

David H. Romer and Justin Wolfers, Editors

# *Brookings Papers*

## ON ECONOMIC ACTIVITY

SPRING 2011

**KRUEGER and MUELLER**

on Job Search and Emotional Well-Being  
in the Great Recession

**LUSARDI, SCHNEIDER, and TUFANO**

on the Financial Fragility of Households

**SWANSON**

on Operation Twist and Its Implications for QE2

**MANKIW and WEINZIERL**

on the Welfare Consequences  
of Alternative Stabilization Policies

**BURDA and HUNT**

on the German Labor Market Miracle

**BALL and MAZUMDER**

on Recent Inflation Dynamics and the Phillips Curve

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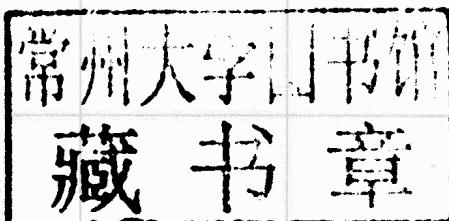
## ON ECONOMIC ACTIVITY

SPRING 2011

DAVID H. ROMER

JUSTIN WOLFERS

*Editors*



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**PURPOSE**

The Brookings Papers on Economic Activity publishes research in macroeconomics, broadly defined, with an emphasis on analysis that is empirical, focuses on real-world events and institutions, and is relevant to economic policy. Papers are presented and discussed at conferences twice each year, and the papers and discussant remarks are published in the journal several months later. The intended audience includes analysts from universities, research institutions, governments, and business. The subject matter encompasses all fields of economic inquiry relevant to macroeconomics, including business cycles; development and long-term growth; the distribution of income, wealth, and opportunities; financial markets; international capital and foreign exchange markets; fiscal and monetary policy; international trade; labor markets; the public sector and the welfare state; energy; the environment; political economy; regulation and industrial organization; education; health; and demography.

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Although most papers that appear in the Brookings Papers are solicited by the editors, the editors welcome submitted proposals. Editorial decisions are generally made about nine months in advance of each conference. Therefore, proposals should be received by December 1 for the following fall conference and by June 1 for the following spring conference. Proposals should be no more than five double-spaced pages and should be sent to [brookingspapers@brookings.edu](mailto:brookingspapers@brookings.edu).

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## *Editors' Summary*

**THE BROOKINGS PANEL ON ECONOMIC ACTIVITY** held its ninety-first conference in Washington, D.C., on March 17 and 18, 2011, as high unemployment continued amid a sluggish recovery. The research in this volume is directly relevant to the economy's troubles. The first two papers study how people have fared in the recession and its aftermath. The first examines job search and the well-being of the unemployed, and the second studies the financial vulnerability of households and how they cope with emergency spending needs. The remaining four papers contribute to ongoing macroeconomic debates. The third paper analyzes a historical episode of quantitative easing, to better understand how the recent unconventional monetary policy might influence the economy. The fourth paper reexamines the fundamental question of how a government ought to use monetary and fiscal policy to respond to recessions. The fifth paper asks why unemployment rose so much less in Germany during the recession than it did in the United States and elsewhere, and the sixth paper analyzes the behavior of inflation over the past few years in light of competing views of the relationship between inflation and unemployment.

IN THE FIRST PAPER, Alan Krueger and Andreas Mueller study the behavior of unemployed Americans during and after the recession through a unique weekly survey of several thousand unemployed workers in New Jersey, matching the survey responses to administrative data from the state unemployment insurance offices. This extraordinary data collection effort yields several new insights on unemployment.

Many theories predict that the unemployed will search more intensely as their unemployment drags on, because they do not want to risk exhausting their unemployment insurance benefits. Krueger and Mueller's find-

ings, however, point to exactly the opposite conclusion. Workers in their survey report that over the course of an unemployment spell, they average about 100 minutes per day searching for a job. But over the first 3 months of unemployment, reported time spent searching each day falls by almost 30 minutes. Perhaps as a result, the probabilities of receiving a job offer and of exiting unemployment fall as unemployment continues. The exhaustion of unemployment insurance benefits appears to have no impact on search activity: respondents do not report searching more intensely either just before or just after their benefits run out.

