins	0.514%	46	-	537	46	-	104,500
Wisconsin	Rice Lake	2.171%	6	-	2,443	14	3 ↓	112,500
Wyoming	Worland	0.709%	41	-	857	38	2 ↓	120,900
AVERAGE		**1.340%**			**1,826**			**135,926**

Source for median home values: *2016 American Community Survey*, 5-year data

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

State	City	$150,000 Property Value				$300,000 Property Value				Tax Rate Varies with Property Value
		Tax Rate	Tax Bill	Rank	Change from '16	Tax Rate	Tax Bill	Rank	Change from '16	
Alabama	Monroeville	0.381%	572	48	1 ↑	0.396%	1,187	49	-	X
Alaska	Ketchican	1.087%	1,630	30	2 ↑	1.087%	3,260	31	2 ↑	
Arizona	Safford	0.760%	1,139	40	-	0.760%	2,279	40	-	
Arkansas	Pocahontas	0.474%	710	47	-	0.590%	1,771	45	1 ↓	X
California	Yreka	1.007%	1,511	33	-	1.032%	3,096	34	-	X
Colorado	Walsenburg	0.577%	866	44	1 ↑	0.577%	1,732	46	1 ↑	
Connecticut	Litchfield	2.005%	3,008	12	3 ↑	2.005%	6,016	13	4 ↑	
Delaware	Georgetown	0.621%	932	43	-	0.621%	1,864	43	2 ↑	
Florida	Moore Haven	1.604%	2,406	19	-	1.928%	5,785	16	-	X
Georgia	Fitzgerald	1.663%	2,494	18	-	1.733%	5,198	19	-	X
Hawaii	Kauai	0.100%	150	50	-	0.142%	427	50	-	X
Idaho	St. Anthony	0.834%	1,251	37	-	1.088%	3,264	30	2 ↑	X
Illinois	Galena	2.161%	3,242	8	1 ↓	2.309%	6,926	5	2 ↑	X
Indiana	North Vernon	0.962%	1,443	34	-	0.962%	2,886	35	-	
Iowa	Hampton	1.803%	2,705	17	3 ↓	1.864%	5,593	18	5 ↓	X
Kansas	Iola	2.080%	3,120	10	1 ↑	2.096%	6,287	9	3 ↑	X
Kentucky	Morehead	1.103%	1,655	29	2 ↓	1.103%	3,310	29	2 ↓	
Louisiana	Natchitoches	0.379%	569	49	1 ↓	0.601%	1,803	44	1 ↓	X
Maine	Rockland	1.931%	2,896	14	1 ↓	2.079%	6,238	11	-	X
Maryland	Denton	1.550%	2,326	20	1 ↑	1.550%	4,651	20	2 ↑	
Massachusetts	Adams	2.116%	3,173	9	-	2.116%	6,347	8	1 ↑	
Michigan	Manistique	2.035%	3,052	11	3 ↓	2.035%	6,104	12	4 ↓	
Minnesota	Glencoe	1.329%	1,994	22	-	1.516%	4,549	22	2 ↓	X
Mississippi	Philadelphia	1.203%	1,804	24	1 ↑	1.303%	3,908	23	-	X
Missouri	Boonville	1.131%	1,696	27	3 ↑	1.131%	3,392	27	3 ↑	
Montana	Glasgow	1.060%	1,590	32	1 ↓	1.060%	3,180	33	2 ↓	
Nebraska	Sidney	2.169%	3,254	7	5 ↑	2.169%	6,508	7	8 ↑	
Nevada	Fallon	1.270%	1,905	23	-	1.270%	3,810	24	-	
New Hampshire	Lancaster	2.718%	4,077	3	1 ↓	2.718%	8,155	3	1 ↓	
New Jersey	Maurice River Twp	2.611%	3,916	4	-	2.611%	7,833	4	-	
New Mexico	Santa Rosa	0.837%	1,256	36	1 ↓	0.856%	2,568	36	-	X
New York	Warsaw	3.057%	4,586	1	-	3.261%	9,782	1	-	X
North Carolina	Edenton	1.112%	1,668	28	1 ↑	1.112%	3,337	28	1 ↑	
North Dakota	Devils Lake	1.086%	1,629	31	3 ↓	1.086%	3,258	32	4 ↓	
Ohio	Bryan	1.523%	2,284	21	1 ↓	1.523%	4,568	21	-	
AVERAGE		**1.373%**	**2,059**			**1.415%**	**4,244**			**N = 21**

		$150,000 Property Value				$300,000 Property Value				Tax Rate Varies with Property Value
State	City	Tax Rate	Tax Bill	Rank	Change from '16	Tax Rate	Tax Bill	Rank	Change from '16	
Oklahoma	Mangum	0.828%	1,241	38	2 ↓	0.852%	2,556	37	-	X
Oregon	Tillamook	1.167%	1,750	26	-	1.167%	3,500	26	-	
Pennsylvania	Ridgway	2.866%	4,300	2	1 ↑	2.927%	8,782	2	1 ↑	X
Rhode Island	Hopkinton	1.973%	2,959	13	3 ↓	1.973%	5,918	15	5 ↓	
South Carolina	Mullins	0.845%	1,267	35	3 ↑	0.845%	2,534	38	-	
South Dakota	Vermillion	1.908%	2,863	15	2 ↑	1.908%	5,725	17	1 ↑	
Tennessee	Savannah	0.648%	972	42	-	0.648%	1,943	42	-	
Texas	Fort Stockton	1.898%	2,847	16	-	2.002%	6,007	14	-	X
Utah	Richfield	0.767%	1,151	39	-	0.767%	2,301	39	-	
Vermont	Hartford	2.193%	3,289	6	1 ↓	2.081%	6,243	10	5 ↓	X
Virginia	Wise	0.571%	857	45	1 ↓	0.571%	1,714	47	1 ↓	
Washington	Okanogan	1.191%	1,787	25	1 ↓	1.191%	3,573	25	-	
West Virginia	Elkins	0.514%	771	46	-	0.514%	1,541	48	-	
Wisconsin	Rice Lake	2.218%	3,327	5	1 ↑	2.288%	6,863	6	-	X
Wyoming	Worland	0.709%	1,063	41	-	0.709%	2,126	41	-	
AVERAGE		**1.373%**	**2,059**			**1.415%**	**4,244**			**N = 21**

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

State	City	Land and Building Value: $100,000 Tax Rate	Tax Bill	Rank	Land and Building Value: $1 Million Tax Rate	Tax Bill	Rank	Land and Building Value: $25 Million Tax Rate	Tax Bill	Rank	Tax Rate Varies with Property Value	Lower Tax Rate on Personal Property
Alabama	Birmingham	1.450%	1,740	34 (1 ↑)	1.450%	17,400	36 (-)	1.450%	435,000	39 (1 ↓)		
Alaska	Anchorage	1.202%	1,442	42 (1 ↑)	1.437%	17,240	37 (3 ↑)	1.462%	438,519	37 (3 ↑)	X	X
Arizona	Phoenix	2.091%	2,509	23 (-)	2.198%	26,374	22 (-)	2.603%	780,772	16 (2 ↑)	X	X
Arkansas	Little Rock	1.400%	1,680	36 (-)	1.400%	16,803	39 (2 ↓)	1.400%	420,074	40 (1 ↓)		
California	Los Angeles	1.193%	1,432	43 (1 ↓)	1.193%	14,316	44 (-)	1.193%	357,908	45 (1 ↓)		
Colorado	Denver	2.312%	2,774	19 (2 ↑)	2.312%	27,740	21 (2 ↑)	2.312%	693,496	22 (1 ↑)		
Connecticut	Bridgeport	3.806%	4,567	3 (1 ↑)	3.806%	45,671	3 (1 ↑)	3.806%	1,141,770	3 (1 ↑)		
DC	Washington	1.299%	1,559	39 (2 ↑)	1.299%	15,593	42 (1 ↑)	1.978%	593,413	28 (-)	X	X
Delaware	Wilmington	1.068%	1,282	47 (-)	1.068%	12,821	48 (1 ↓)	1.068%	320,521	48 (1 ↓)		X
Florida	Jacksonville	1.428%	1,713	35 (1 ↓)	1.683%	20,197	31 (-)	1.718%	515,435	32 (1 ↓)	X	X
Georgia	Atlanta	1.585%	1,903	31 (1 ↓)	1.585%	19,025	33 (1 ↓)	1.585%	475,630	34 (1 ↓)		
Hawaii	Honolulu	0.908%	1,089	51 (-)	0.908%	10,892	51 (-)	0.908%	272,304	51 (-)		X
Idaho	Boise	1.286%	1,543	40 (-)	1.420%	17,041	38 (-)	1.549%	464,696	35 (-)	X	X
Illinois	Aurora*	3.432%	4,118	6 (-)	3.432%	41,180	6 (-)	3.432%	1,029,496	6 (-)		X
Illinois	Chicago	3.784%	4,541	4 (1 ↓)	3.784%	45,405	4 (1 ↓)	3.784%	1,135,136	4 (1 ↓)		X
Indiana	Indianapolis	2.458%	2,950	14 (6 ↓)	2.458%	29,497	16 (5 ↓)	2.458%	737,435	17 (6 ↓)		
Iowa	Des Moines	2.270%	2,724	20 (2 ↑)	2.997%	35,968	7 (1 ↑)	3.251%	975,283	7 (-)	X	X
Kansas	Wichita	2.683%	3,220	12 (1 ↑)	2.683%	32,197	14 (1 ↑)	2.683%	804,923	14 (1 ↑)		
Kentucky	Louisville	1.260%	1,512	41 (3 ↓)	1.260%	15,124	43 (2 ↓)	1.260%	378,094	43 (1 ↓)		
Louisiana	New Orleans	2.054%	2,465	25 (1 ↓)	2.054%	24,652	26 (2 ↓)	2.054%	616,293	27 (3 ↓)		
Maine	Portland	2.057%	2,468	24 (1 ↑)	2.057%	24,681	25 (-)	2.057%	617,025	26 (1 ↓)		
Maryland	Baltimore	2.781%	3,337	9 (5 ↑)	2.781%	33,372	11 (5 ↑)	2.781%	834,311	11 (5 ↑)		
Massachusetts	Boston	1.818%	2,182	28 (2 ↓)	1.818%	21,818	29 (1 ↓)	1.818%	545,455	30 (1 ↓)		X
Michigan	Detroit	4.243%	5,091	1 (-)	4.243%	50,914	1 (-)	4.243%	1,272,858	1 (-)		X
Minnesota	Minneapolis	2.255%	2,706	21 (4 ↓)	2.851%	34,208	8 (1 ↑)	2.952%	885,479	8 (1 ↑)	X	X
Mississippi	Jackson	2.841%	3,410	7 (4 ↑)	2.841%	34,096	9 (4 ↑)	2.841%	852,390	9 (4 ↑)		
Missouri	Kansas City	2.770%	3,324	10 (2 ↑)	2.770%	33,244	12 (2 ↑)	2.770%	831,099	12 (2 ↑)		X
Montana	Billings	1.049%	1,258	48 (2 ↑)	1.137%	13,642	46 (3 ↑)	1.221%	366,444	44 (4 ↑)	X	X
Nebraska	Omaha	1.898%	2,278	26 (1 ↑)	2.067%	24,800	24 (2 ↑)	2.085%	625,394	25 (2 ↑)	X	X
Nevada	Las Vegas	1.139%	1,367	45 (-)	1.139%	13,670	45 (1 ↑)	1.139%	341,752	46 (-)		
New Hampshire	Manchester	1.881%	2,257	27 (1 ↑)	1.881%	22,574	28 (1 ↑)	1.881%	564,344	29 (1 ↑)		X
New Jersey	Newark	2.636%	3,163	13 (2 ↑)	2.636%	31,634	15 (2 ↑)	2.636%	790,854	15 (2 ↑)		X
New Mexico	Albuquerque	1.494%	1,793	32 (-)	1.494%	17,928	34 (-)	1.494%	448,192	36 (-)		
New York	Buffalo*	2.352%	2,822	17 (1 ↓)	2.352%	28,224	19 (1 ↓)	2.352%	705,609	20 (1 ↓)		X
New York	New York City	3.903%	4,684	2 (-)	3.903%	46,840	2 (-)	3.903%	1,170,997	2 (-)		X
AVERAGE		**1.994%**	**2,393**		**2.055%**	**24,654**		**2.090%**	**627,074**		**N = 11**	**N = 26**

