

# LODES, OnTheMap, and OnTheMap for Emergency Management Training

U.S. Census Bureau

June 24, 2015

# Overview

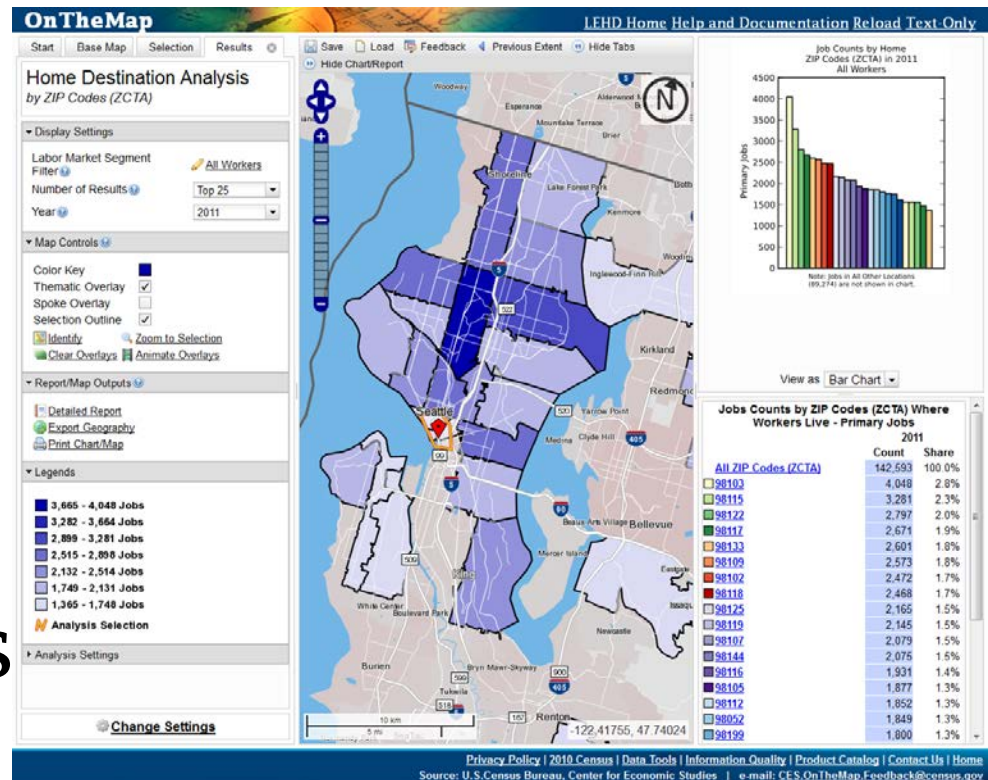
- Intros & Outline
- LODS-ACS Commuting Comparison
- OnTheMap Updates
- OnTheMap for Emergency Management Updates
- Analytics for You

# LODES

- LEHD Origin-Destination Employment Statistics
  - First Developed in 2005
  - Several key methodological revisions since then
  - OD file plus residence and workplace margins, all at census block level
  - Comes out of LEHD's administrative data infrastructure
  - Annual data

# OnTheMap

- Free, online, map-based tool for analyzing LODES
- PDF Reports
- Geography Imports/Exports



<http://onthemap.ces.census.gov/>

# ACS Commuting

- Transportation-focused part of the ongoing American Commuting Survey
  - Respondents answer questions about workplace, time leaving home, transit mode, and time to work.
- ACS (more generally)
  - Ongoing survey of households in the US.
  - Annual data releases began in 2006.

# Access to ACS

- American FactFinder
  - <http://factfinder.census.gov/>
- Census API
  - <http://www.census.gov/developers/>
- Multiple Online Tools
  - Details at [http://www.census.gov/acs/www/data\\_documentation/data\\_main/](http://www.census.gov/acs/www/data_documentation/data_main/)

# One Dataset to Rule Them All?

- Since LODES/OnTheMap's initial release, many comparability questions have been raised in reference to CTPP and ACS Commuting.
  - LODES approaches the issues from labor economics and administrative data
  - ACS Commuting approaches the issue from household demographics and survey data

# And In The Darkness Bind Them...

- We received so many questions from users about the differences, that we wrote a technical paper!
  - Design Comparison of LODES and ACS Commuting Data Products  
by Graham, Kutzbach, and McKenzie  
<https://ideas.repec.org/p/cen/wpaper/14-38.html>



# Foreshadowing

- We don't have a great deal to say about the specific data differences (yet)
- But it was important to be clear about the many design differences between the two datasets, because we generally feel that understanding these can help users to interpret most data differences.