The authors also provide new evidence about the costs of unemployment. The traditional economic view of involuntary unemployment is that although the unemployed would prefer to work, they nonetheless enjoy the extra leisure time available to them. The authors examine this hypothesis by asking their respondents a series of questions about emotional well-being and life satisfaction; the findings indicate that unemployment is emotionally costly indeed. Whereas 45 percent of employed Americans in a 2006 national survey reported that they were very satisfied with their lives, the comparable number among the unemployed in the authors' New Jersey sample is 6 percent. Things only get worse as unemployment continues: workers become progressively more likely to be in a bad mood and less likely to be in a mildly pleasant or very good mood. Thus, Krueger and Mueller's results paint a grim picture of the effects of continuing unemployment: the unemployed search less, their prospects of finding a job decline, and they become increasingly morose.

IN THE SECOND PAPER, Annamaria Lusardi, Daniel Schneider, and Peter Tufano study the financial vulnerability of Americans during the Great Recession. They assess financial vulnerability by asking individuals, "How confident are you that you could come up with \$2,000 if an unexpected need arose within the next month?" The authors' focus on short-run needs rather than long-run financial goals, and on methods of coping broadly rather than on savings alone, yields some new and alarming insights.

Americans, they find, are financially vulnerable indeed. Fully a quarter of respondents say that they are certain they could not come up with \$2,000 in a month, and almost half say that they are not confident they could do so. Moreover, many of those who could raise the money would do so by using unconventional and possibly very expensive means: nearly one-fifth of all respondents say they would sell possessions, sell their homes, or resort to nonstandard sources of credit such as payday loans. The survey

also revealed an array of other coping strategies. In addition to drawing down savings—by far the preferred mechanism—many respondents mentioned turning to friends and family for a loan, using credit cards, liquidating investments, refinancing their home, and working more.

Lusardi, Schneider, and Tufano find that financial vulnerability cuts across a broad swath of the population. Fully 40 percent of the unemployed could not come up with up with the money to cope with an emergency, but financial vulnerability is by no means confined to the unemployed. Women and parents with minor children are also among the most vulnerable. Many middle- and upper-middle-class Americans report they would have difficulty paying for an immediate expense: among households reporting income between \$75,000 and \$150,000 per year, fully one-quarter say that they probably or certainly could not cope with such a shock. Even having a comfortable buffer of wealth does not always provide insurance: somewhat puzzlingly, about one-fifth of those reporting \$250,000 or more in wealth were not confident they could raise \$2,000 on short notice.

Finally, the authors conducted analogous surveys in seven other advanced economies. They find that financial vulnerability is less extreme in most of these than in the United States, but that it is high everywhere.

The authors' findings may have important policy implications. Most pro-saving policies today subsidize long-term saving; examples include policies that promote home ownership and retirement saving. Yet these policies may actually worsen short-term financial vulnerability by encouraging households to substitute away from more liquid assets. Likewise, economists' traditional focus on assets as a measure of financial capability may vastly overstate households' ability to meet short-run emergencies and miss many of the mechanisms that households actually use.

AS THE FIRST TWO PAPERS demonstrate, the Great Recession and its aftermath have been a trying time for households. Policymakers have responded with extraordinary measures, one of which is quantitative easing, the unconventional monetary policy of buying assets other than short-term government debt in an effort to reduce long-term interest rates. In the third paper, Eric Swanson analyzes Operation Twist, an episode of quantitative easing named for the dance craze popular back when the Federal Reserve last undertook similar unconventional measures.