State	City	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
		Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank		
North Carolina	Charlotte	1.079%	1,295	46 (2 ↓)	1.079%	12,945	47 (2 ↓)	1.079%	323,632	47 (2 ↓)		
North Dakota	Fargo	0.958%	1,150	49 (-)	0.958%	11,500	49 (1 ↑)	0.958%	287,488	49 (1 ↑)		X
Ohio	Columbus	2.151%	2,582	22 (7 ↑)	2.151%	25,815	23 (7 ↑)	2.151%	645,377	23 (9 ↑)		X
Oklahoma	Oklahoma City	1.301%	1,561	38 (1 ↑)	1.301%	15,608	41 (1 ↑)	1.301%	390,207	42 (1 ↑)		
Oregon	Portland	2.424%	2,909	15 (5 ↑)	2.424%	29,086	17 (4 ↑)	2.424%	727,154	18 (4 ↑)		
Pennsylvania	Philadelphia	1.143%	1,372	44 (2 ↑)	1.967%	23,599	27 (-)	2.125%	637,486	24 (2 ↑)	X	X
Rhode Island	Providence	3.683%	4,420	5 (-)	3.683%	44,197	5 (-)	3.683%	1,104,934	5 (-)		
South Carolina	Charleston**	1.772%	2,126	29 (NA)	1.772%	21,265	30 (NA)	1.772%	531,615	31 (NA)		
South Dakota	Sioux Falls	1.452%	1,743	33 (4 ↑)	1.452%	17,428	35 (4 ↑)	1.452%	435,691	38 (3 ↑)		X
Tennessee	Memphis	2.830%	3,395	8 (1 ↑)	2.830%	33,954	10 (2 ↑)	2.830%	848,861	10 (2 ↑)		X
Texas	Houston	2.356%	2,827	16 (2 ↑)	2.356%	28,268	18 (1 ↑)	2.356%	706,695	19 (1 ↑)		
Utah	Salt Lake City	1.387%	1,664	37 (4 ↓)	1.387%	16,638	40 (5 ↓)	1.387%	415,954	41 (4 ↓)		
Vermont	Burlington	2.348%	2,818	18 (1 ↑)	2.348%	28,178	20 (-)	2.348%	704,440	21 (-)		X
Virginia	Virginia Beach	0.958%	1,150	50 (2 ↓)	0.958%	11,499	50 (2 ↓)	0.958%	287,467	50 (1 ↓)		
Washington	Seattle	0.850%	1,020	52 (-)	0.850%	10,197	52 (-)	0.850%	254,922	52 (-)		
West Virginia	Charleston	1.614%	1,937	30 (1 ↑)	1.614%	19,369	32 (1 ↑)	1.614%	484,234	33 (1 ↑)		
Wisconsin	Milwaukee	2.694%	3,233	11 (1 ↓)	2.751%	33,014	13 (3 ↓)	2.757%	827,165	13 (3 ↓)	X	
Wyoming	Cheyenne	0.611%	733	53 (-)	0.611%	7,328	53 (-)	0.611%	183,196	53 (-)		
AVERAGE		**1.994%**	**2,393**		**2.055%**	**24,654**		**2.090%**	**627,074**		**N = 11**	**N = 26**

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

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

** Charleston, SC is now the largest city in the state and replaces Columbia, SC.

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

State	City	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
		Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank		
Arizona	Mesa	1.540%	1,848	29 (4 ↑)	1.616%	19,388	30 (3 ↑)	1.901%	570,439	27 (3 ↑)	X	X
Arizona	Phoenix	2.091%	2,509	21 (2 ↓)	2.198%	26,374	20 (2 ↓)	2.603%	780,772	14 (2 ↓)	X	X
Arizona	Tucson	2.233%	2,679	19 (3 ↑)	2.333%	27,991	18 (2 ↑)	2.710%	813,095	12 (1 ↑)	X	X
California	Fresno	1.247%	1,497	38 (1 ↑)	1.247%	14,967	39 (1 ↑)	1.247%	374,171	39 (1 ↑)		
California	Long Beach	1.218%	1,462	39 (4 ↑)	1.218%	14,621	40 (4 ↑)	1.218%	365,526	40 (4 ↑)		
California	Los Angeles	1.193%	1,432	41 (1 ↓)	1.193%	14,316	42 (1 ↓)	1.193%	357,908	42 (1 ↓)		
California	Oakland	1.349%	1,618	33 (1 ↑)	1.349%	16,183	34 (1 ↑)	1.349%	404,580	35 (1 ↑)		
California	Sacramento	1.137%	1,364	46 (-)	1.137%	13,638	46 (1 ↑)	1.137%	340,950	46 (1 ↑)		
California	San Diego	1.170%	1,404	43 (1 ↓)	1.170%	14,036	44 (1 ↓)	1.170%	350,901	44 (1 ↓)		
California	San Francisco	1.172%	1,407	42 (1 ↓)	1.172%	14,068	43 (1 ↓)	1.172%	351,690	43 (1 ↓)		
California	San Jose	1.317%	1,580	34 (4 ↑)	1.317%	15,805	35 (4 ↑)	1.317%	395,118	36 (3 ↑)		
Colorado	Colorado Springs	1.632%	1,959	26 (1 ↑)	1.632%	19,586	29 (1 ↑)	1.632%	489,654	31 (1 ↑)		
Colorado	Denver	2.312%	2,774	17 (1 ↑)	2.312%	27,740	19 (-)	2.312%	693,496	20 (-)		
DC	Washington	1.299%	1,559	36 (1 ↑)	1.299%	15,593	37 (1 ↑)	1.978%	593,413	25 (-)	X	X
Florida	Jacksonville	1.428%	1,713	32 (-)	1.683%	20,197	28 (-)	1.718%	515,435	30 (2 ↓)	X	X
Florida	Miami	1.581%	1,897	28 (-)	1.878%	22,533	25 (1 ↑)	1.918%	575,532	26 (-)	X	X
Georgia	Atlanta	1.585%	1,903	27 (1 ↓)	1.585%	19,025	31 (2 ↓)	1.585%	475,630	32 (1 ↓)		
Illinois	Chicago	3.784%	4,541	3 (-)	3.784%	45,405	3 (-)	3.784%	1,135,136	3 (-)		X
Indiana	Indianapolis	2.458%	2,950	14 (10 ↓)	2.458%	29,497	15 (9 ↓)	2.458%	737,435	17 (11 ↓)		
Kansas	Wichita	2.683%	3,220	11 (2 ↓)	2.683%	32,197	12 (2 ↓)	2.683%	804,923	13 (3 ↓)		
Kentucky	Louisville	1.260%	1,512	37 (2 ↓)	1.260%	15,124	38 (2 ↓)	1.260%	378,094	38 (1 ↓)		
Louisiana	New Orleans	2.054%	2,465	22 (2 ↓)	2.054%	24,652	23 (2 ↓)	2.054%	616,293	24 (3 ↓)		
Maryland	Baltimore	2.781%	3,337	7 (3 ↑)	2.781%	33,372	8 (3 ↑)	2.781%	834,311	8 (3 ↑)		
Massachusetts	Boston	1.818%	2,182	24 (1 ↓)	1.818%	21,818	26 (1 ↓)	1.818%	545,455	28 (1 ↓)		X
Michigan	Detroit	4.243%	5,091	1 (-)	4.243%	50,914	1 (-)	4.243%	1,272,858	1 (-)		X
Minnesota	Minneapolis	2.255%	2,706	18 (3 ↓)	2.851%	34,208	5 (1 ↓)	2.952%	885,479	5 (1 ↓)	X	X
Missouri	Kansas City	2.770%	3,324	8 (1 ↓)	2.770%	33,244	9 (1 ↓)	2.770%	831,099	9 (1 ↓)		X
Nebraska	Omaha	1.898%	2,278	23 (1 ↑)	2.067%	24,800	22 (1 ↑)	2.085%	625,394	23 (1 ↑)	X	X
Nevada	Las Vegas	1.139%	1,367	45 (-)	1.139%	13,670	45 (1 ↑)	1.139%	341,752	45 (1 ↑)		
New Mexico	Albuquerque	1.494%	1,793	30 (-)	1.494%	17,928	32 (-)	1.494%	448,192	33 (1 ↑)		
New York	New York City	3.903%	4,684	2 (-)	3.903%	46,840	2 (-)	3.903%	1,170,997	2 (-)		X
North Carolina	Charlotte	1.079%	1,295	47 (3 ↓)	1.079%	12,945	47 (2 ↓)	1.079%	323,632	47 (2 ↓)		
North Carolina	Raleigh	0.991%	1,189	48 (1 ↑)	0.991%	11,891	48 (1 ↑)	0.991%	297,266	48 (1 ↑)		
Ohio	Columbus	1.787%	2,144	25 (-)	1.787%	21,443	27 (-)	1.787%	536,087	29 (-)		X
Oklahoma	Oklahoma City	1.301%	1,561	35 (1 ↑)	1.301%	15,608	36 (1 ↑)	1.301%	390,207	37 (1 ↑)		
AVERAGE		**1.938%**	**2,326**		**1.988%**	**23,853**		**2.030%**	**608,971**		**N = 10**	**N = 18**

State	City	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
		Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank		
Oklahoma	Tulsa	1.485%	1,782	31 (-)	1.485%	17,820	33 (1 ↑)	1.485%	445,510	34 (1 ↑)		X
Oregon	Portland	2.424%	2,909	15 (2 ↑)	2.424%	29,086	16 (1 ↑)	2.424%	727,154	18 (1 ↑)		
Pennsylvania	Philadelphia	1.143%	1,372	44 (3 ↑)	1.967%	23,599	24 (-)	2.125%	637,486	22 (1 ↑)	X	X
Tennessee	Memphis	2.830%	3,395	5 (-)	2.830%	33,954	6 (1 ↑)	2.830%	848,861	6 (1 ↑)		X
Tennessee	Nashville	1.209%	1,451	40 (11 ↓)	1.209%	14,513	41 (10 ↓)	1.209%	362,825	41 (8 ↓)		X
Texas	Arlington	2.590%	3,108	12 (2 ↑)	2.590%	31,082	13 (2 ↑)	2.590%	777,041	15 (2 ↑)		
Texas	Austin	2.129%	2,555	20 (1 ↑)	2.129%	25,549	21 (1 ↑)	2.129%	638,724	21 (1 ↑)		
Texas	Dallas	2.550%	3,060	13 (2 ↓)	2.550%	30,596	14 (2 ↓)	2.550%	764,904	16 (2 ↓)		
Texas	El Paso	2.964%	3,556	4 (8 ↑)	2.964%	35,562	4 (9 ↑)	2.964%	889,052	4 (11 ↑)		
Texas	Fort Worth	2.715%	3,258	9 (4 ↑)	2.715%	32,577	11 (3 ↑)	2.715%	814,423	11 (5 ↑)		
Texas	Houston	2.356%	2,827	16 (-)	2.356%	28,268	17 (1 ↓)	2.356%	706,695	19 (1 ↓)		
Texas	San Antonio	2.811%	3,374	6 (2 ↑)	2.811%	33,736	7 (2 ↑)	2.811%	843,404	7 (2 ↑)		
Virginia	Virginia Beach	0.958%	1,150	49 (1 ↓)	0.958%	11,499	49 (1 ↓)	0.958%	287,467	49 (1 ↓)		
Washington	Seattle	0.849%	1,019	50 (-)	0.850%	10,197	50 (-)	0.850%	254,922	50 (-)		
Wisconsin	Milwaukee	2.694%	3,233	10 (4 ↓)	2.751%	33,014	10 (5 ↓)	2.757%	827,165	10 (5 ↓)	X	
AVERAGE		**1.938%**	**2,326**		**1.988%**	**23,853**		**2.030%**	**608,971**		**N = 10**	**N = 18**

