Longitudinal Employer-Household Dynamics (LEHD): Quarterly Workforce Indicators and OnTheMap

Nesreen Khashan
Data Dissemination Branch
U.S. Census Bureau
Agenda

- Local Employment Household Dynamics (LEHD): An Overview
- Choosing among LED Products
- Data Products: QWI and OntheMap
- OTM Demonstrations
Local Employment Dynamics Partnership

Then:
- Begun in late 1990s with a few states
- Goal to generate new labor market statistics from existing records (UI and firm info)

Now:
- 53 partner states/territories
- 3 data products
- 4 web-based data tools
- A culture of innovation and cost savings
Building on State Inputs

- We combine state records with other admin/census/survey data from the Census Bureau and other Federal agencies

- We can then create public statistics on:
  - Firms & Establishments
  - Jobs & Workers
  - By Firm and Person Characteristics

- Without new respondent burden
Admin. Records & LED Infrastructure

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

Jobs Data
- UI* Wage Records
- OPM*

Firm Data
- Economic Survey Data
- Business Register
- QCEW*

Person Data
- Federal Records
- Demographic Census/Survey Data

Linked National Jobs Data

- Job data cover over 95% of private employment and most state, local, and federal jobs
- Data availability: 1990-2014, start year varies by state, rolling end date

Public-Use Data Products...
LED Data Products

- Quarterly Workforce Indicators (QWI)
  - Employment, Job Creation, Job Destruction, Hires, Separations, Turnover, Earnings
  - By industry, county, and worker characteristics

- LEHD Origin Destination Employment Statistics (LODES)—OntheMap
  - Employment and Workplace-Residence Connections
  - Detailed geography + firm/worker characteristics
## Choosing Among LED Data Products

<table>
<thead>
<tr>
<th>Data Product</th>
<th>Why Choose It?</th>
<th>Potential Drawbacks</th>
</tr>
</thead>
<tbody>
<tr>
<td>QWI</td>
<td>You need employment, hires, separations, turnover, or earnings by detailed industry or person characteristics, quarterly time resolution, or a relatively short data lag</td>
<td>No geography below county; no residential information</td>
</tr>
<tr>
<td>LODES</td>
<td>You need employment for detailed or customized geography, or you need the residential patterns of the workforce</td>
<td>Annual time resolution; less detailed firm/person characteristics; significant data lag (temporary)</td>
</tr>
</tbody>
</table>
Choosing Data 1

When should I be interested in using LED data compared to other available statistics?

Suppose I’m primarily interested in Employment

Do I need the latest national estimate available?

- Current Employment Statistics (CES)
  - Employment by industry - ‘the payroll survey’
- Current Population Survey (CPS)
  - Employment status and demographics - ‘the household survey’

Some sub-state geographies are available concurrently through Local Area Unemployment Statistics (LAUS)
Choosing Data 2

But suppose I need either sub-national employment data or statistics by detailed industry:

**Quarterly Census of Employment and Wages (QCEW)**
- Employment by detailed industry, sub-state geography and better employment coverage (6-month lag)

**Quarterly Workforce Statistics (QWI)**
- Employment by detailed industry, sub-state geography, and *worker demographics* (age, sex, education, race) and *fewer cell suppressions* than the QCEW (9-month lag)

**American Community Survey (ACS)**
- Employment status by more sub-state geographies than CPS/LAUS (9-month lag)

**LODES/OnTheMap**
- Employment at the *block-level* (>1 year lag)

**County Business Patterns (CBP)**
- Employment at the *zipcode-level* (>1 year lag)
Suppose I’m primarily interested in *Hires/Separations/Turnover*

Do I need the most current national data (1 month lag) or do I want to differentiate between quits and layoffs?

- *Job Openings and Labor Turnover Survey* (JOLTS)

Do I need sub-national data (state/county), data by worker demographics, or for detailed industries?

- *Quarterly Workforce Statistics* (QWI)
Quarterly Workforce Indicators (QWI)

- Detailed workforce dynamics, by worker characteristics and firm characteristics

- **Popular uses:**
  - Local workforce demographics
  - Local industry workforce trends
  - Workforce turnover, job creation and destruction

What are the trends for Baltimore biotech employment in recent quarters showing?
Quarterly Workforce Indicators (QWI)

- Detailed workforce dynamics, by worker characteristics and firm characteristics

- **Popular uses:**
  - Local workforce demographics
  - Local industry workforce trends
  - Workforce turnover, job creation and destruction

