A New Dawn, Preparing for a New Day

The Education and Workforce Needs Index

• Houston Davis  I  Brian Noland  I  Patrick Kelly  I  Nicholas Bolden

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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

Northwest Tennessee

Memphis Area

Southwest TN

Greater Nashville

Upper Cumberland

First Tennessee

East Tennessee

Northwest Tennessee

Memphis Area

Southwest TN

Greater Nashville

Upper Cumberland

First Tennessee

East Tennessee
EWNI Overall Rankings for Tennessee
Education and Workforce NEEDS INDEX

Overall Education and Workforce NEEDS

EDUCATION

- High School Completion Only
- 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
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)

- Northwest TN: 51.6
- Upper Cumberland: 51.5
- Southwest TN: 50.6
- South Central TN: 49.0
- First Tennessee: 44.8
- East TN: 42.1
- Tennessee: 40.3
- Southeast TN: 38.7
- Memphis Area: 37.2
- U.S. Average: 35.5
- Greater Nashville: 34.0

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

- Northwest TN: 51.6
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- Tennessee: 40.3
- Southeast TN: 38.7
- Memphis Area: 37.2
- U.S. Average: 35.5
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### Percent of 25 to 64 Year Olds With an Associates Degree (2019)

<table>
<thead>
<tr>
<th>Region</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southeast TN</td>
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<td>U.S. Average</td>
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<td>7.2</td>
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<td>Tennessee</td>
<td>8.3</td>
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<td>6.7</td>
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<td>Southwest TN</td>
<td>6.9</td>
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<td>Memphis Area</td>
<td>6.0</td>
</tr>
<tr>
<td>Northwest TN</td>
<td>6.7</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Region</th>
<th>Percentage</th>
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<tbody>
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<td>Greater Nashville</td>
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<tr>
<td>U.S. Average</td>
<td>32.8</td>
</tr>
<tr>
<td>Memphis Area</td>
<td>30.2</td>
</tr>
<tr>
<td>Tennessee</td>
<td>28.7</td>
</tr>
<tr>
<td>Southeast TN</td>
<td>27.0</td>
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<tr>
<td>East TN</td>
<td>25.9</td>
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<td>16.9</td>
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<tr>
<td>Upper Cumberland</td>
<td>16.9</td>
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</tbody>
</table>
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
- Unemployment
- Employment in Manufacturing and Extraction
- Median Personal Income
- Median Annual Wage Income
- Adults with SSI or Welfare Income
Percent of 25 to 64 Year Olds Not Participating in the Labor Force (2019)

- Southwest TN: 32.4%
- Northwest TN: 31.9%
- First Tennessee: 31.7%
- Upper Cumberland: 30.5%
- South Central TN: 27.0%
- East TN: 26.8%
- Southeast TN: 26.4%
- Tennessee: 25.0%
- Memphis Area: 23.2%
- U.S. Average: 22.3%
- Greater Nashville: 19.5%

Unemployment Rate (2019)

- Memphis Area: 4.6%
- Southwest TN: 3.5%
- U.S. Average: 3.4%
- Southeast TN: 3.3%
- Tennessee: 3.3%
- East TN: 3.2%
- Northwest TN: 3.1%
- First Tennessee: 2.9%
- South Central TN: 2.9%
- Upper Cumberland: 2.9%
- Upper Cumberland: 2.8%
- Greater Nashville: 2.8%
Percent of Employment in Manufacturing and Extraction Industries (2019)

<table>
<thead>
<tr>
<th>Region</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>East TN</td>
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<td>Tennessee</td>
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<td>7.3</td>
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<td>Upper Cumberland</td>
<td>5.3</td>
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<td>South Central TN</td>
<td>9.6</td>
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<tr>
<td>Northwest TN</td>
<td>9.4</td>
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<td>6.1</td>
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<td>South Central TN</td>
<td>6.0</td>
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<td>East TN</td>
<td>6.9</td>
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<tr>
<td>Tennessee</td>
<td>8.5</td>
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<tr>
<td>First Tennessee</td>
<td>9.0</td>
</tr>
<tr>
<td>Tennessee</td>
<td>9.0</td>
</tr>
<tr>
<td>Upper Cumberland</td>
<td>9.0</td>
</tr>
<tr>
<td>South Central TN</td>
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<tr>
<td>East TN</td>
<td>9.0</td>
</tr>
<tr>
<td>Greater Nashville</td>
<td>6.0</td>
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</table>

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

<table>
<thead>
<tr>
<th>Region</th>
<th>Median Earnings</th>
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</thead>
<tbody>
<tr>
<td>U.S. Average</td>
<td>$44,102</td>
</tr>
<tr>
<td>Tennessee</td>
<td>$38,000</td>
</tr>
<tr>
<td>First Tennessee</td>
<td>$34,092</td>
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<tr>
<td>East TN</td>
<td>$36,652</td>
</tr>
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<td>South Central TN</td>
<td>$35,000</td>
</tr>
<tr>
<td>Southeast TN</td>
<td>$38,589</td>
</tr>
<tr>
<td>Northwest TN</td>
<td>$38,688</td>
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<td>Greater Nashville</td>
<td>$42,000</td>
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<td>Memphis Area</td>
<td>$32,580</td>
</tr>
<tr>
<td>South Central TN</td>
<td>$32,580</td>
</tr>
<tr>
<td>Upper Cumberland</td>
<td>$32,580</td>
</tr>
<tr>
<td>Southwest TN</td>
<td>$34,092</td>
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<tr>
<td>Tennessee</td>
<td>$34,092</td>
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<tr>
<td>East TN</td>
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<tr>
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<td>$42,000</td>
</tr>
<tr>
<td>Memphis Area</td>
<td>$32,580</td>
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</table>

