

A New Dawn, Preparing for a New Day

The Education and Workforce Needs Index



- Houston Davis | Brian Noland | Patrick Kelly | Nicholas Bolden

SHEEO Policy Conference | August 2022

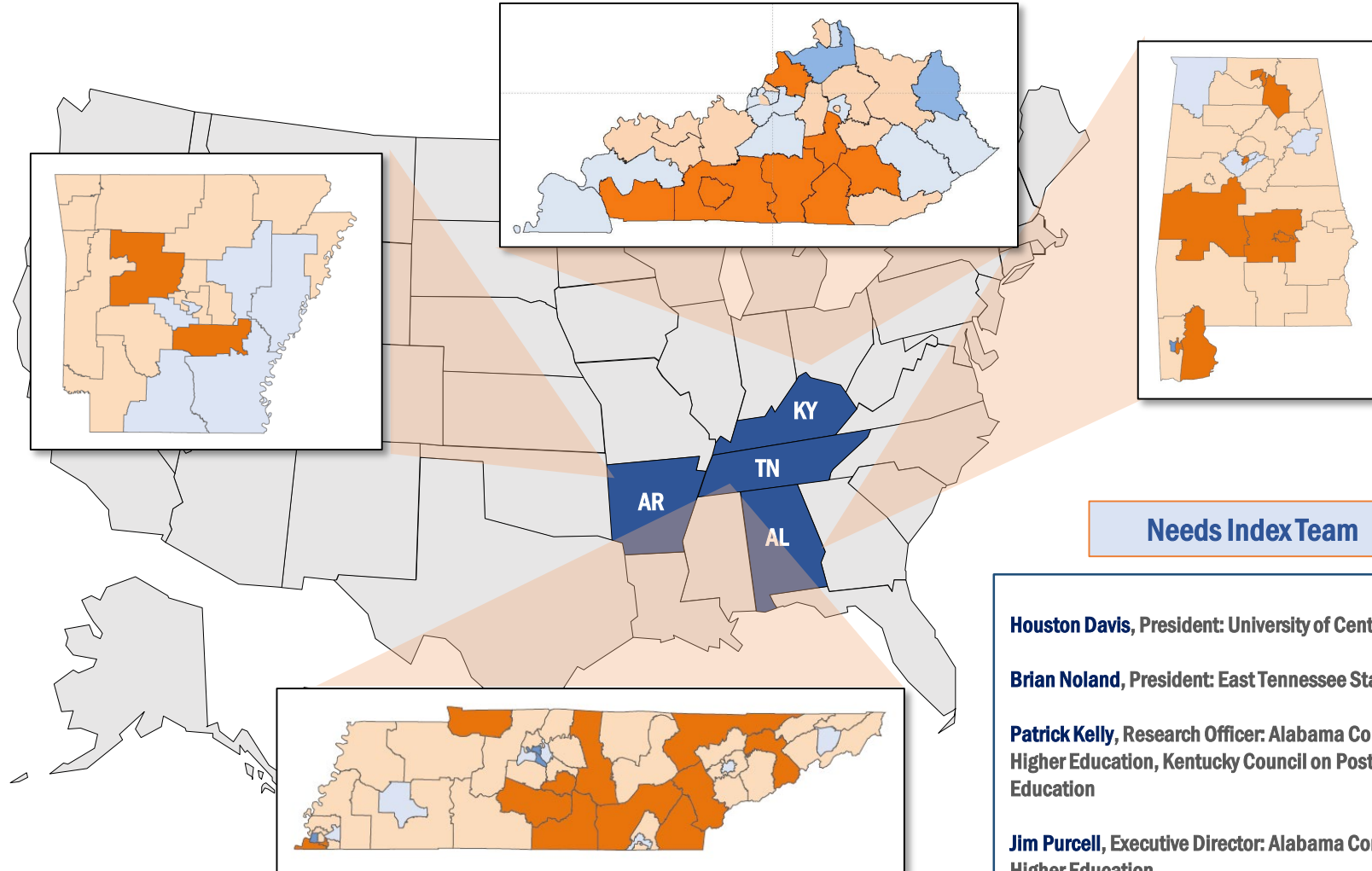
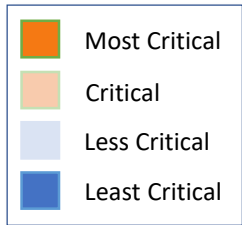
EWNI Foundational Constructs

- **Education and the economy are intertwined as human capital is now a centerpiece of the knowledge economy.**
- **State budget constraints and focused expenditures are a reality.**
- **Conditions are not uniform from region to region. State-level indicators limit policy differentiation.**
- **Educational planning indicators must be linked with economic and demographic variables to provide an accurate representation of citizens' needs.**

EWNI Key Questions

- **What is the current level of educational attainment of the state and its respective regions?**
- **What is the current health of the state's various regions from an economic perspective?**
- **Are there areas of the state that are quickly growing and have shifting demographics that skew toward youth, young adults, or underrepresented minorities?**
- **What areas of the state can be identified by the EWNI to be under-educated, facing economic challenges, and facing population pressures that exacerbate both?**

Education and Workforce NEEDS INDEX (EWNI)



Targeting Areas for Solutions

Raising the education levels of the population and workforce

Meeting employment and workforce demands and aspiration

Addressing population challenges related to growth, diversity, and age

Needs Index Team

Houston Davis, President: University of Central Arkansas

Brian Noland, President: East Tennessee State University

Patrick Kelly, Research Officer: Alabama Commission on Higher Education, Kentucky Council on Postsecondary Education

Jim Purcell, Executive Director: Alabama Commission on Higher Education

“Without big data, you are blind and deaf and in the middle of a freeway.”

Geoffrey Moore

Without a road map, you are likely lost, and will arrive in the wrong place.

Using Data and Research to Guide Policy

Areas of Focus: Research and Strategy

Data

- Leverage Public & Proprietary Data

- ### Research
- Identify Problem Areas
 - Establish Research Questions

Strategy

- Develop Plan to Address Problems
- Involve Stakeholders and Build Consensus

Implementation

- Establish Framework for Continuity
- Assign Responsibility

Practice

- Measure Progress
- Ongoing Evaluation and Review

Education and Workforce NEEDS INDEX

Education

- Ages 18 to 64 with a High School Diploma Only
- Ages 25 to 64 with an Associates Degree
- Ages 25 to 64 with a Bachelor's Degree
- Difference in College Attainment between Young and Older Adults
- Ages 18 to 29 with No College Credential, Not Enrolled

Workforce

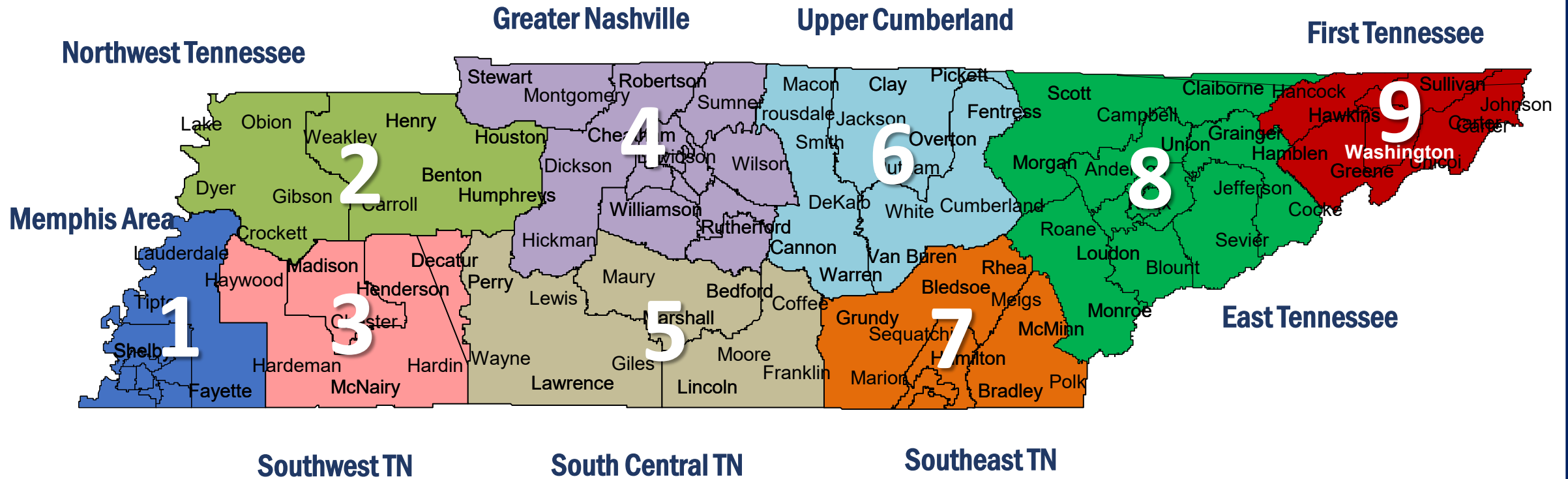
- Working-Age Participation in the Labor Force
- Unemployment
- Employment in Manufacturing and Extraction
- Median Personal Income (total personal income)
- Median Annual Wage Income (full-time workers)
- Adults with SSI or Welfare Income

