The Shifting Job Tenure Distribution[†]

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Abstract

There has been a shift in the U.S. job tenure distribution toward longer-duration jobs since 2000. This change is apparent both in the tenure supplements to the Current Population Survey and the Longitudinal Employer-Household Dynamics (LEHD) matched employer-employee data. We utilize the LEHD microdata to study the causes and consequences of the shift in the job tenure distribution. First, we model the distribution as a function of historical hiring rates and tenure-specific separation rates. Our results show that the primary force shifting the tenure distribution to the right is the declining hiring rate. Second, we consider the impact of the shifting job tenure on earnings in the U.S. economy. Although the shifting tenure distribution should have increased earnings, since earnings grow with tenure, we find that the earnings associated with jobs with a given level of tenure have been declining over time, resulting in stagnant earnings during the past decade.

[†] Any opinions and conclusions expressed herein are those of the authors 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. We thank Hubert Janicki for comments on this preliminary draft.

I. Introduction

The distribution of job tenure has shifted to the right during the past 15 years. According to published statistics from the Current Population Survey (CPS), from the year 2000 to the year 2014, the proportion of workers with five or more years of tenure on their main job has increased from 44 percent to 51 percent, and the proportion of workers with one year or less of tenure on their main job has decreased from 27 percent to 21 percent. Our goals in this paper are to understand why the tenure distribution has shifted, and to document the relationship between this shifting tenure distribution and the recent stagnation of earnings growth in the U.S.

The rightward shift in the tenure distribution is important for three reasons. First, this fact stands in contrast the literature on job tenure in the mid-to-late 1990s, which was concerned about declining job stability. Many studies using the Panel Study of Income Dynamics and the CPS found declining tenure when looking at the 1980s and early 1990s. As Neumark et al. (1999) note, concerns about declining stability are consistent with the corporate downsizing that occurred during this time, and the notion of fewer lifetime jobs that was hyped by the popular press. However, the seminal studies by Neumark et.al. (1999) and Farber (1999) showed that job stability did not show any strong trend from the 1980s to the 1990s. We find it striking that these movements in the tenure distribution, which inspired so much debate and concern, pale in comparison to the movements that have occurred during the 2000s and early 2010s. We find it even more striking that economists have given so little attention to the strong rightward shift in the tenure distribution.

Second, the fact that the tenure distribution has shifted away from short duration jobs and towards longer duration jobs suggests that within-firm labor markets have drastically changed during the last 15 years. Workers are, on average, staying at employers longer today than in the past. There are multiple explanations for this, such as better initial matching between employers and their new hires, or fewer alternative job offers. Other possible explanations may be changing composition of the workforce and employers (towards more stable workers and/or employers), or secular transformations in the production process that lead to higher factor ratios of high tenure jobs relative to short tenure jobs.[1]

The third reason why a rightward shift in the tenure distribution is important is its relationship with real earnings in the U.S. economy. We know that earnings increase with tenure, and thus a shift in the tenure distribution away from low tenure jobs and towards high tenure jobs, as exhibited in the CPS, should lead to higher earnings. As we explain in this article, the tenure distribution serves as the channel through which declining hires and separation rates has effects on the earning distribution.

We begin this paper by documenting the shifting tenure distribution in the CPS, presenting the published trends from the 1983 supplement onwards. To make additional progress on the causes and consequences of the shift in the job tenure distribution, we turn to the

[1] The role of demographic shifts on the job tenure distribution is currently in progress. Using the full set of jobs-based LEHD data, in future drafts of this paper we can document how the rightward shift of the tenure distribution may be affected by demographic and job characteristics. We have information on the age, gender, education, and race and ethnicity of the worker, as well as information on the industry, firm size, and firm age of the employer. There have been large shifts in these characteristics during the past 15 years, such as the aging of the baby boom and an increasing trend in average firm age due to declining business dynamism. However, based upon our past work (Hyatt and Spletzer 2013, 2015), we do not expect composition effects to have much of an effect on the shifting tenure distribution – we expect the shifting tenure distribution to occur within observable demographic and employer characteristics.

Longitudinal Employer-Household Dynamics (LEHD) data. The LEHD is a longitudinally linked employer-employee dataset created at the U.S. Census Bureau, with the source data being administrative earnings records from the state Unemployment Insurance systems. As such, the LEHD is essentially a universe of all workers and employers in the U.S. private sector, with longitudinal linkages following individuals across time and across employers. The basic descriptive statistics presented in this paper show that the shifts in the CPS tenure distribution are also apparent in the LEHD data.

We then turn to one of the major contributions of this paper – an analysis of the driving forces shifting the tenure distribution to the right. In order to accomplish this, we follow Neumark et.al. (1999) and note that the tenure distribution can be created from aggregate hires and tenure-specific separation rates. Expressing the tenure distribution as a function of these macroeconomic aggregates, rather than building the distribution from the microdata, enables us to determine how the shifting tenure distribution is driven by time series movements in the aggregate hires and tenure-specific separation rates. This is done by setting all hires and tenure-specific separations rates to their long run average and systematically allowing one of these employment dynamics rates to vary over time. Our preliminary results show that almost all of the shifting tenure distribution is due to the declining hires rate (as noted by Hyatt and Spletzer, 2013, the LEHD hires rate has declined from 28 percent in 1998 to 19 percent in 2010). Little if any of the shifting tenure distribution is due to changes in the tenure-specific separation rates.

We conclude this paper with an analysis of the relationship between earnings growth and the shifting tenure distribution. Because earnings are increasing in job tenure, the shift in the job

tenure distribution would lead to an increase in earnings. But we have seen no such increase, and we reconcile these facts in the microdata. We find the average earnings for jobs of any tenure have declined. This is due to a combination of a decline in starting earnings as well as the returns to job tenure. Whereas real earnings have stagnated during the decade of the 2000s, tenure-adjusted real earnings have fallen by 5.8 percent.

II. The Shifting Tenure Distribution in the Current Population Survey

The Current Population Survey (CPS) is the workhorse dataset of labor economics. In addition to monthly statistics on employment, unemployment, and earnings, the CPS occasionally has supplements which inquire about various labor market issues such as job tenure. The job tenure supplements ask about how long currently employed respondents have held their main job. This supplement has been conducted every two years since 1998, and was also available in selected earlier years.[2]

The tenure distribution from the tenure supplements since 1983 are shown in Figure 1.[3] To facilitate comparisons across time, and for tractability, we aggregate the CPS tenure categories into three groups: one year or less, more than one but less than five years, and five years or more. The first few waves of the survey from 1983-1991 show a stable distribution of

[2] We use data from 1983, 1987, 1991, 1996, and then every two years thereafter: 1998, 2000, etc. to 2014. Note that there are additional tabulations available in historical issues of the *Monthly Labor Review*. Those older data confirm that the low share of individuals in the 1 year or less category has not been seen since the 1951 job tenure supplement to the CPS (and this 1951 data point appears to be an outlier). Those older data also confirm that the share of jobs of jobs held for 5 years or more, which in the 2012 and 2014 supplements was more than 50% of the workforce, has never been seen in any previous CPS tenure supplement.

