Visualizing Job-to-Job Flows

If you want to try out the viz during the presentation, navigate here: https://public.tableau.com/profile/matt.schroeder.economics#!/vizhome/J2J_Viz/JobFlows

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This presentation will walk you through the process of making your state’s Job-to-Job flow data more accessible and useful to businesses, policy makers, researchers, and the general public.
What are the Job-to-Job Flow Data?

• Part of the US Census – Longitudinal Employer Household Dynamics (LEHD) program
  • Combines federal, state, and Census data on employers and employees to generate statistics on employment, earnings, and job flows at a detailed level of geography, industry, and demographic groups.

• Job-to-Job Flows (J2J) is a beta release detailing labor mobility in the US
  • The data include statistics on:
    • the job-to-job transition rate,
    • hires and separations to and from employment, and
    • characteristics of origin and destination jobs for job-to-job transitions

• In this presentation we are interested in the third type:
  • Data on origin and destination of job flows
Why do we care to analyze these data?

Because they can answer questions like these:

How many workers are **leaving** our state for jobs elsewhere?
Which industries are they leaving?
Where are they going?
Of the workers going to a particular state, which industries are they primarily leaving?
How many workers are **coming** to our state to work?
Which industries are they joining?
Where are they coming from?

Of the workers joining a particular industry, where are most of them coming from?
Is our state typically a **net** attractor or loser of workers? What about for a particular industry?
Which industries in our state are net job attractors? Which are losers?
With which states do we have the strongest labor force ties?
Are there seasonal patterns in the worker flows of a particular industry?

...among many others.
Basic Concepts

Perspective

• From the view of a “home state”
• All industries are in relation to the home state
  • In-flows are into the home state’s industries
  • Out-flow are out of the home state’s industries
Basic Concepts

Time Series

- The J2J flows data are published at quarterly frequency (Q2 2001 – Q1 2015)
- The data in the viz have been aggregated to annual totals in order to smooth out seasonal volatility
- *Except* in the Time Series chart on the second tab where the quarterly points are plotted so that you can see the seasonal patterns.
Basic Concepts

Job Types

• Like many of the other LEHD datasets, the J2J data include measures on All Jobs as well as for just Stable Jobs
  • “All Jobs” shows all employment flows, regardless of duration
  • “Stable Jobs” shows only those flows where:
    • the worker left a job where they had been employed for at least a full quarter,
    • AND the worker stayed in the new job for at least a full quarter
  • The full quarter employment assumption is made if the employee shows up in 3 consecutive quarters of payroll data for the same employer.
Basic Concepts

Measures of Interest

• In-flow ➔ Workers coming into the home state
• Out-flow ➔ Workers leaving the home state
• Net-Flow ➔ Total gain or loss of workers for the home state

• This viz excludes industry to industry flows within the home state
Methodology

Definitions

• **In-Flow** = EE + AQHire
  - Sum of Direct Job Flows (EE) *AND*
  - Main Job Accessions - Short Nonemployment Spell (AQHire)

• From an origin outside of the home state (any industry)
• To a given industry in the home state
• Aggregated by time period
Methodology

Definitions

- **Out-Flow** = EE + AQHire
  - Sum of direct job flows (EE) *AND*
  - Main Job Accessions - Short Nonemployment Spell (AQHire)
  - From a given industry in the home state
  - To an outside state (any industry)
  - Aggregated by time period

- **Net-Flow** = In-Flow - Out-Flow
How can you do this for your state?

It’s easy. Here’s all you need:

**Software:**
- Microsoft Access - database source
- Tableau Desktop - to build the visualizations
- Zip file extraction tool
- Web browser

**Template Files** – *these will be made available after the webinar*
- J2J_Viz_instructions.docx (Microsoft Word)
- J2J_viz_database.accdb (Microsoft Access)
- J2J_Viz_template.twb (Tableau)
- State Flags.zip

About 4 hours.... ish (hopefully).
Open and Save Initial Files

- Open J2J_viz_database.accdb (Microsoft Access)
  - Enable content
  - Save the database to your machine/network
- Open J2J_Viz_template2.twb (Tableau)
  - Save as
- Save as new file name (e.g. J2J_Viz_Utah.twb)
Download LEHD Data

