

Recent Updates to J2J Explorer

Job Hopping Across Cities

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Longitudinal Employer-Household Dynamics Research

U.S. Census Bureau

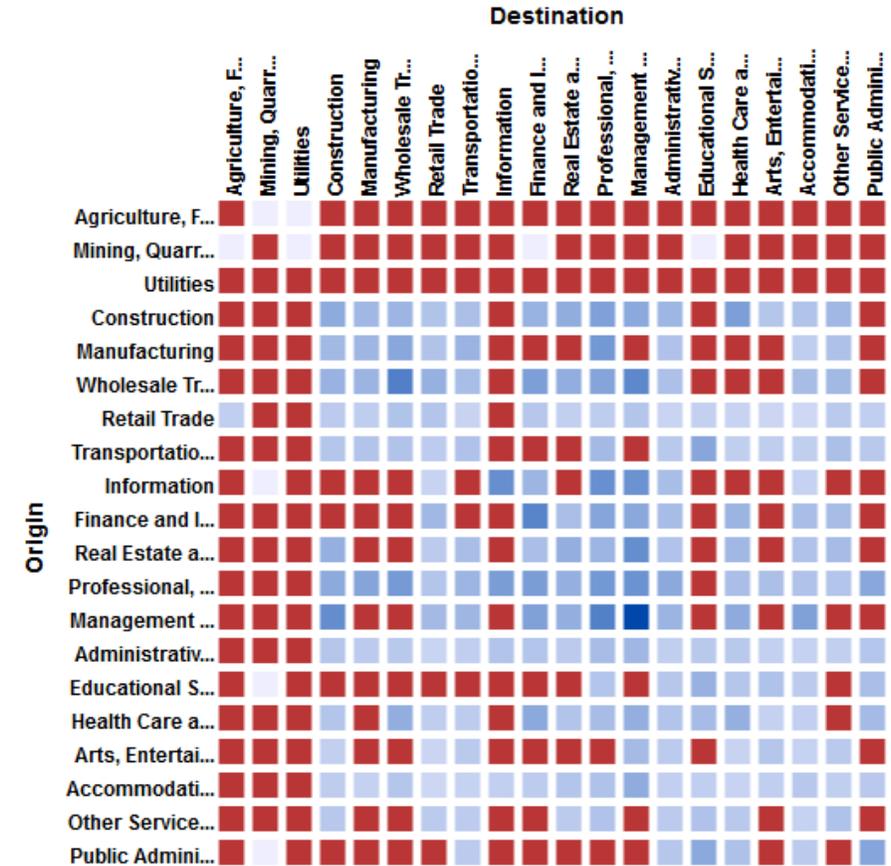
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Disclaimer

- Any opinions and conclusions expressed herein are those of the author and do not necessarily represent the views of the U.S. Census Bureau. All results have been reviewed to ensure that no confidential information is disclosed.
- Additionally, these opinions and conclusions are not representative of other data products or programs within the Census Bureau.

Overview

- Background on LEHD/J2J Data
- Overview of J2J Explorer
- New Features of J2J Explorer
 - Tabulations by Metro Areas
 - Earnings Indicators
 - Rankings and Normalization
- Live Demo
- Questions