[3] We acknowledge that there are differences in the CPS tenure data across time that we gloss over when presenting the time series in Figure 1. For example, although the questions are identical in the 1996 through 2014 surveys, the 1996 and 1998 surveys were conducted in February whereas the 2000 through 2014 surveys were conducted in January (which could matter if the population of employed in different in the two months).

job tenure, with jobs that have lasted one year or less constituting about 26%, those that lasted between one and five years 27%, and those that have lasted five years or more 47% of all jobs. Between 1991 and 1996, the share of jobs that were held for one year or less shifts downward to 23%, and the 1-5 year category upward to 30%, which can be attributed to a change in the way in which the survey was administered.[4] The distribution is relatively stable thereafter until 2000, when the share of jobs held for one year or less begins its decline to a low of 17% in 2010, while the share of jobs held for five years or more begins trending upward, accounting for 52% of all jobs at the end of the time series.

The CPS evidence shows that the shift in the job tenure distribution after the year 2000 is dramatic, and easily dwarfs any shift that may have occurred between the 1980s and the 1990s. It is clearly consistent with the declines in the hiring and separation rates documented by Hyatt and Spletzer (2013) and Davis and Haltiwanger (2014). Indeed, the one year or less category is a rough measure of the hiring rate, and it declines like the hiring rate. Using administrative records, it is possible to consider the causes and consequences of these declines in greater detail, and so we turn to the LEHD data.

[4] The waves starting in 1996 followed up to responses of "one year" or "two years" with a request for a number of months, see the Bureau of Labor Statistics, "Employee Tenure Technical Note", http://www.bls.gov/news.release/tenure.tn.htm.

III. Defining Job Tenure in the LEHD Data

III.a. The LEHD Data

The Longitudinal Employer-Household Dynamics (LEHD) data is a longitudinally linked employer-employee dataset created by the U.S. Census Bureau as part of the Local Employment Dynamics federal-state partnership. The data is derived from state-submitted Unemployment Insurance wage records and the Quarterly Census of Employment and Wages (QCEW) data. Every quarter, employers who are subject to state Unemployment Insurance laws -- approximately 98% of all private sector employers, plus state and local governments -- submit to the states information on their workers (the wage records, which lists the quarterly earnings of every individual in the firm) and their workplaces (the QCEW, which provides information on the industry and location of each establishment). The wage records and the QCEW data submitted by the states to the U.S. Census Bureau are enhanced with census and survey microdata in order to incorporate information about worker demographics (age, gender, race and ethnicity, and education) and the firm (firm age and firm size).

Abowd et al. (2009) provide a thorough description of the source data and the methodology underlying the LEHD data. Because states have joined the LEHD program at different times, and have provided various amounts of historical data upon joining the LEHD program, the length of the time series of LEHD data varies by state. We use 11 states with data from 1994:Q1-2012:Q2, which account for 29.3% of employment.[5] In order to ensure accurate

[5] Specifically, CA, CO, ID, IL, KS, MD, MT, NC, OR, WI, and WA. The trends in the tenure distribution of these states is strongly correlated with national shifts.

measures of job tenure that are not affected by mergers, acquisitions, or other types of firm ownership change (or administrative changes in firm identifiers), all of our empirical work uses an enhanced version of the LEHD that controls for predecessor-successor relationships across extended periods of time; see Hyatt et.al (2014) for further details of the enhanced LEHD.

There are, of course, tradeoffs between long time series, maximum tenure, and sample sizes. Since the LEHD is essentially a universe of workers in the private sector and state and local governments, we don't worry about sample sizes when choosing the six states from which we have data starting in 1994. We define the maximum tenure category of 5+ years, and thus our time series of tenure starts in 1998:Q3. We want to start our tenure series in 1998 because the CPS indicates that the "inflection point" occurs around 2000, and it is precisely this change that we intend to capture.

We compare the CPS and LEHD tenure distributions, but it is important to keep in mind the differences between these data sources. The CPS asks respondents about the tenure at the respondent's main job only, while the LEHD data measures tenure at all jobs so long as they are in Unemployment Insurance taxable employment. The LEHD data do not include federal workers, while federal workers are in the scope of the CPS (note that the self-employed are excluded from both CPS and LEHD). Furthermore, the CPS is a point-in-time measure of the tenure distribution while the LEHD utilizes quarterly earnings data, which means that the LEHD data will contain more records for short duration jobs than the CPS data since many short duration jobs will not occur during the CPS reference week. The LEHD data are for the

employed population age 14 and above, while we use information from the CPS tenure supplements for the workforce age 16 and above.[6]

III.b. Definitions

In this section, we define concepts precisely as they follow from tabulations of the data. The definitions follow from Abowd et al. (2009) and Hyatt and Spletzer (2014). A "job" is defined as a unique employer-employee combination that occurs in one or more consecutive quarters (in this paper, we consider recalls to be new jobs). A hire can be written as a case in which a worker has earnings recorded at a given employer in a quarter, but not in the previous quarter. So, for worker i, firm j, and time t, a hire (accession) is defined by

$$(1) \qquad a_{ijt} = \begin{cases} 1, \text{ if } w_{ijt} > 0,\ w_{ijt-1} = 0 \\ 0, \text{otherwise} \end{cases}.$$

Likewise, at time t, a separation is given by the following definition,

$$(2) \qquad s_{ijt} = \begin{cases} 1, \text{ if } w_{ijt+1} = 0,\ w_{ijt} = 0 \\ 0, \text{otherwise} \end{cases}.$$

More generally, at time t, a job has tenure (duration d) k if

[6] We note the CPS and LEHD data differ in levels due to definitional and scope issues, but the time series are highly correlated. As mentioned below, the shares for the three categories (one year or less, two to four years, and five or more years) have respective correlations well above 0.9.

(3) $$d_{ijt}^{k} = \begin{cases} 1, a_{ijt-k} = 1 \text{ and } w_{ij\tau} > 0 \ \ for\ all\ \tau = \{t-k, \ldots, t\} \\ 0, \text{otherwise} \end{cases}.$$

Tenure is defined as the number of previous quarters with the employer, which explains why individuals hired this quarter have tenure equal to zero. This is similar to the concept of human age, where newborns have an age of zero during their first year.

