

An Examination of Sales Ratio Data and Sources Incorporated into the *50-State Property Tax Comparison Study*

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Abstract

The *50-State Property Tax Comparison Study*, jointly produced by the Minnesota Center for Fiscal Excellence (MCFE) and the Lincoln Institute of Land Policy, uses sales ratios to more accurately reflect how assessment error affects property tax bills across the nation. In practice, sales ratios are used in a variety of other ways by state and local governments. Although the standards of the IAAO (International Association of Assessing Officers) are likely present in all sales ratio studies, the publicly available data varies from raw data and in-depth reports on its uses, to single indicators that lack full description of the actual metric used. In a very few cases, it is unclear whether actual ratio studies are performed. In the context of the *50-State Property Tax Comparison Study*, we find that sales ratios produced across the U.S. at the state and local level vary significantly in specificity by property type and purpose.

About the Author

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Table of Contents

Introduction.....	1
Level of Government for Sales Ratio Data.....	3
Median vs. Mean Sales Ratio	4
Sales Ratios by Property Type.....	5
Number of Ratios Produced.....	6
Different Ways Jurisdictions Provide Two Real Property Ratios	7
Different Ways Jurisdictions Produce Three Real Property Ratios.....	7
Conclusion	8
Appendix.....	9
Sales Ratios from the 50-State Comparison	9
List of Ratios Used in the <i>50-State Study</i> by Number of Ratios and Source Jurisdiction .	12
Profiles for all 50 States and the District of Columbia	14

An Examination of Sales Ratio Data and Sources Incorporated into the *50-State Property Tax Comparison Study*

Introduction

As the largest source of revenue raised by local governments, a well-functioning property tax system is critical for promoting municipal fiscal health. The property tax is one of the largest taxes paid by American households and businesses and funds many essential public services, yet it is surprisingly difficult to get good data on property taxes that are comparable across cities. This statement applies even more particularly to one component of the property tax system: sales ratios.

The *50-State Study Property Tax Comparison Study*¹ provides the most meaningful data available to compare cities' property taxes by calculating the effective tax rate, which is a measure of the tax bill as a percent of a property's market value. The study calculates the effective tax rates with five key variables:

- **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 most often 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.

¹ <https://www.lincolnst.edu/publications/other/50-state-property-tax-comparison-study-2019>

This working paper focuses on the third key variable, sales ratios, which are used throughout the *50-State Study* in order to more closely reflect what a property owner actually pays in property taxes by checking how close assessments of market value are to true market value, as determined by actual arms-length sales of property. In general, use of sales ratios will incorporate how much a locale has under- or over-valued a type of property and will deliver a more accurate effective tax rate and tax bill for a property.

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 percent indicates that assessments are equal to market value. Sales ratios of less than 100 percent indicate that assessments are less than market value; sales ratios of over 100 percent 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 a \$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 percent, we convert the \$150,000 true market value to \$139,500 ($\$150,000 \times .93$) before applying the provisions of the local property tax. In this way, the study presents tax liabilities that represent the actual experience of property owners.

Sales ratio data is provided either at the city or county level, depending on the state. We use city-level data where appropriate; otherwise, we default to county or school district 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.

MCFE collects data on sales ratios largely from publicly available reports provided by state agencies. We do not conduct sales ratio studies ourselves. This working paper provides the data as we understand it for use in the *50-State Study* from online sources and from staff that we contact in several states. However, in-depth information on how ratios are produced and their primary purposes are often not clear or easily obtainable. As a result, some assumptions would only be verifiable by a more formal long-term approach, such as a nationwide survey. The one-page profiles in the appendix for each state are designed to help anyone find and identify publicly available data where it exists.

This working paper represents the cities, towns, counties, and school districts for which we already collect data, which represents 123 local governments across 50 states and the District of Columbia. In some states there can be significant variability in local assessment practices and the ratio data produced, so it should not be presumed that entire states are represented by these examples — although state laws and practices can certainly promote more or less uniformity.

Level of Government for Sales Ratio Data

The *50-State Study* includes the following jurisdictions:

- 50 largest cities in each state (excluding New York City and Chicago)
- 3 “city states” of Washington DC, New York City, and Chicago. In addition to Washington DC, which is its own jurisdiction, New York City and Chicago have property tax systems that are distinctly different from the states of New York and Illinois (most notably they both use different assessment ratios and have systems that limit market value). In the case of Chicago, it is really a “county state” since all of Cook County has a system that is distinct from the state of Illinois.
- 50 “rural” cities (one from each state)
- 20 additional cities that are in the top 50 most populous cities in the U.S. and are not included in the group for largest cities in each state.

Of the 123 cities throughout the 50 states, there are a few property tax systems that make sales ratios irrelevant due to equalization processes they employ and/or policies used to limit market value for tax purposes. This includes California (nine cities), Oklahoma (three cities), Oregon (two cities), South Carolina (two cities) and Wisconsin (two cities). In Wisconsin, for example, the Department of Revenue (DOR) uses ratio data and performs an annual equalization process by which local governments determine final tax bills. In this case, if assessment error from those sales ratio studies used by the Wisconsin DOR were applied to modify the effective tax rate in the *50-State Study*, we would essentially be counting an error that had already corrected the value on which the tax was based.

Eliminating those 18 cities brings the total number of cities to which sales ratios are applied in the *50-State Study* down to 105. Of these 105 cities, MCFE was able to get sufficient ratio data to apply sales ratios in 104 of them in the *50-State Study* for 2019.

Although sales ratios are applied to cities in the modeling for the *50-State Study*, the most common ratios available are county-wide ratios. In some cases, the type of property will also determine whether the available ratio is at the city or county level. For example, the rural city for Alabama in the *50-State Study* — Monroeville — provided a ratio for residential sales that was mainly for the city (the Monroeville Valuation District), but for commercial property the available ratio was for all of Monroe County. One reason this occurs, especially for rural cities, is that there simply haven’t been enough sales of some types of properties to produce a meaningful ratio at the city level — particularly on an annual basis.

Overall, in 2019 on a jurisdictional basis:

- 56 of the sales ratios provided were countywide;

- 39 of the sales ratios provided were city or township specific;² and
- 12 of the sales ratios provided were specific to school districts.

Percentages in the table below are based on 107 jurisdictions instead of 104, because three of the rural jurisdictions in the *50-State Study* provide some ratios by city/township and some ratios by county.³

	Largest City in Each State	Top 50 Cities	Rural Municipalities	All Cities
County	52%	50%	57%	52%
City or township	42%	29%	36%	36%
School districts	6%	21%	6%	11%
N	48	38	44	104

See table 1 in the appendix for how the ratios break down across the *50-State Study* based on available information. Some of the information included in the table — and the sections that follow — is information from various state and local sources but is not always data that MCFE has found on public websites or has incorporated into the *50-State Study*.

Median vs. Mean Sales Ratio

Sales ratio studies come in many different forms across the U.S. as far as the terminology and the granularity of the data. The two sales ratios that are most commonly produced are the “median” and the “weighted mean.” Those that use the weighted mean are often tied to equalization for education funding in some way under state law. MCFE prefers the median ratio, as it is best for the cleanest look at assessment error without distortions from outliers in the data. Many ratio studies employ methods to reduce the effect of outliers in the mean ratios, and MCFE uses these ratios when the median is not available.

	Largest City in Each State	Top 50 Cities	Rural Municipalities	All Cities
Median	65%	58%	66%	63%
Mean	21%	34%	18%	24%
Unidentified	15%	8%	16%	13%
N	48	38	44	104

² The township-specific ratios apply to just four jurisdictions and are unique to Indiana and Illinois (Indianapolis and North Vernon in Indiana; Aurora and Galena in Illinois).

³ The three jurisdictions that offer some ratios by city and some by county are Monroeville (AL), North Vernon (IN), and Glencoe (MN).

Sales Ratios by Property Type

Different states use a mélange of approaches to produce the sales ratio data collected for use in the *50-State Study*. Anywhere from one to four ratios are used depending on what is available by property type. These different approaches produce a total of 234 sales ratios that are used in the *50-State Study* for 2019 across 104 jurisdictions where sales ratios are applicable.

In all but one state, all the ratios are for real property. The exception is Texas, where all eight cities do provide a ratio for commercial personal property. Thirty-three states and the District of Columbia do tax some form of personal property, but MCFE only found eight of those that mention personal property as a consideration in online sales ratio materials. Texas is the only state where MCFE has found separate data reporting personal property sales ratios, so we include them in the study. The information for Arkansas notes that ratios for personal property are calculated and included in the real property ratios, which may indicate what is done in some other states.

The following breakdown for 2019 produces a glimpse of how often sales ratios impact the effective tax rates in the *50-State Study*.

From the initial number of 234 ratios for 104 cities, there were 10 jurisdictions that had no data for 14 different ratios. In these cases, MCFE assumes 100 percent. The group is almost entirely rural cities with the exception of New Orleans where the commercial/industrial ratio is performed once every four years. MCFE considers this too long of an interval to use the ratio every year. In 2019, this reduced the usable ratios from those 104 jurisdictions to 220 individual ratios. Finally, there were an additional four jurisdictions that reported ratios of 100 percent but did not state it as a lack of data. Two of those ratios were from jurisdictions with just one ratio, so the 2019 final result for sales ratio impact in the *50-State Study* was a total of 216 ratios that had an impact on effective tax rates in 102 jurisdictions.

