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The Labor Market in the Great Recession: An Update

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Since the end of the Great Recession, mid-2009, the unemployment rate has only come down by about a percentage point. Most of the continued dire labor market situation is due to an overall weakness in demand while only a small part seems attributable to increases in labor market frictions. The continued labor market weakness has led to the highest level of long-term unemployment in the U.S. in the postwar period and a blurring of the distinction between being unemployed and participating in the labor market. Properly accounting for participation to unemployment flows turns out to be important for understanding the evolution of the duration distribution of unemployment. We do so in a simulation to show that the U.S. labor market is not very sclerotic and unlikely to be subject to a high structural level of long-term unemployment.

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In the Spring 2010 volume of BPEA, we have provided an analysis of the labor market developments in the most current recession. We have documented that from the perspective of a wide range of labor market outcomes, the 2007-2009 recession was the deepest downturn in the labor market with male, younger, less educated workers, as well as individuals from ethnic minorities being more adversely affected. Starting in early 2010, the labor market conditions have begun to recover slowly. The unemployment rate, which peaked at 10.1%, came down to 9.1%. Most groups that had high increases in their unemployment rates experienced relatively higher declines in their unemployment rates, i.e. men, younger workers, and Hispanic workers (Table 1). Two exceptions to this pattern were workers with less than high-school education and black workers. Workers with less than a high-school degree had only a 0.6 percentage point decline in their unemployment rate[1] while the unemployment rate of black workers increased by 0.3 percentage points.

In our earlier paper, we have shown that the nature of labor market adjustment until mid-2009 had displayed a notable resemblance to that observed in past severe downturns. However, the evolution of indicators of real activity and the labor market started to exhibit a divergence starting in 2009. We summarized this divergence in the context of Okun's Law and the Beveridge Curve and concluded that the labor market conditions were weaker than implied by historical relationships between real activity and the labor market. Since then, there have been downward revisions to both GDP and job-openings rate. In addition, the recovery in GDP and job-openings slowed considerably in the first half of 2011 while the unemployment rate went down by about a percentage point. These developments brought the Okun's Law relationship in line with historical observations and narrowed the divergence in the Beveridge Curve relationship.

Even though measures of real activity and the labor market are better aligned relative to the end of 2009, we still observe a deviation in the Beveridge Curve which is around 2.6 percentage points. (See Barnichon, Elsby, Hobijn, and Şahin (2011) and Daly, Hobijn, Şahin, and Valletta (2011)). This deviation has been interpreted as the evidence of the growing importance of structural factors in the persistently high unemployment rate by us and others (See for example Kocherlakota (2010)). In our earlier paper, we identified potential causes of this deviation and evaluated three factors: 1.

[1] This is consistent with Şahin and Willis (2011) who show that the job-openings rate for occupations that typically employ low skilled workers started to recover after vacancies for high skill occupations began to recover.

Skill mismatch; 2. Geographic mismatch arising from house-lock; 3. Emergency unemployment compensation.

There has been a substantial amount of research done to address the quantitative importance of these channels since early 2010. Our view, which is informed by reviewing the recent literature, as well as using some of our own work can be summarized as:

1. Skill mismatch likely has contributed to the increase in the unemployment rate by about 1 percentage point. (Barnichon and Figura (2011), Estevão and Tsounta (2011), Daly, Hobijn, Şahin, and Valletta (2011), Şahin, Song, Topa, and Violante (2011)). However, skill mismatch seems to have a cyclical pattern and mismatch measures have declined considerably since 2009 suggesting a declining role for skill mismatch going forward in the recovery.
2. The role of geographic mismatch and the house-lock mechanism has been quantitatively negligible (Daly, Hobijn, Şahin, Valletta (2011), Molloy,Smith, and Wozniak (2010)), Şahin, Song, Topa, and Violante (2011)). The observation that the interstate migration rate declined during the recession was a motivating evidence for the importance of geographic mismatch. However, Kaplan and Schulhofer-Wohl (2010) showed that the significant drop reported in the annual interstate migration rate between the 2005 and 2006 Current Population Surveys was a statistical artifact arising from the procedure the Census Bureau used to deal with missing data. The corrected data show that interstate migration has been trending downward for many years, but relative to that trend, there was no additional decrease in interstate migration during the December 2007 to June 2009 period.
3. Recent research on the effect of Emergency Unemployment Compensation (EUC) has shown that EUC has likely had an impact on the evolution of the unemployment rate. While estimates range from 0.3-3 percentage points, most studies find an effect of around 1 percentage point. (See Aaronson, Mazumder, and Schecter (2010), Fujita (2010), Nakajima (2010), Rothstein (2011), Valletta and Kuang (2010), Valletta (2010)).

