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Unemployment after the Recession: A New Natural Rate?

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The past recession has hit the labor market especially hard, and economists are wondering whether some fundamentals of the market have changed because of that blow. Many are suggesting that the natural rate of long-term unemployment—the level of unemployment an economy can't go below—has shifted permanently higher. We use a new measure that is based on the rates at which workers are finding and losing jobs and which provides a more accurate assessment of the natural rate. We find that the natural rate of unemployment has indeed shifted higher—but much less so than has been suggested. Surprising trends in both the job-finding and job-separation rates explain much about the current state of the unemployment rate.

Over the course of the last recession, the U.S. economy shrank by 4.15 percent. This large aggregate shock had equivalently large effects on the labor market. A total of 8.3 million jobs were lost, and the unemployment rate rose from 4.7 percent to a peak of 10.1 percent in late 2009. Currently, more than 14.5 million people are officially unemployed and many are underemployed. More striking is the length of time people remain unemployed. Unemployed workers stay out of work for 34 weeks on average now, about 50 percent longer than at previous cyclical peaks (see figure 1). These large effects of the aggregate shock on the labor market raise the question about how unemployment is likely to evolve during the recovery and over the longer run.

We examine trends in long-run unemployment to try to answer this question. Implicit in our approach is the idea of a natural rate of unemployment, that is, some level of unemployment that is unavoidable, even in good times or well-functioning markets. Economists attribute the rate to frictions in labor markets that prevent or slow down the allocation of unemployed workers to firms that are looking for employees. These frictions might take the form of skill-job mismatches, geographical mismatches, or the costs of recruitment and job search (see for instance, Rocheteau 2006). One critical question now emerging is whether the past recession has increased overall frictions—increasing the natural rate of unemployment.

Our analysis provides some evidence that a large part of the increase in the unemployment rate is likely temporary but that the underlying trend has inched up modestly over the recent cycle. We also find that the average duration of unemployment has been increasing in the United States, and this increase has played a major role in the recent rise of both the actual unemployment rate and the estimated natural rate. While it may seem strange that the underlying trend appears to have increased only slightly even though the actual unemployment rate has doubled, the reason for this is that a decline in job-finding rates has been offset by a decline in separation rates as well.

These results point to troubling developments for the labor market—especially when we factor in the large pool of underemployed workers that has accumulated and the potential loss of human capital facing the long-term unemployed.

Job-Finding and Separation Rates and the Long-Run Trend of Unemployment

The unemployment rate is the main indicator of the health of the labor market, but it doesn't tell us everything we need to know about what is driving any changes we see. It reports only the number of workers who are unemployed as a fraction of the labor force. In any given month, however, some employed workers lose their jobs and some unemployed workers find jobs, leading to flows of workers in to and out of the unemployment pool. It is largely these flows that drive the overall unemployment rate, yet the unemployment rate

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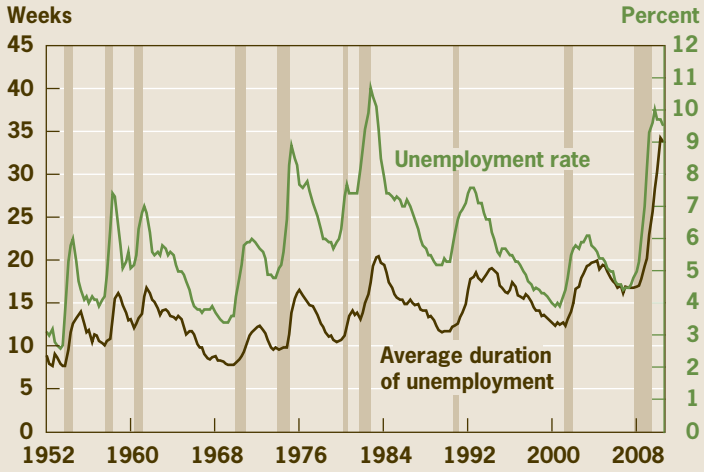
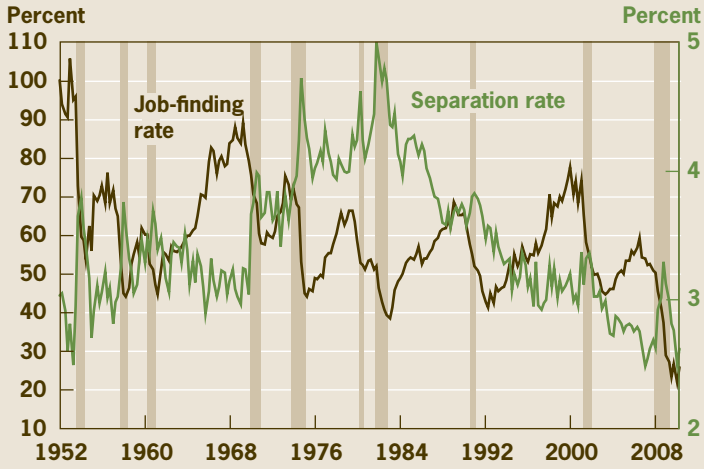
Figure 1. Unemployment Rate and Duration