How Sales Ratios Apply to the 50-State Property Tax Comparison Study for 2019		
	<u>Cities</u>	<u>Ratios</u>
Total number of cities/possible ratios	123	236
Cities where ratios do not apply	18	0
Cities with no response	1	2
Cities reporting ratios	104	234
Cities that reported no data for ratios	10	14
Cities that reported data for ratios	104	220
Cities that reported 100% ratios	4	4
Ratios that changed effective tax rates	102	216
Cities reporting personal property ratios (Texas)	8	8
Ratios that changed effective tax rates on real property	102	208

Some locations do provide other ratios that are not relevant to the study. Usually, but not always, these are further breakdowns of residential property where most sales occur, such as Colorado where separate ratios are produced for townhomes/row houses, duplexes/triplexes, and apartments with 4–8 units (the *50-State Study* includes large apartment properties, which is why they are often appropriately part of the commercial property ratio in some states).

In MCFE’s experience, there are some jurisdictions that are explicit about how the ratios are defined in terms of property type, and others where MCFE uses one ratio as a proxy for another (the usual occurrence is to use the commercial ratio for industrial property when there is no industrial ratio available).

It is important to state here that some rural cities in the study may simply not have any industrial properties or large apartment buildings in their jurisdiction, therefore they will not produce — or plan to produce — ratios for that type of property.

Some states (Ohio and Rhode Island in particular) have assessment cycles that take several years. The reports produced from those states are not timely enough to use the most recent data. In these cases, MCFE models the same points in the assessment cycle from historical data and creates an average of those data points to apply to the current year.

Number of Ratios Produced

The most common occurrence is when a jurisdiction produces one (unified) ratio, which occurs in 32 jurisdictions across 15 states. In these cases, sales for all property types are included in one ratio. Because of typical sales volumes, these ratios will be heavily weighted towards residential sales compared to any other property type, but they are still a valid indicator of assessment error overall.

The ideal for the *50-State Study*, however, is the other extreme, where a jurisdiction provides four separate real property sales ratios for: (1) residential; (2) commercial; (3) industrial; and (4) apartment property types at the city level. This is far less common and there are just 13 jurisdictions in eight states where all four ratios are potentially available if sales are sufficient. Only Minnesota (in part in 2019), New York City, and Vermont provide those ratios at the city level. The other 10 jurisdictions provide ratios on all four property types at the county level.

In a small number of other cases (see previous table), the state only reports sales ratio data for jurisdictions with a sufficient number of sales in the property class. For example, in Wyoming for 2019, Laramie County did not have enough industrial sales and Washakie County did not have enough industrial or apartment sales, so the *50-State Study* assumed a 100 percent sales ratio for taxes payable in 2019. In some cases, if there is a robust enough ratio from a recent prior year, MCFE will continue to use that ratio for 2–3 years as it is still a reasonable representation of assessment error in a reasonably close time frame. In the case of Iowa, Franklin County did not have enough industrial sales in 2019 and the commercial ratio was used for the Hampton industrial ratio.

Different Ways Jurisdictions Provide Two Real Property Ratios

In the *50-State Study*, two real property ratios are provided by 35 jurisdictions across 18 states and the District of Columbia.

For locations that provide two ratios, there are two main types: (1) Those that provide one ratio combining residential and apartment property, and another ratio combining commercial and industrial property; and (2) Those that provide one ratio for residential property and one ratio combining commercial, industrial, and apartment property. This may be dictated by how the properties are treated in the property tax system for that jurisdiction. For example, if apartment complexes are treated more like commercial than residential property in a given tax regime, it makes more sense that the ratio study looks at those two property types together.

Fourteen jurisdictions in seven states provide one ratio for residential/apartment property and one ratio for commercial/industrial property. Another 21 jurisdictions in 11 states (and the District of Columbia) provide one ratio for residential and one ratio for commercial/industrial/apartment property.

Different Ways Jurisdictions Produce Three Real Property Ratios

In the *50-State Study*, there are 24 jurisdictions in 10 states that provide three sales ratios.

The most common three-ratio arrangement is: (1) one ratio for residential; (2) one ratio for apartments; and (3) one ratio for commercial and industrial property. That accounts for 17 jurisdictions in six states.

In Texas, which accounts for eight of the jurisdictions, industrial ratios are not performed and MCFE applies the commercial ratio to industrial property in the *50-State Study*. In general, industrial property — particularly property that is high-value and for complex operations — is more difficult to assess than other major property types. MCFE errs on the side of using available information if it offers a general measure of assessment error, rather than assuming 100 percent in most cases.

Another three-ratio approach is to have (1) one ratio for residential and apartment; (2) a separate ratio for commercial; and (3) a separate ratio for industrial. This is provided in six jurisdictions in three states.

The final approach to using three ratios applies — which applies to just one jurisdiction — is: (1) one ratio for residential; (2) one ratio for industrial; and (3) one ratio for commercial and apartment property. This approach is unique to Indianapolis among cities in the *50-State Study*.

	Largest City in Each State	Top 50 Cities	Rural Municipalities	All Cities
Four ratios	8	3	5	13
Three ratios	10	14	8	24
<i>R, A, C/I</i>	<i>6</i>	<i>10</i>	<i>5</i>	<i>17</i>
<i>R/A, C, I</i>	<i>3</i>	<i>3</i>	<i>3</i>	<i>6</i>
<i>R, A/C, I</i>	<i>1</i>	<i>1</i>	<i>0</i>	<i>1</i>
Two ratios	16	11	17	35
<i>R/A, C/I</i>	<i>6</i>	<i>6</i>	<i>7</i>	<i>14</i>
<i>R, A/C/I</i>	<i>10</i>	<i>5</i>	<i>10</i>	<i>21</i>
One ratio	14	10	14	32
N	48	38	44	104

Note: The table uses the first letter of the four property classes: Residential (R), Apartments (A), Commercial (C), and Industrial (I). A slash (/) indicates when there is a single sales ratio used for multiple property classes (e.g. R/A, C/I means there is one ratio for residential/apartments and one ratio for commercial/industrial).

Conclusion

This paper describes the sales ratio data used to estimate effective tax rates in the annual *50-State Property Tax Comparison Study*. While we are able to obtain comparable sales ratio data for almost all cities in the *50-State Study*, there are some noteworthy differences across cities in how sales ratios are reported. It is also important to note that in some cases MCFE makes assumptions about how to use sales ratio data available in state sources without being able to verify our approach with local experts. There are some aspects of this working paper that would require a survey to verify, particularly details that are not critical to the *50-State Study*. The purpose of using sales ratios in the *50-State Study* is to have a reasonable indicator of assessment error — nothing more. Most ratios have a minor impact on the calculation of taxes paid, although at times major reassessments can make a significant difference in a given year if the reassessment changes the ratios significantly. MCFE did make initial determinations for the *50-State Study* in terms of which ratios to use for which property types — determinations that go back 20 years or more. Many have been re-verified over the years, but others are still somewhat lacking in specifics — most often in the rural cities included in the study. It is clear from this initial look at sales ratios that a much more detailed approach would be needed, with significant participation from state and local government staff in many states, in order to create a thoroughly consistent approach to the understanding and use of sales ratio data.

Appendix

Sales Ratios from the 50-State Comparison

TABLE 1: Sales Ratios Used in the 50-State Property Tax Comparison Study⁴

City	State	Jurisdiction	Metric	Website	# Ratios
Birmingham	Alabama	County	Median	No	4
Monroeville	Alabama	City/County	Median	No	2
Anchorage	Alaska	City	Weighted Mean	Yes	1
Ketchikan	Alaska	City	Weighted Mean	Yes	1
Mesa	Arizona	City	Median	No	2
Phoenix	Arizona	City	Median	No	2
Safford	Arizona	City	Median	No	2
Tucson	Arizona	City	Median	No	2
Little Rock ⁵	Arkansas	County	Median	Yes	2
Pocahontas	Arkansas	County	Median	Yes	2
Colorado Springs	Colorado	County	Median	Yes	2
Denver	Colorado	County	Median	Yes	3
Walsenburg	Colorado	County	Median	Yes	2
Bridgeport	Connecticut	City	Unknown	Yes	3
Litchfield	Connecticut	City	Unknown	Yes	3
Washington	District of Columbia	City	Median	Yes	2
Georgetown	Delaware	School District	Average	No	1
Wilmington	Delaware	School District	Average	No	2
Jacksonville	Florida	County	Adjusted Weighted Mean	Yes	1
Miami	Florida	County	Adjusted Weighted Mean	Yes	1
Moore Haven	Florida	County	Adjusted Weighted Mean	Yes	1
Atlanta	Georgia	School District	Weighted Mean	Yes	1
Fitzgerald	Georgia	School District	Weighted Mean	Yes	1
Honolulu	Hawaii	County	Median	No	4
Kauai	Hawaii	County	Median	No	4
Boise	Idaho	County	Median	Yes	2
Saint Anthony	Idaho	County	Median	Yes	2
Aurora	Illinois	Township	Median	Yes	1
Chicago	Illinois	County	Median	Yes	4
Galena	Illinois	Township	Median	Yes	1
Indianapolis	Indiana	Township	Median	Yes	3

⁴ There are five states where ratio studies are not used in the *50-State Study* due to market valuation and equalization procedures. These states are: California, Oklahoma, Oregon, South Carolina, and Wisconsin.

⁵ Arkansas incorporates ratios for business and non-business personal property (autos) into their ratio study.

