Local Employment Dynamics with Job-to-Job Flows Explorer

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Economics and Statistics Administration
U.S. CENSUS BUREAU

How Labor Market Adjust to Demand Shocks

THE WALL STREET JOURNAL.
WSJ.com

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Here's Where All the Construction Workers Went

By Jeffrey Sparshott

Crews construct a Ryland Group home near Dallas.

KRIS HUDSON/THE WALL STREET JOURNAL

The Wall Street Journal has chronicled builders' complaints about a shortage of construction workers and wondered why the labor pool appears so shallow when employment levels are still well below those of the boom years.

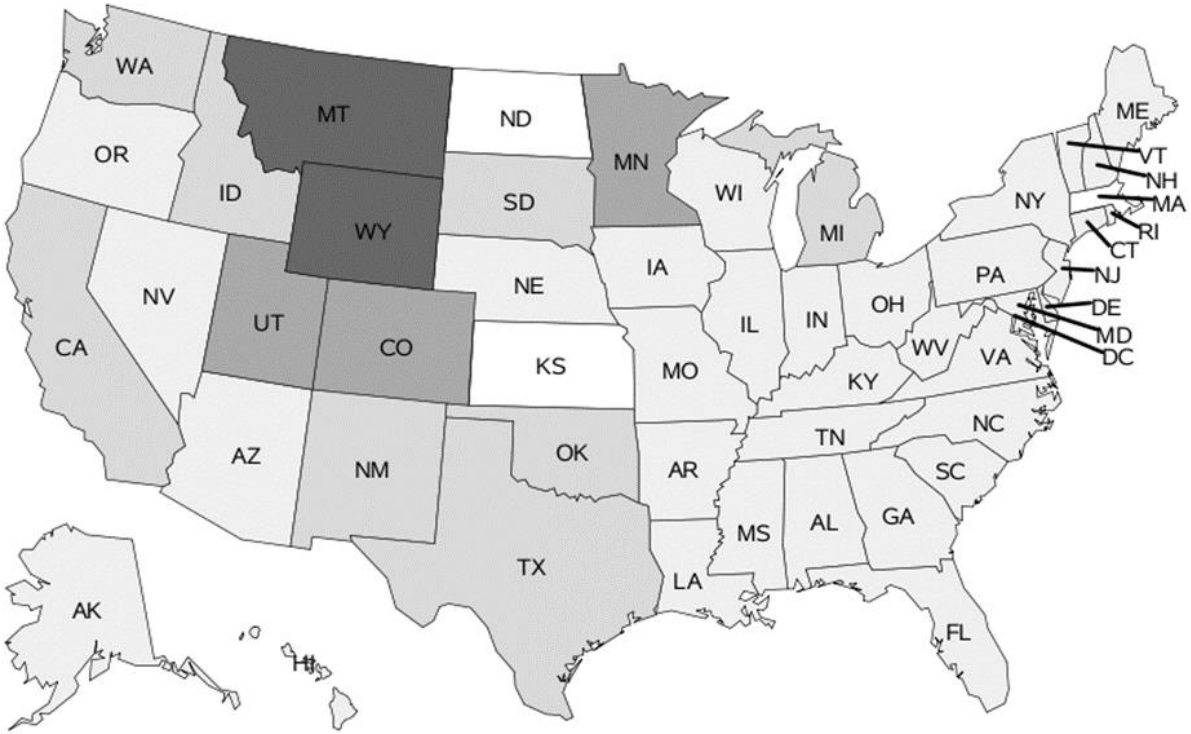
Indeed, industry-wide employment cratered from 2006 to 2011, losing nearly 2.3 million jobs. It's gotten well less than half of those back. Where did they all go?

Well, the **Census Bureau's** job-to-job flows program tracks workers as they move in and out of industries. The data isn't that easy to use and underlying microdata isn't public, but agency economists **Hubert Janicki** and **Erika McEntarfer** dove in recently and came up with some interesting findings.

2.3 million construction jobs disappeared between 2006 and 2011. Where did these workers go? LEHD data shows that:

- 60% of former construction workers left the labor market or moved to different industries after the housing boom
- Hiring of young workers into construction dropped severely after 2006, and the construction industry began to age more dramatically than other industries for the next 10 years.

Net migration of out-of-state workers into the North Dakota mining sector: 2010-2014



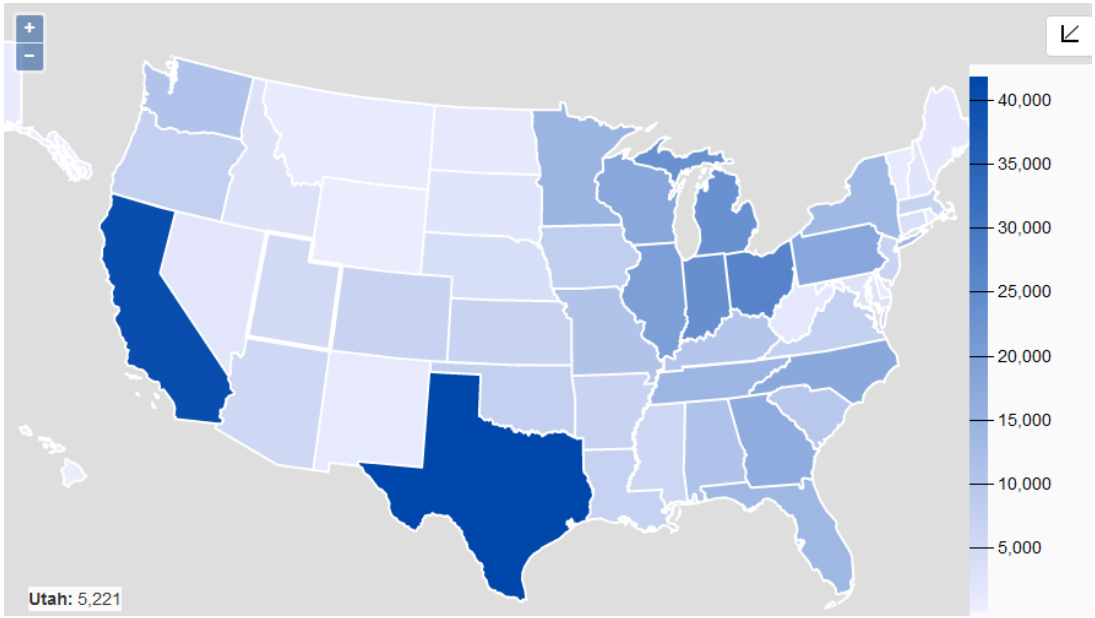
Source: U.S. Bureau of Census, Job-to-Job Flows

- J2J gives us a better understanding of reallocation of workers across different geographies

Source: J2J origin-destination data. J2J data is not yet available for Massachusetts and Kansas , data for all other states is present. Net migration of out-of-state workers is hires into the North Dakota mining sector of workers who recently held a job in a different state, minus flows of North Dakota mining workers to jobs in that state.

Outline

- What is LED and how can I use it?
- LED Public-use Data and Web Tools
- Live Demonstrations
- Questions



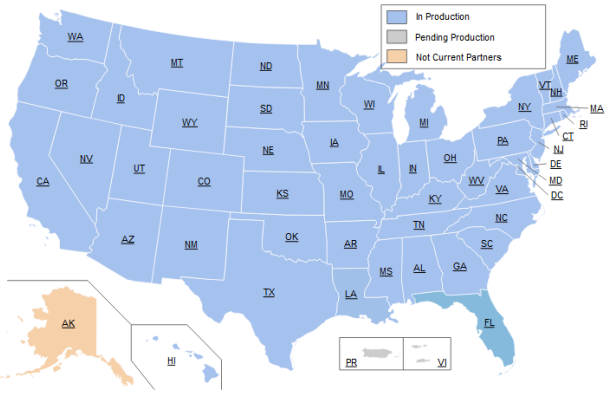
What are LEHD and LED?

