What’s New
In QWI, LODES/OnTheMap, Job-to-Job Flows, PSEO, and plans for the future

March 2022
Matthew Graham and Erika McEntarfer
Center for Economic Studies, U.S. Census Bureau

Any opinions and conclusions expressed herein are those of the author and do not represent the views of the U.S. Census Bureau. All tables and figures use data that is publicly available.
Structure of this talk:

Product & application updates

New LED initiatives (Frames & improving timeliness)

PSEO data expansion: new partners, more coverage
Product & Application Updates
LEHD Updates – LODES/OnTheMap

• Last Year
  • 2019 LODES was released; 2019 TIGER; Firm age/size data backfilled
  • LODES is being included in the criteria for defining urban areas

• This Year: 2020 LODES
  • Planned for Summer 2022
  • 2020 data will be produced using 2020 census blocks
    • Currently LODES is baselined to 2010 census blocks
  • OnTheMap will be updated to new geography as well (2021 TIGER)
  • Historical LODES data will be converted from 2010 to 2020 census blocks

• Looking into the future…
Converting LODES to New Census Blocks

• Using the **same method as we did for 2000→2010**
  • For each 2010 block, and calculate the % of areal intersections with 2020 blocks
  • For each job in the 2010 block, we randomly choose an intersecting 2020 block using the areal share as a weight.
  • Repeat for residence and employment locations, for all years of data

### Example

**2010 Census Block “A”: 5 jobs**

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>X</th>
<th>Y</th>
<th>Z</th>
</tr>
</thead>
</table>

**2020 Census Blocks “X”, “Y”, and “Z”**

<table>
<thead>
<tr>
<th>2020 Block</th>
<th>Areal Intersection of A [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>56%</td>
</tr>
<tr>
<td>Y</td>
<td>13%</td>
</tr>
<tr>
<td>Z</td>
<td>31%</td>
</tr>
</tbody>
</table>

**Job Random Draw Assigned 2020 Block**

<table>
<thead>
<tr>
<th>Job</th>
<th>Random Draw</th>
<th>Assigned 2020 Block</th>
</tr>
</thead>
<tbody>
<tr>
<td>“1”</td>
<td>0.35</td>
<td>X</td>
</tr>
<tr>
<td>“2”</td>
<td>0.37</td>
<td>X</td>
</tr>
<tr>
<td>“3”</td>
<td>0.68</td>
<td>Y</td>
</tr>
<tr>
<td>“4”</td>
<td>0.92</td>
<td>Z</td>
</tr>
<tr>
<td>“5”</td>
<td>0.23</td>
<td>X</td>
</tr>
</tbody>
</table>

X: 3 jobs
Y: 1 job
Z: 1 job
Other Application Updates

• LED Extraction Tool
  • Recent release that added a “shopping cart” view for QWI data
  • Preparation for adding J2J data (coming later this year) and LODES data (likely next year)

• Continuing with regular data updates in the other applications

• BDS Explorer
  • Create a new exploration tool for Business Dynamics Statistics (BDS), which are a product created by another part of the Center for Economics Studies
  • bds.explorer.ces.census.gov
Frames
Vision of the Frames Program

To create Enterprise-wide frames linkable in nature, agile in structure, accessible for production or research on a need-to-know basis, and that adhere to best practices in terms of technology usage, data management, and methodology.
Frames: Macro Perspective

Enterprise Frames

- JobID + Attributes
- PIK
- EIN, SEIN
- Demographic
- MAFID
- Geospatial

Frames Products & Services

- Alpha, Unit + Attributes
- Address, Lat/Lon, Legal/Statistical Geography + Attributes

Access Rights Enforcement

Programmatic & Research Activities

- Initiative Support
- Sampling Frames
- Data Products
- Quality Improvement

Data Ingest and Collection

Admin Records

Surveys, Censuses

Public Records

Third Party
New LED Initiatives:

Improving/stabilizing jobs data coverage:
- Census Frames Initiative

Improving data timeliness:
- Can we improve on current 9-month lag?
Can we improve the stability/coverage of the current LEHD jobs frame?

