

**MIDDLE
TENNESSEE**

STATE UNIVERSITY

Business & Economic Research Center



Small Panel Big Support

Developing a Dashboard to Support
Rutherford County's Booming Economy

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Oct 13, 2019

Existing Dashboards

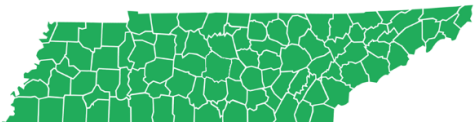
MIDDLE TENNESSEE STATE UNIVERSITY
JONES COLLEGE OF BUSINESS

TN Tennessee Advisory Commission on Intergovernmental Relations
TACIR with MTSU Department of Economics and Finance

Tracking Tennessee's Economy

County Data
 Tennessee
 Chattanooga MSA
 Clarksville MSA
 Cleveland MSA
 Jackson MSA
 Johnson City MSA
 Kingsport-Bristol MSA
 Knoxville MSA
 Memphis MSA
 Morristown MSA
 Nashville MSA

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Rutherford County

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Updated September 7, 2019

Rutherford County

Jul 2019 Seasonally Adjusted

		Year Ago	Last Month	This Month	% Change over Month	% Change over Year
Labor Force	graph	176,847.0	182,976.0	183,625.0	0.4	3.8
Employment	graph	171,961.0	177,957.0	178,115.0	0.1	3.6
Unemployment	graph	4,886.0	5,019.0	5,510.0	9.8	12.8
Unemployment Rate	graph	2.8	2.7	3.0	0.3	0.2
State Sales Tax Collections (thousand \$)	graph	32,422.7	33,927.3	33,255.7	-2.0	2.6

not seasonally adjusted | data history 2006-now | about data

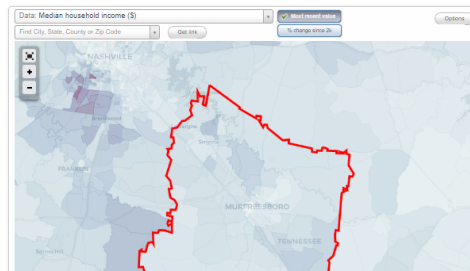
Rutherford County, Tennessee (TN)

County population in 2016: 308,251 (83% urban, 17% rural); it was 182,023 in 2000
 County owner-occupied with a mortgage or a loan houses and condos in 2010: 52,007
 County owner-occupied free and clear houses and condos in 2010: 13,142
 County owner-occupied houses and condos in 2000: 46,408
 Renter-occupied apartments: 30,783 (it was 20,035 in 2000)
 % of renters here: 30%
 State: 32%
 Land area: 619 sq. mi.
 Water area: 5.0 sq. mi.
 Population density: 496 people per square mile (high)
 Mar. 2016 cost of living index in Rutherford County: 89.6 (less than average, U.S. average is 100)
 We are giving away a \$200 prize - enter simply by sending us your own pictures of this county!
[Click here to upload your Rutherford County photos \(outside city limits\)](#)
 Industries providing employment: Professional, scientific, management, administrative, and waste management services (24.5%), Finance, insurance, real estate, and rental and leasing (14.4%), Retail trade (14.0%), Educational, health and social services (11.4%).

Type of workers:

- Private wage or salary: 73%
- Government: 3%
- Self-employed, not incorporated: 24%
- Unpaid family work: 1%

Rutherford County, Tennessee business data: stores, dealers, real estate agents, wholesalers, restaurants...



Rutherford County, Tennessee

★★★★★
0 Reviews | Review This Place

Population 298,456 +19.1% since 2010	Median Income \$55,096	Median Age 33.1
Unemployment Rate 2.7%	Median Home Price \$236,600	Comfort Index (Climate) 7.3/10

Download This Place

MURFREESBORO, TN

ADD COMPARISON

POPULATION 126,188 3.43% GROWTH	MEDIAN AGE 30.3	MEDIAN HOUSEHOLD INCOME \$57,753 8.6% GROWTH
POVERTY RATE 15%	NUMBER OF EMPLOYEES 67,019 6% GROWTH	MEDIAN PROPERTY VALUE \$198,800 0.77% GROWTH

ABOUT ECONOMY HEALTH DIVERSITY EDUCATION HOUSING & LIVING

Requirements

- County Level Information
- Monthly Update
- Interactive and Customized

Challenges and Solutions

- Limited data – Creative ways to collect data
- Multiple sources and frequent updates – Developing API to handle data download and preparation process
- Interactive interface – Using Tableau, Power BI, R, and other tools

DATA

- Excel + R for data download and preparation



TNURN.nb.html

Average	1.1%	10.9%	18.86	19.83	61.1%	2.00	Weight				
Standard Deviation	2.3%	1.7%	1.13	1.00	7.7%	2.25	37.5%	37.5%	5.0%	5.0%	10.0%

