The Recent Decline in Short Duration Jobs

Henry R. Hyatt and James R. Spletzer *
Center for Economic Studies
US Census Bureau

* Corresponding Author: James.R.Spletzer@census.gov

Disclaimer: Views are those of the authors and not the US Census Bureau.
All tabulations in this document are derived from public-use data.

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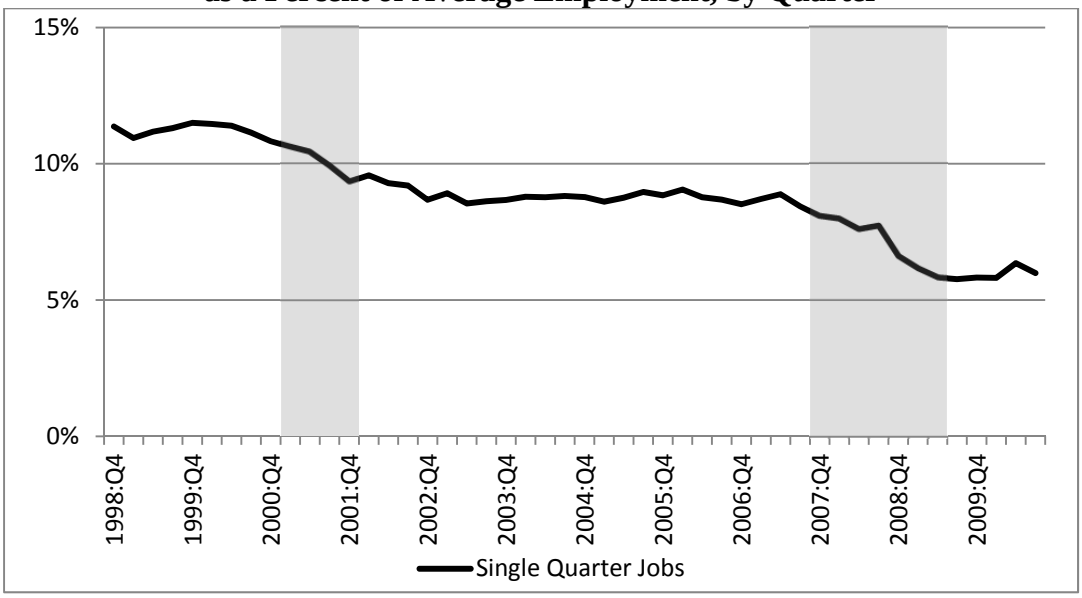
Introduction

In our 2013 paper "The Recent Decline in Employment Dynamics," we documented that the incidence of short-duration jobs has been declining during the past 15 years; see Hyatt and Spletzer (2013). Using employment measures derived from quarterly wage records, we define short-duration jobs as those jobs that start and end in the same calendar quarter. As seen in Figure 1 below, short-duration jobs have fallen from 11.4 percent of employment in 1998:Q4 to 6.0 percent in 2010:Q3, and much of this decline occurs during recessions.

This decline in short-duration jobs is not well-known amongst labor economists, yet undoubtedly reflects fundamental changes in the labor market. Since completing our analysis on the declines in the rates of worker flows (hires and separations), job flows (job creation and destruction), and job-to-job flows (worker movements from one employer to another), we have

turned our attention to the decline in single-quarter jobs, which accounts for roughly half of the decline in gross worker flows from the late 1990s to 2010. The goal of our research is to characterize the nature of the decline in single-quarter jobs and explore its implications.

Figure 1: Incidence Rate of Single-Quarter Jobs, as a Percent of Average Employment, by Quarter



Notes: This figure is presented in Hyatt and Spletzer (2013). The chart presents the frequency of the incidence of jobs that start and end in the same quarter, as a share of the average of quarter in the beginning and end of the quarter, for 1998:Q4-2010:Q3. Source data were downloaded from the Cornell Virtual RDC for thirty states. All data are seasonally adjusted.

This draft describes work in progress. We explore data from the U.S. Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) program. In this extended abstract, we present new evidence that shows what LEHD public use data can tell us about the decline in short duration jobs, and we describe how our current research, which employs confidential microdata, can provide answers to additional questions.[1] Our contributions are as follows: (1) we provide basic descriptive statistics on the types of individuals and the types of employers engaged in short-duration jobs, (2) we examine how the decline in short duration jobs has

[1] No direct author tabulations of confidential microdata are included in this document.

changed the tenure distribution during the past decade, (3) we analyze the relationship between short-duration jobs and trends of real earnings growth, and (4) we assess whether short-duration jobs are "stepping-stone jobs" that allow individuals to gain work experience and move on to more stable jobs.

Data

We obtain the statistics used in this extended abstract from public use data available from the Longitudinal Employer Household Dynamics (LEHD) program at the U.S. Census Bureau. The LEHD is a longitudinally linked employer-employee dataset created as part of the Local Employment Dynamics federal-state partnership. The data are derived from state-submitted Unemployment Insurance (UI) wage records and the Quarterly Census of Employment and Wages (QCEW) data. Every quarter, employers who are subject to state UI laws (approximately 98% of all private sector employers, plus state and local governments) submit to the states information on their workers (the wage records) and their workplaces (the QCEW, which provides the employer's industry and location). The wage records and the QCEW data submitted by the states to the U.S. Census Bureau are enhanced with census, survey, and administrative microdata in order to incorporate information about worker demographics (age, gender, race, ethnicity, and education) and the firm (age and size). Abowd et al. (2009) provide a thorough description of the source data and the methodology underlying the LEHD data and one of its main public use data products, the Quarterly Workforce Indicators (QWI).