Population

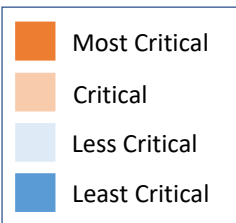
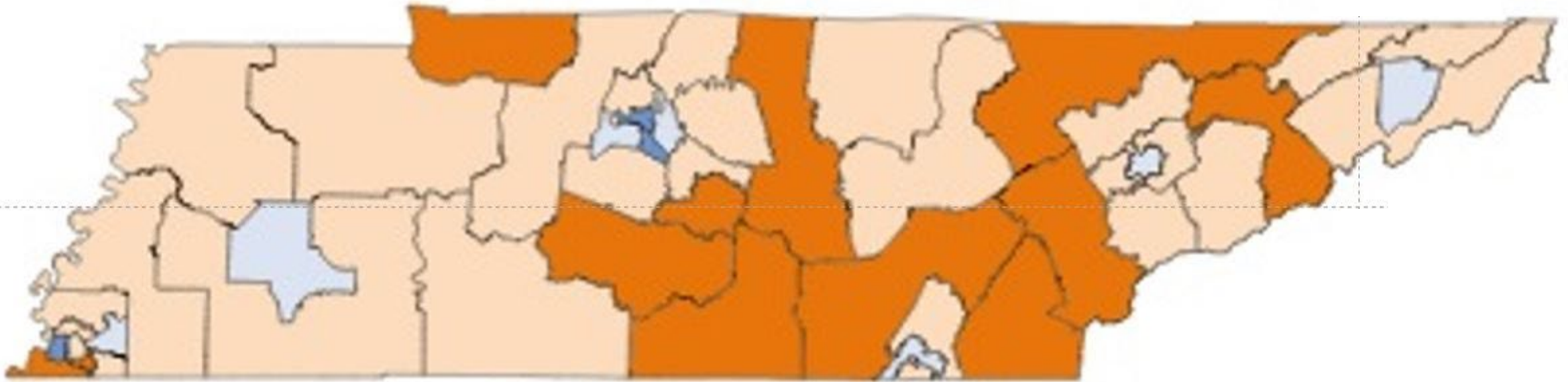
- Population Ages 0 to 19
- Population Ages 20 to 44
- Underrepresented Minorities
- Annual % Change in Population Under 65
- Ages 25 to 64 in Poverty

Northeast Tennessee Case Study

Tennessee Development Districts



EWNI Overall Rankings for Tennessee





Education and Workforce NEEDS INDEX

● First Tennessee ● Tennessee ● Regions | U.S. Quartiles ● East Tennessee

	Lower Need				Highest Need
		1 3 9 2		8 5 6 7 4	
Population Ages 0 to 19	9	6 8 7 1 3		5 4	2
Population Ages 20 to 44	1	6 9 3 5 8 7		2	4
Underrepresented Minorities	9 6 8	5 1 7 4		3	2
Population in Poverty		2		1 4	3 5 9 6 7 8
Change in Population 64 and Under	3	1 2 9		5 4 7 6	

POPULATION Growth and Diversity

Population Ages 0 to 19

Population Ages 20 to 44

Underrepresented Minorities

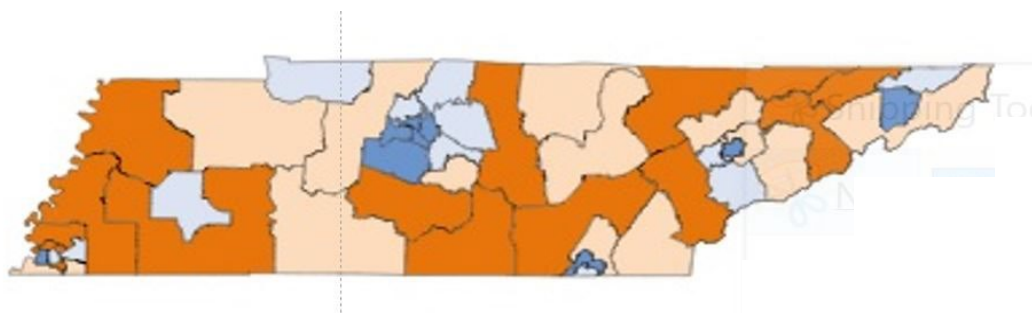
Population in Poverty

Change in Population 64 and Under

Challenges Facing Northeast Tennessee

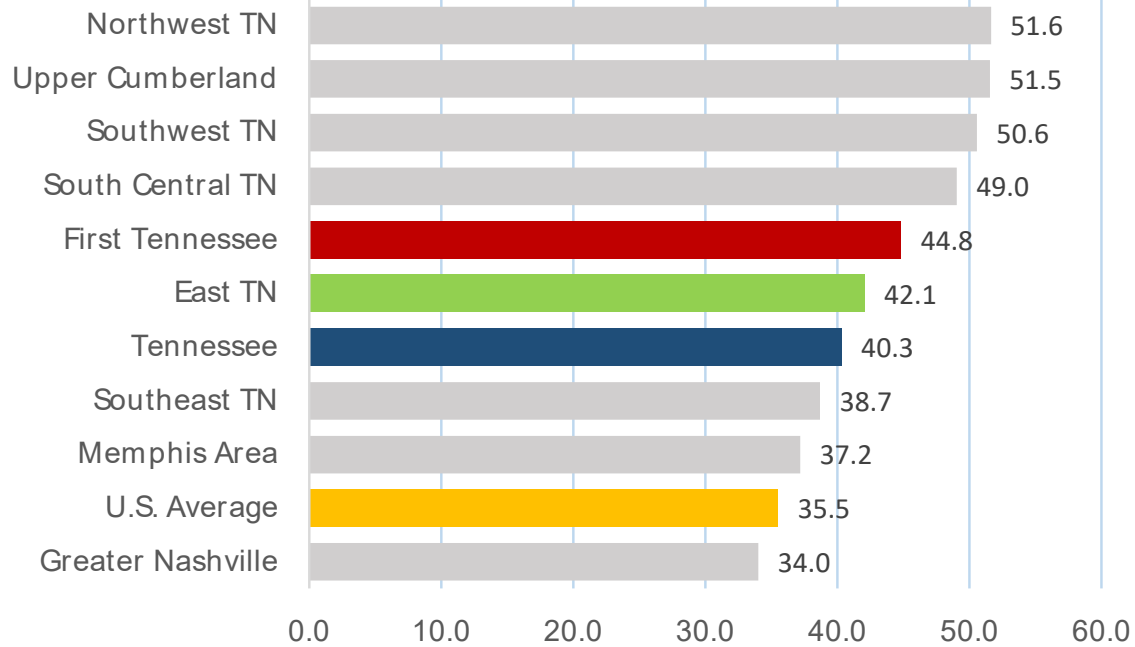
- Lack of regionalism across planning and ECD entities
- Stagnant population growth
- Low levels of educational attainment
- Declining college going culture
- Absence of cultural diversity
- Heavy reliance on government subsidies and transfer payments
- Depressed earnings potential

Education Factors

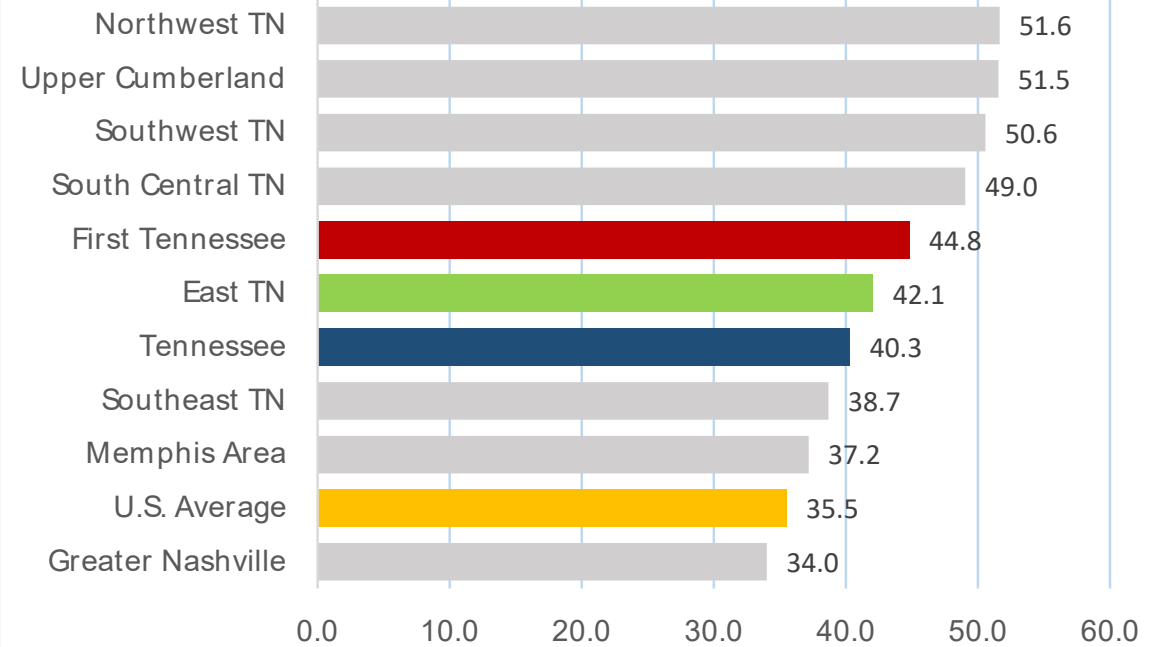


- **Ages 18 to 64 with Just a High School Diploma**
- **Ages 25 to 64 with an Associates Degree**
- **Ages 25 to 64 with a Bachelor's Degree**
- **Difference in College Attainment between Young and Older Adults**
- **Ages 18 to 29 with No College Credential, Not Enrolled**

