

## MEASURING THE DEMAND FOR LABOR IN THE UNITED STATES: THE JOB OPENINGS AND LABOR TURNOVER SURVEY

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*All opinions expressed in this paper are those of the authors and do not constitute policy of the Bureau of Labor Statistics.*

The United States has had a strong and much publicized economic indicator of labor supply—the unemployment rate—for decades. The Federal Reserve, Wall Street, and the public pay close attention to the unemployment numbers released every month by the Bureau of Labor Statistics (BLS). When combined with other economic indicators, the unemployment rate serves as a reasonable measure of labor market activity, general economic conditions, and labor supply. A parallel measure of labor demand is required to allow thorough analysis of the U.S. labor market and to show how changes in labor supply and demand affect the overall economy. In 1999, the Bureau of Labor Statistics began developing this long-needed economic indicator to assess the excess demand for labor in the U.S. labor market in the form of the Job Openings and Labor Turnover Survey (JOLTS).

The availability of unfilled jobs—the number of job openings or the openings rate—is an important measure of the tightness of labor markets. JOLTS counts the number of job openings for a selected sample and computes a job openings, or vacancy, rate. It also collects job turnover data from the sample to allow further insight into labor market flows. This paper briefly describes the survey, how JOLTS differs from other surveys that collect this type of data, and how JOLTS data will help enrich analysis of the U.S. labor market and economy as a whole.

### DESCRIBING THE SURVEY

The Bureau of Labor Statistics collects and analyzes data on many aspects of the U.S. labor market. One BLS survey, the Current Employment Statistics (CES) survey, collects data from businesses and produces employment estimates. Its companion survey, the Current Population Survey (CPS), collects employment status data from households to determine the unemployment rate, which measures labor supply. The new BLS survey, the Job Openings and Labor Turnover

Survey, will complete the picture by collecting data from businesses to measure unmet labor demand.

This new survey involves the collection, processing, and dissemination of job openings and labor turnover data from a sample of 16,000 business establishments. The data elements collected monthly from each establishment include employment for the pay period that includes the 12<sup>th</sup> of the month, the number of job openings on the last business day of the month, and hires, quits, layoffs and discharges, and other separations for the entire month. To encourage consistent and accurate reporting, respondents are given detailed definitions for each data element. For example, job openings require that the job could start within 30 days and that the employer is actively recruiting outside of the establishment to fill the position. Hires are all additions to the payroll during the month, and a layoff should be counted if it lasts or is expected to last more than seven days (Mueller and Phillips 2000).

The universe for the JOLTS survey consists of approximately seven million establishments compiled as part of the operations of the Covered Employment and Wages, or ES-202, program. This includes all employers subject to State unemployment insurance (UI) laws and Federal agencies subject to the Unemployment Compensation for Federal Employees (UCFE) program. The frame is stratified by major industry division, Census region, and size class. The sample is representative of private non-farm establishments as well as Federal, State, and local government entities in the 50 States and the District of Columbia (Crankshaw and Stamas 2000). No occupational detail will be collected. The sample is rotated so that most establishments participate in the survey for 18 consecutive months. JOLTS total employment estimates are ratio-adjusted to the current month CES employment estimates, and this ratio is used to adjust the levels for all other JOLTS data elements. Rates are then computed from the levels.

BLS anticipates releasing monthly job openings and labor turnover rates beginning in 2001. Estimates will be released for the nation as a whole and for four Census regions. The national estimates for the private sector will be divided into nine combined North American Industry Classification System (NAICS)

sector breakouts, and a tenth sector will include Federal, State, and local government.

## COMPARISONS TO OTHER DATA SERIES

Presently there is no true economic indicator of the demand for labor with which to assess the underlying causes of unemployment in the U.S. labor market. There have been several attempts by BLS, other government agencies, and private organizations to collect job openings and labor turnover data, however, none on the scale of the current JOLTS program.

Described below are some of the most frequently used proxies for labor demand and turnover as indicators and in research. Each section describes the particular survey and compares it with JOLTS. Although these data series are valuable, JOLTS collects information on job openings, hires, and separations. The other series collect only one or two of these measures and collect data differently than JOLTS.

### The Help-Wanted Advertising Index

The Conference Board's Help-Wanted Advertising Index (HWI) has been a continuous and oft-cited indicator of labor demand since 1951. It is based on the premise that changes in the volume of newspaper employment want ads accurately reflect changes in labor market activity. Rising trends in want-ad volume have corresponded with improvements in labor market conditions, and declines have signaled a slowdown in hiring. The HWI is based on the number of help-wanted advertisements printed in 51 major newspapers across the country each month. The metropolitan statistical areas (MSAs) of these cities account for approximately half of U.S. nonagricultural employment, or roughly 65 million people.

