Work-Based Learning: What is the current reality in Arkansas?
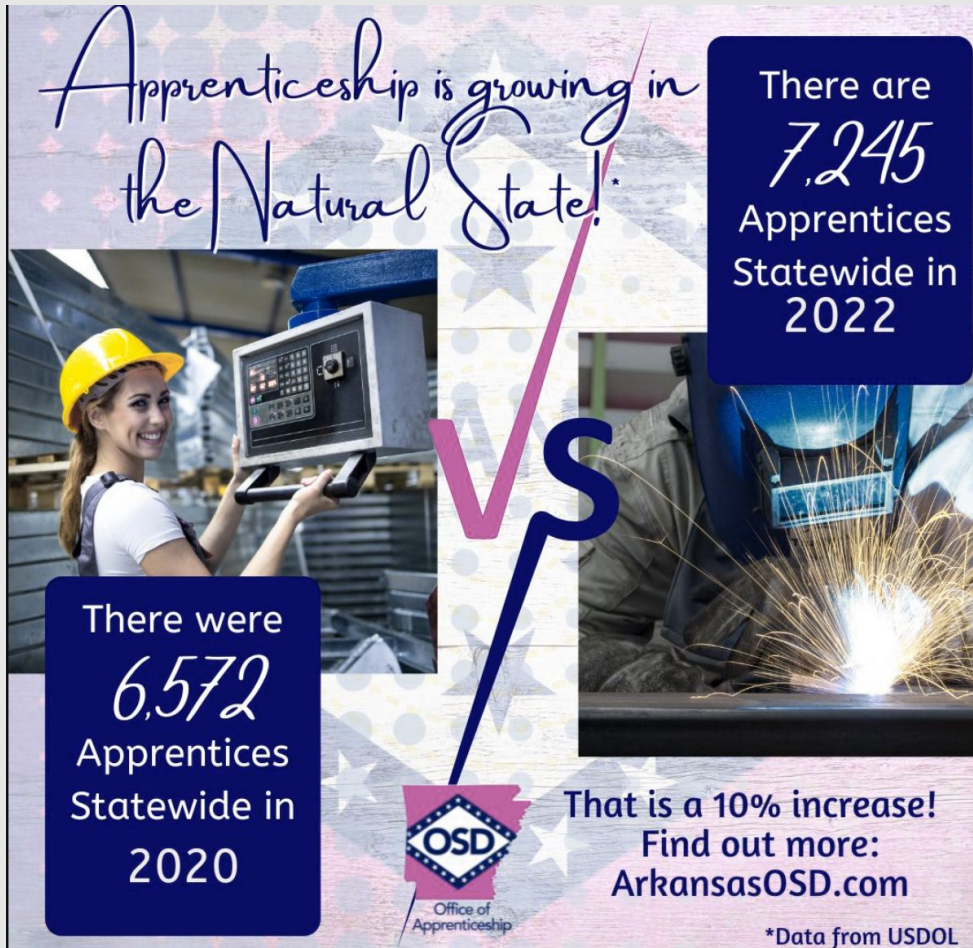
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Our Motivation
To address equity (access and outcomes) related to WBL

In an equitable workforce, all jobs are good jobs. Workforce equity means the elimination of racial gaps in employment and income such that the workforce – both public and private – is racially representative of the general population, at all different levels of skill and pay, across occupational groups and sectors.

https://nationalfund.org/workforce-equity-guide/

Motivation (continued)

Our nation's economic environment demands a diverse and highly skilled workforce .... To build this in Arkansas, we need

