

Job Openings and Labor Turnover Survey

The Job Openings and Labor Turnover Survey (JOLTS) program of the Bureau of Labor Statistics (BLS) produces monthly and annual estimates of job openings, hires, and separations, including quits, layoffs and discharges, and other separations. Estimates are published for nonfarm establishments in the private sector as well as federal, state, and local governments in the 50 states and the District of Columbia.

JOLTS estimates can be used to gauge labor demand, monitor the dynamics between hires and separations, and measure labor turnover.



Table of Contents

CONCEPTS2
 DATA SOURCES.....4
 DESIGN.....6
 CALCULATION.....8
 BENCHMARKING AND ANNUAL ESTIMATES 14
 PRESENTATION 16
 HISTORY17
 MORE INFORMATION.....18

Quick Facts: Job Openings and Labor Turnover Survey	
Subject areas	Employment
Key measures	Hires Job openings Separations
How the data are obtained	Survey of businesses
Classification system	Geography, Industry
Periodicity of data availability	Monthly
Geographic detail	Census region, National
Scope	Private sector
Key products	<ul style="list-style-type: none"> • Job opening and labor turnover news release • JOLTS Annual Story
Program webpage	<ul style="list-style-type: none"> • www.bls.gov/jlt

Concepts

The following are definitions of the key concepts used to create the Job Openings and Labor Turnover Survey (JOLTS) estimates and publications.

JOLTS *data elements* include job openings, hires, and separations. The components of total separations include quits, layoffs and discharges, and other separations. Although employment is not a published JOLTS data element, it is collected to compare against reported data as a quality control measure.

Employment includes persons on the payroll who worked or received pay for the pay period that includes the 12th day of the reference month. Full-time, part-time, permanent, short-term, seasonal, salaried, and hourly employees are included, as are employees on paid vacation or other paid leave. Proprietors or partners of unincorporated businesses, unpaid family workers, or employees on strike for the entire pay period, and employees on leave without pay for the entire pay period are not counted as employed. Employees of temporary help agencies, employee leasing companies, outside contractors, and consultants are counted by their employer of record, not by the establishment where they are working.

Job openings includes all positions that are open on the last business day of the reference month. A job is open only if it meets all three of these conditions:

- A specific position exists and there is work available for that position. The position can be full-time or part-time, and it can be permanent, short-term, or seasonal.
- The job could start within 30 days, whether or not the employer can find a suitable candidate during that time.
- The employer is actively recruiting workers from outside the establishment to fill the position. Active recruiting means that the establishment is taking steps to fill a position. It may include advertising in newspapers, on television, or on the radio; posting Internet notices, posting “help wanted” signs, networking or making “word-of-mouth” announcements; accepting applications; interviewing candidates; contacting employment agencies; or soliciting employees at job fairs, state or local employment offices, or similar sources.

Excluded are positions open only to internal transfers, promotions or demotions, or recall from layoffs. Also excluded are openings for positions with start dates more than 30 days in the future, positions for which employees have been hired but the employees have not yet reported for work, and positions to be filled by employees of temporary help agencies, employee leasing companies, outside contractors, or consultants.

Hires include all additions to the payroll during the entire reference month, including newly hired and rehired employees; full-time and part-time employees; permanent, short-term, and seasonal employees; employees who were recalled to a job at the location following a layoff (formal suspension from pay status) lasting more than 7 days; on-call or intermittent employees who returned to work after having been formally separated; workers who

were hired and separated during the month, and transfers from other locations. Excluded are transfers or promotions within the reporting location, employees returning from strike, employees of temporary help agencies, employee leasing companies, outside contractors, or consultants.

Separations include all separations from the payroll during the entire reference month and are reported by type of separation: quits, layoffs and discharges, and other separations.

Quits include employees who left voluntarily with the exception of retirements or transfers to other locations.

Layoffs and discharges include involuntary separations initiated by the employer including layoffs with no intent to rehire; layoffs (formal suspensions from pay status) lasting or expected to last more than 7 days; discharges resulting from mergers, downsizing, or closings; firings or other discharges for cause; terminations of permanent or short-term employees; and terminations of seasonal employees (whether or not they are expected to return the next season).

