

# Housing Indicators in Tennessee

## Chattanooga | Knoxville | Memphis | Nashville

By Joe Speer, Megan Morgeson, Bettie Teasley and Ceagus Clark

## Introduction

Looking at general housing-related indicators across the state of Tennessee, substantial variation emerges but also several common patterns. We compared the largest four cities in the state in order to discuss trends in the major Tennessee housing markets, also comparing them to statewide metrics in many instances. Mainly, we have seen from the data that housing costs are rising, homeownership is declining, renters are becoming more cost burdened, vacancy rates are declining, and new construction is not keeping pace with rising population rates. Some of these trends are more pronounced in localized areas of the state as Tennessee cities experience a range of challenges.

As homeownership rates decline across the U.S. and Tennessee, new challenges are emerging for the increasing numbers of renters. As of 2015, the number of renters in Knoxville and Memphis exceeded homeowners, and while homeowners outnumbered renters in Chattanooga in Nashville, the difference was less than 10 percentage points. However, homeownership still prevails by more than two to one in more rural and smaller Tennessee economies.

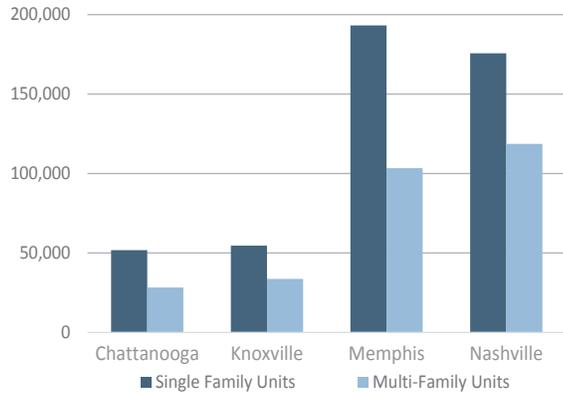
Statewide, only about 35 percent of homes are affordable to own for a median wage earner. Homeowners with a mortgage pay on average over \$300 more than renters per month, with Nashville homeowners paying an average of \$462 more. Despite the higher costs of homeownership, renter households spend a larger percentage of their income on housing. While the proportion of cost burdened homeowner households has dropped over the last 5 years, the share of renter households that are cost burdened at 35 and 50 percent of income continued to increase over the same time period. In Memphis, almost 30 percent of renters had housing costs exceeding 50 percent of their income while Chattanooga saw the greatest increase in cost burdened renters in the state from 2010 to 2015.

Of the four cities, Nashville has the lowest share of aging housing built before 1960 at almost 24 percent; however, its rate of new housing construction is the most dramatically outpaced by its population growth. In the other three cities, between 30-37 percent of housing stock is older than 1960. Although Nashville's housing stock has grown five percent overall in five years, the population has grown over eight percent in the same time period and 24 percent in the last 10 years. Chattanooga and Knoxville's increasing populations significantly outpaced new housing units as well. Just as home sale prices and rents are increasing, so are commute times. Of the four largest cities, Nashville residents have the longest commute with a mean travel time of 23.8 minutes. Tennesseans outside of the four largest cities have the longest commutes, with six percent driving 60 minutes or more to work and an average travel time of 24.5 minutes.

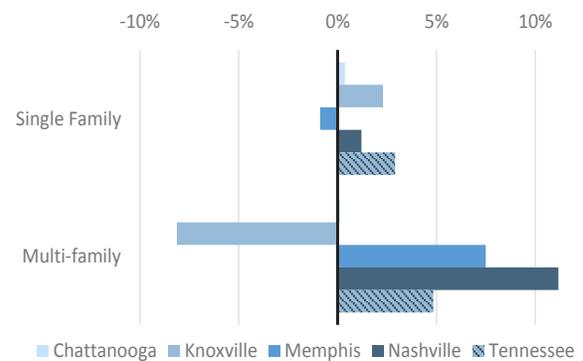
Together with the findings above, we have crafted the rest of this report to create a baseline comparison of the four major markets in Tennessee regarding issues such as housing demand, cost and affordability, and commute times. In the future we plan to replicate this study to compare the growth and change over time across Tennessee and its major cities.

# POPULATION and HOUSING STOCK

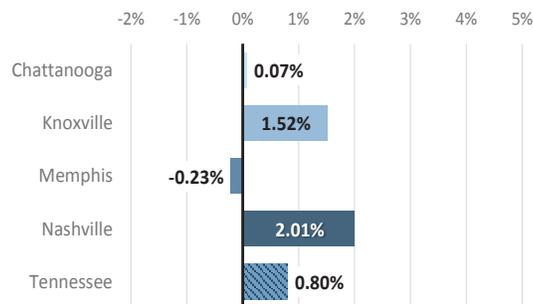
Number of Single and Multifamily Units, by City (2015)



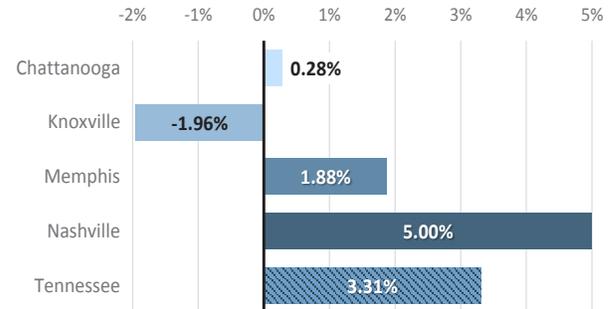
Change in the Number of Single Family and Multifamily Units between 2010-2015