The QWI data products published by the LEHD program at the U.S. Census Bureau are available at http://lehd.ces.census.gov, and include tabulations of economic indicators such as employment, earnings, hires, separations, job creation, and job destruction by geographies, by firm characteristics, and by individual characteristics. 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 data from 30 states that have data available from 1998:Q2 through 2010:Q4; these 30 states account for about 65 percent of national employment.[2]

Our analysis of public-use data in this document serves to motivate our ongoing project to understand the decline in employment dynamics. In Hyatt and Spletzer (2013), we presented tabulations that were done on the LEHD infrastructure files described in Abowd et al. (2009), and are released as special tabulations of the LEHD microdata. Additionally, we relied on additional infrastructure files related to the job-to-job flows data described in Hyatt and McEntarfer (2012a, 2012b), and on firm age and size data described in Haltiwanger et al. (2013a). The job-to-job flows data link employers over time on the basis of employing the same worker, and allow comprehensive statistics that are person-based, whereas most regularly produced LEHD statistics are job-based (and workers can hold multiple jobs). The data on firm age and size reflect a recent enhancement that links comprehensive firm-level information (using information on common operational control for employers with different identifiers) to LEHD employers. These data allow us to exploit panel dimensions of the microdata to compare workers who work single-quarter jobs to other jobs they hold, both concurrently and over time.

[2] These states are CA, CO, CT, FL, GA, HI, ID, IL, IN, KS, LA, MD, ME, MN, MO, MT, NC, ND, NJ, NM, NV, PA, RI, SC, SD, TN, TX, VA, WA, and WV.

Again, our descriptions of the tabulations that we are currently undertaking on these restricted-use infrastructure files reflect work in progress, and all results to date derived therefrom are pending release.

A Description of Short-Duration Jobs

This section contains (to the best of our knowledge) the first comprehensive analysis that has been done on short-duration jobs in the LEHD universe. Here, we present results on the characteristics of single-quarter jobs, and how those relate to overall hires and separations. First, we present the incidence of short duration jobs by all the observable characteristics by which these tabulations are published, which include demographic (age, gender, race & ethnicity, and education) and employer (industry, firm age, and firm size) characteristics. Next, we test whether the decline in short-duration jobs is being driven by changes in the composition of workers or employers. For example, the decline could conceivably be induced by teenagers, who have high rates of short duration jobs, leaving the labor force. On the other hand, trends in the industry mix such as the decline in manufacturing, which has relatively low turnover, should lead to an increase in the share of short-duration jobs. This assessment is made using a decomposition that will allow us to precisely determine whether the changing composition of individuals and businesses in the U.S. economy is driving the decline in short-duration jobs.

Business and Demographic Characteristics

We present the single-quarter job rate, along with the hire and separation rates, by demographic and employer characteristics. Because a single-quarter job involves both a hire and a separation in the same quarter, we refer to the rate of occurrence of a single-quarter job as its incidence rate. The denominator for our employment rates is the average job count per quarter, calculated by averaging employment at the beginning and end of the quarter.[3] Shares of the workforce are simply the averages of this denominator. The rates of hires, separations, and single-quarter jobs are the frequency of the employment measure per 100 workers. For the purposes of this extended abstract, and for comparability with our later decompositions, the rates and shares are calculated as the beginning and end points of our later decomposition: seasonally adjusted employment and rates for the second quarter of 1999 and the second quarter of 2010.

Results by worker age are shown in Table 1. As is well-known, younger workers have higher rates of hires and separations, and we show that this is also true for short duration jobs. The rates of hires, separations, and single-quarter jobs are highest for workers age 14-18, who have 22.5 single-quarter jobs per one-hundred workers, and then declining by age category to a low of 4.7 single-quarter jobs per 100 employed for workers age 55-64. Workers aged 65-99 have roughly twice as many single-quarter jobs. By definition, incidence rates of single-quarter jobs must be less than or equal to the rate of hire and separation for a given group, as single-quarter jobs involve both a hire and a separation in that quarter. Single-quarter jobs likewise do

[3] As defined in Abowd et al. (2009), beginning of quarter employment is, for any given quarter, the count of all jobs in that quarter and the one immediately preceding it. End of quarter employment is similarly the count of all jobs in that quarter and the one immediately following it.

not account at all for the differences between hires and separations. Part of the fact that hires have a higher rate of separation is due to natural growth in the size of the employed population from quarter to quarter. Larger differences between groups, such as the large excess number of hires for workers age 14-18 and 19-21 reflects that these groups contain predominantly entrants. In contrast, the fact that workers age 55-64 and 65-99 have higher rates of separations than hires is that they are comprised disproportionately of employment exiters due to retirement.