North Vernon	Indiana	Township/County	Median	Yes	2
Des Moines	Iowa	County	Median	Yes	4
Hampton	Iowa	County	Median	Yes	4
Iola	Kansas	County	Median	Yes	2
Wichita	Kansas	County	Median	Yes	2
City	State	Jurisdiction	Metric	Website	# Ratios
Louisville	Kentucky	County	Median	No	2
Morehead	Kentucky	County	Median	No	2
Natchitoches	Louisiana	County (Parish)	Median	No	2
New Orleans	Louisiana	County (Parish)	Median	No	2
Portland	Maine	City	Average	Yes	1
Rockland	Maine	City	Unknown	Yes	1
Baltimore	Maryland	City	Median	Yes	2
Denton	Maryland	County	Median	Yes	2
Adams	Massachusetts	City	Average	Yes	3
Boston	Massachusetts	City	Average	Yes	3
Detroit	Michigan	City	Unknown	Yes	3
Manistique	Michigan	City	Unknown	Yes	3
Glencoe	Minnesota	City/County	Median	Yes	4
Minneapolis	Minnesota	City	Median	Yes	4
Jackson	Mississippi	County	Unknown	No	2
Boonville	Missouri	County	Median/Weighted Median	Yes	2
Kansas City	Missouri	County	Median/Weighted Median	Yes	2
Billings	Montana	City	Median	No	2
Glasgow	Montana	City	Median	No	2
Omaha	Nebraska	County	Unknown	Yes	2
Sidney	Nebraska	County	Unknown	Yes	2
Fallon	Nevada	County	Median	Yes	3
Las Vegas	Nevada	County	Median	Yes	3
Lancaster	New Hampshire	City	Median	Yes	1
Manchester	New Hampshire	City	Median	Yes	1
Maurice River	New Jersey	City	Unknown	Yes	1
Newark	New Jersey	City	Unknown	Yes	1
Albuquerque	New Mexico	County	Median	Yes	1
Santa Rosa	New Mexico	County	Median	Yes	1
Buffalo	New York	City	Unknown	Yes	1
New York City	New York	City	Weighted Mean	No	4
Warsaw	New York	City	Unknown	Yes	1
Charlotte	North Carolina	County	Median	Yes	1
Edenton	North Carolina	County	Median	Yes	1
Raleigh	North Carolina	County	Median	Yes	1

Devils Lake	North Dakota	City	Median	Yes	2
Fargo	North Dakota	City	Median	Yes	2
Bryan	Ohio	County	Median	Yes	3
Columbus	Ohio	County	Median	Yes	3
Columbus	Ohio	County	Median	Yes	4
City	State	Jurisdiction	Metric	Website	# Ratios
Philadelphia	Pennsylvania	County	Arithmetic Mean	Yes	1
Ridgway	Pennsylvania	County	Arithmetic Mean	Yes	1
Hopkinton	Rhode Island	City	Weighted Mean (Assumed)	Yes	1
Providence	Rhode Island	City	Weighted Mean (Assumed)	Yes	1
Sioux Falls	South Dakota	County	Median	Yes	2
Vermillion	South Dakota	County	Median	Yes	2
Memphis	Tennessee	County	Median	Yes	1
Nashville	Tennessee	County	Median	Yes	1
Savannah	Tennessee	County	Median	Yes	1
Arlington	Texas	School District	Weighted Mean	Yes	4
Austin	Texas	School District	Weighted Mean	Yes	4
Dallas	Texas	School District	Weighted Mean	Yes	4
El Paso	Texas	School District	Weighted Mean	Yes	4
Fort Stockton	Texas	School District	Weighted Mean	Yes	4
Fort Worth	Texas	School District	Weighted Mean	Yes	4
Houston	Texas	School District	Weighted Mean	Yes	4
San Antonio	Texas	School District	Weighted Mean	Yes	4
Richfield	Utah	County	Median	Yes	2
Salt Lake City	Utah	County	Median	Yes	2
Burlington	Vermont	City	Median	Yes	4
Hartford	Vermont	City	Median	Yes	4
Virginia Beach	Virginia	City	Median	Yes	3
Wise	Virginia	County	Median	Yes	3
Okanogan	Washington	County	Unknown	Yes	1
Seattle	Washington	County	Unknown	Yes	1
Charleston	West Virginia	County	Median	Yes	3
Elkins	West Virginia	County	Median	Yes	3
Cheyenne	Wyoming	County	Median	No	4
Worland	Wyoming	County	Median	No	4

List of Ratios Used in the 50-State Study by Number of Ratios and Source Jurisdiction

One (Unified) Real Property Sales Ratio

- Alaska (Anchorage; Ketchikan)
- Delaware (Indian River School District – Georgetown)
- Florida (Dade County – Miami; Duval County – Jacksonville; Glade County – Moore Haven)
- Georgia (Fulton School District – Atlanta; Ben Hill School District – Fitzgerald)
- Illinois (Aurora Township – Aurora; East Galena Township – Galena)
- Maine (Portland; Rockland)
- New Hampshire (Manchester; Lancaster)
- New Jersey (Newark; Maurice River Township)
- New Mexico (Bernalillo County – Albuquerque; Guadalupe County – Santa Rosa)
- New York (Buffalo; Warsaw)
- North Carolina (Mecklenburg County – Charlotte; Wake County – Raleigh; Chowan County – Edenton)
- Pennsylvania (Philadelphia County – Philadelphia; Elk County – Ridgway)
- Rhode Island (Providence; Hopkinton)
- Tennessee (Davidson County – Nashville; Shelby County – Memphis; Hardin County – Savannah)
- Washington (King County – Seattle; Okanogan County – Okanogan)

Two Real Property Sales Ratios

(1) one ratio for residential/apartment property; and (2) one ratio for commercial/industrial property:

- Alabama (Monroeville)
- Arizona (Mesa; Phoenix; Safford; Tucson)
- Delaware (Christina School District – Wilmington)
- Kansas (Sedgwick County – Wichita; Allen County – Iola)
- Louisiana (Orleans Parish – New Orleans; Natchitoches Parish – Natchitoches)
- Missouri (Jackson County – Kansas City; Cooper County – Boonville)
- Montana (Billings; Glasgow)

(1) one ratio for residential; and (2) one ratio for commercial/industrial/apartment property:

- Arkansas (Pulaski County – Little Rock; Randolph County – Pocahontas)
- Colorado (El Paso County – Colorado Springs; Huerfano County – Walsenburg)
- Washington D.C.
- Idaho (Ada County – Boise; Fremont County – Saint Anthony)
- Indiana (Center Township – North Vernon residential; Jennings County – North Vernon other than residential)
- Kentucky (Jefferson County – Louisville; Rowan County – Morehead)
- Maryland (Baltimore; Caroline County – Denton)
- Mississippi (Hinds County – Jackson)

- Nebraska (Douglas County – Omaha; Cheyenne County – Sidney)
- North Dakota (Fargo; Devils Lake)
- South Dakota (Minnehaha County – Sioux Falls; Clay County – Vermillion)
- Utah (Salt Lake County – Salt Lake City; Sevier County – Richfield)

Three Real Property Sales Ratios

(1) one ratio for residential; (2) one ratio for apartments; and (3) one ratio for commercial and industrial property:

- Colorado (Denver County – Denver)
- Connecticut (Bridgeport; Litchfield)
- Nevada (Clark County – Las Vegas; Churchill County – Fallon)
- Texas (Arlington ISD; Austin ISD; Dallas ISD; El Paso ISD; Fort Stockton ISD; Fort Worth ISD; Houston ISD; San Antonio ISD)
- Virginia (Virginia Beach; Wise County – Wise)
- West Virginia (Kanawha County – Charleston; Randolph County – Elkins)

(1) one ratio for residential and apartment; (2) a separate ratio for commercial; and (3) a separate ratio for industrial:

- Massachusetts (Boston; Adams)
- Michigan (Detroit; Manistique)
- Ohio (Franklin County – Columbus; Williams County – Bryan)

(1) one ratio for residential; (2) one ratio for industrial; and (3) one ratio for commercial and apartment property:

- Indiana (Center Township – Indianapolis)

Four Real Property Sales Ratios

- Alabama (Jefferson County – Birmingham)
- Hawaii (Honolulu County; Kauai County)
- Illinois (Cook County – Chicago)
- Iowa (Polk County – Des Moines; Franklin County – Hampton)
- Minnesota (Minneapolis; Glencoe; McLeod County – Glencoe other than residential)
- New York (New York City)
- Vermont (Burlington; Hartford)
- Wyoming (Laramie County – Cheyenne; Washakie County – Worland)

Profiles for all 50 States and the District of Columbia

ALABAMA SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Birmingham (Jefferson County)
- Monroeville (Monroe County)

SOURCE:

- Alabama Department of Revenue
 - Property Tax Division

DOCUMENT:

- MCFE form completed by Alabama Department of Revenue staff

DESCRIPTION:

- Median Sales Ratio

SPECIFIC METRIC:

- Median Sales Ratio

LINKS:

- None

ADDITIONAL NOTES:

- For Birmingham, ratios provided by the Alabama Department of Revenue are for all of Jefferson County.
- For Monroeville, Alabama Department of Revenue has data for the Monroeville valuation zone and Monroe County, however sales were only sufficient enough for ratios to be calculated on single-family homes in Monroeville, therefore ratios on commercial property are for Monroe County. No separate ratios for industrial and apartments probably from lack of sales, as there were only two commercial sales in Monroe County during the ratio study period. In the *50-State Study*, MCFE used the commercial ratio for industrial property and assumed a 100 percent ratio for apartment property since there was no data.
- A 2014 report lays out the *Alabama Tax Plan for Equalization* and states that the annual equalization sales ratio study must meet a median value of appraised value to sales price in each valuation zone between 98 percent and 102 percent and a coefficient of dispersion (COD) not greater than 20 percent overall. The plan also requires a base year test ratio study that requires a county-wide median ratio of appraised value to sales price between 85 percent and 105 percent. If the base-year thresholds are not met, the county will be required to re-establish the county land schedule and cost index effective the following October 1st.