In 1961 the incoming administration of President John F. Kennedy wanted to bolster the weak economy. The exchange rate regime at the time, however, presented a problem. The United States was on the gold standard, and already gold was flowing out of the country rapidly as investors chased the

higher interest rates that European bonds offered. In such an environment, conventional monetary policy might stimulate the economy, but it would also exacerbate the gold outflow and the balance of payments deficit. Operation Twist was a novel attempt to address this problem: the Federal Reserve would purchase long-term securities, hoping to bring down long-term interest rates to encourage investment, without affecting short-term rates. Swanson shows that Operation Twist was of a magnitude roughly comparable to the round of quantitative easing that began in late 2010. Consequently, he argues, the 1960s episode should provide useful insight into the effects of the recent quantitative easing.

Because bond markets incorporate news very quickly into prices, the effects of a change in policy on bond yields should be evident immediately after it is announced. To study Operation Twist, Swanson therefore searched through newspaper archives to find all significant announcements about the program. Identifying six relevant announcements, he estimates that in total following these announcements, longer-term Treasury yields fell by about 15 basis points. Operation Twist therefore had a noticeable effect on interest rates on government debt. To affect the broader economy, however—to reduce the cost of financing housing, cars, and business investment—Operation Twist also had to influence the price of nongovernment borrowing. Here the program appears to have been less successful, reducing the yield on corporate debt by only 2 to 4 basis points. This suggests that quantitative easing may have little effect on private sector borrowing.

THE FEDERAL RESERVE RESORTED to quantitative easing in the recent episode only as conventional monetary policy became ineffective, running up against the zero lower bound on nominal short-term interest rates. In the fourth paper, N. Gregory Mankiw and Matthew Weinzierl study, from a theoretical perspective, how the government should prioritize different types of monetary and fiscal policy in combating recession. Mankiw and Weinzierl populate their model economy with the standard features of modern New Keynesian models: forward-looking consumers and firms whose decisions during a downturn are distorted by sticky prices.

The usual Keynesian prescription is to use monetary and fiscal policy to restore full employment. But Mankiw and Weinzierl's innovation is to tie their analysis more directly to welfare economics. In particular, they observe that policymakers need to be concerned with more than just intertemporal distortions, or Okun gaps. Because public and private goods are

not perfect substitutes, filling an Okun gap with government purchases will distort the composition of GDP. In their setup, monetary policy does not produce any similar distortions, although one might imagine a richer model in which these are a further factor to be considered.

Mankiw and Weinzierl's analysis yields a hierarchy of policies. If monetary policy can be used, then it is strictly better than fiscal stimulus. Standard monetary policy will restore real purchases to the correct level by changing nominal interest rates, making current purchases cheaper and undoing the effects of sticky prices. If standard monetary policy is not available because short-term interest rates are near zero, the central bank can still counter the effects of price stickiness by committing to future inflation or by using quantitative easing to target long-term interest rates.

In the authors' analysis, the government should turn to fiscal policy only if all these monetary policies are unavailable. Their model implies that in this case, a mix of government purchases and investment subsidies represents the optimal response to a recession. But this response is strictly inferior to monetary policy, because although it returns the economy to its optimal level of output, it generally gets the composition of output wrong, because it cannot replicate what would occur under flexible prices. Filling an output shortfall entirely through government purchases, for example, involves a higher level of government purchases than would occur if prices were not sticky.

Tying macroeconomic policy choices to well-defined welfare criteria also leads to the conclusion that fiscal policies should not be evaluated purely in terms of "bang-for-the-buck" metrics that compare the increase in output attributable to the policy with its budgetary cost. Instead, the authors argue for calculations that look beyond the aggregate effect of policies to consider as well their effects on the composition of GDP and thus their overall effects on welfare.