# Many Design Differences (1)

- Collection
- Coverage
- Geographic and Longitudinal Scope
- Job Definition and Reference Period
- Job and Worker Characteristics
- Location Definitions (Workplace and Residence)

# Many Design Differences (2)

- Completeness of Geographic Information and Edits/Imputations
- Geographic Tabulation Levels
- Control Totals
- Confidentiality Protection and Suppression
- Related Public-Use Data Products

# Don't Panic

- We will touch on a number of the key differences. You can read about the rest in the full document (or the handout)...
- Also, we'll enlist some friendly example (not real!) people to help us.

# Example Workers (1)

**John** is employed full-time as a package handler at a shipping company. On nights and weekends he sells beer at the local baseball stadium.

**Paul** is a freelance writer. Occasionally he helps out at his parents' restaurant, where they pay him in cash.

# Example Workers (2)

**George** is an electrician in a construction firm and in the last year he has worked at 14 different job sites around the city.

**Ringo** is employed at the city works department. He also works part-time at a chain of sandwich shops.

# Example Workers (3)

**Yoko** is a tax lawyer. She just made partner in her law firm. She often travels for her job.

**Linda** is an analyst for the FBI. Additionally, she runs a small business selling homemade soap online.

# Collection & Coverage

- ACS is a survey with annual sample size of ~3.5m addresses
- LEHD is a universe-level dataset of “covered” jobs



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# What's a Job? When's a Job?

- ACS asks two forms of the question, “LAST WEEK, did this person work for pay?”
- LODES requires covered earnings from the same employer in two quarters (Q1 and Q2)

**29** a. **LAST WEEK, did this person work for pay at a job (or business)?**

☐ Yes → *SKIP to question 30*

☐ No – Did not work (or retired)

b. **LAST WEEK, did this person do ANY work for pay, even for as little as one hour?**

☐ Yes

☐ No → *SKIP to question 35a*

|        | Q1 | Q2 | Q3 | Q4 |
|--------|----|----|----|----|
| Firm A | \$ | \$ |    |    |
| Firm B |    |    | \$ | \$ |

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# There and Back Again

- ACS asks “At what location did this person work LAST WEEK?”
- LEHD gets firm from UI Wage Records and establishment(s) (location) from QCEW

**30** At what location did this person work **LAST WEEK?** *If this person worked at more than one location, print where he or she worked most last week.*

**a. Address (Number and street name)**

*If the exact address is not known, give a description of the location such as the building name or the nearest street or intersection.*

**b. Name of city, town, or post office**

**c. Is the work location inside the limits of that city or town?**

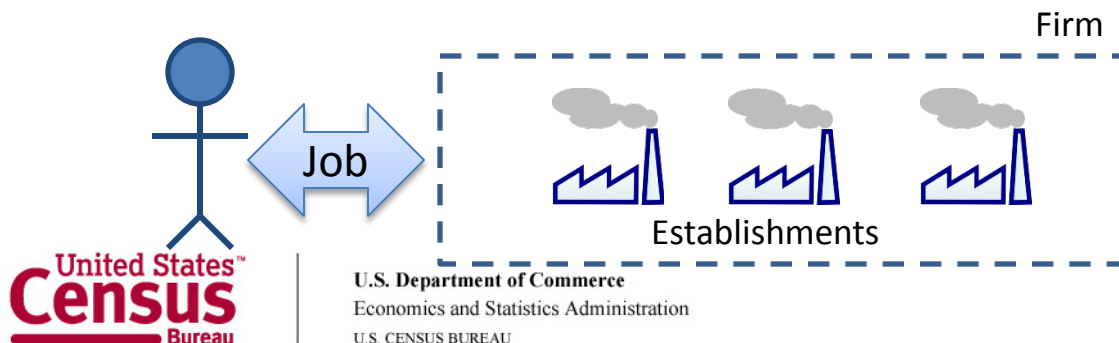
☐ Yes

☐ No, outside the city/town limits

**d. Name of county**

**e. Name of U.S. state or foreign country**

**f. ZIP Code**





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# Who? What? When?

- Commuting data from decennial censuses 1960-2000. ACS since 2000 (partial)/2005(full) and GQ since 2006.
- LODES since 2002 (limited history for some states). Sex/Race/Ethnicity since 2009. Federal jobs since 2010. Firm age/size since 2011.