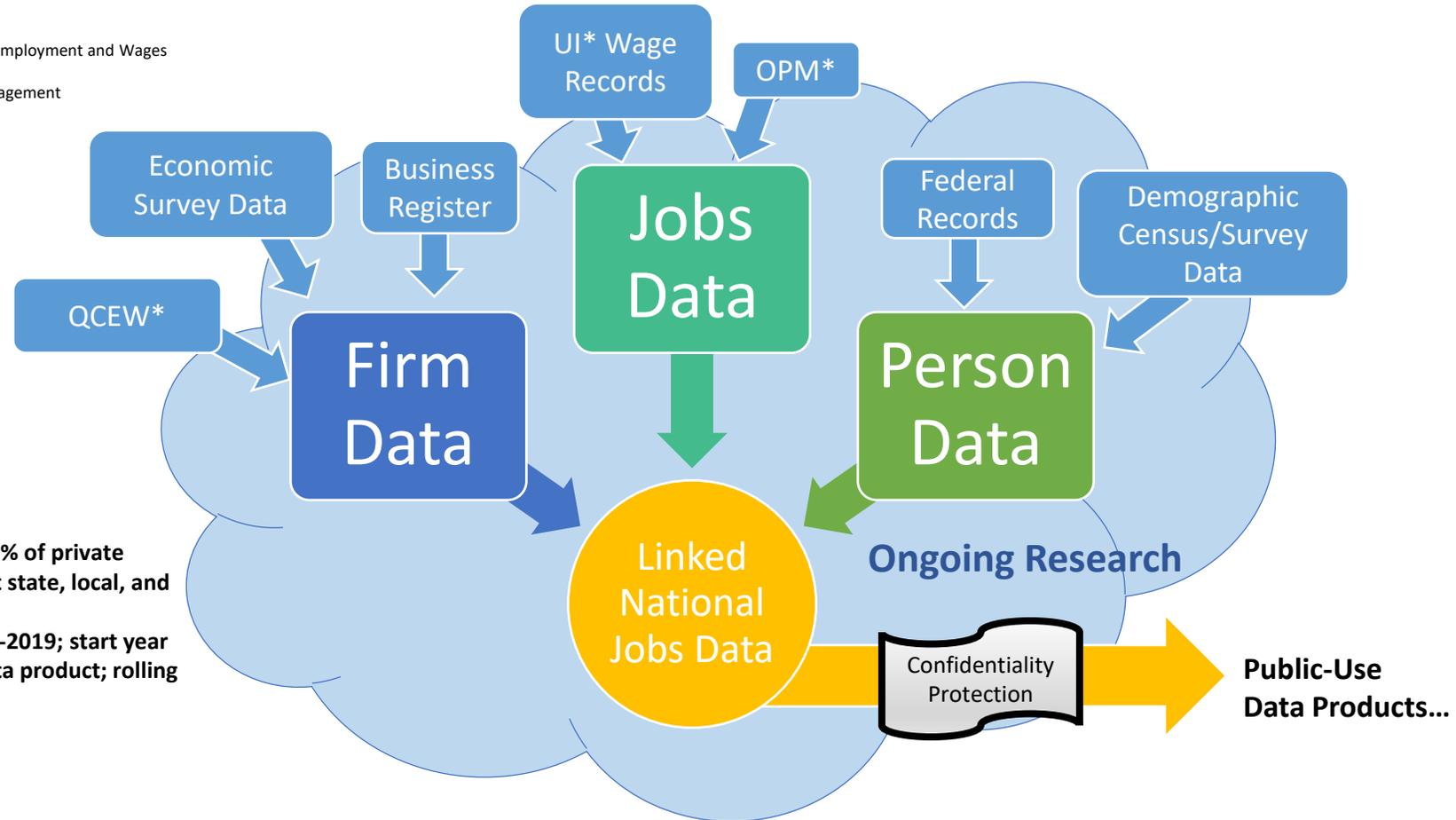


What are LEHD and LED?

- 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

LEHD Data Infrastructure

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



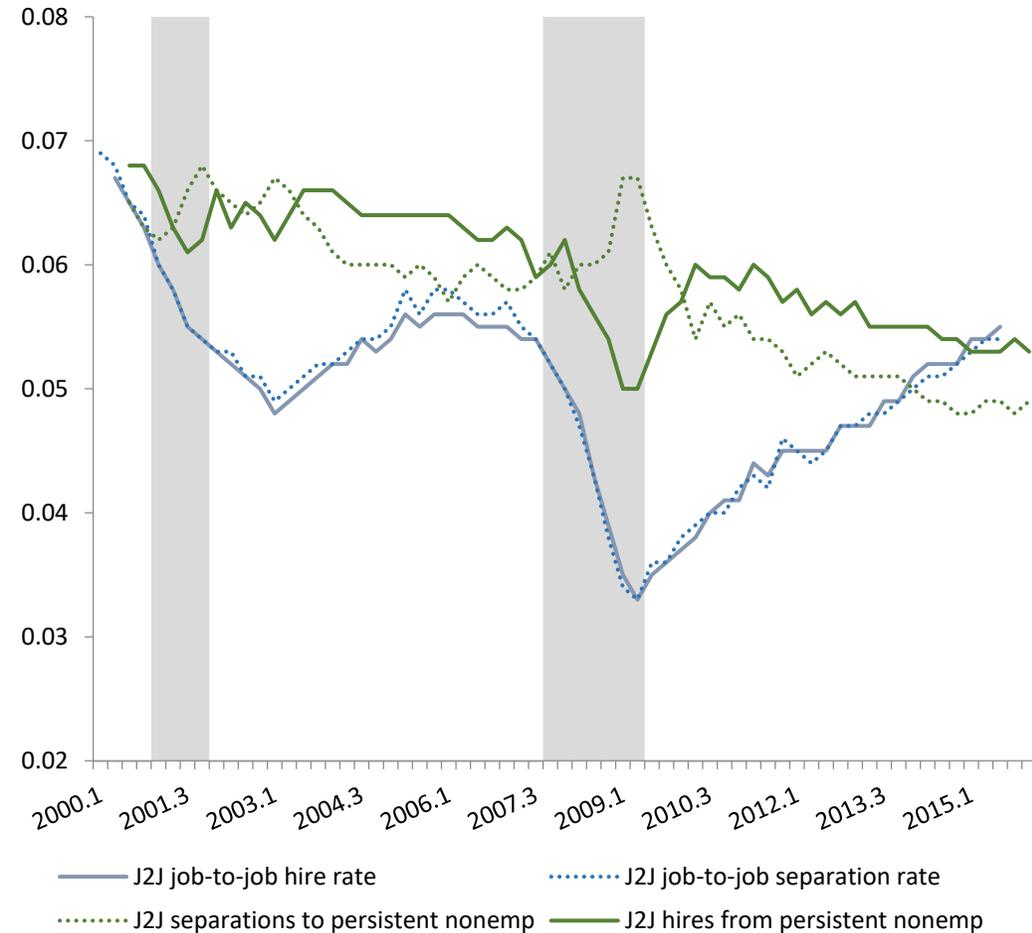
Job data cover over 97% of private employment and most state, local, and federal jobs
Data availability: 1990-2019; start year varies by state and data product; rolling end date