To summarize, recent research indicates that skill mismatch and EUC have contributed to the deviation in the Beveridge Curve. However, we expect the effects of these factors likely will dissipate as the labor market recovery progresses and the EUC extensions are eliminated. This deviation of the Beveridge Curve is at a very low level of vacancy creation, which reflects overall weakness in the labor market rather than an increase in frictions.

Thus, the continued weakness of the labor market is mainly due to the continued overall weakness in the economy. This has led to only a small recovery in labor demand that is just enough to keep up with the growth of the labor force. The result is that we are seeing a record level of long-term unemployment. This can be seen from Figure 1. It plots the unemployment rate in terms of six duration bins. As of June 2011 4 percent of the labor force was unemployed for 26 weeks or more. This raises the concern that the U.S. might end up with long-term unemployment problem of the type that many European countries experienced after the severe recessions of the 1970's and 1980's.

In the next two subsections we provide some new evidence that indicates that such an outcome of "Amerisclerosis" is not likely. To understand why, we first uncover a set of new facts about unemployment inflows and outflows by the duration of unemployment. These are the flows that drive the evolution of the unemployment rate and its duration distribution. Then, we update the simulation in Elsby, Hobijn, and Şahin (2010) to show that the long-run long-term unemployment rate mainly depends on the labor market prospects of the short-term unemployed and that, thus, if labor demand recovers the level of long-term unemployment will decline substantially.

1. Unemployment inflows and outflows reconsidered

In Elsby, Hobijn, and Şahin (2010) we used a labor market flows framework to discuss the developments in the U.S. labor market during the Great Recession. There are basically two different empirical measures of these flows. The first constructs flow transition probabilities from the matched individual-level data in the Current Population Survey (CPS). Estimates of these transition probabilities for 1990 onwards can be calculated based on Bureau of Labor Statistics (BLS, 2008), while pre-1990 estimates have been made available by Shimer (2007). The main problem with these flows is that they seem to contain a large number of spurious transitions between unemployment and non-participation.[2] To overcome this problem, Shimer (2005) proposed a second measure of labor market flows. His measure estimates the outflow rate out of unemployment using data on the stock of unemployed, both the total and those unemployed shorter than 5 weeks, rather than data on the flows.

Shimer's outflow hazard is calculated as follows. First, one calculates the fraction of those unemployed this month who are still unemployed next month. If all inflows into unemployment

[2] See Poterba and Summers (1995) and the papers they refer to for a discussion of these spurious flows.

consist of persons who report a duration of unemployment shorter than 5 weeks, then this fraction equals the number of persons unemployed next month, u_{t+1}, minus those unemployed next month with a duration of unemployment shorter than 5 weeks, $u_{t+1}^{<5w}$, expressed as a fraction of the number of currently unemployed, u_t. Second, one transforms this one-month unemployment "survival" rate into a continuous outflow hazard. This hazard rate, f_t, equals

$$f_t = -[ln(u_{t+1} - u_{t+1}^{<5w}) - ln(u_t)]. \quad (1)$$

This is the unemployment outflow measure that we used throughout most of the analysis in Elsby, Hobijn, and Şahin (2010). It does not only capture flows from unemployment to employment due to people finding jobs but also flow from unemployment into non-participation.

