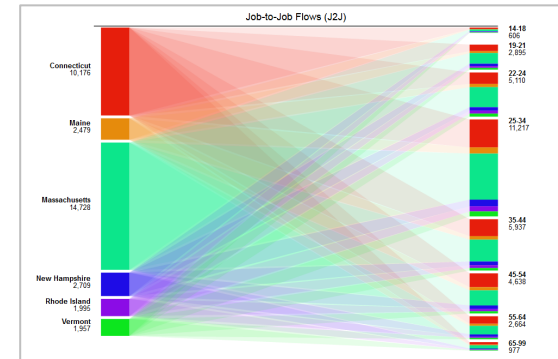
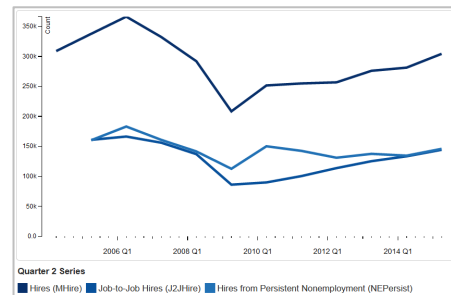
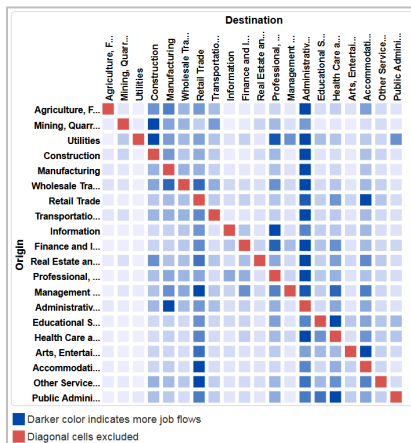


Job-to-Job Flows (J2J)

J2J Data Concepts and Data Tools



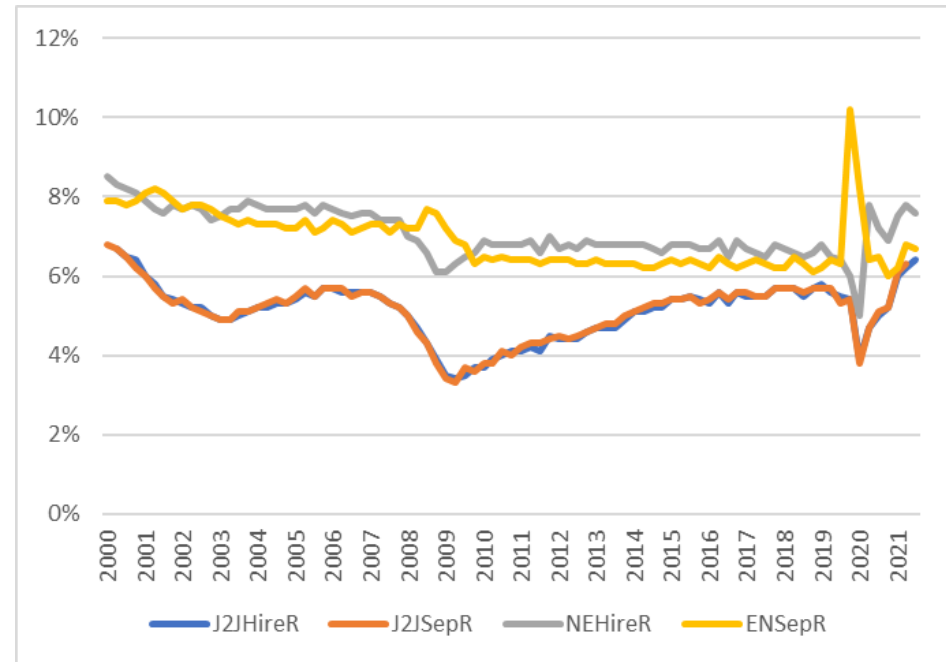
Heath Hayward
 Longitudinal Employer-Household Dynamics
 U.S. Census Bureau
 March 2023

Training Outline

- J2J Data Overview
- Important Concepts and Data Structure
- Data Tools
- Quick Demos
- Useful Links
- Hands-On Exercises
- Questions

J2J Data Product

- Job-to-Job Flows (J2J) are national statistics on **job mobility** in the U.S.
- With these data, users can learn more about workers entering and exiting nonemployment as well as those moving from one job to another.
- It fills an important gap that other available data sources do not currently cover.