Dissemination Tools/Applications

- J2J Explorer
 - j2jexplorer.ces.census.gov
 - Dashboard-style analysis tool for Job-to-Job Flows
- OnTheMap
 - onthemap.ces.census.gov
 - Map-based analysis tool for LODES
- OnTheMap for Emergency Management
 - onthemap.ces.census.gov/em.html
 - Integrates live feeds of emergency/disaster areas
- QWI Explorer
 - qwiexplorer.ces.census.gov
 - Dashboard-style analysis tool for QWI
- LED Extraction Tool
 - ledextract.ces.census.gov
 - Provides precise extracts of data (QWI only for now)
- PSEO Explorer
 - lehd.ces.census.gov/data/pseo_explorer.html
 - Dynamic bar charts and Sankey diagrams for Post-Secondary Employment Outcomes

J2J Data

- 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: Shaded regions indicate NBER recession quarters. All data are seasonally adjusted. These J2J tabulations do not include planned adjustments to the **J2J** series to account for partially-missing geography early in the time series.

J2J Data

- 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 a 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 are importing workers from other states?

J2J Explorer



Table



Line



Bar



Map



Bipartite

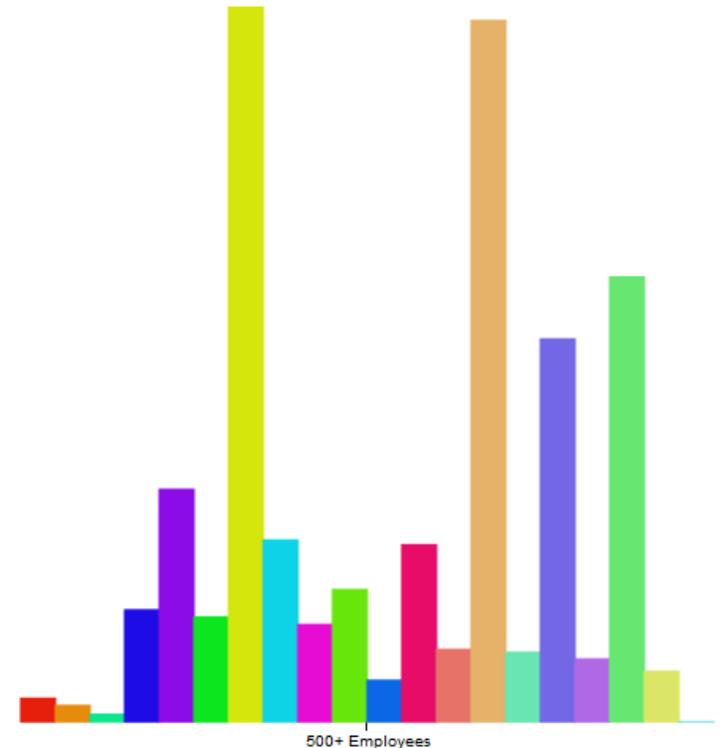


Matrix

- Guided Entry to steer novice users to relevant use cases
- Six Visualization Modules with a flexible dashboard interface
- Trace worker movements and earnings through industries, geographic labor markets, and to/from employment
- Analyze/report by origin and destination geographies
- Analyze/report by origin and destination firm characteristics (i.e. NAICS Sector, firm age, and firm size)
- Analyze/report by worker demographics: age, earnings, race, ethnicity, educational attainment, and sex
- Export reports to Excel or CSV
- Data updated every quarter

New in J2J Explorer 1.0

- New measures, including 10 showing earnings before/after different worker reallocation situations
- There are now 59 measures!! (but only 9 “Recommended Measures”)
- Tabulations for Metropolitan Areas (Origin and Destination)
- Ability to cross Worker Characteristics with Firm Characteristics
- Rankings and Normalizations Functionality