The fact that Shimer's outflow hazard estimate does not only capture job-finding but also movements into non-participation is well understood. However, for the analysis of cyclical movements in unemployment this did not seem to matter much because, until the middle of 2009, the cyclical fluctuations in Shimer's outflow hazard and the job-finding rate, measured from the CPS flows, were remarkably similar. This can be seen in Figure 2. It plots the logs of both Shimer outflow hazard and the job-finding rate in deviation from their historical mean. As can be seen from that figure, until the end of the Great Recession these two measures moved closely together over the business cycle. This changed, however, in mid-2009 when Shimer's measure showed a much bigger cyclical downturn than the job-finding rate.

One might think that, because the outflow hazard includes both flows to unemployment and non-participation, this deviation reflects a decline in the number of unemployed dropping out of the labor force relative to those finding jobs. The opposite turns out to be the case, as can be seen from Figure 3, flows from unemployment to non-participation have actually increased since the end of the recession while those to employment have basically been flat. This would suggest that the observed cyclical downturn in the estimated outflow hazard should be smaller than that in the job-finding rate, not bigger.

What turns out to be driving the current discrepancy in the cyclical behavior of the outflow hazard relative to the job-finding rate is that the outflow hazard is calculated under the assumption that everyone who flows into unemployment in a month reports a duration of unemployment of 5 weeks or less. This assumption is not borne out by the data. To see this, consider Figure 4. It shows inflows into unemployment by duration as a share of the labor force. There are always some inflows

into unemployment at durations of 5 weeks or higher. Recently, since the start of 2010, they have increased in size and now make up about half of the flows into unemployment. A quarter of the total inflows reports durations of at least 6 months.

Though, at first glance, it might seem that these flows should not exist, it turns out that the CPS survey does not impose that someone who reports to be unemployed in a month - as in did not work in the reference week and did not search for a job in the last month - and who was not classified as unemployed in the previous survey month actually reports a duration of unemployment of less than 5 weeks. The "How long have you been looking for a job?" question is in a different part of the survey. The skip logic means that this duration question gets skipped for people who were classified as unemployed a month ago and 4 weeks get added to their duration, but the unemployment duration for entrants into unemployment does not automatically get recorded as less than 5 weeks.

One way to look at these flows is to simply consider them classification error in the sense of Poterba and Summers (1995). That would mean ignoring the clear cyclical pattern in these flows over the business cycle, which suggests that these inflows reflect something economically more meaningful about labor market decisions of CPS respondents than just measurement error. Though a detailed analysis of who makes up these inflows at high durations is beyond the scope of this update, a couple of things are worth mentioning.

First of all, about 60 percent of the inflows into unemployment at durations higher than a month come from non-participation, while only 25 percent of the inflows with a duration less than a month come from out of the labor force. Hence, the majority of the high duration inflows into unemployment are people who stopped looking for work for some months and then started looking again in the survey month. When asked how long they have been looking for a job, the report how long it is since they initially started looking not since when they resumed their search. The employment-unemployment flows at high durations are possible for individuals who took on a temporary or part-time job and continued looking for a better job while working. Either way, both the high duration inflows from non-participation as well as from employment signal that these persons would like to work more but are not able to find jobs to their liking. In terms of those flowing in from employment this lack of jobs has led them to commit to a temporary solution and to continue to look for better opportunities while for those flowing in from non-participation this lack

of jobs is reducing their search effort. The latter group could be reasonably considered as behaving as marginally attached to the labor force.

This brings us to the second thing about these high duration inflows that is worth noting. The vast majority of those flowing in from non-participation were not classified as marginally attached when they were out of the labor force. This suggests that alternate measures of unemployment, like U5 and U6, which include the marginally attached might understate the actual amount of underutilization of labor, and its cyclical behavior, in the economy.