Note: J2JHireR is the rate of Job-to-Job hires, J2JSepR is the rate of Job-to-Job separations, NEHireR is the rate of hires from nonemployment, and ENSepR is the rate of separations to nonemployment. All data are seasonally adjusted.

J2J Data Product

- Better understand worker turnover
 - Are separations mostly coming from workers changing jobs or from workers transitioning into nonemployment?
 - When workers change jobs, are they switching to new industries or moving to new locations?
- See the impact of job ladders
 - Are job moves leading to workers moving ‘up the job ladder’ to better paying industries and employers?
- Look at economic migration across labor markets
 - What labor markets are we losing workers to? Which workers? What industries in my state/metro are importing workers from other states/metros?

Important Concepts

- Workers can hold more than one job
- The highest paying job is identified as the main job
- If a worker does not have a main job, that worker is defined as non-employed
- To identify worker movements, we compare employment status and main job between the beginning and end of a quarter

Important Concepts

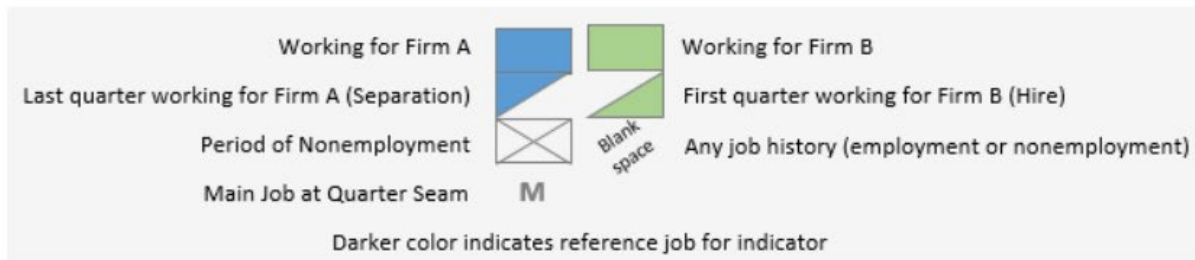
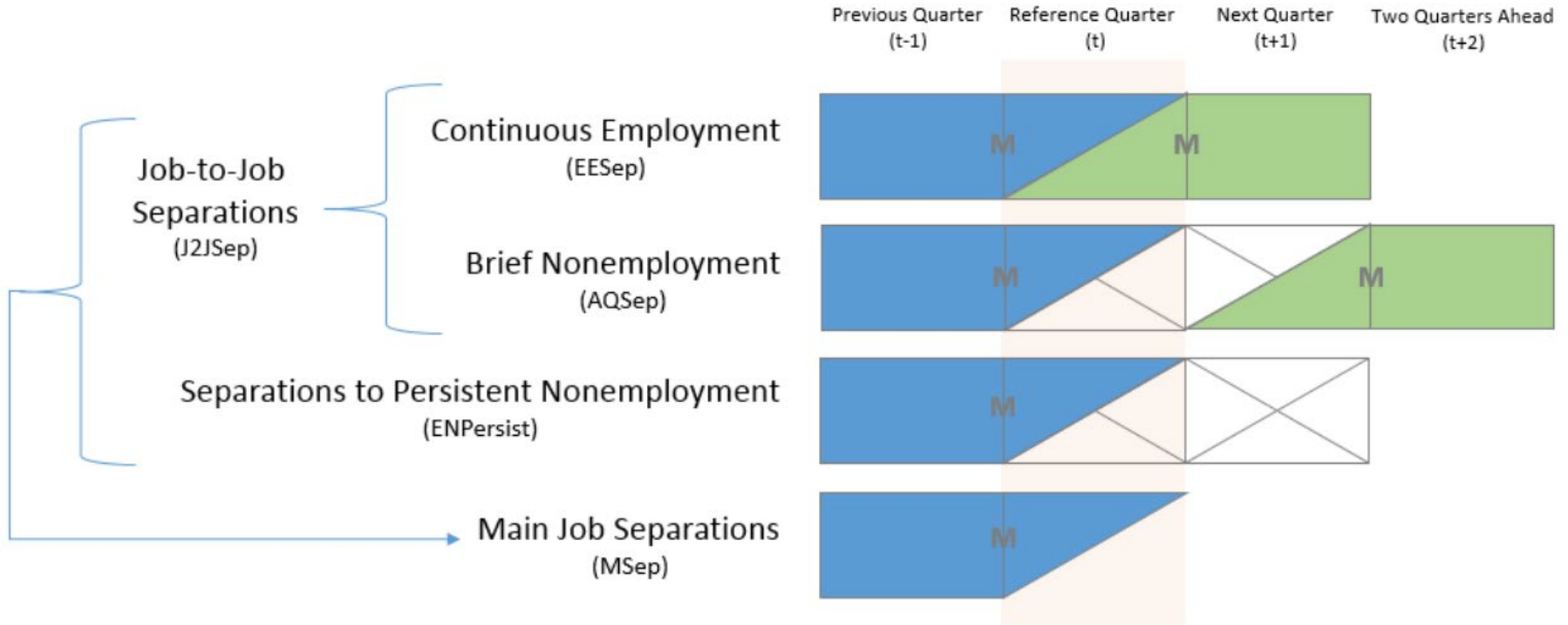
| | Employment | |
|--|---------------------------------|---------------------------|
| | <i>Beginning of the quarter</i> | <i>End of the quarter</i> |
| Job Stayer <i>(JobStayS)</i> | Main Job at Firm A | Main Job at Firm A |
| Job Changer <i>(J2J)</i> | Main Job at Firm A | Main Job at Firm B |
| Flow from Nonemployment <i>(NEPersist)</i> | None | Main Job at Firm B |
| Flow to Nonemployment <i>(ENPersist)</i> | Main Job at Firm A | None |

