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Job-to-Job Flows and the Consequences of Job Separations

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Abstract

This paper extends the literature on the earnings losses of displaced workers to provide a more comprehensive picture of the earnings and employment outcomes for workers who separate. First, we compare workers who separate from distressed employers (presumably displaced workers) and those who separate from stable or growing employers. Second, we distinguish between workers who do and do not experience a spell of joblessness. Third, we examine the full distribution of earnings outcomes from separations – not the impact on only the average worker.

We find that earnings outcomes depend much less on whether a job separation is associated with a distressed employer than on whether the separator experienced a jobless spell after the separation. Moreover, we find that workers separating from distressed firms are faster to find jobs at new employers than are other separators.

I. Introduction

The empirical literature on the relationship between job mobility and earnings dynamics emphasize two distinctly different patterns. On the one hand are findings that job mobility yields increases in earnings for workers.[1] This view emphasizes that, especially for young workers, building a career (or finding a career) often involves job mobility. On the other hand, the displaced worker literature emphasizes the persistent earnings losses associated with workers who separate from distressed firms (firms undergoing major downsizings through plant closings or large contractions).[2] For such displaced workers, an important element of adjustment is that it takes time to find new matches, so it is argued that displacement is often followed by a spell of joblessness. In a related fashion, separations beget separations as the new matches made after the initial displacement are relatively unstable.

These two views are not inherently in conflict but they do offer quite different perspectives on the impact of economic turbulence on the career path of workers. It is now well known that worker flows in terms of accessions and separations are very large in dynamic economies like the U.S. The average accession and separation rates are around 18 percent per quarter in the U.S.[3] About a third to a half of that worker reallocation is associated with job reallocation – the reallocation of employment opportunities across employers – while the remainder is due to the many other events that produce worker transitions in the labor market. Given the turbulence of workers and jobs, it is important to understand the implications of this turbulence for the earnings and employment outcomes of the workers involved.

The existing literature already provides some guidance for the reconciliation of these two views on job separations. This lies in distinguishing between displaced

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[1] See for example, Topel and Ward (1992), and Brown, Haltiwanger and Lane (2006).

[2] See, for example, Jacobson, Lalonde and Sullivan (1993), Schoeni and Dardia (1997), and McKinney and Vilhuber (2003), Lengermann and Vilhuber (2002).

[3] See Haltiwanger, Hyatt, McEntarfer and Sousa (2012). These rates are from the LEHD program and are from a 28 state sample of U.S. states. Their estimates are that job flows account for about a third of the worker flows. The accession and separation rates are measured as the cumulative flows of accessions and separations at the establishment level as a percent of total matches in the quarter. Davis, Faberman and Haltiwanger (2012) report accession and separation rates at about the 15 percent level from adjusted JOLTS statistics. They report that job flows account for about half of worker flows using the integrated JOLTS and BED data.

separators and workers who choose to make a job change to improve their outcome in the labor market. In like fashion, it is necessary to distinguish between separations that yield subsequent spells of joblessness from separations that yield direct job-to-job flows. However, while these factors have already been studied in a limited fashion, what is missing is a comprehensive picture of the earnings and employment outcomes for workers that separate. In this paper, we push towards a more comprehensive picture on a number of dimensions. First, we examine the differences between the workers who separate from distressed employers (who are often referred to in the literature as displaced workers) and those who separate from stable or growing employers. Second, we distinguish between those workers that make direct job-to-job transitions and those that experience a spell of joblessness. Third, we examine the full distribution of earnings and employment outcomes from separations – not only the average outcome.

Our results show that the most critical factor for earnings outcomes is whether a worker makes a direct, or at least quick, job-to-job transition. Workers that experience a full quarter or longer spell of nonemployment experience significantly worse earnings outcomes.[4] We find that the growth rate of the separating firm is less critical (although it plays some role) once we control for whether a separating worker experiences at least one full quarter of nonemployment. We find that all job separators, including those from distressed and closing firms, do fairly well if they find new work fairly quickly; earnings penalties for job change are concentrated among those separators who do not.

We also examine the connection between job-to-job flows and displacement. Perhaps somewhat surprisingly, we find no evidence that workers separating from distressed firms are more likely to experience a significant period of joblessness than separators generally before taking a new job. In interpreting this finding, it is important to emphasize, first, that we track nonemployment durations and not unemployment durations, and second, that our data do not allow us to identify short spells of unemployment that end with recall to the same employer. For these reasons, our finding is not inconsistent with the finding in the literature that indicate that the layoff-separation

[4] Using data for Portugal, Carneiro and Portugal (2006) find that earnings losses are larger for displaced workers who experience a spell of joblessness. Hijzen, Upward and Wright (2008) find the same for the United Kingdom.

ratio is higher for rapidly contracting firms and the associated finding that workers who have been laid off are more likely to enter unemployment than are other separators.

We find the business cycle matters here. Both the likelihood of displacement and the likelihood that a worker experiences a full quarter spell of nonemployment is higher in an economic downturn. Still, what stands out is that, in both good times and bad times, the workers who experience at least one full quarter of nonemployment following a separation do significantly worse in terms of earnings outcomes. Of course, in bad times there are more workers who experience a full quarter of nonemployment following a separation so overall earnings outcomes from separations are worse in downturns.

As in the previous literature, we find wide dispersion in earnings outcomes for job separators. For example, the typical (median) separator from a slowly growing firm who makes a within-quarter job-to-job transition sees a change in earnings about 2 percent above that of a non-separator, but a worker at the 10^{th} percentile sees a 10 percent relative earnings loss and a worker at the 90^{th} percentile sees a 14 percent relative earnings gain. A prolonged spell of joblessness has an adverse impact on the median and also yields a somewhat larger dispersion of outcomes. For example, for a worker who separates from a slowly growing firm who experiences 4 quarters of observed nonemployment, at the median the earnings change (relative to stayers) is -19 percent; at the 10^{th} percentile it is -26 percent and the 90^{th} percentile is +5 percent. With such broad dispersion in earnings outcomes, we must be careful in generalizing too much from results for the average or median separator.

One challenge that we face in examining the earnings and employment outcomes for all separators is that unobserved heterogeneity inherently plays a more critical role for the full distribution of separators than for the separators from distressed firms. The displaced worker literature has argued that the separations from plant closings and firms with large contractions are likely employer-induced and exogenous to the worker. The same argument does not apply for all separators. We control for a variety of firm and worker characteristics given our longitudinal matched employer-employee data. We find that our results are robust to considering a variety of different sub-groups that are arguably more homogenous with respect to, among other things, labor force attachment.

This paper proceeds as follows. Section II describes the LEHD data infrastructure used in this analysis. Section III presents the measurement methodology for tracking separations and employer-to-employer flows in the administrative data. Section IV presents the descriptive analysis of the consequences of job separations. Section V discusses the formal models and results. Concluding remarks for this preliminary draft are provided in Section VI.

II. **Data**

We analyze the employment and wage consequences of job separations using data housed at the U.S. Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) program. The LEHD program maintains a variety of survey and administrative data from a number of state and federal agencies. For this analysis, we chiefly exploit administrative data that combines a worker's employment and wage history with information about the firm available from state-level unemployment insurance (UI) wage data and the Quarterly Census of Employment and Wages (QCEW) data. Both UI and QCEW data are available for states in partnership with the LEHD program, currently all 50 states and the District of Columbia. A thorough discussion of the LEHD data is provided in Abowd, Haltiwanger, and Lane (2004) and in Abowd et. al. (2006); a brief description follows.

State-level unemployment insurance (UI) data contain quarterly earnings for employees covered by state unemployment insurance systems, over 96% of private sector employment. A firm, as defined in this analysis, is a collection of workers who share a common unemployment insurance system identifier. Individual wage records are then linked across quarters to create individual work histories. The firm identifier on the UI records is used to link to information on the firm available in the QCEW data, which contains information on the industry and location of the firm. A limited list of worker demographics, namely sex and date of birth, are available from links to the Census administrative data, providing a virtual universe of information about age and gender.

From this administrative data we construct a panel of linked employer-employee observations, pooling the wage histories from five large LEHD states (California, North

Carolina, Oregon, Washington, and Wisconsin) that have data from 1991:3-2010:4.[5] From this pooled data we create a sample of job separators, namely workers with at least one year of job tenure who experience a job separation in one of three reference quarters – 1995:2, 1999:2, and 2001:2 – that span a variety of macroeconomic conditions. We include in our sample both male and female workers, age 25-55 at the time of separation. We impose an additional restriction that the separating job is the worker's "main" job, i.e., the worker's primary source of earnings during the year previous to the separation. Even though we focus on separators and stayers from these states, we track the earnings outcomes on a national basis. That is, for a worker that separates from one of our five states we use all available national LEHD data infrastructure to track earnings and employment outcomes.[6]

We categorize these job separations by whether or not the separation is from a distressed firm. We define a 'distressed firm' here as one that experienced a 30-percent or larger employment loss in the year ending in the quarter subsequent to the separation. This is similar to the 'distressed firm' definition used in Jacobson, LaLonde, and Sullivan (1993) (hereafter JLS) and includes firm closures as well as firms experiencing large staff reductions.[7] Although some of these separators may have been quits or firings for cause, the overwhelming majority are likely separations that would not have occurred in the absence of the displacement event.[8] We further divide distressed firms into those that closed (i.e., employment fell to zero) and "fast-contracting" firms, whose employment remains positive. We break out the remaining separations by the growth rate of the firm, described in more detail below.

For comparison purposes, we also construct a sample of job stayers in the reference quarter; these are workers 25-55 who have at least one-year tenure with their

5 We narrow the sample to these five states in part to reduce the size of the analysis as well as have the longest possible time series, as the availability of LEHD data for a particular year varies by state. Approximately 10 states have data available in the early 1990s.

6 The set of LEHD states increases throughout this time period, so our ability to track job separators nationally increases over time. Specifically, 19 states have data available in 1995, 37 in 1999 and 44 in 2001.

7 We do not include in the sample employment separations that occur in administrative data due to firm ID changes or merger/acquisition events. We use the pattern of worker flows to identify separations and accessions due to such events and suppress the flows that result.

8 Because this categorization works less well for smaller firms, for all analysis where separations are broken out by the growth rate of the separating employer, we restrict our analysis to firms with at least 50 employees.

main employer at the quarter of interest, and are continually employed with the same employer through the next three quarters. When considering the outcomes of separating workers we implicitly compare this group to the outcomes for stayers at firms with similar growth rates.