IN THE FIFTH PAPER, Michael Burda and Jennifer Hunt turn to an extraordinary feature of the global recession: in Germany, output fell more during the recession than it did in the United States, but unemployment barely rose, even as it rose sharply in the United States. Nor is Germany's performance extraordinary only in a comparative perspective; it is also historically unusual for unemployment in Germany not to rise sharply during a recession. Burda and Hunt seek to unravel the source of Germany's "labor market miracle."

In their thorough study, Burda and Hunt ask whether Germany's labor market performance was really so miraculous after all. Two very unmiracu-

lous factors turn out to explain much of the surprising behavior of German unemployment. First, Germany—unlike the United States—experienced an “hours” recession rather than a “bodies” recession: although the number of employed workers changed very little, hours per worker fell dramatically. Second, surveying German labor market institutions in detail, Burda and Hunt find that although work sharing is an important part of the story, it is neither widespread enough to explain why so few workers were fired, nor enough of a departure from past practice to explain why this recession was so different. Instead, the authors argue, German firms appear to have anticipated the recession. Indeed, expectations data from 2006–08 suggest that German firms feared that demand would soon plummet. Consistent with this sentiment, they held back on hiring, even though labor costs had fallen relative to productivity. The paucity of expectations data makes it difficult to fully assess this hypothesis, but it is consistent with many of the stylized facts. Thus, Burda and Hunt provocatively conclude, there was no German miracle at all.

IN THE FINAL PAPER, Laurence Ball and Sandeep Mazumder study how the Phillips curve relationship—the negative correlation between inflation and unemployment—has fared since the onset of the Great Recession. A traditional Phillips curve specification based on the assumption of backward-looking inflation expectations suggests that inflation should have dropped off a cliff in 2009 and 2010: the United States should have experienced about 3 percent annual deflation. In fact, inflation remained positive at between 1 and 2 percent during this time.

To explain this anomalous behavior, Ball and Mazumder borrow two insights from the theory of costly price adjustment. First, some industries adjust their prices based on industry-specific rather than aggregate shocks. To properly estimate the inflation-unemployment relationship, Ball and Mazumder therefore focus on “core” inflation measures that attempt to exclude these supply-driven changes in inflation; they argue that this is best done by focusing on the median inflation rate across subindexes rather than by using the traditional approach of excluding food and energy prices. Second, theory suggests that firms change their prices more often when inflation is higher and more variable, implying that the relationship between inflation and unemployment depends on the level and the variance of inflation. Because the last two decades have seen low and stable inflation, Ball and Mazumder estimate that the current Phillips curve is less steep than it has been historically. That is, unemployment today exerts less of a deflationary pull than it did in earlier decades.

Ball and Mazumder find that taken together, the use of median inflation as the preferred measure and a time-varying Phillips curve dispel the inflation puzzle. Given current economic conditions and a relatively flat Phillips curve, the outcome is just what one should have expected: low inflation but not deflation.

Ball and Mazumder extend their results in two directions. First, they find some evidence that inflation expectations have become anchored in recent decades, responding less to supply shocks and to changes in core inflation than before. They note, however, that whether expectations will stay anchored if inflation remains persistently below the Federal Reserve's target is an open question. Second, they show that a specification of inflation that has received considerable attention in the past 15 years, the so-called New Keynesian Phillips curve, fits the data from the Great Recession extremely badly.

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# *Job Search, Emotional Well-Being, and Job Finding in a Period of Mass Unemployment: Evidence from High-Frequency Longitudinal Data*

**ABSTRACT** This paper presents findings from a survey of 6,025 unemployed workers who were interviewed every week for up to 24 weeks in the fall of 2009 and winter of 2010. We find that the amount of time devoted to job search declines sharply over the spell of unemployment; we do not observe a rise in job search or job finding around the time that extended unemployment insurance (UI) benefits expire. The workers in our survey express much dissatisfaction and unhappiness with their lives, and their unhappiness rises the longer they are unemployed. The unemployed appear to be particularly sad during episodes of job search, and they report feeling more sad during job search the longer they are unemployed. We also find that in the aftermath of the Great Recession the exit rate from unemployment was low at all durations and declined gradually over the spell of unemployment. Both the amount of time devoted to job search and the reservation wage help predict early exit from UI.