Other demographic characteristics exhibit less variation in hires, separations, and single-quarter jobs than age. As shown in Table 2, men have slightly higher single-quarter job incidence rates than women, 9.1 per 100 compared with 8.1 per 100. This table shows that difference in the gross reallocation rates for men and women is accounted for by the incidence of short duration jobs: men have 1.1 more hires than women and 1 more separation, so the extra 1 hire and separation induced by short duration jobs clearly accounts for most of this difference. Table 3 shows that there is somewhat more variation by race and ethnicity:[4] White and Asian workers have single- quarter job incidence rates near 7 per 100 (7.4 and 6.8, respectively), Hispanic workers, along with Black non-Hispanic workers, and non-Hispanic workers of any other race[5] have nearly twice the incidence of such jobs: 11.3, 13.4, and 11.3, respectively. In Table 4, we show that rates of gross worker flows and single-quarter jobs are declining in education. Those with less than a High School Diploma (or equivalent) have 10.1 single-quarter jobs per 100 employed workers, while those with a Bachelor's Degree or more education have only 5. For gender, race & ethnicity, and education, a group's rank order in its rate of

[4] Unless otherwise stated, all race categories referred to in the text refer to individuals who are that race alone, that is, are not identified with two or more races.
[5] A composite category that includes American Indian or Alaska Native Alone, Native Hawaiian or Other Pacific Islander Alone, and More than One Race.

single-quarter jobs is basically the same as its rank order in its rate of hires and separations. In contrast to age, all other demographic stratifications have higher rates of hires than separations. Single-quarter jobs generally account for a little more than a third of gross hires and separations.

Table 1: Single-Quarter Job Incidence Rate, Gross Quarterly Hires and Separations, and Employment Share, by Age Ranges

Age Range	Single-Quarter Job Incidence Rate	Quarterly Hire Rate	Quarterly Separation Rate	Employment Share
14-18	22.5	64.2	50.4	3.6%
19-21	19.8	51.6	47.5	5.9%
22-24	13.8	37.9	35.6	6.6%
25-34	9.1	25.1	24.3	23.6%
35-44	6.5	18.4	17.8	24.4%
45-54	5.1	14.8	14.5	21.1%
55-64	4.7	13.0	13.9	11.4%
65-99	8.9	19.9	21.7	3.5%

Notes: LEHD data for 30 states downloaded from the Cornell Virtual RDC. Data present averages of seasonally-adjusted 1999:Q2 and 2010:Q2 data. See text for additional details.

Table 2: Single-Quarter Job Incidence Rate, Gross Quarterly Hires and Separations, and Employment Share, by Gender

Gender	Single-Quarter Job Incidence Rate	Quarterly Hire Rate	Quarterly Separation Rate	Employment Share
Male	9.1	24.2	23.0	52.4%
Female	8.1	23.0	22.1	47.6%

Notes: LEHD data for 30 states downloaded from the Cornell Virtual RDC. Data present averages of seasonally-adjusted 1999:Q2 and 2010:Q2 data. See text for additional details.

Table 3: Single-Quarter Job Incidence Rate, Gross Quarterly Hires and Separations, and Employment Share, by Selected Race/Ethnicity Groups

Race/Ethnicity Category	Single-Quarter Job Incidence Rate	Quarterly Hire Rate	Quarterly Separation Rate	Employment Share
White and not Hispanic	7.4	21.2	20.4	67.1%
Black and not Hispanic	13.4	32.3	30.9	11.7%
Asian and not Hispanic	6.8	20.1	18.7	5.5%
Any other race and not Hispanic	11.3	29.6	27.7	1.5%
Hispanic of any race	11.3	28.7	27.1	14.2%

Notes: LEHD data for 30 states downloaded from the Cornell Virtual RDC. Data present averages of seasonally-adjusted 1999:Q2 and 2010:Q2 data. See text for additional details.

Table 4: Single-Quarter Job Incidence Rate, Gross Quarterly Hires and Separations, and Employment Share, by Education Categories

Race/Ethnicity Category	Single-Quarter Job Incidence Rate	Quarterly Hire Rate	Quarterly Separation Rate	Employment Share
Less than High School	10.1	25.4	24.7	13.9%
High School or Equivalent	7.2	19.6	19.3	27.7%
Some College or Associate Degree	6.4	18.2	17.9	31.3%
Bachelor's Degree or More	5.0	15.2	15.0	27.1%

Notes: LEHD data for 30 states downloaded from the Cornell Virtual RDC. Data present averages of seasonally-adjusted 1999:Q2 and 2010:Q2 data. See text for additional details.

Table 5: Single-Quarter Job Incidence Rate, Gross Quarterly Hires and Separations, and Employment Share, by NAICS Industry Sector

Age Range	Single-Quarter Job Incidence Rate	Quarterly Hire Rate	Quarterly Separation Rate	Employment Share
Agriculture, Forestry, Fishing, & Hunting	35.4	64.9	61.9	1.1%
Mining	4.6	15.8	14.6	0.6%
Utilities	1.5	6.1	8.4	0.5%
Construction	13.6	33.2	31.2	5.6%
Manufacturing	3.5	11.8	11.4	13.2%
Wholesale Trade	4.1	14.2	13.4	5.3%
Retail Trade	7.5	23.7	22.7	14.1%
Transportation & Warehousing	6.7	19.3	18.0	3.9%
Information	6.6	18.1	17.2	3.0%
Finance and Insurance	3.5	12.3	12.0	5.1%
Real Estate & Rental & Leasing	6.7	21.1	20.3	1.9%
Professional, Scientific, & Technical Services	7.7	20.5	19.1	6.7%
Management of Companies & Enterprises	3.8	13.1	13.3	1.4%
Administrative & Support & Waste Management	25.6	53.4	51.2	7.1%
Educational Services	7.3	21.0	19.5	1.8%
Health Care & Social Assistance	4.6	16.2	15.5	13.0%
Arts, Entertainment, & Recreation	11.9	34.7	32.0	1.8%
Accommodation & Food Services	13.6	36.1	34.9	9.8%
Other Services (except Public Administration)	7.9	23.1	22.0	4.0%

Notes: LEHD data for 30 states downloaded from the Cornell Virtual RDC. Data present averages of seasonally-adjusted 1999:Q2 and 2010:Q2 data. See text for additional details.