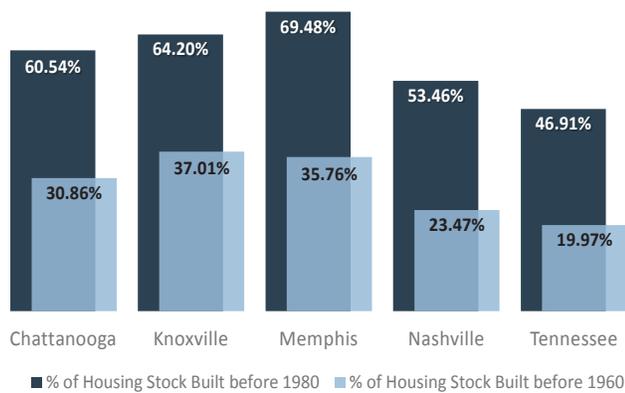
Change in Total Housing Units over 1 Year (2014-2015), by City



Change in Total Housing Units over 5 years (2010-2015), by City



Age of Housing Stock, by City (2015)



Despite broad overlapping trends between the four major cities, most notably population growth, there is wide variation amongst the four cities with respect to new housing construction. Multifamily housing construction has been particularly divergent over the past five years; in the same five year time span, Tennessee's two largest cities, Nashville and Memphis, each experienced a rapid expansion of multifamily housing, by 11 and 7.5 percent, respectively. Yet during that same time span, Chattanooga's multifamily housing stock remained virtually unchanged, while Knoxville's contracted by more than eight percent. Memphis and Knoxville actually experienced opposite trends during this five year window; while Knoxville was the lone major city whose multifamily units decreased, Memphis saw its single family unit totals fall in spite of its considerable multifamily housing construction. Knoxville was the only city of the major four to experience a net decrease in housing units, while Memphis was the only city of the major four whose housing stock increased at a greater rate than its population did. All four cities, with the notable exception of Nashville, experienced housing construction at a slower rate than Tennessee overall.

With the exception of Memphis, housing stock increases lag behind population changes over the past five years. This disparity was particularly acute in Knoxville where citywide population grew by 3.4% while housing stock fell by almost two percent overall.

All four of the major cities' respective counties are poised to experience considerable population growth over the next ten years. Shelby County is slated for the slowest growth of these counties, with a projected growth rate of five percent, while the overall Tennessee population is projected to grow by 11 percent.

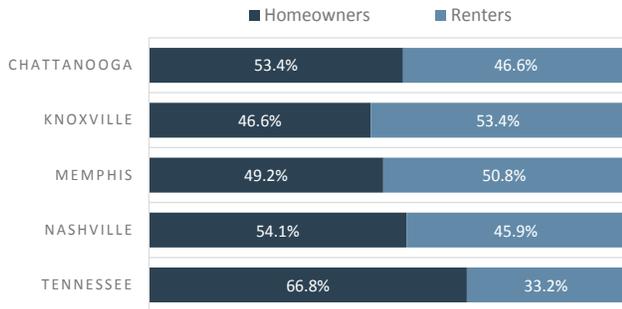
<b>Housing Unit Totals</b>	<b>Chattanooga</b>	<b>Knoxville</b>	<b>Memphis</b>	<b>Nashville</b>	<b>Tennessee</b>	<i>Current as of</i>
City Population	176,597	185,312	655,760	678,889	6,600,299	2015
City Population in 2010	168,075	179,226	647,870	628,133	6,356,897	2010
5-Year Percentage Change in Population	4.83%	3.40%	1.22%	8.08%	3.83%	2015
Number of Housing Units	80,118	88,378	296,558	294,284	2,618,142	2015
Change in Housing Units Over 1 Year	59	1,341	-684	5,878	22,988	2015
	0.07%	1.52%	-0.23%	2.01%	0.80%	2015
Change in Housing Units Over 5 Years	225	-1,763	5,473	14,011	83,810	2015
	0.28%	-1.96%	1.88%	5%	3.31%	2015
Single Family Housing Units	51,835	54,645	193,227	175,621	2,072,895	2015
5-Year Change in Single Family Housing Units	187	1,224	-1,726	2,092	58,622	2015
	0.36%	2.29%	-0.89%	1.21%	2.91%	2015
Multi-Family Housing Units	28,283	33,733	103,331	118,663	545,247	2015
5-Year Change in Multi-Family Housing Units	38	-2,987	7,199	11,919	25,188	2015
	0.13%	-8.13%	7.49%	11.17%	4.84%	2015
<b>Age of Housing Stock</b>	<b>Hamilton</b>	<b>Knox</b>	<b>Shelby</b>	<b>Davidson</b>	<b>Tennessee</b>	<i>Current as of</i>
Percent Built 2010 to 2015	2.35%	3.55%	1.11%	3.71%	3.76%	2015
Percent Built 1980 to 2009	37.10%	32.25%	29.41%	42.83%	49.32%	2015
Percent Built 1960 to 1979	29.68%	27.19%	33.71%	29.99%	26.95%	2015
Percent Built before 1960	30.86%	37.01%	35.76%	23.47%	19.97%	2015
<b>Population Change, Past and Projected, by County</b>	<b>Hamilton</b>	<b>Knox</b>	<b>Shelby</b>	<b>Davidson</b>	<b>Tennessee</b>	<i>Current as of</i>
County Population	354,098	451,324	938,069	678,889	6,600,299	2015
Population Change from 2005 to 2015	51,623	58,942	48,114	129,039	789,709	2015
Percentage Change	17.07%	15.02%	5.41%	23.47%	13.59%	2015
Projected Population Change from 2016 to 2026	30,512	52,663	48,210	79,653	749,355	2015
Percentage Change	8.57%	11.29%	5.03%	11.71%	11.00%	2015
Share of the State's Projected Growth from 2016 to 2026	4.07%	7.03%	6.43%	10.63%		2015

\*Davidson County is contiguous with the city of Nashville; counties are used in the above table to show estimated rates of population growth, and by extension, housing demand, over the next decade.