- LEHD (Longitudinal Employer-Household Dynamics)
  - The LEHD Program at the US Census Bureau has constructed unique linked employer-employee data for the United States.
  - It connects administrative records with census and survey data to produce ***new*** public-use data products as well as microdata for research.
- LED (Local Employment Dynamics) Partnership
  - LEHD accesses state data through the LED Partnership - a cooperative partnership with states and DC, PR, and USVI
  - State-provided data:
    - Unemployment Insurance (jobs/workers)
    - Quarterly Census of Employment and Wages (firms)
  - Other data available to the Census Bureau
    - Censuses, Surveys, and Tax Information

Where Does the Data Come From?

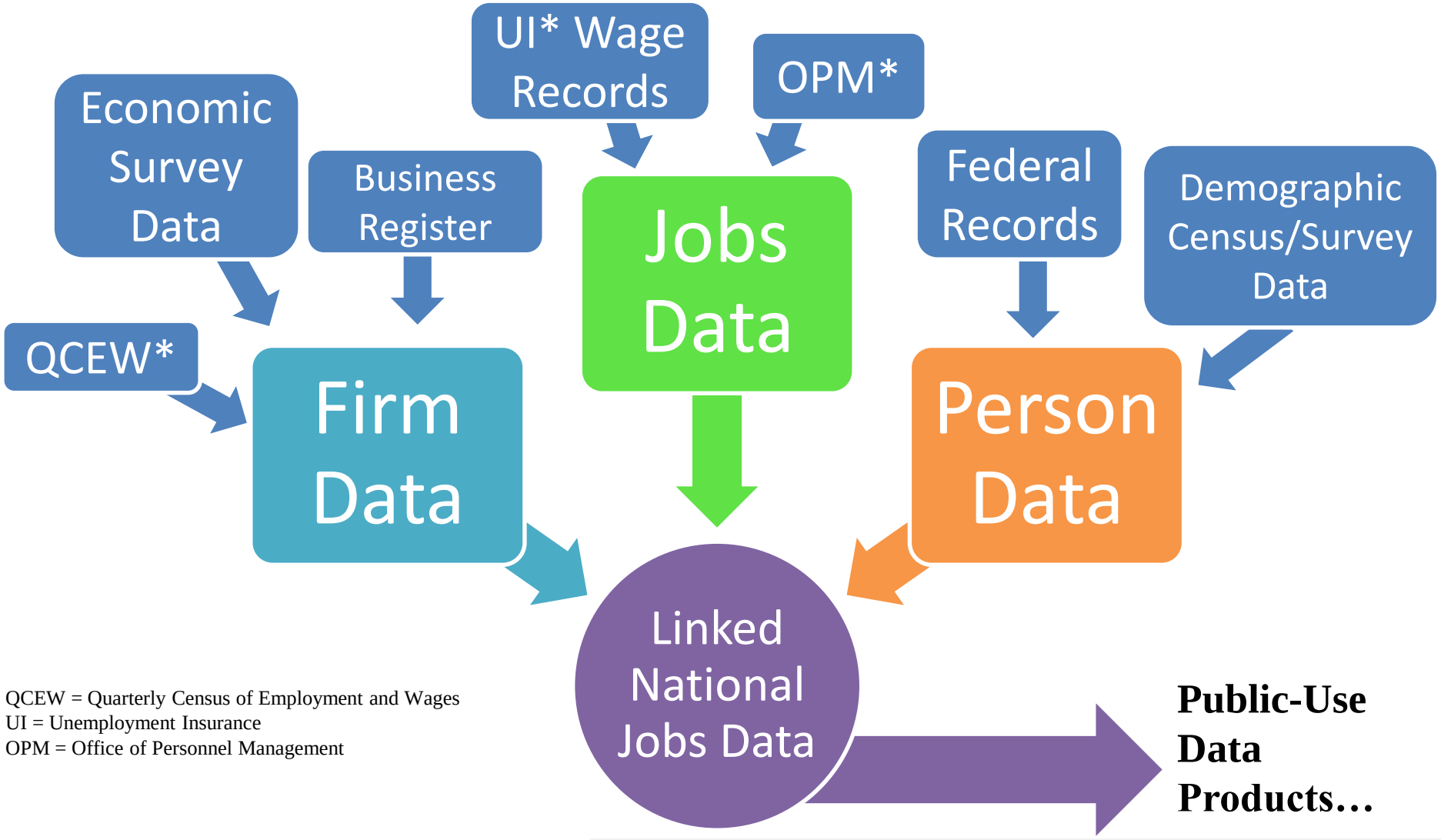
- Local Employment Dynamics (LED) Partnership
  - Begun in late 1990s with a few states
  - New Jersey goes all the way back to 1996
  - Not currently producing data for Alaska, Puerto Rico, and Virgin Islands

State Partners



Alabama	Illinois	Montana	Rhode Island
Alaska	Indiana	Nebraska	South Carolina
Arizona	Iowa	Nevada	South Dakota
Arkansas	Kansas	New Hampshire	Tennessee
California	Kentucky	New Jersey	Texas
Colorado	Louisiana	New Mexico	Utah
Connecticut	Maine	New York	Vermont
District of Columbia	Maryland	North Carolina	Virginia
Delaware	Massachusetts	North Dakota	Washington
Florida	Michigan	Ohio	West Virginia
Georgia	Minnesota	Oklahoma	Wisconsin
Hawaii	Mississippi	Oregon	Wyoming
Idaho	Missouri	Pennsylvania	Puerto Rico
			Virgin Islands

Admin. Records & LED Infrastructure



QCEW = Quarterly Census of Employment and Wages
UI = Unemployment Insurance
OPM = Office of Personnel Management

- **Job data cover over 95% of private employment and most state, local, and federal jobs**
- **Data availability: 1990-2016, start year varies by state, rolling end date**

Why Are LED Data Special?

- 100% Coverage of UI Covered Jobs
- Firm Characteristics crossed with Worker Characteristics
- Detailed Geography
- Data Currency
- Accessible via powerful and easy-to-use tools
- Flexible outputs: PDF reports, Excel tables, high-quality images, and shapefiles

Data Products

- Quarterly Workforce Indicators (QWI)
  - 32 indicators by
    - Industry (NAICS 2, 3, and 4-digit), Firm Age, Firm Size
    - Worker Age, Race, Ethnicity, Sex, Education
    - State, County, CBSA, WIB Area
  - >150 Million job records processed each quarter
  - Longitudinal series starts in 1990 for some states
- LEHD Origin-Destination Emp. Statistics (LODES)
  - Connects a job/worker's employment and residential locations
  - Data at census block detail
  - Less characteristic detail than QWI
- Job-to-Job Flows (J2J) - Beta
  - Flows between jobs as well as into/out of nonemployment

Dissemination Tools/Applications

- J2J Explorer (Beta)
  - Dashboard-style analysis tool for Job-to-Job Flows
- OnTheMap
  - Map-based analysis tool for LODES
- OnTheMap for Emergency Management
  - Integrates live feeds of emergency/disaster areas
- QWI Explorer
  - Dashboard-style analysis tool for QWI
- LED Extraction Tool
  - Provides precise extracts of data (QWI only for now)