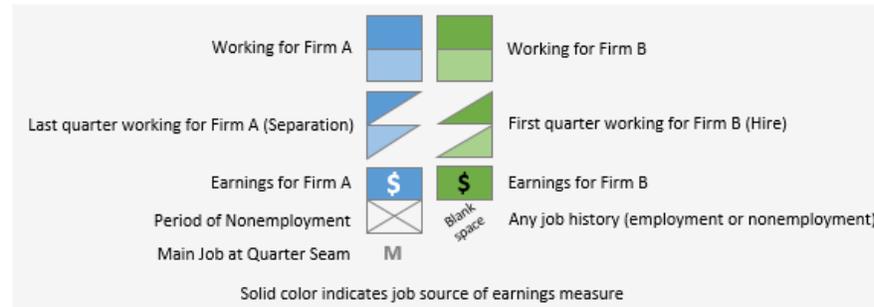
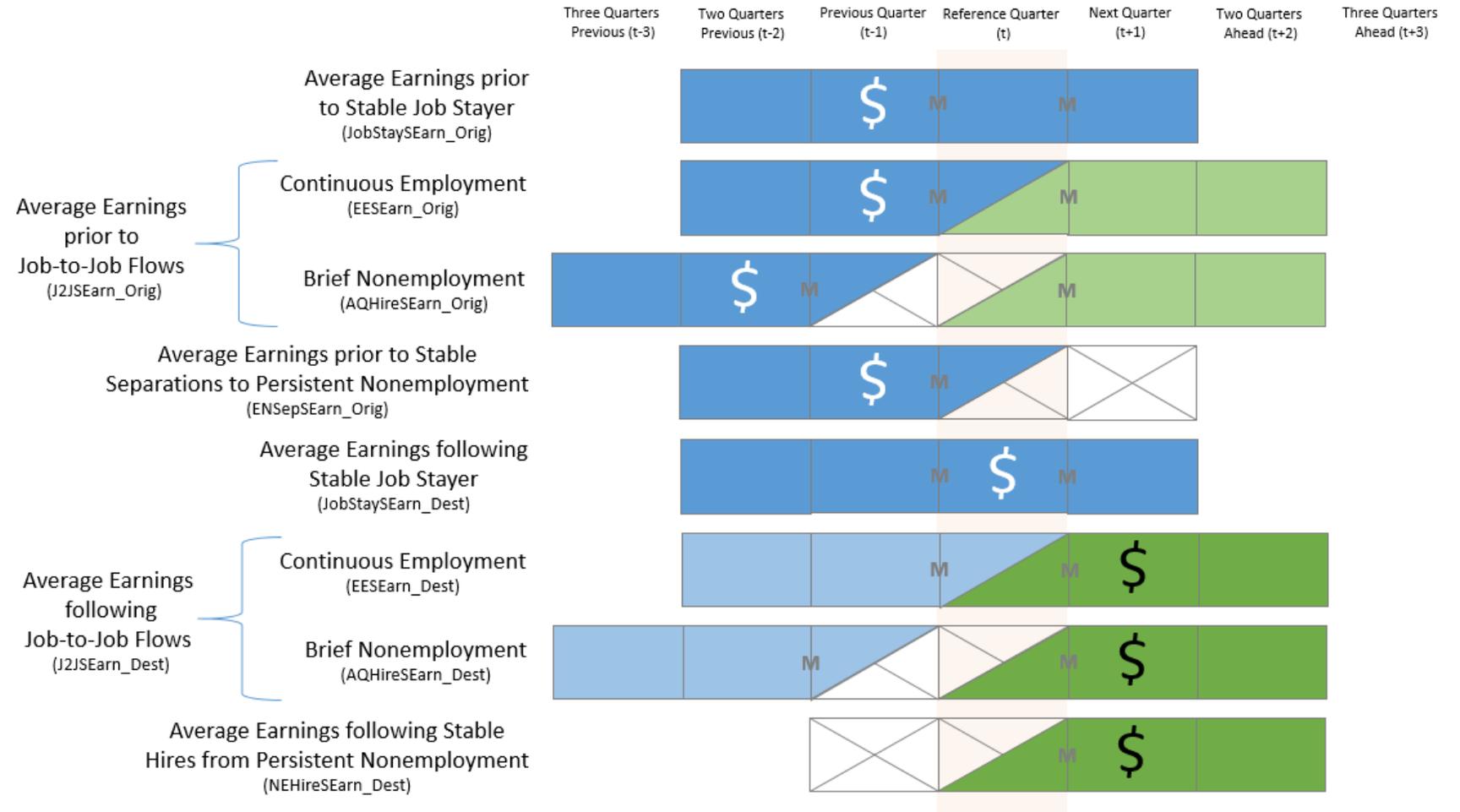
Tabulations by Metro Areas

- Users can now look at job-to-job flows:
 - Between metro areas
 - Between metro areas and states
 - Between metro areas and the nation
- Metro level tabulations are also available for:
 - NAICS sector
 - Sex by Age
 - Sex by Education
 - Race by Ethnicity
- Only non-seasonally adjusted tabulations are available
- No Firm Age or Firm Size detail for Metro Areas

Earnings Indicators

- Earnings are tabulated at the state and metro level
 - Tabulations at the national level are under development and will be provided in a future release
- Averages are provided for all available cross tabulations
- Earnings are only calculated for workers with stable jobs (i.e. lasting at least three quarters)

Earnings Indicators



Rankings and Normalization

Metro Area	Agriculture, Forestry, Fishing and Hunting	Mining, Quarrying, and Oil and Gas Extraction	Utilities	Construction	Manufacturing	Wholesale Trade	Retail Trade
Ann Arbor, MI	50	1	14	290	561	204	1,103
Battle Creek, MI	23	3	2	178	399	83	381
Bay City, MI	14	1	3	96	162	60	318
Detroit-Warren-Dearborn, MI	370	63	215	5,497	9,387	3,051	14,453
Flint, MI	31	9	1	415	436	266	1,348
Grand Rapids-Wyoming, MI	804	6	47	1,360	3,877	1,329	3,249
Jackson, MI	11	6	87	136	342	76	439
Kalamazoo-Portage, MI	462	1	17	467	735	249	994
Lansing-East Lansing, MI	139	8	13	592	639	229	1,539