Important Concepts

| | Earnings | |
|--|--|--|
| | <i>Beginning of the quarter</i> | <i>End of the quarter</i> |
| Job Stayer <i>(JobStayS)</i> | Main Job at Firm A <i>(JobStaySEarn_Orig)</i> | Main Job at Firm A <i>(JobStaySEarn_Dest)</i> |
| Job Changer <i>(J2J)</i> | Main Job at Firm A <i>(J2JSEarn_Orig)</i> | Main Job at Firm B <i>(J2JSEarn_Dest)</i> |
| Flow from Nonemployment <i>(NEPersist)</i> | None | Main Job at Firm B <i>(NEHireSEarn_Dest)</i> |
| Flow to Nonemployment <i>(ENPersist)</i> | Main Job at Firm A <i>(ENSEpSEarn_Orig)</i> | None |

Diagramming J2J Indicators

Separations



Data Structure

Core measures (J2J)

- Hires and separations resulting from job change
- Hires from and separations to nonemployment

Rates measures (J2JR)

- Rates calculated by dividing J2J measures by the number of main jobs

Origin-destination measures (J2JOD)

- Subset of hires where the worker separated from their previous main job in the same or previous quarter

Data Structure

J2J and J2JR

| | Nationally and by state | By MSA |
|-------------------------------------|-------------------------|--------|
| All firms and workers | X | X |
| By firm characteristics | X | X |
| By worker demographics | X | X |
| By industry by firm characteristics | X | |
| By industry by worker demographics | X | X |

J2J and J2JR tabulations are also available by additional interactions of the characteristics listed above. For a full list of interactions, see [section 5.19 in the schema](#).

Data Structure

J2JOD

| | Nationally and by state | By MSA |
|--|-------------------------|--------|
| All firms and workers | X | X |
| By origin firm characteristics by destination firm characteristics | X | X |
| By worker demographics | X | X |
| By origin industry by destination industry by origin firm age/size by destination firm age/size | X | |
| By origin industry by destination industry by worker demographics | X | X |

J2JOD tabulations are also available by additional interactions of the characteristics listed above. For a full list of interactions, see [section 5.19 in the schema](#).

Data Availability

- Released quarterly
- J2J and J2JR
 - National data*: 2000Q2 to the latest available quarter - currently 2021Q4 in the tools but 2022Q1 in the raw data
 - State data*: Varies; see table for the latest available quarter
 - MSA data*: See the [METRO metadata file](#) on the LEHD website
- J2JOD
 - National and state data*: Availability may be outside of the ranges shown in the table
 - MSA data*: See the [METRO metadata file](#)

| Region | Latest Quarter |
|-------------------------|------------------|
| National | Latest Available |
| <i>Most States + DC</i> | Latest Available |
| Alaska | 2016Q1 |
| Arkansas | 2018Q1 |
| Louisiana | 2021Q3 |
| Michigan | 2021Q3 |
| Mississippi | 2018Q1 |
| Tennessee | 2018Q1 |

Accessing J2J Data

LEHD provides a wide variety of access points to the data in order to accommodate as many user needs as possible:

- Web tool users: Create your own table, chart, and map using the flexible user-interface of [J2J Explorer](#)
- Intermediate users: Extract the exact indicators and characteristics they need with the [LED Extraction Tool](#)
- Advanced data users: Access single raw J2J files from lehd.ces.census.gov/data/#j2j
- Advanced data users: Bulk download of raw J2J files from lehd.ces.census.gov/data/j2j/

J2J Data in LED Extraction Tool

- Extract the exact geography, firm/worker characteristics, indicators, and quarters you're interested in
- Different paths for Job Flow, Hires, Separations, and Job Stayers/Employment indicators
- Select national, state, and metropolitan areas in a single query
- “Shopping Cart” functionality
- Export with/without labels
- Download CSV with/without metadata files

J2J Data in LED Extraction Tool

United States
Census
Bureau
LEHD Home Help and Documentation

LED Extraction Tool > Job Flows (J2J)

1. Geography | 2. Firm Characteristics | 3. Worker Characteristics | 4. Indicators | 5. Quarters | 6. Summary and Export

Estimated Results Size

Number of Rows: **2,300**
 Size of CSV: **1 MB**
 Size of ZIP: **Less than a Megabyte.**
 Run Time: **Less than a Minute.**

Include Labels
Including labels will dramatically increase processing time and file size.

Additional Information

Basic J2J Information
[J2J Data Schema](#)
[J2J Quick Start Guide](#)
[J2J 101](#)

Comprehensive J2J Information
[J2J Variable Relatedness Diagram](#)
[Job-to-Job Flows: New Statistics on Worker Reallocation and Job Turnover document](#)

Data Notices/Updates
[J2J Data Vintage Notices](#)

For more information, go to [LED Extraction Tool Help and Documentation](#).

Query Results

Current

Origin: 6 Metros, NAICS Sectors, Sex
 Destination: 6 Metros, NAICS Sectors, Sex

Download:
[CSV Metadata \(ZIP\)](#) [CSV & Metadata \(ZIP\)](#)

Previous

Selections

▼ Geography Reset

| Origin | | Destination |
|--|--|--|
| ▼ Metropolitan Areas 6 selected | | ▼ Metropolitan Areas 6 selected |
| Barnstable Town, MA 12700 | | Barnstable Town, MA 12700 |
| Boston-Cambridge-Newton, ... 14460 | | Boston-Cambridge-Newton, ... 14460 |
| Not in metropolitan area, MA 25999 | | Not in metropolitan area, MA 25999 |
| Pittsfield, MA 38340 | | Pittsfield, MA 38340 |
| Springfield, MA 44140 | | Springfield, MA 44140 |
| Worcester, MA-CT 49340 | | Worcester, MA-CT 49340 |

▼ Firm Characteristics Reset

| Origin | | Destination |
|-----------------------------------|--|-----------------------------------|
| ▼ NAICS Sectors 2 selected | | ▼ NAICS Sectors 2 selected |
| Construction 23 | | Construction 23 |
| Manufacturing 31-33 | | Manufacturing 31-33 |