$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

State	Municipality	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
		Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank		
Alabama	Monroeville	0.820%	984	45 (-)	0.820%	9,840	45 (-)	0.820%	246,000	45 (-)		
Alaska	Ketchican	0.906%	1,087	44 (-)	1.076%	12,916	38 (4 ↑)	1.100%	329,911	38 (-)	X	X
Arizona	Safford	1.572%	1,887	27 (8 ↑)	1.643%	19,720	25 (8 ↑)	1.912%	573,510	24 (4 ↑)	X	X
Arkansas	Pocahontas	0.722%	866	48 (1 ↓)	0.722%	8,663	48 (1 ↓)	0.722%	216,581	48 (1 ↓)		
California	Yreka	1.057%	1,268	39 (1 ↓)	1.057%	12,682	40 (2 ↓)	1.057%	317,040	40 (1 ↓)		
Colorado	Walsenburg	2.175%	2,610	12 (5 ↑)	2.175%	26,097	15 (4 ↑)	2.175%	652,422	15 (4 ↑)		
Connecticut	Litchfield	1.588%	1,905	26 (2 ↓)	1.588%	19,053	29 (4 ↓)	1.588%	476,328	29 (4 ↓)		
Delaware	Georgetown	0.442%	531	50 (-)	0.442%	5,307	50 (-)	0.442%	132,666	50 (-)		X
Florida	Moore Haven	1.877%	2,252	22 (1 ↑)	2.205%	26,466	12 (1 ↓)	2.251%	675,163	11 (-)	X	X
Georgia	Fitzgerald	1.800%	2,160	23 (3 ↑)	1.800%	21,605	24 (2 ↑)	1.800%	540,116	25 (1 ↑)		
Hawaii	Kauai	0.675%	810	49 (-)	0.675%	8,100	49 (-)	0.675%	202,500	49 (-)		X
Idaho	St. Anthony	1.488%	1,786	30 (4 ↑)	1.633%	19,602	26 (5 ↑)	1.773%	531,797	26 (4 ↑)	X	X
Illinois	Galena	2.047%	2,456	18 (1 ↑)	2.047%	24,560	21 (-)	2.047%	614,012	21 (-)		X
Indiana	North Vernon	3.035%	3,642	2 (1 ↑)	3.035%	36,420	3 (1 ↑)	3.035%	910,500	3 (2 ↑)		
Iowa	Hampton	1.748%	2,097	24 (2 ↓)	2.475%	29,702	8 (1 ↓)	2.729%	818,622	7 (4 ↓)	X	X
Kansas	Iola	3.961%	4,753	1 (-)	3.961%	47,528	1 (-)	3.961%	1,188,203	1 (-)		
Kentucky	Morehead	1.143%	1,372	36 (5 ↑)	1.143%	13,722	36 (5 ↑)	1.143%	343,042	36 (6 ↑)		
Louisiana	Natchitoches	1.256%	1,507	33 (3 ↓)	1.256%	15,067	33 (3 ↓)	1.256%	376,678	33 (1 ↓)		
Maine	Rockland	2.228%	2,674	10 (-)	2.228%	26,736	11 (1 ↑)	2.228%	668,400	12 (-)		
Maryland	Denton	2.058%	2,470	17 (3 ↑)	2.058%	24,699	20 (2 ↑)	2.058%	617,480	20 (3 ↑)		
Massachusetts	Adams	2.025%	2,430	19 (7 ↓)	2.025%	24,305	22 (8 ↓)	2.025%	607,613	22 (8 ↓)		X
Michigan	Manistique	2.934%	3,521	3 (1 ↓)	2.934%	35,210	4 (1 ↓)	2.934%	880,259	4 (-)		X
Minnesota	Glencoe	2.607%	3,128	6 (-)	3.310%	39,720	2 (-)	3.429%	1,028,762	2 (-)	X	X
Mississippi	Philadelphia	2.104%	2,525	15 (1 ↓)	2.104%	25,250	18 (2 ↓)	2.104%	631,260	18 (2 ↓)		
Missouri	Boonville	2.105%	2,526	14 (1 ↑)	2.105%	25,260	17 (-)	2.105%	631,496	17 (-)		X
Montana	Glasgow	1.510%	1,812	29 (2 ↓)	1.610%	19,325	27 (-)	1.707%	511,967	27 (-)	X	X
Nebraska	Sidney	2.020%	2,424	20 (5 ↑)	2.195%	26,334	13 (11 ↑)	2.213%	663,938	13 (9 ↑)	X	X
Nevada	Fallon	1.272%	1,526	32 (1 ↓)	1.272%	15,262	32 (-)	1.272%	381,555	32 (1 ↑)		
New Hampshire	Lancaster	2.265%	2,718	9 (1 ↓)	2.265%	27,183	10 (-)	2.265%	679,572	10 (-)		X
New Jersey	Maurice River Twp	2.176%	2,611	11 (2 ↑)	2.176%	26,109	14 (1 ↑)	2.176%	652,716	14 (1 ↑)		X
New Mexico	Santa Rosa	1.016%	1,219	41 (1 ↓)	1.016%	12,191	42 (2 ↓)	1.016%	304,773	42 (1 ↓)		
New York	Warsaw	2.887%	3,464	4 (-)	2.887%	34,643	5 (-)	2.887%	866,064	5 (1 ↑)		X
North Carolina	Edenton	1.114%	1,337	37 (-)	1.114%	13,372	37 (-)	1.114%	334,294	37 (-)		
North Dakota	Devils Lake	1.066%	1,279	38 (5 ↓)	1.066%	12,794	39 (4 ↓)	1.066%	319,856	39 (4 ↓)		X
Ohio	Bryan	1.552%	1,863	28 (1 ↑)	1.552%	18,628	30 (1 ↓)	1.552%	465,693	30 (1 ↑)		X
AVERAGE		**1.701%**	**2,042**		**1.751%**	**21,010**		**1.770%**	**531,061**		**N = 9**	**N = 23**

State	Municipality	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
		Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank		
Oklahoma	Mangum	0.913%	1,095	43 (-)	0.913%	10,953	44 (-)	0.913%	273,825	44 (-)		
Oregon	Tillamook	1.167%	1,400	35 (1 ↑)	1.167%	13,998	35 (1 ↑)	1.167%	349,957	35 (1 ↑)		
Pennsylvania	Ridgway	2.490%	2,988	7 (-)	2.490%	29,880	7 (2 ↑)	2.490%	746,992	8 (1 ↑)		X
Rhode Island	Hopkinton	1.988%	2,385	21 (5 ↓)	1.988%	23,854	23 (5 ↓)	1.988%	596,341	23 (5 ↓)		
South Carolina	Mullins	2.817%	3,381	5 (-)	2.817%	33,807	6 (-)	2.817%	845,175	6 (1 ↑)		
South Dakota	Vermillion	1.610%	1,932	25 (4 ↓)	1.610%	19,322	28 (5 ↓)	1.610%	483,043	28 (4 ↓)		X
Tennessee	Savannah	1.003%	1,203	42 (-)	1.003%	12,033	43 (-)	1.003%	300,824	43 (-)		X
Texas	Fort Stockton	2.141%	2,569	13 (2 ↓)	2.141%	25,689	16 (3 ↓)	2.141%	642,213	16 (3 ↓)		
Utah	Richfield	1.478%	1,774	31 (3 ↓)	1.478%	17,741	31 (3 ↓)	1.478%	443,520	31 (2 ↓)		
Vermont	Hartford	2.087%	2,504	16 (2 ↑)	2.087%	25,041	19 (1 ↑)	2.087%	626,018	19 (1 ↑)		X
Virginia	Wise	0.803%	964	46 (-)	0.803%	9,640	46 (-)	0.803%	241,005	46 (-)		
Washington	Okanogan	1.208%	1,449	34 (2 ↓)	1.208%	14,494	34 (-)	1.208%	362,356	34 (-)		
West Virginia	Elkins	1.036%	1,244	40 (1 ↓)	1.036%	12,438	41 (2 ↓)	1.036%	310,945	41 (1 ↓)		
Wisconsin	Rice Lake	2.297%	2,756	8 (1 ↑)	2.351%	28,218	9 (1 ↓)	2.357%	707,195	9 (1 ↓)	X	
Wyoming	Worland	0.776%	931	47 (1 ↑)	0.776%	9,313	47 (1 ↑)	0.776%	232,835	47 (1 ↑)		
AVERAGE		**1.701%**	**2,042**		**1.751%**	**21,010**		**1.770%**	**531,061**		**N = 9**	**N = 23**

$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)

State	City	Land and Building Value: $100,000			Land and Building Value: $1 Million			Land and Building Value: $25 Million			Tax Rate Varies with Property Value
		Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Alabama	Birmingham	1.160%	2,320	34 (3 ↑)	1.160%	23,200	37 (3 ↑)	1.160%	580,000	38 (3 ↑)	
Alaska	Anchorage	1.347%	2,695	28 (3 ↑)	1.488%	29,768	24 (3 ↑)	1.503%	751,719	25 (3 ↑)	X
Arizona	Phoenix	1.254%	2,509	31 (1 ↓)	1.953%	39,062	13 (1 ↓)	2.196%	1,097,959	8 (2 ↑)	X
Arkansas	Little Rock	1.401%	2,802	26 (2 ↓)	1.401%	28,019	30 (2 ↓)	1.401%	700,474	30 (1 ↓)	
California	Los Angeles	0.954%	1,909	39 (-)	0.954%	19,088	42 (-)	0.954%	477,211	43 (-)	
Colorado	Denver	1.860%	3,720	15 (-)	1.860%	37,199	16 (1 ↑)	1.860%	929,982	18 (1 ↑)	
Connecticut	Bridgeport	2.093%	4,186	10 (-)	2.093%	41,865	10 (-)	2.093%	1,046,623	11 (-)	
DC	Washington	0.780%	1,559	43 (1 ↑)	1.417%	28,343	27 (3 ↑)	1.867%	933,413	17 (1 ↓)	X
Delaware	Wilmington	0.641%	1,282	49 (1 ↓)	0.641%	12,821	50 (1 ↓)	0.641%	320,521	50 (1 ↓)	
Florida	Jacksonville	1.163%	2,326	33 (-)	1.360%	27,198	32 (1 ↓)	1.381%	690,456	32 (2 ↓)	X
Georgia	Atlanta	1.471%	2,941	21 (-)	1.471%	29,414	25 (1 ↓)	1.471%	735,350	26 (1 ↓)	
Hawaii	Honolulu	0.597%	1,194	51 (-)	0.597%	11,937	51 (1 ↑)	0.597%	298,437	51 (1 ↑)	
Idaho	Boise	0.771%	1,543	44 (1 ↓)	1.174%	23,487	36 (1 ↓)	1.252%	625,839	36 (1 ↓)	X
Illinois	Aurora*	2.059%	4,118	11 (-)	2.059%	41,180	11 (-)	2.059%	1,029,496	12 (-)	
Illinois	Chicago	2.266%	4,533	6 (7 ↑)	2.266%	45,325	7 (7 ↑)	2.266%	1,133,133	7 (8 ↑)	
Indiana	Indianapolis	1.997%	3,995	12 (5 ↓)	1.997%	39,948	12 (5 ↓)	1.997%	998,705	13 (6 ↓)	
Iowa	Des Moines	1.295%	2,591	30 (3 ↓)	1.732%	34,639	18 (2 ↓)	1.884%	942,044	16 (3 ↓)	X
Kansas	Wichita	1.463%	2,926	22 (1 ↑)	1.463%	29,265	26 (-)	1.463%	731,615	27 (-)	
Kentucky	Louisville	0.709%	1,419	45 (-)	0.709%	14,188	47 (-)	0.709%	354,694	47 (-)	
Louisiana	New Orleans	2.103%	4,205	9 (1 ↓)	2.103%	42,053	9 (1 ↓)	2.103%	1,051,323	10 (2 ↓)	
Maine	Portland	1.126%	2,252	36 (-)	1.126%	22,516	39 (-)	1.126%	562,900	40 (-)	
Maryland	Baltimore	1.389%	2,778	27 (2 ↑)	1.389%	27,781	31 (2 ↑)	1.389%	694,514	31 (2 ↑)	
Massachusetts	Boston	1.104%	2,207	38 (3 ↓)	1.104%	22,072	41 (3 ↓)	1.104%	551,798	42 (3 ↓)	
Michigan	Detroit	2.248%	4,497	7 (2 ↓)	2.729%	54,582	2 (-)	2.729%	1,364,545	2 (-)	X
Minnesota	Minneapolis	1.417%	2,834	23 (3 ↑)	1.791%	35,823	17 (1 ↑)	1.855%	927,275	19 (1 ↓)	X
Mississippi	Jackson	2.841%	5,683	1 (1 ↑)	2.841%	56,826	1 (2 ↑)	2.841%	1,420,650	1 (2 ↑)	
Missouri	Kansas City	2.193%	4,386	8 (1 ↑)	2.193%	43,857	8 (1 ↑)	2.193%	1,096,432	9 (-)	
Montana	Billings	0.629%	1,258	50 (2 ↑)	0.894%	17,875	45 (1 ↑)	1.260%	629,954	35 (2 ↑)	X
Nebraska	Omaha	1.589%	3,177	18 (-)	1.690%	33,795	19 (-)	1.701%	850,266	20 (-)	X
Nevada	Las Vegas	0.913%	1,826	40 (1 ↑)	0.913%	18,260	43 (1 ↑)	0.913%	456,489	44 (1 ↑)	
New Hampshire	Manchester	1.129%	2,257	35 (3 ↑)	1.129%	22,574	38 (3 ↑)	1.129%	564,344	39 (3 ↑)	
New Jersey	Newark	1.582%	3,163	19 (2 ↓)	1.582%	31,634	22 (1 ↓)	1.582%	790,854	23 (1 ↓)	
New Mexico	Albuquerque	1.209%	2,417	32 (-)	1.209%	24,172	34 (-)	1.209%	604,302	37 (1 ↓)	
New York	Buffalo*	1.411%	2,822	24 (2 ↓)	1.411%	28,224	28 (3 ↓)	1.411%	705,609	28 (2 ↓)	
New York	New York City	2.342%	4,684	4 (2 ↑)	2.342%	46,840	5 (1 ↑)	2.342%	1,170,997	5 (1 ↑)	
AVERAGE		**1.419%**	**2,838**		**1.499%**	**29,984**		**1.527%**	**763,726**		**N = 12**

State	City	Land and Building Value: $100,000			Land and Building Value: $1 Million			Land and Building Value: $25 Million			Tax Rate Varies with Property Value
		Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
North Carolina	Charlotte	0.906%	1,812	41 (1 ↓)	0.906%	18,123	44 (1 ↓)	0.906%	453,072	45 (1 ↓)	
North Dakota	Fargo	0.575%	1,150	52 (2 ↓)	0.575%	11,500	52 (1 ↓)	0.575%	287,488	52 (1 ↓)	
Ohio	Columbus	1.303%	2,606	29 (1 ↓)	1.303%	26,062	33 (1 ↓)	1.303%	651,547	33 (1 ↓)	
Oklahoma	Oklahoma City	1.404%	2,808	25 (-)	1.404%	28,077	29 (-)	1.404%	701,920	29 (2 ↑)	
Oregon	Portland	1.939%	3,878	13 (1 ↑)	1.939%	38,782	14 (1 ↑)	1.939%	969,538	14 (3 ↑)	
Pennsylvania	Philadelphia	0.686%	1,372	47 (-)	1.180%	23,599	35 (2 ↑)	1.275%	637,486	34 (-)	X
Rhode Island	Providence	1.931%	3,862	14 (2 ↓)	1.931%	38,617	15 (2 ↓)	1.931%	965,434	15 (1 ↓)	
South Carolina	Charleston**	2.283%	4,567	5 (NA	2.283%	45,669	6 (NA)	2.283%	1,141,720	6 (NA)	
South Dakota	Sioux Falls	0.871%	1,743	42 (-)	0.871%	17,428	46 (1 ↓)	0.871%	435,691	46 (-)	
Tennessee	Memphis	2.583%	5,167	2 (1 ↑)	2.583%	51,670	3 (1 ↑)	2.583%	1,291,745	3 (1 ↑)	
Texas	Houston	2.526%	5,053	3 (1 ↑)	2.526%	50,527	4 (1 ↑)	2.526%	1,263,174	4 (1 ↑)	
Utah	Salt Lake City	1.117%	2,234	37 (3 ↓)	1.117%	22,336	40 (4 ↓)	1.117%	558,404	41 (3 ↓)	
Vermont	Burlington	1.601%	3,202	17 (2 ↑)	1.601%	32,023	21 (1 ↑)	1.601%	800,572	22 (1 ↑)	
Virginia	Virginia Beach	0.495%	990	53 (-)	0.495%	9,899	53 (-)	0.495%	247,468	53 (-)	
Washington	Seattle	0.692%	1,383	46 (-)	0.692%	13,833	48 (-)	0.692%	345,830	48 (-)	
West Virginia	Charleston	1.633%	3,265	16 (-)	1.633%	32,651	20 (-)	1.633%	816,280	21 (-)	
Wisconsin	Milwaukee	1.479%	2,958	20 (-)	1.513%	30,257	23 (-)	1.516%	758,229	24 (-)	X
Wyoming	Cheyenne	0.664%	1,328	48 (1 ↑)	0.664%	13,279	49 (1 ↑)	0.664%	331,982	49 (1 ↑)	
AVERAGE		**1.419%**	**2,838**		**1.499%**	**29,984**		**1.527%**	**763,726**		**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.