ALASKA SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Anchorage (Municipality of Anchorage)
- Ketchikan (Ketchikan Gateway Borough)

SOURCE:

- State of Alaska
 - Department of Commerce, Community, and Economic Development
 - Division of Community and Regional Affairs

DOCUMENT:

- Alaska Taxable 2019 Full Report, p. 30 (table 4A)

DESCRIPTION:

- Local Assessments vs. Full Values Real Property (table 4A)

SPECIFIC METRIC:

- Weighted Mean Ratio (assumed based on report text)

LINKS:

- <https://www.commerce.alaska.gov/web/dcra/OfficeoftheStateAssessor/AlaskaTaxable-New.aspx>
- Specific Report Link (will change year to year):
<https://www.commerce.alaska.gov/web/Portals/4/pub/OSA/Official%202019%20Alaska%20Taxable.pdf>

ADDITIONAL NOTES:

- Alaska reports one unified sales ratio for all property types by city. The ratio is the relationship between the actual municipal assessed values and the Department's full value determination, expressed as a percentage. This ratio is calculated using both the municipal assessment ratio plus the addition of optionally exempted property. Alaska also provides ratios for personal property (table 4B) and for personal and real property combined (table 4C). The *50-State Study* does not incorporate personal property ratios. The discussion in the *Alaska Taxable 2019 Report* states that Alaska uses the ratios for “full-value determination” and states that, “Typically, the weighted mean ratio is used to determine full value . . .” without explicitly stating whether or not they are using the weighted mean for the percentage, which they report simply as the “ratio.”

ARIZONA SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Mesa (Maricopa County)
- Phoenix (Maricopa County)
- Safford (Graham County)
- Tucson (Pima County)

SOURCE:

- Arizona Tax Research Association

DOCUMENT:

- MCFE form completed by Arizona Tax Research Association staff

DESCRIPTION:

- Median Sales Ratio

SPECIFIC METRIC:

- Median Sales Ratio

LINKS:

- None

ADDITIONAL NOTES:

- Arizona provides ratios by city: one ratio for residential and apartment property, and one ratio for commercial and industrial property. Arizona also has assessment ratios that are applied to property tax rates by the state that differ based on property type. Assessment ratios are also applied to personal property (fixtures and machinery & equipment).

ARKANSAS SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Little Rock (Pulaski County)
- Pocahontas (Randolph County)

SOURCE:

- Arkansas Department of Finance and Administration
 - Assessment Coordination Division

DOCUMENT:

- Ratio Study Summary Report 2019

DESCRIPTION:

- Median Sales Ratio

SPECIFIC METRIC:

- Median Sales Ratio

LINKS:

- <https://www.arkansasassessment.com/county-officials/ratio-studies/>

ADDITIONAL NOTES:

- Reassessment in Arkansas is by county and happens every 3–5 years depending on the growth rate of the county. The county-wide ratios are calculated for residential and commercial properties. Since no independent ratios are calculated for industrial or apartments, the commercial ratio is used for industrial property and the residential ratio is used for apartment property. Pulaski County's last reassessment was 2017 and Randolph County's last reassessment was 2018. MCFE considers this cycle timely enough to use the latest ratio available.
- Arkansas has a 20 percent assessment level and the median ratio is used to determine compliance with the state standard that requires assessed values to fall between 18 percent and 22 percent of sales (90 percent–110 percent).

CALIFORNIA SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Fresno (Fresno County)
- Long Beach (Los Angeles County)
- Los Angeles (Los Angeles County)
- Oakland (Alameda County)
- Sacramento (Sacramento County)
- San Diego (San Diego County)
- San Francisco (San Francisco County)
- San Jose (Santa Clara County)
- Yreka (Siskiyou County)

SOURCES:

- None

DOCUMENT:

- None

DESCRIPTION:

- None

SPECIFIC METRIC:

- None

LINKS:

- None

ADDITIONAL NOTES:

- All sales ratios are 100 percent for California since reassessment occurs when properties are sold due to Proposition 13 and the structure of the assessment limits that were produced.

COLORADO SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Colorado Springs (El Paso County)
- Denver (Denver County)
- Walsenburg (Huerfano County)

SOURCES:

- Colorado Department of Local Affairs
 - State Board of Equalization (SBOE)

DOCUMENTS:

- 2019 Denver County Property Assessment Study
- 2019 El Paso County Property Assessment Study
- 2019 Huerfano County Property Assessment Study

DESCRIPTIONS:

Denver County:

- Single Family Ratio Statistics for CURRTOT / TASP (p. 24)
- Multi-Fam Units 9 and Up Ratio Statistics for CURRTOT / TASP (p. 25)
- Commercial/Industrial Sale Results (p. 33)

El Paso County:

- Residential Sales Results (p. 25)
- Commercial/Industrial Sale Results (p. 34)

Huerfano County

- Residential Sales Results (p. 25)
- Commercial/Industrial Sale Results (p. 29)

SPECIFIC METRIC:

- Median

LINKS:

- <https://cdola.colorado.gov/assessment-audit>

ADDITIONAL NOTES:

- Follow link and choose the drop-down arrow from “Audit Reports” which will reveal “Auditor’s Property Assessment Study Reports” followed by reports by county.
- All ratios are countywide.
- Denver County combines commercial and industrial sales and provides additional ratios that are beyond the scope of the *50-State Study* for:
 - Rowhouse/Town Home property
 - Duplex/Triplex property

- Multi-Fam Units 4–8
- El Paso and Huerfano counties also combine commercial and industrial sales and combine all residential into one ratio.
- Huerfano County did not have enough qualified commercial/industrial sales for a pay 2019 ratio, so 100 percent was used in the *50-State Study*.

CONNECTICUT SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Bridgeport (Fairfield County)
- Litchfield (Litchfield County)

SOURCES:

- State of Connecticut
 - Office of Policy and Management

DOCUMENT:

- 2018 Equalized Net Grand List by Town

DESCRIPTION:

- Excel Document

SPECIFIC METRIC:

- Residential Ratio
- Apartments Ratio
- CIP Ratio

LINKS:

- <https://portal.ct.gov/OPM/IGPP-MAIN/Publications/Equalized-Net-Grand-List-By-Town>

ADDITIONAL NOTES:

- 2018 is the closest year for pay 2020 taxes and are provided by city. Commercial and industrial ratios are combined in the CIP ratio.
- There is no report narrative online, so it is unclear whether the ratios are median, weighted mean averages, or something else, but they are likely to be median sales ratios.

DELAWARE SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Wilmington (New Castle County, Christina School District)
- Georgetown (Sussex County, Indian River School District)

SOURCES:

- University of Delaware
 - Center for Applied Demography & Survey Research

DOCUMENT:

- Assessment-To-Sales Ratio Study for Division III Equalization Funding 2019 Project Summary

DESCRIPTION:

- Assessment to Sales Ratios by Type of Property and School District (September 2018)

SPECIFIC METRIC:

- Average Assessed-to-Sales Ratio

LINKS:

- None for the Pay 2019 version of the *50-State Study*, however older data can be found in the notes below and the ratios are three-year averages that include all property types in a unified ratio.

ADDITIONAL NOTES:

- In order to get the most recent data, the ratios in the *50-State Study* for Pay 2019 are from sales from January 1, 2018 to June 30, 2019 that are provided by the University of Delaware: one ratio for business and one for residential. The ratio is considered the September 2018 ratio since that is the midpoint of the sales period.
- Delaware uses sales ratios as part of determining equalized school funding across the state, therefore the ratios apply to school district boundaries. The University of Delaware provides the Office of Management and Budget a ratio study to be used by the State of Delaware Equalization Committee. There is a significant lag in the unified ratio that is prepared for that purpose. For FY 2020 budget deliberations (March 2019), the Equalization Committee used a unified ratio for all property types in the Christina School District (Wilmington) that was the 2014–2016 three-year average. FY 2021 budget deliberations (March 2020) used the 2015–2017 average. It can be found through general searching but could not be found on the Office of Management and Budget website.
- <https://delawaregov-search.clients.us.funnelback.com/s/redirect?collection=delaware-meta&url=https%3A%2F%2Fwww.doe.k12.de.us%2Fsite%2Fhandlers%2Ffiledownload.ashx%3Fmoduleinstanceid%3D9243%26dataid%3D24259%26FileName%3DFY21%2520Equalization%2520Report.pdf&auth=8J14o1%2F0OunMiN%2BEo%2BoIQg&profile=alpha&rank=3&query=Sales+Ratios+Equalization+Committee>

DISTRICT OF COLUMBIA SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Washington

SOURCES:

- Chief Financial Officer's Office
 - Office of Tax and Revenue
 - Real Property Tax Administration

DOCUMENT:

- 2020 Assessment Ratio Report

DESCRIPTION:

- Table 7: Summary of Sales Ratio Statistics FY 2020 (p. 16)

SPECIFIC METRIC:

- Median Ratio

LINKS:

- <https://otr.cfo.dc.gov/node/432852>

ADDITIONAL NOTES:

- Two ratios are provided: commercial and residential.

FLORIDA SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Jacksonville (Duval County)
- Miami (Dade County)
- Moore Haven (Glades County)

SOURCES:

- Florida Department of Revenue
 - Property Tax Oversight
 - Florida Property Tax Data Portal

DOCUMENT:

- 2018 Overall Level of Assessment (LOA)

DESCRIPTION:

- Certified Level of Assessment (LOA) for each county resulting from the annual sales ratio study

SPECIFIC METRIC:

- County Overall Value Weighted Mean LOA

LINKS:

- <https://floridarevenue.com/property/Pages/DataPortal.aspx>

ADDITIONAL NOTES:

- Florida provides one unified ratio for all property types by county. The process does include separating property types by stratum, but the reporting does not produce separate ratios for different property types. Every county is subject to an “in-depth” study at least once every two years which produces a median level of assessment, however counties that do not receive the in-depth study report overall levels of assessment that are the weighted mean (average) of all strata. After basing the strata on parcel counts since 2013, Florida is returning to a system based on value in 2020 as the parcel count approach was creating some unanticipated distortions.