- Go to LEHD website:
  [http://lehd.ces.census.gov/data/j2j_beta.html](http://lehd.ces.census.gov/data/j2j_beta.html)
  - Use the selector tool to choose:
    - Version: R2016Q1
    - State: *state of interest*
    - Type: j2jod
    - Format: CSV
  - Click “View Files”
  - Select file: `j2jod_XX_d_f_gs_ns_oslp_u.csv.gz`
- Use WinZip or 7-zip to extract the .csv file
  - (DO NOT OPEN IN EXCEL)
Import LEHD Data into Access Database

- Go back the Access database
  - Select “External Data” ribbon
    - Click “Text File”
      - Use “Browse” to find the extracted .csv file
      - Make sure “Import the source data into a new table in the current database” is selected
    - Click OK
Select “Delimited – Characters such as comma or tab separate each field”

- Click “Next”
Select "Comma"
Check the "First Row Contains Field Names" box
- Click "Next"
○ Select each column one-by-one to set Data Type

First 24 columns (through “firmsize_orig”) = Text
Last 8 columns = Long Integer

- Click “Next”
Select “No primary key”  
- Click “Next”
Keep the default table name in the “Import to Table:” box
  ▪ Click “Finish”
Manipulate Access Tables to Reflect Your State’s Data

- Open “HomeGeography” table in the object pane at the upper-left (double-click to open)
  - Change “HomeCode” to your state’s 2-digit FIPS code
    - Include the preceding zero for single digit codes (e.g. 08 for Colorado)
  - Open the “label_fipsnum” table to find your state’s code if you don’t know it.
  - Change “HomeLabel” to your state’s name
    - Be sure to capitalize the first letter
    - Don’t create additional spaces after the name
  - Right click the “HomeGeography” tab and Save
<table>
<thead>
<tr>
<th>label_fipsnum</th>
<th>geography</th>
<th>label</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>National (50 St)</td>
<td>Alabama</td>
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<tr>
<td>02</td>
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<td>29</td>
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<td>Missouri</td>
</tr>
</tbody>
</table>
- Open “TableauSourceTable” under “Queries” in the object pane to the left.
- Right click on “TableauSourceTable” tab
  - Select “SQL View”
• Find “FROM J2jod_xx_d_f_gs_ns_oslp_u” near the end of the SQL statement and change xx to your state’s two character postal abbreviation (in lower case).

• Right click the tab and save
Right click the tab and change to “Datasheet View”
  - You should see your state’s data populate the table
- Save the database
Save the “State Flag” Images to Your Tableau Repository

- Download the “State Flags.zip” file to your computer
  - Extract the “State Flags” folder to your Tableau shapes repository – usually located here: C:\Users\yourusername\Documents\My Tableau Repository\Shapes\
After extracting, make sure the "State Flags" folder is inside the "Shapes" folder

- Open the "State Flags" folder – there should be 51 .PNG files inside (one for each state and DC)
Update Tableau Template to Reflect Your State’s Data

- Go back to your tableau file
- Make sure it has been saved with a new name
To remove the existing data extract (Tableau’s extracted source file):

- Click “Data” at the top
  - Select “J2J_Viz_extract”
  - Select “Extract”
    - Select “Remove”
- Select “Just remove the extract”
  - Click “Ok”
- Wait for processing to complete
  - Click “Data Source” in the bottom-left
○ Click “Data Source” in the bottom-left
If necessary, use “Browse” to find and select your Access database
- Click “Ok”
- Make sure that the “Extract” radio button at the top-right is selected (not “Live”)
- Select “Data” at the top
  - Click “Refresh”
  - Wait for processing to complete
- Select “Job Flows” tab at the bottom
A pop-up window should appear to name your new Tableau data extract as
- I suggest saving it to the same directory where you saved the main Tableau workbook
- Give it a new name such as j2j_viz_yourstatename.tde and click “Save”
- Wait for query to run and for the extract to be created
  - (This will likely take a long time. Most states have more than a million rows of data.)
- The data should now be updated to reflect you state
  - (but the title and flag will still be wrong)
Change flag and title to your state

- Click on the flag at the right
- Click the tiny upside-down triangle on the top edge of the flag container
- Select “Go to sheet”
- Select your state from the drop-down menu at the right
- Click the “Job Flows” tab at the bottom to go back.
- Check that all of the titles and pop-up “tool-tips” reflect the correct information
- Re-save the file
- The viz should now be fully updated for your state and ready to publish to your Tableau profile!
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