III.c. The Job Tenure Distribution in the LEHD Data

Given these definitions, we can derive a tenure distribution from the LEHD microdata. In Figure 2, we show the tenure distribution calculated from the LEHD data. Similar to the CPS data in Figure 1, three tenure categories are created from the LEHD data: one year or less, two to four years, and five or more years. Long-tenure jobs in the LEHD clearly trend upward in the wake of the 2001 and 2007-2009 recessions, as shown by the increase in the share of jobs that have been held for five years or more from about 25% in the years 2000 and 2001 to 37% in 2011 and 2012. Likewise, the number of jobs with tenure of one year or less trend downward, with the declines coming in the wake of the two recessions, declining from 46% of all quarterly employment in the year 2000 to about 35% in the year 2011. The number of jobs held for two to four years does not show much of a trend. Overall, the trend of the LEHD tenure distribution shown in Figure 2 is remarkably similar to the trend of the CPS tenure distribution shown in Figure 1. For each tenure category, the correlations are in excess of 0.9,[7] although the levels differ.

[7] Specifically, correlation between the one year or less categories is 0.98, for the two to four year categories is 0.94, and the five years or more is 0.96.

The LEHD data has a lower share of jobs held for five years or more, and a larger share of jobs held for one year or less. These level differences are due to many factors. For example, the LEHD is a jobs-level dataset, in contrast to the person-level CPS data. Job-level quarterly microdata includes multiple jobholding, which is not in scope for the CPS tenure supplement, and so this changes the shape of the tenure distribution since multiple jobs are, on average, of shorter duration than primary jobs. Bringing in multiple jobholding also increases the rightward shift in the tenure distribution as a result of a decreasing incidence of multiple job holding. Second, our baseline definition of tenure as given above is "memoryless," that is, when a worker has no reported earnings from an employer, that worker's tenure is reset to zero.[8] We anticipate that accounting for recalls will change the shape of the tenure distribution (since recalls shift mass from low-tenure jobs to higher-tenure jobs), yet any effects on the rightward shift will depend on the time series of recalls.[9] Third, the LEHD excludes federal workers, who tend to have longer job tenure than workers in the private sector. And fourth, the tenure concept we are using is not a point in time measure in the first or last quarter of a job.[10]

[8] We have calculated alternative tenure distributions that allow for gaps in earnings of given intervals and without resetting tenure to zero, which removes some reporting error and allows for recalls to have nonzero job tenure in the LEHD data. Recent work by Fujita and Moscarini (2013) demonstrates that recalls are quantitatively important in the SIPP data. Nevertheless, the qualitative findings concerning the dominant role of the hiring margin rather than the separation are similar when we use these alternative tenure measures.

[9] In the next draft of this paper, we will document the overall trends in the LEHD data using a variety of strategies to make the LEHD data concepts more similar to the CPS, for example using data from an individuals main (maximal earnings) job, and also accounting for the fact that the CPS is a point-in-time cross section of the U.S. population, whereas the LEHD data are aggregations of events that take place at any time during a quarter. We will also remove federal workers from the CPS.

[10] The main difference is that jobs in their first quarter are all counted as job starts. A survey design naturally recovers a point-in-time distribution. Respondents are not asked about jobs that, while they may have started in the quarter of the interview, had already ended, or that had not started yet in that quarter.

IV. Driving Forces of the Shifting Tenure Distribution

IV.a. Concepts

Hires and separations have a natural relationship with job tenure as each job spell begins with a hire and ends with a separation. We frame this relationship through a simple model of the evolution of tenure in the spirit of Neumark, Polsky, and Hansen (1999). At time t, the tenure k indicator, d_{ijt}^{k}, can be written as the product of the hires indicator in the appropriate previous time period times the tenure-specific separation indicators for each time thereafter:

$$(4) \qquad d_{ijt}^{k} = a_{ijt-k} * \prod_{\tau=1}^{k}\left(1 - s_{ijt-\tau}^{k-\tau}\right)$$

where the tenure-specific separations indicator, $s_{ijt-\tau}^{k-\tau}$, is defined as

$$(5) \qquad s_{ijt-\tau}^{k-\tau} = \begin{cases} 1, \; if \; s_{ijt-\tau} = 1 \text{ and } d_{ijt-\tau}^{k-\tau} = 1 \\ 0, \text{otherwise} \end{cases}.$$

Equation (4) defines tenure k for a specific job in the longitudinally linked microdata, and the distribution of tenure in a given quarter t can be defined by summing over all jobs in that quarter. However, it is often more convenient to work with macro-level tabulations, and to transform the above formula into rates. Define the size of the workforce at time t as E_t. The percent of jobs at time t of tenure k, $DR_t \equiv \frac{\sum_{i,j} d_{i,j,t}^{k}}{E_t}$, can now be written as the size of the

workforce and two rates: the hiring rate $AR_t \equiv \frac{\sum_{i,j} a_{i,j,t}}{E_t}$ and the tenure-specific separation rate $SR_t^k \equiv \frac{\sum_{i,j} s_{i,j,t} * l_{k-\tau,i,j,t-\tau}}{\sum_{i,j} l_{k-\tau,i,j,t-\tau}}$:

(6) $$DR_t^k = \left(\frac{E_{t-k}}{E_t}\right) * AR_{t-k} * \prod_{\tau=1}^{k-1}\left(1 - SR_{t-\tau}^{k-\tau}\right)$$

IV.b. Separation Rates by Job Tenure

The LEHD data permit the decomposition of the tenure distribution into its hiring and separation components. The hires rate is, by definition, the percent of jobs that are in their first year of tenure, and is shown graphically as the dotted line in Figure 2. The tenure-specific separation rates for the same three tenure categories used above {one year or less, two to four years, and five or more years} are shown in Figure 3. There are noticeable trend declines in each of the tenure-specific separation rates, but they are remarkably acyclical. The highest separation rates are, not surprisingly, found for the shortest duration jobs, and the separation rate declines from 33% in 2000 to 29% in 2012. Jobs held for two to four years have a separation rate of around 10% to 12%, while workers who have held their jobs for five years or more have a separation rate of around 4% to 5%. Overall, these shifts are much smaller than those seen in the hiring rate. In other words, shifts in hiring dominate shifts in tenure-specific separation, and evidence all of the discernable cyclicality.

IV.c. The Role of Hire vs. Separation Rates

One advantage of creating the tenure distribution from macroeconomic aggregates, as in equation (5) above, rather than from the microdata, is that it easily allows us to analyze the driving forces of the shifting tenure distribution. We adopt an approach similar to Shimer (2012), where we set all but one of the macroeconomic aggregates in equation (5) to their long-run average, and create the time series of tenure where only one of the aggregates is allow to vary.