Metro Area	Agriculture, Forestry, Fishing and Hunting	Mining, Quarrying, and Oil and Gas Extraction	Utilities	Construction	Manufacturing	Wholesale Trade	Retail Trade
Niles-Benton Harbor, MI	0.193	0.061	0.015	0.065	0.044	0.060	0.084
Not in metropolitan area, MI	0.115	0.046	0.022	0.089	0.042	0.047	0.076
Bay City, MI	0.090	0.100	0.035	0.088	0.042	0.047	0.071
Ann Arbor, MI	0.241	0.042	0.029	0.072	0.040	0.037	0.077
Detroit-Warren-Dearborn, MI	0.177	0.054	0.029	0.077	0.037	0.036	0.073
Muskegon, MI	0.130	0.076	0.017	0.071	0.037	0.032	0.070
Flint, MI	0.134	0.250	0.054	0.080	0.035	0.052	0.071
Lansing-East Lansing, MI	0.114	0.052	0.017	0.082	0.035	0.038	0.080

Separations to Nonemployment from 20 Industries in 15 Metro Areas

Average of 2017 Q1 - 2017 Q4

Separations to Nonemployment from 20 Industries in Top 10 Metro Areas

Average of 2017 Q1 - 2017 Q4; (Normalized)

Advanced Functions

Normalize

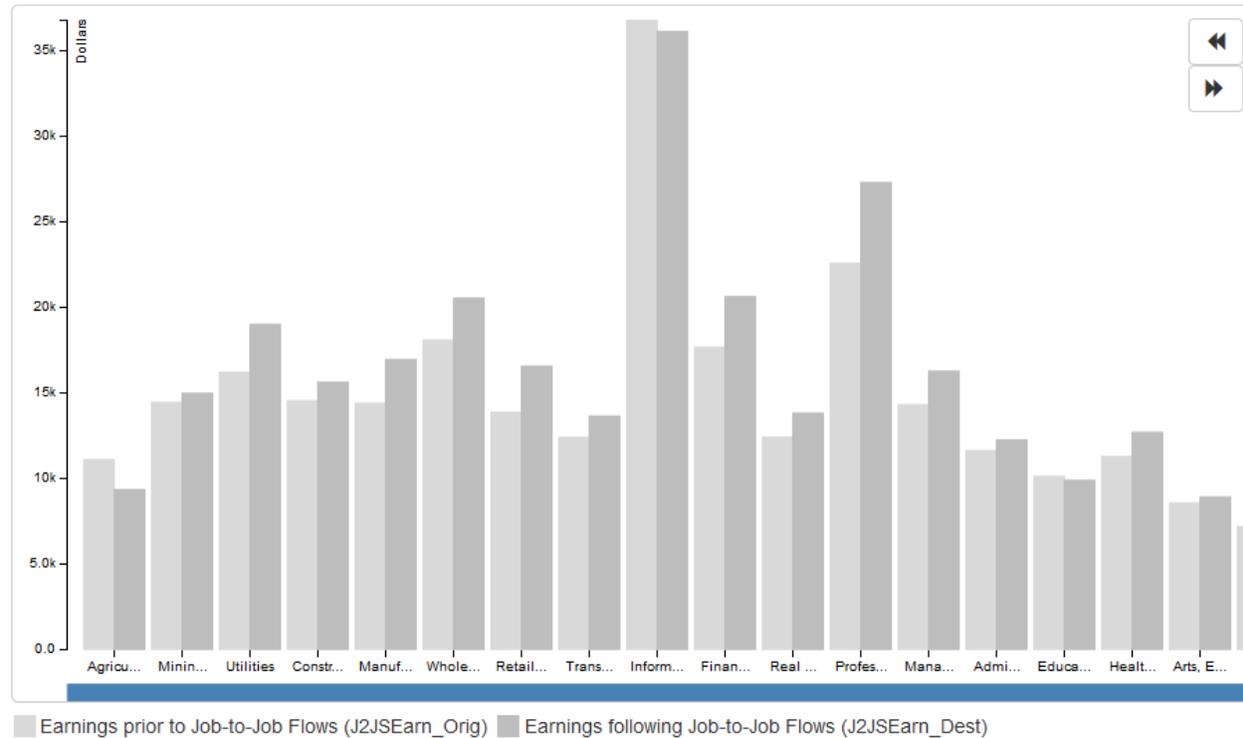
[Labor Market Size](#)

Ranking

[Top 10 Origin Metro Areas as ordered by Manufacturing](#)

Live Demo

<https://j2jexplorer.ces.census.gov/>



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

One-Page Analysis Examples

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

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](#)
- Advanced data users: Access single raw J2J files from <https://lehd.ces.census.gov/data/#j2j>
- Advanced data users: Bulk download of raw J2J files from <https://lehd.ces.census.gov/data/j2j/>
- Our Development Wish List: Add J2J to [LED Extraction Tool](#) so that Intermediate data users can extract the exact indicators and characteristics they need

Useful Links

- J2J Explorer
 - [Help Pages](#)
 - [Analysis Guides](#)
 - [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

Questions?