** Charleston, SC is now the largest city in the state and replaces Columbia, SC.

$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)

State	City	Land and Building Value: $100,000			Land and Building Value: $1 Million			Land and Building Value: $25 Million			Tax Rate Varies with Property Value
		Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Alabama	Birmingham	1.102%	2,755	31 (1 ↑)	1.102%	27,550	35 (1 ↑)	1.102%	688,750	36 (1 ↑)	
Alaska	Anchorage	1.391%	3,478	22 (-)	1.504%	37,598	20 (2 ↑)	1.516%	947,469	20 (3 ↑)	X
Arizona	Phoenix	1.004%	2,509	35 (-)	1.943%	48,577	8 (1 ↑)	2.137%	1,335,849	6 (2 ↑)	X
Arkansas	Little Rock	1.401%	3,503	20 (-)	1.401%	35,029	24 (-)	1.401%	875,724	25 (-)	
California	Los Angeles	0.907%	2,267	37 (2 ↑)	0.907%	22,668	40 (2 ↑)	0.907%	566,688	41 (2 ↑)	
Colorado	Denver	1.772%	4,429	12 (-)	1.772%	44,294	13 (-)	1.772%	1,107,347	14 (-)	
Connecticut	Bridgeport	1.751%	4,377	13 (3 ↓)	1.751%	43,768	14 (3 ↓)	1.751%	1,094,196	15 (3 ↓)	
DC	Washington	0.624%	1,559	46 (1 ↑)	1.542%	38,543	19 (-)	1.901%	1,188,413	10 (-)	X
Delaware	Wilmington	0.513%	1,282	49 (-)	0.513%	12,821	50 (-)	0.513%	320,521	50 (-)	
Florida	Jacksonville	1.140%	2,851	28 (-)	1.298%	32,449	27 (-)	1.315%	821,721	27 (-)	X
Georgia	Atlanta	1.453%	3,634	18 (-)	1.453%	36,336	21 (1 ↓)	1.453%	908,400	23 (2 ↓)	
Hawaii	Honolulu	0.477%	1,194	51 (-)	0.477%	11,937	51 (1 ↑)	0.477%	298,437	51 (1 ↑)	
Idaho	Boise	0.617%	1,543	47 (1 ↓)	1.133%	28,321	33 (1 ↑)	1.195%	746,696	33 (2 ↓)	X
Illinois	Aurora*	1.647%	4,118	15 (-)	1.647%	41,180	16 (-)	1.647%	1,029,496	17 (-)	
Illinois	Chicago	1.813%	4,533	11 (6 ↑)	1.813%	45,325	12 (6 ↑)	1.813%	1,133,133	13 (7 ↑)	
Indiana	Indianapolis	1.911%	4,779	7 (1 ↓)	1.911%	47,786	9 (2 ↓)	1.911%	1,194,657	9 (2 ↓)	
Iowa	Des Moines	1.036%	2,591	34 (1 ↓)	1.386%	34,639	26 (5 ↓)	1.507%	942,044	21 (2 ↓)	X
Kansas	Wichita	1.229%	3,073	25 (-)	1.229%	30,731	30 (-)	1.229%	768,269	31 (1 ↓)	
Kentucky	Louisville	0.624%	1,561	45 (1 ↓)	0.624%	15,606	49 (1 ↓)	0.624%	390,144	49 (1 ↓)	
Louisiana	New Orleans	2.117%	5,293	5 (-)	2.117%	52,929	6 (-)	2.117%	1,323,216	7 (1 ↓)	
Maine	Portland	0.944%	2,360	36 (-)	0.944%	23,599	39 (1 ↓)	0.944%	589,963	40 (-)	
Maryland	Baltimore	1.223%	3,058	26 (1 ↑)	1.223%	30,577	31 (1 ↑)	1.223%	764,413	32 (2 ↑)	
Massachusetts	Boston	0.883%	2,207	39 (2 ↓)	0.883%	22,072	42 (2 ↓)	0.883%	551,798	43 (2 ↓)	
Michigan	Detroit	1.863%	4,657	9 (1 ↓)	2.440%	60,991	4 (1 ↓)	2.440%	1,524,771	4 (1 ↓)	X
Minnesota	Minneapolis	1.134%	2,834	29 (2 ↑)	1.433%	35,823	23 (2 ↑)	1.484%	927,275	22 (-)	X
Mississippi	Jackson	2.841%	7,103	1 (1 ↑)	2.841%	71,033	1 (1 ↑)	2.841%	1,775,813	1 (1 ↑)	
Missouri	Kansas City	2.073%	5,182	6 (1 ↑)	2.073%	51,817	7 (1 ↑)	2.073%	1,295,432	8 (1 ↑)	
Montana	Billings	0.503%	1,258	50 (3 ↑)	0.842%	21,050	45 (-)	1.262%	788,695	30 (3 ↑)	X
Nebraska	Omaha	1.541%	3,852	17 (1 ↓)	1.622%	40,541	18 (1 ↓)	1.630%	1,018,920	19 (1 ↓)	X
Nevada	Las Vegas	0.868%	2,170	41 (-)	0.868%	21,702	44 (-)	0.868%	542,542	45 (-)	
New Hampshire	Manchester	0.903%	2,257	38 (2 ↑)	0.903%	22,574	41 (2 ↑)	0.903%	564,344	42 (2 ↑)	
New Jersey	Newark	1.265%	3,163	23 (1 ↑)	1.265%	31,634	29 (-)	1.265%	790,854	29 (-)	
New Mexico	Albuquerque	1.154%	2,886	27 (2 ↑)	1.154%	28,855	32 (1 ↑)	1.154%	721,384	34 (1 ↑)	
New York	Buffalo*	1.129%	2,822	30 (4 ↓)	1.129%	28,224	34 (3 ↓)	1.129%	705,609	35 (3 ↓)	
New York	New York City	1.874%	4,684	8 (1 ↑)	1.874%	46,840	10 (-)	1.874%	1,170,997	11 (-)	
AVERAGE		**1.275%**	**3,186**		**1.363%**	**34,087**		**1.388%**	**867,793**		**N = 12**

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State	City	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate Varies with Property Value
		Land and Building Value: $100,000			**Land and Building Value: $1 Million**			**Land and Building Value: $25 Million**			
North Carolina	Charlotte	0.880%	2,201	40 (2 ↓)	0.880%	22,006	43 (2 ↓)	0.880%	550,152	44 (2 ↓)	
North Dakota	Fargo	0.460%	1,150	52 (2 ↓)	0.460%	11,500	52 (1 ↓)	0.460%	287,488	52 (1 ↓)	
Ohio	Columbus	1.042%	2,606	33 (1 ↑)	1.042%	26,062	37 (-)	1.042%	651,547	38 (-)	
Oklahoma	Oklahoma City	1.435%	3,587	19 (-)	1.435%	35,870	22 (1 ↑)	1.435%	896,740	24 (-)	
Oregon	Portland	1.842%	4,605	10 (1 ↑)	1.842%	46,053	11 (1 ↑)	1.842%	1,151,327	12 (1 ↑)	
Pennsylvania	Philadelphia	0.549%	1,372	48 (-)	0.944%	23,599	38 (1 ↑)	1.020%	637,486	39 (-)	X
Rhode Island	Providence	1.656%	4,141	14 (1 ↓)	1.656%	41,407	15 (1 ↓)	1.656%	1,035,184	16 (1 ↓)	
South Carolina	Charleston**	2.169%	5,423	4 (NA)	2.169%	54,232	5 (NA)	2.169%	1,355,793	5 (NA)	
South Dakota	Sioux Falls	0.697%	1,743	42 (1 ↑)	0.697%	17,428	46 (1 ↑)	0.697%	435,691	46 (1 ↑)	
Tennessee	Memphis	2.510%	6,274	3 (-)	2.510%	62,742	3 (1 ↑)	2.510%	1,568,548	3 (1 ↑)	
Texas	Houston	2.526%	6,316	2 (2 ↑)	2.526%	63,159	2 (3 ↑)	2.526%	1,578,968	2 (3 ↑)	
Utah	Salt Lake City	1.064%	2,661	32 (2 ↓)	1.064%	26,610	36 (1 ↓)	1.064%	665,242	37 (1 ↓)	
Vermont	Burlington	1.396%	3,491	21 (-)	1.396%	34,907	25 (1 ↑)	1.396%	872,671	26 (-)	
Virginia	Virginia Beach	0.428%	1,070	53 (1 ↓)	0.428%	10,699	53 (-)	0.428%	267,468	53 (-)	
Washington	Seattle	0.662%	1,656	43 (1 ↓)	0.662%	16,560	47 (1 ↓)	0.662%	414,011	47 (1 ↓)	
West Virginia	Charleston	1.638%	4,095	16 (2 ↓)	1.638%	40,952	17 (2 ↓)	1.638%	1,023,809	18 (2 ↓)	
Wisconsin	Milwaukee	1.238%	3,095	24 (1 ↓)	1.265%	31,635	28 (-)	1.268%	792,697	28 (-)	X
Wyoming	Cheyenne	0.631%	1,577	44 (1 ↑)	0.631%	15,769	48 (1 ↑)	0.631%	394,229	48 (1 ↑)	
AVERAGE		**1.275%**	**3,186**		**1.363%**	**34,087**		**1.388%**	**867,793**		**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.

** Charleston, SC is now the largest city in the state and replaces Columbia, SC.

$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)