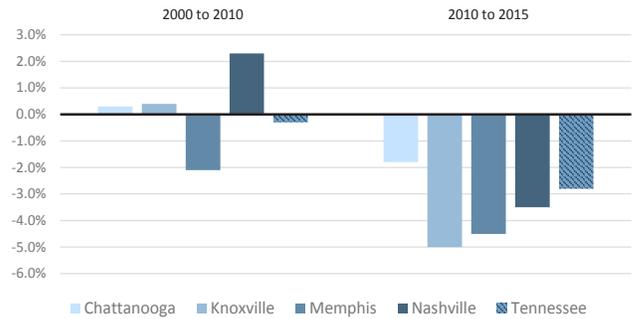
Note: Indicators shown in blue text denote measures of change over time

# OWNER VS. RENTER

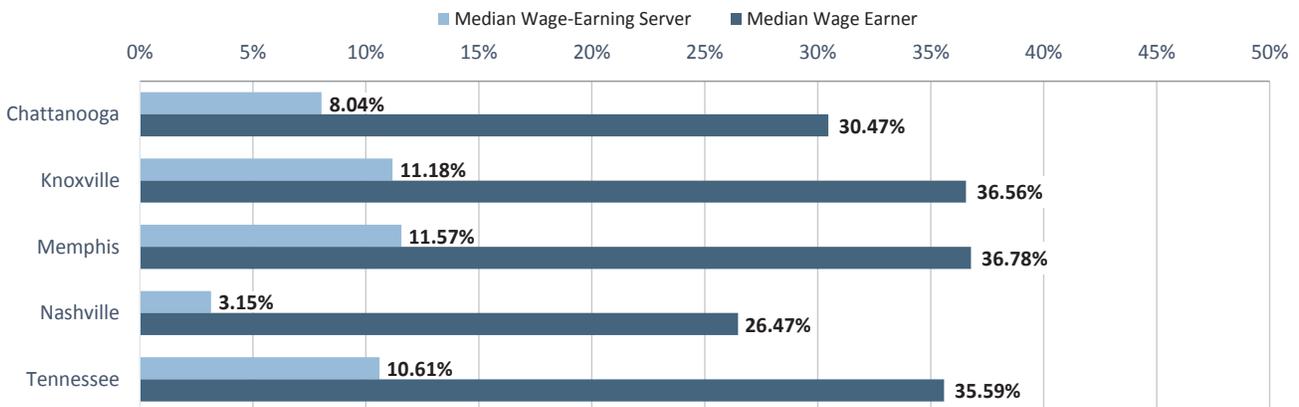
Percentage of Households that Own or Rent their Home, by City (2015)



Change in Homeownership Rates, by City



Percent of 2015 Home Sales Affordable to a Median Wage Earner and a Wage-Earning Server, by MSA



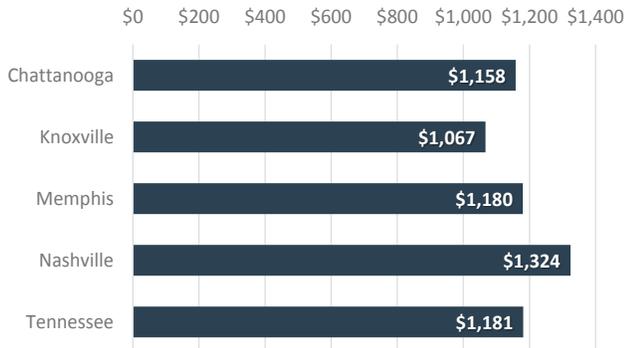
Homeownership rates are declining statewide, with larger decreases in ownership in most urban areas. However, Memphis and Knoxville have experienced comparatively larger declines in homeownership, while Nashville and Chattanooga's declines in homeownership have been smaller. As a result, Nashville and Chattanooga's homeownership rates are relatively higher, around 53 to 54 percent, than those of Memphis and Knoxville, with Knoxville's homeownership rate at less than 47 percent. All four major cities' homeownership rates pale in comparison, however, to the two thirds of all Tennessee households that own a home. Despite lower overall rates of homeownership, Knoxville and Memphis' home sales markets are more accessible to median and lower-wage workers; both cities had more than 36 percent of their 2015 home sales be considered affordable to median wage earners, compared to 26 and 30 percent for Nashville and Chattanooga.

Knoxville has the lowest median household income of the four cities, more than \$14,000 less than that of Nashville, and \$11,000 less than the Tennessee median household income.

	<b>Chattanooga</b>	<b>Knoxville</b>	<b>Memphis</b>	<b>Nashville</b>	<b>Tennessee</b>	<i>Current as of</i>
Median Household Income	\$40,177	\$34,226	\$36,445	\$48,368	\$45,219	2015
Median Income - Renters	\$25,526	\$24,447	\$25,696	\$32,339	\$27,382	2015
Median Income - Homeowners	\$57,399	\$51,550	\$53,196	\$66,621	\$57,029	2015
Percent who Rent	46.60%	53.40%	50.80%	45.90%	33.20%	2015
Percent who Own	53.40%	46.60%	49.20%	54.10%	66.80%	2015
Change in Homeownership Rate since 2010	-1.80%	-5.00%	-4.50%	-3.50%	-2.80%	2015
Change in Homeownership Rate since 2000	-1.50%	-4.60%	-6.60%	-1.20%	-3.10%	2015
Percent of Home Sales Affordable to a Waiter	8.04%	11.18%	11.57%	3.15%	10.61%	2015
Percent of Home Sales Affordable to a Median Wage Earner	30.47%	36.56%	36.78%	26.47%	35.59%	2015

