A COMPARISON OF JOB OPENINGS SURVEYS: CONCEPTS AND SURVEY DESIGN

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In the past, labor market analysis has been incomplete. The United States and other countries have strong and much publicized economic indicators of excess labor supply in the form of the unemployment rate. When combined with other economic indicators, the unemployment rate serves as a reasonable measure of labor market activity, general economic conditions, and labor supply. However, a parallel measure of unmet labor demand is required to allow a thorough analysis of the labor market and to show how changes in labor supply and demand affect the overall economy. While several other countries currently conduct infrequent or informal job vacancy surveys to measure labor demand, there are new efforts in the United States and Europe to collect comprehensive and statistically sound job vacancy data. While a small number of European countries have conducted job vacancy surveys for a decade or more, the United States has never had a consistent vacancy series. In 1998, the U.S. Bureau of Labor Statistics (BLS) began developing this long-needed economic indicator to assess the unmet demand for labor in the U.S. labor market in the form of the Job Openings and Labor Turnover Survey (JOLTS). Estimates from the JOLTS program were first released in July 2002.

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 estimates the number of job openings from a nationwide sample of establishments and computes a job openings, or vacancy, rate. This new survey also collects data on hires and on separations by type, providing a single source for these data that will enhance empirical analyses of the economy and the labor market. This paper briefly describes the history of efforts to collect vacancy data in the United States and then details the development of the new JOLTS program. The paper then compares JOLTS with job vacancy surveys from other countries, including the European Union's new effort at collecting vacancy data from member countries.

Pilot Surveys that Collected Vacancy Data for the United States

There have been several past attempts by BLS to collect job openings data for the United States; however, none on the scale of the current JOLTS program. The first JOLTS program came about as a result of pilot projects that were conducted in 1964 through 1966. In 1969, job openings questions from those pilot projects were added to the Bureau's existing Labor Turnover Survey (LTS).

The program produced monthly vacancy rates from April 1969 to December 1973 for nine selected industry groups within the manufacturing industry and for selected States and metropolitan areas. Some nonmanufacturing data were collected but not enough to produce publishable national estimates. Vacancy data were collected for total job vacancies and vacancies that had been unfilled for 30 days or more. Respondents also were asked to indicate the number of vacancies with future starting dates for which the firm was actively trying to recruit. Data on the occupations for which the vacancies existed and for the wage rates offered for them were collected quarterly. Although the job openings questions were eliminated in 1973, the LTS was conducted until 1981.

Congress again appropriated money in 1977 for the collection of job openings data, and BLS began a pilot survey in March 1979. Job openings data were collected quarterly for Florida, Texas, Massachusetts, and Utah for six consecutive quarters. Based on the previous surveys, this pilot program focused on collecting occupational detail and the ability of respondents to report an accurate number of job openings. The survey included either a pre-selected set of occupations with a supplemental page for employers to identify occupations missing from the survey or a block of lines on which employers simply listed the titles of the vacant jobs.

The pilot survey also asked respondents to classify current job openings by those that had been unfilled for less than two weeks, two to four weeks, or a month or longer. Other details requested included the number of openings for part-time positions and temporary positions and those with future starting dates.

A small number of establishments in each of the four states were selected for response analysis surveys in 1979. The principle conclusion was that job openings were technically possible to collect, but the survey operation, given data collection techniques of the time and Congress' extensive set of goals, would be difficult and very costly. The BLS pilot program also found that telephone interviewing was more effective with establishments employing fewer than 50 employees, whereas mailing the data collection materials was more effective for larger establishments.

After a decade without any collection of vacancy data, the U.S. Senate earmarked funding in 1990 for the U.S. Department of Labor to annually identify national labor shortages. In response to this, the Employment and Training Administration (ETA) sponsored the Employee Turnover and Job Openings (ETJO) Survey. Conducted by BLS, this pilot program ran from late 1990 through mid-1991.