As an index, the HWI is a proxy for, rather than a direct measure of, unmet labor demand. The HWI measures the number of advertisements in a given month relative to the average monthly number of advertisements in the base year, 1987. JOLTS will provide more direct measures of labor demand. The JOLTS data series will include both a monthly count of job openings from surveyed establishments, and the job openings rate, defined as the number of job openings on the last business day of the month relative to the number of filled and unfilled jobs at the establishment that month.

JOLTS respondents report job openings based on specific conditions, as described earlier. Some help-wanted advertisements are resume-builders and not actual open positions. Many of the ads do not specify the starting date for the position or how many positions

are open, and the Conference Board does not adjust the ad volume for this. In addition, many employers advertise job openings outside of newspaper want ads, preferring the Internet or career fairs. Coverage of newspaper ads also will vary by industry, occupation, and education levels. Over time, changes in the HWI may reflect changes in the way employers recruit, rather than actual changes in the job market.

### The Job Absence and Turnover Report

The Bureau of National Affairs' (BNA) *Job Absence and Turnover Report* provides a data series to measure separations. It has been conducted quarterly since 1974, and turnover rates are based on responses from 190 to 300 BNA member establishments that represent a cross-section of U.S. employers. Total employment of BNA's responding organizations varies between 350,000 and 500,000.

BNA turnover figures include all permanent separations, both voluntary and involuntary, but they do not include job eliminations, reductions in force, long-term leaves of absence, layoffs, or departures of temporary staff. The JOLTS definition of a separation is more inclusive by counting all separations, including layoffs lasting or expected to last more than seven days. BNA releases its data quarterly, while JOLTS will release monthly. The BNA respondents are not randomly selected and so are not necessarily representative of the national economy. In addition, JOLTS will provide more industry detail than BNA, publishing by 10 NAICS sectors compared to the three published by BNA. The BNA geographic regions also are defined differently than the four Census regions that will be used in JOLTS.

### Data from the Current Population Survey

Since 1940, BLS has provided statistics on the labor force status of the civilian noninstitutional population 16 years of age and over from the Current Population Survey. The CPS is collected each month from a probability sample of approximately 50,000 occupied households. Although the CPS is not designed to measure labor turnover, the gross flows statistics and the Displaced Worker Survey have been used to create measures of hires and separations.<sup>1</sup>

*Gross Flows Statistics.* Three quarters of the CPS sample overlaps from month to month, which allows tracking of changes in the labor force status of respondents. However, not all survey responses in successive months can be matched, responses can vary over time even though the actual labor force status is

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<sup>1</sup> Stewart (1999) has also constructed a measure of separations using the March CPS Supplement.

unchanged, and an aging population and population growth make it difficult to relate changes in labor force statistics to gross flows statistics.<sup>2</sup> In addition, the CPS gross flows are limited by only being able to measure turnover involving an unemployment spell. For example, they cannot measure employment to employment flows<sup>3</sup>; estimates put such transitions at 40 percent of all workers who quit their jobs (Bleakley and Fuhrer 1997, p. 10).

*The Displaced Worker Survey.* Since 1984, the Displaced Worker Survey (DWS) has been conducted as a supplement to the CPS and collects information on workers who were displaced from their jobs. Displaced workers are defined as persons aged 20 and older who lost or left jobs because their plant or company closed or moved, there was insufficient work for them to do, or their position or shift was abolished. DWS obtains information on characteristics of the lost job, the unemployment spell, and the current job, if re-employed. DWS data have been used to determine the size and nature of the population affected by job displacements (Hipple 1999).

The biennial DWS concentrates on displacements, while JOLTS collects data on layoffs and discharges together. CPS displacements focus on workers 20 and older to avoid noise from teenage workers who frequently change jobs; JOLTS will collect information on employees of all ages. Workers who expect to be recalled to their jobs within six months are not included in the DWS, but JOLTS will count employees on layoff lasting or expected to last more than seven days.

The CPS supplement is currently being revised to annually collect detailed information on all types of job separations. Its demographic and wage information can be used to characterize the experience of workers who lose their jobs or leave their employer. Although the definitions of employment and displacement differ from the CPS, JOLTS is designed to be a more timely indicator on separations and labor demand at the macro level.