Table 6: Single-Quarter Job Incidence Rate, Gross Quarterly Hires and Separations, and Employment Share, by Firm Age Categories

Firm Age Category	Single-Quarter Job Incidence Rate	Quarterly Hire Rate	Quarterly Separation Rate	Employment Share
0-1 years	21.7	50.8	42.4	5.1%
2-3 years	14.0	34.8	33.9	4.7%
4-5 years	12.5	31.7	30.6	4.6%
6-10 years	11.7	29.4	28.6	9.7%
11 or more years	6.7	19.5	19.0	74.0%

Notes: LEHD data for 30 states downloaded from the Cornell Virtual RDC. Data present averages of seasonally-adjusted 1999:Q2 and 2010:Q2 data. See text for additional details.

Table 7: Single-Quarter Job Incidence Rate, Gross Quarterly Hires and Separations, and Employment Share, by Firm Size Categories

Firm Size Category	Single-Quarter Job Incidence Rate	Quarterly Hire Rate	Quarterly Separation Rate	Employment Share
0-19 employees	10.8	29.0	26.5	20.0%
20-49 employees	9.3	25.5	24.5	9.9%
50-249 employees	9.1	24.4	23.8	15.3%
250-499 employees	9.3	24.5	23.8	5.6%
500+ employees	7.1	20.0	19.5	48.9%

Notes: LEHD data for 30 states downloaded from the Cornell Virtual RDC. Data present averages of seasonally-adjusted 1999:Q2 and 2010:Q2 data. See text for additional details.

We also show the employers where single-quarter jobs are most frequent. In Table 5, we show worker flow and single-quarter job incidence rates by NAICS industry sector. Agriculture, Forestry, Fishing, & Hunting has the highest single-quarter job incidence rate, while it also has the highest rates of worker hires and separations, which reflects the temporary jobs (for example, agricultural harvests) common in this sector. The Administrative & Support & Waste Management sector has the next-highest incidence rate, which suggests that many short-duration jobs are in the temporary help industry, as well as in landscaping and custodial services. The Construction sector and the Accommodation & Food Service Sector also have high incidence

rates of single-quarter jobs. The lowest rates of incidence of single-quarter jobs are also found in the industries with the lowest rates of worker hires and separation: Utilities have, by far, the lowest of each, followed by Manufacturing, as well as Finance & Insurance.

It is well-known that young and small businesses have higher rates of worker flows: see, for example, Haltiwanger et al. (2012). In Tables 6 and 7 we show that this also applies to the incidence of single-quarter jobs by age and size groups, respectively. Businesses that are 0-1 year old have by far the highest rates of worker flows, as well as single-quarter jobs. Rates are lower but not as dissimilar for the categories of 2-3, 4-5, and 6-10 years. Older businesses, those aged 11+, have substantially lower rates of worker flows and single-quarter jobs. These older businesses also account for three quarters of employment. There is not as much dispersion in rates of hires, separations, and single-quarter jobs across size categories, The smallest businesses, who are known to be disproportionately young, have the highest rates of hires, separtions, and single-quarter jobs.[6]

Explaining the Trend

Following the decomposition method employed for other employment dynamics measures in Hyatt and Spletzer (2013), we measure the effect of composition changes using a standard decomposition technique to separate between-group differences from trends within groups for any employment dynamics measure Y, as follows. Any measure of employment dynamics Y_t can be written as $\Sigma_i Y_{it} S_{it}$, where i indexes groups of the workforce or businesses

[6] The fact that young businesses typically start out small, as well as its implications for job creation are considered by Haltiwanger et al. (2013b).

(such as worker age or firm size), and S_i is the share of the group. We decompose the difference $\Delta Y_t = Y_t - Y_{t-1}$ according to

$$\Delta Y_t = \Sigma_i \Delta Y_{it} S_{i\cdot} + \Sigma_i Y_{i\cdot} \Delta S_{it},$$

where $Y_{i\cdot}$ denotes the mean such that $Y_{i\cdot} = (Y_{it} + Y_{it-1})/2$, and likewise $S_{i\cdot}$. In words, the decline in employment dynamics is equal to the change in the dynamics of each group weighted by the group's average employment share (the "within" effect) plus the change in each group's employment share weighted by the group's average measure of dynamics (the "composition" effect). For each decomposition, we use as our starting quarter the second quarter of 1999, and the second quarter of 2010, and all rates are calculated from data that have been seasonally adjusted.