Memphis Area
### Median Personal Income (2019)

<table>
<thead>
<tr>
<th>Region</th>
<th>Median Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater Nashville</td>
<td>$38,848</td>
</tr>
<tr>
<td>U.S. Average</td>
<td>$37,418</td>
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<tr>
<td>Northwest TN</td>
<td>$32,373</td>
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<td>Southeast TN</td>
<td>$30,245</td>
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<td>$30,000</td>
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<td>Tennessee</td>
<td>$29,236</td>
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<td>East TN</td>
<td>$29,202</td>
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<tr>
<td>Upper Cumberland</td>
<td>$25,969</td>
</tr>
<tr>
<td>Memphis Area</td>
<td>$25,569</td>
</tr>
<tr>
<td>Southwest TN</td>
<td>$25,467</td>
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<tr>
<td>First Tennessee</td>
<td>$25,453</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Region</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Tennessee</td>
<td>15.1</td>
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<tr>
<td>Southwest TN</td>
<td>13.6</td>
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<tr>
<td>Upper Cumberland</td>
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<tr>
<td>Northwest TN</td>
<td>12.6</td>
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<td>East TN</td>
<td>12.0</td>
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<td>10.4</td>
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<td>9.3</td>
</tr>
<tr>
<td>U.S. Average</td>
<td>8.5</td>
</tr>
<tr>
<td>Greater Nashville</td>
<td>7.0</td>
</tr>
</tbody>
</table>
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

- **Memphis Area**: 27.4%
- **Greater Nashville**: 26.3%
- **U.S. Average**: 25.3%
- **South Central TN**: 25.2%
- **Tennessee**: 25.0%
- **Southwest TN**: 24.9%
- **Northwest TN**: 24.6%
- **Southeast TN**: 23.7%
- **East TN**: 23.4%
- **Upper Cumberland**: 23.4%
- **First Tennessee**: 21.6%

### Ages 20 to 44

- **Greater Nashville**: 36.4%
- **Memphis Area**: 33.7%
- **U.S. Average**: 33.2%
- **Tennessee**: 32.2%
- **Southeast TN**: 31.6%
- **South Central TN**: 30.9%
- **East TN**: 30.2%
- **Southwest TN**: 29.9%
- **First Tennessee**: 29.7%
- **Upper Cumberland**: 29.6%
- **Northwest TN**: 29.1%
**Percent Underrepresented Minorities (2019)**

- Memphis Area: 55.9%
- U.S. Average: 31.0%
- Southwest TN: 28.3%
- Greater Nashville: 23.9%
- Tennessee: 22.3%
- Southeast TN: 17.0%
- Northwest TN: 14.6%
- South Central TN: 11.9%
- East TN: 9.2%
- Upper Cumberland: 6.5%
- First Tennessee: 5.2%

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

- Memphis Area: 11.5%
- U.S. Average: 29.1%
- East TN: 26.9%
- Southeast TN: 26.2%
- Upper Cumberland: 25.7%
- First Tennessee: 25.7%
- South Central TN: 24.3%
- Northwest TN: 23.9%
- Greater Nashville: 21.4%
- Tennessee: 18.0%
- Southeast TN: 18.0%
- U.S. Average: 16.4%
<table>
<thead>
<tr>
<th>Region 3</th>
<th>Alabama</th>
<th>Regions</th>
<th>U.S. Quartiles</th>
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<tbody>
<tr>
<td>Less Need</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Greatest Need</td>
<td>7</td>
<td>6</td>
<td>5</td>
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</tbody>
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### 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

### Region 3

<table>
<thead>
<tr>
<th>Population Growth and Diversity</th>
<th>Less Need</th>
<th>Greatest Need</th>
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</thead>
<tbody>
<tr>
<td>Population Ages 0 to 19</td>
<td>Region 3</td>
<td>6 7 5</td>
</tr>
<tr>
<td>Population Ages 20 to 44</td>
<td>1 4 3</td>
<td>4 5 2 6 7</td>
</tr>
<tr>
<td>Underrepresented Minorities</td>
<td>7 3 4 6</td>
<td>6 1 2 5</td>
</tr>
<tr>
<td>Population in Poverty</td>
<td>1 2 3</td>
<td>4 1 7 6 2</td>
</tr>
<tr>
<td>Change in Population 64 and Under</td>
<td>2 3 1</td>
<td>6 7 3 5 2</td>
</tr>
</tbody>
</table>
Using the EWNI 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 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

Contact: Patrick Kelly  patrick@pjkelley.org
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).

2. Averaging Sub Measures within Each Factor

The standardized scores are simply averaged within each of the three categories of the EJNI – 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 EJNI 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).
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