The ETJO survey was conducted to determine if advanced data collection technologies (computer-assisted survey techniques and collection methods) and a more specific legislative mandate could produce a more cost-effective statistical program than in past attempts. The data were collected in three rotating panels of 1,000 units for a total sample of 3,000 establishments at the national level. The survey developed two direct measures of the difficulty employers found in hiring—the duration of existing job openings (less than 2 weeks, 2 to 4 weeks, or more than 4 weeks) and the "job openings fill rate," or the number of new hires in a month divided by the number of jobs open at the end of that month. Data on the wages of new hires also were collected.

The pilot covered eight industries[1], one from each major nonfarm industry group, and each industry had a specifically designed questionnaire with a customized occupational matrix including all occupations accounting for at least 25 percent of total industry employment. Although broad occupational data were collected[2], this effort proved too costly to carry over into a long-term survey.

The New 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. Before launching into a full-scale survey, BLS conducted a feasibility study. BLS contracted with a private firm to conduct personal visits with establishments to help determine whether establishments could provide the type of data JOLTS wanted to collect.

Once it was determined the data were available, BLS again contracted with the private firm to conduct a one-year pilot test, beginning in the fall of 1998. The JOLTS pilot test included 386 establishments of different sizes and industries. The pilot test was designed to explore respondents' understanding of the data elements and definitions, to refine the survey questionnaire, and to test whether the JOLTS data could be collected by telephone.

The findings were invaluable to the development of all aspects of the JOLTS program. Overall, the pilot test showed that respondents were willing and able to provide the job openings and turnover data by telephone and could do so relatively easily, once they learned how to collect the data within their own establishment.

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 unit was chosen to be at the establishment level (the physical location) rather than the enterprise itself. 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, census region, major industry division, and size class.

[1] The eight industries were oil and gas extraction (SIC 13), special trade contractors (SIC 17), electronic and other electrical equipment (SIC 36), trucking and warehousing (SIC 42), machinery, equipment, and supplies wholesaling (SIC 508), eating and drinking places (SIC 58), depository institutions (SIC 60), and hospitals (SIC 806).

[2] Occupations were divided into the following categories: managerial, professional and technical, sales, administrative support, service, and production and related.

The JOLTS sample is representative of private nonfarm 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[3] (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. A report from 1970 found the disadvantage of an end of the month reference period to be that it may underestimate job openings by approximately nine percent[4]. This underestimate was reportedly due to the timing and flow of filling job openings. However, during the JOLTS pilot test, most respondents said they understood the concept of job openings as of the last business day of the month. All of the respondents in the pilot test either indicated no preference or preferred the last business day of the month to the first day of the month or some other day in the middle of the month.

The definition of a job opening was constructed to parallel the concepts underlying the unemployment rate so that the measures of labor supply and demand are as comparable as possible. The job openings definition requires that three conditions be met: a specific position exists, work could start within 30 days, and the employer is actively recruiting from outside the establishment to fill the position. Active recruiting includes posting advertisements in the newspaper or on the Internet, networking with colleagues or making word-of-mouth announcements, accepting applications, interviewing candidates, and various other activities employers use to fill a position. Similarly, to be counted as unemployed, a person must have no employment during the reference week, be available for work, except for temporary illness, and make specific efforts, such as contacting employers, to find employment sometime during the four-week period ending with the reference week.

The JOLTS definition of a job opening does not include positions open only to internal transfers, promotions, demotions, or recalls from layoffs. It excludes positions to be filled by employees of temporary help agencies, employee leasing establishments, outside contractors, or consultants. Employers in those industries are included in the sample and report for their employees no matter where they are placed. In addition, positions for which employees have already been hired but have not yet started work are not considered open.

One of the conditions for a job opening to be reported for JOLTS is that work could start within 30 days, so positions with start dates more than 30 days in the future are not considered job openings. This kind of anticipatory recruiting is common practice in certain industries, such as education. JOLTS is designed to measure the excess demand for labor in order to be comparable to the unemployment rate, which is a measure of the excess supply of labor. JOLTS attempts to capture current job openings, and not those that may be withdrawn if the respondent's expectation for future openings was overstated. By imposing the 30-day condition, JOLTS also eliminates positions for which a firm is actively trying to recruit someone from outside the firm, but these positions are currently occupied or unavailable for immediate occupation. The company's demand for that job to be filled is currently met.

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.