Table 8: Decomposition of Single-Quarter Job Hire Rate, Gross Quarterly Hires and Separations, by Selected Characteristics, 1999 vs 2010

	Single-Quarter Job Incidence Rate	Quarterly Hire Rate	Quarterly Separation Rate
Demographic Characteristics			
Age	10.4%	15.6%	11.5%
Gender	0.3%	0.0%	0.0%
Race and Ethnicity	-3.2%	-3.3%	-2.6%
Education	-0.1%	-0.1%	0.1%
Business Characteristics			
Industry	-2.0%	-3.5%	-3.2%
Firm Age	8.1%	8.4%	6.8%
Firm Size	1.1%	1.3%	1.1%

Notes: LEHD data for 30 states downloaded from the Cornell Virtual RDC. Data present decomposition of changes between seasonally adjusted data for 1999:Q2 and 2010:Q2. See text for additional details.

The decomposition in Table 8 indicates that changes in composition (1998-2010) are not driving the decline in short duration jobs. The aging of the population from the baby boom only

accounts for 10.4 percent of the decline, even less than hires or separations. The increase in the share of the workforce that is female explains very little of the decline. Other demographic categories have a negative sign: this means that, all things equal, changes in the race and ethnicity distribution, as well as changes in education, should have led to a modest increase in hire, separation, and single-quarter job incidence rates. In other words, the decline was not caused by changes in demographic shares.

Employer characteristics do not explain much of the decline in hires, separations, and short duration jobs, either. Industry has a negative sign, which reflects that manufacturing jobs, which have low turnover, was declining as a share of employment throughout our time series. Changes in the firm age distribution induced by the decline in startups explain more, more than 8% of the decline in hires and single-quarter jobs and 6.8% of the decline in separations. Changes in the employment distribution by firm size away from small businesses and toward larger businesses explain almost none of the decline, but as we saw above there is more variation in these rates by firm age than by size. Overall, by either demographic or employer categories, the decline is predominantly "within" groups.

Additional Descriptive Evidence

The analysis above describes many of the characteristics of short duration jobs, but there is still more work to do. We are currently using the LEHD microdata to further drill down into the decline in short-duration jobs in ways that are difficult or impossible to assess using publicly available data. Our focus is on two specific analyses. First, we are assessing whether the decline

in short-duration jobs is concentrated amongst individuals who take short-duration jobs as a secondary multiple job, or are short-duration jobs an individual's main job characterized by individuals entering and exiting employment. This also addresses the related question of whether individuals have multiple short-duration jobs within the quarter, and if so, is a trend in this behavior driving the overall decline in the percentage of short-duration jobs in the U.S. economy. In addition to measuring the single-quarter jobs in the context of multiple job holding, we will also measure the extent to which single-quarter jobs involve the same employer, that is, constitute a recall to a previous employer.

Work in Progress

The tabulations above are a novel, somewhat self-contained analysis of short duration jobs in the LEHD data. It has been done on publicly available data, and offers a preview of what our ultimate analysis will show. Other questions about short-duration job holding are not as easily answered by publicly available data. In each of the three following subsections, we present some evidence that can be obtained from public-use data, with a description of how confidential microdata will allow us to better answer our question.

Tenure Distribution

We give special attention to how the decline in short-duration jobs is changing the tenure distribution. By definition, a secular decline in the percentage of jobs with completed duration less than one quarter will shift the tenure distribution to the right. Our preliminary analysis of

the tenure distribution shows a noticeable shift to the right, with much of this shift occurring during the 2007-2009 recession. The tenure-specific separation rates exhibit corresponding declines.

We frame this through a simple model of the evolution of the tenure distribution in the spirit of Neumark, Polsky, and Hansen (2000). The number of jobs of tenure (or seniority) k, S_k can be written as

$$S_0 = L * A$$

$$S_1 = L * A * P_{0\to1}$$

$$S_2 = L * A * P_{0\to1} * P_{1\to2}$$

$$\dots$$

$$S_{T-1} = L * A * P_{0\to1} * P_{1\to2} * \dots * P_{T-2\to T-1}$$

$$S_T = L * A * P_{0\to1} * P_{1\to2} * \dots * P_{T-2\to T-1} * P_{T-1\to T} + S_T * P_{T\to T}.$$

In the above equations, L is size of the workforce, A is the accession rate, and $P_{0\to1}$ etc. is the likelihood that a job of duration (tenure) 0 survives to become a job of duration 1. Note that the number of workers in the oldest category T can be defined recursively as

$$S_T = \frac{L * A * P_{0\to1} * P_{1\to2} * \dots * P_{T-2\to T-1} * P_{T-1\to T}}{1 - P_{T\to T}}.$$

Longitudinal matched employer-employee data allows us to estimate the separation probabilities by job tenure necessary to estimate this model. While a longer time series offers a

more comprehensive view of the tenure distribution, a simple three-period version of the model can be estimated using publicly available microdata alone. The rate at which hires turn into consecutive quarter employment (or jobs that exist at a "seam") yields $P_{0\to1}$. The rate at which new consecutive quarter jobs turn into jobs that last a full quarter (i.e., go on for three consecutive quarters) yields $P_{1\to2}$. The rate at which jobs that lasted a full quarter end gives us the rate of retention of our highest tenure category $1 - P_{T\to T}$. Of course, a tenure distribution of less than one year is not as interesting as most of the job tenure studies reviewed by Farber (1999), but this exercise can be informative nevertheless. Two- and three-quarter jobs are the ones closest to single-quarter jobs, so the decline in single-quarter jobs for this sequential reason has a more immediate impact on these tenure categories than later ones. The impact of the decline in single-quarter jobs on higher tenure categories is something that due to data limitations must be left for tabulations of the underlying microdata.