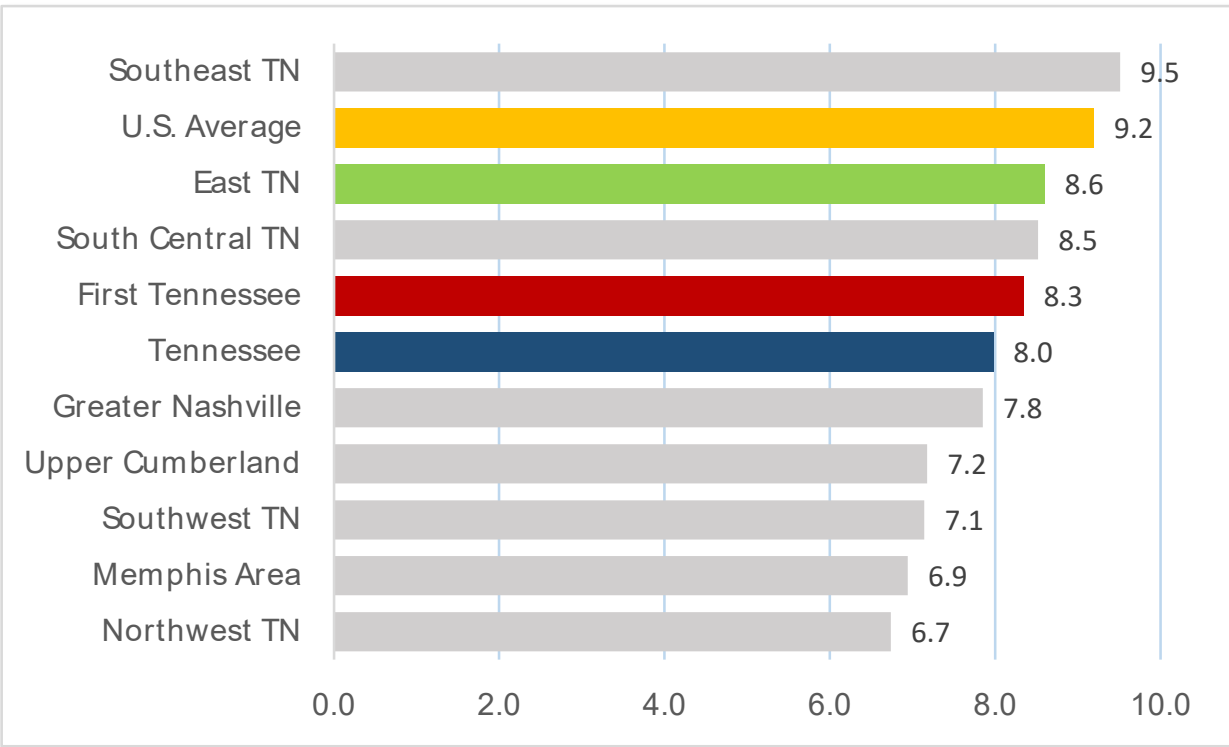
Percentage of Adults Ages 25 to 64 with a High School Diploma Only (2019)



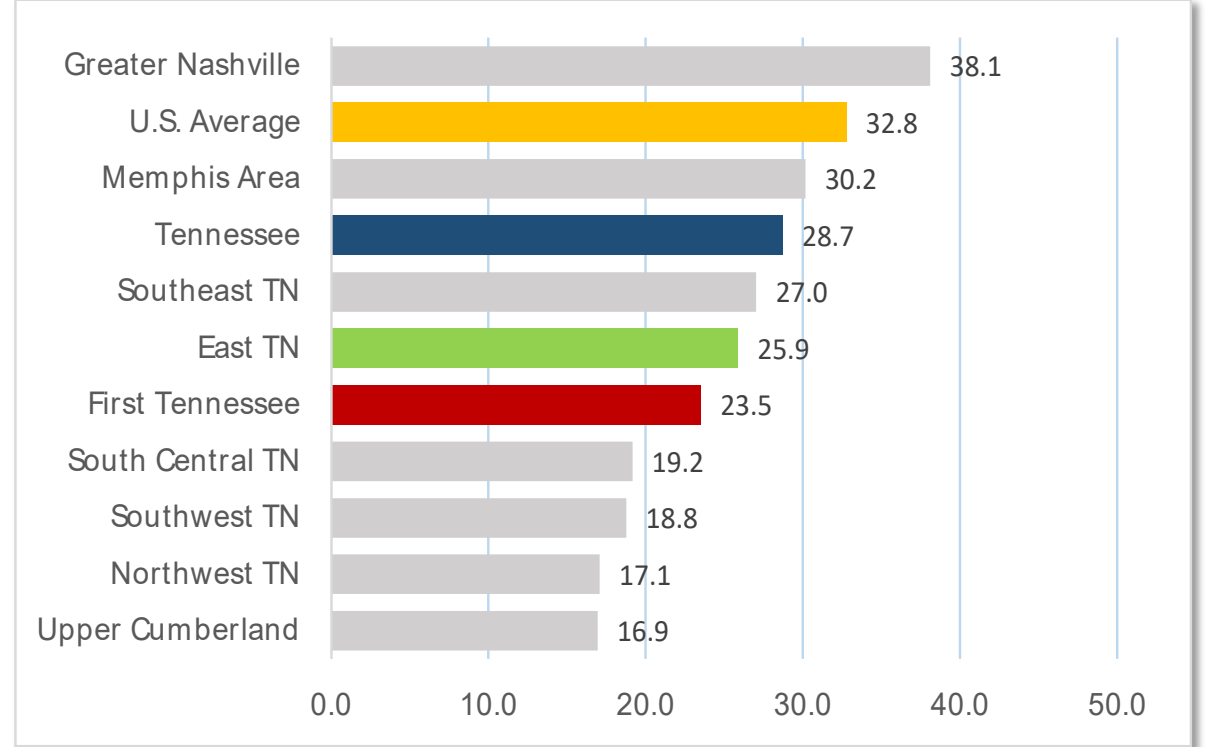
Percentage of Adults Ages 25 to 64 with a High School Diploma Only (2019)



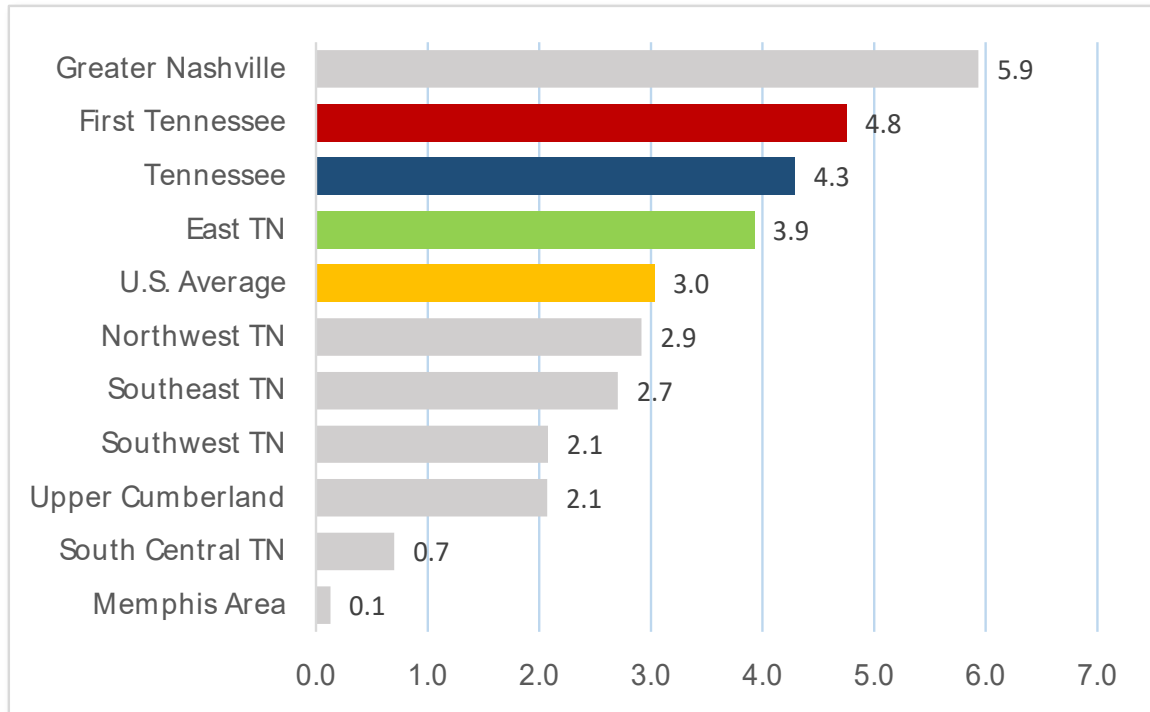
Percent of 25 to 64 Year Olds With an Associates Degree (2019)



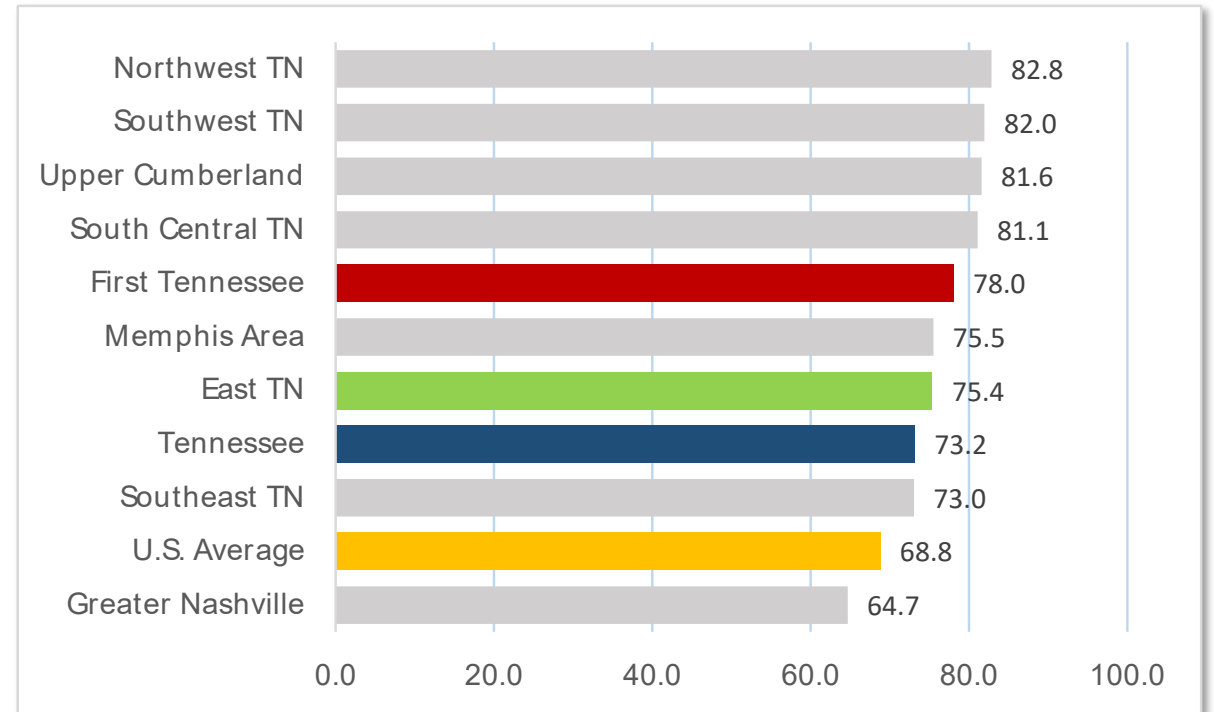
Percent of 25 to 64 Year Olds With a Bachelor's Degree or Higher (2019)