GEORGIA SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Atlanta (Fulton County, Fulton School District)
- Fitzgerald (Ben Hill County, Ben Hill School District)

SOURCES:

- Georgia Department of Audits and Accounts
 - Sales Ratio Division

DOCUMENT:

- 2018 Sales Ratio Study

DESCRIPTION:

- State-Wide Equalized 100 percent Adjusted Property Tax Digest Report

SPECIFIC METRIC:

- Overall Ratio (Weighted Mean)

LINKS:

- <http://www.audits.ga.gov/SalesRatio/salesRatioDivision.html>

ADDITIONAL NOTES:

- Georgia provides one unified sales ratio (equalized adjusted) for all property types based on school district boundaries, which have the same names and boundaries as counties in Georgia.

HAWAII SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Honolulu (Honolulu County)
- Kauai (Kauai County)

SOURCES:

- Honolulu Department of Budget and Fiscal Services
- Kauai County Assessor's Office

DOCUMENT:

- None

DESCRIPTION:

- 2018–2019 Data Provided in Email (Honolulu County)
- 10/1/2018 Data Pull (Kauai County)

SPECIFIC METRIC:

- Real Property Median Sales Ratio (Honolulu)
- Median Assessment Ratio (Kauai)

LINKS:

- None

ADDITIONAL NOTES:

- Data from Hawaii provides ratios for all four property types by county in the *50-State Study*: owner-occupied residential, commercial, industrial, and apartment.

IDAHO SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Boise (Ada County)
- Saint Anthony (Fremont County)

SOURCES:

- Idaho State Tax Commission

DOCUMENT:

- Memorandum to users of Idaho Ratio Study information

DESCRIPTION:

- Improved Residential
- Improved Commercial

SPECIFIC METRIC:

- Median Sales Ratio

LINKS:

- <https://tax.idaho.gov/search-reports.cfm?ch=EPB00660>

ADDITIONAL NOTES:

- Idaho produces annual sales ratio studies by county for vacant and improved property in three categories: residential, commercial, and manufactured housing. In the *50-State Study*, the commercial ratio is used for industrial property and apartments over four units.

ILLINOIS SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Aurora (Kane County, Aurora Township)
- Chicago (Cook County)
- Galena (Jo Daviess County, East Galena Township)

SOURCES:

- Kane County Assessment Office
- Illinois Department of Revenue
- Jo Daviess County Assessment Office

DOCUMENTS:

- Equalization Factor Section on Website for Kane County Assessment Office
- Illinois Department of Revenue Press Release for Cook County
- Jo Daviess Assessment Office Annual Report

DESCRIPTIONS:

- Equalization Factor (Kane County)
- Final Multiplier (Cook County)
- Sales Ratio Study/ Township Equalization Factors (Jo Daviess County)

SPECIFIC METRICS:

- S/A (Sales to Assessment) – Kane County
- Levels of Assessment – Cook County
- Median Ratio/Equalization Factor – Jo Daviess County

LINKS:

- <http://www.kanecountyassessments.org/Equal.html>
- <https://www2.illinois.gov/rev/research/news/pages/default.aspx>
- https://www.jodaviess.org/index.asp?Type=B_BASIC&SEC={83209DC8-EE69-4513-8DCC-12A61725FD98}

ADDITIONAL NOTES:

- Illinois has a system that produces a “multiplier” each year that is based on the average of the last three years of ratio studies. The “adjusted median” is used for the multiplier; MCFE uses the non-adjusted median for the *50-State Study*.
- Kane County provides one “multiplier” for Aurora Township for all property types. The sales ratio studies determine how close sales are to assessments based on the 33 1/3 percent statewide assessment level. The multiplier is then based on the three-year average.
- Cook County (including Chicago) does not adhere to the 33 1/3 percent state assessment level but does provide assessment levels from sales ratio studies annually for all four property types in the *50-State Study*. The three-year average of these ratios is then used by the state to create a multiplier for Cook County each year.

- Jo Daviess County provides a single median ratio for all property types in East Galena Township, which is then averaged to create the equalization factor.

INDIANA SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Indianapolis (Marion County, Center Township)
- North Vernon (Jennings County, Center Township)

SOURCES:

- Indiana Department of Local Government Finance

DOCUMENTS:

- Raw and summary data by county and township

DESCRIPTIONS:

- 2020 Ratio Study

SPECIFIC METRICS:

- Residential Improved Median
- Commercial Improved Median
- Industrial Improved Median

LINKS:

- <https://www.in.gov/dlgf/2339.htm>

ADDITIONAL NOTES:

- To access county-wide ratio studies, you must use the above link and go to the county you want to access. You must scroll down to the bottom of the page to get to the ratio studies. Do not go to the individual county websites (which are at the top of the page). Stay on the state website.
- For Indianapolis, choose the Marion County link and go to *2020 Ratio Study Part 2* to get commercial and industrial ratios by township. Like Illinois, Indiana has townships within large cities and MCFE uses Center Township for Indianapolis to get more accurate ratios for Indianapolis than all of Marion County would provide. Commercial ratios also include apartments and are represented by property class numbers in the 400s. Industrial ratios are represented by property class numbers in the 300s. In order to get residential ratios, you must go to *2020 Ratio Study Part 1A*. This is 350 pages of data and includes a summary in the middle (page 150 this year) which has the same commercial and industrial ratios summarized but breaks Center Township into four quadrants. In order to get an aggregate ratio for all of Center Township, there is a summary that is duplicated on pages 347 and 350 this year. Residential ratios are represented by property class numbers in the 500s.
- For North Vernon, choose Jennings County, scroll down and choose *2020 Ratio Study*. The first page is a summary of county-wide and township ratios. Most of North Vernon is in Center Township, so choose the residential improved median ratio at the township level. This year, there were not enough commercial sales for a township-level ratio, so in that case use the ratio for Jennings County which also includes apartments. There were

not enough industrial sales in the 2020 ratio study — even countywide — so MCFE will use the commercial ratio for industrial in the *50-State Study* for pay 2020.

IOWA SALES RATIO PROFILE (Pay 2019—2020)

LOCATIONS:

- Des Moines (Polk County)
- Hampton (Franklin County)

SOURCES:

- Polk County Assessor
- Iowa Department of Revenue

DOCUMENTS:

- Summary of Real Estate Assessment 2018: Sales Ratio Study
- Polk County Assessor Rollback 2019

DESCRIPTIONS:

- Assessment Level
- Sales Ratio Median

SPECIFIC METRICS:

- Commercial Rollback Rate and Median Ratio
- Commercial Multiple Rollback Rate and Median Ratio
- Industrial Rollback Rate and Median Ratio
- Residential Rollback Rate and Median Ratio

LINKS:

- <http://web.assess.co.polk.ia.us/cgi-bin/web/tt/query.cgi?tt=taxes/rollback>
- <https://tax.iowa.gov/reports>

ADDITIONAL NOTES:

- Like Illinois, Iowa has assessment levels that fluctuate (referred to as the rollback) as well as sales ratios that must be calculated to determine an accurate tax bill.
- For “rollback” assessment levels, the Polk County Assessor link has the 2019 ratios (for taxes payable in 2020). Apartments are described as “Commercial Multiple” and there are rollback rates for all four property types in the *50-State Study*.
- The Iowa state link is to the reports page of the Iowa Department of Revenue where you must use the search function by entering the following in the three fields:
 - 1) the year from the title (2018) as the 2019 report is not yet available
 - 2) for the category, do not choose a specific one, choose “any”
 - 3) for the third field, enter “sales ratio”
- If there is a report for the year you are searching, it will be titled “Summary of Real Estate Assessment.” The report provides sales ratios for all four property types at the county level. If there are not enough sales, the county will not appear in the list. Franklin County did not have a sales ratio for industrial property in 2018, so MCFE used the commercial ratio in the *50-State Study* for pay 2019.

KANSAS SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Wichita (Sedgwick County)
- Iola (Allen County)

SOURCES:

- Kansas Department of Revenue
 - Division of Property Valuation

DOCUMENTS:

- 2018 Kansas Real Estate Ratio Study

DESCRIPTIONS:

- Median Ratio

SPECIFIC METRICS:

- Residential Median Ratio
- Commercial/Ind. Median Ratio

LINKS:

- <https://www.ksrevenue.org/pvdratiostats.html>

ADDITIONAL NOTES:

- Kansas provides county-wide ratios for Sedgwick and Allen counties for two property types: commercial/industrial and residential, which includes apartments.

KENTUCKY SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Louisville (Jefferson County)
- Morehead (Rowan County)

SOURCES:

- Kentucky Department of Revenue
 - Office of Valuation
 - Division of Local Valuation

DOCUMENTS:

- None

DESCRIPTIONS:

- MCFE Form Completed by Compliance Staff in the Division of Local Valuation

SPECIFIC METRICS:

- Median Sales Ratio

LINKS:

- None

ADDITIONAL NOTES:

- Kentucky staff provide county-wide median sales ratios for residential, commercial and farm property. MCFE uses the commercial ratio for industrial and apartment property.

LOUISIANA SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- New Orleans (Orleans Parish)
- Natchitoches (Natchitoches Parish)

SOURCES:

- Louisiana Tax Commission
 - Appraisal Division

DOCUMENTS:

- 2018 Ratio Study Report to the Louisiana Tax Commission

DESCRIPTIONS:

- 2018 Residential Ratio Study Results (table on page 5)

SPECIFIC METRICS:

- Median

LINKS:

- None

ADDITIONAL NOTES:

- Louisiana produces an internal study that MCFE requests from Appraisal Division staff. The ratios are provided by parish, which is most similar to county government. There has been a three-year rotation that determines what is included in each year's study, however in 2017 and 2018 both studies are described as "whole property residential sales only," so they include the land and improvement value for homes and apartments. The 2016 study produced ratios for the land value portion of Louisiana property. The land value ratio study is performed every four years and MCFE uses that ratio for part of its formula in the intervening years. The 2019 study will be of commercial values, which is also not done annually and must be used in intervening years until a new study is completed unless it is determined that the interval is too long and there is too much volatility from study to study. In that case some kind of averaging might be in order for commercial property.