State	City	Land and Building Value: $100,000			Land and Building Value: $1 Million			Land and Building Value: $25 Million			Tax Rate Varies with Property Value
		Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Arizona	Mesa	0.924%	1,848	41 (3 ↑)	1.417%	28,348	26 (4 ↑)	1.589%	794,444	22 (3 ↑)	X
Arizona	Phoenix	1.254%	2,509	28 (1 ↑)	1.953%	39,062	16 (2 ↓)	2.196%	1,097,959	13 (1 ↑)	X
Arizona	Tucson	1.340%	2,679	25 (5 ↑)	1.992%	39,833	15 (1 ↑)	2.218%	1,109,138	11 (4 ↑)	X
California	Fresno	0.998%	1,996	36 (-)	0.998%	19,956	39 (-)	0.998%	498,894	39 (-)	
California	Long Beach	0.975%	1,949	37 (4 ↑)	0.975%	19,495	40 (4 ↑)	0.975%	487,368	40 (4 ↑)	
California	Los Angeles	0.954%	1,909	38 (1 ↓)	0.954%	19,088	41 (1 ↓)	0.954%	477,211	41 (1 ↓)	
California	Oakland	1.079%	2,158	34 (-)	1.079%	21,578	37 (-)	1.079%	539,440	37 (-)	
California	Sacramento	0.909%	1,818	43 (-)	0.909%	18,184	45 (1 ↑)	0.909%	454,600	45 (1 ↑)	
California	San Diego	0.936%	1,871	40 (-)	0.936%	18,715	43 (-)	0.936%	467,868	43 (-)	
California	San Francisco	0.938%	1,876	39 (-)	0.938%	18,757	42 (-)	0.938%	468,920	42 (-)	
California	San Jose	1.054%	2,107	35 (-)	1.054%	21,073	38 (-)	1.054%	526,824	38 (-)	
Colorado	Colorado Springs	1.316%	2,631	26 (2 ↑)	1.316%	26,311	31 (2 ↑)	1.316%	657,776	31 (2 ↑)	
Colorado	Denver	1.860%	3,720	16 (-)	1.860%	37,199	18 (-)	1.860%	929,982	19 (1 ↑)	
DC	Washington	0.780%	1,559	46 (-)	1.417%	28,343	27 (1 ↑)	1.867%	933,413	18 (1 ↓)	X
Florida	Jacksonville	1.163%	2,326	30 (2 ↑)	1.360%	27,198	30 (1 ↓)	1.381%	690,456	30 (1 ↓)	X
Florida	Miami	1.305%	2,609	27 (-)	1.533%	30,668	21 (1 ↑)	1.558%	778,901	23 (1 ↓)	X
Georgia	Atlanta	1.471%	2,941	19 (-)	1.471%	29,414	23 (-)	1.471%	735,350	25 (1 ↓)	
Illinois	Chicago	2.266%	4,533	9 (5 ↑)	2.266%	45,325	10 (5 ↑)	2.266%	1,133,133	10 (6 ↑)	
Indiana	Indianapolis	1.997%	3,995	14 (4 ↓)	1.997%	39,948	14 (4 ↓)	1.997%	998,705	16 (6 ↓)	
Kansas	Wichita	1.463%	2,926	20 (-)	1.463%	29,265	24 (-)	1.463%	731,615	26 (-)	
Kentucky	Louisville	0.709%	1,419	47 (-)	0.709%	14,188	48 (-)	0.709%	354,694	48 (-)	
Louisiana	New Orleans	2.103%	4,205	13 (1 ↓)	2.103%	42,053	13 (1 ↓)	2.103%	1,051,323	15 (3 ↓)	
Maryland	Baltimore	1.389%	2,778	24 (2 ↑)	1.389%	27,781	29 (3 ↑)	1.389%	694,514	29 (3 ↑)	
Massachusetts	Boston	1.104%	2,207	32 (1 ↑)	1.104%	22,072	35 (1 ↑)	1.104%	551,798	35 (1 ↑)	
Michigan	Detroit	2.248%	4,497	10 (2 ↓)	2.729%	54,582	4 (3 ↓)	2.729%	1,364,545	4 (3 ↓)	X
Minnesota	Minneapolis	1.417%	2,834	22 (2 ↑)	1.791%	35,823	19 (-)	1.855%	927,275	20 (1 ↓)	X
Missouri	Kansas City	2.193%	4,386	12 (1 ↑)	2.193%	43,857	12 (1 ↑)	2.193%	1,096,432	14 (1 ↓)	
Nebraska	Omaha	1.589%	3,177	17 (-)	1.690%	33,795	20 (-)	1.701%	850,266	21 (-)	X
Nevada	Las Vegas	0.913%	1,826	42 (-)	0.913%	18,260	44 (1 ↑)	0.913%	456,489	44 (1 ↑)	
New Mexico	Albuquerque	1.209%	2,417	29 (2 ↑)	1.209%	24,172	32 (2 ↑)	1.209%	604,302	33 (2 ↑)	
New York	New York City	2.342%	4,684	8 (1 ↑)	2.342%	46,840	9 (-)	2.342%	1,170,997	9 (-)	
North Carolina	Charlotte	0.906%	1,812	44 (6 ↓)	0.906%	18,123	46 (5 ↓)	0.906%	453,072	46 (5 ↓)	
North Carolina	Raleigh	0.803%	1,605	45 (-)	0.803%	16,052	47 (-)	0.803%	401,296	47 (-)	
Ohio	Columbus	1.082%	2,165	33 (8 ↓)	1.082%	21,648	36 (5 ↓)	1.082%	541,212	36 (5 ↓)	
Oklahoma	Oklahoma City	1.404%	2,808	23 (-)	1.404%	28,077	28 (1 ↓)	1.404%	701,920	28 (2 ↑)	
AVERAGE		**1.509%**	**3,018**		**1.597%**	**31,936**		**1.623%**	**811,478**		**N = 11**

State	City	Land and Building Value: $100,000			Land and Building Value: $1 Million			Land and Building Value: $25 Million			Tax Rate Varies with Property Value
		Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Oklahoma	Tulsa	1.439%	2,879	21 (1 ↑)	1.439%	28,787	25 (1 ↑)	1.439%	719,670	27 (1 ↑)	
Oregon	Portland	1.939%	3,878	15 (-)	1.939%	38,782	17 (-)	1.939%	969,538	17 (1 ↑)	
Pennsylvania	Philadelphia	0.686%	1,372	49 (-)	1.180%	23,599	33 (2 ↑)	1.275%	637,486	32 (2 ↑)	X
Tennessee	Memphis	2.583%	5,167	6 (-)	2.583%	51,670	7 (-)	2.583%	1,291,745	7 (-)	
Tennessee	Nashville	1.104%	2,209	31 (10 ↓)	1.104%	22,085	34 (9 ↓)	1.104%	552,125	34 (7 ↓)	
Texas	Arlington	2.617%	5,234	5 (-)	2.617%	52,339	6 (-)	2.617%	1,308,480	6 (-)	
Texas	Austin	2.214%	4,428	11 (-)	2.214%	44,280	11 (-)	2.214%	1,106,993	12 (1 ↓)	
Texas	Dallas	2.719%	5,438	4 (-)	2.719%	54,384	5 (-)	2.719%	1,359,612	5 (-)	
Texas	El Paso	2.960%	5,919	1 (1 ↑)	2.960%	59,194	1 (2 ↑)	2.960%	1,479,854	1 (2 ↑)	
Texas	Fort Worth	2.765%	5,531	3 (-)	2.765%	55,310	3 (1 ↑)	2.765%	1,382,745	3 (1 ↑)	
Texas	Houston	2.526%	5,053	7 (-)	2.526%	50,527	8 (-)	2.526%	1,263,174	8 (-)	
Texas	San Antonio	2.838%	5,675	2 (1 ↓)	2.838%	56,753	2 (-)	2.838%	1,418,821	2 (-)	
Virginia	Virginia Beach	0.495%	990	50 (-)	0.495%	9,899	50 (-)	0.495%	247,468	50 (-)	
Washington	Seattle	0.692%	1,383	48 (-)	0.692%	13,833	49 (-)	0.692%	345,830	49 (-)	
Wisconsin	Milwaukee	1.479%	2,958	18 (-)	1.513%	30,257	22 (1 ↓)	1.516%	758,229	24 (1 ↓)	X
AVERAGE		**1.509%**	**3,018**		**1.597%**	**31,936**		**1.623%**	**811,478**		**N = 11**

$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)

State	City	Land and Building Value: $100,000			Land and Building Value: $1 Million			Land and Building Value: $25 Million			Tax Rate Varies with Property Value
		Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Arizona	Mesa	0.739%	1,848	45 (2 ↑)	1.403%	35,068	26 (1 ↑)	1.540%	962,447	21 (2 ↑)	X
Arizona	Phoenix	1.004%	2,509	32 (1 ↓)	1.943%	48,577	13 (-)	2.137%	1,335,849	10 (2 ↑)	X
Arizona	Tucson	1.072%	2,679	30 (3 ↑)	1.949%	48,714	12 (2 ↑)	2.130%	1,331,170	11 (3 ↑)	X
California	Fresno	0.948%	2,370	34 (1 ↑)	0.948%	23,697	36 (2 ↑)	0.948%	592,437	37 (1 ↑)	
California	Long Beach	0.926%	2,315	35 (6 ↑)	0.926%	23,150	38 (6 ↑)	0.926%	578,750	38 (6 ↑)	
California	Los Angeles	0.907%	2,267	36 (2 ↑)	0.907%	22,668	39 (2 ↑)	0.907%	566,688	39 (2 ↑)	
California	Oakland	1.025%	2,562	31 (1 ↑)	1.025%	25,623	34 (1 ↑)	1.025%	640,585	34 (1 ↑)	
California	Sacramento	0.864%	2,159	43 (-)	0.864%	21,594	46 (-)	0.864%	539,838	46 (-)	
California	San Diego	0.889%	2,222	38 (2 ↑)	0.889%	22,224	41 (2 ↑)	0.889%	555,593	41 (2 ↑)	
California	San Francisco	0.891%	2,227	37 (2 ↑)	0.891%	22,274	40 (2 ↑)	0.891%	556,843	40 (2 ↑)	
California	San Jose	1.001%	2,502	33 (1 ↑)	1.001%	25,024	35 (1 ↑)	1.001%	625,604	36 (1 ↑)	
Colorado	Colorado Springs	1.254%	3,135	22 (2 ↑)	1.254%	31,355	29 (1 ↑)	1.254%	783,867	29 (1 ↑)	
Colorado	Denver	1.772%	4,429	16 (1 ↓)	1.772%	44,294	18 (1 ↓)	1.772%	1,107,347	19 (1 ↓)	
DC	Washington	0.624%	1,559	48 (-)	1.542%	38,543	20 (-)	1.901%	1,188,413	15 (-)	X
Florida	Jacksonville	1.140%	2,851	27 (-)	1.298%	32,449	27 (1 ↑)	1.315%	821,721	27 (1 ↑)	X
Florida	Miami	1.288%	3,219	21 (1 ↑)	1.471%	36,769	21 (-)	1.490%	931,427	22 (1 ↓)	X
Georgia	Atlanta	1.453%	3,634	18 (-)	1.453%	36,336	22 (-)	1.453%	908,400	24 (2 ↓)	
Illinois	Chicago	1.813%	4,533	15 (2 ↑)	1.813%	45,325	17 (2 ↑)	1.813%	1,133,133	18 (2 ↑)	
Indiana	Indianapolis	1.911%	4,779	11 (1 ↓)	1.911%	47,786	14 (3 ↓)	1.911%	1,194,657	14 (3 ↓)	
Kansas	Wichita	1.229%	3,073	24 (1 ↑)	1.229%	30,731	30 (1 ↑)	1.229%	768,269	30 (1 ↑)	
Kentucky	Louisville	0.624%	1,561	47 (1 ↓)	0.624%	15,606	49 (-)	0.624%	390,144	49 (-)	
Louisiana	New Orleans	2.117%	5,293	9 (-)	2.117%	52,929	10 (-)	2.117%	1,323,216	12 (2 ↓)	
Maryland	Baltimore	1.223%	3,058	25 (1 ↑)	1.223%	30,577	31 (1 ↑)	1.223%	764,413	31 (1 ↑)	
Massachusetts	Boston	0.883%	2,207	39 (3 ↓)	0.883%	22,072	42 (3 ↓)	0.883%	551,798	42 (3 ↓)	
Michigan	Detroit	1.863%	4,657	13 (1 ↓)	2.440%	60,991	8 (3 ↓)	2.440%	1,524,771	8 (3 ↓)	X
Minnesota	Minneapolis	1.134%	2,834	28 (1 ↑)	1.433%	35,823	24 (1 ↑)	1.484%	927,275	23 (1 ↑)	X
Missouri	Kansas City	2.073%	5,182	10 (1 ↑)	2.073%	51,817	11 (1 ↑)	2.073%	1,295,432	13 (-)	
Nebraska	Omaha	1.541%	3,852	17 (1 ↓)	1.622%	40,541	19 (1 ↓)	1.630%	1,018,920	20 (1 ↓)	X
Nevada	Las Vegas	0.868%	2,170	41 (1 ↑)	0.868%	21,702	44 (1 ↑)	0.868%	542,542	44 (1 ↑)	
New Mexico	Albuquerque	1.154%	2,886	26 (2 ↑)	1.154%	28,855	32 (1 ↑)	1.154%	721,384	32 (1 ↑)	
New York	New York City	1.874%	4,684	12 (1 ↑)	1.874%	46,840	15 (-)	1.874%	1,170,997	16 (-)	
North Carolina	Charlotte	0.880%	2,201	40 (3 ↓)	0.880%	22,006	43 (3 ↓)	0.880%	550,152	43 (3 ↓)	
North Carolina	Raleigh	0.767%	1,917	44 (-)	0.767%	19,173	47 (-)	0.767%	479,318	47 (-)	
Ohio	Columbus	0.866%	2,165	42 (12 ↓)	0.866%	21,648	45 (11 ↓)	0.866%	541,212	45 (11 ↓)	
Oklahoma	Oklahoma City	1.435%	3,587	19 (1 ↑)	1.435%	35,870	23 (1 ↑)	1.435%	896,740	25 (1 ↑)	
AVERAGE		**1.408%**	**3,521**		**1.511%**	**37,768**		**1.532%**	**957,279**		**N = 11**

State	City	Land and Building Value: $100,000			Land and Building Value: $1 Million			Land and Building Value: $25 Million			Tax Rate Varies with Property Value
		Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Oklahoma	Tulsa	1.426%	3,564	20 (1 ↑)	1.426%	35,641	25 (1 ↑)	1.426%	891,020	26 (1 ↑)	
Oregon	Portland	1.842%	4,605	14 (-)	1.842%	46,053	16 (-)	1.842%	1,151,327	17 (-)	
Pennsylvania	Philadelphia	0.549%	1,372	49 (-)	0.944%	23,599	37 (-)	1.020%	637,486	35 (1 ↑)	X
Tennessee	Memphis	2.510%	6,274	7 (1 ↓)	2.510%	62,742	7 (-)	2.510%	1,568,548	7 (-)	
Tennessee	Nashville	1.073%	2,682	29 (10 ↓)	1.073%	26,818	33 (10 ↓)	1.073%	670,438	33 (8 ↓)	
Texas	Arlington	2.617%	6,542	5 (-)	2.617%	65,424	5 (1 ↑)	2.617%	1,635,599	5 (1 ↑)	
Texas	Austin	2.214%	5,535	8 (-)	2.214%	55,350	9 (-)	2.214%	1,383,741	9 (-)	
Texas	Dallas	2.719%	6,798	4 (-)	2.719%	67,981	4 (-)	2.719%	1,699,514	4 (-)	
Texas	El Paso	2.960%	7,399	1 (1 ↑)	2.960%	73,993	1 (1 ↑)	2.960%	1,849,818	1 (1 ↑)	
Texas	Fort Worth	2.765%	6,914	3 (-)	2.765%	69,137	3 (-)	2.765%	1,728,431	3 (-)	
Texas	Houston	2.526%	6,316	6 (1 ↑)	2.526%	63,159	6 (2 ↑)	2.526%	1,578,968	6 (2 ↑)	
Texas	San Antonio	2.838%	7,094	2 (1 ↓)	2.838%	70,941	2 (1 ↓)	2.838%	1,773,526	2 (1 ↓)	
Virginia	Virginia Beach	0.428%	1,070	50 (-)	0.428%	10,699	50 (-)	0.428%	267,468	50 (-)	
Washington	Seattle	0.662%	1,656	46 (1 ↓)	0.662%	16,560	48 (-)	0.662%	414,011	48 (-)	
Wisconsin	Milwaukee	1.238%	3,095	23 (-)	1.265%	31,635	28 (1 ↑)	1.268%	792,697	28 (1 ↑)	X
AVERAGE		**1.408%**	**3,521**		**1.511%**	**37,768**		**1.532%**	**957,279**		**N = 11**