Choosing Among LED Data Products

What do you want?	Potential Drawbacks	Data Product
Employment, hires, separations, turnover, or earnings by detailed firm and person characteristics; quarterly time resolution; relatively short data lag	No geography below county; no residential information	QWI
Employment for detailed or customized geography; residential patterns of the workforce; relationship between worker employment and home locations	Annual time resolution; less detailed firm/person characteristics	LODES
Transitions between jobs by timing and firm or worker characteristics; transitions to/from nonemployment	No worker characteristics by firm characteristics, no geography below Metropolitan areas	J2J

Choosing Among LED Data Access Points

Data Product	Explore the data, answer questions, or get visualizations	Bulk data for use in analysis process/software	Live queries for building web applications
QWI	QWI Explorer	LED Extraction Tool Raw data download	Census Bureau API
LODES	OnTheMap OnTheMap for Emergency Management	Raw data download	Future development
J2J	Job-to-Job Explorer	Raw data download	Future Development

Job-to-Job Flows (J2J) fills an important data gap:

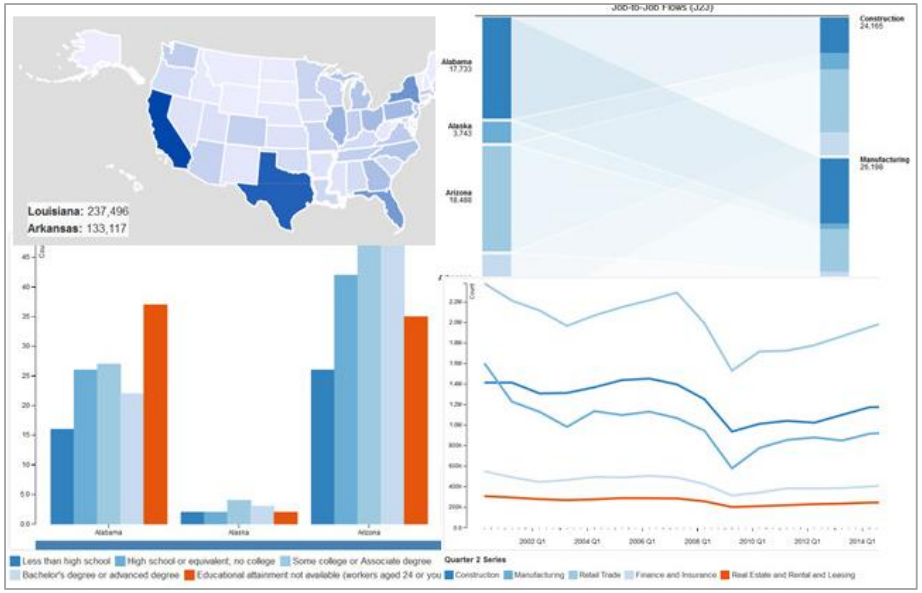
- Job-to-Job Flows is a beta release of new national statistics on job mobility in the U.S.

- With this data, users can learn more about workers entering and exiting nonemployment as well as those moving from one job to another.

- It therefore fills an important gap that other available data sources do not currently cover.

J2J Explorer

- ✓ 40 Measures of Worker Reallocation
- ✓ Six Visualization Modules with a flexible dashboard interface
- ✓ Export reports to Excel or CSV
- ✓ Trace worker movements through industries, geographic labor markets, and to/from employment
- ✓ Analyze/report by origin and destination geographies: national and state-level tabulations



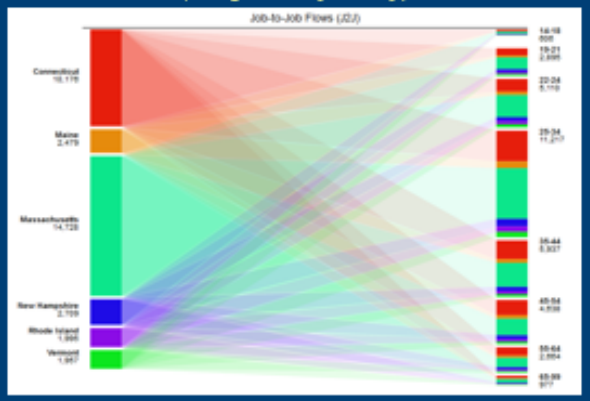
- ✓ Analyze/report by origin and destination firm characteristics: NAICS Sector, firm age, and firm size
- ✓ Analyze/report by worker demographics: age, earnings, race, ethnicity, educational attainment, and sex
- ✓ Data updated every quarter

Longitudinal Employer-Household Dynamics

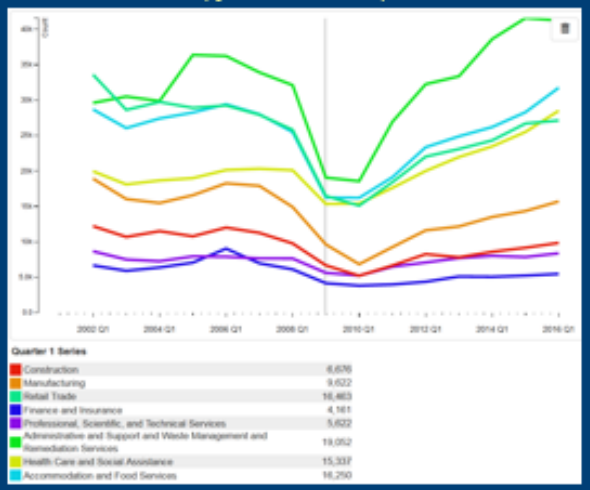
J2J Explorer

Innovative New Tool For Exploring the Job-to-Job Flows (J2J) Dataset

Job-to-Job Flows out of New England States by Worker Age
(Average of 2015Q3 - 2014Q4)



Job-to-Job Flows within Ohio by Origin NAICS Sector
(Q1 Series - 2016 – 2001)



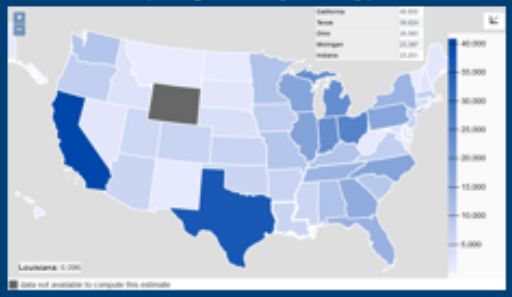
What are Job-to-Job Flows (J2J)?

- Innovative new statistics that trace worker movements through industries, geographic labor markets, and to/from employment
- Origin-Destination tabulations by state and firm characteristics, count/rate tabulations by worker demographics
- Potential J2J analyses include:
  - What industries are hiring newly separated manufacturing workers?
  - What states have the highest rate of worker separations leading to persistent nonemployment?
  - A time-series analysis on the impacts of worker's educational attainment on hires in North Dakota
- J2J data is sourced from administrative records collected from State Labor Market Information (LMI) offices through a voluntary partnership
- Coming Soon: Metro Area tabulations, earnings measures, crossing of Firm and worker characteristics

Benefits of J2J Explorer

- Guided Entry assists users in jumping directly to topical analysis questions (i.e. are hires to jobs in Arizona Construction coming from nonemployment or another job?)
- Flexibility to tell a story or simply explore the data
- Six different interactive visualization modules allow for multiple views of the data
- Compare, rank and aggregate J2J tabulations across time, geography, and/or firm and worker characteristics
- Data refreshed every quarter
- Export to Excel spreadsheet or CSV files

Job-to-Job Flows into Manufacturing by Destination State
(Average of 2015Q3 – 2014Q4)