MAINE SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Portland
- Rockland

SOURCES:

- City of Portland Assessor
- City of Rockland Assessing Department

DOCUMENTS:

- Website Pages

DESCRIPTIONS:

- Fiscal Year 2020 Tax Information
- Current Year Rockland Tax Information

SPECIFIC METRICS:

- Portland — Ratio Between Assessed Value and Market Value
- Rockland — Certified Ratio

LINKS:

- <http://www.portlandmaine.gov/139/Assessors-Notice>
- <https://rocklandmaine.gov/municipal/departments/assessing/>

ADDITIONAL NOTES:

- Maine cities of Portland and Rockland provide one ratio for all property types. It is unclear whether this ratio is median or “average” as is referenced in a Portland reassessment document. Portland is undergoing a major reassessment (the first since 2005) as they did not exceed the required state assessment ratio threshold of 70 percent. Rockland is undergoing a “statistical update” and has reported its “certified ratio” at 100 percent in the last two years of the *50-State Study*, so it is unclear what that ratio is based on. The Maine Constitution requires a “general valuation” every 10 years.

MARYLAND SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Baltimore (Independent City)
- Denton (Caroline County)

SOURCES:

- Maryland Department of Assessments and Taxation

DOCUMENTS:

- 2019 Ratio Report

DESCRIPTIONS:

- Table IV: Residential Ratio Study
- Table V: Commercial Ratio Study

SPECIFIC METRICS:

- Median Ratio

LINKS:

- <https://dat.maryland.gov/Pages/Ratio-Report.aspx>

ADDITIONAL NOTES:

- Maryland provides two ratios, one for residential and one for commercial. MCFE uses the commercial ratio for industrial property and apartments. For Denton, it is the county-wide ratio for Caroline County. For Baltimore, there is a separate ratio for “Baltimore City,” which is not a part of Baltimore County. Baltimore City is an independent city and is not part of any county.

MASSACHUSETTS SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- City of Boston
- Town of Adams

SOURCE:

- Massachusetts Department of Revenue
 - Division of Local Services

DOCUMENT:

- Webpage: Division of Local Services Gateway

DESCRIPTION:

- LA-19 Equalized Valuation Report

SPECIFIC METRIC:

- Assessment Ratio

LINKS:

- <https://dlsgateway.dor.state.ma.us/gateway/DLSPublic/LA19>

ADDITIONAL NOTES:

- Once on the webpage, you must choose the city or town you want from a drop-down menu.
- Massachusetts produces final assessment ratios to determine fiscal-year equalized valuations every two years, therefore in the *50-State Study* for Pay 2019, MCFE used the “final” Fiscal Year 2018 assessment ratios. For Pay 2020, MCFE will use the “proposed” or “revised” Fiscal Year 2020 ratios if “final” Fiscal Year 2020 ratios are not yet available.
- Ratios are provided for residential, commercial and industrial property. The residential ratio is used for apartments.
- The county governments for Boston (Suffolk) and Adams (Berkshire) were abolished in 1999 and 2000.

MICHIGAN SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Detroit (Wayne County)
- Manistique (Schoolcraft County)

SOURCE:

- Michigan Department of Treasury

DOCUMENT:

- Webpage: Michigan Department of Treasury State Equalization e-filing System

DESCRIPTION:

- L-4023 Analysis for Equalized Valuation

SPECIFIC METRIC:

- % Ratio

LINKS:

- https://www.michigan.gov/taxes/0,4676,7-238-43535_43925---,00.html
- <https://eequal.bsasoftware.com/Login.aspx>

ADDITIONAL NOTES:

- Michigan Treasury provides residential, commercial and industrial ratios. MCFE uses the residential ratio for apartment property.
- Must use guest log-in on log-in page
- Choose “Review Reports” on the left side of the screen
- Choose Wayne County and “run report”
- Must choose page 29–30 of 88 to get Detroit
- Choose Schoolcraft County and “run report”
- Manistique is page 11–12 of 20

MINNESOTA SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Minneapolis (Hennepin County)
- Glencoe (McLeod County)

SOURCE:

- Minnesota Department of Revenue

DOCUMENT:

- 2018 State Board of Equalization Study

DESCRIPTION:

- Sales Ratio Studies

SPECIFIC METRIC:

- Median Ratio

LINKS:

- <https://www.revenue.state.mn.us/sales-ratio-studies>

ADDITIONAL NOTES:

- Minnesota sales ratios are contained in a large document that was 376 pages in 2019. The ratios are organized alphabetically by county. Specific cities are listed within each county. Hennepin County started on page 141 this year and McLeod County on page 223. Minnesota provides ratios for residential, commercial, industrial and apartment properties. There must be six or more sales of a property type to be included in the study. Residential includes duplexes and triplexes. Minneapolis had enough sales in all four categories to use Minneapolis-specific ratios. Glencoe did not have enough sales for commercial, industrial, or apartment properties, therefore, with the exception of residential property, McLeod County ratios were used in pay 2019 for the *50-State Study*.

MISSISSIPPI SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Jackson (Hinds County)
- Philadelphia (Neshoba County)

SOURCE(S):

- Hinds County Assessor
- Neshoba County Assessor

DOCUMENT(S):

- None

DESCRIPTION(S):

- None

SPECIFIC METRIC(S):

- Median Sales Ratio (presumed)

LINK(S):

- None

ADDITIONAL NOTES:

- MCFE was referred by the Mississippi Department of Revenue to county assessors for county-wide ratios. Hinds County ratios were received via email directly from the county assessor in response to an email with an attached form. MCFE presumes that the ratios received are median since that is what was requested. We did not receive a response from Neshoba County Assessor. It is unclear whether the transition in 2010 of the State Tax Commission into the Mississippi Department of Revenue changed responsibility and state duplication of local effort, which would be something to figure out in a more thorough effort.
- Class I ratio is for residential; Class II ratio is for all other property types.

MISSOURI SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Kansas City (Jackson County)
- Boonville (Cooper County)

SOURCE(S):

- Missouri State Tax Commission

DOCUMENT(S):

- Webpage: County Ratios
- Document: 2017–2018 State Tax Commission Ratio Studies

DESCRIPTION(S):

- Assessment Ratios by Cycle

SPECIFIC METRIC(S):

- Weighted Median (Residential)
- Median (Commercial)

LINK(S):

- <https://stc.mo.gov/>

ADDITIONAL NOTES:

- Missouri provides ratios by county every two years, so MCFE used the 2017–2018 (most recent) cycle for the *50-State Study* in pay 2019. Ratios are provided for residential and commercial. The residential ratio is used for apartments. Commercial ratios are done for one-half of the counties each cycle, so for pay 2019, MCFE used the 2017–2018 commercial ratio for Cooper County (Boonville) and the 2015–2016 commercial ratio (most recent) for Jackson County (Kansas City).

MONTANA SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Billings (Yellowstone County)
- Glasgow (Valley County)

SOURCE(S):

- Montana Department of Revenue

DOCUMENT(S):

- MCFE Form Completed by Montana Department of Revenue Staff

DESCRIPTION(S):

- Median Sales Ratio
- Assessment Ratio

SPECIFIC METRIC(S):

- Median Sales Ratio
- Assessment Ratio

LINK(S):

- None

ADDITIONAL NOTES:

- Montana provides sales ratios for two types of property in the *50-State Study* at the city level, commercial/industrial and residential/apartment. Staff from the Montana Department of Revenue fill out an MCFE form for the report.

NEBRASKA SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Omaha (Douglas County)
- Sidney (Cheyenne County)

SOURCE(S):

- Tax Equalization and Review Commission

DOCUMENT(S):

- 2020 Levels of Value After Commission Action

DESCRIPTION(S):

- Levels of Value

SPECIFIC METRIC(S):

- Median Assessment/Sales Ratio

LINK(S):

- <https://terc.nebraska.gov/statewide-equalization-proceedings>

ADDITIONAL NOTES:

- Nebraska provides county-wide ratios for residential and commercial property. MCFE uses the commercial ratio for industrial and apartment property.

NEVADA SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Las Vegas (Clark County)
- Fallon (Churchill County)

SOURCE(S):

- Nevada Department of Taxation
 - Division of Local Government Services

DOCUMENT(S):

- 2019–2020 Report of Assessment Ratio Study
- 2020–2021 Report of Assessment Ratio Study

DESCRIPTION(S):

- Median Ratio

SPECIFIC METRIC(S):

- Median Ratio

LINK(S):

- https://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/Ratio_Studies/

ADDITIONAL NOTES:

- Nevada property is taxed at 35 percent of its taxable value, so ratios are pegged to 35 percent. Nevada provides ratios for each county on a three-year rotation. Ratios are provided for single-family, multifamily and commercial-industrial property. In the *50-State Study* for pay 2020, MCFE will use the Clark County 2018 ratio (most recent) for Las Vegas and the Churchill County 2020 ratio (most recent) for Fallon.

NEW HAMPSHIRE SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Manchester (Hillsborough County)
- Lancaster (Coos County)

SOURCE(S):

- New Hampshire Department of Revenue Administration
 - Municipal and Property Division

DOCUMENT(S):

- 2019 Equalization Median Ratio List

DESCRIPTION(S):

- Property – Equalization 2019
- Statistical Reports
- Median Ratio Lists

SPECIFIC METRIC(S):

- Median Ratio

LINK(S):

- <https://www.revenue.nh.gov/mun-prop/property/equalization-2019/index.htm>

ADDITIONAL NOTES:

- New Hampshire provides one unified ratio for all property types at the municipal level. There must be at least five sales in a strata within a municipality to be calculated.

