The Shifting Job Tenure Distribution

Henry R. Hyatt, U.S. Census Bureau
James R. Spletzer, U.S. Census Bureau

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Disclaimer

Any opinions and conclusions expressed herein are those of the author and do not necessarily represent the views of the U.S. Census Bureau.

All results have been reviewed to ensure that no confidential information is disclosed.
Declining Employment Dynamics

Hires and separations rates have declined in LEHD, JOLTS, & CPS

Job creation, job destruction, and job-to-job flows have also declined in all datasets

Furthermore, interstate migration has declined during the last several decades
Declining Employment Dynamics

- The literature has not been able to fully explain why dynamics have been declining since the late 1990s

- The literature has shifted to examining the consequences of declining employment dynamics
  -- Employment (Davis & Haltiwanger, 2014)
  -- Productivity (early work of Foster, Haltiwanger, & Krizan, 2001 & 2006)

- Today’s presentation:
  -- Shifting tenure distribution is a natural consequence of declining H & S
  -- Shifting tenure distribution has implications for earnings trends
Declining H & S will shift the job tenure distribution to the right. Is there any evidence in CPS data?
Declining H & S will shift the job tenure distribution to the right. Is there any evidence in CPS data?
Outline of Today’s Presentation

1) LEHD data
   -- Hires, separations, tenure, and earnings from the same microdata
   -- compare LEHD tenure distribution to CPS tenure distribution

2) Driving forces of the shifting tenure distribution
   -- declining hires or declining separations?

3) Implications of shifting tenure distribution for earnings
   -- earnings are positively related to tenure
   -- if tenure has been increasing over the last 15 years, why haven’t earnings increased during the past 15 years?
LEHD Data

- Longitudinal Employer-Household Dynamics (LEHD)
  - Longitudinally linked employer-employee microdata
    - we use new enhanced linkages of pred-succ transitions across time
  - Created at the U.S. Census Bureau
  - Microdata from the State UI administrative systems
    - wage records and QCEW establishment data
  - Enhanced with demographics (age, gender, ...)
  - Enhanced with firm information (age, size)

- Different states have joined the LEHD at different times, and have provided different amounts of historical data
  - We use 11 states with data from 1993:Q2 to 2013:Q4
LEHD Data

Quarterly Census of Employment and Wages (QCEW)
- Employer and Establishment (Single/Multi-unit)
- Geography
- Industry
- Ownership

Unemployment Insurance Earnings Records
- Employer-Worker (most states)
- OR
- Establishment-Worker (Minnesota only)
- Earnings
- Job history

Business Dynamics Statistics (BDS)
- Firm age and size

Census, Surveys, Other Administrative Records
- Demographics
- Place of Residence

Federal EIN

UI Account Number (SEIN)

PIK (encoded SSN)
LEHD tenure distribution 1998-2013
Should we be concerned that the LEHD tenure distribution has different levels than the CPS tenure distribution?

- LEHD is all jobs, CPS asks only about main job
- LEHD is all jobs during the quarter, CPS reference period (week of the 12th) misses short jobs
- LEHD excludes federal workers, CPS includes
- Missed quarter(s) in the LEHD restart tenure at 0, CPS asks “how long has ... been working continuously for [current employer]” and respondents may ignore short gaps
- Our LEHD sample is 11 states, CPS is national
LEHD & CPS tenure 1998-2014

LEHD has been modified:

- dominant job (rather than all jobs)
- jobs that appear in two consecutive quarters
- ignore gaps (up to 5 years)
Driving Forces

Following Neumark et.al (1999), write tenure k as a rate:

\[ DR_{t\uparrow k} = (E_{t-k}/E_{t}) \times AR_{t-k} \times \prod_{\tau=1}^{k} \left(1 - SR_{t-\tau^\uparrow k-\tau}\right) \]

where \( AR_{t-k} \) is the accessions rate k quarters ago

\( SR_{t-\tau^\uparrow k-\tau} \) is the \((k-\tau)\) tenure-specific separations rate

Tenure distribution is a function of macro time series:

-- employment

-- hires rate

-- tenure specific separations rates
Driving Forces

Two different counterfactual tenure distributions:

\[
DR_{t^k} = \left( \frac{E_{t^k} - k}{E_{t^k}} \right) \times AR_{t^k} \times \prod_{\tau=1}^{k} - 1 \times \left( 1 - SR_{t^k} \times \tau \right)
\]

\[
DR_{t^k} = \left( \frac{E_{t^k} - k}{E_{t^k}} \right) \times AR_{2000} \times \prod_{\tau=1}^{k} - 1 \times \left( 1 - SR_{t^k} \times \tau \right)
\]

First holds separation rates constant at their 2000 average and allows hires to vary.

Second holds hires rates constant at their 2000 average and allows separations to vary.
Hires (not separations) is the key driving force of the shifting tenure distribution.
Earnings Stylized Fact #1

Real earnings rises with tenure

A shifting tenure distribution during 1998-2013 should increase real aggregate earnings
Earnings Stylized Fact #2

Real aggregate earnings have to a large degree stagnated during the 2000s and early 2010s.

How can stagnant earnings be consistent with a shifting tenure distribution and an increasing tenure-earnings profile?
Understanding Stagnant Earnings

In any given quarter $t$, aggregate earnings is a weighted average of tenure-specific earnings:

$$\downarrow t\uparrow = \sum_{k=1}^{K} \downarrow t\uparrow k * DR\downarrow t\uparrow k$$

Create two counterfactual earnings series:

1) Hold the tenure distribution constant:

$$\downarrow t\uparrow = \sum_{k=1}^{K} \downarrow t\uparrow k * DR\downarrow 2000\uparrow k$$

2) Hold the earnings-tenure profile constant:

$$\downarrow t\uparrow = \sum_{k=1}^{K} \downarrow 2000\uparrow k * DR\downarrow t\uparrow k$$
Counterfactual Earnings

Red line is what earnings would have been if tenure distribution was held constant at its 2000 values.

This implies that the earnings-tenure profile has shifted down.

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Shifting Tenure Earnings Profile

Average earnings for a given level of tenure have declined from 2000 to 2011.

This decline is (on average) 9.5% for each quarter of tenure.
Counterfactual Earnings

Blue line is what earnings would have been if tenure-specific earnings were held constant at its 2000 values.

Stagnant earnings is a mix of a shifting tenure distribution and a shifting tenure earnings profile.
Shifting Distributions

- How are the declines in employment reallocation and the shifting earnings-tenure profile related?
  
  - One thought, building on Molloy, Smith, & Wozniak (2013), is that stagnant earnings and declining dynamics are due to a shift in the offer distribution (or a slowdown in the offer arrival rate).
  
  - Bottom line -- our theoretical understanding lags the empirical work.
Summary

1) Declining hires & seps imply a shifting tenure distribution
   -- Obvious in CPS and LEHD data
   -- CPS and LEHD data very similar when defined with similar concepts

2) Declining hires is the key driver of shifting tenure

3) Stagnant earnings during the last 15 years is a mix of:
   -- a shifting tenure distribution (which will increase earnings)
   -- a shifting earnings-tenure profile (which has decreased earnings)

4) This is work in progress – comments appreciated