$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)

State	Municipality	Land and Building Value: $100,000			Land and Building Value: $1 Million			Land and Building Value: $25 Million			Tax Rate Varies with Property Value
		Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Alabama	Monroeville	0.656%	1,312	46 (1 ↑)	0.656%	13,120	46 (1 ↑)	0.656%	328,000	46 (1 ↑)	
Alaska	Ketchican	0.748%	1,496	43 (2 ↓)	0.880%	17,596	39 (1 ↑)	0.894%	446,911	38 (2 ↑)	X
Arizona	Safford	0.943%	1,887	33 (12 ↑)	1.407%	28,133	16 (11 ↑)	1.568%	783,852	16 (3 ↑)	X
Arkansas	Pocahontas	0.722%	1,443	44 (2 ↓)	0.722%	14,434	44 (-)	0.722%	360,861	44 (-)	
California	Yreka	0.845%	1,691	40 (2 ↓)	0.845%	16,909	41 (-)	0.845%	422,720	41 (-)	
Colorado	Walsenburg	1.740%	3,480	6 (3 ↑)	1.740%	34,796	10 (1 ↑)	1.740%	869,896	10 (2 ↑)	
Connecticut	Litchfield	0.859%	1,718	39 (11 ↓)	0.859%	17,184	40 (9 ↓)	0.859%	429,603	40 (9 ↓)	
Delaware	Georgetown	0.265%	531	50 (-)	0.265%	5,307	50 (-)	0.265%	132,666	50 (-)	
Florida	Moore Haven	1.520%	3,041	13 (2 ↓)	1.774%	35,476	9 (1 ↓)	1.801%	900,405	8 (-)	X
Georgia	Fitzgerald	1.584%	3,167	11 (1 ↓)	1.584%	31,673	13 (1 ↑)	1.584%	791,816	15 (-)	
Hawaii	Kauai	0.405%	810	49 (-)	0.405%	8,100	49 (-)	0.405%	202,500	49 (-)	
Idaho	St. Anthony	0.893%	1,786	38 (6 ↑)	1.328%	26,561	18 (10 ↑)	1.412%	705,786	18 (6 ↑)	X
Illinois	Galena	1.228%	2,456	21 (-)	1.228%	24,560	24 (2 ↓)	1.228%	614,012	25 (-)	
Indiana	North Vernon	2.421%	4,842	3 (-)	2.421%	48,420	3 (-)	2.421%	1,210,500	3 (-)	
Iowa	Hampton	1.113%	2,226	25 (1 ↑)	1.549%	30,986	14 (1 ↓)	1.701%	850,728	12 (3 ↓)	X
Kansas	Iola	2.149%	4,298	4 (1 ↑)	2.149%	42,976	4 (2 ↑)	2.149%	1,074,390	4 (2 ↑)	
Kentucky	Morehead	0.652%	1,303	47 (1 ↑)	0.652%	13,032	47 (1 ↑)	0.652%	325,807	47 (1 ↑)	
Louisiana	Natchitoches	1.285%	2,570	18 (2 ↓)	1.285%	25,703	22 (5 ↓)	1.285%	642,568	23 (5 ↓)	
Maine	Rockland	1.225%	2,451	22 (2 ↑)	1.225%	24,508	25 (-)	1.225%	612,700	26 (2 ↑)	
Maryland	Denton	1.037%	2,075	28 (3 ↑)	1.037%	20,749	31 (3 ↑)	1.037%	518,730	31 (3 ↑)	
Massachusetts	Adams	1.215%	2,430	23 (6 ↓)	1.215%	24,305	26 (7 ↓)	1.215%	607,613	27 (6 ↓)	
Michigan	Manistique	1.602%	3,204	10 (4 ↓)	1.873%	37,455	7 (3 ↓)	1.873%	936,387	7 (3 ↓)	X
Minnesota	Glencoe	1.564%	3,128	12 (1 ↑)	1.986%	39,720	6 (1 ↑)	2.058%	1,028,762	6 (1 ↑)	X
Mississippi	Philadelphia	2.104%	4,208	5 (1 ↓)	2.104%	42,084	5 (-)	2.104%	1,052,100	5 (-)	
Missouri	Boonville	1.690%	3,379	8 (1 ↓)	1.690%	33,792	12 (3 ↓)	1.690%	844,799	13 (3 ↓)	
Montana	Glasgow	0.906%	1,812	36 (-)	1.207%	24,133	27 (1 ↓)	1.623%	811,265	14 (-)	X
Nebraska	Sidney	1.677%	3,354	9 (3 ↑)	1.782%	35,632	8 (4 ↑)	1.793%	896,385	9 (4 ↑)	X
Nevada	Fallon	1.019%	2,039	29 (-)	1.019%	20,386	32 (-)	1.019%	509,655	32 (-)	
New Hampshire	Lancaster	1.359%	2,718	15 (-)	1.359%	27,183	17 (1 ↓)	1.359%	679,572	19 (2 ↓)	
New Jersey	Maurice River Twp	1.305%	2,611	17 (1 ↑)	1.305%	26,109	20 (-)	1.305%	652,716	21 (1 ↑)	
New Mexico	Santa Rosa	0.826%	1,652	41 (2 ↓)	0.826%	16,516	42 (-)	0.826%	412,896	42 (-)	
New York	Warsaw	1.732%	3,464	7 (1 ↑)	1.732%	34,643	11 (1 ↓)	1.732%	866,064	11 (-)	
North Carolina	Edenton	0.894%	1,787	37 (-)	0.894%	17,872	38 (1 ↑)	0.894%	446,794	39 (-)	
North Dakota	Devils Lake	0.640%	1,279	48 (5 ↓)	0.640%	12,794	48 (3 ↓)	0.640%	319,856	48 (3 ↓)	
Ohio	Bryan	1.309%	2,618	16 (14 ↑)	1.309%	26,177	19 (14 ↑)	1.309%	654,413	20 (13 ↑)	
AVERAGE		**1.240%**	**2,479**		**1.297%**	**25,394**		**1.316%**	**657,753**		**N = 10**

State	Municipality	Land and Building Value: $100,000			Land and Building Value: $1 Million			Land and Building Value: $25 Million			Tax Rate Varies with Property Value
		Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Oklahoma	Mangum	0.986%	1,972	30 (3 ↑)	0.986%	19,715	33 (3 ↑)	0.986%	492,885	33 (3 ↑)	
Oregon	Tillamook	0.933%	1,866	35 (-)	0.933%	18,664	37 (1 ↑)	0.933%	466,609	37 (1 ↑)	
Pennsylvania	Ridgway	1.494%	2,988	14 (-)	1.494%	29,880	15 (-)	1.494%	746,992	17 (1 ↓)	
Rhode Island	Hopkinton	1.089%	2,179	26 (1 ↓)	1.089%	21,790	29 (-)	1.089%	544,741	29 (-)	
South Carolina	Mullins	3.673%	7,346	1 (-)	3.673%	73,456	1 (-)	3.673%	1,836,400	1 (-)	
South Dakota	Vermillion	0.966%	1,932	32 (10 ↓)	0.966%	19,322	35 (12 ↓)	0.966%	483,043	35 (9 ↓)	
Tennessee	Savannah	0.935%	1,870	34 (-)	0.935%	18,705	36 (1 ↑)	0.935%	467,624	36 (1 ↑)	
Texas	Fort Stockton	2.585%	5,171	2 (-)	2.585%	51,708	2 (-)	2.585%	1,292,700	2 (-)	
Utah	Richfield	1.183%	2,365	24 (1 ↓)	1.183%	23,654	28 (4 ↓)	1.183%	591,360	28 (1 ↓)	
Vermont	Hartford	1.252%	2,504	20 (-)	1.252%	25,041	23 (2 ↓)	1.252%	626,018	24 (1 ↓)	
Virginia	Wise	0.757%	1,513	42 (2 ↓)	0.757%	15,130	43 (-)	0.757%	378,255	43 (-)	
Washington	Okanogan	0.983%	1,966	31 (1 ↑)	0.983%	19,660	34 (1 ↑)	0.983%	491,507	34 (1 ↑)	
West Virginia	Elkins	1.055%	2,109	27 (-)	1.055%	21,090	30 (-)	1.055%	527,255	30 (-)	
Wisconsin	Rice Lake	1.260%	2,521	19 (-)	1.293%	25,860	21 (3 ↓)	1.297%	648,256	22 (2 ↓)	X
Wyoming	Worland	0.701%	1,401	45 (1 ↑)	0.701%	14,012	45 (1 ↑)	0.701%	350,290	45 (1 ↑)	
AVERAGE		**1.240%**	**2,479**		**1.297%**	**25,394**		**1.316%**	**657,753**		**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)

State	Municipality	Land and Building Value: $100,000			Land and Building Value: $1 Million			Land and Building Value: $25 Million			Tax Rate Varies with Property Value
		Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Alabama	Monroeville	0.623%	1,558	46 (2 ↓)	0.623%	15,580	46 (-)	0.623%	389,500	46 (-)	
Alaska	Ketchican	0.739%	1,847	40 (2 ↑)	0.844%	21,106	38 (1 ↑)	0.855%	534,661	37 (2 ↑)	X
Arizona	Safford	0.755%	1,887	39 (8 ↑)	1.378%	34,444	14 (2 ↑)	1.507%	941,609	14 (3 ↑)	X
Arkansas	Pocahontas	0.722%	1,806	43 (3 ↓)	0.722%	18,061	44 (-)	0.722%	451,536	44 (-)	
California	Yreka	0.803%	2,008	35 (2 ↑)	0.803%	20,079	39 (2 ↑)	0.803%	501,980	39 (2 ↑)	
Colorado	Walsenburg	1.653%	4,132	6 (1 ↑)	1.653%	41,320	8 (1 ↑)	1.653%	1,033,001	8 (2 ↑)	
Connecticut	Litchfield	0.725%	1,812	42 (8 ↓)	0.725%	18,119	43 (6 ↓)	0.725%	452,966	43 (6 ↓)	
Delaware	Georgetown	0.212%	531	50 (-)	0.212%	5,307	50 (-)	0.212%	132,666	50 (-)	
Florida	Moore Haven	1.487%	3,716	10 (2 ↓)	1.689%	42,233	7 (1 ↓)	1.711%	1,069,336	7 (1 ↓)	X
Georgia	Fitzgerald	1.540%	3,850	9 (-)	1.540%	38,498	12 (1 ↓)	1.540%	962,461	13 (1 ↓)	
Hawaii	Kauai	0.324%	810	49 (-)	0.324%	8,100	49 (-)	0.324%	202,500	49 (-)	
Idaho	St. Anthony	0.714%	1,786	44 (2 ↑)	1.271%	31,781	16 (4 ↑)	1.338%	836,278	17 (1 ↑)	X
Illinois	Galena	0.982%	2,456	25 (-)	0.982%	24,560	29 (-)	0.982%	614,012	29 (-)	
Indiana	North Vernon	2.297%	5,742	3 (-)	2.297%	57,420	3 (-)	2.297%	1,435,500	3 (-)	
Iowa	Hampton	0.890%	2,226	32 (1 ↑)	1.239%	30,986	17 (2 ↓)	1.361%	850,728	16 (1 ↓)	X
Kansas	Iola	1.810%	4,525	5 (-)	1.810%	45,252	5 (2 ↑)	1.810%	1,131,296	5 (2 ↑)	
Kentucky	Morehead	0.573%	1,433	47 (1 ↑)	0.573%	14,327	47 (1 ↑)	0.573%	358,175	47 (1 ↑)	
Louisiana	Natchitoches	1.294%	3,235	13 (1 ↓)	1.294%	32,350	15 (2 ↓)	1.294%	808,749	18 (4 ↓)	
Maine	Rockland	1.025%	2,562	22 (1 ↑)	1.025%	25,622	26 (1 ↑)	1.025%	640,550	26 (1 ↑)	
Maryland	Denton	0.909%	2,272	31 (-)	0.909%	22,724	35 (-)	0.909%	568,105	35 (-)	
Massachusetts	Adams	0.972%	2,430	26 (6 ↓)	0.972%	24,305	30 (6 ↓)	0.972%	607,613	30 (6 ↓)	
Michigan	Manistique	1.318%	3,295	12 (1 ↓)	1.643%	41,063	9 (4 ↓)	1.643%	1,026,570	10 (5 ↓)	X
Minnesota	Glencoe	1.251%	3,128	14 (1 ↑)	1.589%	39,720	11 (1 ↑)	1.646%	1,028,762	9 (4 ↑)	X
Mississippi	Philadelphia	2.104%	5,261	4 (-)	2.104%	52,605	4 (-)	2.104%	1,315,125	4 (-)	
Missouri	Boonville	1.608%	4,019	8 (2 ↓)	1.608%	40,191	10 (2 ↓)	1.608%	1,004,777	11 (3 ↓)	
Montana	Glasgow	0.725%	1,812	41 (-)	1.110%	27,739	20 (1 ↑)	1.587%	991,565	12 (1 ↓)	X
Nebraska	Sidney	1.621%	4,051	7 (3 ↑)	1.704%	42,606	6 (4 ↑)	1.713%	1,070,720	6 (3 ↑)	X
Nevada	Fallon	0.969%	2,423	27 (1 ↓)	0.969%	24,229	31 (1 ↓)	0.969%	605,730	31 (1 ↓)	
New Hampshire	Lancaster	1.087%	2,718	17 (-)	1.087%	27,183	21 (2 ↓)	1.087%	679,572	21 (-)	
New Jersey	Maurice River Twp	1.044%	2,611	21 (-)	1.044%	26,109	25 (-)	1.044%	652,716	25 (-)	
New Mexico	Santa Rosa	0.790%	1,976	36 (2 ↑)	0.790%	19,760	40 (2 ↑)	0.790%	493,988	40 (2 ↑)	
New York	Warsaw	1.386%	3,464	11 (2 ↑)	1.386%	34,643	13 (1 ↑)	1.386%	866,064	15 (1 ↑)	
North Carolina	Edenton	0.850%	2,125	34 (1 ↑)	0.850%	21,247	37 (1 ↑)	0.850%	531,169	38 (-)	
North Dakota	Devils Lake	0.512%	1,279	48 (3 ↓)	0.512%	12,794	48 (1 ↓)	0.512%	319,856	48 (1 ↓)	
Ohio	Bryan	1.047%	2,618	20 (16 ↑)	1.047%	26,177	24 (16 ↑)	1.047%	654,413	24 (16 ↑)	
AVERAGE		**1.115%**	**2,788**		**1.175%**	**29,373**		**1.193%**	**745,517**		**N = 10**