**F**or the first time since the early 1980s, mass unemployment is a problem in the United States. The unemployment rate reached 10.1 percent in October 2009, more than double its rate a year and a half earlier. In addition, in early 2011 nearly half of the unemployed had been out of work for 27 weeks or longer, and the mean duration of an ongoing spell of unemployment was around 9 months. Extended unemployment carries with it the risk that many of those out of work will lose relevant skills and become discouraged from looking for work, raising the specter of hysteresis

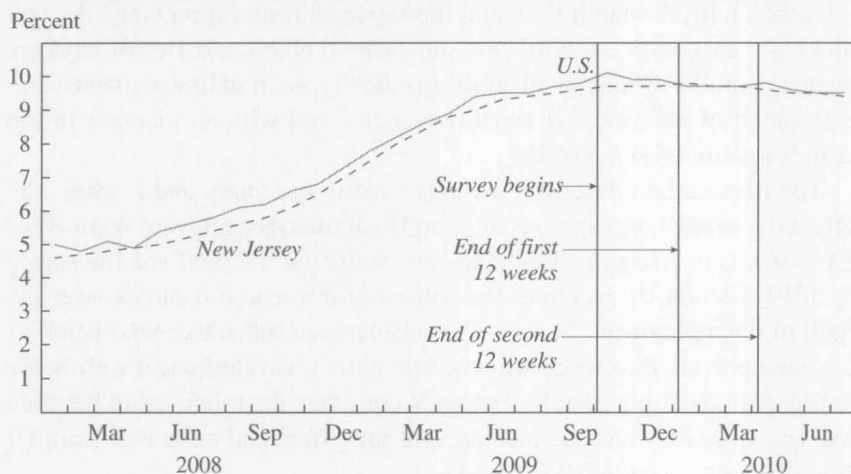
and permanently higher joblessness. This paper provides evidence on the job search process, the effectiveness of job search activities, the emotional well-being of the unemployed, and the likelihood of finding a job and leaving unemployment insurance, using new survey data collected in the fall of 2009 and winter of 2010 from a large sample of unemployed workers. We devote particular attention to measuring how job search activity and emotional well-being evolve over the course of unemployment for a given set of individuals, to assess whether the unemployed become discouraged.

Research has long found that the exit rate from unemployment falls over the spell of unemployment (see, for example, Kaitz 1970). However, it is difficult to infer whether this declining hazard rate is due to changes in the behavior of the unemployed over time (for example, because discouragement leads to less job search and thus a lower exit rate) or to changes in the composition of the sample of unemployed workers (that is, heterogeneity bias, because those who search most intensively are more likely to find a job sooner).<sup>1</sup> In addition, research for the United States has found that part of the reason for the observed declining hazard rate is that some workers are recalled to previous jobs (Katz and Meyer 1990).

Our study is distinguished from past work by the use of high-frequency longitudinal data on search activity. We designed and implemented a large-scale *weekly* survey of unemployment insurance (UI) benefit recipients in New Jersey. More than 6,000 unemployed workers participated in the survey for up to 12 weeks, and the long-term unemployed (those unemployed 60 weeks or longer at the start of the survey) were surveyed for an additional 12 weeks. A total of 39,201 weekly interviews were completed. We also have restricted access to administrative data from the UI system, which is important given that our survey had a high rate of nonresponse. New Jersey's unemployment rate closely mirrored the national average in 2009 and 2010 (figure 1); thus, the results shed light on job search behavior in the worst labor market environment in decades. Nationwide, the number of workers claiming state and federal UI benefits at the start of our survey in October 2009 was nearly two-thirds as large as the total number of unemployed workers estimated by the Bureau of Labor Statistics (BLS). Thus, the behavior of UI recipients represents that of a large share of the unemployed population.