# HOUSING COSTS

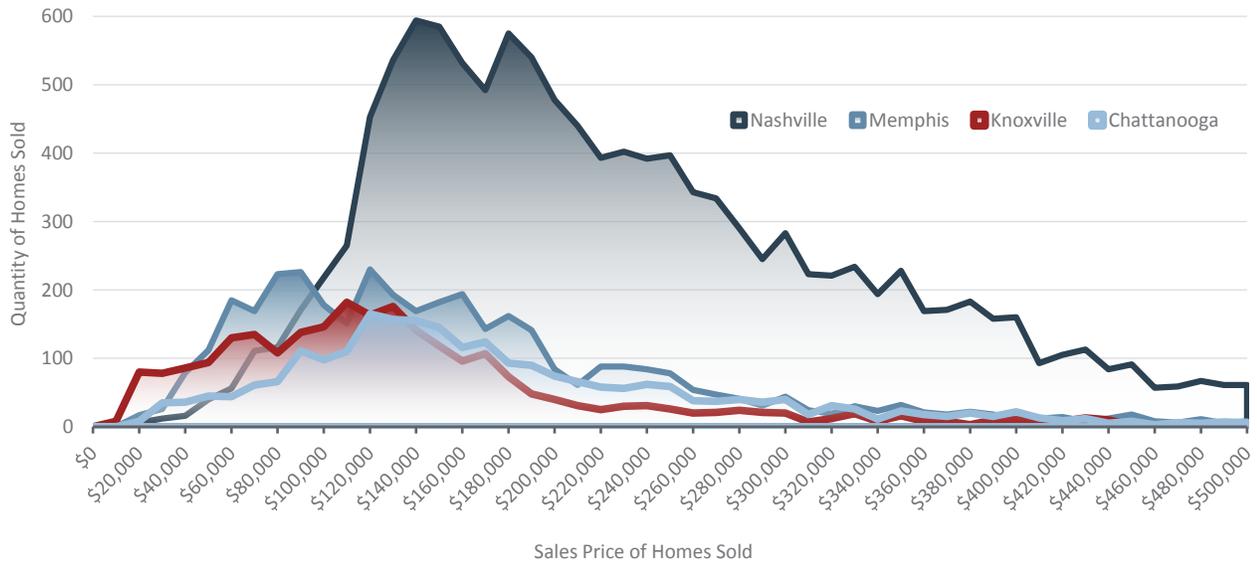
Median Housing Costs for Owners with a Mortgage, by City (2015)



Median Housing Costs for Renters, by City (2015)



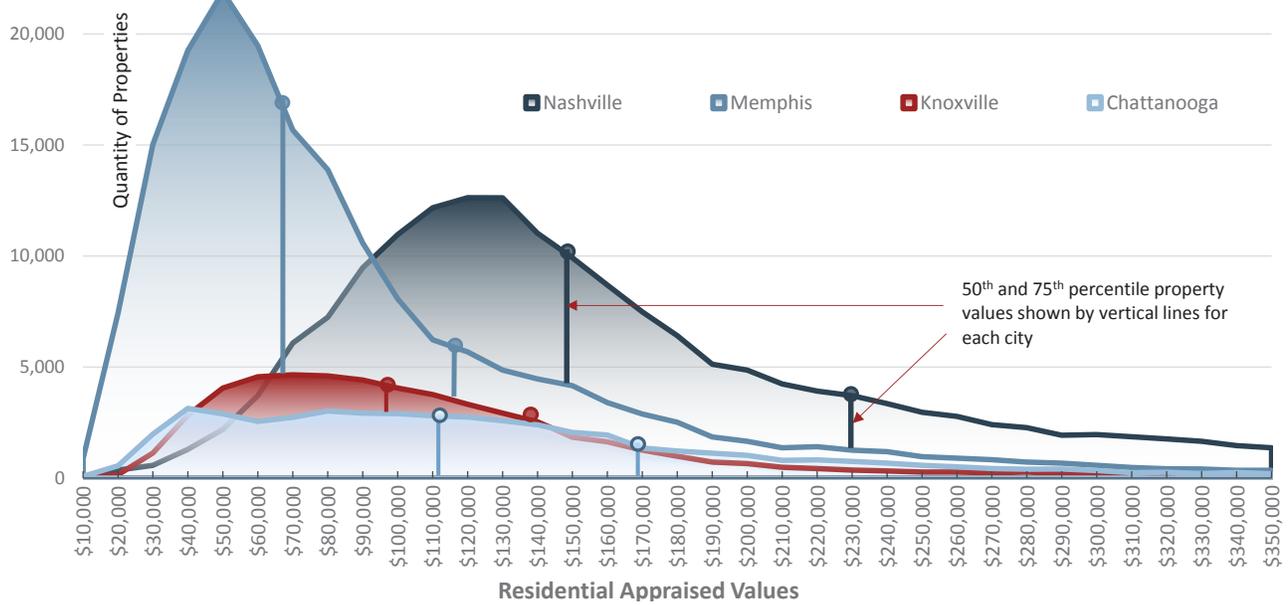
2015 Single Family Home Sales, by City



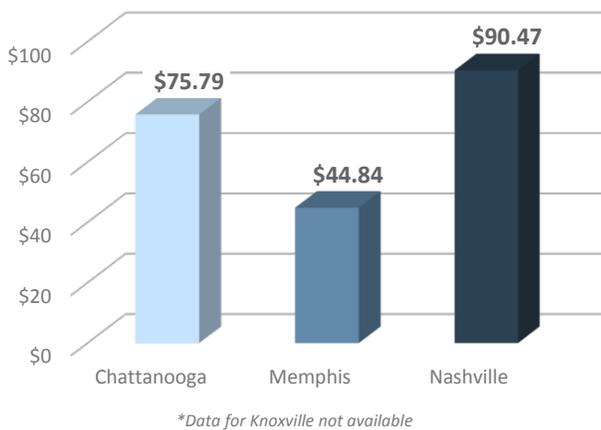
Sales Price of Homes Sold



## Residential Single Family Property Values up to \$350,000



## Median Residential Property Appraisal by Square Foot, by City (2016)



Relative to its fairly low median household income, it is worth noting that the city of Memphis has comparatively much higher housing costs than Knoxville and Chattanooga, particularly in its rental market. Despite a median renter household income that is just \$200 higher than that of Chattanooga, Memphis's median rental housing costs are \$80 higher than Chattanooga (\$828 to \$748). This is particularly interesting when one considers income and ability to pay as a central cost driver for housing, and especially interesting when one considers that Memphis was the only city of the big four to have its housing supply grow faster than its population over the past five years, and as shown later in this report, Memphis also has a large inventory of vacant homes, both of which suggest that Memphis' relatively higher rental costs are not due to a supply shortage or an excess of housing demand. Part of the difference in rental housing costs could be higher utilities in Memphis, as well as a possible price stickiness and the likelihood that rents increase in response to increased demand faster than rents decrease in response to decreased demand. But when, as shown above, the median single family home in Memphis is valued at nearly \$45,000 less than the median single family home in Chattanooga, and the median residential property (single and multifamily) in Chattanooga is 1.69 times more valuable per square foot (\$75.79 to \$44.84) than Memphis, it may surprise some that Memphis has higher median costs of homeownership and considerably higher costs of renting a home.

