QWI 4.0
New Measures of Employment Flows

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Changes to the QWI Public Use Files

- Recently expanded dimensions of data complicated file organization
- Desired standardized output for LED Extraction tool
- Implemented general restructuring for enhanced usability
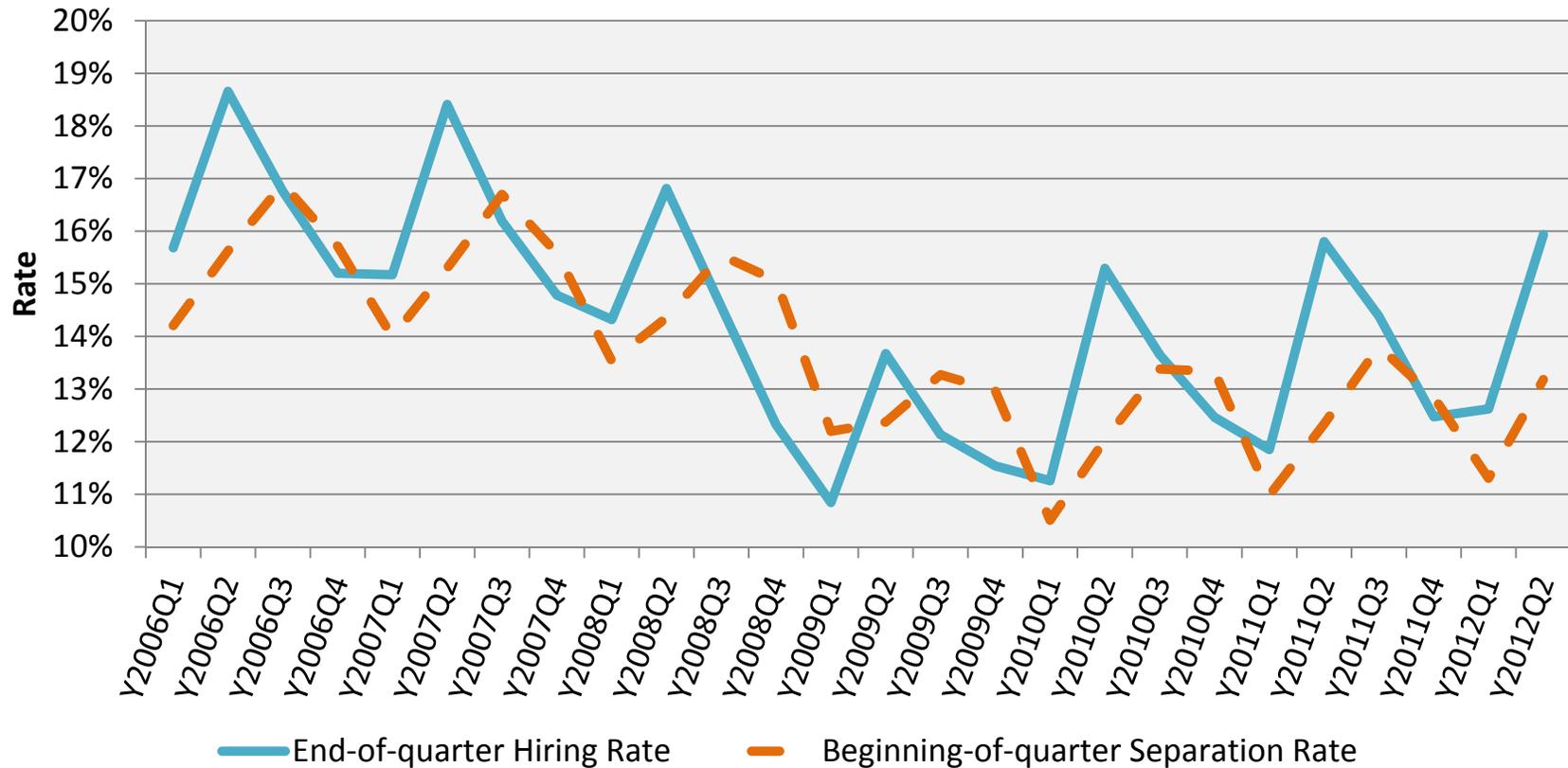- More info on "What's New" section

QWI Measures

- ## 30 measures in earlier set (V3.3, V3.4)