Diagramming "Hire" J2J Indicators

Job-to-Job Flow Connectivity between Industries
(Average of 2014Q3 – 2013Q4)

j2jexplorer.ces.census.gov

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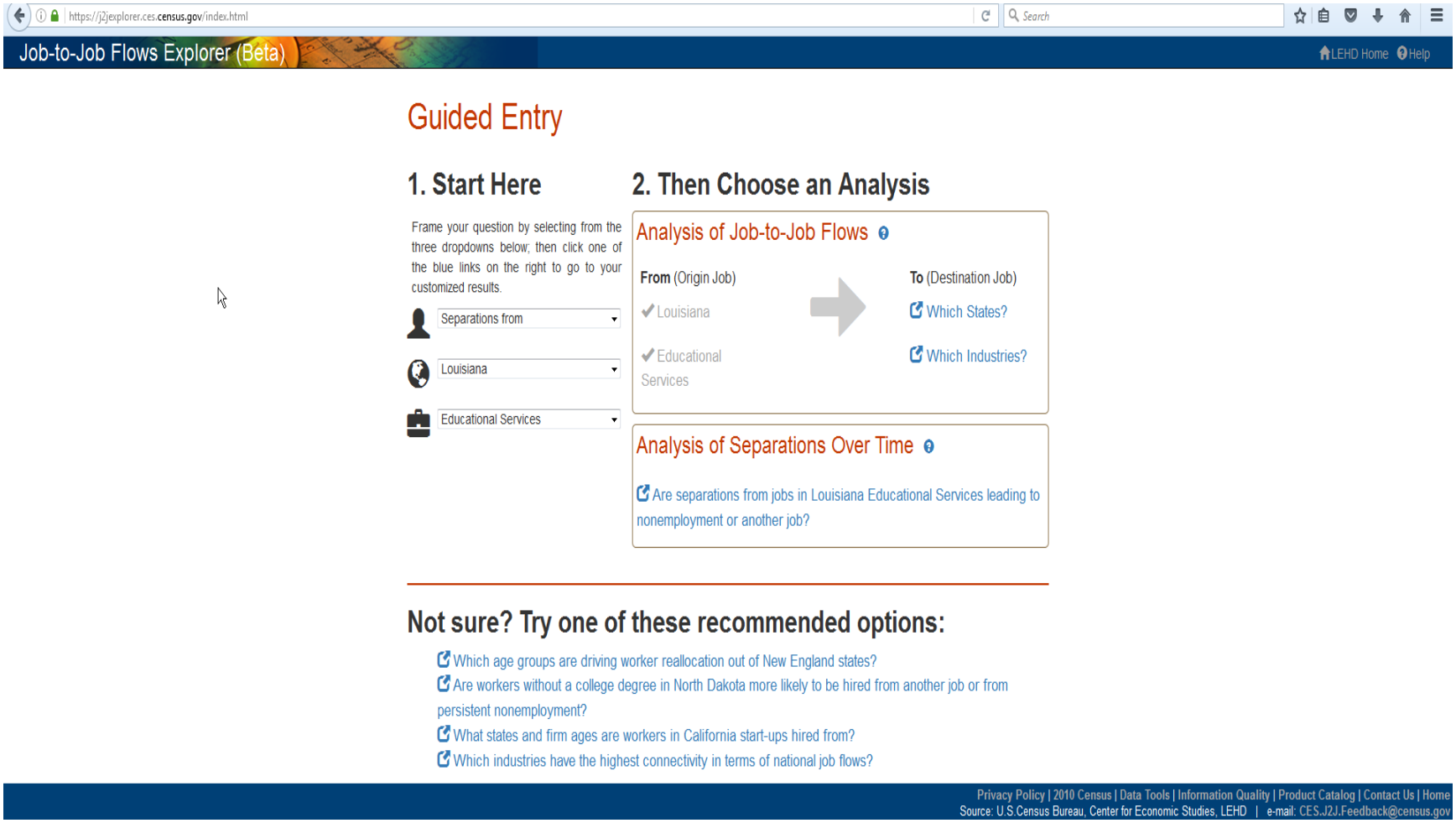
Where are Louisiana's teachers going?

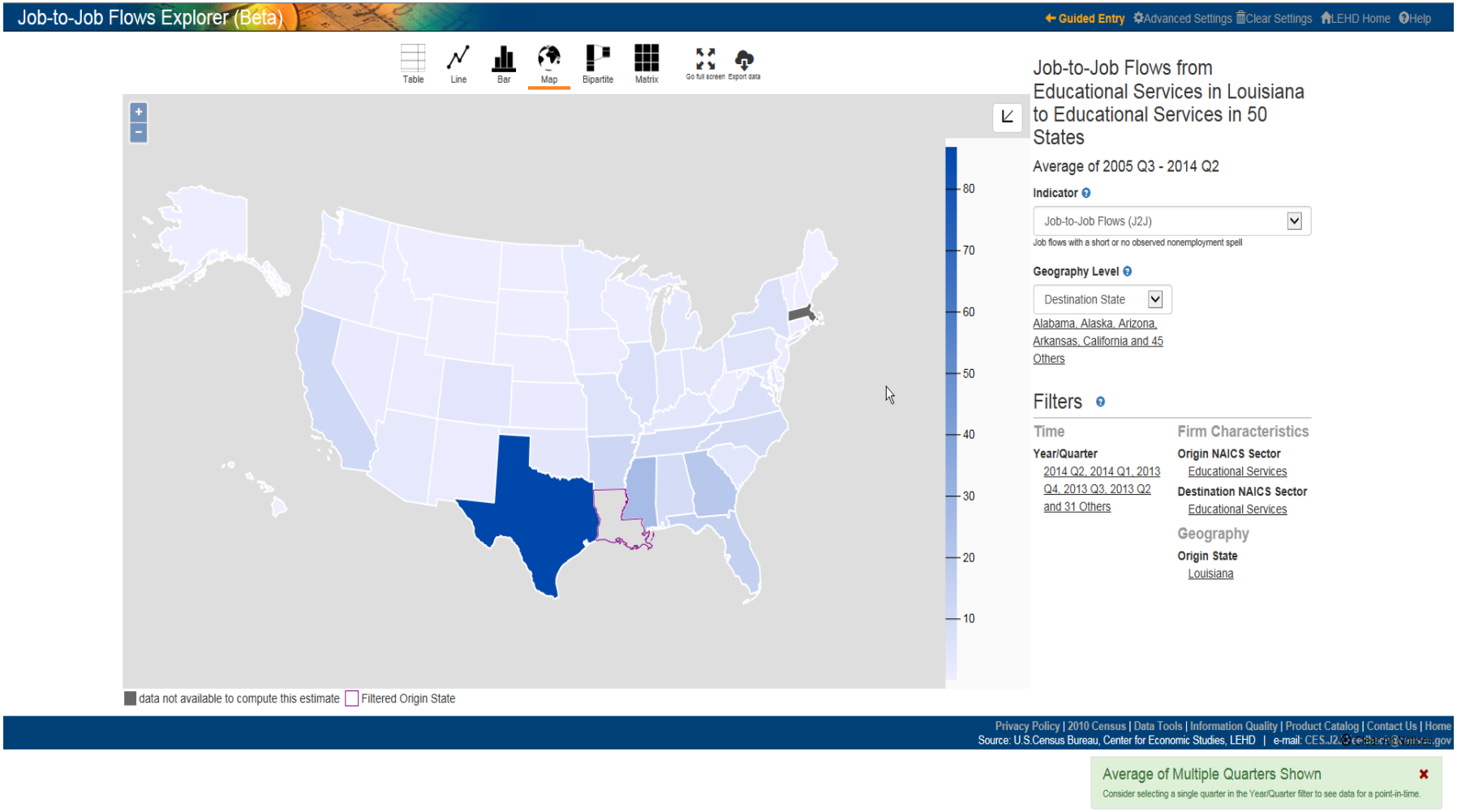
- After Hurricane Katrina, there were concerns that evacuees who were teachers weren't coming back to Louisiana
  - That they found jobs and stayed put

- In this example, we look at the J2J data to answer the question
  - How many teachers are leaving Louisiana for other jobs, both in education or in another industry?