- Equitable access to Postsecondary Education

- Training that leads to marketable skills and increased earning potential

- Education and training that align to industry and business needs while engaging students in authentic work experience
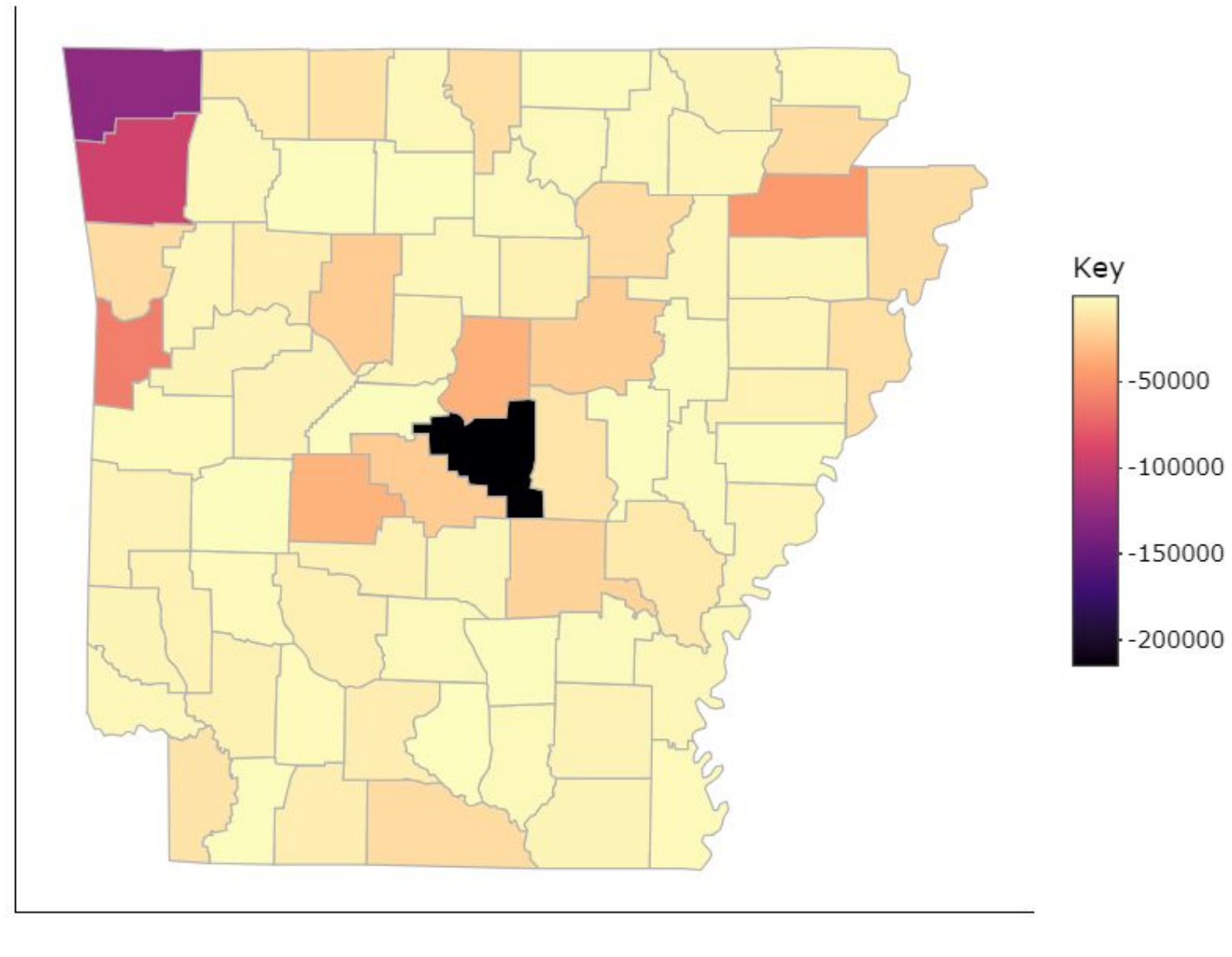
Motivation (continued)

To address Equity (access and outcomes) we need:

- Data to understand what is happening now (what we capture)
- What are we missing in the data (the scope of work-based learning) is broader than what we are capturing now, and
- What questions might be explored as we capture what we need