Of the four major cities, Knoxville had the lowest median home sale price in 2015, and its median housing costs for homeowners with a mortgage was also the lowest. Knoxville was the only city of the big four to see its median single family home sales price decline from 2010 to 2015, especially stark when one considers the modest 9 and 12 percent appreciations in Memphis and Chattanooga and the rapid growth of Nashville median home sales prices by 33 percent over that time span.

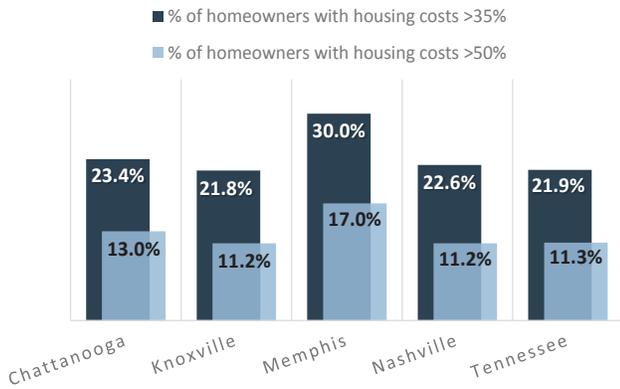
2015 home sale prices and overall homeowner costs, however, did not always align; while Chattanooga's median 2015 home sale price was greater than that of Memphis (\$156,000 to \$141,875), monthly owner housing costs (for households with a mortgage) were slightly higher in Memphis than in Chattanooga. Nashville's 2015 home sales, meanwhile, were comparatively of much higher value; Nashville's 25th percentile home sale price (\$154,700) was higher than the 50th percentile home sale price in Knoxville and Memphis and almost equivalent to the 50th percentile home sale price in Chattanooga.

The property assessment data powerfully illustrates the extent of the value in the Nashville housing market, relative to the other three major cities. The median single family home in Nashville was 2.2 times that of the Memphis median single family home (as of 2016, before the 2017 reappraisals occurred), 1.33 times that of Chattanooga, and 1.55 times that of Knoxville. When adjusting for lot size, these differences do not disappear; Nashville's median property appraisal per square foot was twice that of Memphis and 1.2 times that of Chattanooga. Perhaps most telling, however, is the ratio of single family properties valued below \$100,000; such properties constitute 45 to 55 percent of single family homes in Knoxville and Chattanooga, but 70 percent of Memphis single family homes and just 21 percent of Nashville's. It should be noted that with the 2017 reappraisal cycle, housing values on the whole will trend upward and these percentages are sure to decrease, perhaps sharply in the case of Nashville.

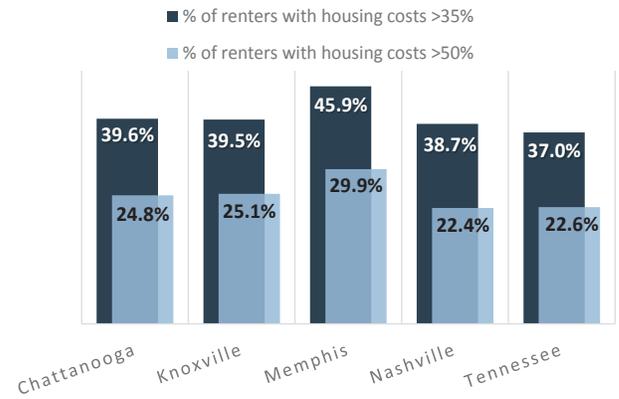
		Chattanooga	Knoxville	Memphis	Nashville	Tennessee	Current as of
Median Housing Costs for Homeowners with a Mortgage		\$1,158	\$1,067	\$1,180	\$1,336	\$1,181	2015
Median Gross Rent		\$748	\$752	\$828	\$874	\$764	2015
5-Year Change in Median Gross Rent	Dollars	\$36	\$58	-\$9	\$94	\$41	2015
	Percent	4.95%	8.12%	-1.08%	11.33%	5.51%	2015
2015 Single Family Home Sales Total		2,593	2,630	3,947	13,341	87,723	2015
25 <sup>th</sup> Percentile Home Sales Price		\$113,150	\$75,000	\$88,783	\$154,700	\$120,000	2015
50 <sup>th</sup> Percentile (Median) Sales Price		\$156,000	\$118,900	\$141,875	\$222,109	\$175,000	2015
75 <sup>th</sup> Percentile Home Sales Price		\$235,000	\$169,900	\$214,973	\$331,500	\$265,000	2015
Change in Median Home Sales Price	Since 2005	43.58%	14.33%	28.98%	46.26%	29.63%	2015
	Since 2010	12.23%	-0.92%	9.22%	33.00%	16.74%	2015
25 <sup>th</sup> Percentile Single Family Property Value		\$66,100	\$62,700	\$42,100	\$105,300		2016
50 <sup>th</sup> Percentile (Median) Single Family Property Value		\$109,800	\$94,300	\$66,200	\$145,900		2016
75 <sup>th</sup> Percentile Single Family Property Value		\$167,100	\$136,800	\$113,800	\$228,000		2016
Number of Single Family Residential Properties Valued at Less than \$100,000		22,722	30,429	132,041	41,798		2016
Percentage of Single Family Residential Properties Valued at Less than \$100,000		45%	54%	70%	21%		2016
25 <sup>th</sup> Percentile Housing Unit Value (adjusted for Multi-family Unit totals)		\$42,358		\$24,000	\$58,000		2016
50 <sup>th</sup> Percentile (Median) Housing Unit Value (adjusted for Multi-family Unit totals)		\$80,825		\$48,200	\$112,200		2016
75 <sup>th</sup> Percentile Housing Unit Value (adjusted for Multi-family Unit totals)		\$139,400		\$85,100	\$180,500		2016
Median \$ per Square Foot for Residential Appraisal		\$75.79		\$44.84	\$90.47		2016
Median Ratio of Residential Land Appraisal to Total Property Appraisal		19.82%	17.96%	20.48%	22.17%		2016