▼ Worker Characteristics Reset

▼ Sex and Age 2x1 selected

Male 1
 Female 2
 All Ages (14-99) A00

▼ Indicators Reset

▼ Seasonal Adjustment 1 selected

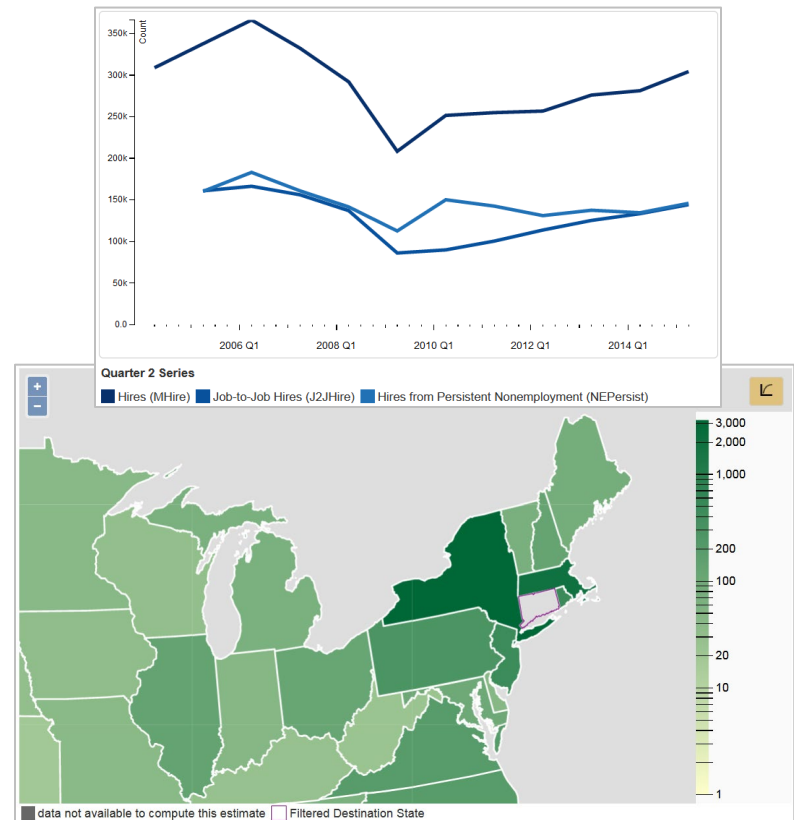
Unadjusted tabulations U

▼ Counts 1 selected

Return to Quarters | Load Settings | Save Settings

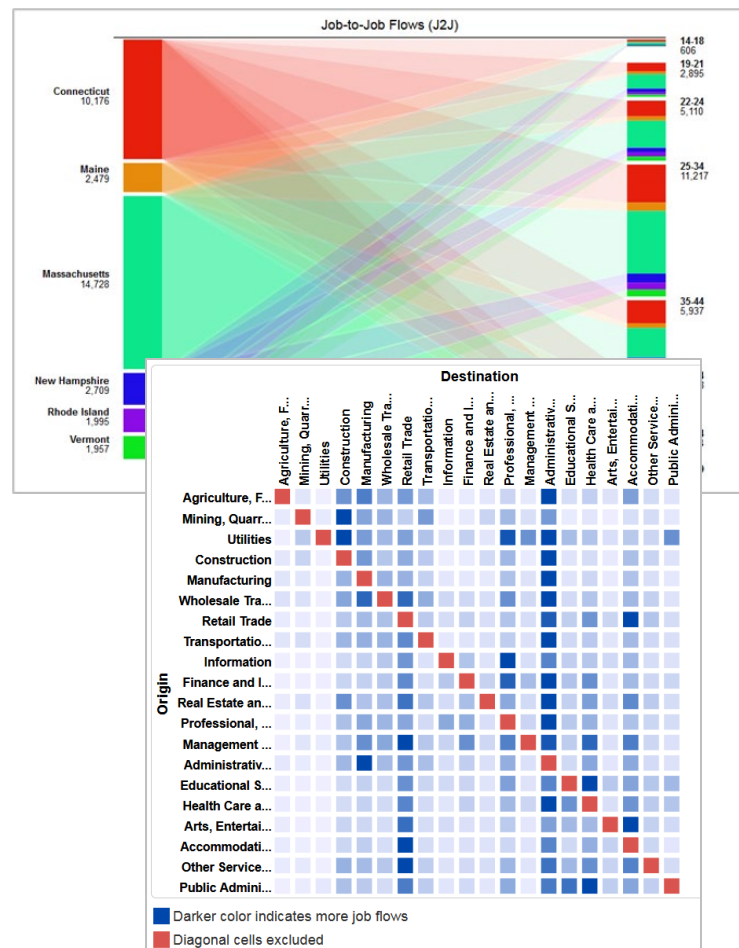
J2J Explorer

- 6 Visualization Modules with a flexible dashboard interface
- 67 employment and earnings indicators (11 recommended indicators shown by default)
- Guided Entry to help curate interesting analyses
- Ranking and Normalization functionality
- Unique, shareable links
- Export reports to Excel or CSV
- Data updated quarterly

