

Achieving timeliness in the BLS JOLTS program

Abstract

This document contains a description of methods used relevant to the *STES timeliness framework* within the United States Bureau of Labor Statistics (BLS) Job Openings and Labor Turnover Survey (JOLTS). These methods assist the BLS in achieving very timely monthly estimates for the statistics produced from this survey. For more information please contact Kelly Clark at: Clark_K@bls.gov

Frame Selection

Choice of Frame Source: JOLTS uses the same frame as the Current Employment Statistics (CES), the BLS Longitudinal Database (LDB) as modified by CES. The LDB is a database of U.S. business establishments covered by State unemployment insurance (UI) laws and Federal workers covered by the Unemployment Compensation for Federal Employees (UCFE) program. The file includes a record for every active UI account issued by any state. As the name suggests, LDB records are linked longitudinally. CES samples UI accounts from this frame, but JOLTS selects a sample from the reporting units—either the UI account or in cases where UI accounts have multiple reporting units, those subunits. These reporting units correspond closely to individual physical locations or work sites. The JOLTS frame excludes records for private household workers, and those from agriculture, forestry, and fisheries, with the exception of agricultural services. Any records with zero employment in the six most recent months on the frame are also excluded.

Requirements to Use Administrative Data: The LDB serves as a near census of employment and wage information by industry at the national, State, and county levels. This information is submitted four months after the end of the reference quarter, and with additional processing, the sample frame is available six months after the end of the quarter. If one were to track wage records across quarters, hires and separations data could be produced but not data on job openings. In addition, the hires and separations data would not be available until six-to-nine months after the end of the quarter.

Questionnaire Design

Questionnaire and Form Design: JOLTS staff designed and redesigned the survey questionnaire (data collection form) in a nonlinear process of evaluating, testing, and modifying. This was an on-going process, taking nearly a year. Additional input from respondent debriefings pointed to areas in need of clarification. The end result was three data collection forms: one for education units, one for temporary help agencies and professional employer organizations, and a third for all other units. All data elements, their definitions, and their reference periods are carefully described in detail on the back of the data collection forms, and summarized on the front of the forms where respondents are urged to record their data each month.

Choice of Data Items: Originally, the data elements for the JOLTS program were chosen based on a previous BLS survey of turnover in the manufacturing industry. The BLS Commissioner then suggested contacting several practicing economists, including research economists and academics during the development and testing of the data collection form. They provided valuable comments on breakouts of hires and separations, definitions, reference periods, and questionnaire design. JOLTS collects employment, and the number of job openings, hires, and separations each month. The separations data is further broken out into quits, layoffs and discharges, and other separations. The added respondent burden to break out hires data into new hires, rehires, and recalls seemed to outweigh the benefits.

Sample Design and Selection

Sophisticated Sample Designs: The JOLTS sample is stratified into groups defined by the four census regions, six size classes based on establishment employment, and industry divisions defined by ownership and industrial classification. To limit respondent burden and with some consideration for cost of initiating an employer to the survey, a rotating panel design is in use. The design has 18 noncertainty panels, with each unit in the sample for 18 months and a new panel introduced when an old panel is rolled out. The design also includes a virtual certainty panel of large sample units that remain in the sample. Units are selected to this panel by virtue of past employment size, 100 percent sampling rates indicated by the allocation, or because the sampling rate is so large as to make rotating impractical. With resources available for an approximate sample size of 16,000 units, the sample was selected and distributed across 18 noncertainty panels of equal size, plus a certainty panel.

Sample Designs for SubSamples: The JOLTS sample has been designed to produce publishable first closing estimates. The sample does not support any industry or geographic estimates below the published levels.

Sample Selection Methods to Minimize Sample Size: To facilitate JOLTS sample rotation and survey coordination with the Occupational Employment Survey (OES), CES, and future JOLTS samples, sample selection is done using permanent random numbers (PRN). Each establishment record on the frame has been randomly assigned a PRN. The OES and CES each have a predetermined starting point based on the assigned PRN, at which they begin to select units for their sample. The JOLTS sample was selected to limit overlap between surveys by choosing a PRN start value after those for the CES and the OES samples. However, certainty units are generally included in all of the BLS establishment surveys.