Thank you for listening!

Appendix

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. (Mortara/Sloos/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 1

- Imagine you're a LMI analyst for Maine and want to see where worker inflows to Maine's Health industry are coming from
 - Flow Type: Hires to
 - Destination State: Maine
 - Destination Industry: Health Care and Social Assistance
- Start with the Guided Entry
 - See the states where job changers are coming from
 - HINT: The Guided Entry should lead you to a map

Exercise 1

QUESTION:

Which states have the highest counts of worker flows to Maine's Health industry?

ANSWER:

1. Maine
2. New Hampshire
3. Massachusetts
4. Florida
5. New York
6. Texas
7. California

Exercise 1

- Since the demand for long term care is driven by Maine's aging population, you're particularly interested in seeing where younger workers are flowing from
- Switch to the bipartite chart to see how these job-to-job flows break down by origin state and age group
 - Add Maine back into the list of origin states

Exercise 1

QUESTION:

For which states are the highest percentages of inflows made up of younger workers?

ANSWER:

1. California
2. New York
3. Texas
4. Massachusetts
5. Maine
6. New Hampshire
7. Florida

Exercise 1

- To get a sense of how these inflows are changing over time, switch to the line chart

Exercise 1

QUESTION:

What is the time trend by origin state?

ANSWER:

- Definitely growing for: Maine, Massachusetts
- Potentially growing for: New Hampshire, New York, and Texas
- Steady for: California, Florida

Exercise 1

CONCLUSIONS:

- Worker inflows to Maine's Health Industry are coming from neighboring New England states as well as farther states with large populations
- The youngest workers are mostly coming from outside the Northeast
- 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 2

- Many people evacuated New Orleans before/during Hurricane Katrina. You're interested in seeing where workers went at a metro area level.
 - Flows Type: Job-to-Job
 - Origin Metro Area: New Orleans-Metairie, LA
 - Origin Industry: All
- Go to the following link:
<https://j2jexplorer.ces.census.gov/explore.html#93786>
- Select all years and quarters available
 - 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

Exercise 2

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 2

- 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
 - Use Baton Rouge, LA as the destination metro area
 - Use the ranking function to show the top 10 origin NAICS sector for workers who changed jobs in 2005 Q4

Exercise 2

QUESTION:

Which NAICS sectors saw large spikes of worker outflows?

ANSWER:

1. Accommodation and Food Services
2. Health Care and Social Assistance
3. Educational Services
4. Arts, Entertainment, and Recreation

Exercise 2

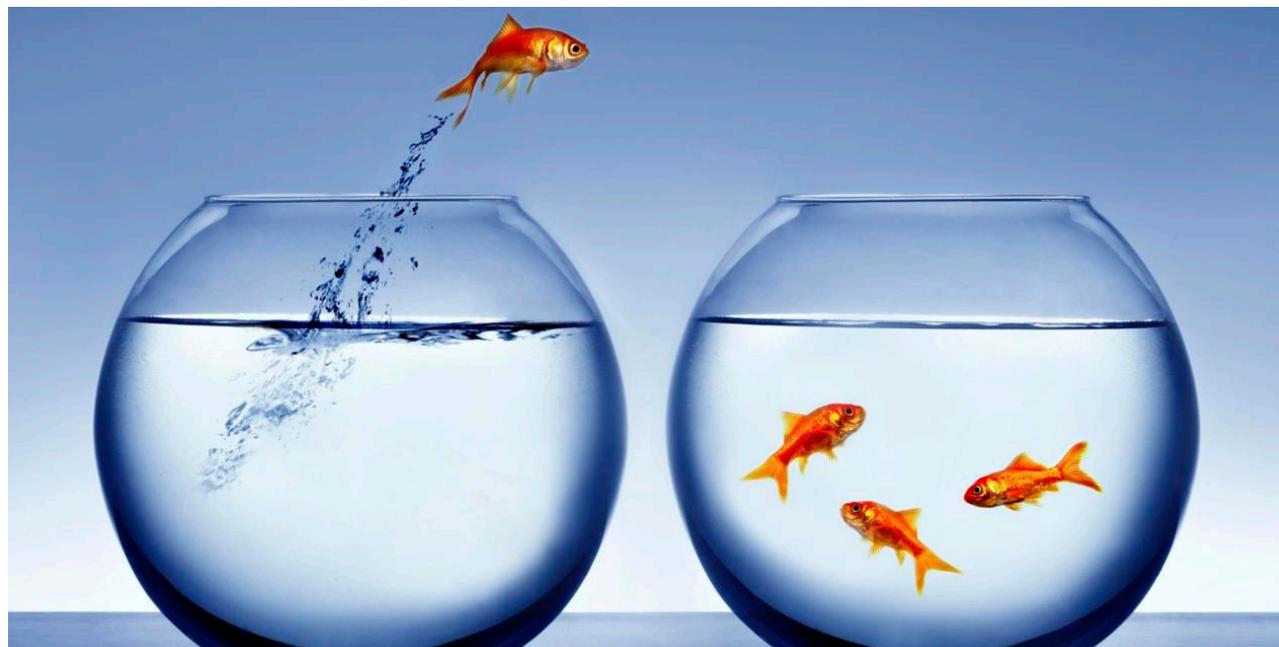
- Change the Lines dropdown menu to various worker demographics, such as sex, age, race, etc.