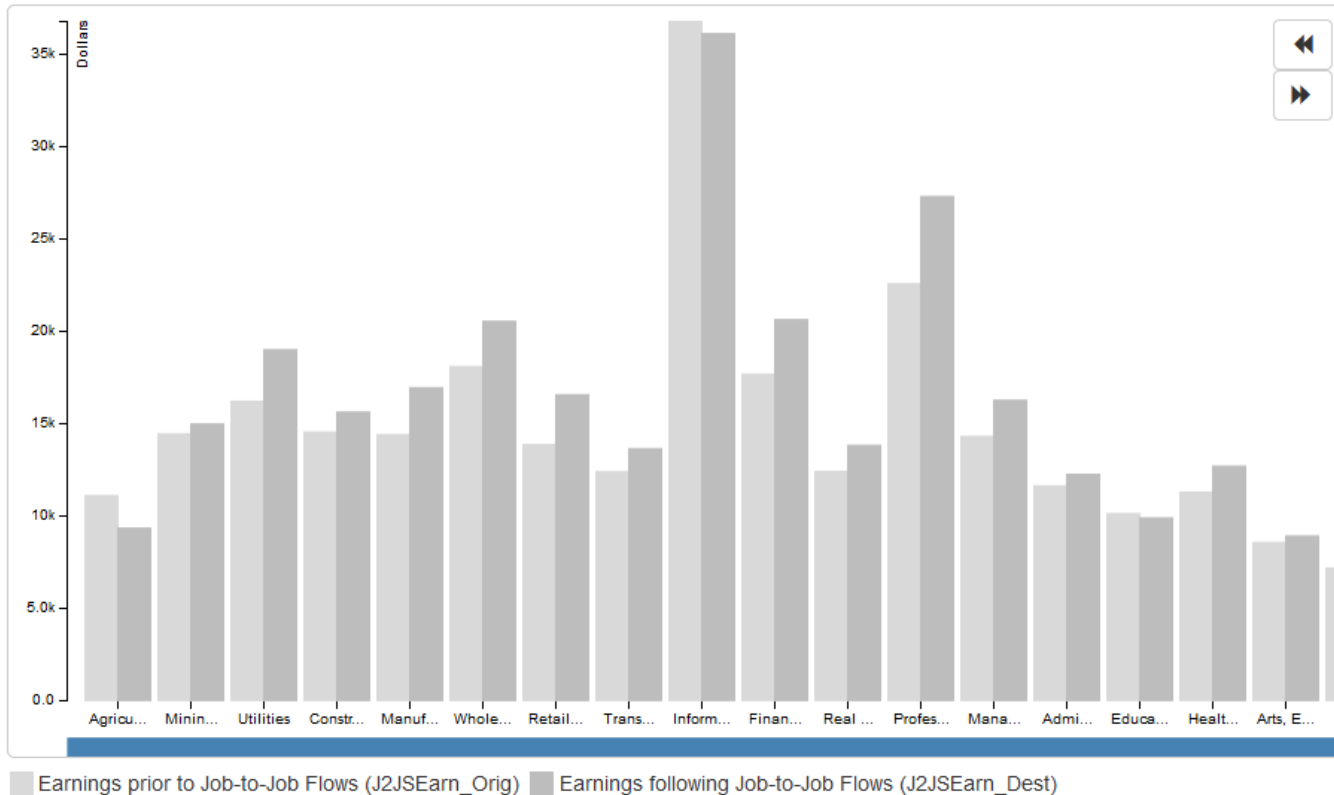


J2J Explorer

- Analyze/report by origin and destination geographies at the national, state, and MSA level
- Analyze/report by origin and destination firm characteristics (i.e. industry, firm age, and firm size)
- Analyze/report by worker demographics: age, earnings, race, ethnicity, educational attainment, and sex
- Ability to cross worker demographics with firm characteristics



Quick Data Tool Demo



A Comparison of Earnings Indicators for Job Flows to 20 Industries in Seattle-Tacoma-Bellevue, WA

One-Page Example Analyses

- lehd.ces.census.gov/doc/help/j2j_explorer/J2JExplorerAnalysisGuide1.pdf
- lehd.ces.census.gov/doc/help/j2j_explorer/J2JExplorerAnalysisGuide2.pdf
- lehd.ces.census.gov/doc/help/j2j_explorer/J2JExplorerAnalysisGuide3.pdf
- lehd.ces.census.gov/doc/help/j2j_explorer/J2JExplorerAnalysisGuide4.pdf
- lehd.ces.census.gov/doc/help/j2j_explorer/J2JExplorerAnalysisGuide5.pdf
- lehd.ces.census.gov/doc/help/j2j_explorer/J2JExplorerAnalysisGuide6.pdf

Useful Links

- **J2J Explorer**
 - [Help Pages](#)
 - [Analysis Guides](#)
 - [FAQs](#)
- **LED Extraction Tool**
 - [Help Pages](#)
 - [Getting Started Guide](#)
 - [FAQs](#)
- **Raw J2J Data**
 - [Data Homepage](#)
 - [J2J 101](#)
 - [J2J QuickStart Guide](#)
 - [J2J Data Notices](#)
 - [J2J Indicator Relatedness Diagram](#)
 - [Current Data Schema](#)
 - [HTTP Data Access](#)