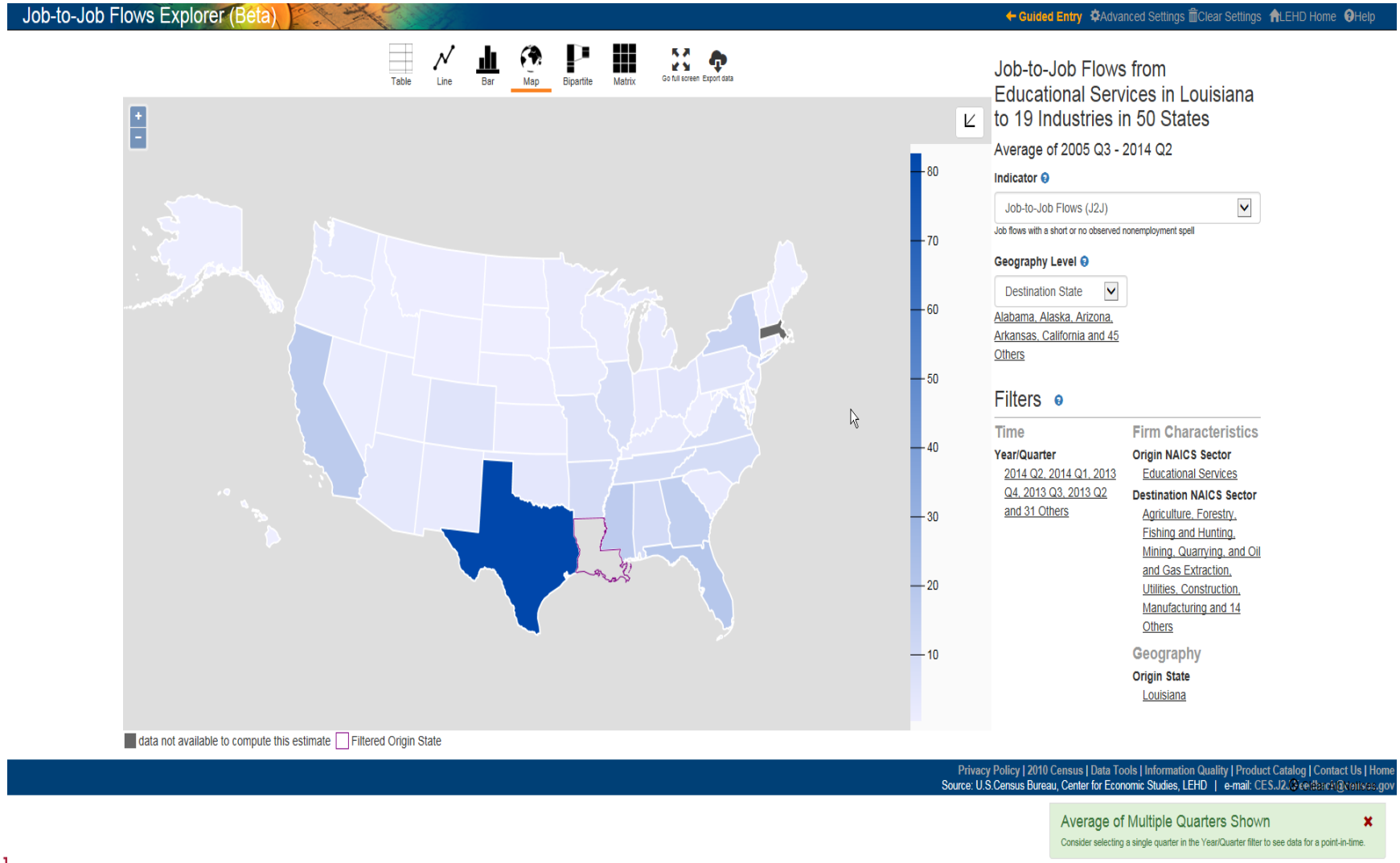
Starting with the Guided Entry



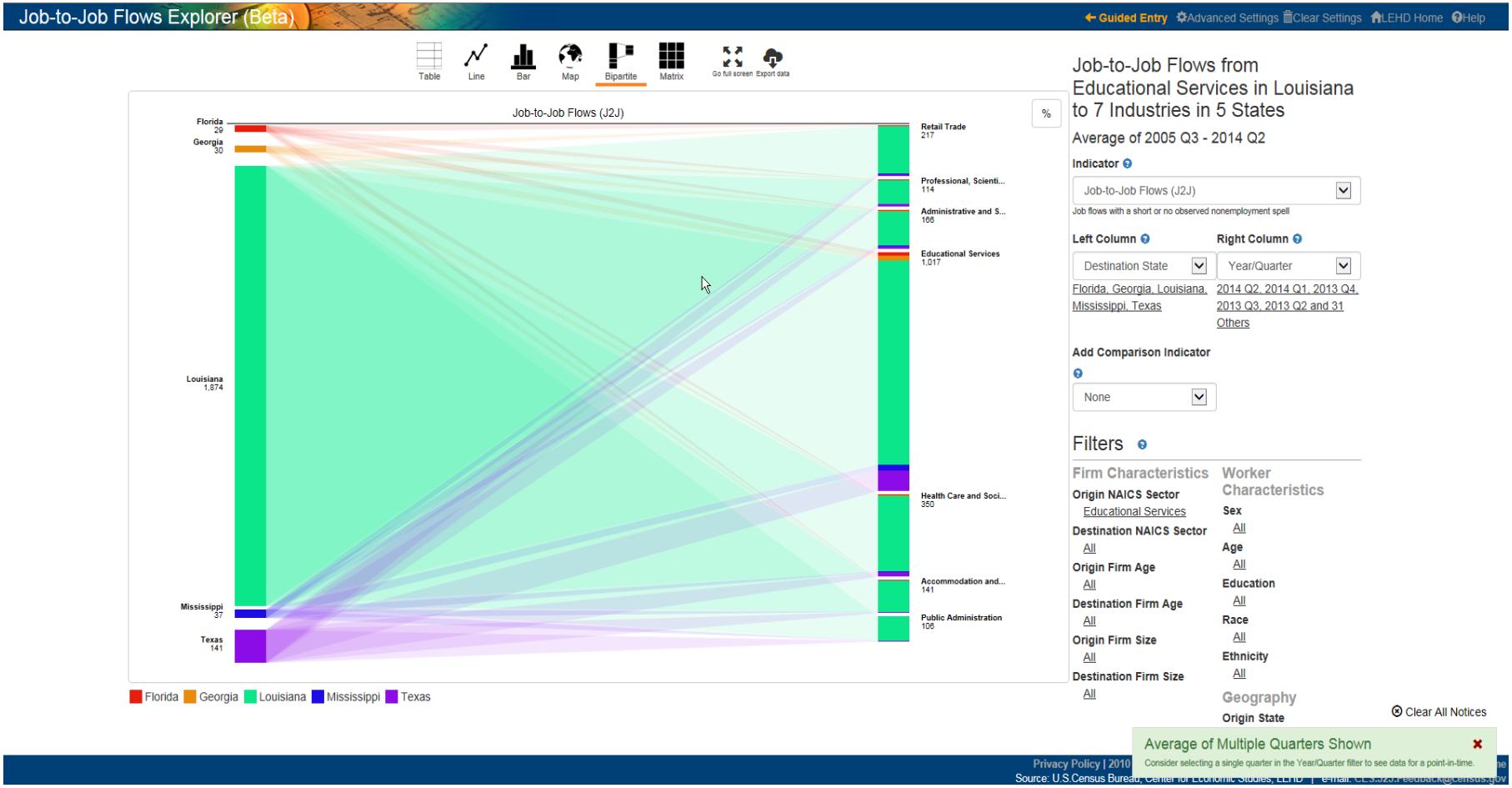
Louisiana education workers leaving to take education jobs out-of-state: 2005.3-2014.2