State	Municipality	Land and Building Value: $100,000			Land and Building Value: $1 Million			Land and Building Value: $25 Million			Tax Rate Varies with Property Value
		Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	Tax Rate	Tax Bill	Rank	
Oklahoma	Mangum	1.008%	2,519	23 (1 ↓)	1.008%	25,192	27 (1 ↓)	1.008%	629,798	27 (1 ↓)	
Oregon	Tillamook	0.887%	2,216	33 (1 ↓)	0.887%	22,164	36 (-)	0.887%	554,098	36 (-)	
Pennsylvania	Ridgway	1.195%	2,988	15 (1 ↑)	1.195%	29,880	18 (-)	1.195%	746,992	19 (1 ↑)	
Rhode Island	Hopkinton	0.913%	2,282	30 (1 ↓)	0.913%	22,822	34 (1 ↓)	0.913%	570,541	34 (1 ↓)	
South Carolina	Mullins	3.489%	8,723	1 (-)	3.489%	87,229	1 (-)	3.489%	2,180,725	1 (-)	
South Dakota	Vermillion	0.773%	1,932	38 (11 ↓)	0.773%	19,322	42 (11 ↓)	0.773%	483,043	42 (11 ↓)	
Tennessee	Savannah	0.915%	2,287	29 (1 ↑)	0.915%	22,875	33 (1 ↑)	0.915%	571,874	33 (1 ↑)	
Texas	Fort Stockton	2.585%	6,464	2 (-)	2.585%	64,635	2 (-)	2.585%	1,615,875	2 (-)	
Utah	Richfield	1.124%	2,809	16 (2 ↓)	1.124%	28,090	19 (2 ↓)	1.124%	702,240	20 (1 ↓)	
Vermont	Hartford	1.002%	2,504	24 (-)	1.002%	25,041	28 (-)	1.002%	626,018	28 (-)	
Virginia	Wise	0.777%	1,944	37 (2 ↑)	0.777%	19,435	41 (2 ↑)	0.777%	485,880	41 (2 ↑)	
Washington	Okanogan	0.941%	2,353	28 (-)	0.941%	23,535	32 (-)	0.941%	588,370	32 (-)	
West Virginia	Elkins	1.060%	2,650	18 (1 ↑)	1.060%	26,498	23 (-)	1.060%	662,448	23 (-)	
Wisconsin	Rice Lake	1.055%	2,638	19 (1 ↓)	1.082%	27,039	22 (-)	1.084%	677,726	22 (-)	X
Wyoming	Worland	0.666%	1,664	45 (2 ↓)	0.666%	16,639	45 (-)	0.666%	415,969	45 (-)	
AVERAGE		**1.115%**	**2,788**		**1.175%**	**29,373**		**1.193%**	**745,517**		**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 (2016)

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

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

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

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

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

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

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

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

State	City	Tax Rate	Tax Bill	Rank	Change From '16	Lower Tax Rate on Personal Property
		Land and Building Value: $600,000				
Alabama	Birmingham	1.450%	9,135	29	-	
Alaska	Anchorage	1.398%	8,809	32	-	X
Arizona	Phoenix	1.343%	8,458	34	3 ↑	X
Arkansas	Little Rock	1.400%	8,820	31	1 ↓	
California	Los Angeles	1.193%	7,516	40	1 ↓	
Colorado	Denver	0.763%	4,807	50	1 ↑	
Connecticut	Bridgeport	3.806%	23,977	4	-	
DC	Washington	0.765%	4,820	49	1 ↑	X
Delaware	Wilmington	1.390%	8,755	33	-	X
Florida	Jacksonville	1.646%	10,368	24	1 ↓	X
Georgia	Atlanta	1.565%	9,860	26	2 ↓	
Hawaii	Honolulu	0.326%	2,051	53	-	X
Idaho	Boise	1.469%	9,258	28	-	X
Illinois	Aurora*	3.922%	24,708	3	-	X
Illinois	Chicago	1.244%	7,835	39	1 ↑	X
Indiana	Indianapolis	1.838%	11,581	20	-	X
Iowa	Des Moines	3.338%	21,027	5	-	X
Kansas	Wichita	1.305%	8,223	37	2 ↓	
Kentucky	Louisville	1.081%	6,811	43	2 ↓	X
Louisiana	New Orleans	1.490%	9,388	27	-	
Maine	Portland	2.041%	12,860	17	-	
Maryland	Baltimore	2.379%	14,991	14	1 ↑	
Massachusetts	Boston	0.958%	6,036	45	-	X
Michigan	Detroit	4.554%	28,689	2	-	X
Minnesota	Minneapolis	1.686%	10,622	22	-	X
Mississippi	Jackson	2.841%	17,900	8	3 ↑	
Missouri	Kansas City	1.440%	9,074	30	1 ↑	X
Montana	Billings	0.902%	5,680	46	1 ↑	X
Nebraska	Omaha	2.026%	12,766	18	-	X
Nevada	Las Vegas	1.104%	6,953	41	3 ↑	
New Hampshire	Manchester	2.150%	13,544	16	-	X
New Jersey	Newark	3.013%	18,980	6	-	X
New Mexico	Albuquerque	1.329%	8,374	35	1 ↓	
New York	Buffalo*	2.688%	16,935	10	-	X
New York	New York City	5.396%	33,998	1	-	X
AVERAGE		**1.834%**	**11,557**			**N = 30**

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State	City	Tax Rate	Tax Bill	Rank	Change From '16	Lower Tax Rate on Personal Property
		Land and Building Value: $600,000				
North Carolina	Charlotte	1.048%	6,602	44	1 ↓	
North Dakota	Fargo	1.095%	6,900	42	-	X
Ohio	Columbus	2.459%	15,489	12	7 ↑	X
Oklahoma	Oklahoma City	1.262%	7,949	38	-	
Oregon	Portland	2.424%	15,270	13	1 ↑	
Pennsylvania	Philadelphia	1.307%	8,232	36	-	X
Rhode Island	Providence	1.878%	11,828	19	2 ↑	
South Carolina	Charleston**	1.617%	10,190	25	18 ↓	
South Dakota	Sioux Falls	1.660%	10,457	23	3 ↑	X
Tennessee	Memphis	2.917%	18,380	7	1 ↑	X
Texas	Houston	2.348%	14,794	15	2 ↓	
Utah	Salt Lake City	0.722%	4,550	51	2 ↓	X
Vermont	Burlington	2.520%	15,873	11	1 ↑	X
Virginia	Virginia Beach	0.827%	5,208	48	-	
Washington	Seattle	0.841%	5,300	47	1 ↓	
West Virginia	Charleston	1.713%	10,791	21	4 ↑	X
Wisconsin	Milwaukee	2.745%	17,296	9	-	
Wyoming	Cheyenne	0.602%	3,794	52	-	
AVERAGE		**1.834%**	**11,557**			**N = 30**

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

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

State	City	Land and Building Value: $600,000				Lower Tax Rate on Personal Property
		Tax Rate	**Tax Bill**	**Rank**	**Change From '16**	
Arizona	Mesa	0.960%	6,048	44	1 ↑	X
Arizona	Phoenix	1.343%	8,458	25	5 ↑	X
Arizona	Tucson	1.325%	8,348	27	2 ↓	X
California	Fresno	1.247%	7,858	32	1 ↑	
California	Long Beach	1.218%	7,676	35	4 ↑	
California	Los Angeles	1.193%	7,516	36	2 ↓	
California	Oakland	1.349%	8,496	24	2 ↑	
California	Sacramento	1.137%	7,160	39	1 ↑	
California	San Diego	1.170%	7,369	38	2 ↓	
California	San Francisco	1.172%	7,385	37	2 ↓	
California	San Jose	1.317%	8,297	28	4 ↑	
Colorado	Colorado Springs	0.504%	3,176	50	-	
Colorado	Denver	0.763%	4,807	49	-	
DC	Washington	0.765%	4,820	48	-	X
Florida	Jacksonville	1.646%	10,368	19	-	X
Florida	Miami	1.823%	11,486	17	-	X
Georgia	Atlanta	1.565%	9,860	20	-	
Illinois	Chicago	1.244%	7,835	34	3 ↑	X
Indiana	Indianapolis	1.838%	11,581	16	-	X
Kansas	Wichita	1.305%	8,223	30	2 ↓	
Kentucky	Louisville	1.081%	6,811	41	3 ↓	X
Louisiana	New Orleans	1.490%	9,388	22	-	
Maryland	Baltimore	2.379%	14,991	11	1 ↑	
Massachusetts	Boston	0.958%	6,036	45	1 ↓	X
Michigan	Detroit	4.554%	28,689	2	-	X
Minnesota	Minneapolis	1.686%	10,622	18	-	X
Missouri	Kansas City	1.440%	9,074	23	1 ↑	X
Nebraska	Omaha	2.026%	12,766	15	1 ↓	X
Nevada	Las Vegas	1.104%	6,953	40	2 ↑	
New Mexico	Albuquerque	1.329%	8,374	26	1 ↑	
New York	New York City	5.396%	33,998	1	-	X
North Carolina	Charlotte	1.048%	6,602	42	1 ↓	
North Carolina	Raleigh	0.984%	6,198	43	-	
Ohio	Columbus	2.042%	12,866	14	1 ↑	X
Oklahoma	Oklahoma City	1.262%	7,949	31	-	
AVERAGE		**1.719%**	**10,833**			**N = 24**

State	City	Tax Rate	Tax Bill	Rank	Change From '16	Lower Tax Rate on Personal Property
			Land and Building Value: $600,000			
Oklahoma	Tulsa	1.501%	9,459	21	2 ↑	X
Oregon	Portland	2.424%	15,270	10	1 ↑	
Pennsylvania	Philadelphia	1.307%	8,232	29	-	X
Tennessee	Memphis	2.917%	18,380	4	1 ↓	X
Tennessee	Nashville	1.247%	7,856	33	12 ↓	X
Texas	Arlington	2.659%	16,754	8	-	X
Texas	Austin	2.249%	14,166	13	-	X
Texas	Dallas	2.572%	16,204	9	2 ↓	
Texas	El Paso	2.904%	18,295	5	4 ↑	
Texas	Fort Worth	2.923%	18,416	3	3 ↑	X
Texas	Houston	2.348%	14,794	12	2 ↓	
Texas	San Antonio	2.845%	17,925	6	1 ↓	X
Virginia	Virginia Beach	0.827%	5,208	47	-	
Washington	Seattle	0.841%	5,298	46	-	
Wisconsin	Milwaukee	2.745%	17,296	7	3 ↓	
AVERAGE		**1.719%**	**10,833**			**N = 24**

Property has an additional $30,000 worth of fixtures.

