Utilizing U.S. Census’ OnTheMap Spatial Analysis Tool for Labor Economic Data Literacy

Whitney Kramer, Cornell University and Charissa Jefferson, Princeton University
Agenda

1. Introduction
2. Defining Data Literacy
3. About OnTheMap data
4. Analysis features
5. Discussion/Q&A
This is not a sales pitch!

- We’re not experts in OnTheMap.
- OnTheMap is not a tool we’re promoting to solve every map problem.
- We just think it is interesting and exciting for labor and economics researchers!

We want you to be able to:
- Describe an authoritative public data resource that can be applied to visual, data, and spatial literacy instruction in practice.
- Have an increased confidence in using a freely available mapping tool.
- Expand your arsenal of information sources for consulting on labor economics topics related to workforce analysis.
- Expand their knowledge of tools that can be used to analyze local communities.
What we mean by “Data Literacy”

- Data literacy is directly linked to information literacy:
  - Recognize the need for data
  - Understand how to find it
  - Determine reliability
    - Analyze
    - Evaluate
  - Use data to:
    - Convey information
    - Formulate and answer research questions
    - Test hypotheses
What is U.S. Census’ OnTheMap?

Based on 2002-2019 LEHD Origin Destination Employment Statistics (LODES), OnTheMap is a unique resource for mapping the travel patterns of workers and identifying small-area workforce characteristics.

- Provides companion reports on age, earnings, industry distributions, race, ethnicity, educational attainment, and sex.
  - Race, Ethnicity, Educational Attainment, Sex, Firm Age, and Firm Size variables are made available through a beta release of data.
- Provides an interface for creating, viewing, printing and downloading workforce related maps, profiles, and underlying data.
- The project is supported by the Employment and Training Administration (ETA) at the U.S. Department of Labor.
A note about the LODES data.

LEHD Origin-Destination Employment Statistics (LODES) are the job data that are delivered in the OnTheMap application. These data and marginal summaries are tabulated by several categorical variables.

- LODES Version 7 is a partially synthetic dataset that describes geographic patterns of jobs by their employment locations and residential locations as well as the connections between the two locations.
- Includes data for 2002-2019, for which Quarter 2 (April – June) is the reference period in each year.
- A job is counted if a worker is employed with positive earnings during the reference quarter as well as in the quarter prior to the reference quarter.
- Although includes 51 states and territories, not all states have data available for each year and not every variable is available in each year.
The employment data derived from several sources:

- **Unemployment Insurance (UI) Wage Records**
  - Reported by employers and maintained by each state.
  - Includes private-sector employment as well as state and local government.

- **The Office of Personnel Management (OPM)**
  - Employees and jobs for most Federal employees.
  - Civilian employees of the Department of Defense and the Armed Forces are excluded.

- **The Quarterly Census for Employment and Wages (QCEW)**
  - Firm structure and establishment location.
  - Collected by each state under an agreement with the Bureau of Labor Statistics (BLS).
OnTheMap data sources -
External to U.S. Census, continued.

- Airports - Federal Aviation Administration
- Amtrak Stations - Federal Railroad Administration
- Community Colleges - Employment and Training Administration
- Major Highways, Secondary Roads, and Local Roads - OpenStreetMap
- One-Stop Career Centers - America’s Service Locator
- Schools (Primary and Secondary) - National Center for Education Statistics
- Universities and Community Colleges - National Center for Education Statistics and National Crosswalk Service Center
- Workforce Development Areas (WIA) - The Local Employment Dynamics LED Partnership
Data Sources of OnTheMap - U.S. Census Provided

- Age, earnings, and industry profiles are compiled by the Census Bureau from a state's records and are supplemented with other Census Bureau source data.

- Final compilations and confidentiality protection are performed by the Census Bureau.

- The states assign employer locations, while workers' residence locations are assigned by the U.S. Census Bureau using data from multiple federal agencies.
OnTheMap data sources - Census Bureau TIGER Files, 2019

- 116th U.S. Congressional Districts
- Alaska Native Regional Corp. (ANRC)
- Census Block Groups
- Census Tracts
- Counties
- County Subdivisions
- Greenspace (Parks, Cemeteries, Golf Courses)
- Lakes and Rivers
- Metropolitan/Micropolitan Areas (CBSA)
- Military Bases
- Places (Cities, CDPs)
- Railroads
- School Districts
- State Legislative Districts (Upper and Lower)
- Tribal Lands and Tribal Subdivisions
- Water
- ZIP Codes (ZCTA)
Some examples of research questions the tool may help answer

❖ How diverse is our local labor market?
❖ Do we have enough transportation infrastructure to accommodate the commuting patterns of residents?
❖ Which communities are staffing where I may work, live, and recreate?
❖ Do firms sustain staffing from local residents?
❖ How have commuting patterns in our local labor market changed over time?
❖ How do commuting and staffing patterns differ in major metropolitan areas vs. smaller cities / more rural areas?
Six Analysis Features of OnTheMap

1. Area Profile
2. Area Comparison
3. Distance/ Direction
4. Destination
5. Inflow/Outflow
6. Paired Area
Discussion - primer

Brainstorm:

★ What ways could OnTheMap be used in data literacy Instruction?

★ What research questions can you think of that OnTheMap may be helpful in answering?
Name a place that you know was impacted by the pandemic.
If you had to guess, what percentage of people are working remotely over time?
Group Discussion

1. Given the range of the data available, how useful could it be for historical versus current research?

2. Although this is a tool primarily for economic research, are there other applications in social sciences you can see this being utilized?

3. What ways might you see using this tool or the data in your professional practice?
Thank You!