Other separations include retirements, transfers to other locations, separations due to employee disability; and deaths. Excluded are transfers within the same location; employees on strike; employees of temporary help agencies, employee leasing companies, outside contractors, or consultants.

Industry classifications used by the JOLTS program are in accordance with the [North American Industry Classification System \(NAICS\)](#). To ensure the highest possible quality of data, state workforce agencies verify the industry code, location, and ownership classification of all establishments. Verification and updating of the NAICS classifications are done on a 3-year cycle.

An establishment is an economic unit, such as a factory, mine, store, or office that produces goods or services. An establishment is generally a single physical location where business is conducted or where services or industrial operations are performed. There are cases where distinct and separate economic activities are performed at a single physical location, for example, gift shops in a hotel. These gift shops, operate out of the same physical location as the hotel, are identified as separate establishments and are classified in retail trade while the hotel is classified in accommodation and food services. In such cases, each activity is treated as a separate establishment provided conditions: no one industry description in the classification includes such combined activities; separate reports can be prepared on the number of employees, their wages and salaries, sales or receipts, and expenses; and employment and output are significant for both activities.

Last Modified Date: July 13, 2020

Data Sources

The Job Openings and Labor Turnover Survey (JOLTS) sampling frame is made up of establishments from two sources: the BLS Quarterly Census of Employment and Wages program (QCEW) and the Federal Railroad Administration (FRA).

The QCEW database contains approximately 9.4 million establishments. This database is a combination of private sector and state and local government establishments covered by state unemployment insurance (UI) programs and federal government establishments covered by the Unemployment Compensation for Federal Employees (UCFE) program.

A frame of railroad establishments is provided by the FRA. This is added to the QCEW database to complete the JOLTS sampling frame. Establishments are assigned industry codes based on the North American Industry Classification System (NAICS).

Data collection scope

JOLTS has a sample of approximately 20,700 units. There is a defined set of criteria that determines whether establishments are in the scope of the sample or out of the scope.

In-scope establishments. All nonagricultural industries except private households are within the scope of the JOLTS survey. Within the agriculture industry, only establishments that provide agricultural services are considered in scope. In addition to the private sector, JOLTS selects a public sector sample of civilian federal, state, and local government units.

Out-of-scope establishments. The following types of establishments are classified as out of scope for the JOLTS survey:

- Establishments that are out of business
- Establishments with an invalid NAICS code (000000 or 999999) or a missing code
- Agricultural establishments (NAICS 11), except logging (NAICS 1133)
- Private households (NAICS 814110)
- Establishments with no legal name or trade name
- Establishments outside of the 50 states and the District of Columbia
- Establishments that report zero employment for the most recent 6 months on the sampling frame

Data collection process

JOLTS data are collected at a data collection center in Atlanta, GA. Interviewers (also called data collectors) refine the addresses and contact information for their assigned sample units (establishments). An enrollment package is mailed to the establishment, and the interviewer follows up by telephone to solicit participation. Once an establishment is enrolled, data collection begins.

Data are collected from respondents every month. Initial data collection takes place via Computer Assisted Telephone Interview (CATI) for approximately 5 months. This allows the respondent time to learn the JOLTS data elements and definitions and establishes monthly reporting. After this period of CATI collection, the respondent is encouraged to move to self-reporting, and they can choose to report by web or email for the remainder of their time.

Respondents are provided a [data collection form](#) to assist them in determining the values of the data elements they report. Specially designed forms are provided to respondents for [education](#) establishments or [temporary help](#) and employee-leasing establishments.

Special collection procedures. BLS devotes additional resources to the collection, editing, and review of data for the employment services industry and state-run colleges and universities. The implied measure of employment change derived from the JOLTS data (by subtracting separations from hires for a given month) can be overstated, compared with total nonfarm employment change as measured by the BLS Current Employment Statistics (CES) survey. Much of the difference between the CES employment levels and the derived JOLTS employment levels is attributable to the employment services industry and to state government education—specifically, colleges and universities. Businesses in the employment services industry have a difficult time reporting hires and separations of temporary help workers. Colleges and universities have difficulty reporting hires and separations of student workers and adjunct professors. BLS analysts more closely examine reported data that do not provide a consistent picture over time and then recontact the respondents as necessary.