Census Bureau Frames Initiative

To achieve broader use of the jobs frame for enterprise statistical use it will help strengthen the stability and coverage of the current frame

**Shortcomings of the current frame:**

- **Coverage:** state UI jobs only, no federal workers, no self emp
- **Voluntary data provision:** states can withdraw participation at any time
- **Delays in MOU renewals:** agreements can lapse even when both parties intend to renew
Enhanced Job Frame
Overall Design:

**Combined jobs frame**
For annual-frequency economic statistics (PSEO, VEO, inequality, future experimental products)

**LEHD jobs (state UI)**
For quarterly-frequency economic statistics, point-in-time employment, job-to-job transitions (QWI, J2J) and FSRDC research

**W2 jobs**
For jobs not covered in state UI or states missing in LEHD frame

**Self-employment jobs (IRS)**
Not covered in either W2 or UI are 1099 gig jobs and self-employed workers

**SE jobs (IRS 1040 C)**
Not covered in either W2 or UI are 1099 gig jobs and self-employed workers
Enhanced Job Frame
Future anticipated use cases

**Fully national jobs frame covering all wage & salary jobs + gig and self-employment:**
- New input data for statistical products like PSEO
- True metro-area statistics (difficult with voluntary state frame as many metro areas cross state boundaries)
- Stable provision of national employment indicators (avoid data delays when many MOUs expire at once)

**Better business list comparisons:**
- Use W2-UI links to improve Census Business Frame, with more timely QCEW information

**Could potentially create a quarterly combined frame, allowing for more high-frequency statistics:**
- 90% of wage and salary jobs can be matched to quarterly LEHD, could impute the rest
Enhanced Job Frame

Our approach:
Because LEHD usually has highest quality job information if available, our approach is to use LEHD when can, W2 job otherwise.

W2-only records only
- Add W2 records only as needed to complete the frame

Enhanced annual job frame

All LEHD/UI jobs included
- All earnings instead of federal taxable wages
- High-quality industry and geography from QCEW/U2W

UI covered jobs (LEHD)

All employer and non-employer self-employment jobs included

W2 jobs (IRS)

Self-employment jobs (IRS)
Key Challenges

**LEHD/UI jobs**
- LEHD already produces high-quality job-level data for publication

**W2 jobs**
- Matching W2/UI jobs
- Attaching high-quality industry and geography to W2 jobs

**SE jobs**
- Obtaining consistent input data from so can match published benchmarks
- Generating SE earnings from tax fields

Annual Job File (AJF)

UI covered jobs (LEHD)

W2 jobs (IRS)

Self-employment jobs (IRS)
Can we develop an economic indicator from LEHD data?
Do any current QWI/J2J statistics meet the criteria?

An economic indicator is a statistic that measures current economic performance or predicts future economic performance.

Requirements for new indicators:
• Timely: trade-off between accuracy and timeliness
• Cyclical: coincident, leading, or lagging indicators
• Useful to policymakers: Needs to fill an unmet need for information
Quarterly Workforce Indicators (QWI) and Job-to-Job Flows (J2J)  
Strength and weaknesses as an indicator

<table>
<thead>
<tr>
<th></th>
<th>Quarterly Workforce Indicators (QWI)</th>
<th>Job-to-Job Flows (J2J)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Timeliness</strong></td>
<td>National data: 1 year lag, state and sub-state: 9 month-1 year lag</td>
<td>9 month-1 year lag</td>
</tr>
<tr>
<td><strong>Cyclicality</strong></td>
<td>Employment, net job growth, hires, separations, earnings</td>
<td>Job-changing rate, employment flows</td>
</tr>
<tr>
<td><strong>Unique usefulness for policymakers</strong></td>
<td>Unique indicators: stable jobs, new hire earnings.</td>
<td>Unique national indicators: job-changing rate, detailed employment inflows/outflows and flows across industries</td>
</tr>
</tbody>
</table>
Can the timeliness of the data be improved?

**Three ways we can improve timeliness:**

- Improved processes: 2 months
- Earlier wage record data submission: 3 months
- Changes to QWI national modeling to eliminate add. 1 qtr. lag

These steps could reduce data lag from **9-12 months** to **4-7 months**.