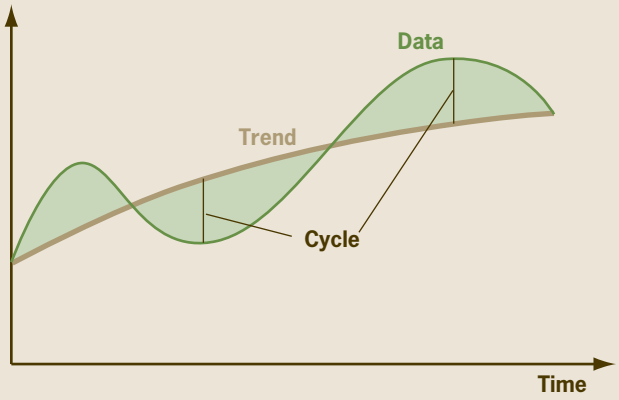
Note: Shaded bars indicate recessions.
Source: Bureau of Labor Statistics; authors' calculations.

Figure 2. Job Finding and Separation Rates



Notes: The job-finding and separation rates are expressed as probabilities.
Shaded bars indicate recessions.
Source: Bureau of Labor Statistics; authors' calculations.

Figure 3. Removing the Trend Component from the Data



says nothing about them. To learn more about these flows, we track job-separation and job-finding rates, the average rates at which each of the flows occurs.

These flows generally follow a pattern in a typical business cycle. As the economy enters a downturn, separations start rising and job-finding rates start falling. These movements cause the overall unemployment rate to rise. But the separation rate usually stabilizes before the unemployment rate peaks. After the separation rate levels off, most of the subsequent rise in the unemployment rate is caused by a low job-finding rate. Note that this combination implies that the average period of unemployment gets longer: even though the flow of people into the pool of unemployed workers does not increase, the low job-finding rate means that the flow of workers out of the pool slows, enough to cause an increase in the average duration of unemployment. When the economy finally starts recovering, durations get shorter as firms create new jobs and absorb part of the unemployed. The unemployment rate falls.

The most recent recession started by following the typical pattern. Separations surged in the first half of the recession and then fell. The separation rate is now at pre-recession levels. However, the overall unemployment rate continued to increase until it peaked in October 2009, much later than the typical pattern would have predicted and at least one quarter after the recession likely ended (assuming it coincided with the trough in output that occurred in June 2009). The source of this rise in unemployment—and its persistence—is an exceptionally low level of job-finding rates (Tasci 2010). These unusually low rates also manifest themselves as exceptionally high rates of long-term unemployment—45 percent of workers have been out of work for more than 27 weeks, a record share.

Figure 2 shows the pattern of separation and job-finding rates over the course of the business cycle since the 1950s (when the series start). We can see the rates moving in opposite directions, with the separation rate rising sharply and then falling quickly in recessions, while the job-finding rate falls initially and then rebounds slowly. However, not all of the movements in these rates appear to be temporary. Each series experiences its own longer-term trend as well, with a general decline in labor flows occurring since the mid-1980s.