Using public-use LEHD data alone, we can obtain an equilibrium tenure share distribution as follows. In equilibrium in the three-group model, the shares for the components will be (note that the size of the workforce *L* and the hire rate *A* cancel):

$$S_A^* = \frac{1}{1 + P_{A\to C} + \frac{P_{A\to C} * P_{C\to F}}{1 - P_{F\to F}}}$$

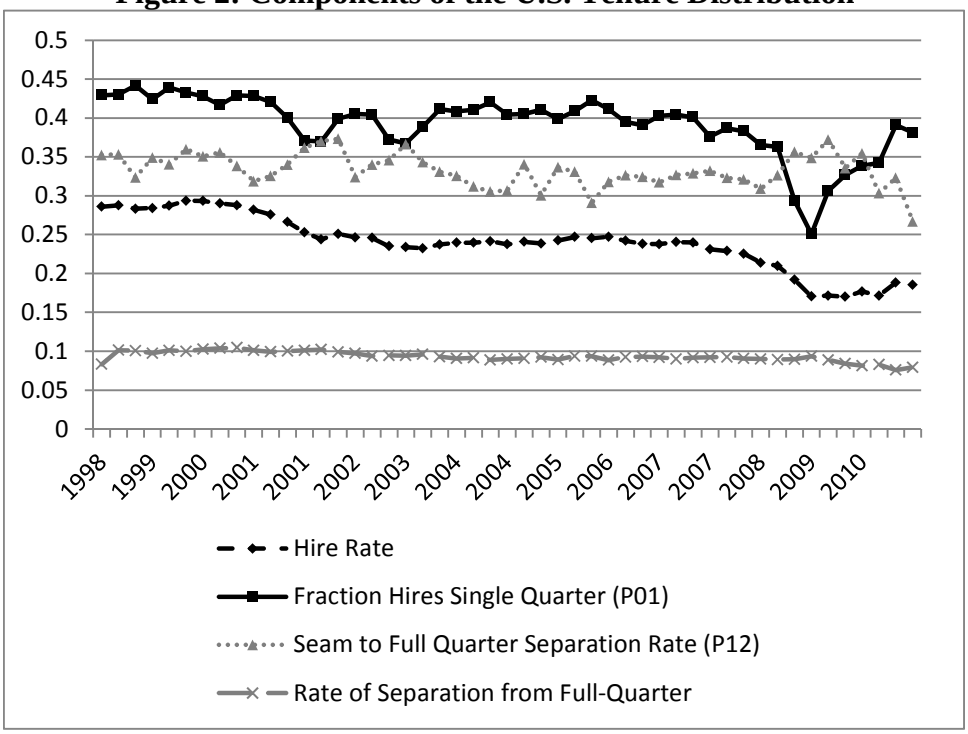
$$S_C^* = \frac{P_{A\to C}}{1 + P_{A\to C} + \frac{P_{A\to C} * P_{C\to F}}{1 - P_{F\to F}}}$$

$$S_F^* = \frac{\frac{P_{A\to C} * P_{C\to F}}{1 - P_{F\to F}}}{1 + P_{A\to C} + \frac{P_{A\to C} * P_{C\to F}}{1 - P_{F\to F}}}$$

where S_A^* is the equilibrium share of jobs that began in a particular quarter, S_C^* is the share of newly consecutive quarter jobs, and S_F^* is the share job jobs that last a full-quarter. $P_{A\to C}$ is the share of hires in a particular quarter that transform into consecutive quarter employment, $P_{C\to F}$ is the share of consecutive quarter (or "seam") jobs that turn into full-quarter jobs, and $P_{F\to F}$ is the rate that full-quarter jobs remain for another quarter. These components are graphed as separation rates in Figure 2, as well as the rate of hires as a share of employment. There has been a clear trend downward in the separation rates for each tenure category, that corresponds with the decline in the hires rate. The separation rate from hires to consecutive quarter employment exhibits strong cyclical properties, declining substantially during recession when there are relatively few single-quarter jobs relative to all hires.