We construct these samples of stayers and separators for three quarters: 1995:2, 1999:2, and 2001:Q2,[9] with an eye to comparing outcomes across years with different macroeconomic environments. The characteristics of the pooled 1995, 1999, and 2001 samples in are described in Table 1. Relative to stayers, job separators are younger and less likely to be attached to a large firm. Distressed separators are slightly older than separators generally, but are younger than stayers. The industry that contributed the largest share of distressed separators is manufacturing, with 28% of distressed separators coming from that sector. The sample is large, with almost 3 million job stayers, two million job separators, and just under 150,000 distressed separators.[10] Table 2 compares the distressed separators in 1995, 1999, and 2001.[11] It is evident that a substantially larger fraction of separators are distressed separators in 2001 (the percent essentially doubles in 2001 relative to the percent in 1995 and 1999). There is also a notable change in industry composition across the three samples. In 1995, distressed workers are more likely to be coming from financial firms. The 2001 sample has a much larger share of separators from distressed professional and business services firms. Both 1999 and 2001 have larger shares of separators from distressed manufacturing firms than the 1995 sample (32% and 28% compared to 21%) with corresponding larger share of male displaced workers (56% and 56%, compared to 53%).

III. Tracking Employer-to-Employer Flows in Administrative Data

As we discussed above, our goal here is to trace the job and earnings paths of workers following job separations. Our earlier work (Bjelland et. al., 2008) on employer-to-employer flows was restricted to job changes that occurred within the quarter of job

9 The next draft of this paper will add 2008:2 as a reference quarter.
10 Because the sample of job stayers is so large, for all analyses we use a 10% random subsample of stayers.
11 Although these workers are often referred to as 'displaced workers' in the literature, we will often refer to them as distressed separators (i.e., separators from distressed firms) for greater precision. Our job separator comparison groups likely also contain displaced workers that cannot be identified in the administrative data.

separation. We found that on average 30% of main job separations were directly to another job, and that on average these job changes were associated with positive earnings growth for the worker. To generalize the implications of employer-to-employer flows for labor market dynamics, here we include flows to new jobs that include a spell of nonemployment. As evidence from the displaced worker literature suggests, the ability to retain -- as well as find -- new employment is important in the adjustment from a job separation. Note that the current analysis focuses on the first job upon re-employment.

We restrict ourselves here to main jobs, defined as the job that is the primary source of earnings in the quarter. Our previous work estimating employer-to-employer flows for all jobs found that over 95% of employer-to-employer flows were main job to main job flows, so this restriction simplifies the analysis while retaining almost all flows of interest.

We categorize worker flows by the duration of the spell of joblessness following a separation in the reference quarter. As quarterly wage data does not provide exact start and end dates for jobs, the duration of joblessness must be inferred from the pattern of quarterly earnings in the administrative data. An example is illustrative; Example 1 below provides a sample of a fictional wage record for a worker John Doe.

Example 1: UI Wage Record for John Doe

	Firm	Y1:Q1	Y1:Q2	Y1:Q3	Y1:Q4	Y2:Q1	Y2:Q2	Y2:Q3
John Doe	A	$6700	$5900	$3100				
John Doe	B			$4500	$5200			
John Doe	C					$2900		
John Doe	D							$3700

Employer-to-employer flows that occur within the same quarter are clearly the shortest transitions to new employment from a job separation we can identify in the data. In Example 1 above, John Doe experiences such a flow from A to B in the third quarter of the first year. There may be a short nonemployment spell associated with such a flow: If separations and accessions were uniformly distributed throughout the quarter, the implied average nonemployment spell is five to six weeks long. However, the average spell may in fact be shorter: The wage patterns during these transition quarters suggests a period of overlapping paychecks associated with these flows, with the sum of quarterly earnings across all employers higher during the quarter of transition than in surrounding quarters. This suggests relatively short or non-existent spell of joblessness between jobs.

When the accession to a new job occurs in the next quarter after the job separation, the worker is much more likely to experience a short spell of joblessness that we do not observe – about three months on average, again assuming a uniform distribution of separations and accessions in each quarter. In the example above, John Doe experiences this type of job flow from employer B to job C in the fourth quarter of year one.[12]

We categorize the remaining flows according to the number of full (that is, observed) quarters of joblessness.[13] It is only for these workers that we can state with

12 For job flows that occur across several quarters we choose to identify the timing of the flow as occurring in the quarter of separation from a job.

13 Again, it is important to note that a worker for whom we observe a full-quarter of nonemployment most likely also did not work the entire quarter of his job separation, or job accession. If we again assume uniform distributions of separations and accessions, the average worker experiencing a job flow with one full-quarter of nonemployment observed experienced a six-month nonemployment spell.

confidence that they experienced a spell of joblessness. Additionally, about 5-8% of job separators in each sample have no observed positive UI wages in any state to the end of the time series in 2010:4. These would include those who found employment not covered by a state unemployment insurance system and those who dropped out of the labor force. Note also that a person who separates but returns to the same employer in the same or adjacent quarter would not be identified as a separation in our data, because no break in earnings from that employer would be apparent.

IV. Consequences of Job Separations: Descriptive Results

A. Nonemployment Following Job Separation

We begin by describing the distribution of separations by the duration of the spell of joblessness. Table 3a breaks out all job separations by the duration of joblessness associated with the transition into new employment. Approximately 2/5 of all job separators begin a new job within the same quarter as the job separation. That is similar to the fraction of main job separations into new jobs in our previous work on employer-to-employer flows, even with the additional labor force attachment restriction.[14] Somewhat surprisingly, the shares of workers separating from distressed firms who move to new jobs quickly is greater than that for separators generally, within each age/sex group. Distressed separators are also less likely to never be observed with positive earnings again in the time series. The demographic breakouts show expected patterns: younger workers are more likely to experience an immediate flow to new employment and are less likely to never be observed with earnings again.

Table 3b compares the duration of joblessness after job separation by whether or not the worker separated from a distressed firm in each of the three years. As expected, the share of job flows that do not involve an observed spell of nonemployment is greater in the 1999 boom year than in the other two years. In 1995 and 1999 years, displaced workers have a slightly higher rate of flows into new employment in the same quarter, and in all years are more likely to have a shorter rather than a longer nonemployment spell. This bunching of employment transitions into the first two types is explained in part by the lower rates at which distressed separators drop out of the sample, and also by

14 In our earlier paper on employer-to-employer flows, we only required the separating worker to be with that employer in the previous quarter, compared to the previous four quarters here.

their lower tendency to have very long nonemployment spells. The finding that part of what distinguishes distressed from other separators is whether they drop out of the sample is a factor we control for in the subsequent analysis.

B. Earnings Consequences of Job Separations

Next we examine the earnings consequences of job separations for separators generally and for separators from distressed firms. First, we examine the change in quarterly earnings between the separating job and the new acceding job.[15] Table 4a breaks out the 10th, 25th, 50th, 75th, and 90th percentiles of the percent earnings change in real quarterly earnings, by the duration of joblessness, and also by whether or not the separator was departing from a distressed firm. Earnings growth for job stayers is also provided as a comparison. Earnings growth for separators experiencing a within-quarter flow to a new job is positive and fairly high, with 10% earnings growth at the median. The median earnings change for distressed separators re-employed in the same quarter is lower at 5%, but is still positive. Median earnings changes are also positive for separators who are re-employed in the adjacent quarter. However, the median earnings consequences for separators who experience at least one full quarter spell of nonemployment are negative and large for both distressed workers and all job separators. Distressed workers tend to have larger adverse outcomes but both groups experience large negative outcomes.

The dispersion of earnings outcomes increases as the nonemployment spell lengthens. It is especially the bottom half of the distribution (10th and 25th percentiles) that falls as the duration of nonemployment rises, while earnings at the 90th percentile rise sharply for those with four or more quarters of nonemployment. .

Table 4b breaks out the median earnings changes by year. The consequences of nonemployment are more severe and the gains from a job-to-job change are dampened in the recession year of 2001 compared to 1999 and 1995. Still, in both 1995 and 2001 there are significant earnings losses for those with at least a full quarter of nonemployment.

15 We can only compare quarterly earnings for those workers who experience a full-quarter of employment in their new jobs, thus losing earnings changes associated with very short jobs.

With regard to the earnings paths after separation over a longer horizon, Figure 1 compares earnings for 1995:2 separators from distressed firms relative to job stayers at distressed firms. In constructing these earnings paths, workers who have zero earnings in a quarter are included in the averages, so spells of joblessness contribute to lower earnings.[16] Here we see large earnings losses relative to job stayers at the time of separation in 1995:2, with recovery after about 5 years to a similar position relative to stayers. The lower earnings for the separators for a number of years following a separation is a common finding in the displaced worker literature and is presumably driven by a combination of factors by both nonemployment and less desirable job matches upon re-employment.

Figure 2a is similar to Figure 1 but divides distressed separators by the length of nonemployment following job separation. As was suggested by the results for earnings changes upon re-employment in Tables 4a and 4b, the duration of joblessness has negative and lasting consequences on post-separation earnings. Figures 2b and 2c repeat the exercise for the 1999 and 2001 separators, and find a similar pattern in all three years. These breakouts for the all-separators group are not shown but have a similar distribution of outcomes by nonemployment duration. These figures suggest that joblessness is a more important predictor of the earnings outcomes of job separations than displacement, at least as defined using the administrative data on firms. Both distressed separators and non-distressed separators who experience no observed (full quarter) jobless spell do well relative to job stayers and well relative to their pre-separation earnings. In what follows, we focus on the earnings change to the first full quarter of re-employment, as in Table 4, but Figures 1 and 2 suggest that the role of nonemployment duration is important at longer horizons as well.

V. Nonemployment Duration and Earnings Outcomes: Regression results

The descriptive results described above suggest that nonemployment duration after job separation is a critical predictor of the earnings consequences of job separations. Negative consequences of job separations appear to be highly concentrated among

16 However, workers who separate in 1995:2 and disappear from the states in question are not included in these statistics.

workers with at least one full-quarter of joblessness. The one-third of job movers from distressed firms that have no observed jobless spell appear to do remarkably well, in some cases better than job stayers. However, there may be systematic differences between these populations of job separators that account for much of the differences suggested in the descriptive results. To explicitly account for these we examine nonemployment duration and earnings outcomes in a regression framework. For these analyses, in the spirit of JLS, we restricted our sample of separators for those who appear again our data with positive earnings within 8 quarters of the separation. As such, for the remainder of the analysis we focus on workers with fairly strong labor force attachment.