- ## 32 measures in new set (V4.0)
  - 8 measures have been added
    - New measures of employment flows, ratios
  - 2 measures have timing adjustments
    - Timing correction in turnover calculation
    - End-of-quarter average earnings switch to beginning
  - 6 measures have been dropped
    - Quarters of non-employment, change in total earnings
      - Better versions to come in job-to-job flows

New Measures: Continuous Quarter Flows

- New flows into and out of jobs that last at least two quarters
  - End-of-quarter Hires
    - Hires this quarter, continuing to work on the last day of the quarter
  - Beginning-of-quarter Separations
    - Individuals working on the first day of the quarter, but not the last

- Useful for calculating rates of hiring and separations
  - Subset of point-in-time employment measures

QWI Estimates:
End-of-quarter hiring rate,
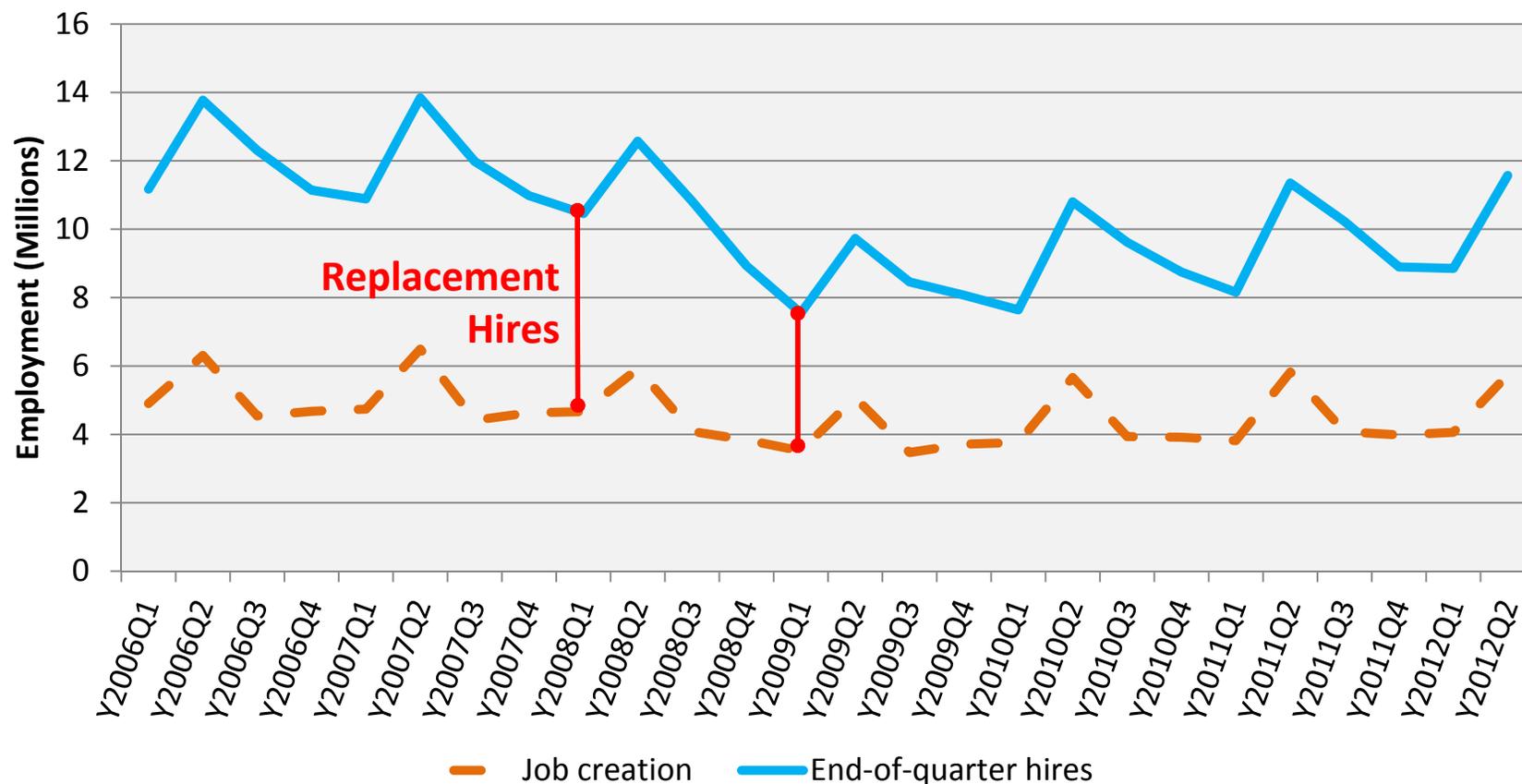## Beginning-of-quarter separation rate