Contacts

- LEHD
 - lehd.ces.census.gov
 - CES.J2J.Feedback@census.gov
 - patrick.hayward@census.gov
- Data/Applications
 - lehd.ces.census.gov/data
 - lehd.ces.census.gov/applications

Job Ladders and Earnings Increases



Exercise 1

- Let's take a look at how earnings for workers changing jobs in Las Vegas-Henderson-Paradise, NV have grown in the past few years.
 - In Guided Entry, select “Hires to”
 - Las Vegas-Henderson-Paradise, NV metro area
 - Click “How do earnings for hires to jobs in Las Vegas compare to earnings for job stayers?”
- The resulting line chart shows earnings for three different indicators
 - Earnings for Job Stayers fell in 2020Q2, but rebounded in 2021Q2
- Change “Lines” dropdown to “Earnings OD Indicators” and select only J2JSEarn_Orig and J2JSEarn_Dest, add Las Vegas as an Origin Metro Area filter .

Exercise 1

QUESTION:

What differences do you see between origin and destination earnings for workers that switch jobs in Las Vegas?

ANSWER:

- On average, earnings at new jobs were greater than earnings at old jobs. 2002 and 2009 are exceptions (likely due to recession). Origin earnings in 2021Q2 dropped drastically while earnings in their new jobs grew.

Exercise 1

QUESTION:

Do workers of all demographic backgrounds see earnings growth when changing jobs? (Hint: filter by different worker characteristics)

ANSWER:

- This earnings growth shows for men and women as well as workers of all age groups, education levels, and races. Some groups did see smaller increases than others. For example, workers in the 45-54 and 55-64 age groups as well as those with Bachelor degrees or higher saw relatively less growth but they also had the highest earnings.

Exercise 1

- Since different industries pay workers different amounts, you can also see whether average earnings increased for all industries
- Click “Bar Chart” and change the X-Axis to Destination NAICS Sector
- Set the “Year/Quarter” filter to the four most recent quarters for which there is earnings data: 2020 Q4 - 2021 Q3
- Set the Rankings to view the top 10 industries ordered by destination earnings
- Utilities, Management of Companies, Information, and Finance have the highest destination earnings.

Exercise 1

QUESTION:

Does earnings growth vary by industry?

ANSWER:

- For most origin and destination industries, workers experienced earnings increases after changing jobs
- However, workers going into a job in Mining/Oil Gas Extraction earned less
- Workers moving into Utilities jobs had the largest earnings increase

Exercise 1

- Let's dig a little more into workers who moved into Education jobs and see if their earnings vary by worker characteristics
- Change the X-Axis to Sex
 - Filter the Destination NAICS Sector to Educational Services
 - Click different worker characteristics for the X-Axis

Exercise 1

QUESTION:

How do earnings for workers moving to Education jobs vary by worker characteristics?

ANSWER:

- The increase in earnings is slightly larger for women than men, although men still earn more
- Once Education workers hit 45-54 age range, earnings after a job change decrease
- Declines appear to grow as workers have higher levels of education

Exercise 1

CONCLUSIONS:

- Workers in Las Vegas-Henderson-Paradise, NV are generally seeing increases in earnings after changing jobs
- While some demographics groups see smaller increases than others, all see earnings growth on average
- However, industry matters. Workers moving to Education jobs are typically seeing drops in earnings. This predominantly affects men, older workers, and workers with higher levels of education

Maine's worker shortage in long term care

Business

'This will be catastrophic': Maine families face elder boom, worker shortage in preview of nation's future



Albert Rose, owner of Allen's Seafood, talks on the phone while fishermen unload their catch last month in Harpswell, Maine. With a median age of 57, Harpswell is the oldest town in the oldest state, by population. (Marlena Sloss/The Washington Post)

By **Jeff Stein**
August 14

DOVER-FOXCROFT, Maine — Janet Flaherty got an alarming call last October from the agency tasked with coordinating in-home care for her 82-year-old mother. It could no longer send her mom's home caretaker. It knew of no other aides who could care for her mother, either.

Flaherty's mother, Caroline, has for two years qualified for in-home care paid for by the state's Medicaid program. But the agency could not find someone to hire amid a severe shortage of workers that has crippled facilities for seniors across the state.