A. Nonemployment Following Job Separation

For the length of nonemployment after separation we estimate a competing-risks hazard model, in which the two risks are becoming re-employed at a new employer and becoming re-employed at the same employer from which one separated ("recall", for short).[17] The probability of becoming re-employed at a new job at each duration of nonemployment, conditional on not already being re-employed, is modeled as

$$logit(new\ job\ in\ t \mid not\ reemployed\ before\ t)_i = \propto_t + \beta_t X_i + \gamma_t Z_i + \mu_{it} \quad (1)$$

where X_i is a vector of worker characteristics that include age, sex, and tenure at separating firm and Z_i is a vector of characteristics of the separating firm, namely size, state, growth rate in the year prior to separation, and the growth rate of the industry within the state. The probability of recall is modeled analogously.

Of particular note, the growth rate of the employer in the year prior to separation is represented by five categories:

a. "Closed": Employment goes to zero.

b. Rapidly shrinking: -100% < change in employment < -30%

c. Slowly shrinking: -30% ≤ change in employment < 0

d. Slow growing: 0 ≤ change in employment < +30%

e. Rapidly growing: change in employment ≥ +30%

Table 5 shows he results of the analysis for the three different years. For each

17 We assume that recalls dominate new jobs, so an individual recalled in a given quarter is not in the risk set for a new job that quarter.

year, the table shows the difference in the probability of a transition (in percentage points) between a person who separated from firms of different growth rates and a person who separated from a rapidly growing firm. The probabilities are evaluated at the means of the other covariates. Even controlling for observed differences in workers and firms and focusing on workers with fairly strong labor force attachments, we find that separators from distressed (closed or rapidly shrinking) firms tend to be faster to find new employment than separators from growing firms. This is especially true for the subsample of distressed separators whose firms closed. Of course, workers from distressed firms were much less likely to be recalled, but conditional on not returning to their former employers, their probabilities of re-employment are higher than for workers from non-distressed firms.

There are many possible economic reasons why job-to-job flows are actually higher for distressed separators. One possible interpretation of this result is that workers from distressed firms anticipate the separation and begin searching for another job ahead of time. [18] Another interpretation is that these workers know that recall to their former employers is unlikely, and so search more intently for new jobs.[19] Indeed, not surprisingly, workers who separate from rapidly-shrinking employers are much less likely to be recalled. Or it may reflect a lessening of the 'lemon's effect' for separators from distressed firms: Potential employers might have greater confidence in the quality of the pool of workers separating from a closing firm, increasing the rate and quality of job offers.

While we can think of reasons to account for the job-to-job flow patterns, the findings might still appear to be at odds with well-established regularities in the literature regarding distressed separators, layoffs and unemployment. First, the proportion of separations that are job losses – layoffs rather than quits – increases sharply with the rate at which a firm contracts (Davis, Faberman and Haltiwanger 2006, 2012). Second, job losers are more likely to become unemployed, and experience more unemployment, than to job leavers (for example, Elsby, Hobijn and Sahin 2010). These two observations

18 The WARN Act requires most employers with more than 100 employees to give 60-day advance notice of a plant closure or mass-layoff event. Research into the impact on the WARN Act on post-displacement earnings and employment have generally found that the WARN act reduced the number of displaced individuals that experienced a jobless spell during the event (e.g. Addison & Blackburn, 1997).
19 For example, Fallick and Ryu (2007).

imply that separators from distressed firms should experience more unemployment, both in incidence and duration, than do separators from non-distressed firms. In stark contrast, we find that separators from distressed firms experience less nonemployment than do separators from non-distressed firms.

One explanation for this paradox is that, as noted above, in our data we cannot identify separations that end in recall within the quarter or in the adjacent quarter. Thus, many separations from non-distressed firms associated with short durations of nonemployment may be missing from our sample, biasing upward the observed distribution nonemployment durations of nondistressed separators. For this to be complete explanation for the paradox, however, it would have to be the case that a large proportion of voluntary separations (which form the majority of separators from non-distressed employers) return quickly to their former employers. Moreover, we find it surprising in itself that separators from distressed firms are so much faster than their counterparts from nondistressed firms to find jobs at new employers, in particular after at least a full quarter of nonemployment has gone by. The obvious key distinction is that our findings refer to spells of **non**employment, not **un**employment. This distinction highlights the likely importance of movements into and out of the labor force accounting for the difference in results. In terms of basic flow accounting, if a higher share of displaced workers have job-to-job flows and a higher share of displaced workers flow into unemployment, then it follows that a lower share of displaced workers must be flowing into out of the labor force.

Our decision to restrict the sample to workers who are re-employed within 8 quarters (as well as including other controls for gender and age) is intended to focus on workers with strong labor force attachments. But it may obviously be that even with this sample restriction distressed separators have lower propensities to move out of the labor force for short periods compared to other separators.

For example, as noted above, distressed separators are more likely to be layoffs and therefore eligible for UI compensation. This alone can contribute to differences in the propensities to flow to unemployment vs. out of the labor force.

However, the findings might also be related to unobserved heterogeneity not captured by our controls and our focus on workers with strong labor force attachments.

In order to evaluate the role of such heterogeneity we considered a variety of sub-groups analyses to either increase or decrease the presumed labor market attachment of the sample. Sub-groups we considered include separators observed with positive earnings within 4 quarters of separation (as opposed to 8 quarters in our main analysis), to men aged 35-44, and to workers with at least 5 years of tenure at the origin firm. We also tried moving in the other direction and restricted the sample to women aged 25-34 (the post-schooling ages with the highest fertility rates), in order to examine a group that may have lower labor force attachment. None of these restrictions significantly changed the result that distressed separators have lower observed incidence of nonemployment and are faster to find new jobs. These robustness exercises indicate that our results are not being driven by obvious differences in labor force attachment. Particularly important here is that the results are robust to workers re-employed within 4 quarters.

To push further on the role of movements in and out of the labor force, we used the matched CPS data to explore such flows. Our analysis here is not intended to exhaustive, only suggestive. We find, as others have, that the rate of workers moving from employment to out of the labor force at high frequencies is quite high even for sub-groups with seemingly strong labor force attachment. For example, for the matched CPS data for 1994 and 1996 (bracketing our reference quarter in 1995), the rate of movement from employed to not-in-the-labor-force even for separators who are men aged 35-44 is 18 percent, which is large enough to possibly explain the higher nonemployment rates of non-distressed separators.

The CPS also provides some information about what individuals are doing when they leave the labor force. For this group of 35-44 year old men, 20 percent stated they were disabled, 8 percent said they were in school, and 2 percent had retired. None of those groups would seem likely to describe the workers in our LEHD sample, who by design are re-employed within a relatively short period (4 or 8 quarters). But 42 percent stated they were doing "something else/other". Given the high overall rate and the important role of the "other" category, movements out of the labor force may be an important element of the nonemployment we observe among even prime-aged males who separate from nondistressed firms.

Another possibility is that the finding in the literature that job losers experience

more unemployment is an artifact of respondents to household surveys like the Current Population Survey failing to report short or casual jobs (Abraham, *et al*, 2009). If so, then eliminating such jobs from our data could reconcile our finding with the literature. Accordingly, we deleted new jobs with particularly low quarterly earnings, or which lasted only one quarter. We also tried deleting jobs with temporary help firms or professional employer organizations (NAICS 5623), and adding separations that occurred in the other three quarters of 1995 (in case one quarter is prone to more short seasonal jobs than another). None of these alterations significantly changed our result.

To sum up, we think the distinction between unemployment and nonemployment is likely quite important in this context and deserves further investigation. But as we have emphasized, our finding of shorter spells of nonemployment for distressed separators is robust to considering workers with strong labor force attachments. Thus, further investigation of this distinction should focus on workers with such strong labor force attachments.

B. Earnings Consequences of Job Separations

For earnings outcomes we estimate the change in log real earnings from four quarters before the reference quarter (e.g., from 1994:Q2 for the 1995:2 separators) to each quarter t following the reference quarter.

$$\Delta y_{it} = \propto_i + \beta_t X_i + \gamma_t Z_i + \delta_t S_i g_i + \mu_{it} \quad (2)$$

where Δy_{it} is the change in log real earnings to quarter *t*, relative to either one or four quarters before the reference quarter; X_i is a vector of worker characteristics that include worker age, sex, and tenure as of the reference quarter; Z_i is a vector of characteristics of the firm of employment as of the reference quarter, namely size, state, growth rate in the year prior to the reference quarter, and the growth rate of the industry within the state; S_i is a dummy variable equal to 1 if the worker separated in the reference quarter; and g_i is the categorical variable for the growth rate of the employer as described above.

We estimate this equation separately for each quarter *t* , on a sample that includes a) workers who remain employed in t at the same employer as in the reference quarter (stayers), and b) workers who separated in the reference quarter and whose first

subsequent quarter of re-employment was in quarter t. However, while the first quarter of re-employment is used to define the length of the nonemployment spell, we use the first full quarter of earnings in that job (i.e., quarter $t+1$) to define the change in earnings. That is, we estimate only the earnings change for separators for their first full quarter of re-employment, relative to workers who did not separate. For each duration of nonemployment, then, the vector of coefficients δ_t represents the earnings "penalty" for separators from each growth category of employer relative to stayers.

Table 6 and Figure 3 show the earnings penalties from these regressions (evaluated at the means of the other covariates).[20] The average earnings penalty for separators is fairly small when the separator become re-employed without a full quarter of nonemployment, and there appears to be no penalty on average for separators who become re-employed within the same quarter. The losses increase dramatically with the first observed quarter of nonemployment, and remain strongly negative for longer nonemployment spells.

In contrast to the importance of observed nonemployment, we find little evidence that separating from a distressed firm – or even a closing firm - is an important predictor of the earnings consequences of job separations conditional on length of nonemployment after separation. For workers who make a same quarter job-to-job flow, separators from plant closings have slightly worse earnings outcomes than other separators. But for all other nonemployment duration groups, workers who separated from distressed firms fare no worse than other separators.

We also estimated quantile regressions of the same form as equation (2). For the sake of brevity, we only report the results for 1995 in Figure 4, but the other years show similar patterns. The steep worsening of the earnings penalty as observed nonemployment moves from zero to one quarter is evident in all but possibly the top end of the distribution. Moreover, also with the arguable exception of the top decile, there is no systematic pattern of distressed separators faring worse, relative to stayers, than other separators.

20 In Figures 3 and 4, workers who make a same quarter transition have a -1 for number of quarters of nonemployment, workers who obtain a job next quarter have a 0 for number of quarters of nonemployment and so on.

VI. Conclusions

Using a methodology developed for tracking employer-to-employer transitions (both direct transitions and transitions involving spells of nonemployment), we investigate the consequences of separations for both the duration of nonemployment spells and for earnings outcomes. We find that direct job-to-job flows within the same quarter account for about 1/3 of separations and that only about half of all separators experience a full quarter of observed nonemployment. We also find that direct job-to-job flows without nonemployment are strongly procyclical.