Before we can address inequity we have to know if and where it exists

- Geographic - regional variations?
- Demographic - gender, race/ethnicity, age range, education, SES, English Learner status, disability status, etc.
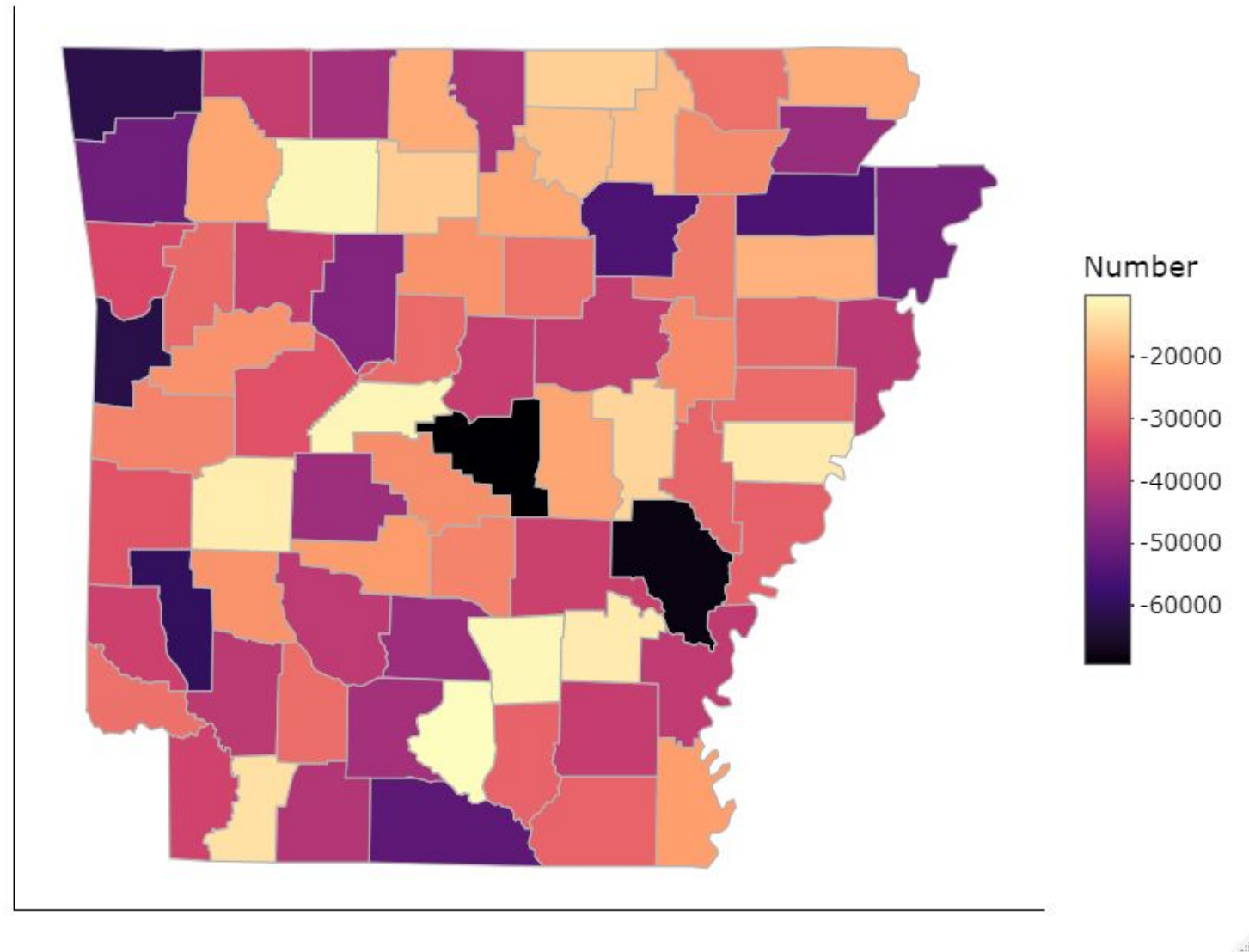- Business/Industry - who, what, where?

Arkansas Total Employment by County

Source: https://data.census.gov/cedsci/table?q=CBP2020.CB2000CBP&g=0400000US05%240500000

Arkansas per Capita Employment by County

Literature Review:

- Registered Apprenticeship (RA) participation is strongly associated with increased earnings (Reed et al., 2012).

- Lack of access to Work-Based Learning (WBL) limits career prospects and economic mobility and can negatively impact economic growth (Cahill, 2016).

- Rural and high poverty regions and historically marginalized communities lack quality WBL opportunities (Altstadt et al., 2020).

- Federal legislation targets increasing diversity of the workforce using WBL (Perkins V, ESSA, WIOA).

- Females are underrepresented in RA, especially in skilled trades (Reed et al., 2012).

Research Question

What is the existing Work-Based Learning (WBL) landscape in Arkansas?