1. See Devine and Kiefer (1991) and Van den Berg and van Ours (1994) for a summary of the literature that attempts, using data on unemployment spells, to distinguish between heterogeneity bias and changes in behavior as causes of the declining exit rate.

**Figure 1.** Unemployment Rate, Seasonally Adjusted, New Jersey and United States, 2008–10



Source: Authors' tabulations of Bureau of Labor Statistics data.

We focus on individuals' job search activity over the spell of unemployment. We also examine the relationship between job search and the likelihood of receiving a job offer and exiting UI, and subjective well-being over the spell of unemployment.<sup>2</sup> Our main conclusions are the following: first, job search declines steeply over the spell of unemployment for a given set of individuals; second, after a period of rapidly rising unemployment, workers who lost their jobs at different times have strikingly different characteristics, and comparisons across cohorts of workers who lost their jobs at different times are prone to bias (another source of heterogeneity bias); third, unemployed workers express much dissatisfaction with their lives, and their self-reported mood worsens the longer they are unemployed, whereas life satisfaction stays relatively constant; fourth, the unemployed appear to be particularly sad during the hours they spend actually searching for a job, and they find job search more emotionally onerous, if anything, as the duration of unemployment increases; fifth, in the wake of the Great Recession the exit rate from unemployment was low at all durations of unemployment and declined gradually over the spell of unemployment;

2. Given that Elsby, Hobijn, and Şahin (2010) find the outflow rate from unemployment to be the most important determinant of future reductions in the unemployment rate, an investigation of the relationship between job search and job finding is particularly timely.

sixth, the choice of job search activities and the amount of search time do not bear a straightforward relationship with the likelihood of receiving a job offer, but job search time and the reported reservation wage do predict early exit from UI, although unmeasured characteristics of workers could distort the estimated relationships; finally, we find little evidence that exhaustion of extended UI benefits is associated with an increase in job search activity or in job offers.

The next section describes the data used in our study and assesses the effect of survey nonresponse. Section II summarizes relevant features of UI as it was in effect in New Jersey during the fall of 2009 and the spring of 2010. Section III examines the pattern of job search behavior over the spell of unemployment. Section IV considers the subjective well-being of the unemployed, devoting particular attention to psychological well-being during periods of job search. Section V considers the relationship between job search activity and the incidence of job offers and early exit from UI benefit receipt. Section VI concludes.

## **1. Description of the Survey**

In early October 2009 the Princeton University Survey Research Center (PSRC) obtained a complete list of the roughly 360,000 individuals receiving UI benefits in New Jersey as of September 28, 2009. The data were subjected to a stratified random sampling procedure to obtain a sample of 63,813 UI recipients. The strata consisted of duration-of-unemployment intervals interacted with the availability of an e-mail address. Long-term unemployed workers and those with e-mail addresses on file were over-sampled. The sampled individuals were invited to participate in an online survey for a period of 12 weeks, with weekly interviews on their job search activities, time use, reservation wages, job offers, food consumption, and other variables. Participants were paid \$20 to \$40 for participating in the survey. Weekly interviews of the long-term unemployed in the sample took place for an additional 12 weeks, for a total of 24 weeks.

The questionnaire consisted of two parts: an entry survey, administered in the first week, with demographic, income, and wealth questions, and a shorter follow-up survey, administered in the first and each subsequent week, that focused on job search activities, the reservation wage, and receipt of job offers.<sup>3</sup> The appendix describes the survey and the questionnaire in detail.

3. The survey questionnaire can be downloaded at [www.princeton.edu/~psrc/NJWS/ENTRY.pdf](http://www.princeton.edu/~psrc/NJWS/ENTRY.pdf) and [www.princeton.edu/~psrc/NJWS/WEEKLY.pdf](http://www.princeton.edu/~psrc/NJWS/WEEKLY.pdf).