Difference in College Attainment Between Young (25 to 35) and Older (45 to 54) Residents

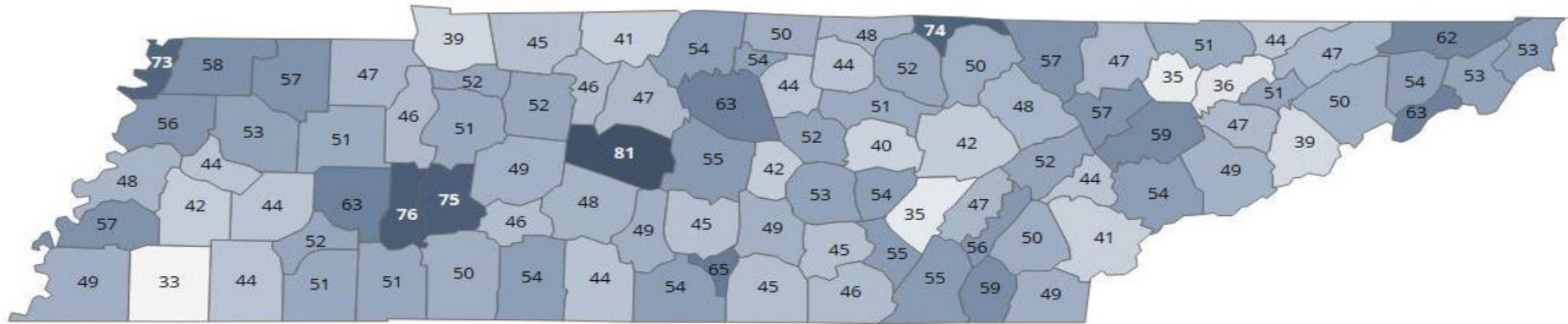


Percent of 18 to 29 Year Olds with No College Credential, Not Enrolled

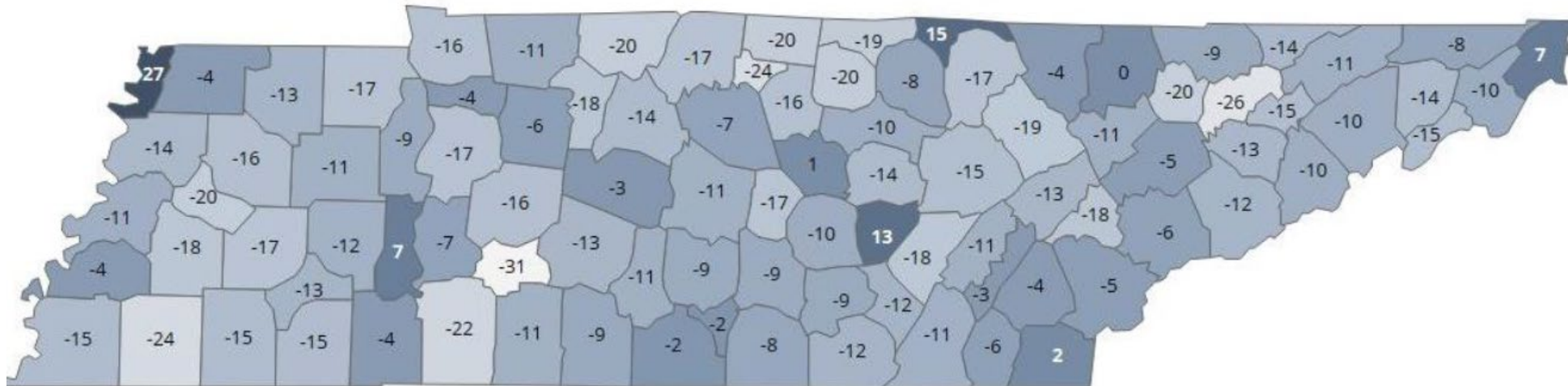


Contextual Information

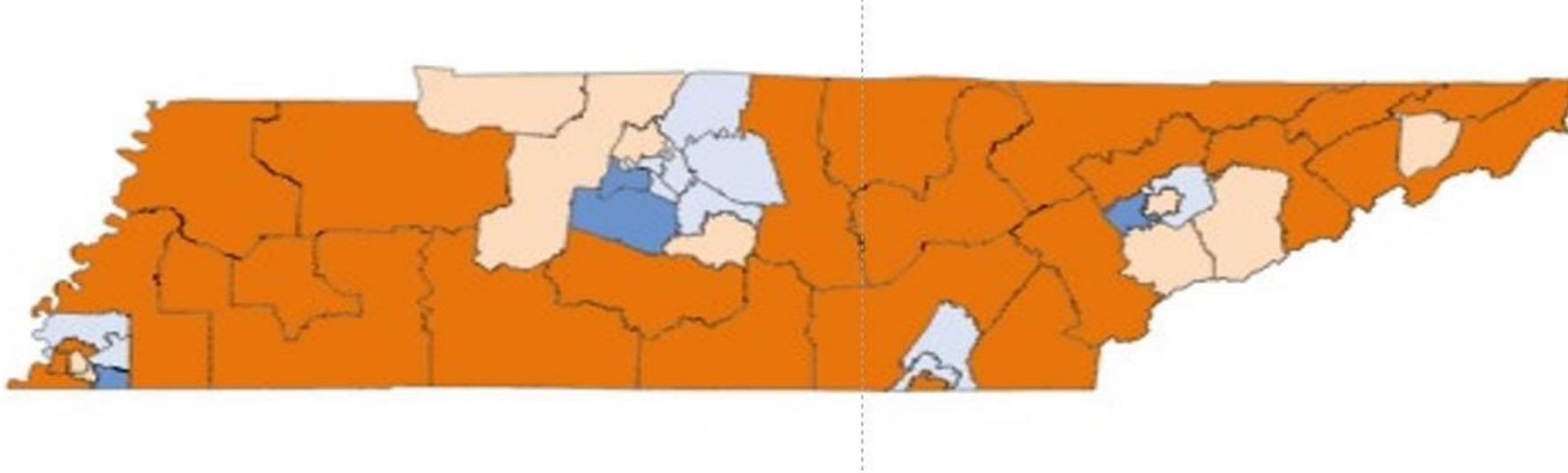
College Going Rates (2021)



Five year Change in College Going Rates (2017 to 2021)