#### Health and Human Services New Hires Data

The Department of Health and Human Services (HHS) began collecting new hires data in 1997 as an administrative and enforcement tool for states to increase child support collections. Although HHS data are not published as a data series, JOLTS will be using this data internally to compare hiring trends. The HHS

new hire reporting initiative requires all employers to report information about newly hired and rehired employees to state agencies. All hires must be reported within 20 days of the first day an employee reports to work. Hires include new hires, rehires, and recalls of workers who need to fill out a W-4 form. The definition and the length in lapse of pay required to be considered a rehire varies by state. A national figure is derived by summing each state's reported new hires for each month. JOLTS collects hires for the entire month, whereas HHS collects hires as they are reported. Since HHS does not mandate the actual date of hire, with the 20-day reporting lag, some hires are reported in the month following the date of hire.

#### **ANTICIPATED POLICY AND RESEARCH USES OF THE DATA**

The JOLTS data series on job openings, hires, and separations will enable policymakers to address some fundamental questions about labor demand and movements in the labor market. These questions include understanding certain factors driving fluctuations in unemployment and the overall economy, determining the best policies to reduce unemployment, and studying how firms and workers are matched with jobs, are distributed across sectors, and move between employment and non-employment.

The empirical relation linking vacancies with unemployment and the overall economy is called the Beveridge curve. First described by William Beveridge in the 1940s, the curve reflects a negative relationship between vacancies and unemployment.<sup>4</sup> Changes in the business cycle will generate movement along the curve, while reallocation of labor and capital between sectors will move the curve further away or closer to the origin. These forces are not independent of one another, and changes in labor force composition and job search behavior also affect the Beveridge curve locus. Economic researchers can use the JOLTS data to test and refine models of how such factors affect labor market dynamics and the distribution of workers across sectors.

Although a consistent set of vacancy data has not been available, researchers have constructed proxies and studied movements in the unemployment-vacancy relation over the past few decades. Generally, this work has documented upward movement along the Beveridge curve during the 1960s, and a combination of movement along the curve and outward shifts in the

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<sup>2</sup> See Barkume and Horvath (1995) and Bleakley, Ferris, and Fuhrer (1999) for more details.

<sup>3</sup> Workers who leave one job for another, without a spell of unemployment in between.

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<sup>4</sup> Bleakley and Fuhrer (1997). Hansen (1970) provides a derivation of a model for the Beveridge curve.

relationship for various periods during the 1970s and 1980s.<sup>5</sup> Recent work by Bleakley and Fuhrer (1997) documents an inward shift of the curve in the early 1990s.

#### Uses of JOLTS in economic policy

From a policy perspective, analysis of the co-movement of the unemployment and vacancy rates can indicate where the economy is in the business cycle and determine the most effective way to counter an increase in unemployment. Holding the structure of the economy fixed, the position of an economy on the Beveridge curve represents where the economy is in a business cycle. In times of economic expansion, the unemployment-vacancy combination will be high on the curve, and in recessions it will be low. The curve shifts with changes in the probability that job seekers and job openings will be matched. It will shift out if various factors make it harder for unemployed workers to fill vacancies and shift back when matching efficiency improves. In considering the curve's shape and movement over time, economists and policymakers can determine the differences between unemployment driven by deficient demand and unemployment generated by reduced matching.

For example, suppose the unemployment rate begins to rise substantially. If an increase in the vacancy rate is observed at the same time, this points to a problem of matching efficiency. The matching inefficiency could be the result of individuals who have become unemployed or entered the labor force not having the right skills to fill the vacancies. To reduce unemployment, providing training to such workers in the needed skills would help alleviate unemployment. If aggregate shocks are driving the increase in unemployment, training workers will produce little improvement. Rather, macroeconomic policies that spur job creation will be more effective.

The models that distinguish between deficient demand and reduced matching efficiency as causes of unemployment are well described by a number of authors. Abraham and Katz (1986) and Blanchard and Diamond (1989) demonstrate how data on vacancies can differentiate between deficient demand and unemployment generated by reduced matching.<sup>6</sup> A paper by Petrongolo and Pissarides (2000) discusses

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<sup>5</sup> See Abraham (1983, 1987), Blanchard and Diamond (1989), and Bleakley and Fuhrer (1997) for more details.

