Local Employment Dynamics with Job-to-Job Flows Explorer

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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 Do the Data Come From?

- Local Employment Dynamics (LED) Partnership
  - Begun in late 1990s with a few states
  - Nebraska goes all the way back to 1999
  - Not currently producing data for Wyoming, Puerto Rico, and Virgin Islands
Admin. Records & LED Infrastructure

Economic Survey Data → Jobs Data
Business Register → Jobs Data
UI* Wage Records → Jobs Data
OPM* → Jobs Data
Federal Records → Jobs Data
Demographic Census/Survey Data → Jobs Data

QCEW* → Jobs Data

Firm Data → Jobs Data
Person Data → Jobs Data

Linked National Jobs Data → Public-Use Data Products...

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

<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</td>
<td>Census Bureau API</td>
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<tr>
<td></td>
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<td>Raw data download</td>
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<tr>
<td>LODES</td>
<td>OnTheMap</td>
<td>Raw data download</td>
<td>Future development</td>
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</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.
Net migration of out-of-state workers into the North Dakota mining sector: 2010-2014

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.
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.
Job-to-Job Flows: National-level statistics on rates of job change

- 70% of the fall in hiring in 2008 was decline in job-to-job moves
- Most of this decline comes from workers remaining longer at the lowest paying firms in recessions

Note: Source: Job-to-Job Flows, national data. 2015Q2 release. Shaded regions indicate NBER recession quarters. All data are seasonally adjusted.
After declining sharply in the Great Recession, job separations bounced back, albeit slowly

- LEHD Job-to-Job Flows data show that this recovery is driven by an uptick in workers quitting to take new jobs
- Job-to-job moves continued to recover and are currently back at pre-Great Recession levels.
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
J2J Explorer
Innovative New Tool For Exploring the Job-to-Job Flows (J2J) Dataset

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

j2jexplorer.ces.census.gov
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 drop-downs 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
- 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
Hires to Nebraska

Job-to-Job Flows from 50 States to Nebraska
2016 Q1

Indicator
Job-to-Job Flows (J2J)

Geography Level
Origin State
Alabama, Alaska, Arizona, Arkansas, California and 45 Others

Filters
Time
Year/Quarter
2016 Q1

Firm Characteristics
Origin NAICS Sector
All
Destination NAICS Sector
All
Origin Firm Age
All

Worker Characteristics
Sex
All
Age
All
Education
All
Race
All
Ethnicity
All
Hires from 20 Industries from Top 5 States
Go Live!

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