Because Shimer's outflow hazard is calculated assuming that all inflows into unemployment are at short durations, the existence of these inflows into unemployment at durations higher than 5 weeks affects its interpretation. Due to the high duration inflows, total inflows are exceed $u_{t+1}^{<5w}$. As a result, the ratio $(u_{t+1} - u_{t+1}^{<5w})/u_t$ overstates the share of those who were unemployed last month and are still unemployed this month. Consequently, Shimer's outflow hazard tends to understate the outflow rate out of unemployment. This understatement is increasing in the share of high duration inflows as a share of total inflows. This is why Shimer's outflow hazard has shown more of a cyclical decline than the outflow probabilities calculated based on the BLS (2008).

The pattern of inflows into unemployment at reported durations exceeding one month that we uncovered is not only important for understanding the cyclical movements of Shimer's outflow hazard, it is essential for understanding the dynamics of the duration distribution of unemployment and thus the dynamics of the long-term unemployment rate.

2. Long-Term Unemployment: Amerisclerosis?

In Elsby, Hobijn, and Şahin (2010) we presented a simulation of the aggregate outflow rate that took into account that outflow rates out of unemployment vary substantially by duration. What that simulation did not take into account were the inflows at high durations.[3] However, because these inflows prop up measured unemployment durations, studies that ignore them will have a hard time fitting the right tail of the unemployment duration distribution. Though the emphasis in the simulation in Elsby, Hobijn, and Şahin (2010) was not on the duration distribution, the one implied

[3] Other recent analyses, like Hornstein (2011) and Rothstein (2011), that consider the duration distribution of unemployment and duration dependent hazard rates also do not take into account the duration structure for inflows.

by the calculations has substantially fewer persons unemployed at durations of 6 months or longer than the data.

In order to properly simulate the dynamics of the duration structure of unemployment one needs to take into account both inflows and outflows into unemployment at all durations. Figure 4 already plotted the duration structure of inflows into unemployment. Figure 5 plots the outflow rates out of unemployment by duration and destination based on CPS microdata for the recent 12-month period of July 2010 through June 2011.

Despite the recent severity of long-term unemployment, job-finding rates among the long-term unemployed are sufficiently high that most of them will find work within a medium-term timeframe. The figure shows that each month an average of nearly 11 percent of the long-term unemployed find a job. This job-finding rate is at a historical low in the U.S. but nonetheless is slightly higher than the outflow rate of the French unemployed, averaged across the complete duration distribution as well as expansions and recessions (Hobijn and Şahin, 2009). At this rate, about 75 percent of the long-term unemployed in the U.S. will find a job within a year and nearly 95 percent will find a job within two years.

Though there is some anecdotal evidence that it is very difficult for the long-term unemployed to find a job,[4] Figure 5 reveals that there is no dramatic polarization among the unemployed. The job-finding rate for the very long-term unemployed, with durations of 18 months and higher, is not much lower than for those with durations of 6 to 18 months.

The dynamics of the unemployment duration distribution are determined by the net outflow rates (outflows, Figure 5, minus inflows, Figure 4) from unemployment at different duration bins.[5] For example, the net outflow rate at durations of 1-3 months during a quarter is given by 1 minus the number of unemployed persons at durations of 4-6 months in the next quarter, measured as a share of those in durations of 1-3 months in the current quarter. The calculation of these net outflows only involves counting individuals and thus, does not require the use of matched CPS data that is subject to spurious flows.

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[4] Rampell (2011), for example, discusses the phenomenon of job ads that explicitly require candidates to be "currently employed" or "recently unemployed." This anecdotal evidence provides support for theories of unemployment dynamics in which applicants are ranked based on unemployment durations (e.g., Blanchard and Diamond 1994).

[5] For the rest of our analysis we use quarterly data because some of the monthly data turn out to be very noisy. The duration bins we consider are 1-3, 4-6, …, and 18+.

The columns labeled "2010-2011" and "Expansion" of Table 2 show the average net outflow rates as well as the percentage of the labor force ending in durations of 1 to 3 months for the last 4 quarters for which we have data and for the labor market expansion period, 2004Q1-2007Q1, respectively. All net outflow rates, except for that for durations 16 to 18 months, are currently lower than before the recession. There are several negative entries in the table. These are duration bins where the inflows exceed the outflows.