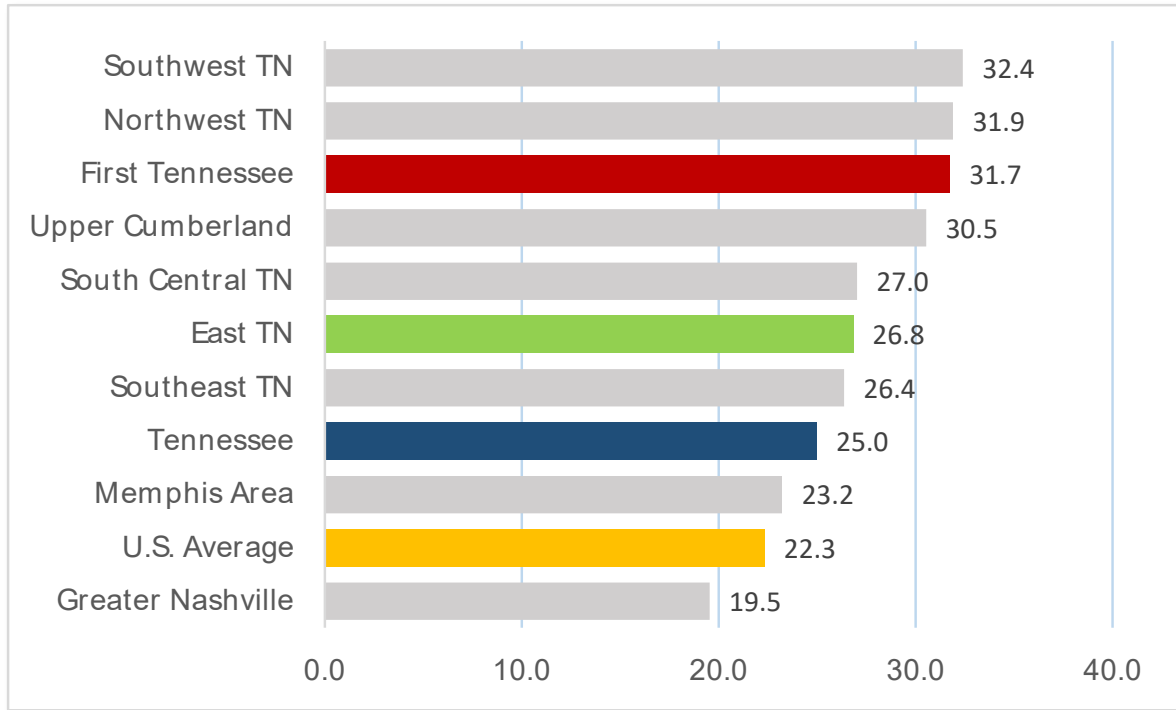


Workforce Factors

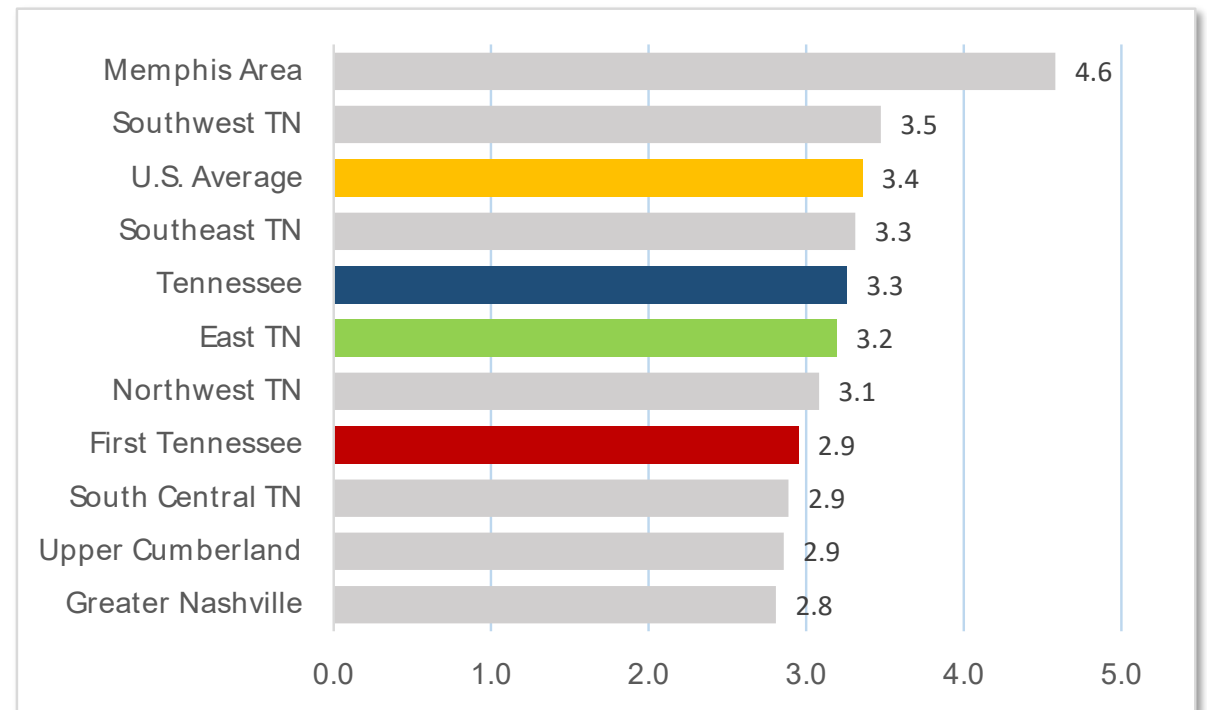


- Working-Age Participation in the Labor Force
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- Median Personal Income
- Median Annual Wage Income
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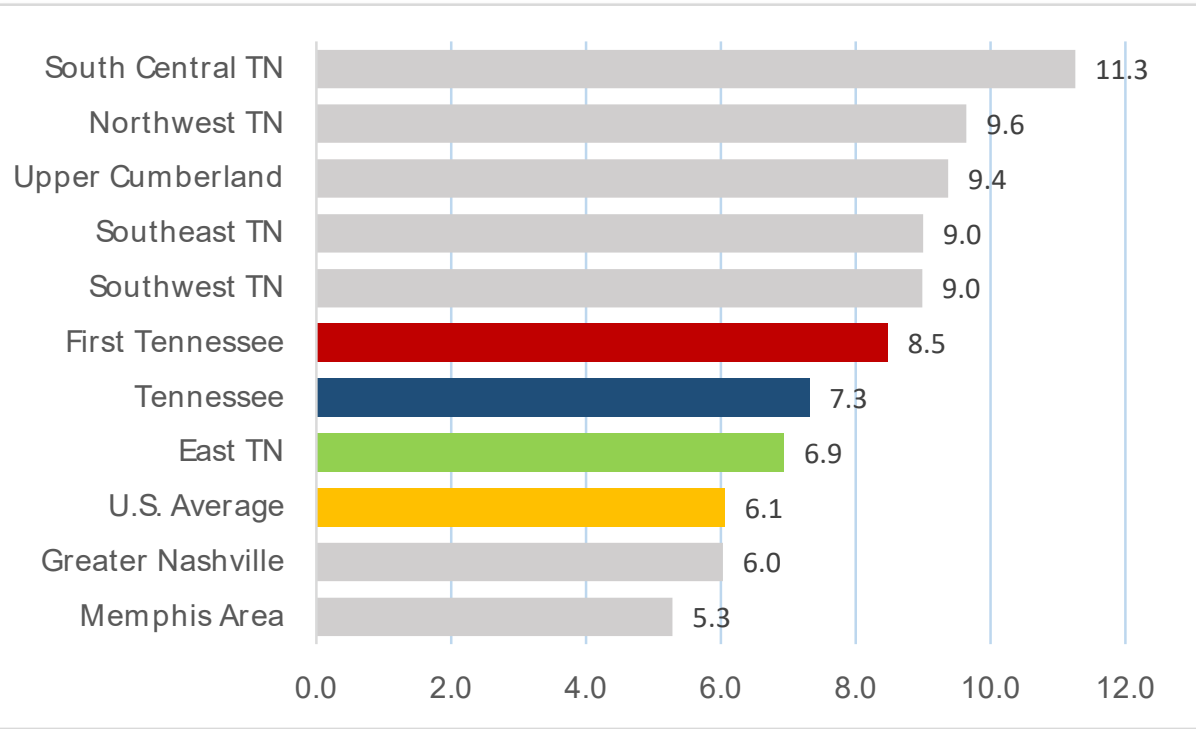
Percent of 25 to 64 Year Olds Not Participating in the Labor Force (2019)



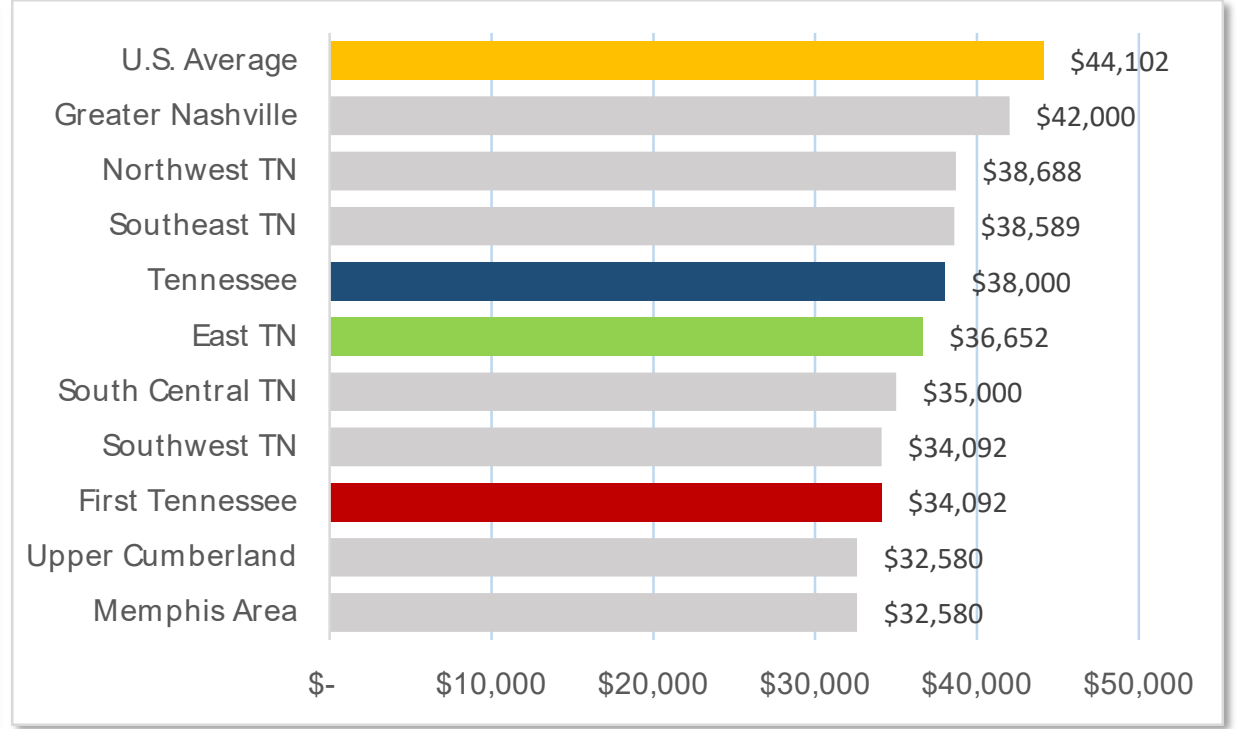
Unemployment Rate (2019)



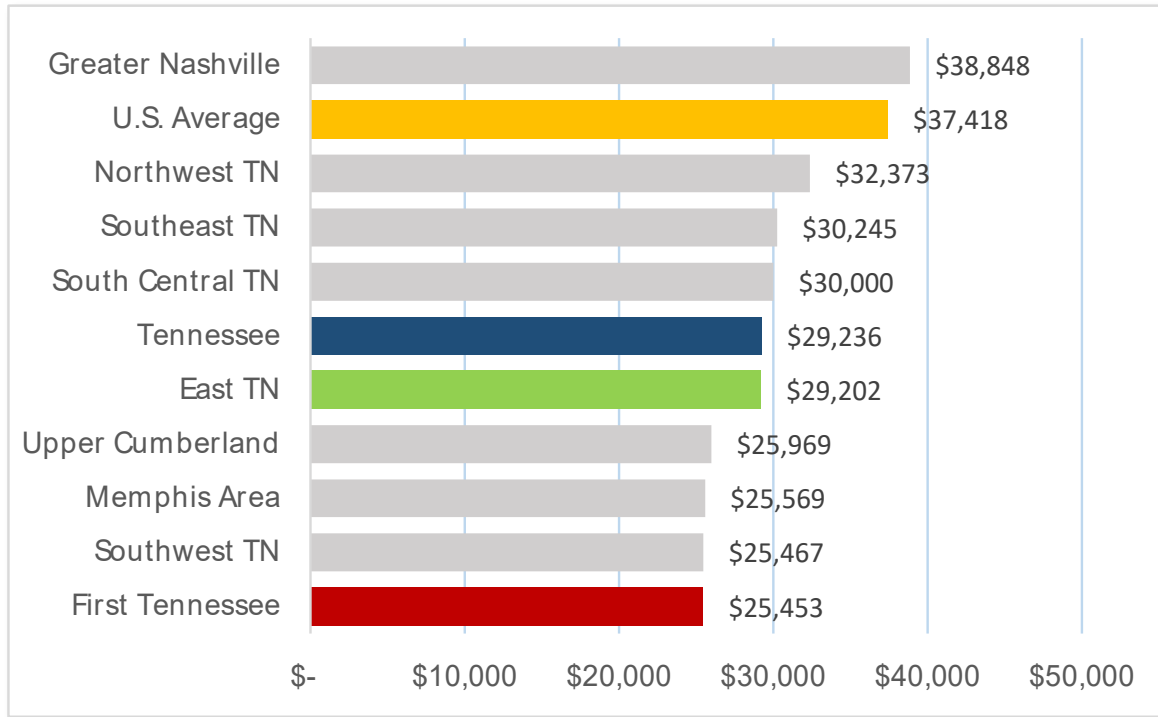
Percent of Employment in Manufacturing and Extraction Industries (2019)