Reference Periods & Due Dates

Choice of Reference Periods: All data elements, their definitions, and their reference periods are described in detail on the back of the data collection forms, and summarized on the front of the forms where respondents are urged to record their data. The reference period for job openings is the last business day of the reference month, a snapshot for that

month much as unemployment is measured as a snapshot during the month. Hires and separations are flow measures and thus any that occur during the month are counted.

Due Date for Businesses Providing Data: The reference period for job openings is the last business day of the month and the reference period for hires and separations is the entire month, so data collection begins on the first day of the month following the reference month. All data reported between the first day of the month and the third Tuesday of the month are used in the first closing estimates. All data reported between that day and the third Tuesday of the following month are used in second closing estimates. All data reported after that point are included in the estimates produced during the benchmark retabulation.

Data Collection and Validation

Efficient Types of Data Collection Methods Using Technology: JOLTS data are collected in the JOLTS Data Collection Center in Atlanta, Georgia by contractors managed by BLS employees. Data from enrolled sample units are first collected via Computer-Assisted Telephone Interviewing (CATI) for six months. Reported data are edited interactively during the collection call, and additional explanatory information is captured. At the end of each data collection call, an appointment is established for the next month's data collection call. After six months of CATI collection, respondents are then moved to Touchtone Data Entry (TDE) for the remainder of their time in the sample (generally another twelve months). In exceptional circumstances, units may remain in CATI collection for the entire collection period, or may choose to provide their data via fax. In addition, some units may mail their data or report through alternate media, such as email. All data that are obtained through means other than CATI are keyed into a standard format, and then loaded into the CATI system database in a batch process. This is done for data editing purposes. Units with reported data that fall outside our edit parameters are reviewed, and if necessary contacted by an interviewer using the CATI system.

Respondent Relationships: Sample units are assigned to specific interviewers, who first refine the addresses of the sample units. Address refinement is the process of locating a current mailing address, physical location, and telephone number for the sample unit. Next, the interviewer contacts a gatekeeper, who is someone, usually in the human resources office, who can provide the name of a contact person who can report JOLTS information. Once the name and title of the likely contact person are obtained and the mailing address is verified, the interviewer mails an enrollment package to the contact person. The enrollment package includes a cover letter, a form with instructions, and some informational material about JOLTS. Several days after mailing the package, the interviewer telephones the contact person to obtain participation in JOLTS. Once the unit is successfully enrolled, an appointment is made for the first data collection call.

Follow up of Nonrespondents: The DCC staff generates reminder postcards to TDE and fax respondents, asking them to report their data in a timely manner. Most of these reminders are faxed to respondents. For long-term nonrespondents, interviewers also follow up through a combination of telephone calls and reminder postcards. Long-term

nonrespondents, who are actually refusals, are re-contacted by interviewers who have been trained in refusal conversion.

Efficient Data Validation Methods: One advantage of a relatively small sample size is the ability to intensely review the microdata, and the JOLTS program conducts three reviews every month. Once a snapshot of the database is taken and the data file is transferred to the national office in Washington, D.C., analysts review the data. All records with reported data are reviewed by industry. All data inconsistencies, irregularities, or atypical activity for the industry are investigated. Each establishment failing one or more of the established edits is output for review and those edits are not valid as donors during item imputation. If an establishment's data do not match the general trend in the industry, the unit may be marked as an outlier so that it only represents itself in estimation. Microdata review is complete once the national office staff records all errors and unresolved items into an electronic spreadsheet shuttle form and sends it to the DCC. There, interviewers have three working days to review the cases in question. If necessary, they may contact the establishment and discuss the reported value(s) that failed edits and the review process. The interviewer may have to re-explain definitions or reference periods and confirm or correct the data. Then the interviewer must document the change or the reason for the irregular data by entering a note in the system, or by selecting an appropriate comment code. The notes and comment codes let the national office know that the reported data are verified and are not the result of a keying or reporting error. Larger scale data collection problems are addressed through additional training for the interviewers.