# Different Characteristics

- ACS:
  - Workplace, commute mode, departure time, arrival time, travel time, sex, age, race, ethnicity, citizenship, language spoken, earnings, poverty status,  
+ more
- LODES:
  - Job dominance, ownership, NAICS sector, firm age/size, earnings, age, sex, race, ethnicity, education

# Geographic Tabulation

- ACS:
  - Lowest level: Census blockgroup for 5-year estimates
  - Different characteristics for different geographies and estimates.
- LODES:
  - Lowest level: Census block
  - Different characteristics between OD and area margins (residence-/work-only)

# Confidentiality Protection

- ACS:
  - Swapping & Suppression
- LODS:
  - Noise infusion & small cell synthesis
  - PDP synthesis of residential locations

# Related Public-Use Datasets

- ACS:
  - Public-Use Microdata Sample (PUMS)
  - Census Transportation Planning Package (CTPP)
  - Equal Employment Opportunity (EEO) flows
- LODES:
  - Quarterly Workforce Indicators (QWI)
  - Job-to-Job Flows (J2J)



# Future Plans

- ACS-LODES Research
  - Microdata analysis of differences (DEV10)
- Other Work Impacting LODES
  - Updating residential source data and handling of multiple sources
  - New confidentiality protection system research

# Wrapping It Up

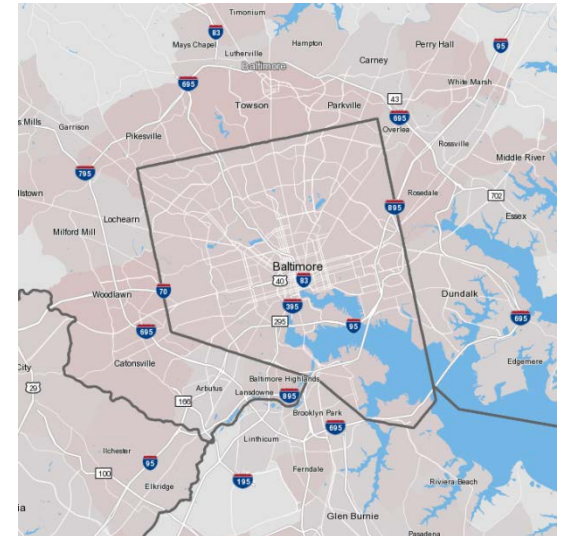
- There aren't simple differences or comparisons between ACS Commuting and LODES (sorry)
- Data differences are rooted in design
- Use and intent matter
- “Triangulate” among datasets, if possible
- These are dynamic data products that continue to develop

# References

- ACS-LODES Comparison Document
  - <https://ideas.repec.org/p/cen/wpaper/14-38.html>
- LODES Data
  - <http://lehd.ces.census.gov/data/lodes/>
- ACS Data
  - [http://www.census.gov/acs/www/data\\_documentation/data\\_main/](http://www.census.gov/acs/www/data_documentation/data_main/)
- ACS Questionnaires
  - [http://www.census.gov/acs/www/methodology/questionnaire\\_archive/](http://www.census.gov/acs/www/methodology/questionnaire_archive/)
- OnTheMap
  - <http://onthemap.ces.census.gov/>

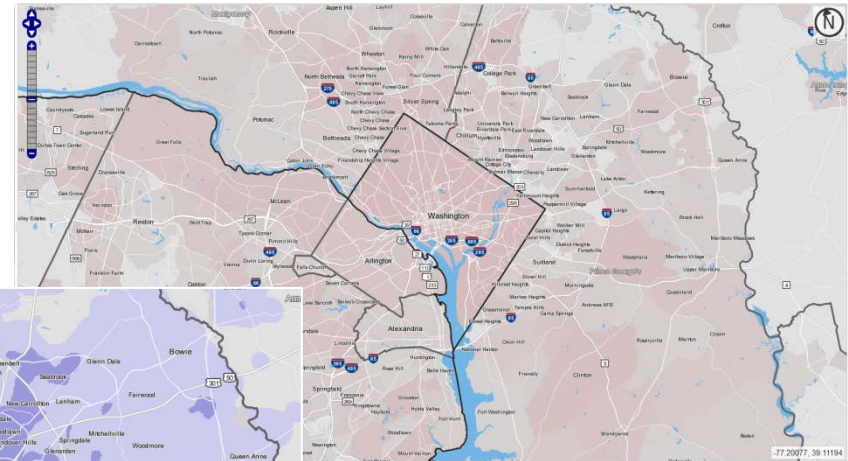
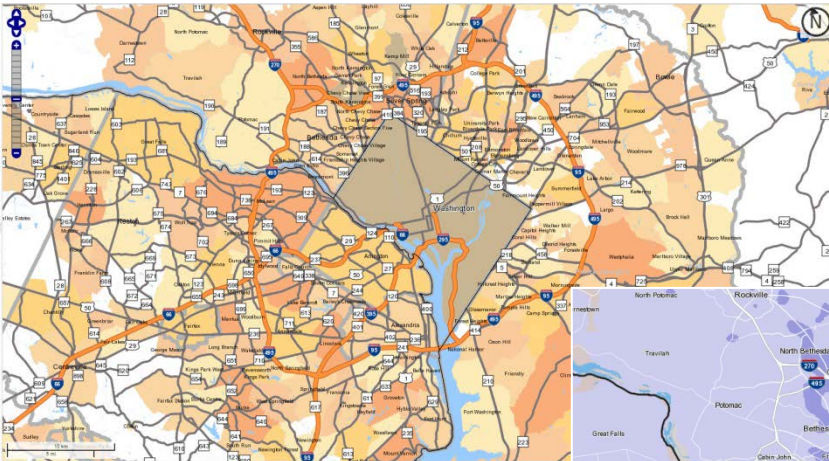
# OnTheMap Application Updates