	Original Data						Calculated Weight						Index	
	STEM Jobs as		Average ACT	Average ACT	College	Patents per	STEM Jobs as		Average ACT	Average ACT	College	Patents per	STEM	Exposure
	Total County	Percent of TN					Total County	Percent of TN						
Williamson	5.7%	19.8%	24.30	24.70	84.5%	6.19	0.367	0.375	0.050	0.050	0.050	0.097	0.989	1
Knox	9.4%	16.2%	20.20	21.20	64.1%	7.31	0.375	0.375	0.044	0.046	0.033	0.099	0.971	2
Hamilton	6.4%	14.1%	19.30	20.10	65.8%	2.57	0.371	0.363	0.033	0.030	0.036	0.060	0.894	3
Washington	2.4%	15.7%	19.90	20.80	68.0%	3.80	0.269	0.374	0.041	0.042	0.041	0.079	0.846	4
Sullivan	2.5%	13.5%	19.40	20.00	67.1%	11.52	0.275	0.353	0.034	0.028	0.039	0.100	0.829	5
Davidson	12.8%	12.9%	18.40	19.30	60.9%	2.76	0.375	0.333	0.017	0.015	0.024	0.063	0.827	6
Rutherford	4.8%	12.2%	20.00	21.00	65.9%	1.74	0.356	0.293	0.042	0.044	0.037	0.045	0.817	7
Shelby	14.1%	11.8%	17.50	18.20	63.5%	6.01	0.375	0.264	0.006	0.003	0.031	0.096	0.775	8
Wilson	2.2%	13.1%	19.80	21.20	69.1%	1.47	0.263	0.338	0.040	0.046	0.043	0.041	0.770	9
Anderson	1.2%	13.9%	18.60	19.20	67.7%	11.80	0.199	0.360	0.020	0.013	0.040	0.100	0.733	10
Blount	1.9%	12.3%	20.40	20.90	60.3%	2.41	0.243	0.302	0.046	0.043	0.023	0.057	0.713	11
Putnam	1.0%	12.1%	20.90	21.20	60.3%	7.65	0.181	0.288	0.048	0.046	0.023	0.099	0.686	12
Sumner	2.6%	11.0%	20.20	21.30	70.4%	2.28	0.283	0.201	0.044	0.046	0.044	0.055	0.674	13
							0.006	0.005	0.024	0.097	0.591	14		
							0.014	0.024	0.010	0.026	0.573	15		
							0.033	0.036	0.034	0.050	0.561	16		
							0.042	0.043	0.042	0.082	0.533	17		
							0.024	0.028	0.017	0.053	0.533	18		
							0.045	0.032	0.038	0.084	0.530	19		
							0.027	0.022	0.022	0.034	0.529	20		
							0.029	0.039	0.034	0.036	0.525	21		
							0.027	0.028	0.017	0.025	0.524	22		
							0.019	0.032	0.012	0.064	0.520	23		
							0.029	0.013	0.030	0.019	0.506	24		
							0.009	0.024	0.032	0.022	0.505	25		
							0.022	0.024	0.020	0.026	0.505	26		
							0.037	0.037	0.023	0.031	0.502	27		

```

27 Re-coded data to add age group and NAICS major industry information.
28 {r_paged.print=TRUE}
29 df <- P_1Year_2017_USA %>%
30 mutate(age_group = if_else(AGEP < 25, '<25',
31 if_else(AGEP < 35, '25-34',
32 if_else(AGEP < 45, '35-44',
33 if_else(AGEP < 55, '45-54',
34 if_else(AGEP < 65, '55-64',
35 if_else(AGEP < 75, '65-74',
36 if_else(AGEP < 85, '75-84',
37 if_else(AGEP < 85, '85+'))))))) %>%
38
39 mutate(major_industry = if_else(startswith(as.character(NAICSP), '92'), 'NAICS 92',
40 if_else(startswith(as.character(NAICSP), '62'), 'NAICS 62',
41 if_else(startswith(as.character(NAICSP), '61'), 'NAICS 61',
42 if_else(startswith(as.character(NAICSP), '54'), 'NAICS 54',
43 if_else(startswith(as.character(NAICSP), '31'),
44 startswith(as.character(NAICSP), '32'),
45 startswith(as.character(NAICSP), '33'), 'NAICS 31-
46
47 # Resident Population in Tennessee Thousands of Persons, Annual, Not Seasonally Adjusted
48 fred.data("TNPOP", "Resident Population in Tennessee [Thousands of Persons, Annual, Not Seasonally Adjusted]")
49