There might be several reasons behind the long-run changes. Consider the job-finding rate, for instance. Finding a job is a costly process due to what economists call search and matching frictions. If the frictions diminish or increase, the job-finding rate will change. Say firms become more efficient in managing their production processes or supply chains and thereby reduce the number of workers they need. Unemployed workers will have a harder time finding jobs, which will lower the job-finding rate. Conversely, if it gets easier to search for a job and find a good match, say because of more centralized online job search sites, the job-finding rate might rise. These kinds of changes are potentially long

lasting and not necessarily correlated with aggregate economic activity.

Economic theory shows that the long-run trend of the unemployment rate will be determined, in large part, by the long-run trends of these job-finding and separation rates. We argue that the best approach to quantifying the long-run trend of the unemployment rate is to identify the long-run trend in these underlying flow rates.

The Long-Run Trend of the Unemployment Rate: A "Natural" Rate?

Having an estimate of the long-term trend in unemployment is important. The Federal Reserve, which has a mandate to achieve maximum employment as well as price stability, needs to know the long-run unemployment rate in order to judge how close employment is to the maximum at any point in time. Other policymakers also need a measure of labor market slack to help determine optimal policy. Several public services and transfer payments, like social security, are directly affected by the level of unemployment in the economy, as are the tax base and revenues, and managing these programs depends on forecasts which require an estimate of the long-term trend.

In principle, the long-run unemployment rate is the rate that would prevail in the absence of shocks. Calling that rate "the natural rate" started with the economist Milton Friedman. He did not provide a clear and well-defined characterization of his concept, but rather described some features that it should have. We think that our approach of calculating the long-run trend rate based on the trend of the flow rates into and out of unemployment looks a lot like what Friedman had in mind.

Friedman described the idea of the natural rate of unemployment as a rate that would be calculated in an economic model sophisticated enough to capture "the actual structural characteristics of the labor and commodity markets, including market imperfections, stochastic variability in demands and supplies, the cost of gathering information about job vacancies and labor availabilities, the cost of mobility, and so on."

Friedman also emphasized that the natural rate might change over time due to market forces or economic policies, an insight with strong intuitive appeal. For instance, labor market policies in Europe, such as high unemployment compensation, strict firing rules, and severance policies, have been blamed for causing persistently high unemployment. It is conceivable to think that these policies resulted in a higher "natural" rate for Europe, which then kept the actual (measured) unemployment rate high there for the past three decades (Blanchard 2006).

In our attempt to measure the long-term trend in the unemployment rate, we are going to follow this guidance and look for a rate that is not affected by nominal variables, that is moving at a relatively low frequency, but which could potentially change over time, albeit smoothly. Going forward, we will refer to this rate interchangeably as the long-run trend of the unemployment rate or the natural rate of unemployment. The unique aspect of our approach is that we will estimate the natural rate by first isolating the underlying trends in the job-finding and job-separation rates. We will then use these to estimate the long-term trend in unemployment by using the fact that the unemployment rate can be expressed as the ratio of the separation rate to the overall reallocation rate.

Where Is the Natural Rate?

From our discussion above, it is clear that the separation and job-finding rates have both a cyclical and a trend component (see figure 3). We also know that cyclical movements in these rates are to a large extent determined by the fluctuations in real output. However, identifying the underlying long-term trend in the data is far from simple. The problem is that we observe only one rate, not the trend or the cyclical components that contribute to each data point.

There are a number of ways statisticians and economists decompose a series into its trend and cyclical components. Here, we use a statistical technique called the Kalman filter that allows us to identify these unobserved components of the data by assuming a statistical relationship between the rates and real output.

Essentially, this type of statistical model assumes that real output, the job-finding rate, and the job separation rate follow individual unknown trends and the series fluctuate around these trends. The approach assumes that the cyclical changes in the separation and finding rates are related directly to the movements in real output, such that deeper recessions are associated with larger declines in job-finding rates and larger increases in separations.

