WHAT AN INDICATOR OF LABOR DEMAND MEANS FOR U.S. LABOR MARKET ANALYSIS: INITIAL RESULTS FROM THE JOB OPENINGS AND LABOR TURNOVER SURVEY

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Introduction

The U.S. Bureau of Labor Statistics (BLS) began publishing monthly estimates from the new Job Openings and Labor Turnover Survey (JOLTS) in 2002. These estimates include a measure of labor demand, the job openings rate, as well as measures of labor turnover, hires and separations. The data series have been published as developmental while BLS staff conduct a thorough methodological review and validate survey procedures and processes.

The staff also has been examining the data series levels and trends compared with other similar surveys, bearing in mind the differences in scope, definitions of data elements, and questions asked. This paper will focus on the job openings rate produced by the JOLTS program and how it complements the unemployment rate and compares with one proxy for job openings, the Conference Board's Help-Wanted Advertising Index.

Brief Background of the JOLTS Program

With renewed interest in vacancy data due to a strong U.S. economy and low unemployment levels, the Job Openings and Labor Turnover Survey was reborn in the late 1990s. Congress authorized funding for the JOLTS program in fiscal year 1998. The new JOLTS program involves the collection, processing, and dissemination of job openings and labor turnover data from a sample of 16,000 business establishments. The sampling frame consists of approximately eight million establishments compiled as part of the operations of the BLS Covered Employment and Wages, or ES-202, program. This frame includes all employers subject to State Unemployment Insurance (UI) laws and all Federal agencies subject to the Unemployment Compensation for Federal Employees (UCFE) program. The JOLTS sample selected from the sampling frame is stratified by ownership, region, major industry division, and size class.

The JOLTS 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. The sample is rotated so that most establishments participate in the survey for a limited period of time. JOLTS total employment estimates are ratio-adjusted to the current month Current Employment Statistics[1] (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.

The data elements collected monthly from each establishment include employment for the pay period that includes the 12th 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 provided with detailed definitions for each data element.

For JOLTS purposes, job openings are collected as of the last business day of the month, which is the last day of the month an establishment is "open" or actually doing business. It may or may not correspond with the last day of the calendar month. The one-day reference period for job openings represents a snapshot of the number of job openings for the month.

The JOLTS job openings rate is calculated as the number of job openings on the last business day of the month divided by the sum of employment plus openings. Including the number of job openings in the denominator allows the rate to reflect the total number of jobs at the establishment, both filled and unfilled. All other JOLTS data element rates are calculated as the element divided by total employment.

JOLTS data collection began in April 2000 at the BLS data collection center in Atlanta, Georgia. During the months prior to publication, the JOLTS staff produced estimates, performed data analysis, drafted press releases, and simulated the monthly production schedule. These activities have enabled

[1] This monthly BLS survey estimates total nonfarm U.S. employment.

JOLTS staff to set the tone and work out the timing in an ongoing monthly production environment so that the transition from developmental to regular production will be transparent.

BLS released monthly job openings, hires, and separations rates and levels in July 2002. Historical data beginning with December 2000 were released at that time. Updates of the estimates are posted to the BLS website during the last week of each month. Estimates are available for the nation as a whole and for four geographic regions. The national estimates for the private sector are divided into industry sectors, and additional estimates are published for the Federal Government and for State and local government combined. JOLTS industry estimates were initially published based on the Standard Industrial Classification (SIC), but in July 2003, all estimates were converted to the North American Industry Classification System (NAICS). This conversion allowed for greater industry detail of the estimates.

Preliminary Results from the JOLTS Program

The job openings rate as a measure of unmet labor demand was designed to parallel the measure of unused labor supply, the unemployment rate. Job openings are measured as of the last business day of the month, a snapshot for the month, and unemployment is measured as of the week of the 12th of the month, a similar snapshot for the month although at a different time of the month. There are three conditions for an opening to be reported for JOLTS, as there are three conditions for a person to be considered unemployed. To be considered a job opening, a job must be currently available, work for the job could start within 30 days, and an employer must be actively recruiting to find someone to fill the job. To be considered unemployed, a person must be available for work; could start work immediately, and must be actively searching for work.

The parallel concepts for job openings and unemployment allows for direct comparisons of the two labor market statistics. In theory, job openings should move in the opposite direction of unemployment over the course of the business cycle. In good economic times, the labor market tends to be tight, with employers searching for employees, but most people who want a job are already employed. Unemployment tends to be low and openings tend to be high. However, when economic conditions worsen, employers are hesitant to post new openings, and the few job openings that exist tend to be filled quickly. Many of these job openings may represent positions from which a worker has separated rather than "new" jobs. Unemployment is usually higher due to reduced hiring and increased layoffs in response to weak demand. By examining the movements of the job openings and unemployment rates, it is clear that the expected relationship exists. As the economy entered the recession in early 2001, the job openings rate decreased while the unemployment rate increased. The job openings rate did begin to rebound in late 2001, near when the National Bureau of Economic Research declared the recession over. However, the job openings rate then declined again in late 2002 before rebounding in 2003. It has been suggested that job openings are a leading indicator at the business cycle peak and a lagging indicator at the business cycle trough[2]. However, the limited JOLTS data series seem to imply the job openings rate is a coincident indicator, moving at about the same time as general economic activity.