To be specific, we compute two counterfactual tenure distributions based on equation (5): one where the tenure-specific separation rates are fixed at their long run average, $\overline{SR}^{k-\tau}$, and one where the hiring rate is fixed at its long run average, $\overline{AR}$:

$$(7) \qquad LR_t^k = \left(\frac{E_{t-k}}{E_t}\right) * AR_{t-k} * \prod_{\tau=1}^{k-1}\left(1 - \overline{SR}^{k-\tau}\right)$$

$$(8) \qquad LR_t^k = \left(\frac{E_{t-k}}{E_t}\right) * \overline{AR} * \prod_{\tau=1}^{k-1}\left(1 - SR_{t-\tau}^{k-\tau}\right)$$

These two counterfactual distributions are graphed in Figure 4, alongside the actual distribution. The top panel holds the tenure-specific separation rates fixed and allows the hiring rate to vary over time, whereas the bottom panel holds the hiring rate fixed and allows the tenure-specific separation rates to vary over time. It is immediately obvious that the hiring rate is the key driving force underlying the shifting tenure distribution – the counterfactual

distribution in the top panel of Figure 4 better replicates the data than does the distribution in the bottom panel.

Shimer (2012) suggests that an appropriate test statistic to measure goodness of fit is the covariance between the data and the counterfactual distribution divided by the variance of the data. In the upper panel, this statistic is 1.07 for the percent of the employed with one year or less of tenure, 1.22 for 2-4 years of tenure, and 1.66 for 5+ years of tenure. The similar statistics in the bottom panel are -0.16, 0.32, and -0.93. The interpretation of the statistics greater than one in the top panel is that allowing the hiring rate to vary while simultaneously holding constant the separation rates fixed leads to an over-prediction of the rightward shift in the tenure distribution.

V. The Implications of a Shifting Tenure Distribution for Earnings

The shifting tenure distribution has implications for the time series of earnings. We know that high tenure jobs earn more than low tenure jobs, due to reasons such as accumulation of firm-specific human capital or deferred compensation.[11] A shifting tenure distribution combined with an upward sloping (albeit concave) earnings-by-tenure profile will result in a composition effect that increases the slope of the time series of economy-wide average earnings. Our goal in this section is to estimate the magnitude of this increase in the slope.

[11] Although the magnitude of the effect of tenure on earnings can vary depending on the specification and data employed, empirical studies indicate that workers with more job tenure earn more. The classic studies in this literature are Abraham and Farber (1987), Altonji and Shakotko (1987), and Topel (1991). The different findings of these studies are given critical consideration by Altonji and Williams (2005).

Figure 5 presents the seasonally adjusted time series of real quarterly earnings. The earnings concept used here is "full quarter earnings" where individuals work for the same employer for three consecutive quarters and the middle quarter is the quarter used to measure earnings. The concept of full quarter earnings is used when analyzing administrative records, since the data don't record when during the quarter a new match starts or when a terminal match ends, see Abowd et al. (2009). As a result, earnings in the first and last quarters of a job match can be measured over any timespan of 1 to 13 weeks and are thus not comparable to earnings in the middle of a job spell.

Figure 5 shows that real earnings in the U.S. were rising during the late 1990s (which is part of a broader increase in earnings during the mid-to-late 1990s), and then have essentially stagnated since 2001. If economy-wide average earnings have stagnated at the same time that the tenure distribution has shifted to the right, this implies that a tenure-adjusted earnings series should be falling.

We can easily compute a tenure-adjusted earnings series. Returning to basics, average earnings in quarter t $\bar{w}_t$ (as in Figure 5) is computed as:

$$(9) \qquad \bar{w}_t = \sum_{tenure=1}^{19(+)} \bar{w}_t^{tenure} * SHARE_t^{tenure}$$

where $SHARE_t^{tenure}$ is the percent of the employed in a specific tenure category $tenure$ in year t. Our counterfactual earnings series holds this share constant at the initial year's distribution:

(10) $\overline{w}_t = \sum_{tenure=1}^{19(+)} \overline{w}_t^{tenure} * SHARE_{1999}^{tenure}$

The actual earnings series and the counterfactual earnings series are given in Figure 6 (we have switched from quarterly earnings in Figure 5 to annual earnings in Figure 6 merely for computational simplicity).

We see in Figure 6 that if tenure were held constant at its 1999 distribution (not allowing it to shift to the right), the time series of earnings would have fallen quite steeply during the decade of the 2000s. Average (full-quarter) earnings in the data increased from $12,000 in 2000 to $12,100 in 2010. In contrast, tenure-adjusted earnings fell from $12,100 in 2000 to $11,400 in 2010.

This decline in tenure adjusted earnings in Figure 6 implies that earnings within tenure categories has fallen. This within-tenure earnings decline is documented in Figure 7. In the LEHD data, the peak of real earnings within specific tenure categories was 2001. During the 2001 to 2012 time period, average real earnings within each tenure category fell by, on average, over $1000.

We conclude this section by asking what the time series of earnings might have been had tenure-specific earnings not decreased. This counterfactual earnings can be computed as:

(11) $\overline{w}_t = \sum_{tenure=1}^{19(+)} \overline{w}_{2000}^{tenure} * SHARE_t^{tenure}$

where tenure-specific average earnings is held constant at its 2000 levels (note 2000 is the base year, rather than 1999 as in the previous counterfactual). The earnings growth expected given only the shifts in the tenure distribution is shown in Figure 8, again for years 1999-2012. Had the tenure distribution shifted with no change in tenure-specific earnings, we would have seen an almost $700 increase in average earnings during the 2000s rather than the no-growth average earnings that actually occurred.

VI. Conclusion

We have shown that, since 2000, the tenure distribution has shifted toward longer duration jobs. The changes in the tenure distribution are similar in the CPS and LEHD, although the levels differ. We have shown that the declining hires and separations rates have led to a tenure distribution that has shifted to the right. The primary driving force in this shift is the declining hires rate; the declining separations rate has essentially no effect. This shift in the tenure distribution has masked a decline in tenure-adjusted real earnings during the decade of the 2000s. Researchers, policymakers, and the popular press have been concerned about the stagnation of real earnings during the last 15 years. Our results suggest that this stagnation is only the tip of the iceberg, in that the shifting tenure distribution is masking a steep decline in tenure-adjusted earnings.

The decline in employment dynamics has been obvious for a while in the data (and has been remarked on in many articles during the past 10 years), but this decline has been seriously studied only within the last several years (Hyatt and Spletzer, 2013, Cairó, 2013, Decker et.al

2014, Davis and Haltiwanger, 2014). One of the most serious questions arising from the decline in employment dynamics is "does it matter?" Policymakers believe it matters – the Federal Reserve is taking note of this decline as a possible measure of slack in the labor market (Yellen, 2014). In this paper, we have shown that the decline in employment dynamics matters for the tenure distribution and for the measurement of the trend in real earnings.