# HOUSING AFFORDABILITY

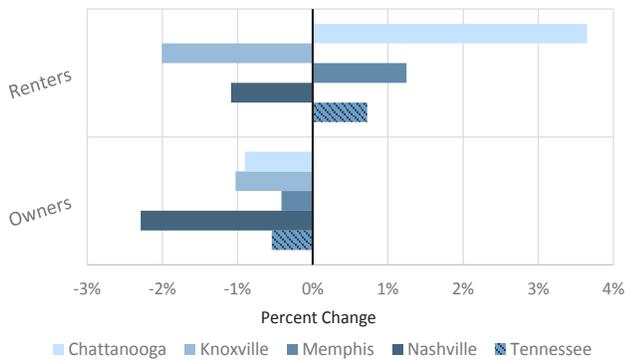
Cost Burdened Homeowners, by City (2015)



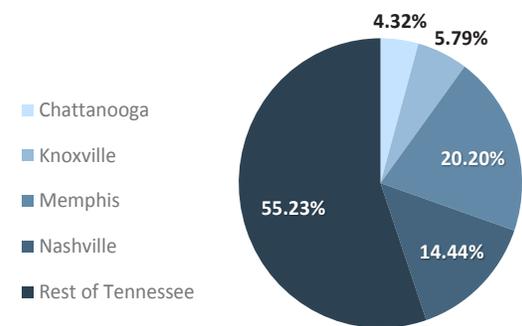
Cost Burdened Renters, by City (2015)



Percent change in Severely Cost Burdened Owners and Renters, by City (2010 to 2015)



Cities' Severely Cost Burdened Renters as a Percentage of the State's Total (2015)



\*\*The 30 percent threshold remains the traditional operating definition of "cost burden", and is the definition which THDA utilizes in program administration. The utilization of the 35 percent of income constituting the threshold for cost burden in this report aims to present a conservative estimate of this measure of housing affordability, as it relates to all household income levels. As income decreases, the precision of 30 percent constituting burden is likely to increase.

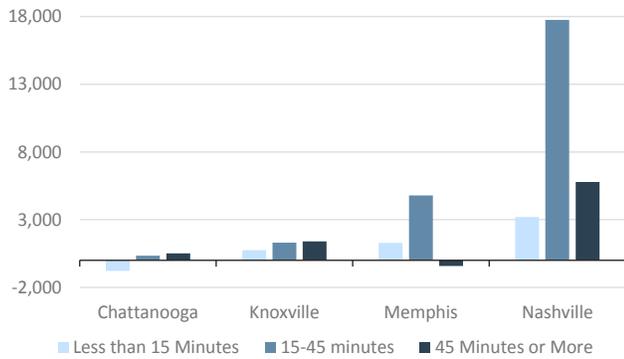
Cost burdened homeowners (defined here as costs exceeding 35% of household income) statewide and in three of the four largest cities have rates just above 20 percent while Memphis' rate is at 30 percent. As shown below, these percentages of cost burdened homeowners have trended downward over the last five years for which data are available.

In all four cities, the rates for cost burdened renters soar to 37 percent of the population or higher. Roughly 30 percent of Memphis renter households are paying more than half of their total income on their housing, and more than 20 percent of renter households statewide are. Considering the state as a whole, Memphis makes up 20 percent of Tennessee's total severely cost burdened renters. Knoxville and Chattanooga make up about 10 percent combined, while 55.23 percent of severely cost burdened renters live outside of the four major metros.

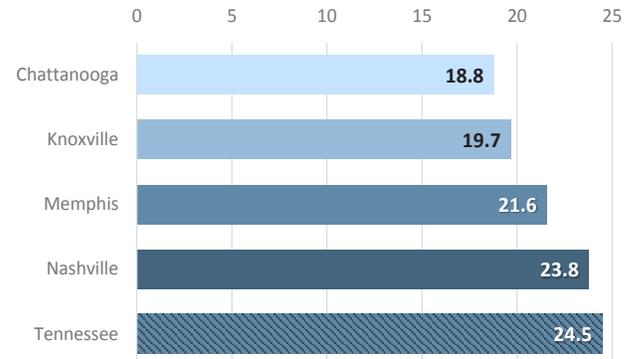
<b>Owners</b>	<b>Chattanooga</b>	<b>Knoxville</b>	<b>Memphis</b>	<b>Nashville</b>	<b>Tennessee</b>	<i>Current as of</i>
Percent of Homeowners whose Housing Costs Exceed 35% of Income	23.42%	21.76%	30.03%	22.57%	21.87%	2015
Percent of Homeowners whose Housing Costs Exceed 50% of Income	12.96%	11.21%	16.99%	11.20%	11.30%	2015
Percent Change (2010 to 2015) in Homeowners whose Housing Costs Exceed 50% of Income	-0.90%	-1.03%	-0.42%	-2.29%	-0.54%	2015
Percent of Homeowners with 0-30% AMFI whose Housing Costs exceed 50% of Income	58.04%	62.29%	62.03%	66.44%	55.80%	2013
<b>Renters</b>	<b>Chattanooga</b>	<b>Knoxville</b>	<b>Memphis</b>	<b>Nashville</b>	<b>Tennessee</b>	<i>Current as of</i>
Percent of Renters whose Housing Costs Exceed 35% of Income	39.64%	39.47%	45.90%	38.67%	37.00%	2015
Percent of Renters whose Housing Costs Exceed 50% of Income	24.84%	25.14%	29.91%	22.39%	22.57%	2015
Percent Change (2010 to 2015) in Renters whose Housing Costs Exceed 50% of Income	3.65%	-2.01%	1.25%	-1.09%	0.73%	2015
Cities' Severely Cost Burdened Renters as a % of the State's Total	4.32%	5.79%	20.20%	14.44%	55.23%	2015
Percent of Renters with 0-30% AMFI whose Housing Costs exceed 50% of Income	57.31%	59.47%	69.72%	64.29%	60.49%	2013
Percent of Households with 0-30% AMFI whose Housing Costs Exceed 30% of Income	70.18%	70.30%	76.24%	75.56%	70.84%	2013