Source: QWI R2013Q2, 49 states, private-only
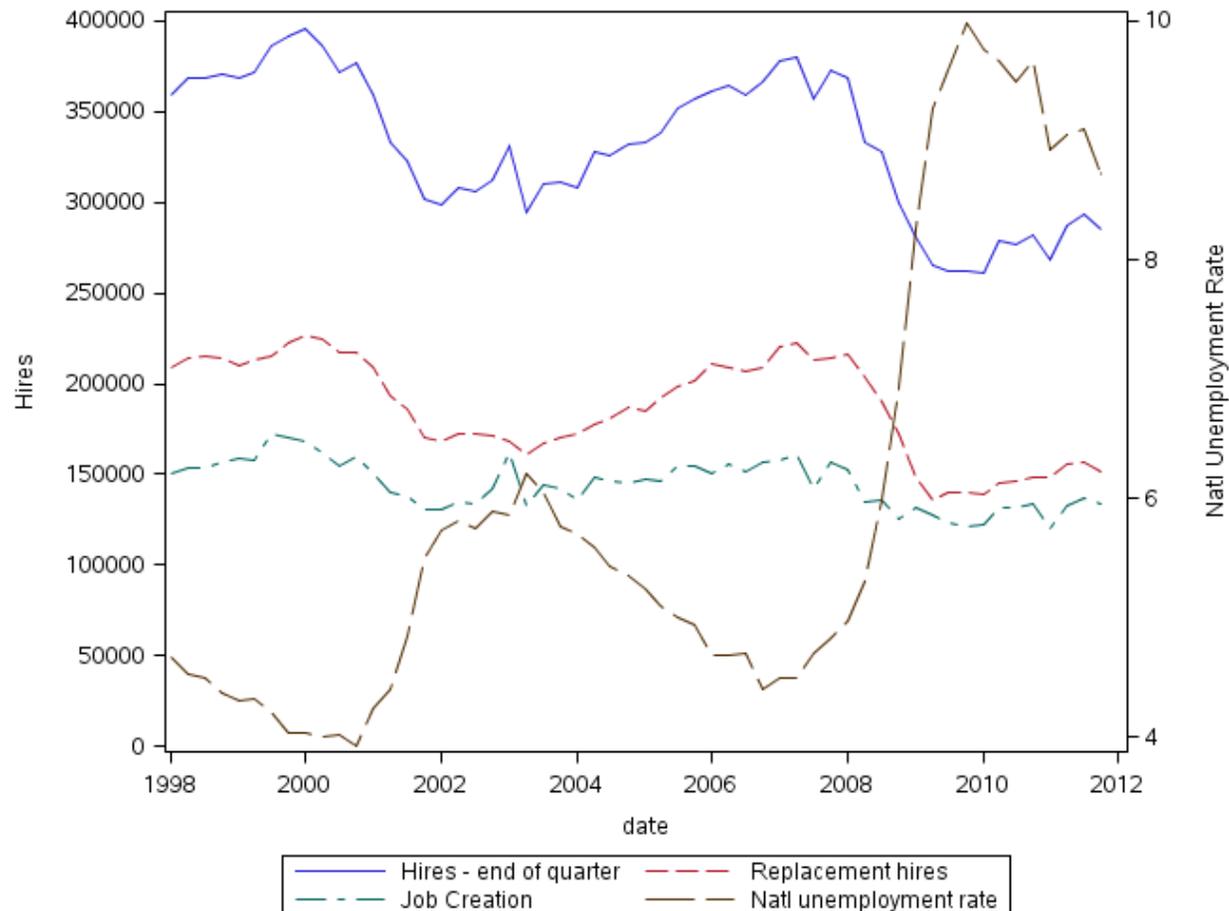
Replacement Hiring

- Is hiring due to employment growth or replacement of existing workers?