Salaries for biotech workers in Baltimore with a Bachelor’s Degree or Higher

<table>
<thead>
<tr>
<th>Year</th>
<th>Quarter</th>
<th>Average Monthly Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>Q1</td>
<td>8,061</td>
</tr>
<tr>
<td>2014</td>
<td>Q2</td>
<td>6,957</td>
</tr>
<tr>
<td>2014</td>
<td>Q3</td>
<td>7,421</td>
</tr>
<tr>
<td>2014</td>
<td>Q4</td>
<td>8,279</td>
</tr>
<tr>
<td>2015</td>
<td>Q1</td>
<td>8,374</td>
</tr>
<tr>
<td>2015</td>
<td>Q2</td>
<td>7,089</td>
</tr>
<tr>
<td>2015</td>
<td>Q3</td>
<td></td>
</tr>
</tbody>
</table>
Quarterly Workforce Indicators (QWI)

Monthly Earnings by Race for workers employed at Firms 1 year or younger

- Can see workforce composition by detailed firm characteristics

- Such as how much are workers at startup firms making, by race?

<table>
<thead>
<tr>
<th>Race</th>
<th>Monthly Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Alone</td>
<td>3,188</td>
</tr>
<tr>
<td>Black or African American Alone</td>
<td>2,073</td>
</tr>
<tr>
<td>American Indian or Alaska Native Alone</td>
<td>2,272</td>
</tr>
<tr>
<td>Asian Alone</td>
<td>2,403</td>
</tr>
<tr>
<td>Native Hawaiian or Other Pacific Islander</td>
<td>2,233</td>
</tr>
<tr>
<td>Alone</td>
<td></td>
</tr>
<tr>
<td>Two or More Race Groups</td>
<td>2,556</td>
</tr>
</tbody>
</table>
Quarterly Workforce Indicators (QWI)

Age distribution of building construction workers in Baltimore

- Can see workforce composition by detailed firm characteristics
- Such as age distribution of workers in particular sectors
OnTheMap

Recognized by United Nations as a major U.S. statistical innovation

- Where do workers live?
- Where do residents work?
- What are the commuter flows of a particular area?
- Analyze/report by worker demographics: age, earnings, race, ethnicity, educational attainment, and sex
- Analyze/report by firm characteristics: NAICS Sector, firm age, and firm size

- 2002-2014 annual data
- 50 states available (plus DC)
- User-selected areas
- Based on Census Blocks
- Disclosure protection
- Flexible Inputs/Outputs
OnTheMap: Getting Started

Start by searching your geography, then double click your specific selection from the list.

http://onthemap.ces.census.gov/
OnTheMap: Getting Started

1) Click to Perform Analysis on Selection Area, then be prepared to 2) choose your Analysis Settings!
OnTheMap: Analysis Settings

**Home/Work**
Differentiates between where people work and place of residence. No matter which you select, all numbers will be related to “jobs.”

**Year**
Gives you the ability to look at data from 2002-2014; you can also animate your map to show changes over time!

**Job Type**
Allows for a true analysis of all jobs in a given area.
OnTheMap: Analysis Settings

Analysis Types

The first 2 Types provide demographics on workers!

Area Profile – Complete analysis for Employees and the Locations of Jobs by Industry

Area Comparison - Compare lower level geographies within an area
OnTheMap: Analysis Settings

**Analysis Types**

The last 3 Types show the geographic relationship between workers’ homes and their jobs!

- **Distance/Direction** – Specific commute patterns from work census block to home census block and vice versa.
- **Destination** – Provides a look at specific work/home locations down to a census tract level.
- **Inflow/Outflow** – Graphic illustration of total numbers of jobs/residents and work vs. home locations.
Area Profile is the default analysis setting. It provides:
- Job Density
- Job Location (down to the Census Block)
- Jobs by Industry
- Worker Demographics
- Robust Interactive Mapping + More!
OnTheMap: Area Comparison

Area Comparison shows smaller geographies within the selected area, and includes:

- Work/Home locations down to the Block Group
- Top 5 – Top 100
- Sortable by Industry and Worker Demographics
OnTheMap: Distance/Direction

Use Distance/Direction to:

- View home-to-work commute (AM)
- View work-to-home commute (PM)
- Get a sense of how far/which direction people commute
OnTheMap: Destination

Use Destination Analysis to:

- Determine specific job destinations at a closer geographic level
- Determine specific home locations within your selected area down to a tract level
OnTheMap: Inflow/Outflow

Inflow/Outflow shows:
✓ # People coming into the area for work
✓ # People leaving the area for work
✓ # People living and working within selected area
OTM Example:

**Drawing Tools – Draw Polygon**
OTM Example: **Drawing Tools – Draw Point; Buffer – Simple Ring**
OTM Example: **Drawing Tools** –
**Draw Point; Buffer – Donut**
OTM Example: *Drawing Tools – Draw Line; Buffer – Plume*
Nesreen Khashan
Data Dissemination Specialist for Maryland and Metro DC
nesreen.khashan@census.gov
Telephone: 202.510.6403