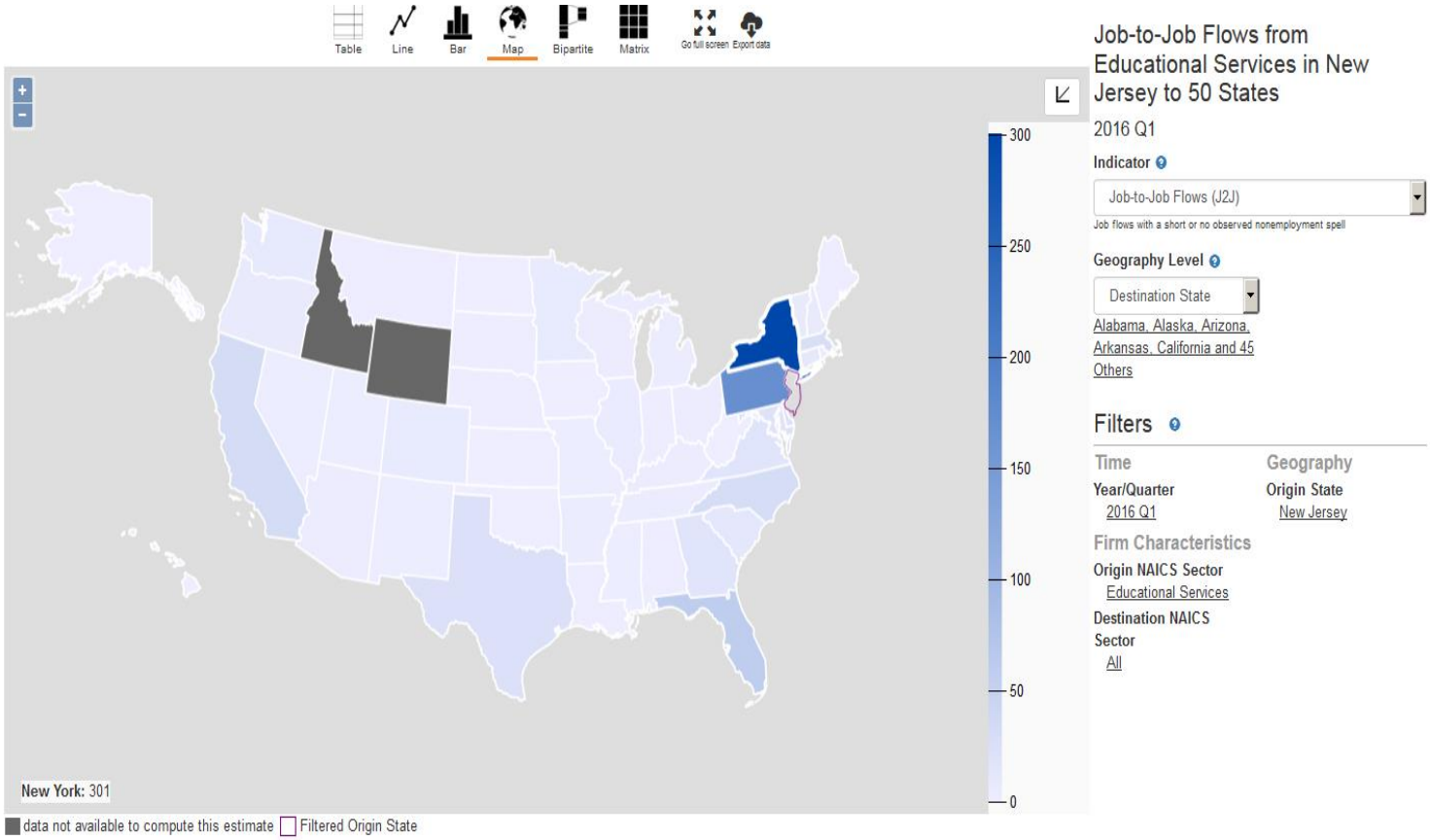
Louisiana education workers leaving to take *non-education* jobs out-of-state: 2005.3-2014.2



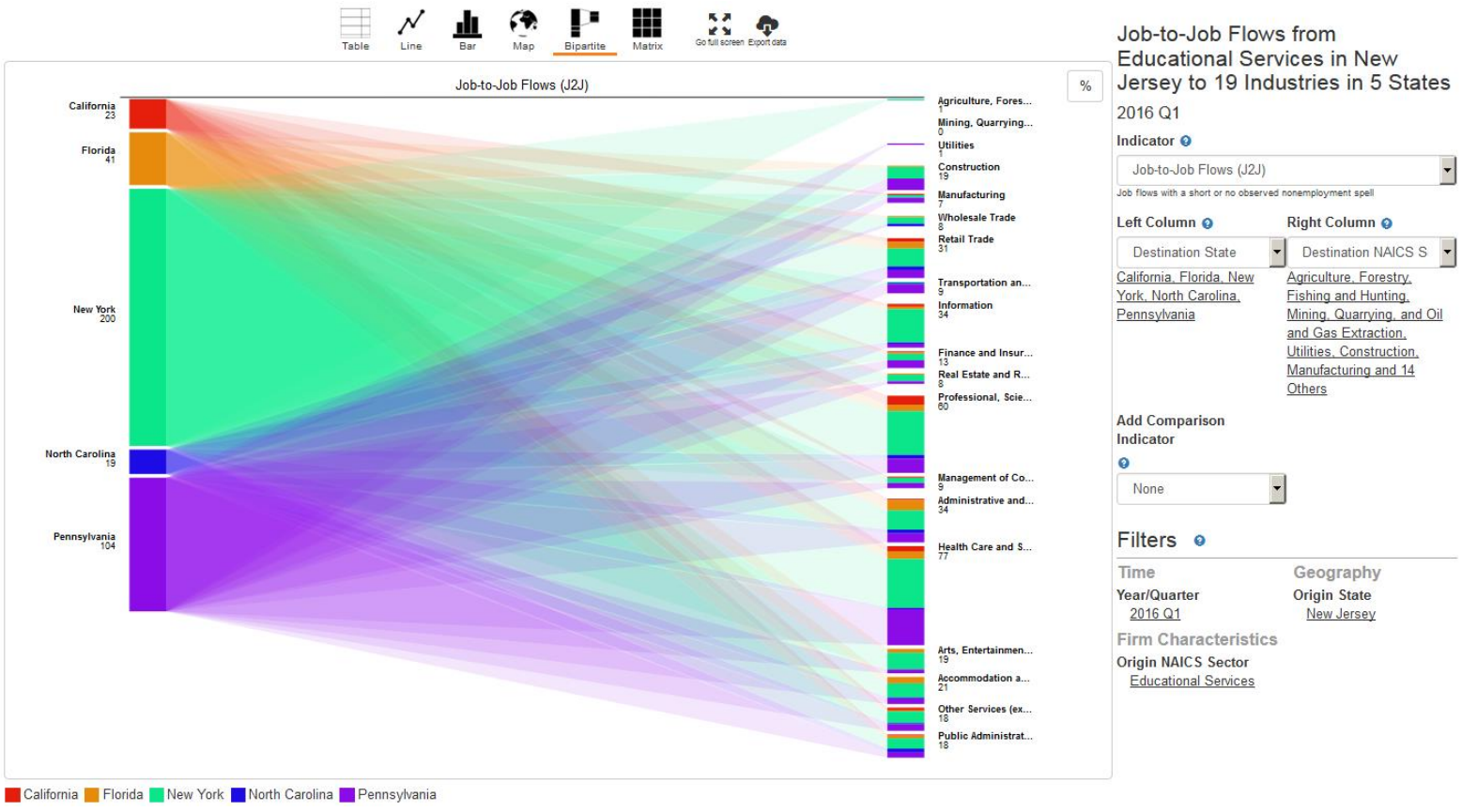
Job-to-Job Flows from Educational Services in Louisiana to 7 industries in 5 states