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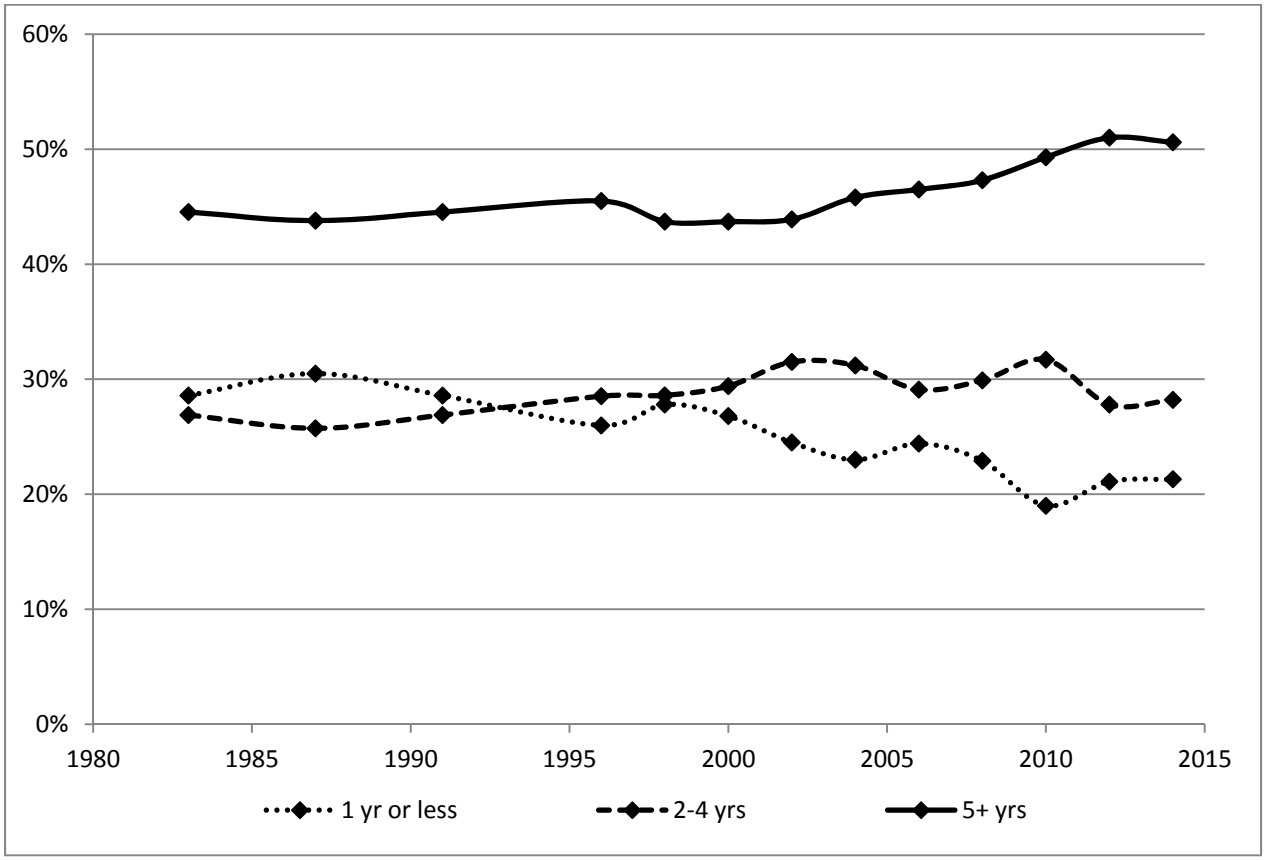
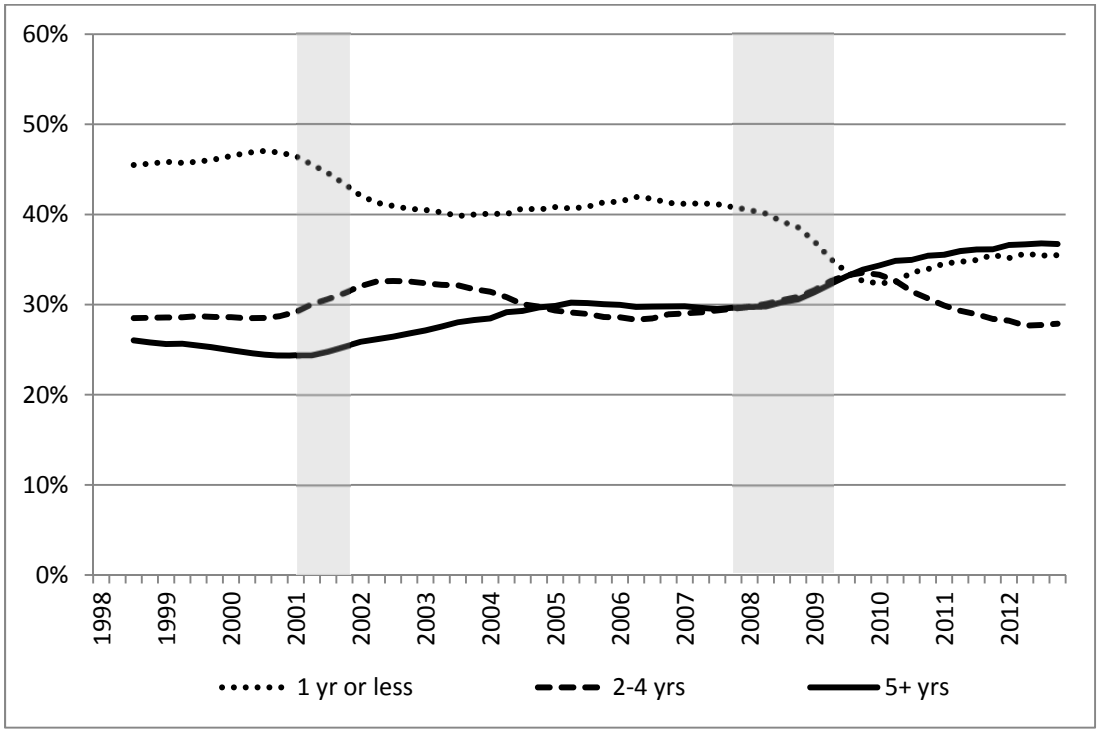
Figure 1: Tenure Distribution from CPS