- December 2014: Version 6.3 Released
  - Updated Road network – now using OpenStreetMap data
  - Updated cartography, data should be easier to see and reference layers clearer and more distinguishable
  - Bug fixes
  - <http://onthemap.ces.census.gov/>



# OnTheMap Cartography Update

- Reference geography (roads, states, counties, etc.) more subtle, less visually intrusive
- Focus users on the data results

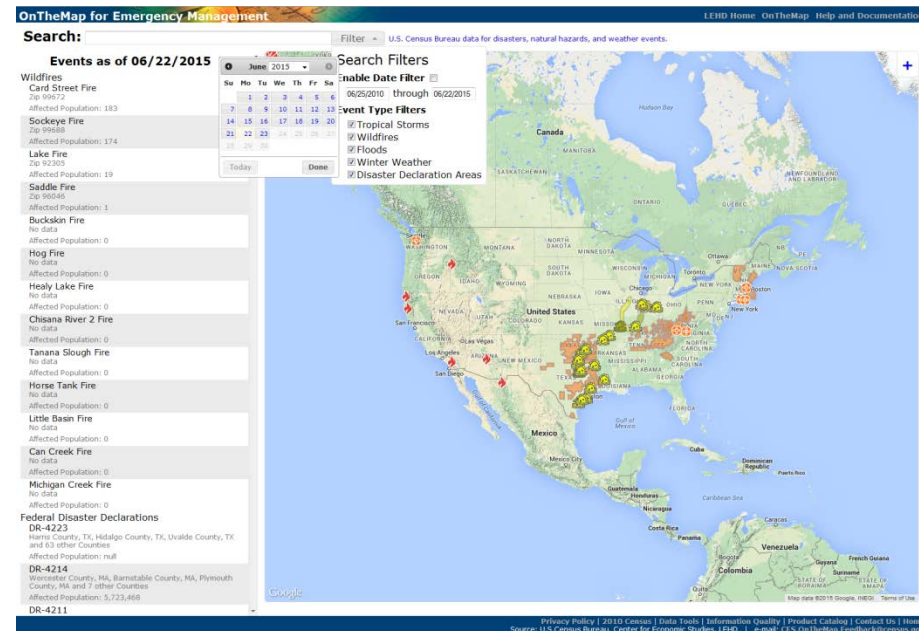


Old Cartography

New Cartography

# OnTheMap for Emergency Management Application Updates

- April 2015: Version 4.2 Released
  - Updated to 2009-2013 ACS 5-year estimates
  - Added date searching/filtering
  - Added historical date view
- Coming very soon:
  - 2012 LODES data
- And a little later:
  - 2013 LODES data





# Feedback

- Questions for us:
  - [CES.OnTheMap.Feedback@census.gov](mailto:CES.OnTheMap.Feedback@census.gov)
- Announcements/Discussion/Questions for the community
  - [lehd-onthemap@lists.census.gov](mailto:lehd-onthemap@lists.census.gov)
  - Sign up at:  
<http://lists.census.gov/mailman/listinfo/lehd-onthemap>

# Thanks!

- OnTheMap
  - <http://onthemap.ces.census.gov/>
- OnTheMap for Emergency Management
  - <http://onthemap.ces.census.gov/em.html>
- LODES Data
  - <http://lehd.ces.census.gov/data/#lodes>





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