We explore the role of job-to-job flows for the dynamics of earnings and employment outcomes. Somewhat surprisingly, we find that displaced workers (separators from distressed firms) have a higher likelihood than other separators of moving to a new job without an observed spell of nonemployment, and remain faster to move into a new job even after a significant period of nonemployment. This pattern is robust to the business cycle and a variety of worker and firm controls including focusing on sub-groups with very strong observed attachments to the labor force (e.g., workers who are re-employed within 4 quarters of separation). This finding is not inconsistent with the findings in the literature that displaced workers are more likely to experience layoffs and spells of unemployment. Partly, it may be accounted for by our inability to observe separations that result in a worker returning to the same employer after only a short period. Perhaps more important, we focus on spells of nonemployment and not unemployment. But our findings indicate that the existing findings should not be interpreted as suggesting that displaced workers are less likely to have a direct job-to-job flow.

We find that accounting for direct job-to-job flows is critical in accounting for the earnings consequences of separations. We find that the distribution of earnings outcomes for workers who experience a separation is similar for workers who separate from distressed (i.e., rapidly contracting) firms and for those who separate from non-distressed firms. We find that a much more important indicator of the earnings consequences of the job separation is whether the separation yielded a spell of joblessness. Workers who become re-employed fairly quickly – without an observed quarter of nonemployment –

do not lose much in terms of earnings, while there is a large earnings penalty for those who experience at least a quarter of nonemployment.

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Table 1
Characteristics of Attached Job Separators and Attached Job Stayers
Pooled 1995, 1999, and 2001 Samples

	All Separators %	Distressed Separators %	Job Stayers %
Age at time of separation			
25-34	39.87	36.25	28.23
35-44	34.71	35.62	37.32
45-55	25.42	28.12	34.44
Sex			
Male	51.95	55.25	52.66
Industry of separation			
A: Natural Resources & Mining	1.74	2.81	1.54
B: Construction	5.97	5.69	4.36
C: Manufacturing	16.55	27.83	19.46
D: Trade, Transportation & Utilities	21.82	17.55	19.36
E: Information	3.36	5.23	3.49
F: Finance Activities	6.93	6.59	6.29
G: Prof & Business Services	14.19	19.09	9.89
H: Educational & Health Services	15.98	9.44	21.21
I: Leisure & Hospitality	7.37	4.52	5.14
J: Other Services	3.75	1.01	2.86
K. Public Administration	2.34	0.25	6.40
Size of Separating Firm			
Small Firm (<50)	33.25	n/a	24.47
Mid-size Firm (50-500)	32.50	68.64	28.96
Large Firm (>500)	34.26	31.36	46.57
N	2,016,206	146,067	2,989,177

Notes: Separators are workers from CA, NC, OR, WA, or WI with at least one-year tenure at the firm at time of separation. Distressed separators are those separating from a firm with at least 50 workers that lost 30% or more of its employment in the year ending in the quarter subsequent to the time of separation. Stayers are those attached workers with at least one-year tenure at their main job in the reference quarter and are employed for the entire quarter subsequent to the reference quarter.

Table 2
Characteristics of Distressed Separators in 1995, 1999, and 2001

	1995 Distressed Separators %	1999 Distressed Separators %	2001 Distressed Separators %
Age at time of separation			
25-34	38.31	34.13	36.53
35-44	35.61	36.98	34.82
45-55	26.08	28.89	28.65
Sex			
Male	53.03	55.52	56.15
Industry of separation			
A: Natural Resources & Mining	3.83	3.51	1.90
B: Construction	6.63	6.47	4.77
C: Manufacturing	21.51	31.86	28.45
D: Trade, Transportation & Utilities	18.96	18.28	16.44
E: Information	3.68	3.15	7.21
F: Finance Activities	12.32	5.81	4.32
G: Prof & Business Services	13.27	14.20	24.79
H: Educational & Health Services	10.00	10.70	8.43
I: Leisure & Hospitality	7.85	4.82	2.74
J: Other Services	1.69	1.00	0.69
K. Public Administration	0.26	0.20	0.27
Size of Separating Firm			
Small Firm (<50)	n/a	n/a	n/a
Mid-size Firm (50-500)	68.95	70.10	67.62
Large Firm (>500)	31.05	29.90	32.38
N	33,665	41,968	70,434

Table 3a
Nonemployment Duration Following Separation: All Separators by Age and Sex
Pooled 1995, 1999, 2001 separators
(percent)

	Re-employment same quarter	Re-employment subsequent quarter	One full-quarter of non-employment	2-3 quarters of non-employment	At least 4 quarters non-employment	No additional UI earnings observed	N
All Separators							
Age 25-34	42.83	24.87	8.48	6.67	13.17	3.97	709,036
Age 35-44	39.24	22.98	9.51	7.37	14.94	5.95	591,125
Age 45-55	34.02	21.36	10.21	7.79	15.02	11.60	415,438
Male	42.03	23.57	8.83	7.02	12.53	6.03	899,546
Female	36.63	23.16	9.72	7.36	16.11	7.02	816,053
Distressed Separators							
Age 25-34	43.27	27.19	8.72	7.18	10.88	2.75	49,748
Age 35-44	40.78	25.92	9.80	7.51	11.99	3.99	47,933
Age 45-55	36.93	24.93	10.32	8.11	12.50	7.22	36,743
Male	42.95	26.07	9.11	7.37	10.58	3.93	74,866
Female	37.76	26.19	10.09	7.79	13.15	5.02	59,558

Notes: Workers recalled to the same employer after job separation are excluded. 'No additional UI earnings observed' indicates workers that are not observed having UI earnings in any of the included LEHD states by the end of 2010.

Table 3b
Nonemployment Duration Following Separation: Distressed vs. All Separations
Pooled 1995, 1999, 2001 separators
(percent)

	Re-employment same quarter	Re-employment subsequent quarter	One full-quarter of non-employment	2-3 quarters of non-employment	At least 4 quarters non-employment	No additional UI earnings observed	N
All Separations 1995	37.73	22.68	9.72	7.59	16.97	5.31	514,602
Distressed 1995	41.21	24.72	9.57	7.99	13.10	3.40	29,732
All Separations 1999	42.50	23.99	8.71	6.86	11.84	6.11	585,071
Distressed 1999	45.77	27.11	9.30	6.08	8.24	3.50	38,900
All Separations 2001	38.02	23.36	9.38	7.15	14.22	7.87	615,926
Distressed 2001	37.37	26.17	9.67	8.23	13.15	5.42	65,792

Notes: Workers recalled to the same employer after job separation are excluded. 'No additional UI earnings observed' indicates workers that are not observed having UI earnings in any of the included LEHD states by the end of 2010.

Table 4a

Real Quarterly Earnings Change, First New Job Relative to Separating Job By Length of Non-Employment Spell After Separation Pooled 1995, 1999, 2001 Separations, Full-Quarter Earnings, Excluding Recalls (percent)

Distressed Separations					
	10th	**25th**	**50th**	**75th**	**90th**
New job in same quarter	-34	-13	5	28	68
New job in adjacent quarter	-44	-21	2	28	67
Full-quarter non-emp	-54	-23	0	19	51
Two or three quarters non-emp	-66	-40	-11	18	71
Four or more quarters non-emp	-77	-51	-18	23	103
Secondary job becomes main	-82	-56	-18	9	46
All Attached Separators					
New job in same quarter	-34	-11	10	37	88
New job in adjacent quarter	-46	-20	6	36	98
Full-quarter non-emp	-69	-41	-10	22	86
Two or three quarters non-emp	-68	-41	-8	32	129
Four or more quarters non-emp	-78	-50	-9	49	202
Secondary job becomes main	-80	-53	-15	21	65
Job Stayers	-29	-7	2	15	36

Note: All earnings changes are changes in real 2002 quarterly earnings. All percentiles, including medians, are fuzzed throughout the paper for confidentiality purposes. The 'secondary job becomes main job' flow category refers to workers who had a secondary job at the time of separation from the 1995:2 main job that subsequently become the main source of earnings. Stayers are those attached workers with at least one-year tenure at their main job in the reference quarter and are employed for the entire quarter subsequent to the reference quarter.

Table 4b
Median Real Quarterly Earnings Change,
First New Job Relative to Separating Job,
By Length of Non-Employment Spell After Separation
Full-Quarter Earnings, Excluding Recalls
(percent)

Distressed Separations			
	1995	**1999**	**2001**
New job in same quarter	4	10	3
New job in adjacent quarter	2	14	-4
Full-quarter non-emp	-12	7	-17
Two or three quarters non-emp	-17	2	-19
Four or more quarters non-emp	-10	-11	-24
Secondary job becomes main	-23	-11	-20
All Attached Separators			
New job in same quarter	8	14	6
New job in adjacent quarter	3	13	1
Full-quarter non-emp	-12	-3	-15
Two or three quarters non-emp	-11	3	-15
Four or more quarters non-emp	-2	-5	-18
Secondary job becomes main	-14	-10	-21
Job Stayers	1	6	1

Note: Earnings at separating job refer to 4 quarters before the separation.