Figure 4 shows the trends in the job-finding rate, the job-separation rate, and the unemployment rate using our approach. Both the job-finding and separation rates have trended down over time—the separation rate for almost three decades, the job-finding rate for the last decade. Over the last four decades, the long-run unemployment rate has moved between 5 percent and 7 percent, peaking in the early 1980s.

The current estimate of the unemployment rate's long-term trend given by the model is roughly 5.6 percent to 5.7 percent. The dramatic jump in the actual unemployment rate we have observed since the beginning of the recession is being interpreted in our flows-based analysis as largely a cyclical phenomenon, with little movement in the long-term rate. The long-run trend does appear to have increased from its prerecession level, but by only a small margin. That rise has occurred because job-finding and separation rates have fallen.

Looking into the different components of the unemployment rate trend, we see that most of the variation in the trend over the recession was due to a decline in the job-finding rate. For a given level of the separation rate, the long-run unemployment trend will increase if the job-finding-rate trend falls. The separation rate also contributed somewhat to the increasing unemployment trend by slowing its trend decline, especially during the beginning of the recession.

These results provide us with considerable insight into the nature of the recent changes in unemployment rates. We see that the declining job-finding rate is not temporary, but part of a long-run trend. A low job-finding rate, as argued in an earlier *Economic Commentary* (Tasci 2010), implies long unemployment durations. Along with the more apparent declining trend in separation rates, the declining trend in job-finding rates essentially implies that U.S. labor markets are exhibiting increasingly less worker reallocation. Not only are workers finding jobs on average at a slower rate, independent of the state of the economy, they are also losing (or leaving) their jobs at a slower rate on average. This means that while the long-term unemployment rate has held pretty firmly over the last several decades, the underlying flows have not. In fact, what we see is an economy with much lower worker flows into and out of unemployment.

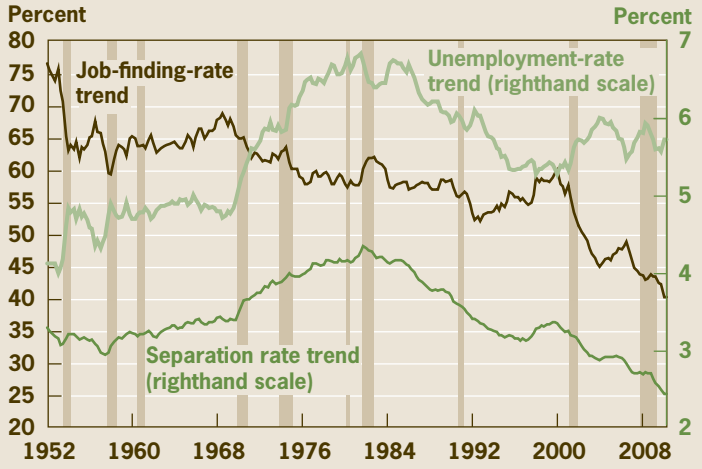
The more traditional approach to estimating the long-run trend in unemployment ignores the worker-flow series and estimates the relationship using real output and the overall unemployment rate. That approach gives a considerably higher estimate of the long-run unemployment rate than our model and attributes more of the increase in the actual unemployment rate to the trend component (figure 5). This would imply a higher long-run unemployment rate coming out of this recession. Even though both approaches are broadly consistent with each other, we believe that using the added information of the labor market flows gives the more accurate picture.

The Labor Market Going Forward

Since we have not seen a big rise in the long-term unemployment rate, we might expect to converge to this "natural" rate soon. Unfortunately, this is not likely to be the case, and there are several reasons to suspect that the adjustment might take a long time. The first is the sheer extent of the gap between the current and long-term unemployment rates, regardless of the specific long-term rate one believes holds (figure 6). This gap reflects the size of the aggregate shock that hit the economy. When the U.S. economy experienced a similar-size gap after the 1981–1982 recession, it took several years for the observed unemployment rate to drop to levels closer to the trend.