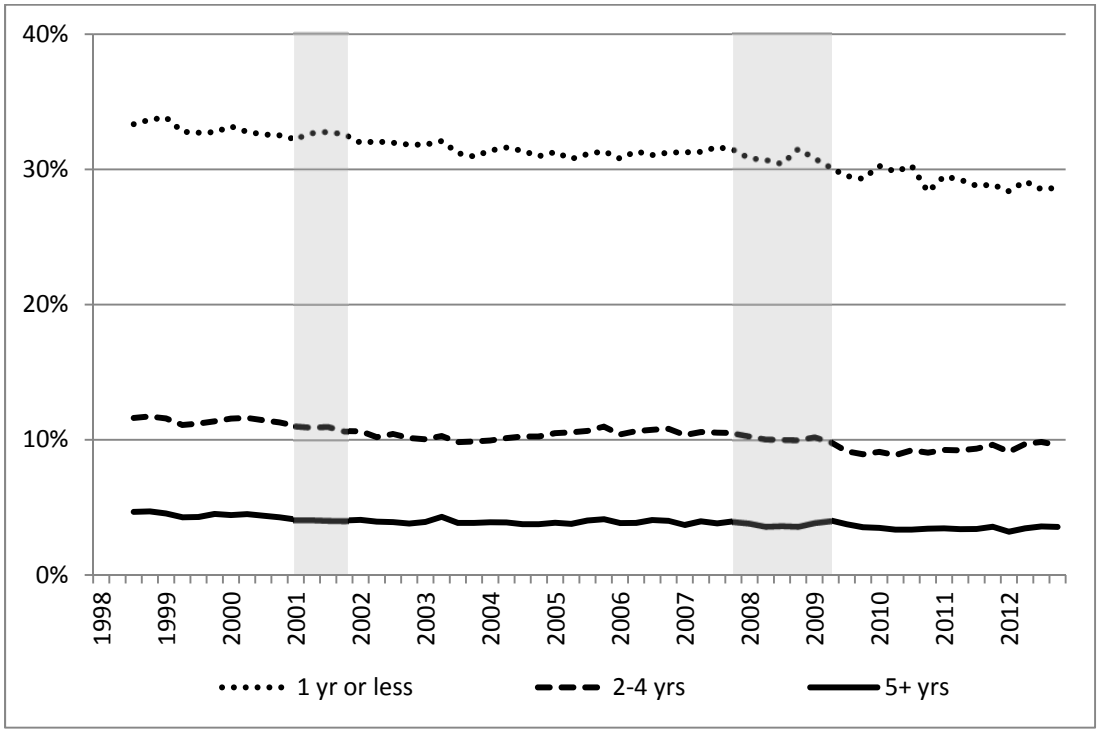
Source: CPS press releases and Monthly Labor Review articles, with tenure data from 1983, 1987, 1991, 1996, 1998, 2000, 2002, 2004, 2006, 2008, 2010, 2012, and 2014.

Figure 2: Tenure Distribution from LEHD



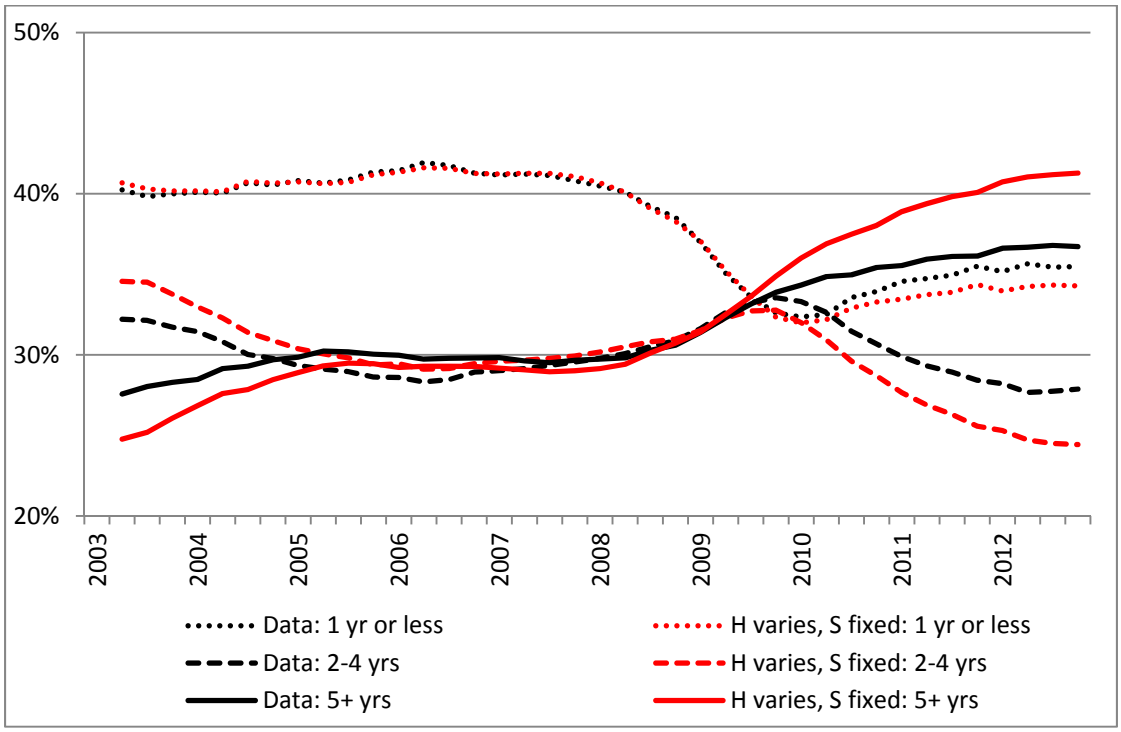
Source: Authors' tabulations of LEHD quarterly microdata, 1998:Q3 - 2012:Q4. Shaded areas indicate recessions. All series are seasonally adjusted.