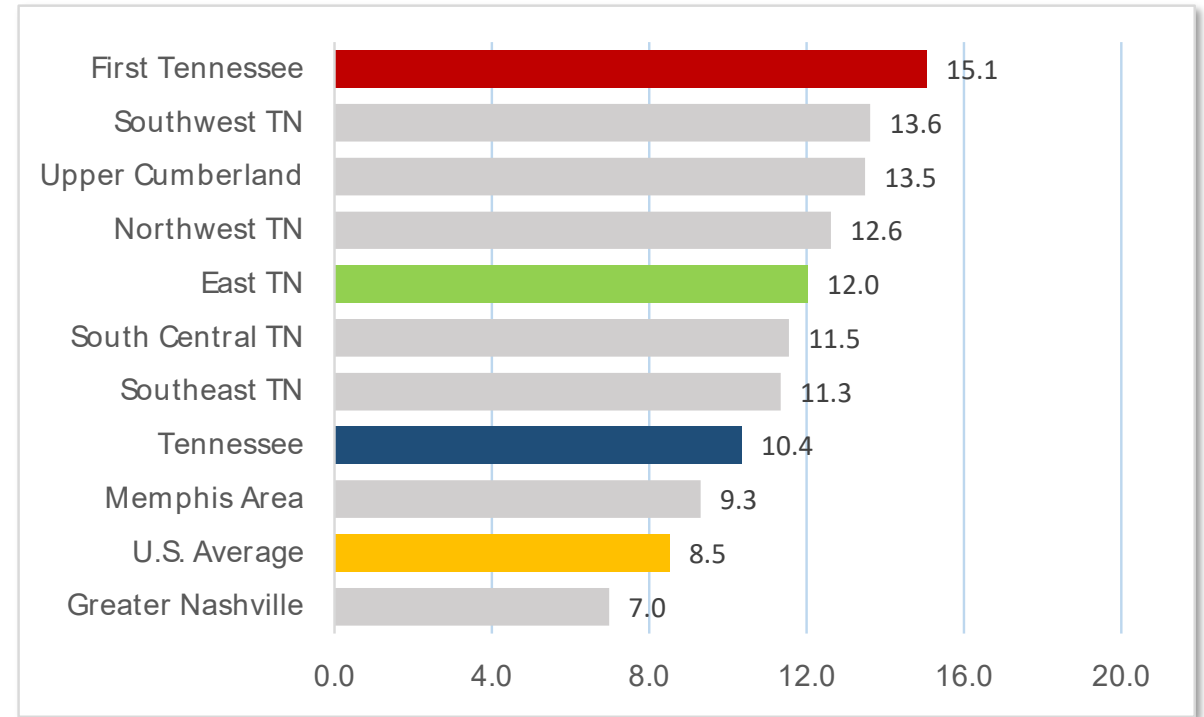
Median Annual Wage Earnings for Full-Time Workers (2019)



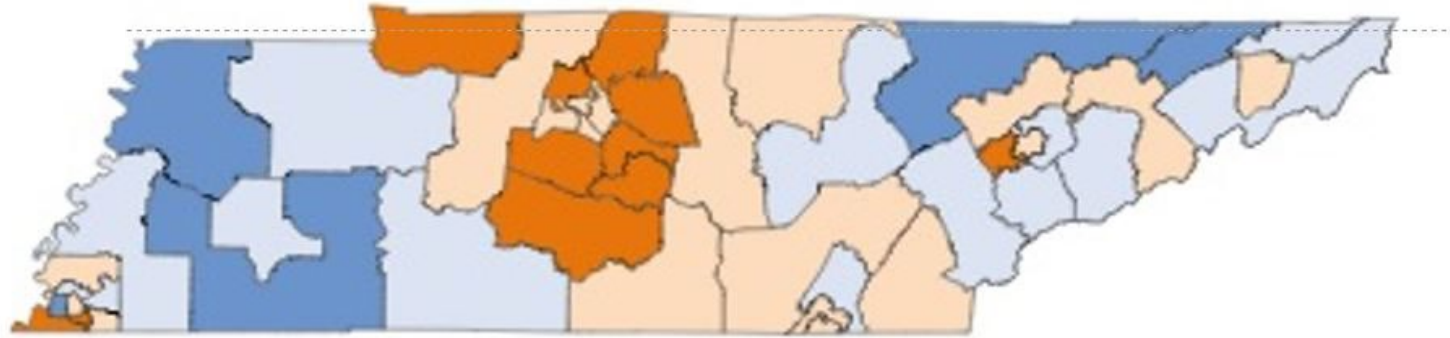
Median Personal Income (2019)



Percent of Adults Ages 18 to 64 with SSI or Welfare Income (2019)



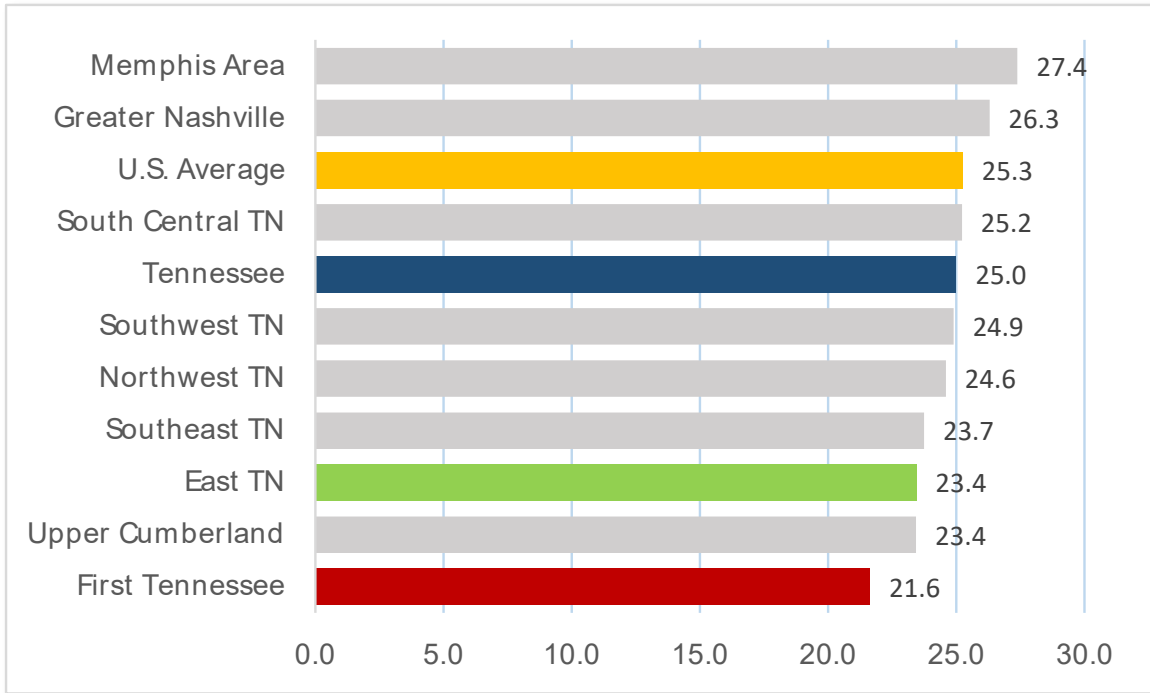
Population Factors



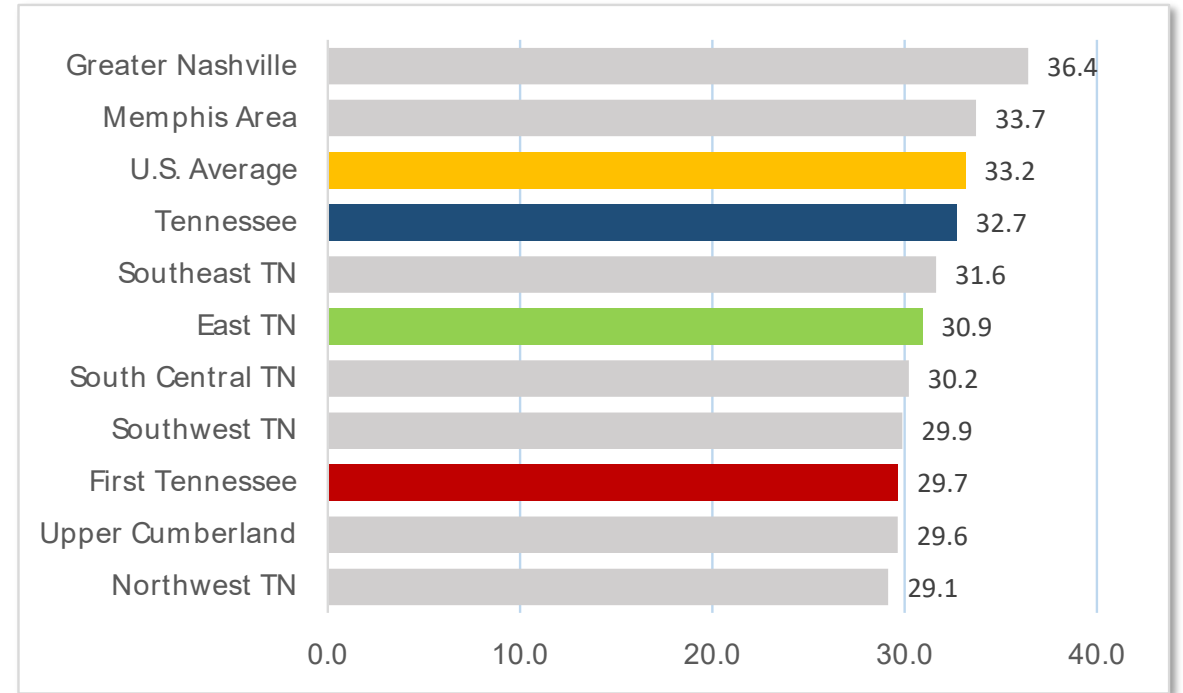
- Population Ages 0 to 19
- Population Ages 20 to 44
- Underrepresented Minorities
- Annual % Change in Population
- Under 65 Years of Age
- Ages 25 to 64 in Poverty