Hires to New Jersey



Hires from 20 Industries from Top 5 States



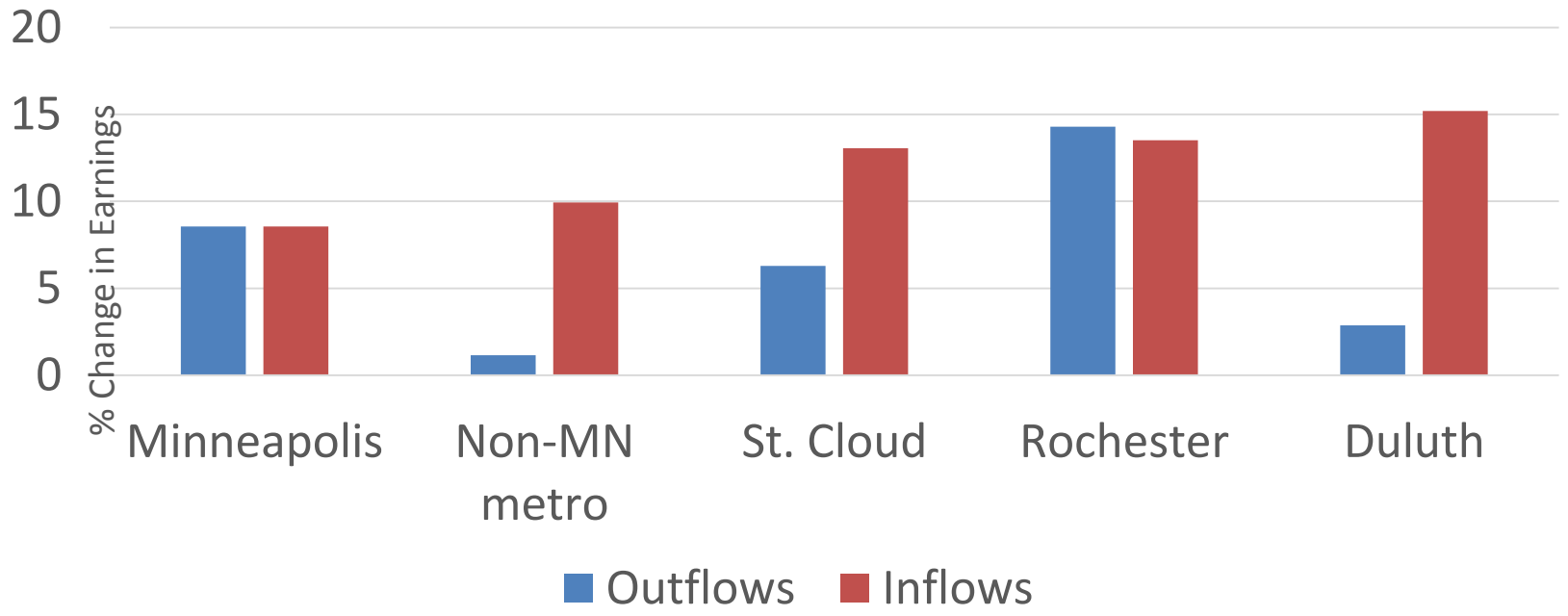
Go Live!

- https://lehd.ces.census.gov/
- https://j2jexplorer.ces.census.gov/

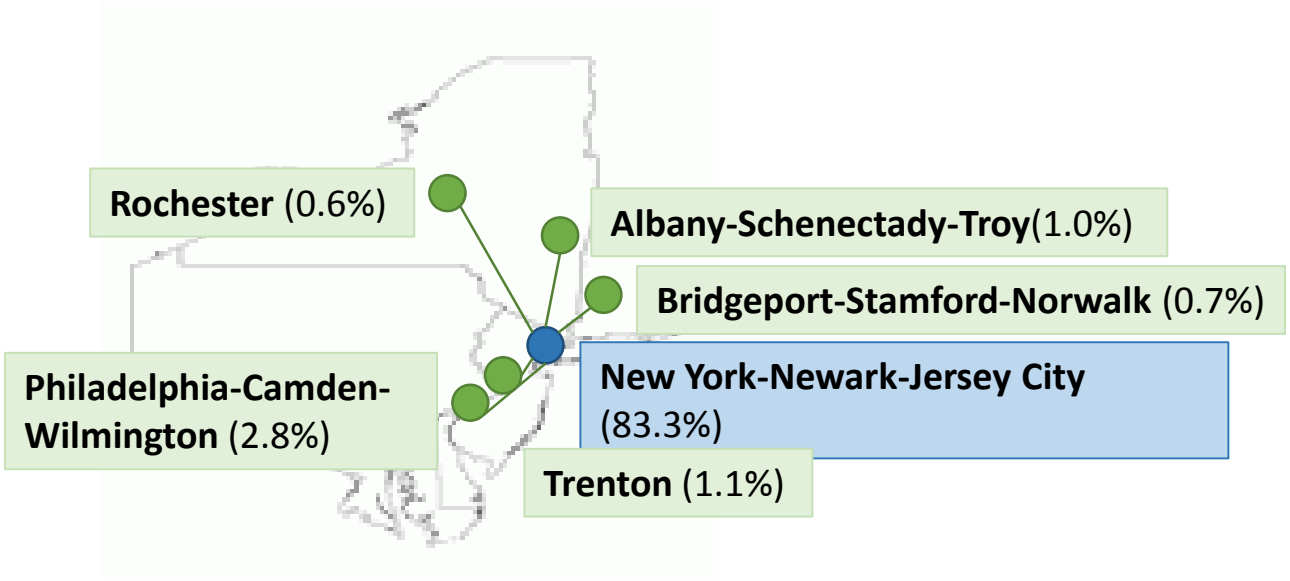
What's new in the newly released J2J:

- New metro-area tabulations
  - Count and origin-destination data
- New earnings variables
  - Earnings by origin and destination job in OD data
  - Earnings for hires and separations as well as job stayers in count data
- More detailed cross-tabulations
  - Industry by demographics