- Definition: Job creation
  - Total employment increase in establishments that are born or grow over the quarter
- Hiring in excess of job creation is replacement hiring
  - End-of-quarter hiring will be replacing beginning-of-quarter separations

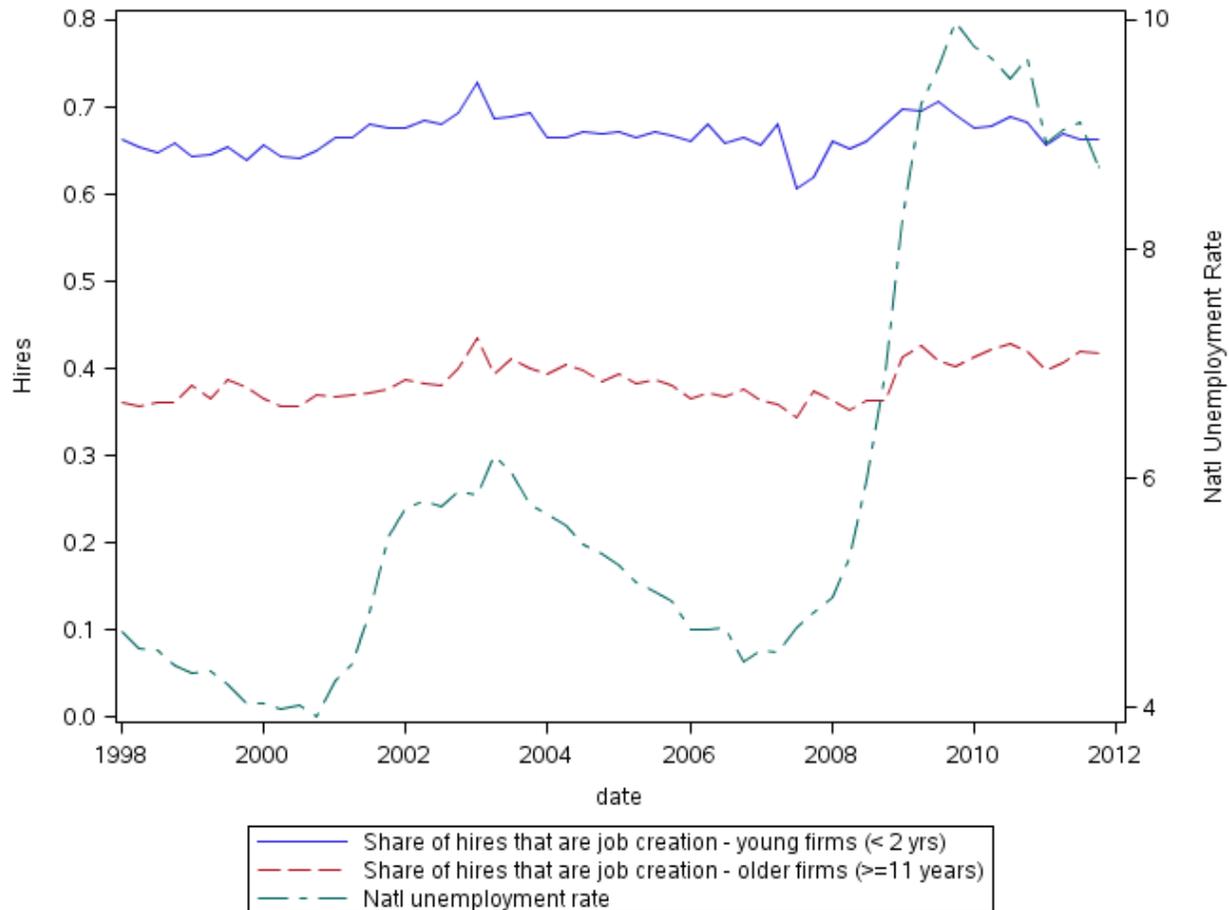# QWI Estimates:
Source of Replacement Hires

Source: QWI R2013Q2, 49 states, private-only

End-of-quarter hires, job creation, and replacement hires

Source: QWI for Washington state, seasonally-adjusted (1998-2011)