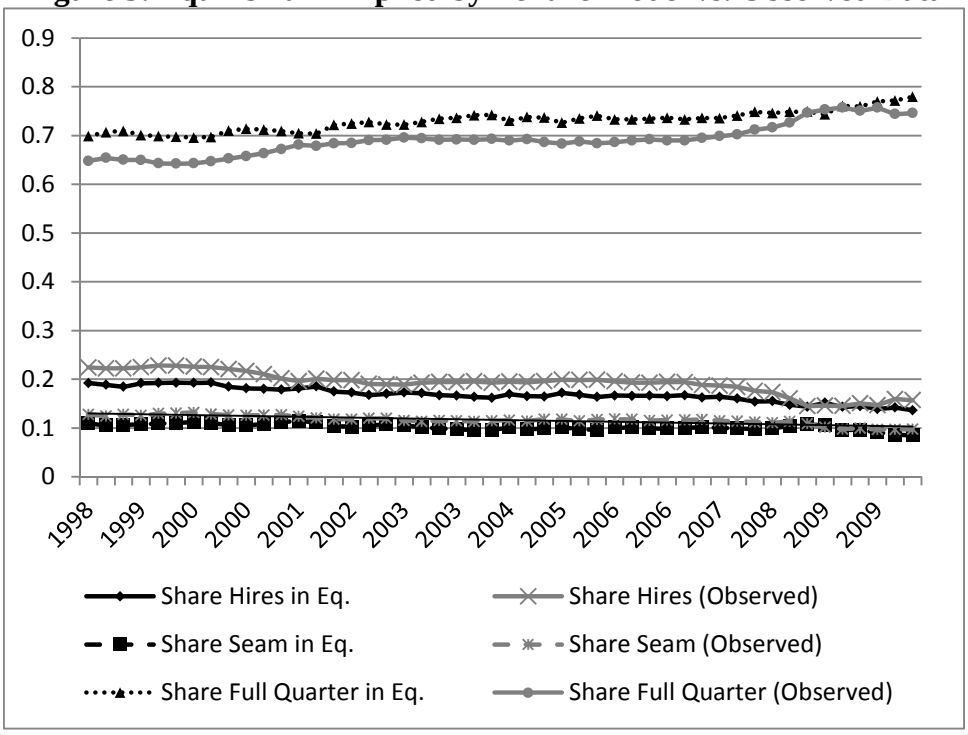
The equilibrium shares, as well as their observed analogues, are shown in Figure 3. Both the observed and equilibrium shares of full-quarter employment have shifted, although the equilibrium shift clearly leads the observed series throughout the first decade of the twenty-first century. This is accounted for mostly by an opposite difference between the observed share of the workforce that is newly hired and its equilibrium level, and less by the difference between jobs that are observed to be hires into continuous quarter jobs. This indicates that the shift in the share of jobs that are full-quarter is more driven by the decline in single-quarter than the residual of continuous quarter jobs. Note that the time series becomes out of equilibrium during the periods in single-quarter jobs (this can be seen by comparing Figure 3 to Figure 1, above).

Figure 2: Components of the U.S. Tenure Distribution



Notes: LEHD data for 30 states downloaded from the Cornell Virtual RDC. All data are seasonally adjusted. See text for additional details.

Figure 3: Equilibrium Implied by Tenure Model vs. Observed Data



Notes: LEHD data for 30 states downloaded from the Cornell Virtual RDC. All data are seasonally adjusted. See text for additional details.

Our analysis of restricted-use infrastructure files will allow us to obtain a longer time series. It will also allow us to distinguish between jobs that are recalls and those that existed before, as recalls have their own cyclical properties; see Fujita and Moscarini (2013). We will also be able to consider the dynamics of multiple-job holding as an extension of this framework, and assess whether a conventional simplifying assumption made in the employment flow literature, that separation rates are tenure-invariant, holds in administrative data.

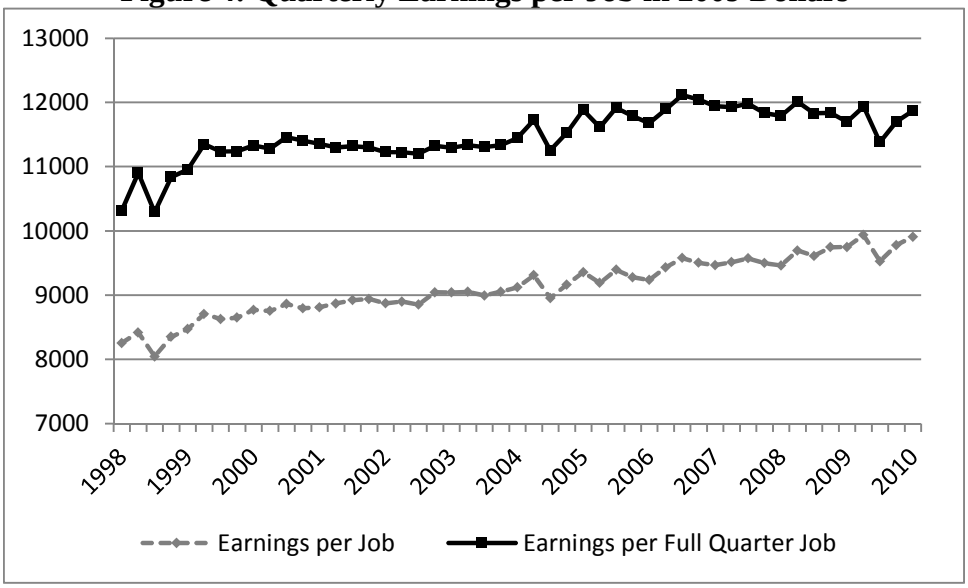
Implications for Earnings

It is well known that real wages have not grown substantially during the past decade (there have been some minor increases in women's wages, see Elsby et al. (2013)). If we assume that short-duration jobs are lower-paid than jobs that last for longer than one quarter, then (with reasonable assumptions) the decline in short-duration jobs implies that the flat trend of real wages may be masking a declining trend of real wages amongst jobs that last more than a quarter. We can test this using the LEHD data.

Here, public use data do not allow us to make much progress. We show much of what can be obtained from public-use LEHD microdata in Figure 4, which shows the ratio of total (real, 2009) wages paid in a quarter to the total number of employer-employee combinations in that quarter ("Earnings per Job") as well as total earnings from jobs that lasted three or more consecutive quarters by the number of such jobs ("Earnings per Full Quarter Job"). Both earnings series increase from 1998-2010 and appear relatively acyclical. There is also some

evidence of convergence between the two series. A simple, mechanical explanation for this phenomenon, of course, cannot be ruled out: single-quarter jobs have declined, and these, by definition, last less than a full quarter. However, by analyzing the confidential microdata, we can account for the extent to which this decline affects person-level earnings convergence.