Table 5
Differences in Re-Employment Transition Rates across Firm Types (percentage points)

1995 sample	New job observed in the same quarter	New job observed in subsequent quarter	One full-quarter of nonemployment before re-employment	Two full quarters of nonemployment before re-employment
Firm Type (excluding recalls)				
Firm closed	4.6	14.8	21.7	9.5
Rapidly shrinking firm	5.5	4.1	3.8	5.5
Slowly shrinking firm	2.6	-1.2	1.5	1.1
Slowly growing firm	-2.7	-7.3	0.1	-0.6
Rapidly growing firm	Reference group			
Pr(transition)	32.9%	29.4%	31.0%	26.5%
Firm Type (recalls)				
Firm closed	n/a	n/a	-55.4	-56.5
Rapidly shrinking firm	n/a	n/a	-12.7	-6.7
Slowly shrinking firm	n/a	n/a	-4.3	-0.7
Slow growing firm	n/a	n/a	12.0	1.0
Rapidly growing firm	Reference group			
Pr(transition)	n/a	n/a	59.5%	17.4%

1999 sample	New job observed in the same quarter	New job observed in subsequent quarter	One full-quarter of nonemployment before re-employment	Two full quarters of nonemployment before re-employment
Firm Type (excluding recalls)				
Firm closed	4.1	21.0	23.8	10.6
Rapidly shrinking firm	7.5	8.5	6.6	4.8
Slowly shrinking firm	3.6	1.9	1.0	1.7
Slowly growing firm	5.3	1.7	-3.4	0.0
Rapidly growing firm	Reference group			
Pr(transition)	41.4%	39.7%	33.9%	28.4%
Firm Type (recalls)				
Firm closed	n/a	n/a	-56.9	-18.5
Rapidly shrinking firm	n/a	n/a	-18.5	-9.6
Slowly shrinking firm	n/a	n/a	-5.1	-1.7
Slow growing firm	n/a	n/a	-11.8	-3.3
Rapidly growing firm	Reference group			
Pr(transition)	n/a	n/a	42.8%	18.3%

Table 5, continued
Differences in Re-Employment Transition Rates across Firm Types (percentage points)

2001 sample	New job observed in the same quarter	New job observed in subsequent quarter	One full-quarter of nonemployment before re-employment	Two full quarters of nonemployment before re-employment
Firm Type (excluding recalls)				
Firm closed	6.9	16.4	10.6	11.3
Rapidly shrinking firm	1.1	6.5	3.5	5.8
Slowly shrinking firm	3.2	1.5	1.5	2.1
Slowly growing firm	2.3	0.8	-1.7	1.3
Rapidly growing firm	Reference group			
Pr(transition)	37.1%	38.3%	31.7%	26.3%
Firm Type (recalls)				
Firm closed	n/a	n/a	-40.6	-11.1
Rapidly shrinking firm	n/a	n/a	-18.9	-4.8
Slowly shrinking firm	n/a	n/a	-5.4	-1.2
Slow growing firm	n/a	n/a	-1.1	3.3
Rapidly growing firm	Reference group			
Pr(transition)	n/a	n/a	33.4%	11.2%

Table 6
Change in log earnings,
four quarters before reference quarter to first full quarter of re-employment,
excluding recalls.
(percentage points, relative to stayers)

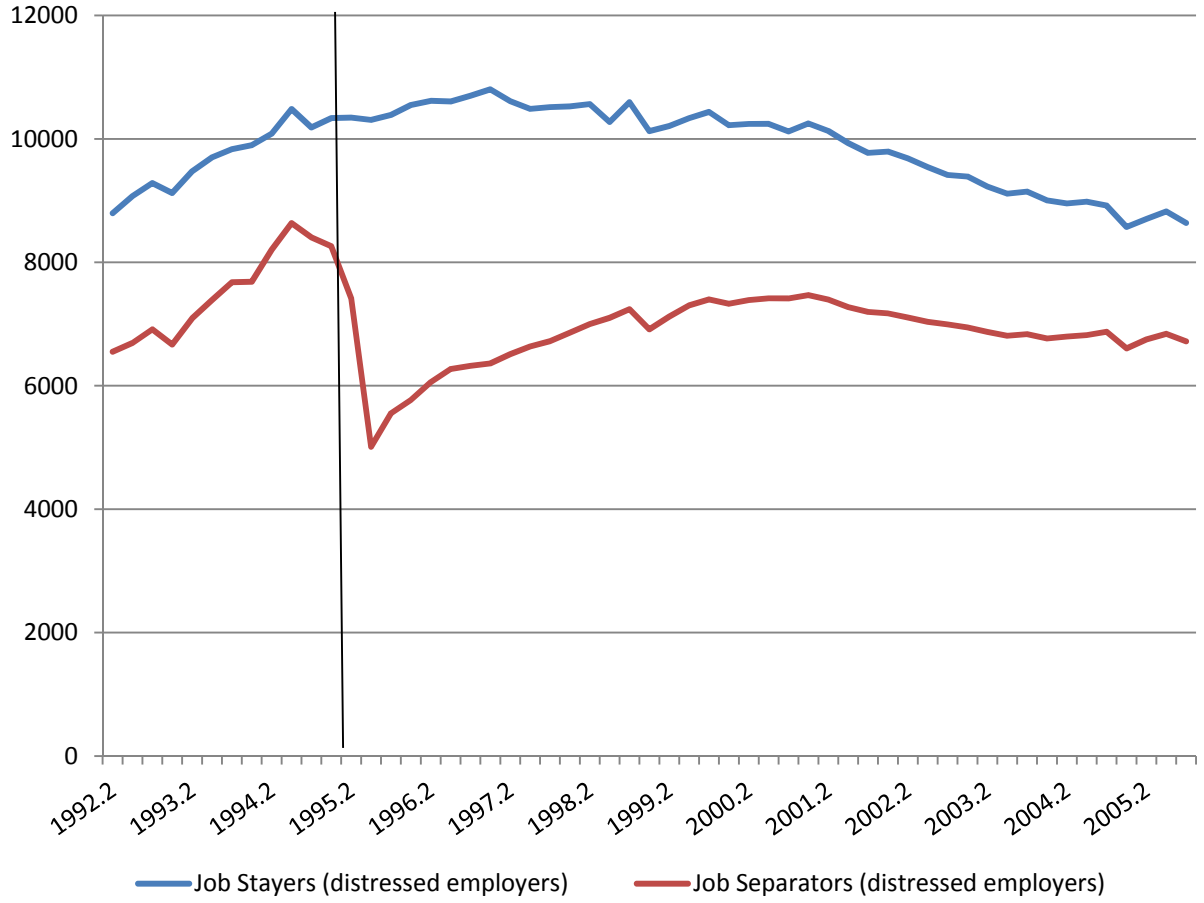
1995	Firm closed	Rapidly shrinking firm	Slowly shrinking firm	Slowly growing firm	Rapidly growing firm
New job same quarter	-1	3	0	0	4
New job next quarter	-1	-3	-9	-9	-5
1 quarter nonemployment	-12	-20	-20	-23	-22
2 quarters nonemployment	-26	-17	-22	-19	-16
3 quarters nonemployment	-20	-18	-24	-21	-22
4 quarters nonemployment	-19	-16	-21	-21	-17

1999	Firm closed	Rapidly shrinking firm	Slowly shrinking firm	Slowly growing firm	Rapidly growing firm
New job same quarter	-3	3	0	-1	3
New job next quarter	6	0	-3	-7	-6
1 quarter nonemployment	-5	-16	-24	-26	-24
2 quarters nonemployment	-15	-14	-19	-21	-14
3 quarters nonemployment	-13	-15	-21	-20	-13
4 quarters nonemployment	-23	-15	-20	-19	-17

2001	Firm closed	Rapidly shrinking firm	Slowly shrinking firm	Slowly growing firm	Rapidly growing firm
New job same quarter	-4	3	-1	-2	0
New job next quarter	-7	-3	-10	-8	-10
1 quarter nonemployment	-17	-19	-21	-24	-21
2 quarters nonemployment	-19	-18	-22	-24	-21
3 quarters nonemployment	-24	-19	-24	-24	-24
4 quarters nonemployment	-18	-18	-24	-21	-19

Figure 1

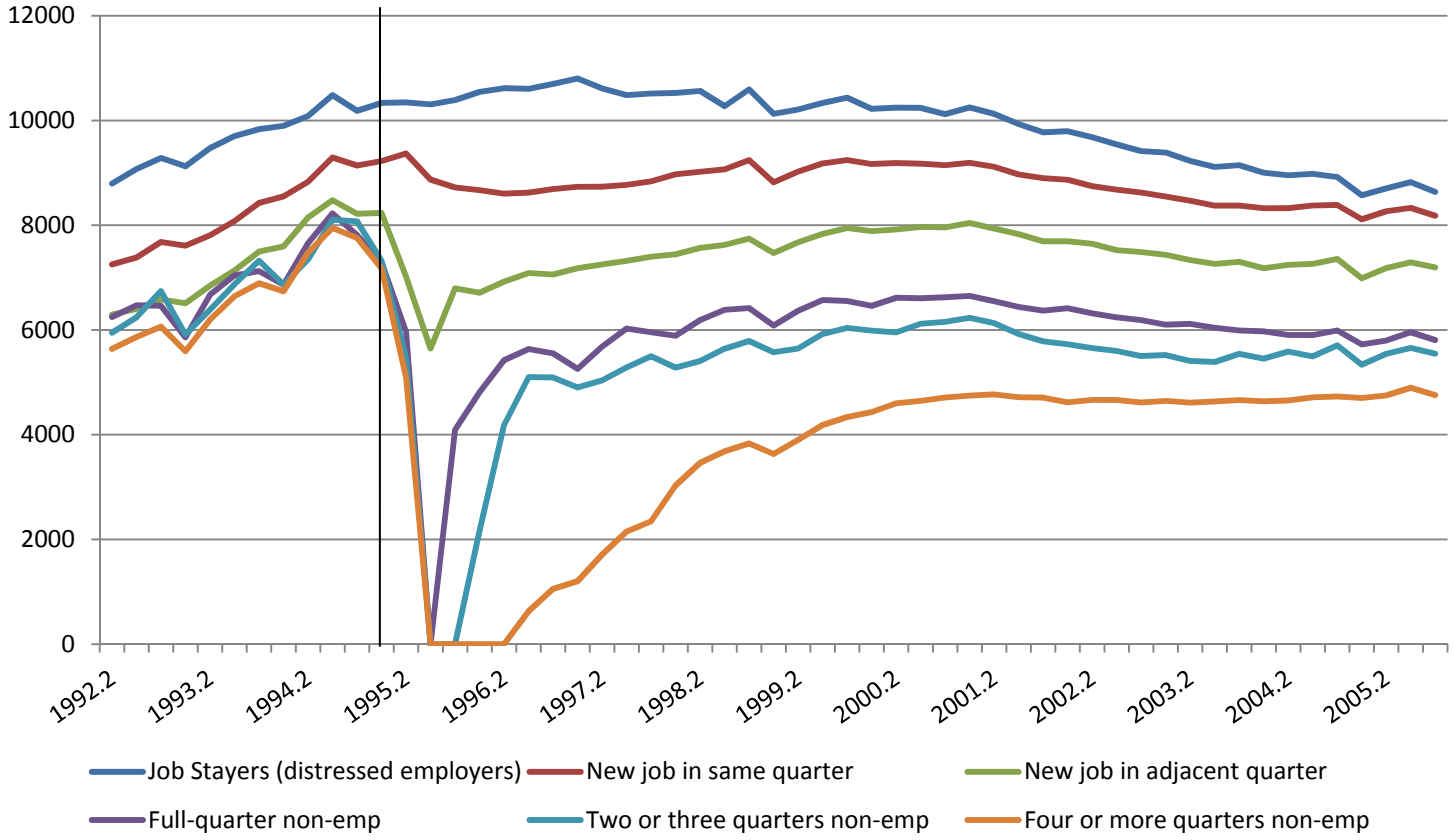
Real Quarterly Earnings for Distressed Separators vs. Stayers: 1995 sample ($2002)



Note: Earnings are seasonally adjusted. Top 3% of quarterly earnings are trimmed. Stayers here are defined as those who remain with the distressed employer an additional two years after separator sample separates from firm.