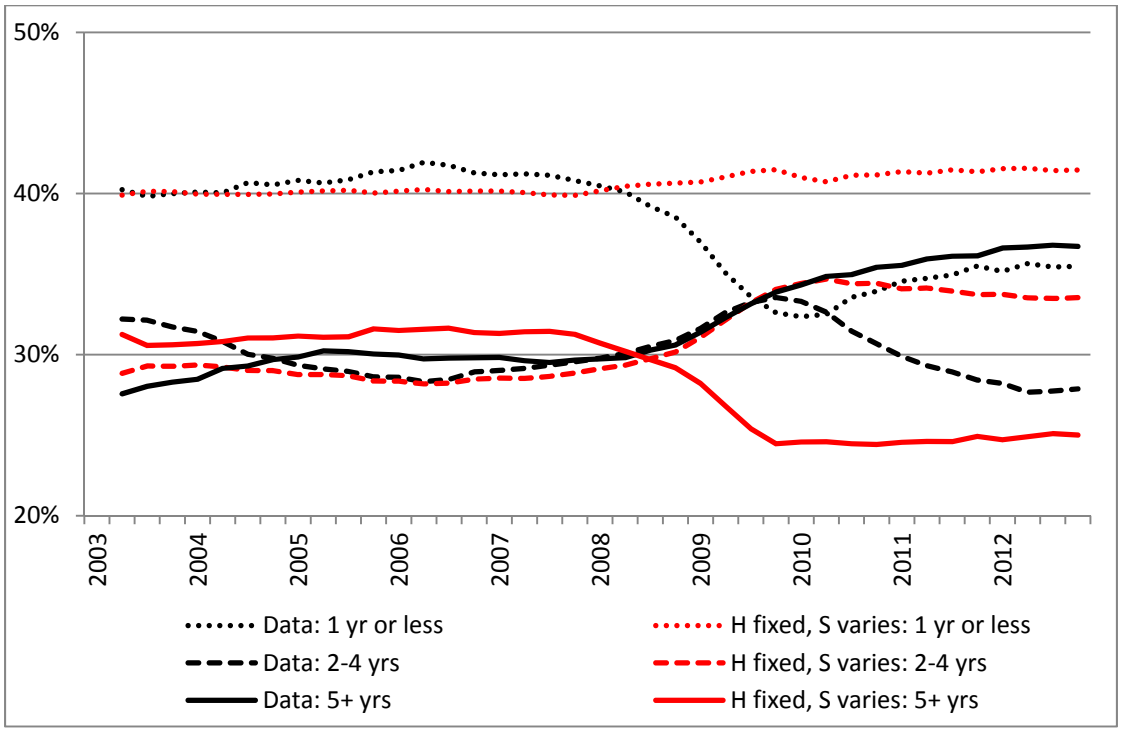
Figure 3: Tenure-Specific Separation Rates from LEHD



Source: Authors' tabulations of LEHD quarterly microdata, 1998:Q3 - 2012:Q4. Shaded areas indicate recessions. All series are seasonally adjusted.

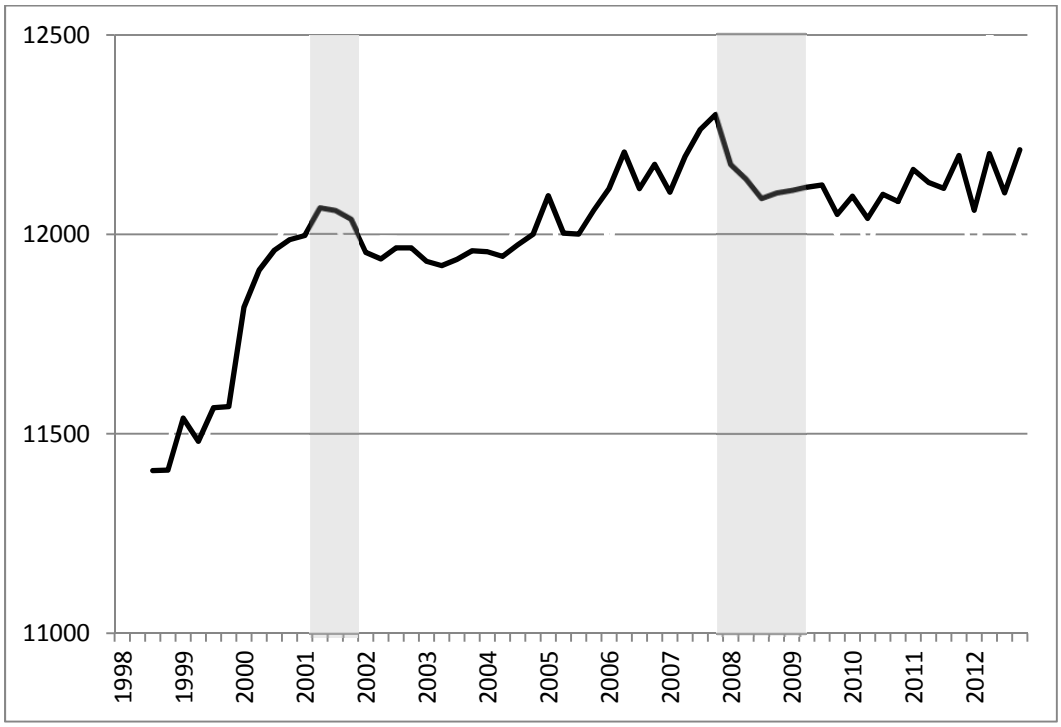
Figure 4: Alternative calculations of LEHD tenure distribution





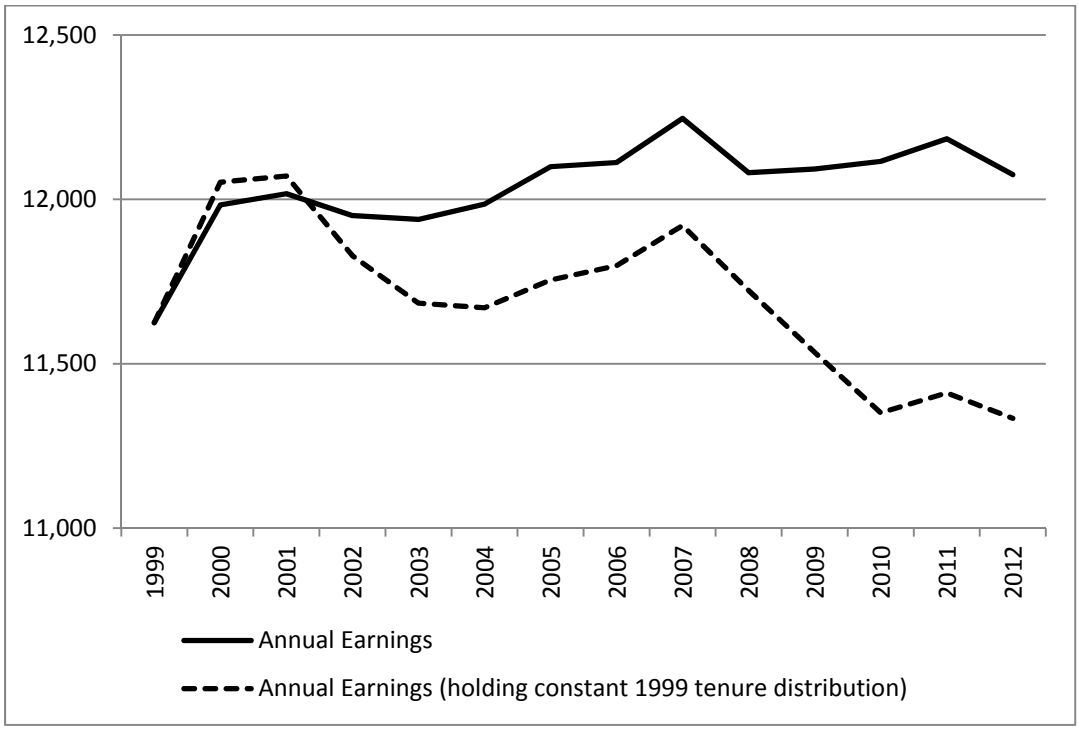
Source: Authors' tabulations of LEHD quarterly microdata, 1998:Q3 - 2012:Q4. All series are seasonally adjusted. See text for description of the "H varies, S fixed" and the "H fixed, S varies" series.