Figure 4: Quarterly Earnings per Job in 2009 Dollars



Notes: LEHD data for 30 states downloaded from the Cornell Virtual RDC. All data are seasonally adjusted. See text for additional details.

A key to this analysis is determining the wages of short-duration jobs. This is difficult with the administrative LEHD data, since we do not know the duration of jobs that begin and end within the quarter. Fortunately, three states report hours worked in the quarter on their wage records, which will allow us to analyze the hourly wage of short-duration jobs relative to longer-duration jobs ("full-quarter" jobs using LEHD jargon). This ratio will enable us to conduct a ceteris-paribus analysis of how the decline in short-duration jobs during the past 15 years affects

real-wage trends. It will also allow us to control for shifts in the tenure distribution, as well as assess whether there have been changes in the returns to job tenure from the late 1990s to 2010.

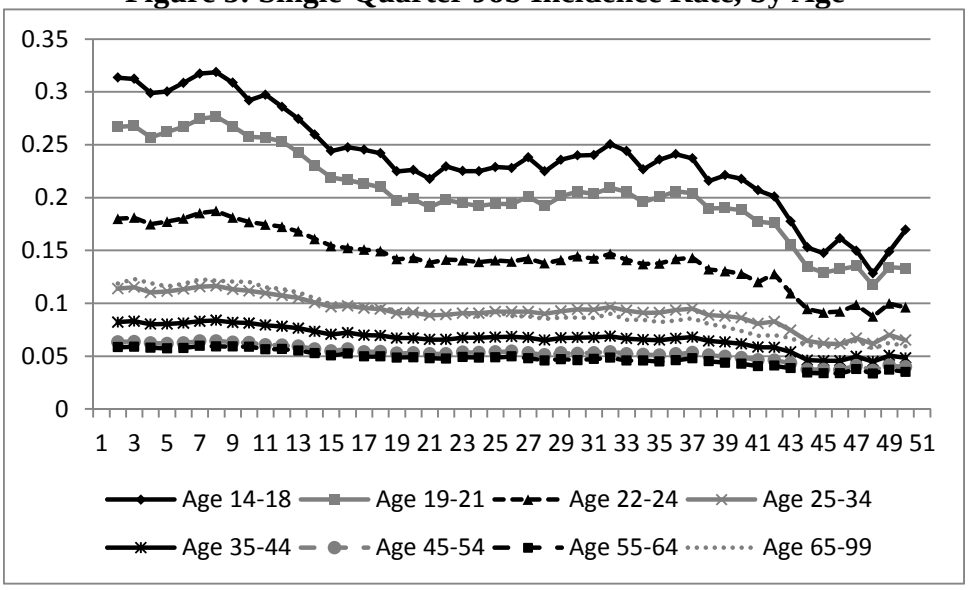
Stepping Stone Jobs

The secular decline in short-duration jobs is interesting, but the importance of this decline relates to how it affects the U.S. labor market. On the one hand, the decline in short-duration jobs and the associated rise in the tenure distribution may reflect better initial matching between workers and employers. On the other hand, if short-duration jobs are stepping-stone jobs for individuals to gain work experience and move into higher-paying and longer-duration jobs, then the decline in short-duration jobs is worrisome for the U.S. economy. This worry is enhanced by the recent increases in the youth unemployment rate. Additionally, Topel and Ward (1992) have shown that one-third of earnings growth for younger workers comes from job switching rather than on-the-job earnings growth.

Figure 5 shows that younger workers were disproportionately affected by the decline in the incidence rate. Although single-quarter job incidence only declines by 40% to 50% for workers in the age ranges 35-44, 45-54, and 55-64, for younger workers and older workers the declines are substantially higher, and are around two-thirds for workers under the age of 25. This decline takes place against the background of a decline in job-to-job flow rates that is particularly pronounced for younger workers, as described by Hyatt and McEntarfer (2012b). Furthermore, studies such as Kahn (2010) and Oreopoulos, von Wachter, and Heisz (2012) have

stressed the importance of the relationship between the unemployment rate and a young worker's initial job match.

Figure 5: Single-Quarter Job Incidence Rate, by Age



Notes: LEHD data for 30 states downloaded from the Cornell Virtual RDC. All data are seasonally adjusted. See text for additional details.

Our analysis will proceed by looking at the role of short-duration jobs in the job ladder. Are short-duration jobs at the beginning of individual's careers? If yes, are wages and tenure in subsequent jobs positively related to the work experience gained in these early jobs? And perhaps most importantly, what are the implications of the loss of stepping-stone jobs to young workers now entering the labor market? These are the questions that motivate our analysis. By considering jobs that precede, follow, and are contemporaneous with short-duration jobs, we can assess whether short-duration jobs are gateways to the labor market.

Conclusion

In this document, we present novel analyses of public-use employment data produced by the LEHD program at the U.S. Census Bureau. Our focus is on the nature and consequences of the decline in short-duration jobs in the U.S. over the years 1998-2010. We have described the industry and demographic shares, and shown that changes in these shares leave the decline in the incidence rate of short duration jobs largely unexplained. We also described additional analyses that we are currently undertaking using the underlying microdata, and present related analyses using public-use data that present some preview or yield some insight into what we may ultimately discover.

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