To reduce lag further, would need to model indicators, potentially feasible
Most promising variables for national indicators on uniqueness:

### LEHD national indicator possibilities

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Product Variable</th>
<th>Timeliness*</th>
<th>Cyclicality</th>
<th>Case for uniqueness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job to job moves</td>
<td>J2J</td>
<td>t</td>
<td>Highly procyclical</td>
<td>Shows what share seps are job moves</td>
</tr>
<tr>
<td>Hires, jobless at start of qtr</td>
<td>J2J</td>
<td>t</td>
<td>Procyclical</td>
<td>Flows into employment (less noisy than CPS)</td>
</tr>
<tr>
<td>Hires, jobless &lt; 3 months</td>
<td>J2J</td>
<td>t</td>
<td>Procyclical</td>
<td>Attached worker re-entry</td>
</tr>
<tr>
<td>Hires, jobless &gt;= 3 months</td>
<td>J2J</td>
<td>t</td>
<td>Procyclical</td>
<td>Marginal worker entry</td>
</tr>
<tr>
<td>Separations, jobless at end of qtr</td>
<td>J2J</td>
<td>t-1</td>
<td>Mixed</td>
<td>Flows out of employment (less noisy than CPS)</td>
</tr>
<tr>
<td>Separations to joblessness &lt; 3 months</td>
<td>J2J</td>
<td>t-1</td>
<td>Procyclical</td>
<td>Worker separations to short nonemp.</td>
</tr>
<tr>
<td>Separations to joblessness &gt;= 3 months</td>
<td>J2J</td>
<td>t-1</td>
<td>Countercyclical</td>
<td>= entry into retirement for older workers</td>
</tr>
<tr>
<td>Stable employment</td>
<td>QWI</td>
<td>t-1</td>
<td>Procyclical</td>
<td>Employment growth stable jobs</td>
</tr>
<tr>
<td>New hire earnings</td>
<td>QWI</td>
<td>t-1</td>
<td>Procyclical</td>
<td>Early indicator of wage pressure?</td>
</tr>
</tbody>
</table>
QWI: New Hire Earnings

New Hire Wage Pressure Index: New Hire Wages by Industry, 2000 Q1 = 1 (selected industries)

Source: US Census Bureau Quarterly Workforce Indicators. Data are seasonally adjusted using X12 and earnings deflated using CPI-U. Index is a centered moving 5 quarter average.
The Great Resignation
Job switching and the pandemic recovery

Quits (BLS: JOLTS)

Job switching
(Census: Job-to-Job Flows)

JOLTS tells you workers quit but not why:
• J2J: did workers leave for new jobs?
• J2J: if so, where did they go?

Source: US Census Bureau Job-to-Job Flows and BLS JOLTS
The Great Resignation
Job Switchers in NY’s Restaurant and Hotel Industries: 2019 vs 2020

Pre-pandemic, almost ½ of job switchers remained in the sector, post-pandemic this fell to just over a third.

Source: US Census Bureau Job-to-Job Flows
Economic indicators: where we are:

- Improvements of QWI/J2J processing currently in production will shave 1-2 months off data lag

- Beginning talks with LED partners about experimental early delivery of wage data
Existing Product Updates:

In regular production:
- QWI, J2J, LODES

New experimental products:
- Post-Secondary Employment Outcomes (PSEO) expansion
Data updates for QWI, J2J, and LODES:

**Quarterly Workforce Indicators (QWI):**
- New weights improve time-series consistency, improvements to disclosure avoidance

**Job-to-Job Flows (J2J):**
- New experimental NAICS-3 origin-destination flows to be released this summer

**LEHD Origin-Destination Employment Statistics (LODES):**
- 2019 LODES released November 2021
- 2020 LODES to be released this year
Post-Secondary Employment Outcomes: 2018-2021 expansion
New PSEO releases in Oct. 2021

- University of Alabama system
- Arizona Board of Regents
- Iowa Board of Regents
- University of Maine system
- Missouri Department of Higher Education and Workforce Development
- Utah System of Higher Education
- State Council of Higher Education for Virginia
Upcoming PSEO release June 30, 2022, includes:

- University of Connecticut
- Connecticut Consortium of Independent Colleges
- University System of Georgia
- University of Hawaii system
- Iowa Community Colleges
- Massachusetts Department of Higher Education
- University of Montana System
- Oregon Higher Education Coordinating Commission
- South Dakota Board of Technical Education
To sum up, new and future efforts:

Continued expansion and enhancement to existing products and tools:
- PSEO coverage expansion, new J2J experimental tabs, new data tools

Improve timeliness and stability of jobs data:
- can with partner help reduce data lags
- use of FTI to improve and stabilize coverage