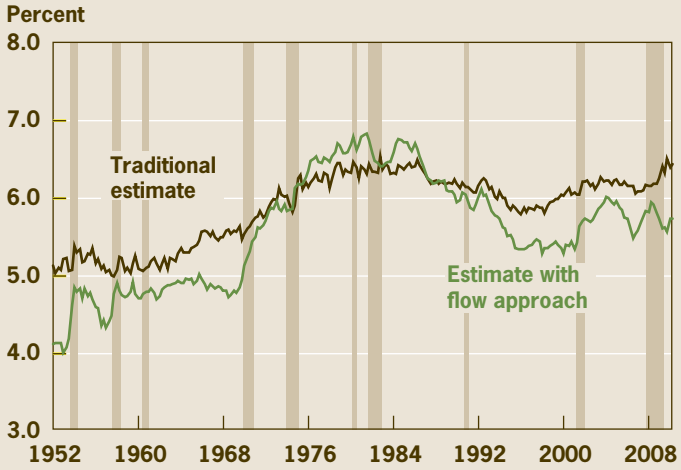
And it might be even harder for the labor market to adjust this time around. The rate of adjustment depends on how fast workers are reallocated between unemployment and the available jobs. The slower rates of worker reallocation we have found may act to slow the closing of the unemployment gap.

Figure 4. Flows and the Unemployment Rate



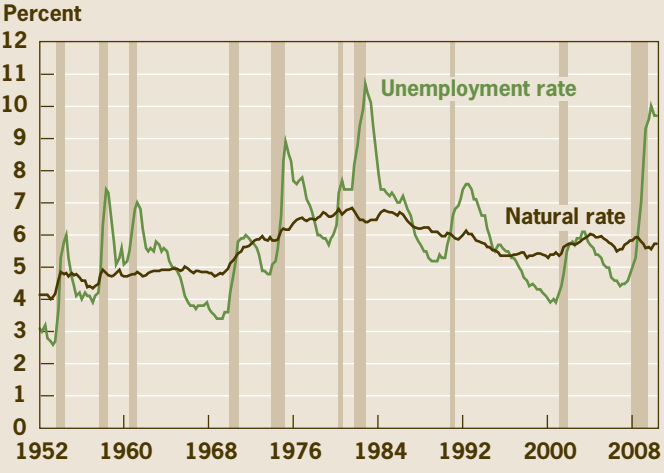
Note: The job-finding and separation rates are expressed as probabilities. Shaded bars indicate recessions.
Source: Bureau of Labor Statistics; authors' calculations.

Figure 5. Traditional versus Flow Approach



Note: Shaded bars indicate recessions.
Source: Bureau of Labor Statistics; authors' calculations

Figure 6. The Unemployment Rate and the Natural Rate



Note: Shaded bars indicate recessions.
Source: Bureau of Labor Statistics; authors' calculations

There are other reasons to believe that unemployment rates may stay well above the long-term rate for an extended period of time. Because of the length of the recession, there is a considerable number of potential workers who are not formally in the labor force. We have seen one of the sharpest drops in the labor force participation rate in the postwar data, as many unemployed workers simply stopped looking for a job. If some of these discouraged workers decide to search for a job as aggregate economic activity picks up, unemployment might decline at an even slower rate because the pool of unemployed workers is being replenished with workers re-entering the labor force.

Another concern raised by our findings is the negative impact of long-term unemployment on the human capital of the workforce. Longer unemployment spells are a problem because unemployed workers who are unemployed for too long can lose industry- and job-specific skills. Losing skills can reduce their odds of finding a job during the recovery as well as lower their productivity when they finally do find one.

Ultimately, an increase in the demand for labor will determine how fast the unemployment stock will be depleted. Many signs point to a relatively slow adjustment for the labor market: the negative effects of the large pool of long-term unemployed (due to skill loss), low demand for labor, as measured by job openings and vacancies, and a relatively large pool of underemployed workers in the form of part-time workers due to economic slack. We could interpret our results of significantly lower worker reallocation and a declining trend in job-finding rate as manifestations of these effects, as others have (Elsby, Hobijn, and Sahin forthcoming, and Tasci 2010).

Recommended Reading and References

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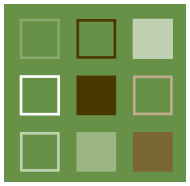

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