To consider how pervasive the long-term unemployment problem in the U.S. might be, even if there is a recovery in labor demand for the short-term unemployed, we use these flow rates to construct three simulated paths of the unemployment rate. All three paths start at the aveage duration structure of unemployment and unemployment rate in 2011Q2. The first path is simulated under the assumption that the net outflow rates will remain at the levels reported in the "2010-2011" column of Table 2. The second is the path of the unemployment rate if the net outflow rates immediately return to their expansion period levels. The final path is simulated using the net outflow rates listed in the "Counterfactual" column of Table 2.

Under the counterfactual, labor demand for the short-term unemployed recovers. In the simulation this means that in each quarter 3.2 percent of the labor force ends up unemployed at durations 1-3 months and the net outflow rates of the short-term unemployed (fewer than 6 months) return to their expansion-period average. However, the demand for long-term unemployed does not recover and their net outflow rates remain depressed at their "2010-2011" levels.

Table 3 reports the three paths for the unemployment rate and long-term unemployment rate obtained from this simulation. The long-run values correspond to the flow-steady-state. As can be seen from the table, the net outflow rates observed over the past four quarters imply a steady-state unemployment rate of 9.4 percent, slightly above that in 2011Q2. Since the "2010-2011" scenario suggests the labor market is approximately in its flow steady state, it implies that the long-term unemployment rate will barely budge going forward.

If the inflow and net outflow rates instantaneously return to their 2004Q1 through 2007Q1 levels, then the unemployment rate will drop rapidly to below 6 percent in mid-2012, be 5.1 percent at the end of 2015, and converge to 5.0 percent. The latter is the current estimate of the pre-recession natural rate (CBO, 2011). The long-term unemployment rate will return to its rate will approximately return to its pre-recession level of 1.2 percent as well.

Under the counterfactual, the unemployment rate falls to 6.0 percent at the end of 2015. It ultimately converges to 5.9 percent, which coincides latest estimate of the natural rate Daly, Hobijn, Şahin, and Valletta (2011). The relatively modest increase in the steady-state unemployment rate relative to its expansionary values emphasizes the critical role of outflow rates for the short-term unemployed in determining the overall unemployment rate. Note that, even though, under the counterfactual we assumed no improvement in the demand for the long-term unemployed, their unemployment rate falls to 1.9 percent, less than half of its value under current flow rates.

The key is to realize that, even during these dire times for the labor market, the long-term unemployed are still finding jobs at a decent pace. Hence, most of the currently long-term unemployed will eventually find a job. The best way to prevent a long-term unemployment problem is to make sure that people find a job before they become long-term unemployed rather than to increase the rate at which the long-term unemployed find jobs.

This insight regarding the overwhelming importance of exit rates for the short-term unemployed is not new. For example, Nickell (1997) emphasizes this point when he discusses the importance of active labor market policies to aid the unemployed in European countries that did not suffer much from Eurosclerosis. Of course, active labor market policies are only one particular policy option to improve labor market outcomes of the short-term unemployed. Other types of stimulus might have a similar effect.

3. Conclusion

Since our original paper, Elsby, Hobijn, and Şahin (2010), many other studies have confirmed that there is little evidence that increases in labor market frictions due to mismatch or the effects of the temporary extensions of unemployment compensation can account for a large part of the continued elevated level of unemployment. Instead, downward data revisions on economic activity released since our original analysis suggest that the labor market weakness is more in line with overall economic slack than we initially thought.

Because of this continued weakness a record number of people now report to have been looking for a job for 6 months or longer. Recently measured unemployment durations have been propped up to an unusual degree by inflows to unemployment at reported durations exceeding one month. These inflows are typically ignored in the existing literature on unemployment duration dynamics

but are essential to understand the current environment. These unemployment inflows at high durations are offset by the outflows. Over the last year, each month more than 10 percent of the long-term unemployed have found jobs.