NEW JERSEY SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Newark (Essex County)
- Maurice River Township (Cumberland County)

SOURCE(S):

- New Jersey Treasury
 - Division of Taxation

DOCUMENT(S):

- Table of Equalized Valuations
 - Original Certification October 1, 2019

DESCRIPTION(S):

- 2019 Table of Equalized Valuations for All of New Jersey

SPECIFIC METRIC(S):

- Average Ratio Assessed to True Value

LINK(S):

- <http://www.state.nj.us/treasury/taxation/lpt/lptvalue.shtml>

ADDITIONAL NOTES:

- New Jersey provides one unified ratio for all property types by city.

NEW MEXICO SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Albuquerque (Bernalillo County)
- Santa Rosa (Guadalupe County)

SOURCE(S):

- New Mexico Taxation and Revenue Department
 - Property Tax Division

DOCUMENT(S):

- 2019 New Mexico Sales Ratio Statistical Summary / Aggregate

DESCRIPTION(S):

- Sales Ratio Study
 - 2019-SRS-Summary-Report

SPECIFIC METRIC(S):

- Median

LINK(S):

- <http://www.tax.newmexico.gov/Businesses/-sales-ratio-study.aspx>

ADDITIONAL NOTES:

- New Mexico provides one unified ratio for all property types by county.

NEW YORK SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Buffalo (Erie County)
- New York City (Brooklyn, Manhattan, Queens, the Bronx, Staten Island)
- Warsaw (Wyoming County)

SOURCE(S):

- New York State Office of Real Property Tax Services
- New York City Independent Budget Office (Commercial, Industrial, Apartment)
- New York City Department of Finance (Homestead)
 - Property Operations
 - Quality Assurance

DOCUMENT(S):

- Report: Assessment Equity in New York State / County of Erie / 2019 Statewide Data Appendix
- New York City / Report: Assessment Equity in NY State (Use Assessment Ratio Only)

DESCRIPTION(S):

- NYS ORPTS Municipal Profile
 - Assessment Equity Statistics

SPECIFIC METRIC(S):

- 2019 Eq. Rate (Buffalo, Warsaw)
- 2019 Locally Stated Assessment Ratio (New York City — All Property Types)
- Median Sales Ratios (Commercial, Industrial, Apartment)
- Time-Adjusted Weighted Mean Ratio (Homestead)

LINK(S):

- <http://orpts.tax.ny.gov/cfapps/MuniPro/>
 - (Buffalo, Warsaw, New York City — assessment ratio only)

ADDITIONAL NOTES:

- The New York State website provides equalization rates for Buffalo and Warsaw at the city level, which is the sales ratio for MCFE purposes. State studies that produce equalization ratios for Buffalo and Warsaw are produced on a rotating basis, so for pay 2020 of the *50-State Study*, the ratios used will be from 2017 sales (most recent). New York City is also on the website, but you do not use the equalization rate. Instead, you use the assessment ratio from the state website which interacts with ratio studies internal to New York City government in MCFE modeling. The ratio for commercial, industrial and apartment comes from Independent Budget Office staff and the homestead ratio comes from Department of Finance staff.

NORTH CAROLINA SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Charlotte (Mecklenburg County)
- Edenton (Chowan County)
- Raleigh (Wake County)

SOURCE(S):

- North Carolina Department of Revenue

DOCUMENT(S):

- Sales Assessment Ratio Studies as of January 1, 2019

DESCRIPTION(S):

- Property Tax Publications
 - Sales Ratio

SPECIFIC METRIC(S):

- Median

LINK(S):

- <http://www.dor.state.nc.us/publications/property.html>

ADDITIONAL NOTES:

- North Carolina provides one county-wide unified ratio for all property types on a rotating basis. The ratio is produced from CY 2018 sales and is used to “equalize the public service company valuations.”

NORTH DAKOTA SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Fargo (Cass County)
- Devils Lake (Ramsey County)

SOURCE(S):

- North Dakota Office of State Tax Commissioner

DOCUMENT(S):

- 2019 Sales Ratio Study

DESCRIPTION(S):

- Sales Ratio Study

SPECIFIC METRIC(S):

- Commercial Ratio
- Residential Ratio

LINK(S):

- <https://www.nd.gov/tax/user/local-government/formspublications/property-tax/guidelines--publications>

ADDITIONAL NOTES:

- North Dakota typically provides commercial and residential ratios by county but provides them by city for Fargo and Devils Lake. The commercial ratio includes industrial and apartment sales. Enter “sales ratio study” in the website search engine.

OHIO SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Columbus (Franklin County)
- Bryan (Williams County)

SOURCE(S):

- Ohio Department of Taxation

DOCUMENT(S):

- Sales Ratios by County and Statewide Calendar Year xxxx

DESCRIPTION(S):

- REAL PROPERTY: Sales Ratios of Real Property by Class of Property and County, Calendar Year 2017

SPECIFIC METRIC(S):

- Sales Ratios

LINK(S):

- <https://tax.ohio.gov/wps/portal/gov/tax/researcher/tax-analysis/tax-data-series/real-property/RESIDENTIAL-SALES-DATA>

ADDITIONAL NOTES:

- Ohio provides ratio data on all four property types in the *50-State Study* by county, however Ohio's system is to reappraise property once every six years and to have an "update" once every three years. In the annual document provided (2017 calendar year is currently the most recent), the ratios are actually from 2015, 2016, or 2017 depending on the county and the reassessment/update rotation. Because of this data lag, MCFE is forced to model a rolling average of the ratios from several years so that each point in the assessment process is represented over time. Ratios can be found by searching on the Ohio Department of Taxation website and entering "sales ratios by county and statewide." This yields most of the years starting in the early 1990s, but you must access each year individually to get to the data. For some years, you must add "calendar year xxxx" and insert the year you want to see in place of the xxxx. Of the documents available to download from the search, it is typically the "ps1cy" document that you want: for example, "ps1cy06" is the 2006 sales ratios, however that is not always the case. Ohio property is taxed at 35 percent of market value.

OKLAHOMA SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Mangum (Greer County)
- Oklahoma City (Oklahoma County)
- Tulsa (Tulsa County)

SOURCE(S):

- Oklahoma Tax Commission
 - Ad Valorem Division

DOCUMENT(S):

- MCFE form completed by Tax Commission staff

DESCRIPTION(S):

- None

SPECIFIC METRIC(S):

- None

LINK(S):

- None

ADDITIONAL NOTES:

- It is unclear whether Oklahoma performs actual sales ratio studies. When staff have responded to our query, the data provided are for assessment ratios, which must be not less than 11 percent and not more than 13.5 percent of fair cash value under state law.

OREGON SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Portland (Multnomah County)
- Tillamook (Tillamook County)

SOURCE(S):

- None

DOCUMENT(S):

- None

DESCRIPTION(S):

- None

SPECIFIC METRIC(S):

- None

LINK(S):

- None

ADDITIONAL NOTES:

- No evidence that Oregon performs a ratio study. MCFE assumes 100 percent.

PENNSYLVANIA SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Philadelphia (Philadelphia County)
- Ridgway (Elk County)

SOURCE(S):

- Pennsylvania Department of Community and Economic Development
 - State Tax Equalization Board
 - Tax Equalization Division

DOCUMENT(S):

- 2019 Common Level Ratios

DESCRIPTION(S):

- Common Level Ratios (CLR)

SPECIFIC METRIC(S):

- Arithmetic Mean

LINK(S):

- <https://dced.pa.gov/local-government/boards-committees/tax-equalization-division/>

ADDITIONAL NOTES:

- Pennsylvania provides one unified ratio for each county. Philadelphia uses a 100 percent assessment ratio; Ridgway uses a 50 percent assessment ratio. Make sure to scroll to the bottom of the page as latest year is not always at the top.

RHODE ISLAND SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Providence (Providence County)
- Hopkinton (Washington County)

SOURCE(S):

- Rhode Island Department of Revenue
 - Division of Municipal Finance

DOCUMENT(S):

- 2017 Adjusted Equalized Weighted Assessed Valuations (AEWAV) of Rhode Island Municipalities

DESCRIPTION(S):

- Adjusted Equalized Weighted Assessed Valuations (AEWAV)

SPECIFIC METRIC(S):

- Ratio of Assessment

LINK(S):

- <http://www.municipalfinance.ri.gov/state-aid/AEWAV/>

ADDITIONAL NOTES:

- Rhode Island provides one unified ratio for all property types for every municipality. Like Ohio, however, Rhode Island does not produce timely ratio studies for purposes of the *50-State Study*. The 2017 study is made of ratios from 2015, 2016, and 2017 depending on that municipality's point in the three-year reassessment cycle, therefore MCFE models a rolling average to arrive at a representative ratio each year.

SOUTH CAROLINA SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Charleston (Charleston County)
- Mullins (Marion County)

SOURCE(S):

- None

DOCUMENT(S):

- None

DESCRIPTION(S):

- None

SPECIFIC METRIC(S):

- None

LINK(S):

- None

ADDITIONAL NOTES:

- MCFE assumes 100 percent sales ratio for South Carolina since all properties are reassessed upon sale and the *50-State Study* assumes a newly built or newly sold parcel for our tax comparisons.