During the survey development, several economists and academicians had suggested JOLTS include questions aimed at getting more detailed information about the respondents' reported job openings. Based

[3] This monthly BLS survey estimates total nonfarm U.S. employment.
[4] See Gower for more information.

on the experience of previous BLS surveys that were described earlier, the JOLTS program decided against asking for occupational information, job openings breakouts (those that are hard to fill, immediately available, etc.), or information about job openings for specific kinds of employees (such as skilled or unskilled workers). In addition, through the process of reviewing all of the options, it became apparent that many respondents would apply their own definitions to certain terms such as "hard to fill" or "unskilled workers."

The JOLTS survey is a voluntary monthly survey, and as such, BLS was concerned about the amount of respondent burden for the JOLTS program. Although more detailed information about job openings would allow further analysis, additional questions about job openings were judged too costly to collect, and BLS predicted these questions also would have a detrimental effect on survey response.

Data are collected from respondents using computer-assisted telephone interviewing (CATI) for their first six months in the survey, at which time they are encouraged to switch to reporting their data by fax or by an automated touchtone data entry system for the rest of their time in the survey. JOLTS respondents are assured that all information obtained through the survey is held in confidence and only used for statistical analysis. The published estimates provide total industry-based numbers that in no way identify individual firms' reported data.

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 will continue during the initial period of monthly publication when the survey is being designated as developmental in preparation for when JOLTS begins regular monthly production and publication. All aspects of the survey are being monitored, and suggested changes may be considered during this time.

BLS released monthly job openings, hires, and separations rates and levels beginning with December 2000 in July 2002. 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 nine major industry divisions based on the Standard Industrial Classification (SIC) system, and additional estimates are published for the Federal Government and for State and local government combined. JOLTS estimates will be converted to the North American Industry Classification System (NAICS) in mid 2003.

Comparing JOLTS with Other Job Vacancy Surveys

Even internationally, there are few data series available that measure the demand for labor, and many of them are relatively new programs. This is especially lopsided, considering the vast amount of historical and current data available on employment and unemployment in countries around the world. In the countries that do collect vacancy information, the frequency of data collection, the presentation of the data to the public, and even the definition of a vacancy varies a great deal.

The Experience of Individual Countries

According to a February 1997 report prepared by Statistics Netherlands and the Netherlands Economic Institute[5], within the member countries of the European Union[6] (EU), only Germany, Sweden, and the Netherlands conducted relatively frequent (quarterly or annually), enterprise-based vacancy surveys. At that time, Great Britain, along with nonmembers Canada and the United States, surveyed help-wanted advertisements to create indexes as a proxy for job vacancies. Other nonmembers also have conducted limited surveys: Australia conducted both an enterprise-based survey and a survey of help-wanted advertisements, and Switzerland conducted a quarterly job vacancy survey but published its findings as a job vacancy index rather than a number of vacancies each quarter.

Since that 1997 report, Spain and Portugal have launched quarterly job vacancy surveys, Finland has carried out a pilot survey and plans to launch a full-scale survey in 2002, and France has conducted a survey on recruitment difficulties, which included questions on the number of job vacancies[7]. In addition to its survey of help-wanted advertisements, Great Britain has instituted a statutory quarterly job vacancy survey.

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[5] "Employment Market Analysis." Statistics Netherlands and Netherlands Economic Institute, February 1997.

[6] Members of the European Union include Austria, Belgium, Denmark, Finland, France, Germany, Great Britain, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, and Sweden.

[7] "Workshop on the Organization of a Job Vacancy Survey." Eurostat, November 2001.

Similar to most of these job vacancy surveys, JOLTS measures the stock of vacancies, or the number of unfilled vacancies at a point in time, by asking respondents to report the number of vacancies on the last business day of the month. In addition to measuring the stock of job vacancies, other surveys also attempt to measure the flow, or the number of vacancies coming into existence in a specified period or the number of filled (or withdrawn) vacancies in that same period. As a similar flow measure, JOLTS reports hires, a proxy for the number of vacancies filled during the month.