# COMMUTE TIMES

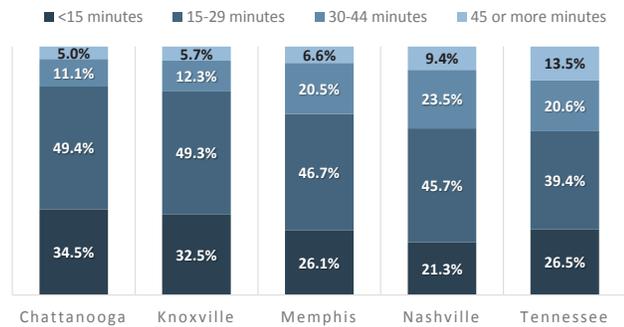
Changes in Worker Commute Times, by City, from 2010-2015



Average Travel Time to Work in Minutes, by City (2015)



Commute Times, by City (2015)



The percentage of workers with shorter commutes are decreasing statewide in the four major metro areas, although most cities (with the exception of Chattanooga) experienced a net gain of workers with short commute times over the last five years, even if their overall share of the workforce has declined. The percentages of workers with commutes longer than 45 minutes are increasing everywhere except Memphis.

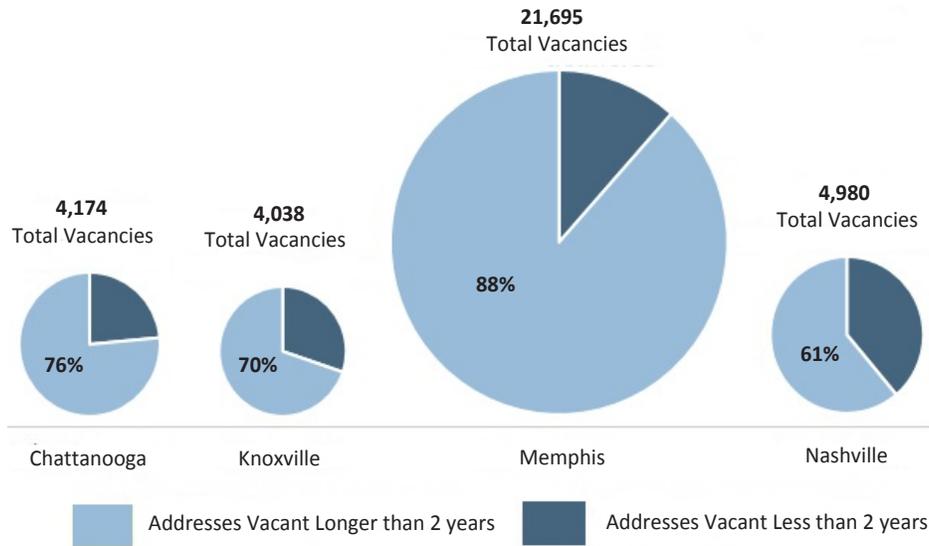
Chattanooga’s workers have the easiest commute, with nearly 35 percent of all workers commuting less than 15 minutes, and just 15 percent of all workers commuting longer than 30 minutes, compared to nearly 32 percent of Nashville workers. Of the four major metros, Nashvillians have the longest commute with a mean travel time of 23.8 minutes. Tennesseans outside of the four major metros have the longest commutes, with 6% driving 60 minutes or more to work and an average travel time of 24.5 minutes.

	<b>Chattanooga</b>	<b>Knoxville</b>	<b>Memphis</b>	<b>Nashville</b>	<b>Tennessee</b>	<i>Current as of</i>
Average Travel Time to Work of Workers ages 16 to 64, in Minutes	18.8	19.7	21.6	23.8	24.5	2015
Percentage of Workforce whose Travel Time to Work is Less than 15 Minutes	34.50%	32.50%	26.10%	21.30%	26.50%	2015
Percentage of Workforce Whose Travel Time to Work is from 15 to 29 Minutes	49.40%	49.30%	46.70%	45.70%	39.40%	2015
Percentage of Workforce whose Travel Time to Work is from 30 to 44 Minutes	11.10%	12.30%	20.50%	23.50%	20.60%	2015
Percentage of Workforce whose Travel Time to Work is 45 Minutes or Greater	5.00%	5.70%	6.60%	9.40%	13.50%	2015
Change in Number of Workers whose Travel Time to Work is Less than 15 Minutes (2010 to 2015)	-774	751	1,281	3,199	-8,207	2015
Change in Number of Workers whose Travel Time to Work is from 15 to 44 Minutes (2010 to 2015)	332	1,295	4,797	17,753	53,021	2015
Change in Number of Workers whose Travel Time to work exceeds 45 Minutes (2010 to 2015)	511	1,404	-414	5,778	34,684	2015