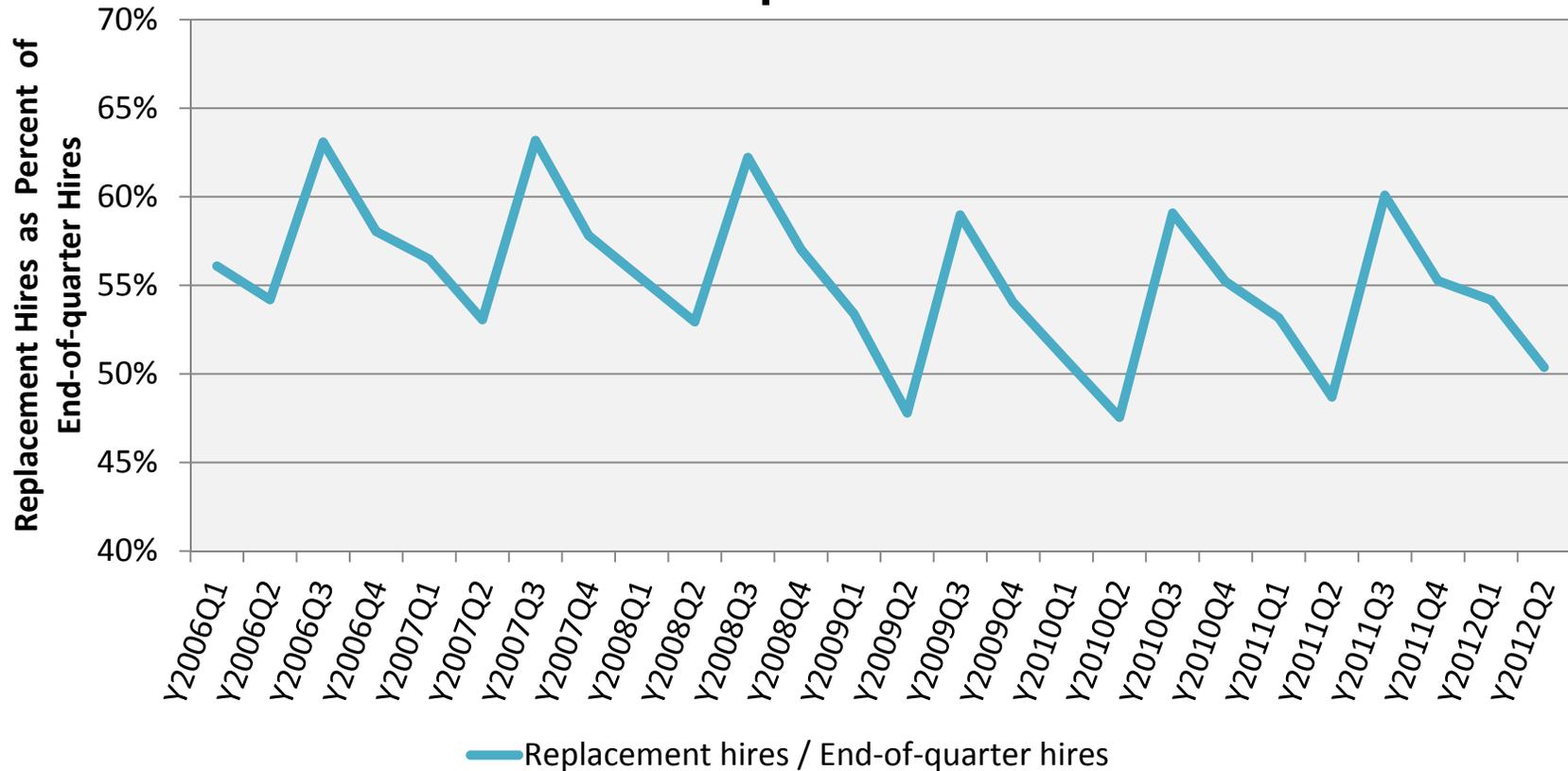# Share of hires that are job creation, young vs. mature firms

Source: QWI for Washington state, seasonally-adjusted (1998-2011)

For more info

- LEHD website – "What's New"
  - Upcoming Changes to QWI Public Use Files
    - Highlights of changes to schema, measures
- LED Extraction Tool – "Summary and Export" tab
  - Data Schema document
    - Info on layouts, categorical variables
  - QWI 101 document
    - Detailed information about measures
    - Expanded info on creation of QWI