According to the 1997 report, in Germany and the Netherlands, vacancy surveys measured both the stock and the flow. Great Britain, Sweden, and Australia measured stocks only. The Canadian and American efforts surveyed help-wanted advertisements and calculated an index that measures the changes in the volume of advertisements relative to a base period but did not publish an actual count of job vacancies. The Conference Board compiles and publishes the help-wanted advertising index in the United States.

JOLTS was developed as a monthly survey in order to be directly comparable to the unemployment rate, which is released monthly. The periodicity of other surveys varies from country to country, with many of them conducted quarterly, measuring job openings as of the last day of the quarter. The various help-wanted advertisement indexes are usually published once a month.

The JOLTS program publishes data by industry division and geographic region, but it does not collect data by occupation. Some surveys do include occupational information along with industry and regional data, but according to the 1997 report, only the survey in the Netherlands included vacancy duration in its survey.

The European Union Effort

The European Union has recently undertaken an effort to develop an EU-wide job vacancy survey, building on the surveys that some of its 15 members already have in place. Most of the officials involved in building this effort have expressed how difficult it is to measure job vacancies because of the ambiguity in definition. The early plan is to begin data collection in 2003 and publish in 2004. This survey will be conducted quarterly, following the example of several member countries but dissimilar from the monthly JOLTS program.

An early proposal for the definition of a job vacancy is a "newly created post, an unoccupied post, or a post about to become vacant for which the employer has taken recent active steps to find a suitable candidate from outside the unit concerned and which is available either immediately or in the near future."[8] The three conditions embedded in this definition are similar to the three conditions for a job opening to be reported to JOLTS. However, the JOLTS definition requires that work can start within 30 days, whereas the EU definition uses the more ambiguous terms "immediately" and "in the near future." Several countries have voiced opinions that immediately available job vacancies need to be distinguished from vacancies for work to take place in the future, and this distinction may be incorporated in the EU definition through further negotiations.

The EU proposal for the calculation of the vacancy rate is consistent with the JOLTS definition: dividing the number of job openings by the total number of occupied jobs and job openings.

Although it is in draft form, the proposal calls for separate counts of job vacancies for unskilled workers, immediately available job vacancies, and hard-to-fill job vacancies (defined as vacancies "that correspond to posts for which the employer, based on previous experience, has been or expects to be unable to recruit a suitable candidate within the usual period, at prevailing wages, and through usual recruitment procedures[9]"). In order to minimize respondent burden, JOLTS does not ask respondents for anything beyond the number of job openings as of the last business day of the month.

The proposal calls for the member countries to report the data quarterly by industry division, region, and establishment size class. In addition, the total number of vacancies and the number of hard-to-fill vacancies are to be reported once a year by occupational groups and by method of recruitment. The JOLTS data are collected monthly and estimates are computed monthly. There is only one data collection center for the entire national sample.

Overall, the EU survey and the JOLTS survey are rather similar and the job openings data from the two surveys generally will be comparable. The job vacancy definitions are consistent, and as the EU effort progresses, ambiguous terms such as "in the

[8] See "Workshop on the Organization of a Job Vacancy Survey."

[9] See "Workshop on the Organization of a Job Vacancy Survey."

near future" should be defined more specifically. Although the EU plans to measure and release its data quarterly, the reference period of a single day (the last day of each quarter) is the same as the JOLTS snapshot (the last business day of the month). Additionally, as JOLTS found, due to cost and respondent burden, the collection of items beyond the total number of job openings, such as immediately available vacancies and hard-to-fill vacancies, may be eliminated before the EU survey is approved by the member countries and fielded in 2003.

Conclusion

Although the JOLTS program is in its early stages, there has been a great effort to collect accurate, timely, and much needed job openings information. With the first release of job openings and turnover estimates in July 2002, the estimates add to the U.S. statistical framework and allow for more thorough analysis of the labor market and economy as a whole. In addition, once the EU survey is underway, job openings data will be more comparable at an international level.

The job openings data series supply a valuable piece of data to improve the ability to test how well current models describe the evolution of labor demand and labor market dynamics. With data from a single consistent survey source, there is less concern that measurement error in the key components will interfere with estimating the true relationship between job openings, unemployment, and other economic indicators.

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