Figure 2a

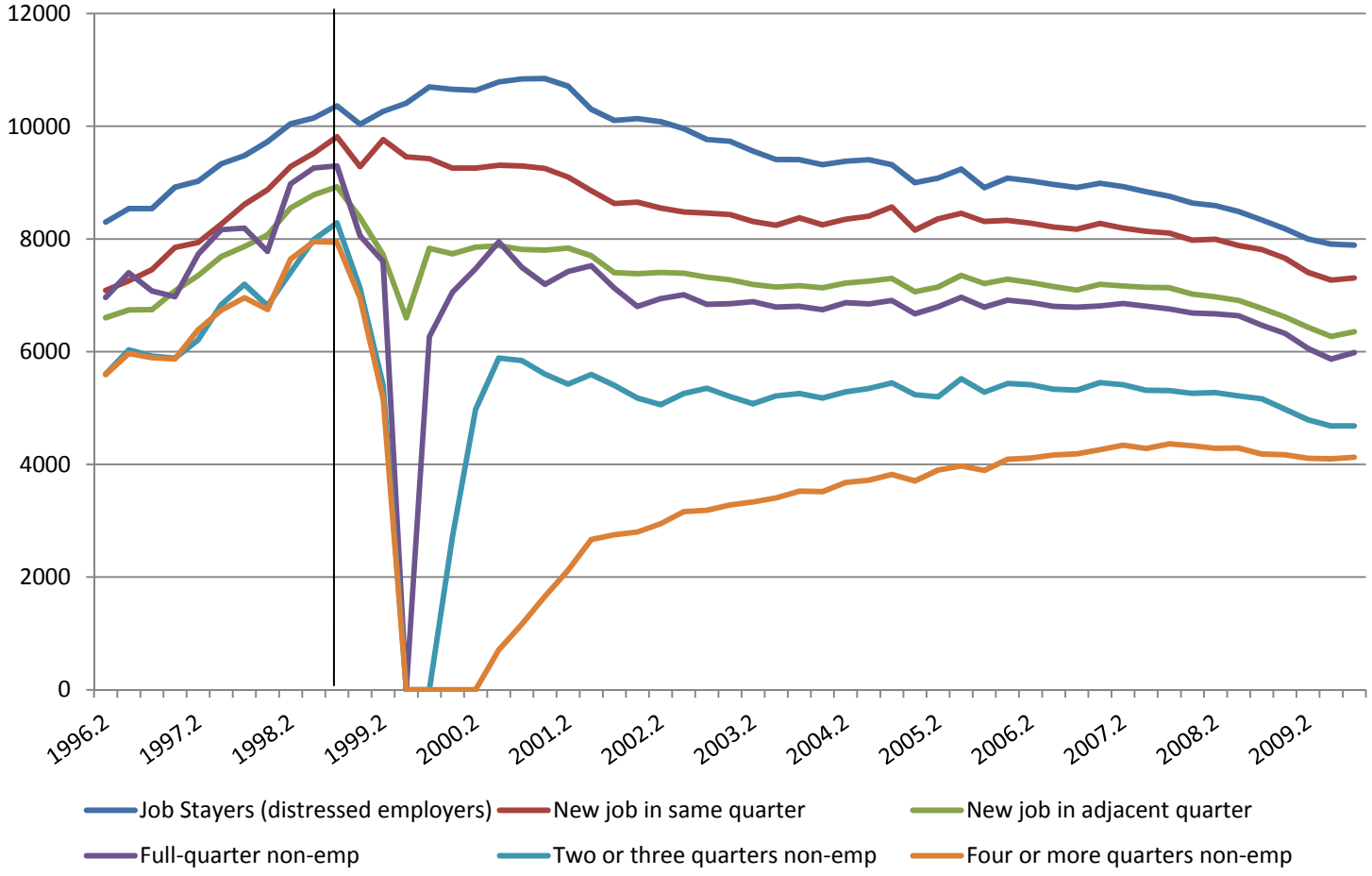
Real Quarterly Earnings for Distressed Separators vs. Stayers: 1995 Sample ($2002)



Note: Earnings are seasonally adjusted. Top 3% of quarterly earnings are trimmed. Stayers here are defined as those who remain with the distressed employer an additional two years after separator sample separates from firm.

Figure 2b

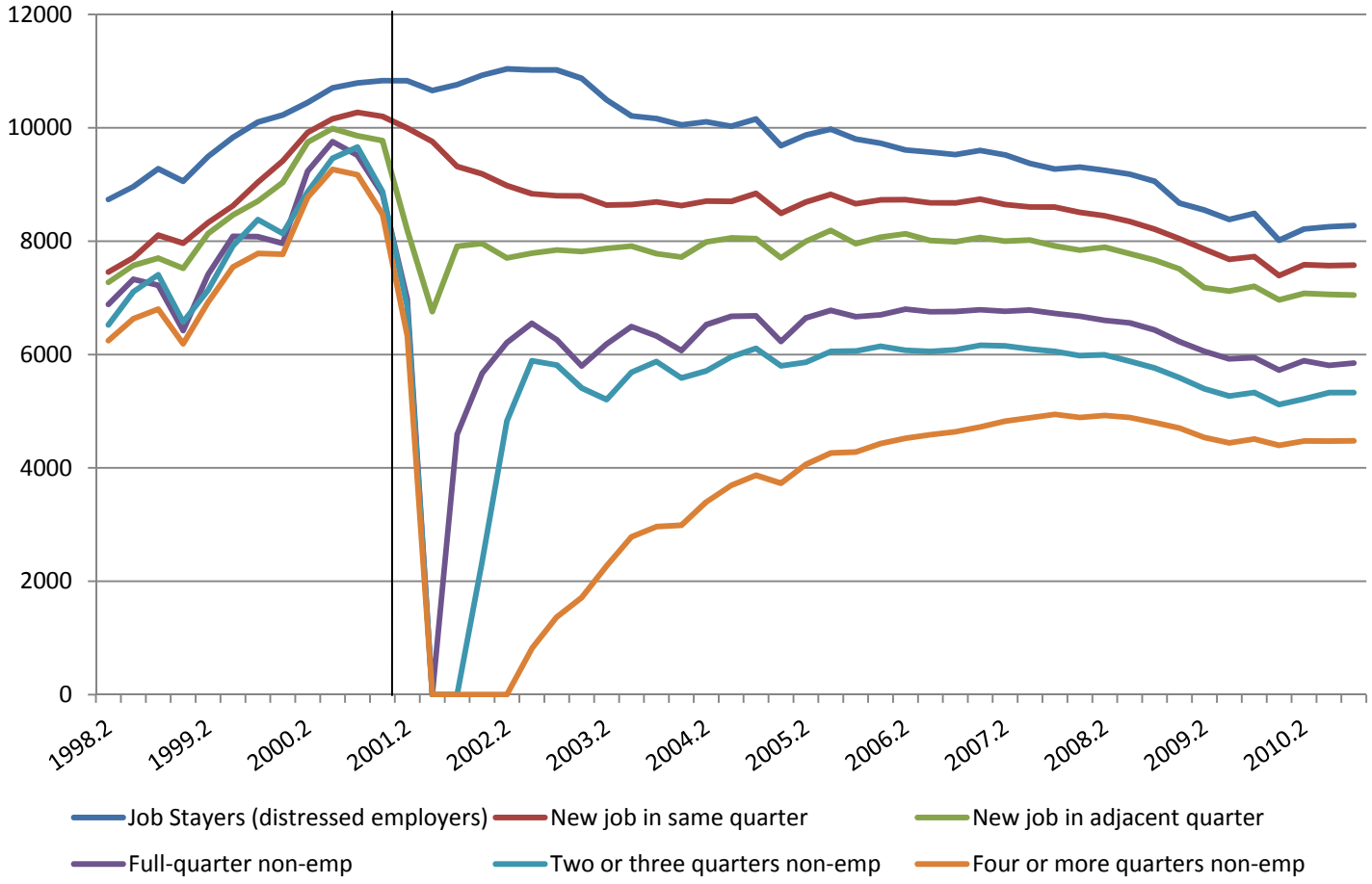
Real Quarterly Earnings for Distressed Separators vs. Stayers: 1999 Sample ($2002)



Note: Earnings are seasonally adjusted. Top 3% of quarterly earnings are trimmed. Stayers here are defined as those who remain with the distressed employer an additional two years after separator sample separates from firm.

Figure 2c

Real Quarterly Earnings for Distressed Separators vs. Stayers: 2001 Sample ($2002)



Note: Earnings are seasonally adjusted. Top 3% of quarterly earnings are trimmed. Stayers here are defined as those who remain with the distressed employer an additional two years after separator sample separates from firm.