We used this information on the inflow and outflow rates at different durations to show, in a simulation, that even if only the labor demand for the short-term unemployed recovers to levels seen before the recession the long-term unemployment rate will decline substantially. Hence, we think that the current flow dynamics of the U.S. labor market make it unlikely to suffer from "Amerisclerosis", even after the most severe postwar recession in U.S. history.

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Figure 1. Unemployment rate by duration

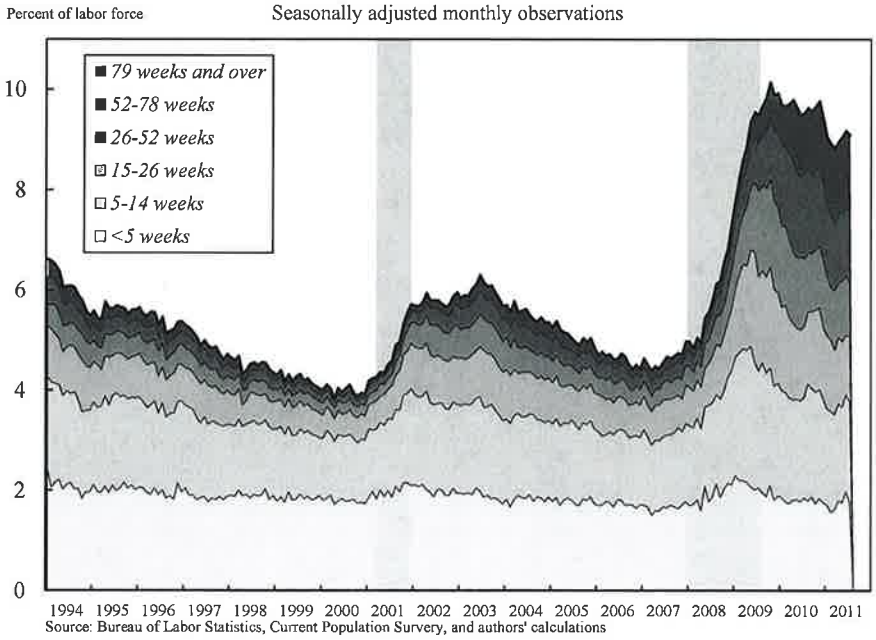


Figure 2. Cyclical movements in Shimer's outflow hazard and unemployment-employment transition probability.