Younger Residents as a Percent of the Population

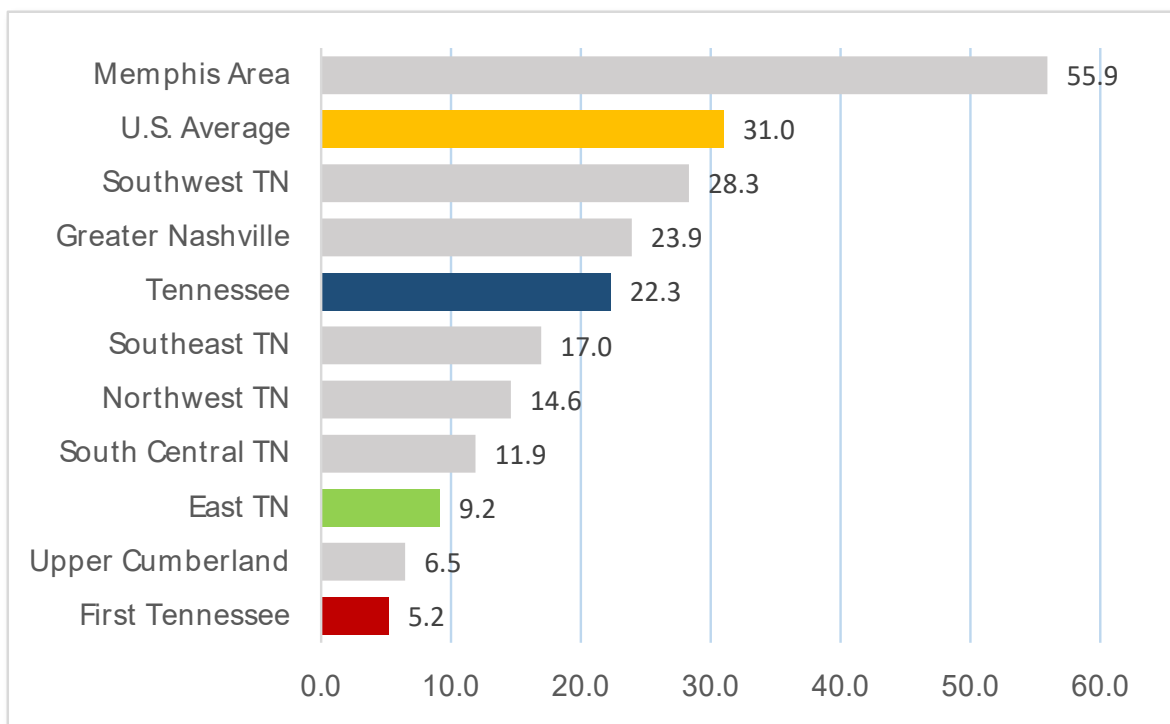
Ages 0 to 19



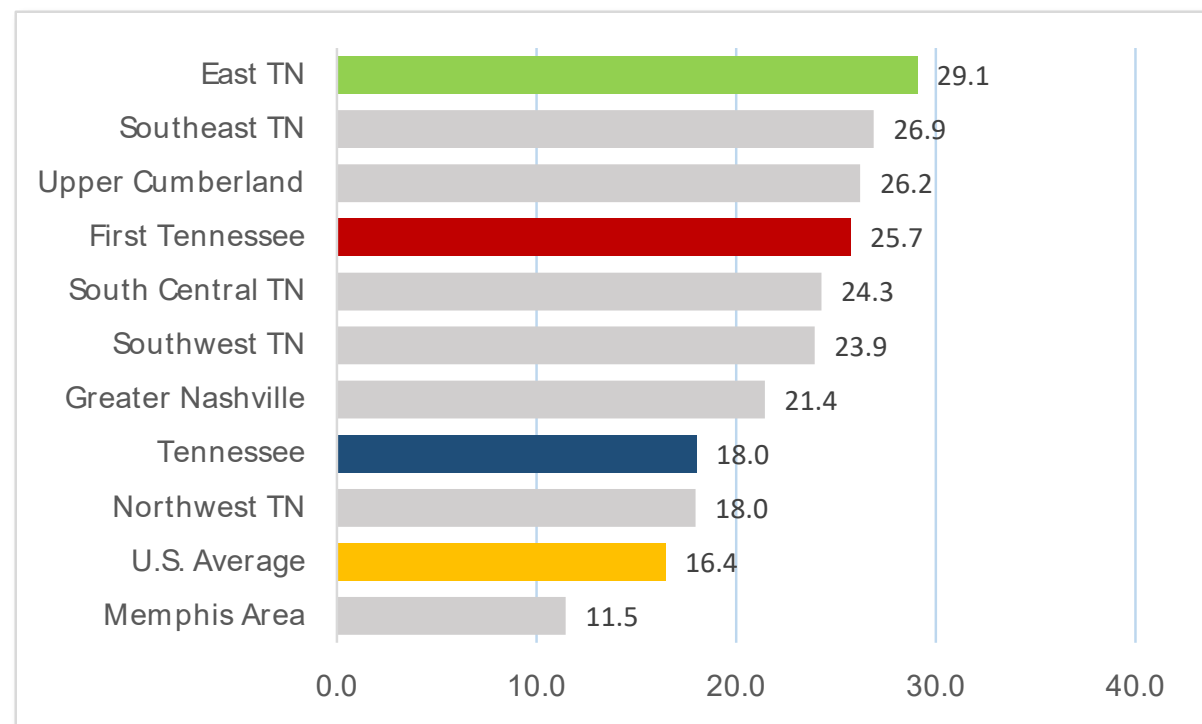
Ages 20 to 44



Percent Underrepresented Minorities (2019)

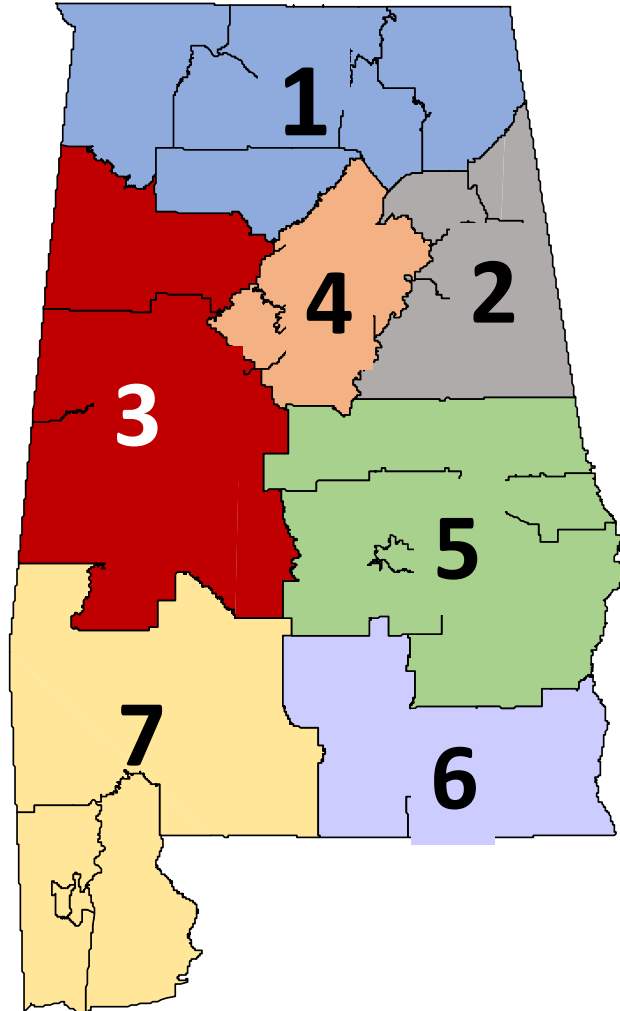


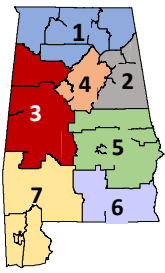
Percent of Population Under Age 65 at or Below the Poverty Level