Figure 3a

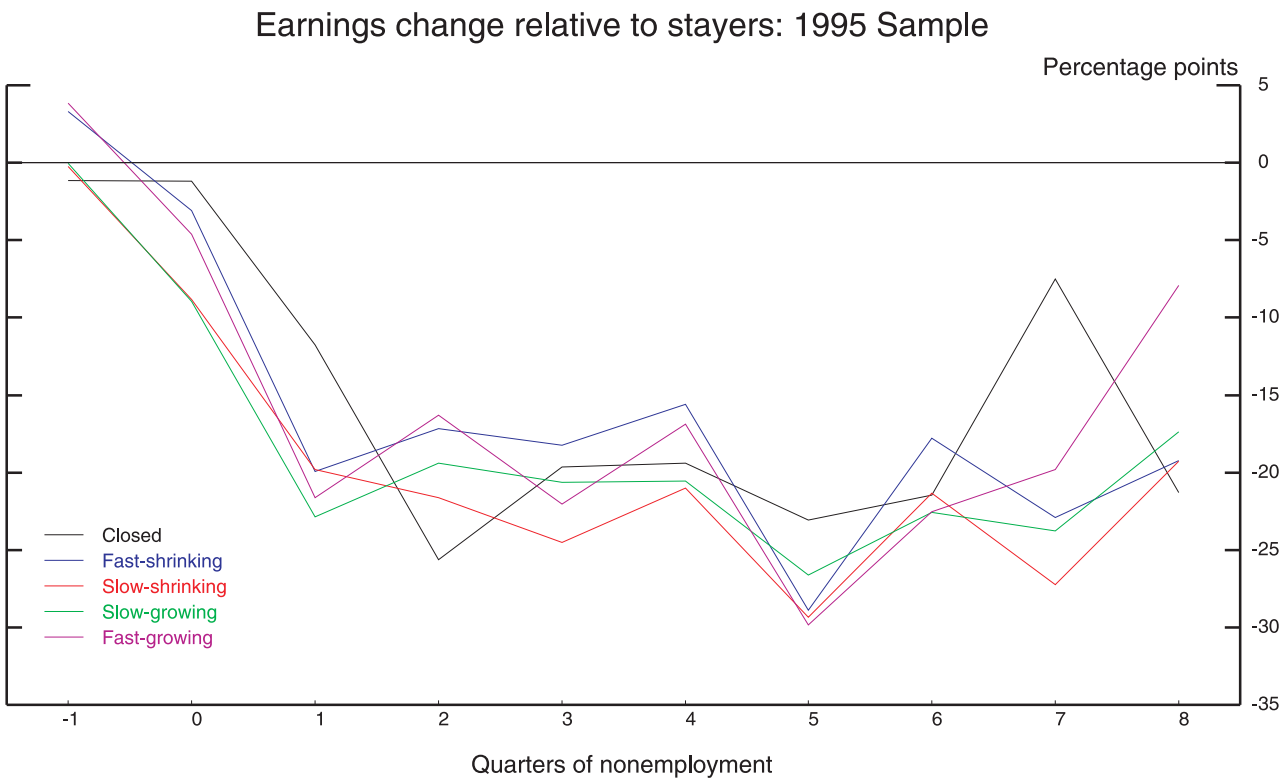


Figure 3b

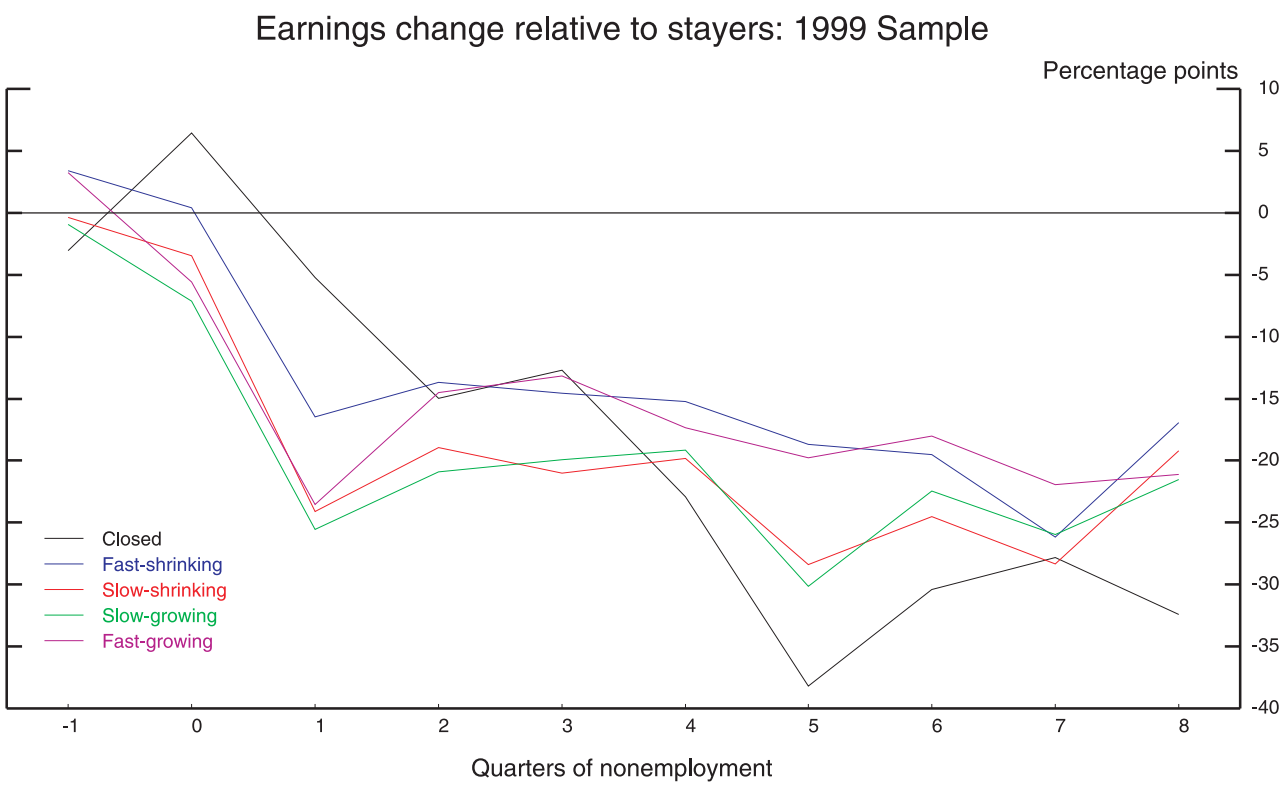

Earnings change relative to stayers: 1999 Sample
Percentage points
10
5
0
-5
-10
-15
-20
-25
-30
-35
-40
Closed
Fast-shrinking
Slow-shrinking
Slow-growing
Fast-growing
-1
0
1
2
3
4
5
6
7
8
Quarters of nonemployment

Figure 3c

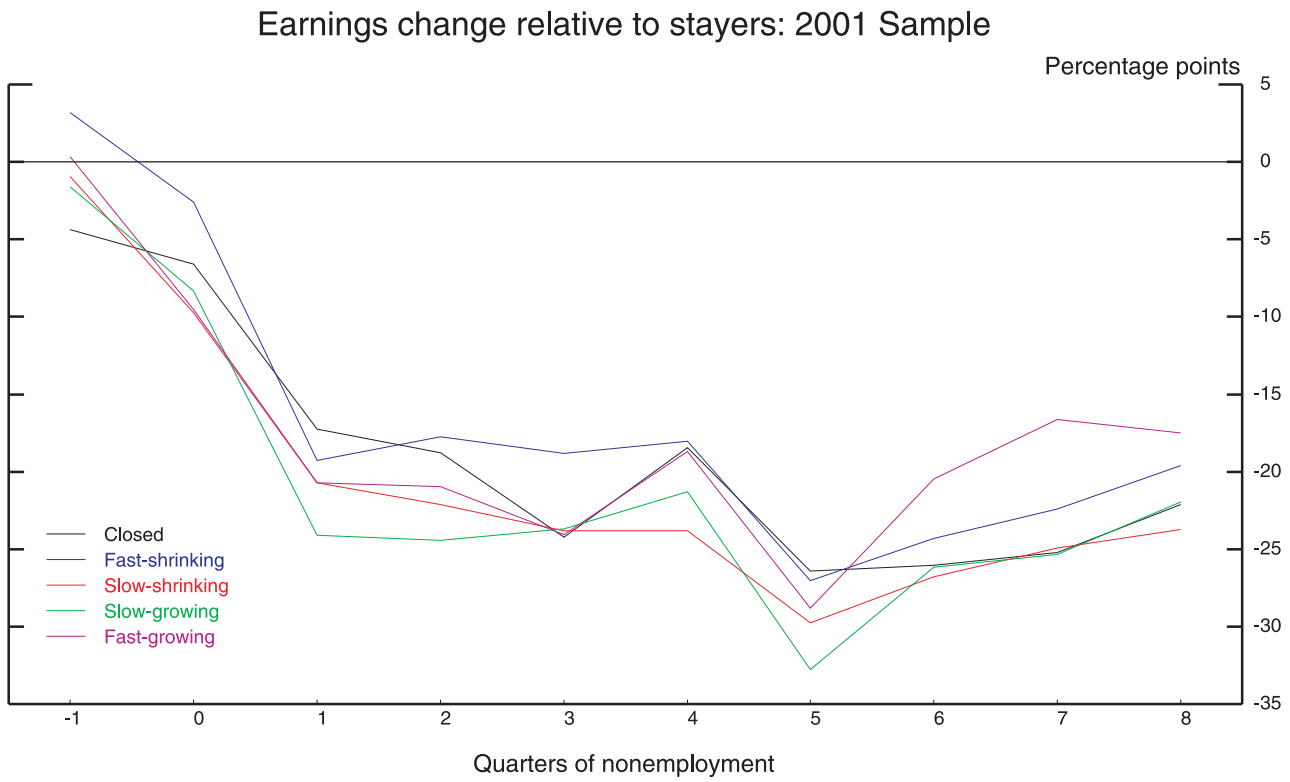

Earnings change relative to stayers: 2001 Sample
Percentage points
5
0
-5
-10
-15
-20
-25
-30
-35
Closed
Fast-shrinking
Slow-shrinking
Slow-growing
Fast-growing
-1
0
1
2
3
4
5
6
7
8
Quarters of nonemployment

Fig. 4a: Earnings change relative to stayers: 1995 Sample (10th percentile)

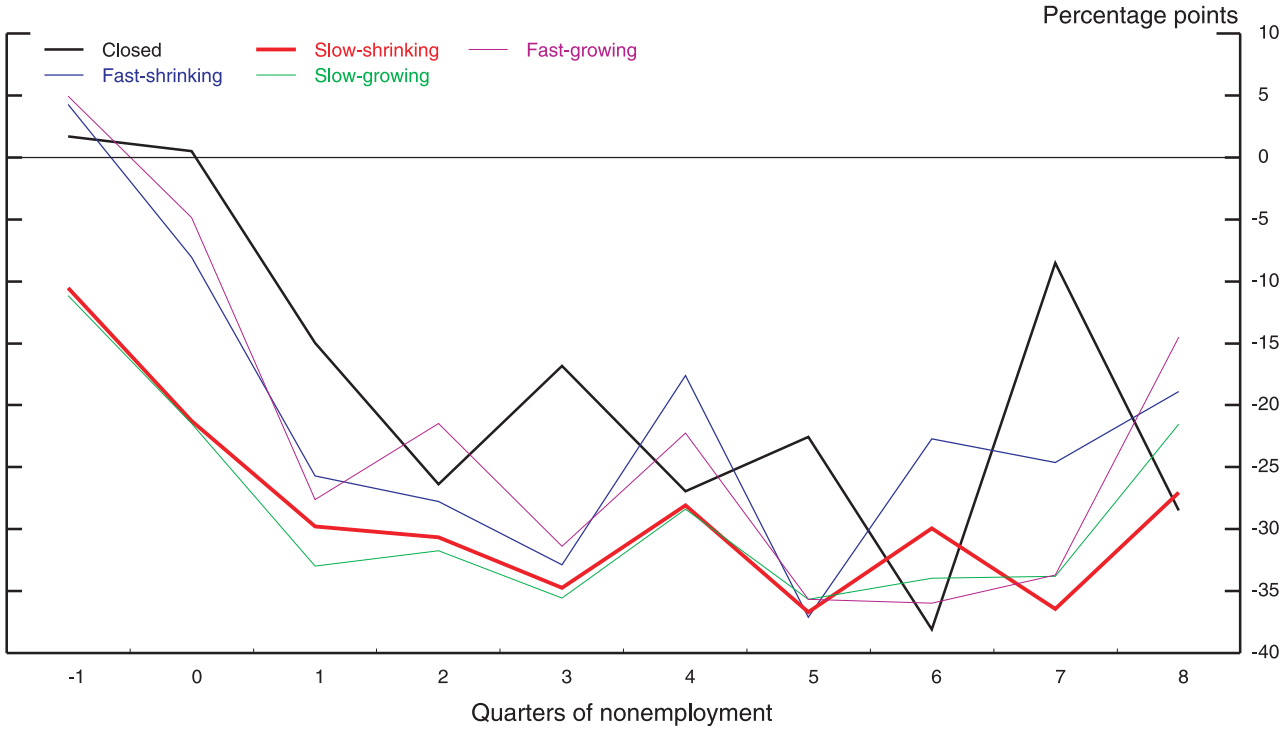


Fig. 4b: Earnings change relative to stayers: 1995 Sample (25th percentile)