Do all Arkansans have equitable access to WBL opportunities? If not, for what subpopulations and/or regions are there disparities?

THE DREAM PRODUCT: Work-Based Learning Equity Dashboard

Data

- RAPIDS *(Registered Apprenticeship Partners Information Database System)*,
Census Data,
NAICS Descriptors *(North American Industry Classification System)*
- Three cohorts/groups from 2021 data
  - All Apprenticeship Participants in 2021
  - Participants who Started Apprenticeships in 2021
  - Participants who Finished Apprenticeships in 2021
- Demographics (gender, race, and ethnicity) of apprenticeship cohorts compared to state and county demographics

- Level of apprenticeship participation and completion at the state and county level

- Geographic prevalence of registered apprenticeship industries based on NAICS codes (state and county)

All data are publicly available and are NOT from the Administrative Data Research Facility.

Cohorts

All WBL participants in 2021

Participants that started in 2021

Participants that finished in 2021

Public Data Sources Utilized and Variables of Interest

RAPIDS

Registered Apprenticeship Partners Information Database System

- apprID
- County
- NAICSCode
- startDt
- exitWageDt
- Ethnicity
- Gender
- Race

NAICS Descriptions

North American Industry Classification System

- NAICS Code
- NAICS Description

Census Data

2020 U.S. Census Data

- County
- Gender
- Race
- Ethnicity

All data are publicly available and are NOT from the Administrative Data Research Facility.

Analysis

- R and SQL were utilized for joining data tables and for calculations.

- Shiny and Flexdashboard packages were used to create the Dashboard.

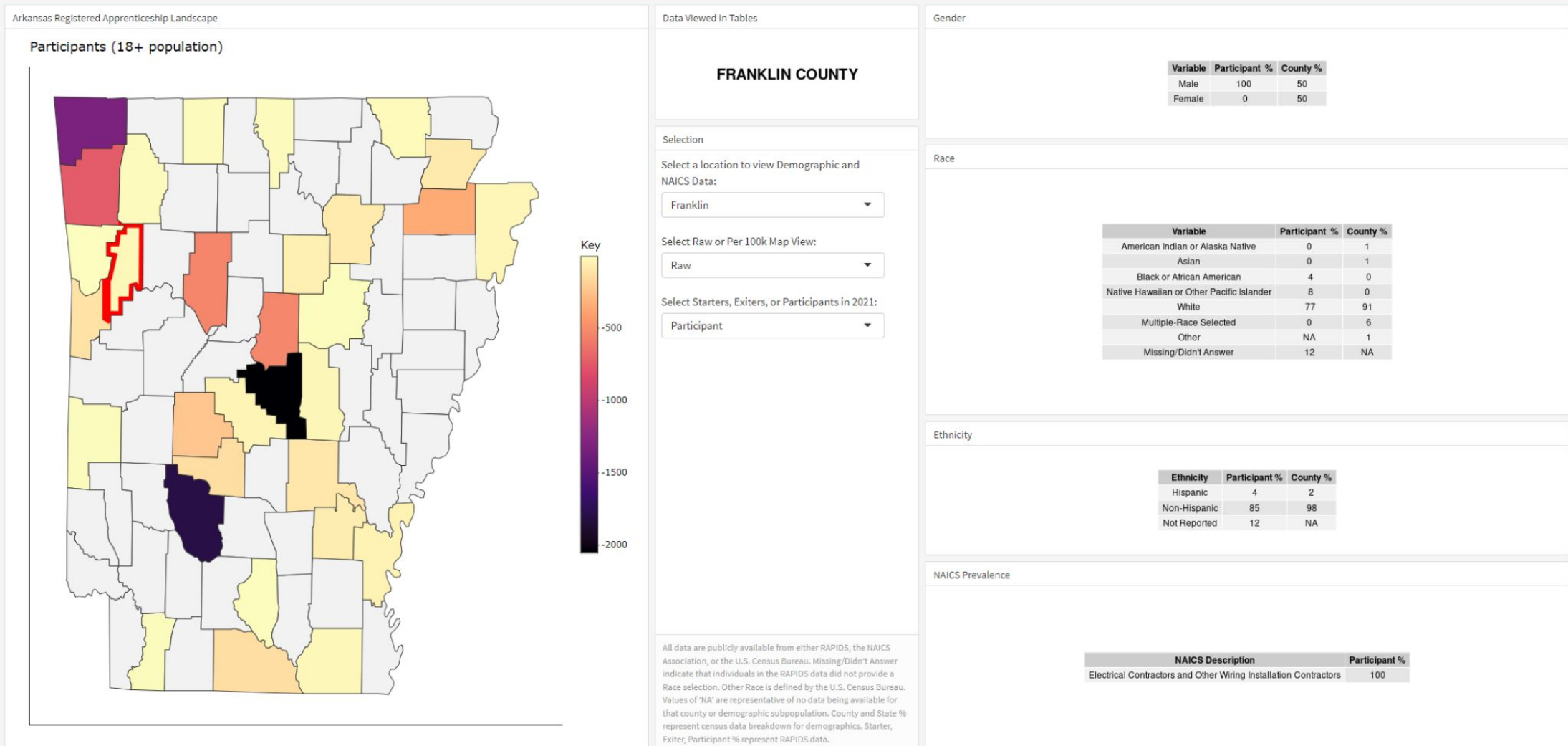- Per 100k Calculations were done using the the following formula.