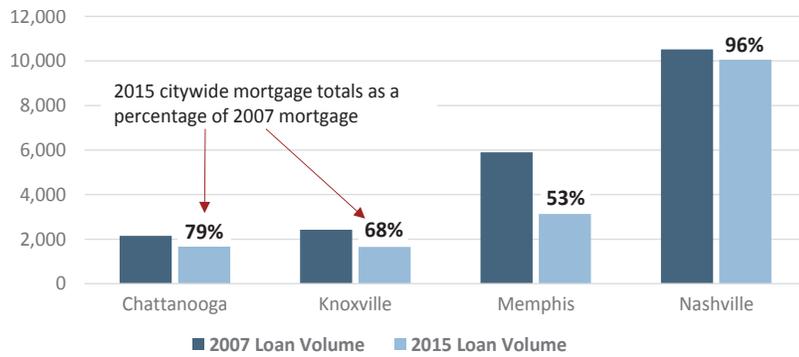
# HOUSING DEMAND

## Citywide Inventory of Vacant Residential Addresses

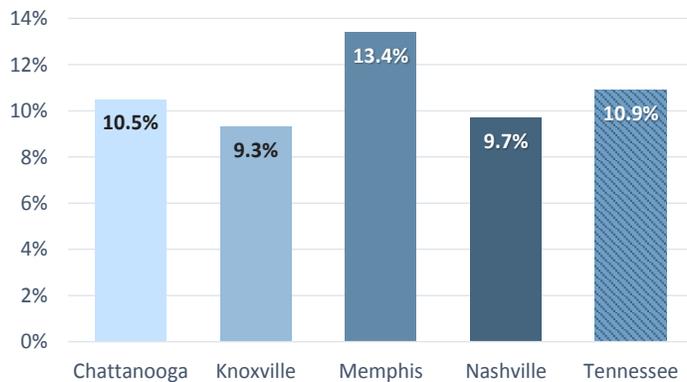
Share of Vacant Addresses that have been Vacant for Longer than 2 Years



## Comparing Pre-Recession (2007) Mortgage Volume to 2015 Mortgage Volume, by City



## Percentage of Mortgage Loan Applications Denied, by City (2015)



Out of a total of 3,262,025 residential addresses in the State of Tennessee, five percent are vacant. Memphis exceeds the state's rate with nearly seven percent of all addresses being vacant, while Nashville is at the opposite extreme with just a 1.5 percent vacancy rate. What also stands out for Memphis is its high proportion of long-term vacancies; nearly 9 out of 10 of vacant residential addresses in Memphis have been so for more than 2 years.

Neither Tennessee as a whole or any of the four major metros, as of 2015, reached their pre-recession levels of mortgage market activity, but the disparities between the four major cities was perhaps surprising. Where Nashville's 2015 mortgage origination had reached 96 percent of its 2007 levels, and Tennessee as a whole had reached 88 percent, Memphis's 2015 levels were just 53 percent of 2007 mortgage origination.

<b>Vacant Residential Addresses</b> (Only Residential Addresses Considered)	<b>Chattanooga</b>	<b>Knoxville</b>	<b>Memphis</b>	<b>Nashville</b>	<b>Tennessee</b>	<i>Current as of</i>
Total Vacant Addresses	4,174	4,038	21,695	4,980	161,613	2016
Percent of Addresses that are Vacant	4.2%	4.1%	6.8%	1.5%	5.0%	2016
Addresses that have been Vacant for less than 2 years	982	1,219	2,520	1,935	46,949	2016
Percent of Total Addresses Vacant for less than 2 years	1.0%	1.2%	0.8%	0.6%		2016
Addresses that have been Vacant for longer than 2 years	3,192	2,819	19,175	3,045	114,664	2016
Percent of Addresses Vacant for longer than 2 years	3.2%	2.9%	6.0%	0.9%		2016
Share of Vacancy Inventory that has been Vacant for more than 2 years	76%	70%	88%	61%	71%	2016
<b>Mortgage Market Activity</b>	<b>Chattanooga</b>	<b>Knoxville</b>	<b>Memphis</b>	<b>Nashville</b>	<b>Tennessee</b>	<i>Current as of</i>
Volume of Single Family, Owner Occupied Mortgages in 2007 (pre-Recession)	2,151	2,420	5,894	10,516	81,647	2016
Volume of Single Family, Owner Occupied Mortgages in 2015	1,689	1,653	3,133	10,052	72,172	2016
2015 Mortgage Loan Volume as a Percentage of 2007 Loan Volume	79%	68%	53%	96%	88%	2016
Percentage of Mortgage Loan Applications Denied (Year 2015)	10.5%	9.3%	13.4%	9.7%	10.9%	2015

# Sources

---

## U.S. Census

### *American Community Survey: 1 year data*

Housing stock totals and change in units  
(single family and multifamily)

Age of housing stock

Population growth and change

### *American Community Survey: 5 year data*

Homeownership and Renter rates

Income and affordability

Cost burdened homeowners and renters

Commute times

### *Decennial Census*

Home ownership

Population growth and change

### *Building Permits Survey*

Building permit data

## Comprehensive Housing Affordability Strategy (CHAS) Data, 2009-2013

Cost burdened renters

## State of the Cities Data Systems (SOCDS)

Building permit data

## United States Postal Service (USPS) Vacancy Data

Vacancy data

## Home Mortgage Disclosure Act

Mortgage loan denials

Mortgage volume

## Tennessee Housing Development Agency (THDA)

Affordability (calculated using home sales data from the TN Comptroller, Median Hourly Wage from the Bureau of Labor Statistics, Annual Average Interest Rate from Freddie Mac's Primary Mortgage Market Survey)

## Tennessee Comptroller's Office: Division of Property Assessments

Home sales data

Land use and property value appraisals

(Property Assessor of Nashville and Davidson County; Shelby County Assessor of Property; Hamilton County Assessor of Property; KGIS. Data for Knox County was obtained directly via KGIS; all other parcel data was obtained via the Tennessee Comptroller's Office with the permission of each of the three jurisdictions)

## Tennessee State Data Center, University of Knoxville

Population growth and change