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

State	Municipality	Land and Building Value: $600,000				Lower Tax Rate on Personal Property
		Tax Rate	Tax Bill	Rank	Change From '16	
Alabama	Monroeville	0.820%	5,166	43	-	
Alaska	Ketchican	1.044%	6,579	35	2 ↑	X
Arizona	Safford	0.865%	5,448	41	1 ↑	X
Arkansas	Pocahontas	0.719%	4,531	45	-	
California	Yreka	1.057%	6,658	34	1 ↓	
Colorado	Walsenburg	0.672%	4,234	47	1 ↑	
Connecticut	Litchfield	2.007%	12,641	18	2 ↑	X
Delaware	Georgetown	0.592%	3,729	49	1 ↑	X
Florida	Moore Haven	2.163%	13,627	14	1 ↓	X
Georgia	Fitzgerald	1.802%	11,350	22	1 ↑	X
Hawaii	Kauai	0.576%	3,630	50	1 ↓	X
Idaho	St. Anthony	1.701%	10,717	25	2 ↑	X
Illinois	Galena	2.339%	14,736	10	1 ↑	X
Indiana	North Vernon	1.931%	12,168	20	2 ↑	X
Iowa	Hampton	3.223%	20,307	2	1 ↓	X
Kansas	Iola	2.220%	13,985	13	2 ↑	
Kentucky	Morehead	0.995%	6,266	38	3 ↑	X
Louisiana	Natchitoches	0.847%	5,334	42	4 ↓	
Maine	Rockland	2.228%	14,036	12	2 ↑	
Maryland	Denton	1.788%	11,265	23	1 ↑	
Massachusetts	Adams	2.015%	12,694	17	1 ↑	X
Michigan	Manistique	2.910%	18,332	3	-	
Minnesota	Glencoe	1.661%	10,464	26	5 ↓	X
Mississippi	Philadelphia	2.104%	13,256	16	-	
Missouri	Boonville	1.077%	6,784	32	2 ↑	X
Montana	Glasgow	1.010%	6,361	37	1 ↓	X
Nebraska	Sidney	2.161%	13,616	15	4 ↑	X
Nevada	Fallon	1.281%	8,070	27	1 ↑	
New Hampshire	Lancaster	2.589%	16,310	5	-	X
New Jersey	Maurice River Twp	2.487%	15,665	8	-	X
New Mexico	Santa Rosa	0.885%	5,573	40	1 ↓	
New York	Warsaw	3.299%	20,786	1	1 ↑	X
North Carolina	Edenton	1.113%	7,011	31	-	
North Dakota	Devils Lake	1.219%	7,677	28	2 ↓	X
Ohio	Bryan	1.774%	11,177	24	1 ↑	X
AVERAGE		**1.623%**	**10,224**			**N = 27**

| State | Municipality | Land and Building Value: $600,000 | | | | Lower Tax Rate on Personal Property |
		Tax Rate	Tax Bill	Rank	Change From '16	
Oklahoma	Mangum	0.887%	5,586	39	1 ↑	
Oregon	Tillamook	1.167%	7,349	30	-	
Pennsylvania	Ridgway	2.846%	17,928	4	-	X
Rhode Island	Hopkinton	1.977%	12,455	19	2 ↓	
South Carolina	Mullins	2.564%	16,152	7	-	
South Dakota	Vermillion	1.840%	11,593	21	9 ↓	X
Tennessee	Savannah	1.027%	6,469	36	1 ↓	X
Texas	Fort Stockton	2.585%	16,288	6	-	
Utah	Richfield	0.774%	4,879	44	-	X
Vermont	Hartford	2.334%	14,707	11	1 ↓	X
Virginia	Wise	0.646%	4,068	48	2 ↓	
Washington	Okanogan	1.196%	7,534	29	-	
West Virginia	Elkins	1.064%	6,706	33	1 ↓	
Wisconsin	Rice Lake	2.346%	14,780	9	-	
Wyoming	Worland	0.714%	4,500	46	1 ↑	
AVERAGE		**1.623%**	**10,224**			**N = 27**

Property has an additional $30,000 worth of fixtures.

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

City	State	Classification Ratio			Causes of Preferential Treatment of Homesteads			
		Rank	Ratio	Chg. from 2016	Assessment Ratio	Nominal Tax Rate	Exemptions & Credits	Sales Ratio*
Birmingham	Alabama	9	2.180	0.009	X		X	
Anchorage	Alaska	37	1.073	-0.003			X	
Phoenix	Arizona	14	1.996	-0.202	X	X		-
Little Rock	Arkansas	29	1.259	0.000			X	+
Los Angeles	California	42	1.012	-0.001			X	
Denver	Colorado	4	3.499	-0.118	X			-
Bridgeport	Connecticut	44	1.000	0.000				
Washington	DC	10	2.168	0.028		X	X	-
Wilmington	Delaware	53	0.879	-0.077				-
Jacksonville	Florida	25	1.363	-0.036			X	
Atlanta	Georgia	24	1.437	-0.023			X	
Honolulu	Hawaii	3	3.561	-0.015		X	X	-
Boise	Idaho	17	1.863	-0.059			X	-
Aurora	Illinois	34	1.096	-0.012			X	
Chicago	Illinois	6	2.766	-0.349	X		X	
Indianapolis	Indiana	7	2.353	-0.245			X	-
Des Moines	Iowa	22	1.590	0.018	X		-	+
Wichita	Kansas	8	2.205	0.006	X		X	-
Louisville	Kentucky	50	0.959	-0.006				-
New Orleans	Louisiana	13	2.037	-0.016	X		X	-
Portland	Maine	36	1.077	0.017			X	
Baltimore	Maryland	39	1.070	0.066				+
Boston	Massachusetts	1	4.237	0.469		X	X	-
Detroit	Michigan	30	1.193	0.105		X		-
Minneapolis	Minnesota	15	1.977	0.018	X	X	X	-
Jackson	Mississippi	19	1.827	0.007	X		X	
Kansas City	Missouri	18	1.847	-0.011	X	X		-
Billings	Montana	26	1.329	0.020	X			-
Omaha	Nebraska	41	1.022	-0.010			-	+
Las Vegas	Nevada	49	0.997	-0.006				-
Manchester	New Hampshire	43	1.000	0.000				
Newark	New Jersey	44	1.000	0.000				
Albuquerque	New Mexico	31	1.162	0.001		X	X	
Buffalo	New York	23	1.463	-0.050		X	X	
New York City	New York	2	3.968	-0.112	X	-	X	

City	State	Classification Ratio			Causes of Preferential Treatment of Homesteads			
		Rank	Ratio	Chg. from 2016	Assessment Ratio	Nominal Tax Rate	Exemptions & Credits	Sales Ratio*
Charlotte	North Carolina	44	1.000	0.000				
Fargo	North Dakota	35	1.087	-0.138	X			-
Columbus	Ohio	28	1.284	0.259		X	X	-
Oklahoma City	Oklahoma	40	1.063	-0.002			X	+
Portland	Oregon	44	1.000	0.000				
Philadelphia	Pennsylvania	11	2.141	-0.014		X	X	
Providence	Rhode Island	16	1.952	0.000		X		
Charleston*	South Carolina	5	3.101	NA	X		X	
Sioux Falls	South Dakota	32	1.126	-0.123		X		-
Memphis	Tennessee	21	1.600	0.000	X			
Houston	Texas	27	1.287	-0.010			X	-
Salt Lake City	Utah	20	1.753	-0.007			X	-
Burlington	Vermont	33	1.106	-0.113	X	-	X	-
Virginia Beach	Virginia	51	0.922	-0.143				-
Seattle	Washington	44	1.000	0.000				
Charleston	West Virginia	12	2.109	-0.034		X	X	+
Milwaukee	Wisconsin	38	1.071	0.004			X	
Cheyenne	Wyoming	52	0.916	-0.102				-
	TOTAL/AVERAGE		1.641	-0.031	16	14	30	6 (+), 24 (-)

* Charleston, SC is now the largest city in the state and replaces Columbia, SC.

*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

City	State	Classification Ratio			Causes of Preferential Treatment of Homesteads			
		Rank	Ratio	Chg. from 2016	Assessment Ratio	Nominal Tax Rate	Exemptions & Credits	Sales Ratio**
Birmingham	Alabama	5	2.180	0.009	X		X	
Anchorage	Alaska	29	1.073	-0.003			X	
Phoenix	Arizona	22	1.122	-0.013		X		
Little Rock	Arkansas	18	1.259	0.000			X	+
Los Angeles	California	37	1.012	-0.001			X	
Denver	Colorado	33	1.038	0.044				+
Bridgeport	Connecticut	40	1.000	0.000				
Washington	DC	24	1.117	0.014			X	-
Wilmington	Delaware	38	1.000	0.000				
Jacksonville	Florida	14	1.363	-0.036			X	
Atlanta	Georgia	13	1.437	-0.023			X	
Honolulu	Hawaii	23	1.118	-0.005			X	-
Boise	Idaho	7	1.863	-0.059			X	-
Aurora	Illinois	26	1.096	-0.012			X	
Chicago	Illinois	53	0.795	-0.032	-		X	
Indianapolis	Indiana	3	2.353	-0.245			X	-
Des Moines	Iowa	10	1.549	-0.091	X		X	-
Wichita	Kansas	35	1.025	0.001			X	
Louisville	Kentucky	50	0.959	-0.006				-
New Orleans	Louisiana	12	1.461	-0.011			X	
Portland	Maine	28	1.077	0.017			X	
Baltimore	Maryland	30	1.070	0.066				+
Boston	Massachusetts	6	1.954	0.246			X	
Detroit	Michigan	19	1.257	-0.004		X		
Minneapolis	Minnesota	15	1.310	-0.005	X		X	+
Jackson	Mississippi	8	1.827	0.007	X		X	
Kansas City	Missouri	38	1.000	0.000				
Billings	Montana	40	1.000	0.000				
Omaha	Nebraska	36	1.022	-0.010				+
Las Vegas	Nevada	48	0.966	-0.006				-
Manchester	New Hampshire	40	1.000	0.000				
Newark	New Jersey	40	1.000	0.000				
Albuquerque	New Mexico	34	1.034	0.000			X	
Buffalo	New York	11	1.463	-0.050		X	X	
New York City	New York	1	4.800	-0.175	X	-	X	

City	State	Rank	Ratio	Chg. from 2016	Assessment Ratio	Nominal Tax Rate	Exemptions & Credits	Sales Ratio**
Charlotte	North Carolina	47	1.000	0.000				
Fargo	North Dakota	27	1.087	-0.138	X		X	-
Columbus	Ohio	17	1.284	0.259		X	X	-
Oklahoma City	Oklahoma	32	1.061	-0.004			X	
Portland	Oregon	40	1.000	0.000				
Philadelphia	Pennsylvania	20	1.245	-0.009			X	
Providence	Rhode Island	40	1.000	0.000				
Charleston*	South Carolina	2	3.101	NA	X		X	
Sioux Falls	South Dakota	21	1.126	-0.123		X		-
Memphis	Tennessee	9	1.600	0.000	X			
Houston	Texas	16	1.303	-0.010			X	-
Salt Lake City	Utah	49	0.964	-0.004				-
Burlington	Vermont	25	1.115	-0.116	X	-	X	-
Virginia Beach	Virginia	52	0.875	-0.004				-
Seattle	Washington	40	1.000	0.000				
Charleston	West Virginia	4	2.255	0.147		X		+
Milwaukee	Wisconsin	31	1.069	0.004			X	
Cheyenne	Wyoming	51	0.920	-0.015				-
	TOTAL/AVERAGE		1.332	-0.019	9	6	30	6 (+), 15 (-)

* Charleston, SC is now the largest city in the state and replaces Columbia, SC.

**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	0.853	0.719	0.134	1,783	1,502	281	15.8%
Arizona	Phoenix	1.257	1.007	0.250	2,681	2,148	533	19.9%
Arizona	Tucson	1.230	1.219	0.011	1,771	1,755	16	0.9%
Arkansas	Little Rock	1.112	1.062	0.050	1,790	1,710	80	4.5%
California	Fresno	1.209	0.830	0.379	2,750	1,889	861	31.3%
California	Long Beach	1.202	0.744	0.458	6,237	3,862	2,375	38.1%
California	Los Angeles	1.179	0.664	0.515	6,997	3,943	3,054	43.6%
California	Oakland	1.334	0.755	0.579	8,667	4,902	3,765	43.4%
California	Sacramento	1.111	0.653	0.458	3,408	2,005	1,403	41.2%
California	San Diego	1.155	0.837	0.318	6,555	4,746	1,809	27.6%
California	San Francisco	1.164	0.646	0.518	11,922	6,612	5,310	44.5%
California	San Jose	1.306	0.823	0.483	10,471	6,599	3,872	37.0%
Florida	Jacksonville	1.258	0.829	0.429	1,984	1,308	676	34.1%
Florida	Miami	1.592	0.901	0.691	4,420	2,502	1,918	43.4%
Illinois	Chicago	1.642	1.542	0.100	4,004	3,760	244	6.1%
Michigan	Detroit	3.629	2.744	0.885	1,579	1,194	385	24.4%
New Mexico	Albuquerque	1.274	1.252	0.022	2,441	2,399	42	1.7%
New York	New York City*	1.181	0.546	0.635	6,726	3,109	3,617	53.8%
Oklahoma	Oklahoma City	1.175	1.135	0.040	1,845	1,782	63	3.4%
Oklahoma	Tulsa	1.403	1.372	0.031	1,825	1,785	40	2.2%
Oregon	Portland*	2.424	1.645	0.779	9,577	6,498	3,079	32.1%
South Carolina	Charleston	0.502	0.435	0.067	1,493	1,296	197	13.2%
Texas	Arlington	2.148	2.138	0.010	3,327	3,311	16	0.5%
Texas	Austin	1.898	1.898	0.000	5,855	5,855	0	0.0%
Texas	Dallas	2.028	2.018	0.010	3,186	3,170	16	0.5%
Texas	El Paso	2.603	2.603	0.000	3,261	3,261	0	0.0%
Texas	Fort Worth	2.259	2.248	0.011	3,411	3,394	17	0.5%
Texas	Houston	1.795	1.795	0.000	2,938	2,938	0	0.0%
Texas	San Antonio	2.389	2.389	0.000	3,198	3,198	0	0.0%
	AVERAGE	**1.562**	**1.291**	**0.271**	**4,348**	**3,187**	**1,161**	**19.4%**

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 (See Methodology section).

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