$$\frac{Count\ of\ RA\ in\ County}{County\ Population\ (18+)} \times 100{,}000$$

(RA = Registered Apprenticeship)

- Only age 18+ population was used in calculating the per 100k due to the limited number of apprenticeships offered to those under 18.

Working Product - Interactive RA Dashboard

Results and Findings

Based on data as it currently appears in the dashboard we find that:

- Central and NW corner, the largest metropolitan areas of our state, have more Registered Apprenticeship (RA) opportunities.
- The Delta Region and similar rural and high-poverty counties have minimal to no RA opportunities.
- Following national trends, women are vastly underrepresented in RA participation compared to their representation in the state (5% vs 51%).
- State wide, white participants are overrepresented in RA participation relative to their state wide population (79% vs 73%), while black (5% vs 14%) and multiple races (1% vs 6%) are underrepresented.
- Proportions for gender, race and ethnicity demographics are comparable across the cohorts.
- According to NAICS Coding in 2021, the industries most prevalent in providing RA opportunities in Arkansas were:
  - Electrical Contractors and Other Wiring Installation Contractors
  - Plumbing, Heating, and Air-Conditioning Contractors
  - Commercial and Institutional Building Construction

Caveats/Limitations

- Only analyzed data from a Work-Based Learning (WBL) subset.

  - Registered Apprenticeship (RA) data captured in RAPIDS.

- Missing other WBL opportunities (i.e., employer-based internships, apprenticeships that are not registered, on-the-job training).

- Undocumented residents may participate in WBL and are not registered.

Caveats/Limitations

- Apprenticeship 'counts' connected to counties may include attendees who reside or work in other counties than location of apprenticeship.

- Employer data was missing for approximately **80%** of participants.

- An outlier in the data was the high number of RA participants in Clark County, likely due to a large intermediary located in the county. Some RA's may link to Clark County but may actually be with employers in other counties.

Future Work and Dashboard Functionality

- Data from other WBL outside of RA need to be collected and analyzed.

- The Clark County data need further analysis to determine actual location of RA.

- Participant home location rather than location of apprenticeship program could be analyzed.

- If data were available, additional functionality could be added to drill down to demographics and measures of interest.

Future Work and Dashboard Functionality

- Ability to click on a place on map and pop-up charts with more detail about the population and topic of interest in the map.

- Ability to Filter:
  - demographics, age, race/ethnicity, gender, etc.
  - industry, employers, etc.
  - Program of Study - ex: Supply Chain, Accounting, etc. within an industry/employer
  - Difference between Employer, Intermediary, Training Provider

- Connect to UI Wage Data as outcome measure to examine equity component.