The economic model used to examine the relationship between the job openings and unemployment rates over time is known as the Beveridge curve. This model depicts an inverse relationship between the two rates, with movements along the curve distinguished from movements of the curve itself. Movements along the curve are generally related to changes in the business cycle and the cyclical fluctuations of the demand for labor. Movements of the curve are due to changes in the efficiency with which workers match with open jobs. These movements are based on changes in structural and frictional unemployment as the labor force changes and as industry and geographic trends influence the distribution of jobs.

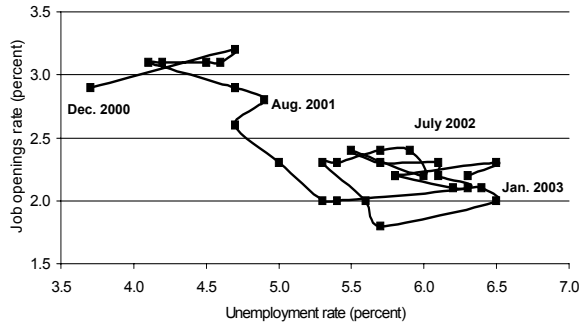
Movements along the curve are not independent from movements of the curve, but it is possible to distinguish them when graphing the Beveridge curve over long time periods[3]. Although the JOLTS job openings series is rather short, a preliminary look at the Beveridge curve in Graph 1, which displays the developmental data, shows the expected inverse relationship, in the form of a downward-sloping curve, between the job openings and unemployment rates. Obviously, a longer time series is needed to distinguish movements along the curve from

[2] Paul A. Armknecht, Jr. "Job Vacancies in Manufacturing, 1969-73." *Monthly Labor Review*, August 1974, pp. 27-33.

[3] Hoyt Bleakley and Jeffrey C. Fuhrer, "Shifts in the Beveridge Curve, Job Matching, and Labor Market Dynamics." *New England Economic Review*, September/October 1997, pp. 3-19.

movements of the curve and yield more insight into the labor market changes during this period. Economists will then be able to determine whether unemployment is due more to deficient demand (movement along the curve) or to inefficiencies in the job matching process (movement of the curve).

Graph 1 - The Beveridge Curve
Not seasonally adjusted



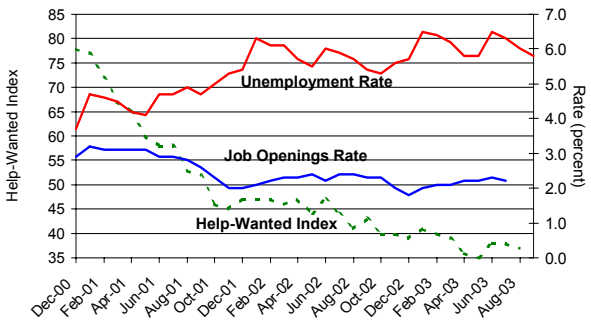
Source: Bureau of Labor Statistics, Current Population Survey, Job Openings and Labor Turnover Survey

One interesting observation that can be seen in the JOLTS microdata is the number of firms reporting 0 job openings in any given month. In January 2003, for example, fully 60 percent[4] of JOLTS respondents who reported data reported 0 job openings. Approximately 85 percent of small firms (less than 50 employees), 43 percent of medium-sized firms (between 50 and 1,000 employees), and 7 percent of large firms (over 1,000 employees) reported 0 job openings on the last business day of January 2003. In looking at the distribution for the respondents who reported a non-zero value for job openings, the majority of firms reported between 1 and 10 job openings. Obviously, the size of the firm is a factor in the number of job openings, and taking a count of openings as of the last business day of the month is a snapshot and not a count for the entire month. In addition, many job openings may not be reported to JOLTS, such as those that are posted and filled before the last business day of the month and those filled by internal promotions and transfers.

The only other existing measure of excess labor demand at the national level is The Conference Board's Help-Wanted Advertising Index[5] (HWI). With some manipulation, the normalized HWI has been used in Beveridge curve analysis in the past. As a measure of the volume of help-wanted advertising in major newspapers from across the country, the HWI has been a good indicator when compared to unemployment. In looking at Graph 2 of the job openings rate and the HWI, it can be seen that the trends are roughly similar. However, the decrease from December 2000 to November 2001 was much sharper for the HWI, which experienced a drop of 42 percent compared with a 31 percent drop in the job openings rate over the same time period. The differences in scope and definition between the HWI and the job openings rate, described below, as well as trends in how employers use newspapers to advertise job openings may account for some of this difference.

However, the HWI is an imperfect measure of labor demand. Employers who place help-wanted advertisements in newspapers may not be representative of the national economy. Newspaper ads tend to be for lower-skilled positions. The growth of the Internet's popularity for job postings also has affected the number of newspaper advertisements. Some of the drop in the HWI may be due to a reduction in employers' use of newspaper advertising rather than an actual decrease in the demand for labor.