West Alabama Case Study

West Alabama Workforce Region 3





Region 3

Education and Workforce NEEDS INDEX

● Region 3 ● Alabama ● Regions | U.S. Quartiles

Overall Education and Workforce NEED

EDUCATION

High School Completion

Associate Degree Completion

Completion of a Bachelor's Degree or Higher

College Attainment of Young vs Older Adults

Enrollment of Young Adult without a College Degree

WORKFORCE

Labor Force Participation

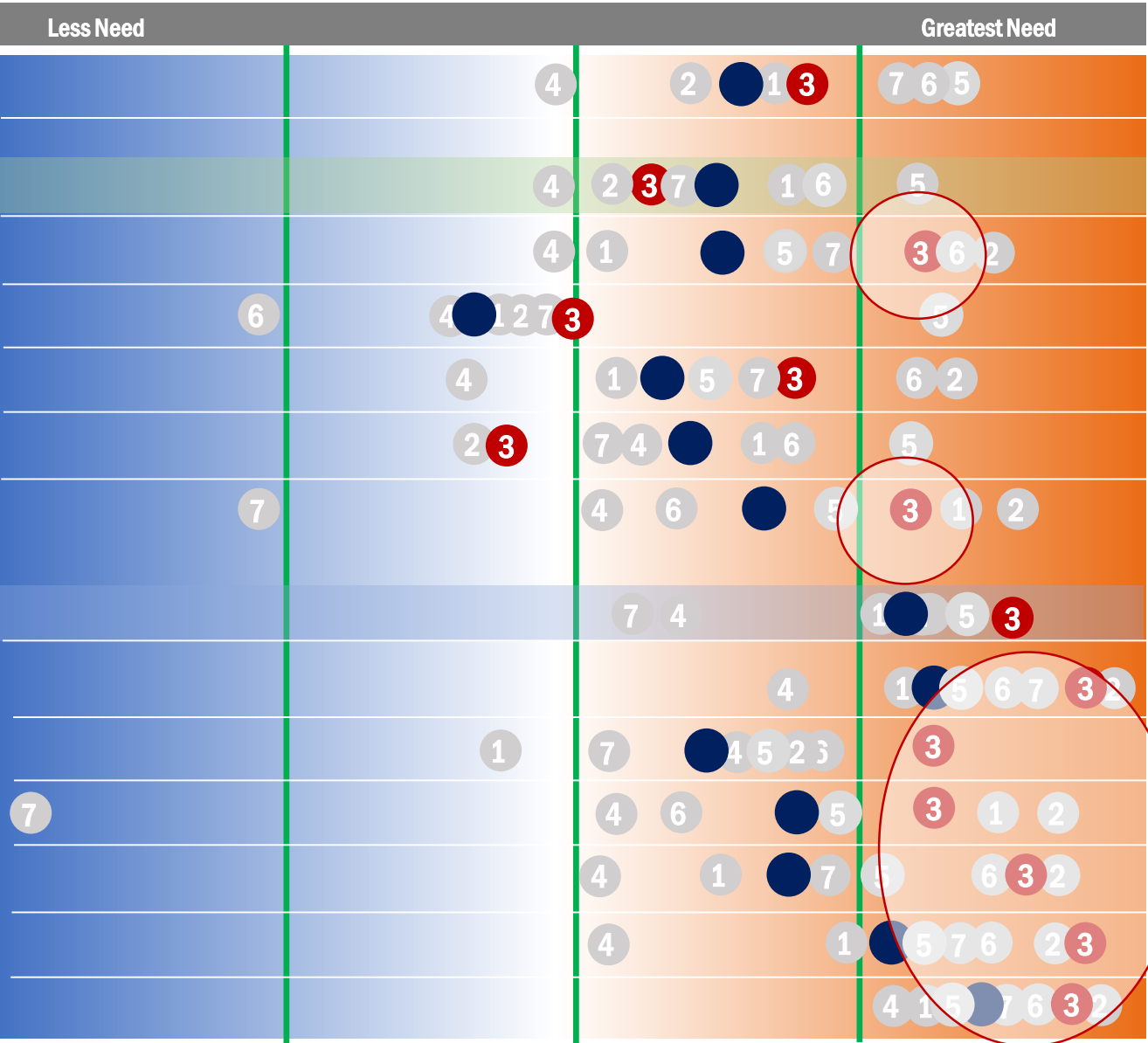
Unemployment

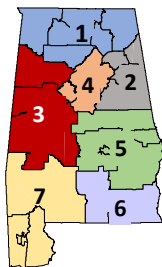
Employment in Manufacturing and Extraction

Median Annual Wage Earnings

Personal Income

Working-Age Adults with SSI or Welfare Income





Education and Workforce NEEDS INDEX

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POPULATION Growth and Diversity

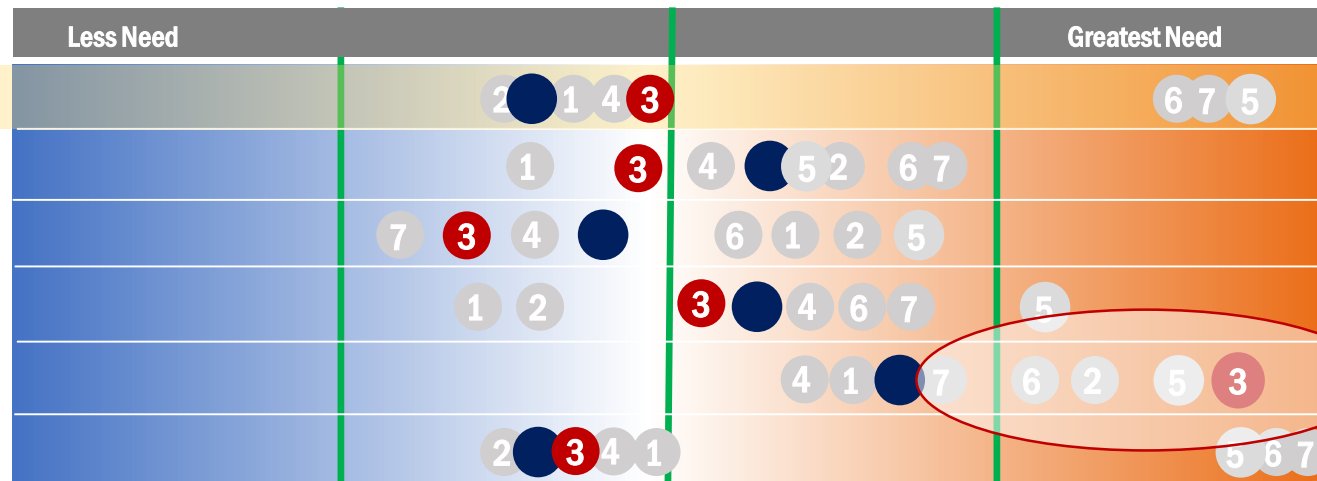
Population Ages 0 to 19

Population Ages 20 to 44

Underrepresented Minorities

Population in Poverty

Change in Population 64 and Under



Using the EWN I to Promote and Support Local Efforts

(West Alabama)

Key Issues

- A large population with just a high school diploma (or equivalent)
- Low college participation among you adults
- Low labor force participation
- Low wages
- High reliance on public assistance
- High rates of poverty

Potential Solutions

- Cross-sectional partnerships among educators and employers
- Work-based learning
- Apprenticeship opportunities
- FASFA Imitative
- Others

Guiding Questions for Community Leaders

- What are the most critical education and workforce weaknesses (and strengths) of your community?
- What doesn't the data explain about the community you serve and live?
- What is the future and vision for the community?
- What is needed to make that happen?
- Who can make that happen?
- What time-frame?
- What will the story of your community tell us about the efforts we are about to embark on?
- How will progress be measured?

EWNI Improving the Policy Toolbox

- **State and regional organizations using the EWNI tools in outreach and policy/planning discussions.**
- **Aid organizations in the development of grant proposals and building a case for need and urgency.**
- **Institutional researchers – enhance the focus, depth, and scope of their environmental scanning activities.**
- **Education, economic development, and advocacy group use of the data in public presentations seeking to inform the public debate surrounding the relationship between education and the economy.**
- **Developing partnerships – use in developing P-20 partnerships, cross-sectional human capital development efforts, etc.**

Coming this Fall

www.NeedsIndex.org

- **Interactive Data and Visualizations for the state and regions (downloadable for presentations, documents, and further research)**
- **Comparability of regions across the state**
- **Ability to disaggregate in more populated regions (e.g., large cities and metropolitan areas)**
- **Annual updates available to track progress over time**
- **Regional workforce and education forums and focus groups to inform thoughtful conversations about higher education and workforce development**

The Education and Workforce Needs Index



Houston Davis | Brian Noland | Patrick Kelly | Nicholas Bolden

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Back Pocket Slides

Technical Documentation

Technical Notes: Deriving Level of “Need”

1 Standardizing Data (using Z scores)

In statistics, standardization is the process of putting different variables on the same scale. This process allows you to compare scores between different types of variables. Typically, to standardize variables, you calculate the mean and standard deviation for a variable. (Jim Frost, www.statisticsbyjim.com)

For each observed value, the standard deviation is subtracted from the observed value, then divided by the U.S. Average (see below).

Average of U.S. Public Use Microdata Areas (2,351)		22.3	
Standard Deviation		5.9	
Geography		Workforce	
State	Public Use Microdata Area (PUMA)	Percent of 25 to 64 Year Olds Not Participating in the Labor Force	Standardized (Z Score)
Alabama	100	30.9	1.1
Alabama	200	26.3	0.9
Alabama	301	19.4	0.6
Alabama	302	26.8	0.9

$$=(30.9-5.9)/22.3$$

2 Averaging Sub Measures within Each Factor

The standardized scores are simply averaged within each of the three categories of the EWN I – Education, Workforce, and Population.

3 Averaging Factors to Derive Overall Education and Workforce Need

The Overall Education and Workforce Need is derived from averaging the derived values for each of the three sub measures.

Note: The metrics in the EWN I have been derived based on past research field experience, and expertise. No weighting is applied within each of the three factors or across the factors for simplicity and communication purposes. I.e. Our best to utilize the key measures and eliminate value judgements (why one is more important than the other).

Sources:

S. Census Bureau, 2019 American Community Survey 5-year PUMS (Public Use Microdata Sample).

Steven Ruggles, Sarah Flood, Sophia Foster, Ronald Goeken, Jose Pacas, Megan Schouweiler and Matthew Sobek. IPUMS USA: Version 11.0 [dataset]. Minneapolis, MN: IPUMS, 2021. <https://doi.org/10.18128/D010.V11.0>

American Community Survey

Public Use Microdata Samples

What are Public Use Microdata Areas (PUMAs)?

- Non-overlapping, statistical geographic areas that partition each state or equivalent entity into geographic areas containing no fewer than 100,000 people.
- Cover entirety of United States, Puerto Rico, Guam, and the U.S. Virgin Islands.
- Defined every ten years for the tabulation and dissemination of the decennial census and American Community Survey (ACS) Public Use Microdata Sample (PUMS) data.
 - Also used in the publication of the ACS and Puerto Rico Community Survey period estimates.

What are the criteria for PUMAs?

The concept and criteria remain largely unchanged from 2010 Census:

- Only one level of PUMA delineation.
- Each PUMA must have a minimum population of 100,000 people and must maintain that population throughout the decade.
- PUMAs nest within states and may not cross state boundaries.
- Counties and census tracts are the PUMA building block geography.
- Though some exceptions exist, PUMAs should be geographically contiguous.
- Descriptive PUMA names have 85 character maximum length and should identify the area or region encompassed within the PUMA.

American Community Survey

Public Use Microdata Boundary Data

Advantages

- Available annually (detailed Public Use File)
- More accurately reflect demographic patterns by population density (urban and rural)
- Ability to more finely disaggregate (by age-group, race, gender, occupation, education level, labor force status, etc.)

Disadvantages

- Smaller sample size (1% American Community Survey vs. 5% Decennial Long Form)
- Ability to finely disaggregate (standard errors)
- Communication of geographic boundaries (counties vs. PUMAs)

Public Use Microdata Areas (PUMAs)

U.S. Census Bureau