50 mutate(sex = if_else(SEX == 1, 'Male', 'Female')) %>%
51
52 #Resident Population in Rutherford County, TN Thousands of Persons, Annual, Not Seasonally Adjusted
53 fred.data("TNRUTHPOP", "Resident Population in Rutherford County, TN [Thousands of Persons, Annual, Not Seasonally Adjusted]")
54
55 #Resident Population in Davidson County, TN Thousands of Persons, Annual, Not Seasonally Adjusted
56 fred.data("TNDAVISPOP", "Resident Population in Davidson County, TN [Thousands of Persons, Annual, Not Seasonally Adjusted]")
57
58 #Resident Population in Williamson County, TN Thousands of Persons, Annual, Not Seasonally Adjusted
59 fred.data("TNWILLOPOP", "Resident Population in Williamson County, TN [Thousands of Persons, Annual, Not Seasonally Adjusted]")
60
61 #Unemployment Rate in Rutherford County, TN
62 fred.data("TNRUTHOURN", "Unemployment Rate in Rutherford County, TN [Monthly, Not Seasonally Adjusted]")
63
64 #Unemployment Rate in Nashville-Davidson--Murfreesboro--Franklin, TN (MSA)
65 fred.data("NASH947UR", "Unemployment Rate in Nashville-Davidson--Murfreesboro--Franklin, TN (MSA) [Monthly, Not Seasonally Adjusted]")
66
67 #Unemployment Rate in Tennessee
68 fred.data("TNURN", "Unemployment Rate in Tennessee [Monthly, Not Seasonally Adjusted]")
69
70 #Total wages and salaries in Tennessee
71 fred.data("TNWTOT", "Total wages and salaries in Tennessee [Quarterly, Not seasonally Adjusted]")

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RUTHERFORD COUNTY

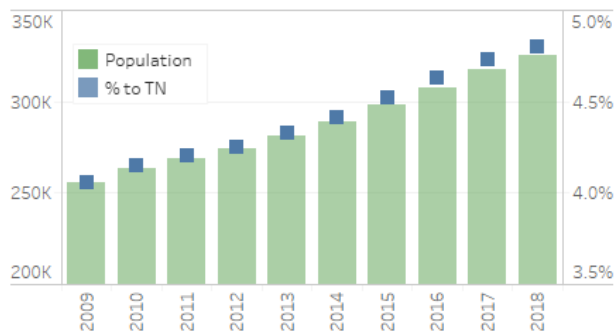
in a snapshot

Population & Migration

324,890 | 2.5%

Between 2013 and 2017, on average there are 63 people move in and 47 people move out of Rutherford County each day, and the net migration flow is about 16 people per day.

Census Bureau | County-to-County Migration Flows: 2013-2017 ACS



Federal Reserve Bank of St. Louis | 2009 - 2018 Population

STEM Exposure Index

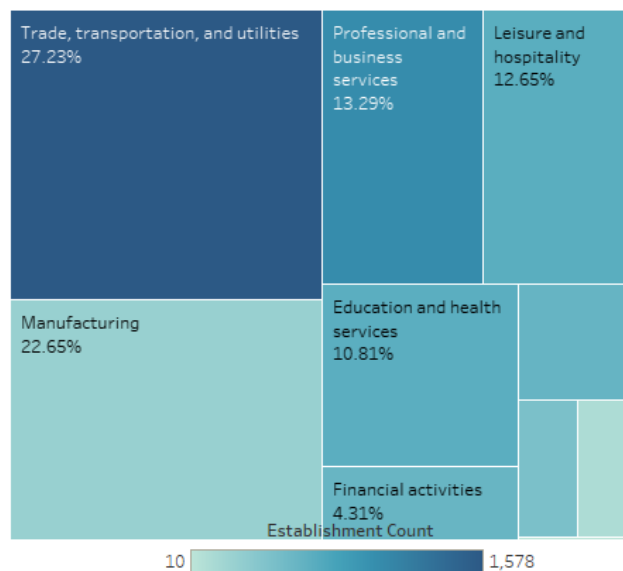
8.2 | #6 out of 95 counties in Tennessee

Bureau of Labor Statistics | Occupational Employment Statistics 2017
Tennessee Department of Education | 2017..

Top Industries

1/2 employees work for Trade, Transportation, Utility, and Manufacturing industries.

Bureau of Labor Statistics | Occupational Employment Statistics 2017



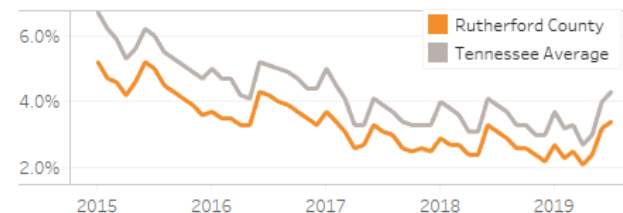
10 Establishment Count 1,578

Unemployment Rate

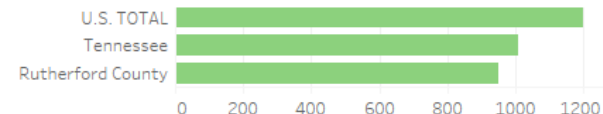
3.4% | 0.2%

In July, the unemployment rate of Rutherford county increased by 0.2% compared to the previous month and is 1.2% higher than April, which has the lowest unemployment rate in the decade. Although there's a trend of increase in the unemployment rate, it currently is still at a low position. Rutherford county's unemployment rate is consistently below the Tennessee average.

Federal Reserve Bank of St. Louis | 2009 - 2018 Unemployment



Average Weekly Wage



Bureau of Labor Statistics | Occupational Employment Statistics 2017



Demo



Thank you!

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