Graph 2 - The Help-Wanted Index (seasonally adjusted), the Unemployment Rate, and the Job Openings Rate
Not seasonally adjusted



Source: The Conference Board and the Bureau of Labor Statistics, Current Population Survey and Job Openings and Labor Turnover Survey

The various job search sites on the Internet are new options for employers seeking workers, but no single site is comprehensive enough to be used as an indicator of labor demand. Issues of coverage, scope,

[4] This percentage varies by month, and January is most likely not a typical month due to post-holiday business trends. However, October 2002 also showed 60 percent of all respondents reporting 0 job openings as of the last business day of the month.

[5] For additional information about the Help-Wanted Advertising Index, see The Conference Board's website at www.conference-board.org.

multiple positions per ad, and fees for job postings are obstacles in using these sites as indicators.

As mentioned previously, the JOLTS sample is designed to be nationally representative. In addition to providing a job openings rate, JOLTS also publishes a job openings level. The job openings estimates meet the three criteria specified above to be comparable to the unemployment rate. The HWI is not adjusted to account for multiple positions per ad, and there are no limitations on the types of ads placed in newspapers, some of which may be placed to gather resumes for future hiring. Neither JOLTS job openings nor the HWI differentiates between full- or part-time openings, and neither includes occupational information or a measure of "good" jobs versus "bad" jobs or for low-wage versus high-wage positions.

Another way to analyze the unemployment-job openings relationship is to compare the two levels. Long before the U.S. had a representative survey like JOLTS collecting job openings data, Katharine Abraham suggested that the number of persons unemployed is much larger than the number of job openings[6]. She used two methods to come to this conclusion. The first involved correcting perceived downward bias in the results of a pilot program of the first incarnation of the JOLTS program. The second method used job vacancy durations and the new hires rate to estimate job vacancies. Both methods yielded results that showed the number of unemployed was indeed greater than the number of job openings at any given time, but the ratio did shift over time. In the mid 1960s, the ratio of those unemployed per job opening was approximately 2.5, which shifted to 4.0 in the early 1970s and then increased to 5.0 in the late 1970s. The ratio using the JOLTS job openings data ranges from 1.3 unemployed persons for every job opening in December 2000, when the labor market was perceived as being relatively tight to 3.4 in January 2003.

With the publication of job openings data, there already has been talk of a "jobs deficit," or the difference between the number of unemployed workers and the number of job openings[7]. It is important to remember that even with carefully constructed parallel definitions, the reference periods are both snapshots, but different: the week of the 12th for unemployment compared with the last business day of the month for job openings. In addition, the survey that measures unemployment, the Current Population Survey (CPS), has a different scope from the JOLTS program. The CPS includes agricultural workers, unpaid family workers, domestic workers in private households, and the self-employed, all of whom are not covered by establishment surveys.

In addition, Abraham was careful to note that it is not necessarily optimal for there to be a one-for-one relationship between unemployment and job openings. There are social costs involved with unemployment, and even if there were a one-for-one relationship, the people looking for work may not meet the qualifications needed to fill the job openings, or the job openings may not be in the same location as the people looking for work. These frictions in the labor market keep job openings from being filled instantaneously.

The composition of the labor market, job search methods, and recruitment practices have changed significantly since the pilot studies and first JOLTS program attempted to collect data on job openings in the United States. However, the data and findings from these programs can help to confirm that the current JOLTS program is collecting accurate and useful job openings data.

The JOLTS job openings rate is a comprehensive measure of the unmet demand for labor in the country. As the time series grows longer, additional analysis can be performed using seasonally adjusted job openings data with the unemployment rate and other economic measures, such as wage data. Since the JOLTS program was designed to provide national economic indicators, there are several things the estimates do not provide. There is a demand for job openings by occupation, duration of vacancies, and openings at the state or metropolitan area level. Some industry or occupational associations have estimates of job openings, and several states are conducting a job vacancy survey, but there is not a single source for this type of information.

As the JOLTS staff conduct the thorough methodological review required before the data series can become official, the estimates continue to be closely watched. The timing of the production process has been tightened, closer controls on microdata review have been instituted, and refinements to the estimation system have been made to ensure the estimates produced meet the quality standards for which BLS is known.

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[6] Katharine Abraham, "Structural/Frictional vs. Deficient Demand Unemployment: Some New Evidence." *American Economic Review*, 1983, 73(4), pp. 708-724.

[7] Economic Snapshots, The Economic Policy Institute, October 2, 2002.

Conclusion

The regular monthly publication of the JOLTS results represents a step forward in supplying representative estimates of job openings and labor turnover for U.S. labor market analysis. Once the series become official, BLS will issue press releases with some analysis of the estimates. The program does have major projects in the near future, including preparing for seasonal adjustment, that will add to the analytical utility of the data series. With longer time series, additional uses for these data will develop and further analysis will be performed.

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