- Training session tomorrow at 1:30

- Contact us: ces.qwi.feedback@census.gov

QWI Estimates:
Replacement Hires as a Percent
of End-of-quarter Hires

Source: QWI R2013Q2, 47 states, private-only

Hiring and Separation Rates

- Both rates are divided by the average of Beginning- and End-of-quarter employment
  - Hiring Rate
    - $HirAEndR_t = HirAEnd_t / ((Emp_t + EmpEnd_t) / 2)$
  - Separation Rate
    - $SepBegR_t = SepBeg_t / ((Emp_t + EmpEnd_t) / 2)$
- Symmetric growth rates
  - Bounded by 0% and 200%
  - Related to Törnqvist index, in economics

Other New Measures

- **Additional measures (3)**
  - Average Earnings for Beginning-of-quarter Employment
    - replacement for similar End-of-quarter measure
    - corresponds to earnings referenced in LODES/OnTheMap
  - Full-quarter employment in the previous quarter
    - Can be used to produce symmetric (Törnqvist) index in calculating change of stable employment
  - Full-quarter separations in the next quarter
    - Added to provide correct base for separation earnings
    - More appropriate numerator for stable turnover calculation

Modified Measure

- ## Stable Turnover (1 measure)

$$\frac{HirAS_t + SepSnx_t}{2 \times EmpS_t}$$

  - In words, Full-quarter Hires plus Full-quarter Separations (next quarter) divided by two times Full-quarter Employment

  – Timing asymmetry in definition of Full-quarter Hires and Separations

  – Numerator now references separations from stable employment in next quarter

  – Calculation now bounded by [0,1]

Removed measures

- Quarters of non-employment (4 measures)
- Change in total earnings (2 measures)
  - Forthcoming Job-to-Job Flows data product will have improved versions of these measures, by looking at jobs across all states
- Average Earnings for End-of-quarter Employment (1 measure)
  - Replaced by Beginning-of-quarter measure

Why more measures of hires and separations?

- Existing measures:
  - All hires and separations, no minimum tenure
    - Many very short jobs observed in LEHD data
  - Stable hires and separations
    - Require 3 quarters duration
    - Do not correspond to point-in-time measures of employment (Beginning- or End-of quarter)

Point-in-time Hiring and Separations Rates

- **End-of-quarter Hires**
  - Corresponds to End-of-quarter employment
- **Beginning-of-quarter Separations**
  - Corresponds to Beginning-of-quarter employment
- **Hires and separation rates can be interpreted as the share of employment in that point-in-time**

Replacement Hiring

– Replacement hiring is defined as End-of-quarter Hires less Job Creation
  - End-of-quarter Hires:
    – Jobs that were not active at the beginning of the quarter, but were active at the end of the quarter
  - Job Creation:
    – Increase in establishment size from the beginning to the end of the quarter

– The difference represents hiring that is replacing existing jobs

– The corresponding rate represents the fraction of the workforce being replaced

Which LED Public Use data are affected?

- The QWIPU data, distributed through a number of mechanisms:
  - QWI Online, Industry Focus
    - Legacy programs, limited set of measures will remain unchanged
  - LED Extraction Tool
    - Using new data schema (layout line for categorical variables)
    - Will switch to new measures in update next month
  - Comma-separated values files (.csv) distributed by DVD to partners, downloaded from LEHD website, or Cornell VRDC
    - Files distributed beginning 2013Q2 production quarter (now) will have modified layouts
    - Files will be available for public download from LEHD website
    - No longer posted to Cornell VRDC

Highlights:
Changes to File Structure

- New file naming conventions, e.g.
  - qwi_ak_wia_county_naicssec_all.csv.gz ➜
  - qwi_ak_sa_f_gc_ns_oslp_u.csv.gz

- New standardized schema
  - Every file now will have same line layout
    - All 108 files in each quarterly release
  - Corresponds to LED Extraction Tool

- Removal of data labels
  - Labels available in separate metadata files

Highlights:
Changes to Categorical Variables

- New arrangement of geography/industry fields

- Re-indexing of race and ethnicity variables
  - Consistency with LODES, other standards

- Addition of "Under 25 – education unreported" as separate education category
  - Employment totals will be the same across files