Data Team 1 Members

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STEM/Computer Science Continuum

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Dashboard Link

Arkansas Total Employment by County
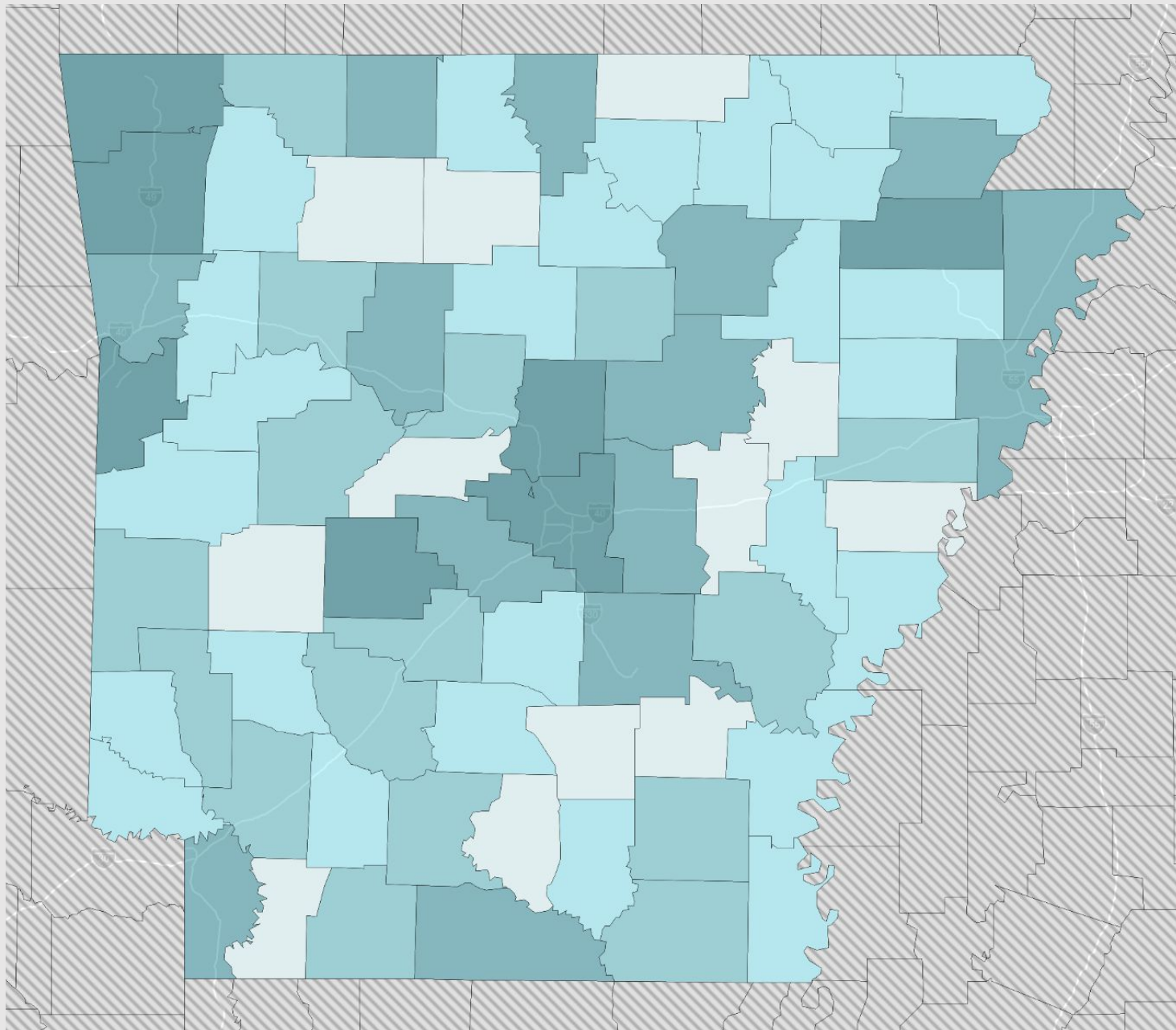
12 – 1,623