Exercise 2

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 Arts 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

Job Ladders and Earnings Increases



Exercise 3

- The US is currently in a period of earnings growth. 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.
 - Flows Type: Job-to-Job Flows
 - Origin Metro Area: Las Vegas-Henderson-Paradise, NV
 - Destination Metro Area: Las Vegas-Henderson-Paradise, NV
- Go to the following link:
<https://j2jexplorer.ces.census.gov/explore.html#93794>
- Cycle through the different worker characteristic categories in the X-Axis dropdown to see earnings changes

Exercise 3

QUESTION:

Do workers of all demographic backgrounds see earnings growth?

ANSWER:

- On average, earnings at new jobs were greater than earnings at old jobs. This was true 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 3

- Since different industries pay workers different amounts, you can also see whether average earnings increased for all industries
- Change the X-Axis to Destination NAICS sector
 - Also look at Origin NAICS sector

Exercise 3

QUESTION:

Does earnings growth vary by industry?

ANSWER:

- For most origin and destination industries, workers experienced earnings increases after changing jobs
- However, workers leaving a job in Finance or Management saw their earnings decrease
- Similarly, workers who moved to an Education job saw a slight decrease in earnings

Exercise 3

- 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 3

QUESTION:

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

ANSWER:

- The drop in earnings appears to be experienced by men while women tend to earn about the same as their previous jobs
- Older Education workers saw substantial decreases while younger workers received increases
- Declines appear to grow as workers have higher levels of education

Exercise 3

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

Exercise 4: Ranking States

What States Hire the Most Workers From Nonemployment?

Let's see the top 10 states that hired workers from spells of persistent nonemployment (normalized by labor market size):

- *Select “Hires from Persistent Nonemployment (NEPersist)” in the Indicator dropdown.*
- *Set “Destination State” in the Rows dropdown and “None” in the Columns dropdown.*
- *Filter by 4 quarter average for 2017 (check all four quarter’s checkboxes for 2017).*
- *Click the “None” link underneath “Ranking” in Advanced Functions (underneath Filters) and click the checkbox next to “Rank this axis”. Click Set Ranking to enable the Top 10 Destination States.*
- *Note that large population states appear in the table. To normalize, click the “None” link underneath “Normalize” in Advanced Functions (underneath Filters) and click the radio button next to “Labor Market Size”. Click Set Normalization.*

Analysis

Wyoming hires the most workers from nonemployment spells (6%), followed by Montana, Idaho, Colorado, and New Mexico. Interestingly, if you change the indicator to “Separations to Persistent Nonemployment (ENPersist)”, many of same states are at the top of the list.

Exercise 4: Ranking Metro Areas

What Metro Areas Hire the Most Workers From Nonemployment?

Let's do the same analysis for metro areas instead of states – find the top 10 metro areas that hired workers from spells of persistent nonemployment (normalized by labor market size):

- *Select “Hires from Persistent Nonemployment (NEPersist)” in the Indicator dropdown.*
- *Set “Destination Metro Areas” in the Rows dropdown and “None” in the Columns dropdown.*
- *Filter by 4 quarter average for 2017 (check all four quarter’s checkboxes for 2017).*
- *Click the “None” link underneath “Ranking” in Advanced Functions (underneath Filters) and click the checkbox next to “Rank this axis”. Click Set Ranking to enable the Top 10 Destination States.*
- *Note that large population metro areas appear in the table. To normalize, click the “None” link underneath “Normalize” in Advanced Functions (underneath Filters) and click the radio button next to “Labor Market Size”. Click Set Normalization.*

Analysis

Ocean City, NJ hires the most workers from nonemployment spells (14%), followed by Yuma AZ, El Centro, and Salinas, CA. Interestingly, if you change the indicator to “Separations to Persistent Nonemployment (ENPersist)”, many of same metro areas are at the top of the list.

Exercise 4: Ranking Industries

What Industries Hire the Most Workers From Nonemployment?