Exercise 2

- Imagine you're an LMI analyst for Maine and want to see where worker inflows to Maine's Health industry are coming from.
 - Start with Guided Entry
 - Select "Hires to"
 - Maine, Health Care
 - Click "Which States?"
- Will take you to a thematic map

Exercise 2

QUESTION:

Which states have the highest counts of worker flows to Maine's Health industry? (Hint: Switch to the Table view and sort ascending, add Maine as an Origin State if you want)

ANSWER:

1. Maine (not surprising!)
2. New Hampshire
3. Massachusetts
4. Florida
5. New York
6. Connecticut
7. California

Exercise 2

- Since the demand for long term care is driven by Maine's aging population, you're particularly interested in seeing where younger workers in this industry are flowing from
- Switch to the bipartite chart to see how these job-to-job flows break down by origin state and age group
 - Hint: set "Right Column" to "Age" and select only the top 7 states from the previous view as Origin States. Click the "%" button to see shares.

Exercise 2

QUESTION:

Which states have the highest percentages of inflows made up of workers aged 14-21?

ANSWER:

1. Connecticut (21.7%)
2. Maine (14.5%)
3. New Hampshire (11%)
4. Massachusetts (10.7%)
5. Florida (9.5%)

Exercise 2

- To get a sense of how these inflows are changing over time, switch to the line chart
- Hint: filter by age 14-21, switch to Q2 series to remove seasonality, and toggle Maine on/off to see trends for other states

Exercise 2

QUESTION:

What origin state origin state trends can we see?

ANSWER:

- Definitely growing pre-pandemic in Maine, rebound in 2021Q2
- Counts are small for the other states, but lots of volatility in Massachusetts, New Hampshire
- Relatively steady for: New York, Texas, California, Connecticut, and Florida

Exercise 2

QUESTION:

What if we look at origin industries for flows into Maine Health Care by workers ages 14-21? (Hint: change “Lines” to origin NAICS)

ANSWER:

- Accommodation/Food Services and Retail Trade are the next most prominent after Health Care
- Admin/Support/Waste Services (which include Temp workers) is next

Exercise 2

CONCLUSIONS:

- Worker inflows to Maine's Health Industry are coming from neighboring New England states as well as farther states with large populations
- Post-pandemic recovery has been significant
- Time series by origin states varies; some inflows are increasing over time while others have remained steady

New Orleans after Hurricanes Katrina and Rita



Exercise 3

- Many people evacuated New Orleans before/during Hurricane Katrina. You're interested in seeing where workers went at a metro area level.
 - In Guided Entry, select "Separations from"
 - New Orleans-Metairie, LA metro area
 - Click "Which Metro Areas?"
- From the resulting Map, change to Line Chart, select all quarters in 2005, 2006, 2007, and 2008, then use the ranking function to show the top 10 destination metro areas for 2005 Q4
 - J2J is timed to the quarter of the hire so we're using the quarter after Hurricanes Katrina and Rita to see where workers moved
- Or go to the following link:
<https://j2jexplorer.ces.census.gov/explore.html#1430698>

Exercise 3

QUESTION:

What were the top destination metro areas for workers who changed jobs after Hurricanes Katrina and Rita?

ANSWER:

1. Baton Rouge, LA
2. Houston-The Woodlands-Sugar Land, TX
3. Dallas-Fort Worth-Arlington, TX
4. Atlanta-Sandy Springs-Roswell, GA
5. Lafayette, LA

Exercise 3

- You're also interested in seeing which industries in New Orleans saw the largest outflows of workers.
- Change the Lines dropdown menu to Origin NAICS Sector
 - Set “Baton Rouge, LA” as the Destination Metro Area filter
 - Use the ranking function to show the top 10 origin NAICS sector for workers who changed jobs in 2005 Q4

Exercise 3

QUESTION:

Which NAICS sectors saw large spikes of worker outflows?

ANSWER:

1. Accommodation and Food Services
2. Health Care and Social Assistance
3. Retail Trade
4. Educational Services

Construction and Admin/Support/Waste Management didn't spike in 2005Q4, but continued to increase in later quarters.

Exercise 3

- Change the Lines dropdown menu to various worker demographics, such as sex, age, race, etc.

Exercise 3

CONCLUSIONS:

- After Hurricanes Katrina and Rita, workers in New Orleans predominantly went to Baton Rouge or left Louisiana entirely
- The Accommodations, Health Care, Education, and Retail Trade industries were particularly hard hit and experienced large spikes of workers leaving for another job
- While men usually change jobs at a higher rate than women, there was no difference between the two right after the hurricanes
- Workers aged 45-54 were particularly hard hit

Thank You!