1,627 – 4,241

4,251 – 9,744

9,750 – 29,720

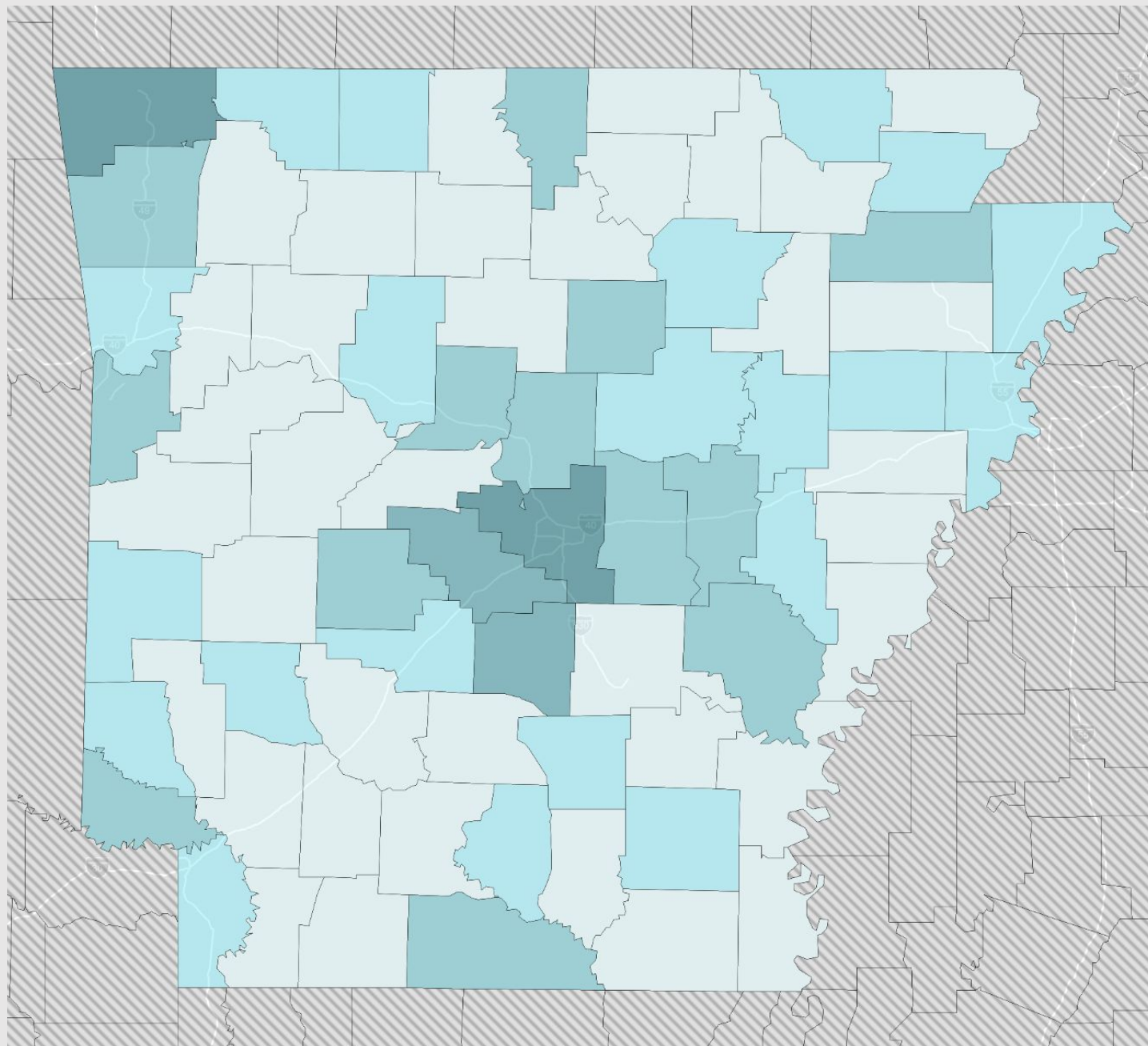29,723 – 3,914,718

Total employment, 2020
https://www.census.gov/quickfacts/fact/map/AR/BZA110220

Arkansas Per Capita Income Level by County

Legend:
- $6,936 - $23,368
- $23,371 - $26,528
- $26,533 - $29,527
- $29,527 - $33,535
- $33,535 - $78,771

Per capita income in past 12 months (in 2020 dollars), 2016-2020
https://www.census.gov/quickfacts/fact/map/AR/INC910220

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NAICS Association

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Census Data

2020 U.S. Census Data

- County
- Gender
- Race
- Ethnicity

DWS County by LWDA

Division of Workforce Services local workforce development areas

- Central
- North Central
- Northeast
- Northwest
- Southeast
- Southwest
- West Central