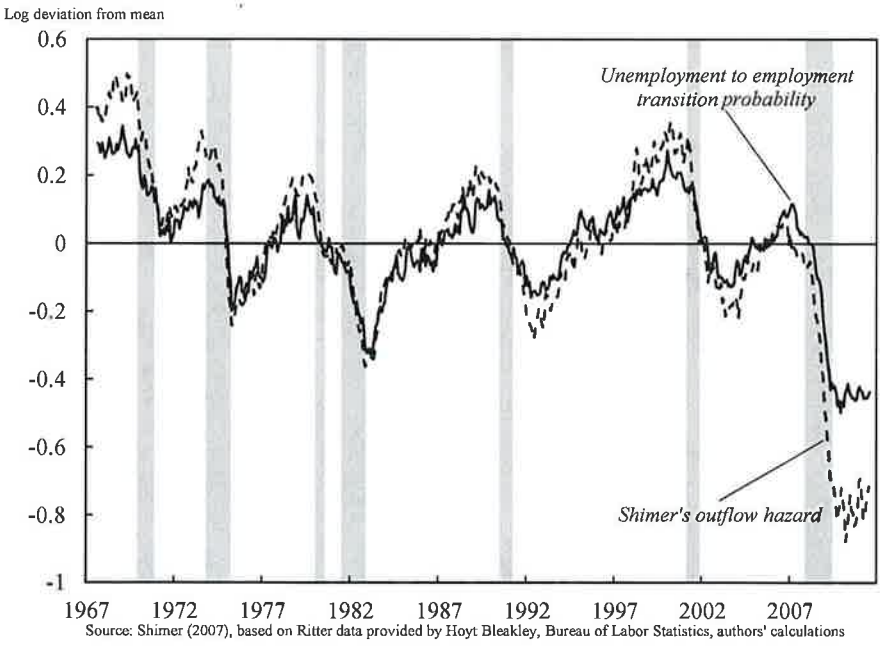
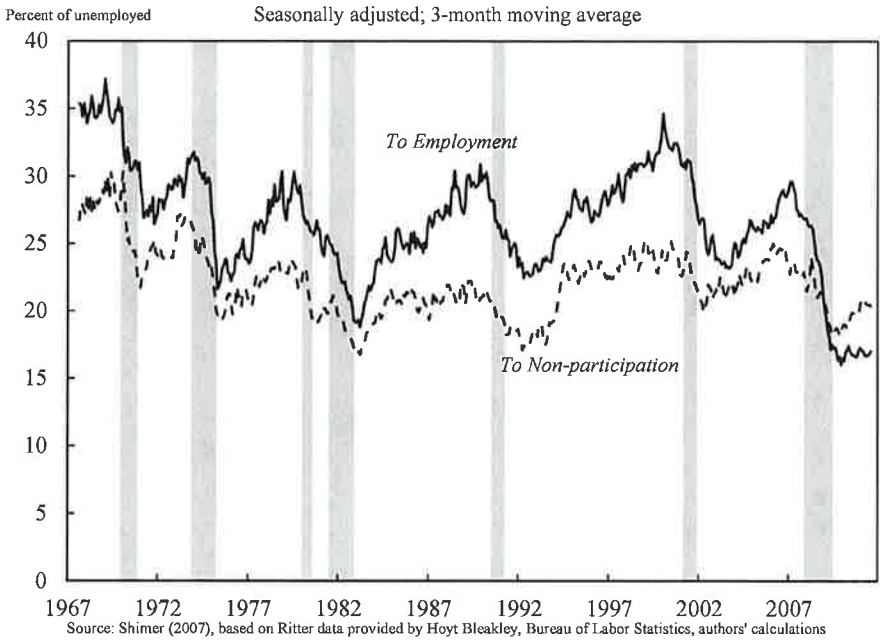
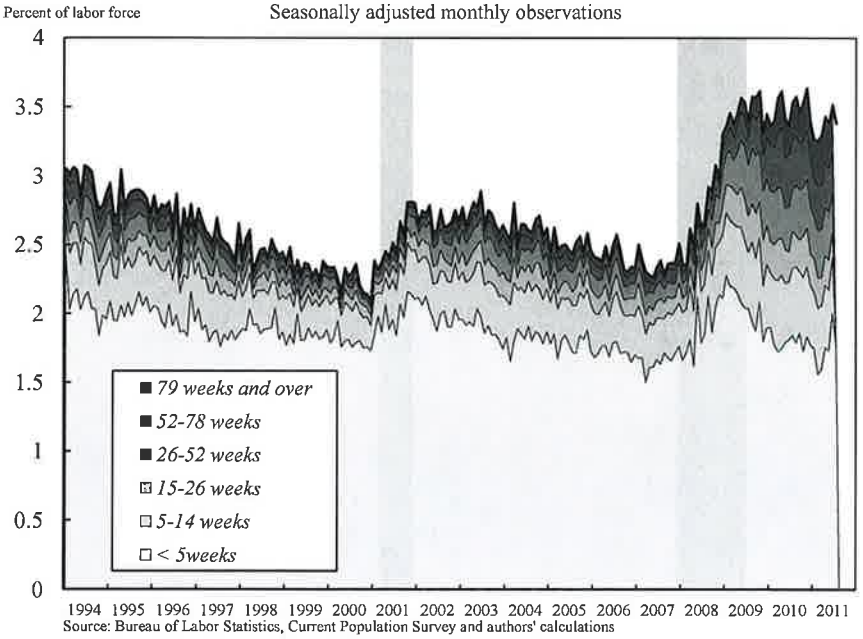


Figure 3. Transition probabilities out of unemployment by destination.