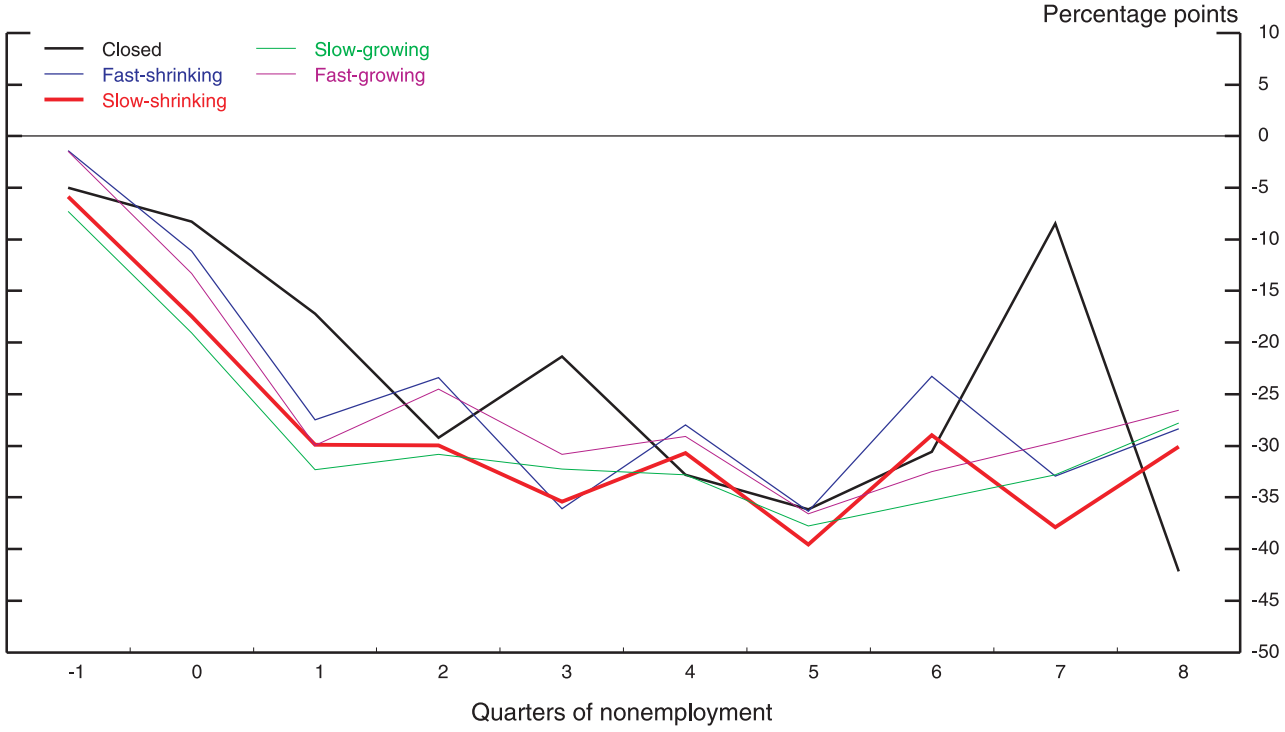


Fig. 4c: Earnings change relative to stayers: 1995 Sample (50th percentile)

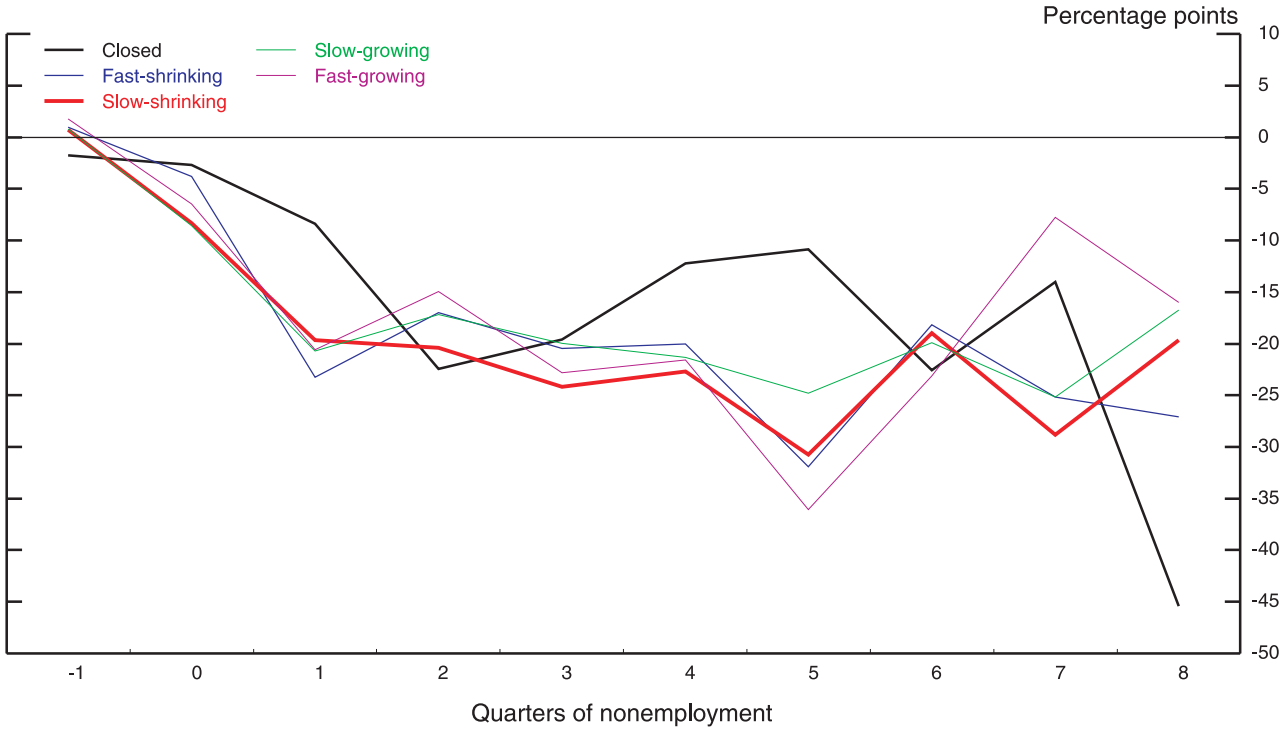


Fig. 4d: Earnings change relative to stayers: 1995 Sample (75th percentile)

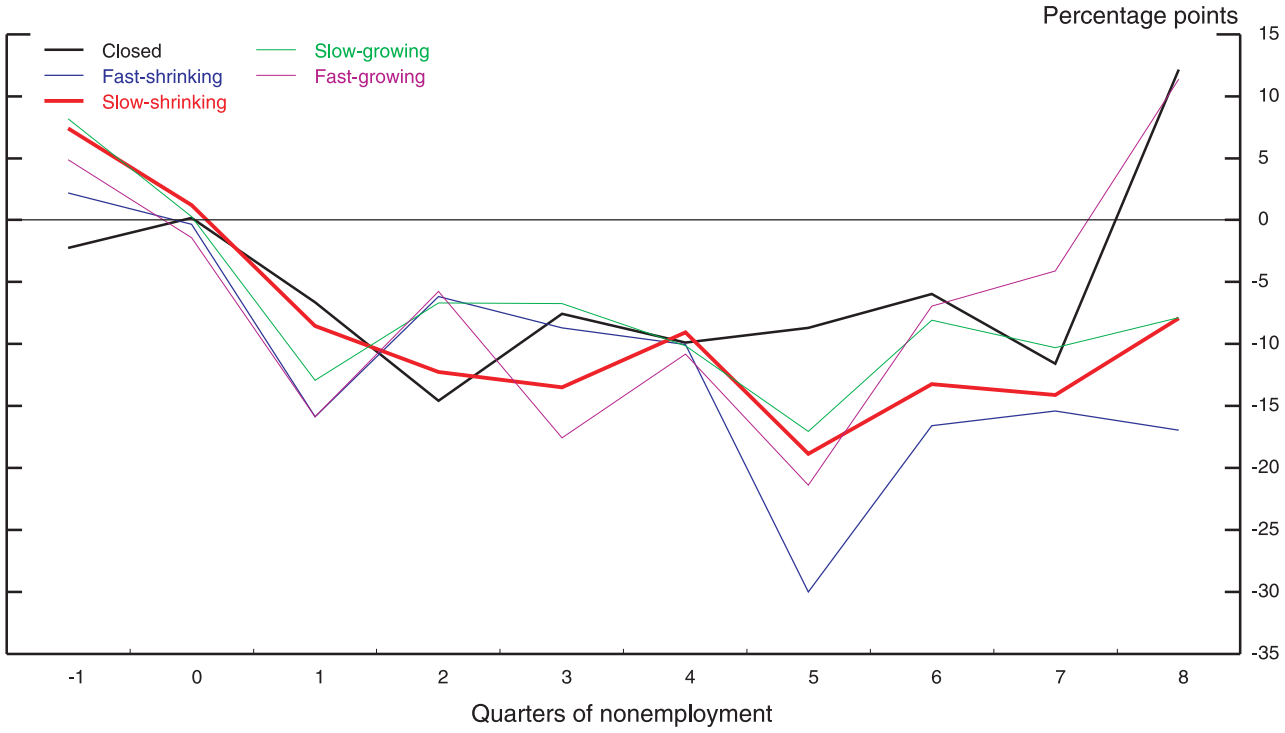


Fig. 4e: Earnings change relative to stayers: 1995 Sample (90th percentile)