Organizational Arrangements for Input Data Processing

Organizational Arrangements for Input Data Processing that Facilitate Efficient Resource Use and Improvements in Timeliness: All data that are obtained through means other than CATI are keyed into a standard format, and then loaded into the CATI system database in a batch process. This is done for data editing purposes. Units with reported data that fall outside our edit parameters are reviewed, and if necessary recontacted by the original interviewer using the CATI system.

Estimation

Data Imputation Methods: Non-response adjustment factors are calculated every month based on the total sample size and the number of respondents available that month. They are calculated across noncertainty panels and separately for the certainty panel. These factors are calculated by summing selection weights of viable sample cases and, separately, the selection weights of the usable sample cases. JOLTS imputes values for job openings, hires, quits, layoffs and discharges, and other separations wherever these fields are missing data in the responding sample units, using a nearest neighbor approach. Responses are pooled across panels and sorted by strata and by employment within strata. Records with missing values for a given item are designated as recipients for that item. Records with responses for the item serve as the donor pool. The donor selected for any given recipient is the record with a response on the item and the smallest difference in

employment from among the donor population. Once a recipient record has been paired with its donor, the procedure imputes a value by calculating the item ratio (item response/employment) from the donor and multiplying that ratio by the employment from the recipient record.

Early Estimates from Subsamples: All data reported between the first day of the month and the third Tuesday of the month are used in the first closing estimates. The JOLTS Data Collection Center has instituted a 10-day “core collection period.” This has encouraged interviewers to get as many units as possible collected during the first 10 days of the month.

Estimation Based on Lower Response Rates: All data reported between the first day of the month and the third Tuesday of the month are used in the first closing estimates. The JOLTS Data Collection Center has instituted a 10-day “core collection period.” This has encouraged interviewers to get as many units as possible collected during the first 10 days of the month. Data collectors attempt to collect at least employment from units contacted by first closing, hoping to collect the job openings, hires, and separations elements from these units at a later date. Item imputation is relied on in these types of cases. All data reported between first closing and the third Tuesday of the following month are used in second closing estimates. Response rates are generally significantly higher by second closing, which produces the final estimates for the reference month. In general, the estimates at the national level, for the total private sector, and for the regions change little between first and second closing, but some of the industries have shown minor variability.

Model-Based Estimates: The JOLTS data series are new, and no work has been done in this area.

Dissemination

Streamlining Dissemination Processes: JOLTS makes use of all of the established BLS data dissemination outlets.

Target Dates for Dissemination: The JOLTS staff plans the production cycle a year in advance. Dates are provided to the Office of Publications (OPUB) by which estimates will be available. As the JOLTS data series are not yet considered economic indicators, the release dates are not set in advance, so OPUB uses the dates provided as the earliest possible publication dates for the JOLTS estimates. OPUB schedules the JOLTS release depending on the releases of other BLS surveys.

Evaluation

Assessment of User Requirements: All national estimates and the industry and region estimates are produced and published at the same time. JOLTS staff are investigating additional estimates, such as estimates by establishment size class, that users have

requested. These may be published in the future, once JOLTS becomes an official BLS data series.

Revision Analysis: JOLTS staff review all reported microdata and monitor the difference between first and second closing estimates. When any revision is seen as too large, the staff takes a closer look at the microdata reported between the two closings and makes microdata changes and outlier adjustments where necessary.

Quality Assessment: Each month, JOLTS tracks each of the data series against comparable data series produced by both the public and private sector. Differences in level are explained, and differences in trend are investigated to make sure the JOLTS data series are showing accurate economic movements.

Benchmarking: To produce JOLTS estimates, a weight adjustment, or benchmark factor, is calculated for each industry employment level. This equals the CES industry division estimated employment for the nation divided by the sum of the weighted sample employment for the industry sector. The benchmark factor ratio adjusts a simple expansion estimator of employment to CES employment estimates at the industry sector level. Once a year, CES re-benchmarks its employment estimates to the frame employment, and JOLTS estimates are also retabulated based on those revised employment estimates.