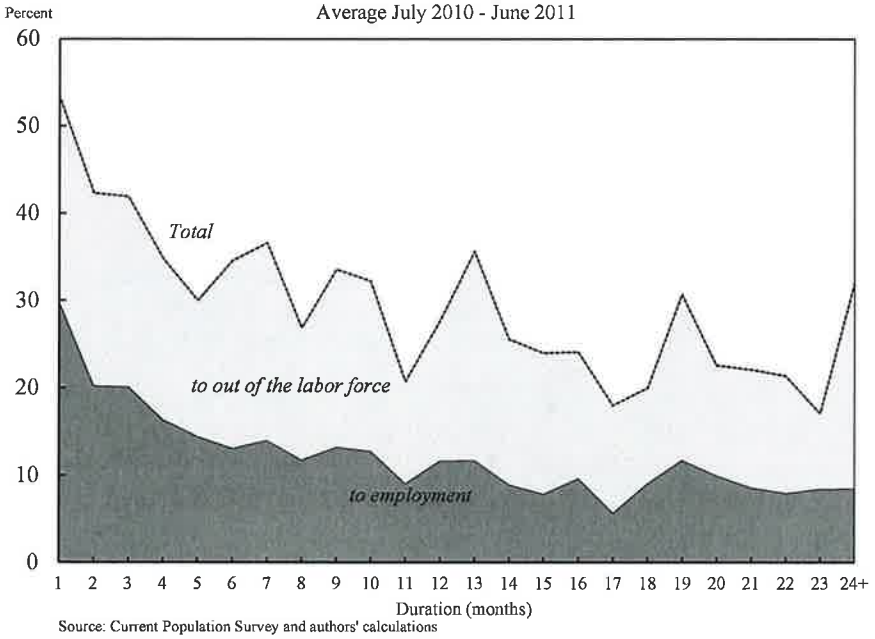
Source: Shimer (2007), based on Ritter data provided by Hoyt Bleakley, Bureau of Labor Statistics, authors' calculations

Figure 4. Duration structure of inflows into unemployment



Source: Bureau of Labor Statistics, Current Population Survey and authors' calculations

Figure 5. Transition probabilities out of unemployment by duration and destination



Source: Current Population Survey and authors' calculations

Table 1. Change in unemployment rates by group

	Recession	Recovery
Total	5.5	-0.9
Gender		
Male	6.5	-1.6
Female	4.3	-0.2
Age		
16-24	8.8	-1.6
25-54	5.4	-0.9
55+	4.0	-0.3
Education		
Less than High Scool	8.3	-0.6
High School	6.5	-1.0
Some College	5.3	-0.9
College or Higher	2.9	-0.4
Race		
White	5.2	-1.1
Black	7.5	0.3
Hispanic	7.2	-1.1

Note: Changes reported in percentage points. "Recession" refers to 2007Q2 through 2009Q4. "Recovery" sample is 2009Q4 through 2011Q2.

Table 2. Inflow and net outflow rates under three scenarios

Bin	2010-2011	Expansion	Counterfactual
	Inflows into 1 to 3 months		
	3.7	3.2	3.2
	Net outflow rates by duration		
1 to 3	62.7	76.7	76.7
4 to 6	25.3	40.2	40.2
7 to 9	50.2	67.9	50.2
10 to 12	-126.3	-107.5	-126.3
13 to 15	81.8	92.5	81.8
16 to 18	15.2	-39.6	15.2
18 plus	12.1	17.2	12.1

Note: Inflows are expressed as the share of the labor force that end a quarter unemployed at durations of 1-3 months. Net outflow rates are expressed in percentages of persons in the bin.

Table 3. Unemployment rate and long-term unemployment rate under three scenarios

	2010-2011	Expansion	Counterfactual
	Unemployment rate		
2013Q4	9.4	5.3	6.3
2014Q4	9.5	5.2	6.1
2015Q4	9.5	5.1	6.0
Long-run	9.5	5.0	5.9
	Long-term unemployment rate (6+ months)		
2013Q4	4.4	1.4	2.4
2014Q4	4.4	1.2	2.2
2015Q4	4.4	1.2	2.1
Long-run	4.4	1.1	1.9