SOUTH DAKOTA SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Sioux Falls (Minnehaha County)
- Vermillion (Clay County)

SOURCE(S):

- South Dakota Department of Revenue
 - Director of Equalization

DOCUMENT(S):

- 2019 Sales Ratio Study (From 11/1/2018 to 10/31/2019)

DESCRIPTION(S):

- County Statistical Report

SPECIFIC METRIC(S):

- Median Assess Ratio

LINK(S):

- <https://apps.sd.gov/rv76salesratio/Revenue/RevHome.aspx>
- <https://dor.sd.gov/government/director-of-equalization/#sales>
- <https://dor.sd.gov/government/director-of-equalization/>

ADDITIONAL NOTES:

- South Dakota provides county by county ratios on an annual basis for several property types that are coded in the report. For MCFE purposes, we use the “D+D1” ratio which represents homes and the “DC+DC2” which includes commercial, industrial and apartment property. South Dakota property tax rates are equalized to 85 percent of market value, so sales ratios must be adjusted using 85 percent as the norm.
- The ratios are somewhat difficult to find on the website, so I have provided three links. The top link will get you closest to the data, but sometimes those more specific links change throughout the years, so the bottom two links are more general. Starting from the bottom link (most general), here are the instructions:
 - From “Director of Equalization” page, under “Sales / Ratio Portal,” choose the “Start Search” button. This will take you to a log-in page.
 - From the log-in page, double click on the “public user access” button.
 - The next page will have a menu bar at the top. Choose “Reports.”
 - There will be a blank cell that has a drop-down menu, choose “county statistical.”
 - Choose county
 - Choose year
 - Hit “run”

After each report the site tends to keep processing and freeze, so you may have to back out a couple steps and go back in to get multiple county reports.

TENNESSEE SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Memphis (Shelby County)
- Nashville (Davidson County)
- Savannah (Hardin County)

SOURCE(S):

- Tennessee Comptroller of the Treasury
 - State Board of Equalization

DOCUMENT(S):

- Notice of Action of State Board of Equalization Adopting 2020 Appraisal Ratios

DESCRIPTION(S):

- Appraisal Ratios

SPECIFIC METRIC(S):

- Ratio

LINK(S):

- <https://comptroller.tn.gov/boards/state-board-of-equalization/sboe-resources/appraisal-ratios.html>
- <https://comptroller.tn.gov/boards/state-board-of-equalization.html>

ADDITIONAL NOTES:

- Tennessee provides one unified ratio for all property for each county. Ratios are used for several purposes, including equalization of public utility and common carrier assessments, equalization of local business personal property assessments, determining tax relief payments for elderly and disabled homeowners, and determining adjusted county property values under the Tennessee Education Finance Act. Appraisals are every 4–6 years depending on the county.

TEXAS SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Arlington (Tarrant County)
- Austin (Travis County)
- Dallas (Dallas County)
- El Paso (El Paso County)
- Fort Worth (Tarrant County)
- Fort Stockton (Pecos County)
- Houston (Harris County)
- San Antonio (Bexar County)

SOURCE(S):

- Texas Comptroller of Public Accounts

DOCUMENT(S):

- 2019 ISD Summary Worksheet (for each city)

DESCRIPTION(S):

- ISD Summary Worksheet

SPECIFIC METRIC(S):

- WTD Mean Ratio

LINK(S):

- <https://comptroller.texas.gov/taxes/property-tax/>

ADDITIONAL NOTES:

- Texas provides annual ratios for residential, commercial and apartment property. MCFE uses the commercial ratio for industrial property. Texas also provides commercial personal property ratios which are used in the *50-State Study*. Like some other states, a primary use of the ratio data is part of the funding formula for K-12 schools, therefore you must search by county and school district codes to find the particular ratios you want once you are on the Comptroller site. For the 2019 ratios to be used in the *50-State Study* for pay 2020, MCFE performed the following searches:
 - Arlington: “2019 ISD Summary Worksheet 220-901”
 - Austin: “2019 ISD Summary Worksheet 227-901”
 - Dallas: “2019 ISD Summary Worksheet 057-905”
 - El Paso: “2019 ISD Summary Worksheet 071-902”
 - Fort Stockton: “2019 ISD Summary Worksheet 186-902”
 - Fort Worth: “2019 ISD Summary Worksheet 220-905”
 - Houston: “2019 ISD Summary Worksheet 101-912”
 - San Antonio: “2019 ISD Summary Worksheet 015-907”

UTAH SALES RATIO PROFILE (Pay 2020)

LOCATIONS

- Salt Lake City (Salt Lake County)
- Richfield (Sevier County)

SOURCE(S):

- Utah State Tax Commission
 - Property Tax Division

DOCUMENT(S):

- 2020 Assessment/Sales Ratio Study
 - For Sales Occurring January 1, 2019 to December 31, 2019

DESCRIPTION(S):

- Annual Sales Ratio Studies

SPECIFIC METRIC(S):

- Median (Median Sales Ratio)

LINK(S):

- <https://propertytax.utah.gov/>
- <https://propertytax.utah.gov/real/locally-assessed/>

ADDITIONAL NOTES:

- Utah provides residential and commercial sales ratios by county on an annual basis. In the 50-State Study, MCFE uses the commercial ratio for industrial and apartment property. From the main property tax page, go to “Real Property” and then to “Locally Assessed” to find “Annual Sales Ratio Studies.”

VERMONT SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Burlington (School District 37)
- Hartford (School District 93)

SOURCE(S):

- State of Vermont Agency of Administration
 - Department of Taxes
 - Division of Property Valuation and Review

DOCUMENT(S):

- Equalization Study

DESCRIPTION(S):

- Certified Final Computation Sheet (for each city)

SPECIFIC METRIC(S):

- Applied Ratio

LINK(S):

- <https://tax.vermont.gov/research-and-reports/reports/equalization-study>

ADDITIONAL NOTES:

- Vermont uses its equalization study for school funding among other things, so ratios are provided annually by city for all four property types used in the *50-State Study*. You must use the drop-down box on the study webpage to choose the city. The website regularly times out and it takes repeated attempts to get the data.
 - R1 = residential homesteads
 - COMM = commercial
 - CMA = commercial apartments
 - IND = industrial

VIRGINIA SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Virginia Beach (Independent City)
- Wise (Wise County)

SOURCE(S):

- Virginia Department of Taxation

DOCUMENT(S):

- The 2018 Virginia Assessment / Sales Ratio Study

DESCRIPTION(S):

- Table 2: Ratio of 2018 Assessed Valuations to 2018 Selling Prices of Real Estate for Select Classifications of Property

SPECIFIC METRIC(S):

- Median Ratio (%)

LINK(S):

- <https://www.tax.virginia.gov/assessment-sales-ratio-studies>

ADDITIONAL NOTES:

- Virginia provides median ratios by county and by city, so for the Town of Wise, the ratio is for all of Wise County and for Virginia Beach, the ratio is for the city. Virginia provides single-family residential, multifamily residential, and commercial/industrial ratios annually. Like several other states, a main use of the study is for school aid funding distribution. The timeliest Virginia ratio study is for 2018 sales, which MCFE will use for the *50-State Study* in pay 2020.

WASHINGTON SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Seattle (King County)
- Okanogan (Okanogan County)

SOURCE(S):

- Washington State Department of Revenue

DOCUMENT(S):

- Property Tax Ratios by County 2019 for 2020 Taxes

DESCRIPTION(S):

- Property Tax Ratios by County

SPECIFIC METRIC(S):

- Real Property; Personal Property

LINK(S):

- <https://dor.wa.gov/content/property-tax-ratios-county>

ADDITIONAL NOTES:

- Washington provides one unified ratio for real property and one ratio for personal property. The ratios are provided annually on a county-wide basis, so King County is used for Seattle and Okanogan County for Okanogan.

WEST VIRGINIA SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Charleston (Kanawha County)
- Elkins (Randolph County)

SOURCE(S):

- West Virginia State Tax Department
 - Property Tax Division

DOCUMENT(S):

- West Virginia Assessment Ratio Study Tax Year 2020

DESCRIPTION(S):

- Residential Property Assessment to Sales Comparison
- Apartment Property Assessment to Sales Comparison
- Commercial Property Assessment to Sales Comparison
- Industrial Property Assessment to Sales Comparison

SPECIFIC METRIC(S):

- Residential Improved Median
- Apartment Improved Median
- Commercial Improved Median
- Industrial Improved Median

LINK(S):

- <https://tax.wv.gov/Business/PropertyTax/FormsAndPublications/Pages/PropertyTaxFormsAndPublications.aspx>

ADDITIONAL NOTES:

- Scroll down on the webpage to “Assessment Standards and User Service” to “West Virginia Ratio Study.” Although there is a table for industrial ratios, those have been zero in recent reports, so West Virginia effectively provides ratios for residential, apartment and commercial by county on an annual basis. MCFE uses the commercial ratio for industrial property. Since the assessment level in West Virginia is 60 percent, published ratios must be divided by 60 for use in the *50-State Study*.

WISCONSIN SALES RATIO PROFILE (Pay 2020)

LOCATIONS:

- Milwaukee (Milwaukee County)
- Rice Lake (Barron County)

SOURCE(S):

- Wisconsin Department of Revenue

DOCUMENT(S):

- None

DESCRIPTION(S):

- None

SPECIFIC METRIC(S):

- None

LINK(S):

- <https://www.revenue.wi.gov/Pages/Report/annual-equalization.aspx>

ADDITIONAL NOTES:

- All Wisconsin sales ratios are 100 percent since tax rates are equalized at 100 percent of market value by the Wisconsin Department of Revenue.

WYOMING SALES RATIO PROFILE (Pay 2019)

LOCATIONS:

- Cheyenne (Laramie County)
- Worland (Washakie County)

SOURCE(S):

- Wyoming State Board of Equalization

DOCUMENT(S):

- None

DESCRIPTION(S):

- None

SPECIFIC METRIC(S):

- Median Ratio

LINK(S):

- None

ADDITIONAL NOTES:

- Staff at the Wyoming State Board of Equalization provide MCFE with all four ratios used in the *50-State Study* on a county-wide basis if there are enough sales. For pay 2019, they provided ratios for residential and commercial for Washakie County and residential, commercial and apartment for Laramie County. Neither county had enough industrial sales and there were not enough apartment sales for Washakie County, so for those three ratios, MCFE used 100 percent.