<sup>6</sup> Hosios (1994) proposes a model in which vacancies can no longer distinguish between changes in employment due to sectoral shifts versus aggregate shocks.

issues regarding the matching function that relates hires to vacancies and unemployment, which is an important component of the underlying macroeconomic models. The section below outlines some of the basic ideas behind these models.

#### Uses of JOLTS in economic research

In a simple model where an economy has fixed structural characteristics, fluctuations in aggregate demand generate movements along the Beveridge curve as the economy expands and contracts. During recessions there are few vacancies and a high unemployment rate; as the economy expands and demand for labor increases, unemployed workers will find jobs and growing firms will be creating new jobs, generating a higher vacancy rate and lower unemployment rate.

As resources are reallocated in the economy, the expanding sectors have greater employment growth and the shrinking sectors experience reductions in employment. If workers who lose their jobs in the shrinking sector are perfectly mobile and have the skills to work in the expanding sectors, then the reallocation across sectors would not affect the position of the Beveridge curve. Such seamless transitions are rarely the case; impediments such as the lack of skills or geographic immobility affect job seekers' ability to match with job openings. As a result, concurrent increases in both vacancies and unemployment can be observed and shift the Beveridge curve further from the origin.

Demographic changes in the labor force also will affect the degree to which workers match with jobs. Workers have much higher turnover early in their career, so a change in the age distribution of workers towards younger workers, such as the entrance of the baby boom generation into the labor force, can generate shorter job durations. Shorter job durations are usually associated with greater turnover and more openings at any one time. Concurrent increases in both unemployment and vacancies could result, shifting the Beveridge curve further from the origin.

Others have noted how changes in family structure, work disincentives, and changes in recruiting practices on the part of employers (for example, in response to equal employment opportunity) can influence the number of job openings relative to unemployment.<sup>7</sup> Such questions cannot be directly investigated using the JOLTS data, but its job openings data could be

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<sup>7</sup> See Abraham (1987), Bleakley and Fuhrer (1997), and Petrongolo and Pissarides (2000) for more details.

combined with other microdata to investigate such questions.

In looking at the evidence using earlier vacancy data series, Blanchard and Diamond (1989) and Abraham and Katz (1986) find that aggregate demand shocks generate larger short-run movements in the vacancy-unemployment relationship than reallocation or changes in labor supply. The impact of aggregate demand does not persist in the long run, while the effects of labor force shocks and increases in the intensity of reallocation do.

A number of authors find that labor supply shocks appear to have played at least a small part in shifting the Beveridge curve out in the 1970s and 1980s.<sup>8</sup> Reallocation of jobs across industries has played a role, but these are not entirely of a consistent timing and magnitude to explain the remainder of the shifts between the 1970s and 1990s. Abraham (1987) provides evidence that increased geographic dispersion of job creation and destruction are more consistent with the shifts; all the researchers cite additional factors that also were likely to have affected matching and shifted the Beveridge curve.

JOLTS will be the first data series where such macroeconomic analyses can be performed without constructing at least one, if not more, of the main components of these models from proxies based on manufacturing data. Macroeconomists will be able to learn how well current models describe labor demand and labor market dynamics in the United States. Also, the time series on quits and hires, in combination with data on gross flows, may enable researchers to back out other turnover series, such as employment-to-employment transitions, and further enhance such research.

As researchers model the links between the matching of workers and firms at the individual level, the matching process at the aggregate level, and conditions in the overall labor market, the JOLTS data may be useful in conjunction with other micro and macro series to test these relationships.

For microeconomic research, JOLTS provides direct measures of labor demand and turnover that could enhance research on individual wage and employment outcomes when combined with data on individuals or firms. For example, JOLTS data are measured at a very aggregate level, but a researcher could use them with the more localized Help-Wanted Index data series to

construct additional measures of labor demand in the 51 MSAs.

These topics are part of macroeconomists' and labor economists' research agendas and extend beyond JOLTS use as an indicator of labor demand in the United States. The true scope of the data's usefulness cannot be anticipated; however, as the data series accumulates and models of labor dynamics are further developed, they may substantially deepen economists' understanding of labor markets and the economy.

## CONCLUSION

JOLTS statistics can be used as an indicator of general economic conditions, as well as an important tool for considering the implications of unemployment, labor market, and economic policies. The data series, in conjunction with other micro- and macroeconomic data, is also likely to enhance researchers' understanding of labor market dynamics and their relation to the economy as a whole.

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<sup>8</sup> See Abraham (1987), Blanchard and Diamond (1989), and Bleakley and Fuhrer (1997) for more details.

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