Out with the Old in with the New: Census Tools 101

Job-to-Job Flows Explorer: Worker Reallocation

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Outline

• What is LED and how can I use it?
• LED Public-use Data and Web Tools
• Live Demonstrations
• Hands-on Activity
• 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 Do the Data Come From?

- Local Employment Dynamics (LED) Partnership
  - Begun in late 1990s with a few states
  - Some states have time series back to 1990 (AZ goes back to 2004)
  - Not currently producing data for Wyoming, Puerto Rico, and Virgin Islands
Admin. Records & LED Infrastructure

Economic Survey Data

Business Register

UI* Wage Records

OPM*

Federal Records

Demographic Census/Survey Data

QCEW* Linked National Jobs Data

Firm Data

Person Data

Public-Use Data Products…

• 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

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

<table>
<thead>
<tr>
<th>What do you want?</th>
<th>Potential Drawbacks</th>
<th>Data Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment, hires, separations, turnover, or earnings by detailed firm and person characteristics; quarterly time resolution; relatively short data lag</td>
<td>No geography below county; no residential information</td>
<td>QWI</td>
</tr>
<tr>
<td>Employment for detailed or customized geography; residential patterns of the workforce; relationship between worker employment and home locations</td>
<td>Annual time resolution; less detailed firm/person characteristics</td>
<td>LODES</td>
</tr>
<tr>
<td>Transitions between jobs by timing and firm or worker characteristics; transitions to/from nonemployment</td>
<td>No worker characteristics by firm characteristics (except geography), no geography below states</td>
<td>J2J</td>
</tr>
</tbody>
</table>
Choosing Among LED Data Access Points

<table>
<thead>
<tr>
<th>Data Product</th>
<th>Explore the data, answer questions, or get visualizations</th>
<th>Bulk data for use in analysis process/software</th>
<th>Live queries for building web applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>QWI</td>
<td>QWI Explorer</td>
<td>LED Extraction Tool Raw data download</td>
<td>Census Bureau API</td>
</tr>
<tr>
<td>LODES</td>
<td>OnTheMap OnTheMap for Emergency Management</td>
<td>Raw data download</td>
<td>Future development</td>
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<td>J2J</td>
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</tbody>
</table>
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
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

Guided Entry

1. Start Here

Frame your question by selecting from the three dropdowns below, then click one of the blue links on the right to go to your customized results.

- Separations from
- Louisiana
- Educational Services

2. Then Choose an Analysis

Analysis of Job-to-Job Flows

From (Origin Job)
- Louisiana
- Educational Services

To (Destination Job)
- Which States?
- Which Industries?

Analysis of Separations Over Time

Are separations from jobs in Louisiana Educational Services leading to nonemployment or another job?

Not sure? Try one of these recommended options:

- Which age groups are driving worker reallocation out of New England states?
- Are workers without a college degree in North Dakota more likely to be hired from another job or from persistent nonemployment?
- What states and firm ages are workers in California start-ups hired from?
- Which industries have the highest connectivity in terms of national job flows?
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
Go Live!

- https://lehd.ces.census.gov/
- https://j2jexplorer.ces.census.gov/
Hands On J2J Explorer

- Open J2J Explorer, select "Arkansas" in the state dropdown and select the "Analysis of Hires Over Time" analysis type.
- Click the Table viz button and scroll down to the 2015 Q2 row.
- Take the NEPersist value (69,885) and divide it by the MHire value (139,233), which gives you 0.5019.
- Back in J2J Explorer, click "All" under NAICS Sector in the Firm Characteristics Filters.
- Set this filter to "Manufacturing" and then divide the NEPersist value (4,577) by the MHire value (11,521) to get 0.3972.
Ranking of Destination NAICS

Now we want to get a ranking of Destination NAICS Sectors for the J2J indicator when Arkansas is the Destination State. We also want to filter by all states except Arkansas, since we want the hires to have come from out-of-state.

- From the J2J Explorer Guided Entry, make sure state is "Arkansas" and click "Which States?" (on the Origin side).
- Click the Table viz button, then change Rows to "Destination NAICS Sector", and then
- Click the underlined list of states link underneath the Origin State filter.
- Arkansas is already unchecked but we need to also uncheck Wyoming since it doesn't have data for 2015 Q2.
- Now click the "All" column header twice to sort the list of industries descending.
Top 5-6 states that Contribute Hires to Arkansas

- For this last J2J statement, we want to pick the top 5-6 states that contribute hires to Arkansas and then determine which destination industries these states contribute the most hires to.
  - First, from J2J Explorer where we left off, change Rows to Origin State and sort descending.
  - Make note of the top five or six states, which for Arkansas are TX, OK, MO, TN, LA, and MS.
  - Click the underlined list of states link under the Rows dropdown and select only those six states,
  - change Columns to "Destination NAICS Sector",
  - Click the Bipartite viz button and finally click the "%" button in the top right corner of the viz window.
  - Now let's find 3 examples of a state whose destination industry percentage is larger than the other states (preferably in an industry that states really care about, such as Manufacturing or Construction).
    - If you hover over LA on the left side, you can see that 22% of its hires into AR are in Construction, which is a higher percentage than other states.
    - If you hover over TN, you can see that 19% of its hires into AR are in Transportation and Warehousing, which is a higher percentage than other states.
    - For MO, you can see that 13% of its hires into AR are in Health Care and Social Assistance, which is a higher percentage than other states.
OnTheMap
Recognized by United Nations as a major U.S. statistical innovation

✓ Where do workers live?
✓ Where do residents work?
✓ What are the commuter flows of a particular area?
✓ Analyze/report by worker demographics: age, earnings, race, ethnicity, educational attainment, and sex
✓ Analyze/report by firm characteristics: NAICS Sector, firm age, and firm size

✓ 2002-2014 annual data (2015 coming soon!)
✓ 50 states available (plus DC)
✓ User-selected areas
✓ Based on Census Blocks
✓ Disclosure protection
✓ Flexible Inputs/Outputs
OnTheMap for Emergency Management

Hurricanes, Floods, Winter Storms

Disaster Areas

Wildfires

Demographic & Economic Data

New Public Data Service for Emergency Preparedness & Response

- Comprehensive Reports
- Real-time Data Updates
- Easy-to-use & Interoperable
- Historical Event Archive
- Flexible Analyses & Visualizations
QWI Explorer

✓ 32 Quarterly Workforce Indicators

✓ Flexible Pivot Table and Map/Chart interface

✓ Data on detailed interactions between firms and workers include employment, employment change (individual and firm), and earnings

✓ Analyze/report by worker demographics: age, earnings, race, ethnicity, educational attainment, and sex

✓ Analyze/report by firm characteristics: NAICS classification (sector, 3, 4), firm age, and firm size

✓ Quarterly data very current (9-12 months old)

✓ National and 50 states available (plus DC)
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
  - LODES Data
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
  – CES.J2J.Feedback@census.gov

• Data/Applications
  – lehd.ces.census.gov/data
  – lehd.ces.census.gov/applications