Let's see the top 10 industries that hired workers from spells of persistent nonemployment (normalized by labor market size):

- *Select "Hires from Persistent Nonemployment (NEPersist)" in the Indicator dropdown.*
- *Set "Destination NAICS Sector" in the Rows dropdown and "None" in the Columns dropdown.*
- *Filter by 4 quarter average for 2017 (check all four quarter's checkboxes for 2017).*
- *Click the "None" link underneath "Ranking" in Advanced Functions (underneath Filters) and click the checkbox next to "Rank this axis". Click Set Ranking to enable the Top 10 Destination States.*
- *Note that industries with the largest employment appear at the top of the table. To normalize, click the "None" link underneath "Normalize" in Advanced Functions (underneath Filters) and click the radio button next to "Labor Market Size". Click Set Normalization.*
- *After noting these results, try filtering by a Destination State to see how the Top 10 Industries changes depending on geography.*

Analysis

At the national level, the Agriculture, Forestry, Fishing and Hunting industry hires the most workers from persistent nonemployment spells (13%), followed by Arts, Entertainment and Recreation, and Accommodation and Food Services. If I filter by Texas, Accommodation and Food Services moves to the top. If I filter by Ohio, Arts, Entertainment, and Recreation moves to the top. If I set the rankings to show Bottom 10 (national-level), the Utilities industry has the fewest hires from nonemployment (as a share of total employment).

Exercise 5: State/Metro J2J Profiles

Share of Hires from Persistent Nonemployment

Let's see what the share of workers hired in your state or metro area came from persistent nonemployment:

- *Select "Count Indicators" in the Rows dropdown and choose to display only "Hires (MHire)" and "Hires from Persistent Employment (NEPersist)".*
- *Set the Columns dropdown to "None".*
- *Filter by 4 quarter average for 2017 (check all four quarter's checkboxes for 2017).*
- *Filter by "Destination State" or "Destination Metro Area" as your desired geography (DC Metro in my case).*
- *Divide NEPersist (123,038 for DC) by MHire (272,985 for DC) to get 45%.*
- *Set a "Destination NAICS Sector" filter as an industry of interest (Professional Services in DC) and divide the new NEPersist value (16,157 for DC) by MHire (44,657 for DC) to get 36%.*

Analysis

45% of all hires in the DC Metro Area come from workers that were previously not employed. This decreases to 36% of all hires when looking only at hires into Professional, Scientific and Technical Services jobs.

Exercise 5: State/Metro J2J Profiles

J2J Flow Industry Earnings

Let's see what industries had the highest earnings following a J2J flow in your state/metro area :

- *Select “Earnings following Job-to-Job Flows (J2JSEarn_Dest)” in the Indicator dropdown.*
- *Set “Destination NAICS Sector” in the Rows dropdown and “None” in the Columns dropdown.*
- *Filter by “Destination State” or “Destination Metro Area” as your desired geography (DC Metro in my case).*
- *Click the “All” column header to sort the quarterly average earnings ascending and descending.*

Analysis

Workers hired into DC Metro jobs from another job earned the most in Utilities, Professional/Scientific/Technical Services, Information, and Management of Companies and Enterprises.

Exercise 5: State/Metro J2J Profiles

Workers Hired from Out-of-State Go into What Industries?

Let's see what industries in your state/metro area hired out-of-state workers:

- *Select "Job-to-Job Flows (J2J)" in the Indicator dropdown.*
- *Set "Destination NAICS Sector" in the Rows dropdown and "None" in the Columns dropdown.*
- *Filter by "Destination State" or "Destination Metro Area" as your desired geography (DC Metro in my case).*
- *Also set a filter for "Origin State" to all states except any in-state geography, AK, and SD (in-state geography because we want out-of-state workers, AK and SD because those states don't have 2017 data).*
- *Click the "All" column header to sort the count of J2J flows ascending and descending.*

Analysis

Workers hired into DC Metro jobs from out-of-state primarily go into Professional/Scientific/Technical Services, Retail Trade, Accommodation/Food Services, and Administrative/Support/Waste Management/Remediation Services.

Exercise 5: State/Metro J2J Profiles

Industry/State Combinations Flowing into your State

Let's see what neighboring state's flows into your state/metro area end up in particular industries:

- *Click on the "Bipartite" visualization and select "Job-to-Job Flows (J2J)" in the Indicator dropdown.*
- *The Left Column dropdown should be set to "Origin State" with all states any in-state geography, AK, and SD (in-state geography because we want out-of-state workers, AK and SD because those states don't have 2017 data).*
- *The Right Column dropdown should be set to "Destination NAICS Sector".*
- *Filter by 4 quarter average for 2017 (check all four quarter's checkboxes for 2017).*
- *Filter by "Destination State" or "Destination Metro Area" as your desired geography (DC Metro in my case).*
- *Make sure that Rankings is enabled to show the "Top 10 Origin States" (in the Advanced Functions section below the Filters).*
- *Click the % button to show percentages and hover over the states on the left to see which states have the highest percentages of flows into certain industries.*

Analysis

Workers flowing into the DC Metro Area from Texas are more likely to be hired into jobs in Professional/Scientific/Technical Services (31%) than those from other origin states. Workers flowing from West Virginia into the DC Metro Area are more likely to be hired into Construction (12%), while workers flowing into the region from North Carolina are more likely to be hired into jobs in Administrative/Support/Waste Management/Remediation Services (14%).