Figure 5: Real quarterly earnings from LEHD



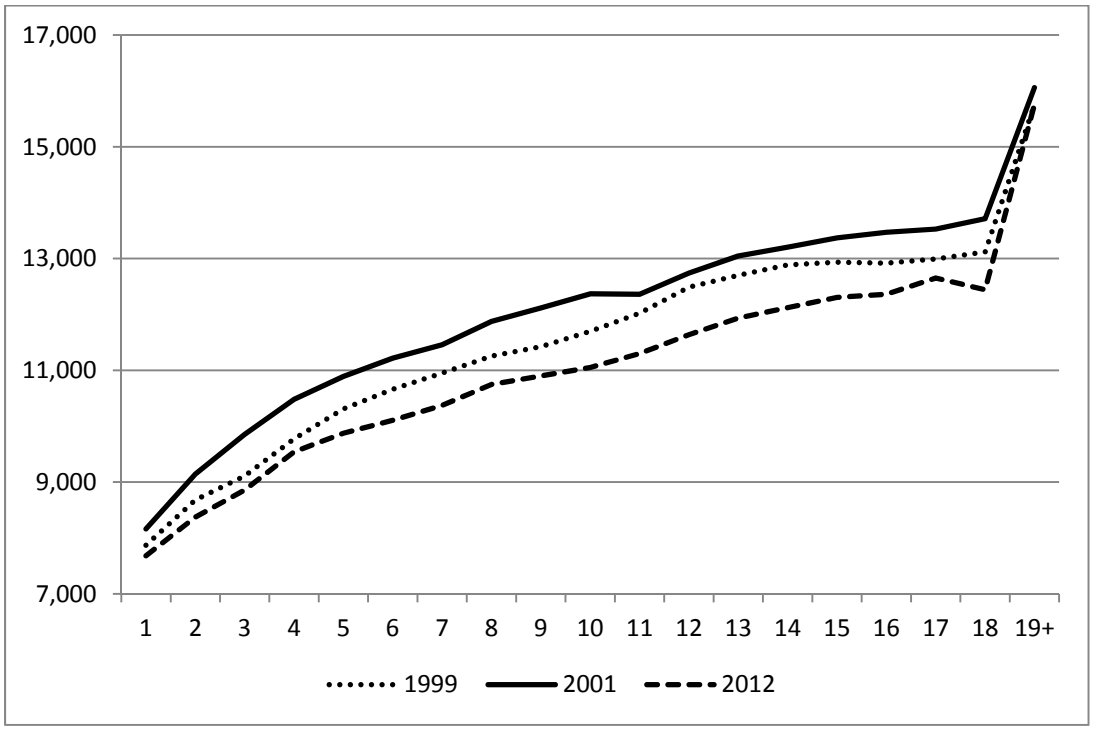
Source: Authors' tabulations of LEHD quarterly microdata, 1998:Q3 - 2012:Q4. Shaded areas indicate recessions. Earnings are "full quarter" earnings (see text). All series are seasonally adjusted and expressed as a 3-quarter moving average.

Figure 6: Real annual earnings from LEHD



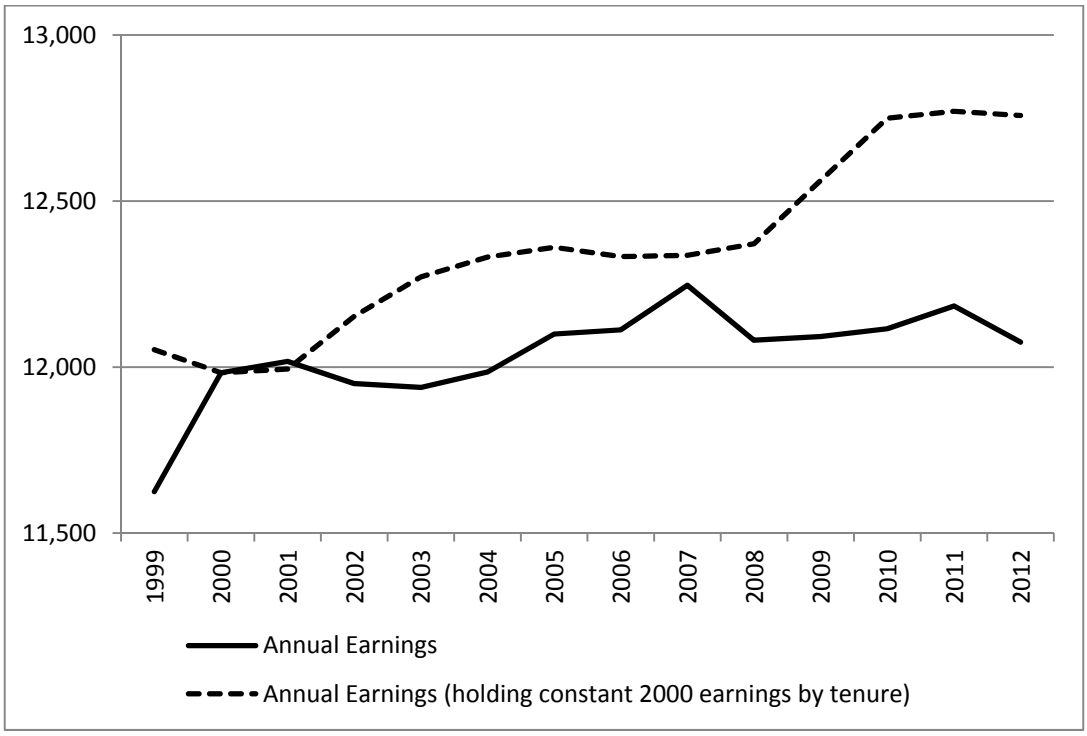
Source: Authors' tabulations of LEHD quarterly microdata, 1998:Q3 - 2012:Q4, annualized. Earnings are "full quarter" earnings (see text).

Figure 7: Real annual earnings from LEHD, by quarter of tenure



Source: Authors' tabulations of LEHD quarterly microdata, 1998:Q3 - 2012:Q4. Earnings are "full quarter" earnings (see text).

Figure 8: Real annual earnings from LEHD



Source: Authors' tabulations of LEHD quarterly microdata, 1998:Q3 - 2012:Q4, annualized. Earnings are "full quarter" earnings (see text).