Earnings increased more for job changers whose new jobs were in Minneapolis



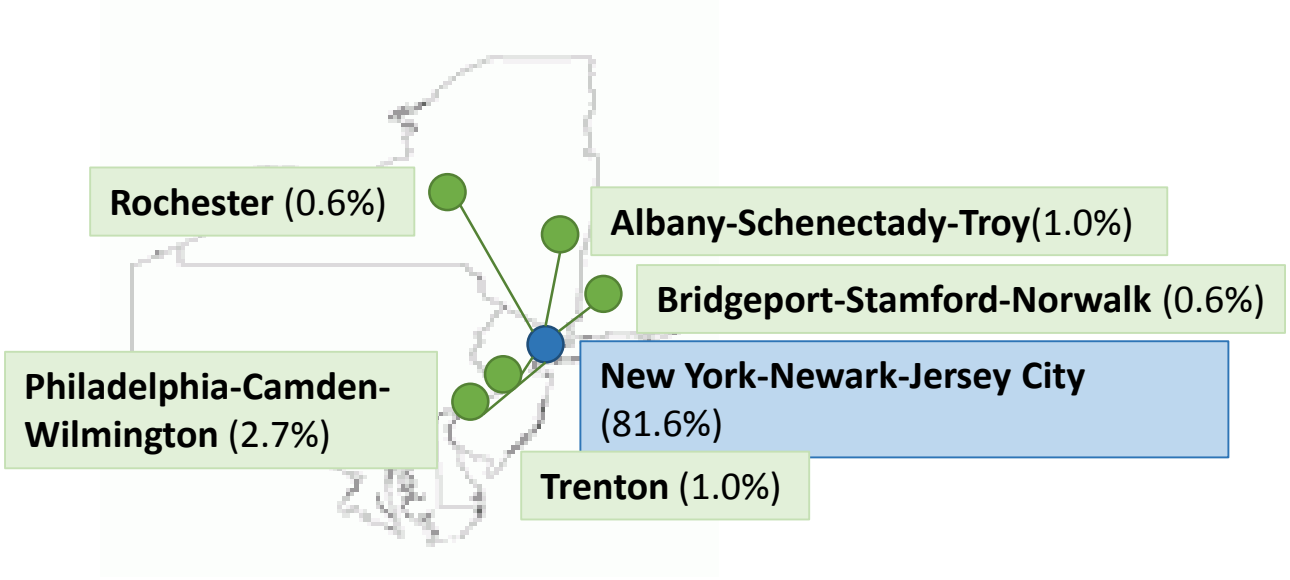
Workers starting jobs in New York-Newark-Jersey City came from jobs in…



Other top origins

Buffalo-Cheektowaga-Niagara Falls (0.6%)
Not in metropolitan area, NY (0.6%)
Boston-Cambridge-Newton (0.5%)
Washington-Arlington-Alexandria (0.5%)
Syracuse (0.4%)

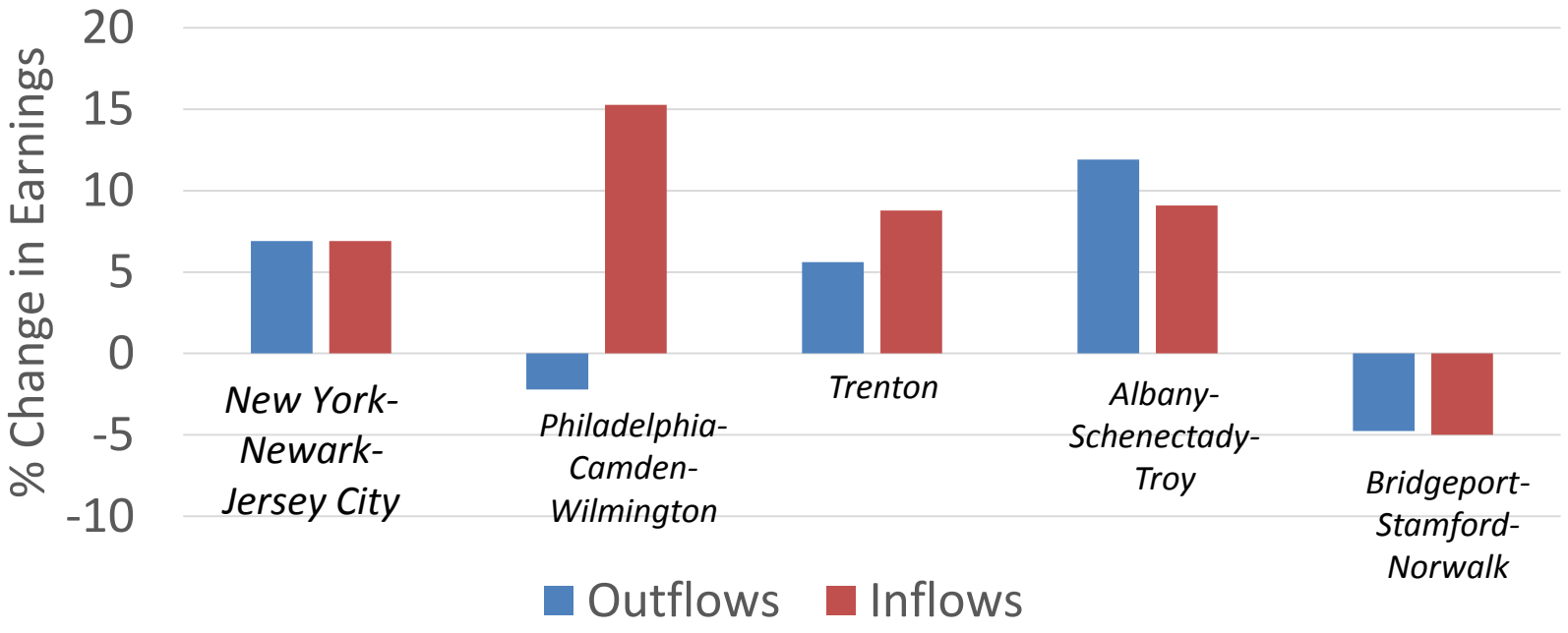
Workers leaving jobs in New York-Newark-Jersey City went to jobs in…



Other top destinations

Los Angeles-Long Beach-Anaheim (0.6%)
Buffalo-Cheektowaga-Niagara Falls (0.5%)
Not in metropolitan area, NY (0.5%)
Boston-Cambridge-Newton (0.5%)
Washington-Arlington-Alexandria (0.5%)

Whether earnings increase more by leaving jobs in New York-Newark-Jersey City or starting them varies by the associated metropolitan area



Takeaways

- The LED Partnership provides unique workforce information and analysis tools at a relatively low cost
- LED data products (QWI, LODES, J2J) can give insight into **local** and regional economies and labor markets
- LED's web tools provide free, 24/7 access for users to analyze and visualize the data

Works Cite

- Suggested Citations:
  - OnTheMap Application
    - U.S. Census Bureau. 2016. OnTheMap Application. Longitudinal-Employer Household Dynamics Program. http://onthemap.ces.census.gov/
  - LODES Data
    - U.S. Census Bureau. 2016. LODES Data. Longitudinal-Employer Household Dynamics Program. http://lehd.ces.census.gov/data/lodes/

Web Addresses for Public Data Tools

- QWI Explorer
  - qwiexplorer.ces.census.gov/
- J2J Explorer
  - j2jexplorer.ces.census.gov/
- OnTheMap
  - onthemap.ces.census.gov/
- OnTheMap for Emergency Management
  - onthemap.ces.census.gov/em.html
- LED Extraction Tool
  - ledextract.ces.census.gov/

Useful Links

- **QWI Explorer**
  - Video Walkthrough
  - Example Scenarios
- **J2J Explorer**
  - Analysis Guides
  - FAQs
- **OnTheMap**
  - Getting Started
  - Analysis Guides
  - Other Tutorials

Contacts

- LEHD
  - lehd.ces.census.gov
  - CES.OnTheMap.Feedback@census.gov
  - CES.QWI.Feedback@census.gov
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