Data review process

All reported data are reviewed at two levels. The review ensures, to the degree possible, that the data adhere to JOLTS definitions and reference periods.

The first level of data review is conducted after reported data have been input into the web collection system and into the CATI system and processed electronically through a series of system checks. Any data that fails the system checks are flagged for the data collection center staff to review. The following automated checks are performed on the reported data:

- A check is performed to verify that the sum of quits, layoffs and discharges, and other separations equals total separations for every series.
- A check is performed to verify that the sums of lower level series add to the upper level series. This includes subsector breakouts adding to supersector level, government plus private adding to total nonfarm, and regions adding to total nonfarm.

The second level of review is performed by JOLTS staff at the BLS national office. Reported data pass through a second round of screening based on a different set of criteria to check for common problems and potential errors. For example, checks are run to compare reported employment values to sampled employment values and to check for unusually high rates by data element.

Last Modified Date: July 13, 2020

Design

The Job Openings and Labor Turnover Survey (JOLTS) sample design is a probability-based stratified random sample. The basic sample unit is an establishment at a single physical location. Most sampled establishments remain in the survey for 36 months and, after completing time in sample, are not sampled again for at least 3 years. The sample of establishments is stratified by ownership (private or public), census region (Northeast, Midwest, South, and West), industry sector, and size class. Establishment level industry codes are assigned using the North American Industry Classification System (NAICS). The private sector is stratified into the following subsectors: mining and logging; construction; durable goods manufacturing; nondurable goods manufacturing; wholesale trade; retail trade; transportation, warehousing, and utilities; information; finance and insurance; real estate and rental and leasing; professional and business services; educational services; health care and social assistance; arts, entertainment, and recreation; accommodation and food services; and other services. The government sector is subdivided into federal government, state and local government education, and state and local government excluding education. There are six employment size classes: 1–9; 10–49; 50–249; 250–999; 1,000–4,999; and 5,000 or more. All establishments with 5,000 or more employees are included in the sample with virtual certainty and remain in the sample as long the employment count remains at or above 5,000 employees.

The sample is divided into a single certainty panel and 24 noncertainty panels. Each month, a new noncertainty panel is rolled into the sample while an old noncertainty panel is rolled out of the sample. This approach maintains 24 active noncertainty panels plus the certainty panel. Noncertainty sample units are requested to provide data for 24 months.

JOLTS sample units (noncertainties) are allocated to the various strata using a standard Neyman allocation formula:

$$n_h = n \left(\frac{N_h S_h}{\sum N_h S_h} \right)$$

where:

n_h is the number of units assigned to stratum h

n is the number of sample units to be allocated

N_h is the number of population elements in stratum h

S_h is the standard deviation of the population in stratum h

This formula assigns sample units to each stratum based on the number of frame units in each stratum and the standard deviation within the stratum relative to other strata. The standard deviation of the population is approximated based on the frame employment of the strata. That is, strata with larger N_h or larger standard deviation S_h get more sample relative to those with smaller N_h or S_h .

Each year, a new 12-panel sample is selected. At the time of the annual sample selection, not all of the panels from previously selected samples have rolled out of the sample. Therefore, there are panels from multiple samples active in the current sample at any given time. Each year, the older panels are updated with respect to current strata characteristics (industry, size, and region); updating also includes the removal of establishments that go out of business. The sampling weights of establishments to be used in the survey are recomputed to reflect the current sample population, and post-stratification is done to represent the updated age structure of the frame. In other words, each sample unit is reweighted.

To ensure that newly opened establishments (also called births) are represented in the sample as soon as possible, a sample of birth units is selected from the updated frame every quarter. Quarterly birth samples were first implemented in April 2009. The birth units are selected from establishments that first reported positive employment during the current quarter and belong to JOLTS size class 1–9, 10–49, or 50–249. The birth units are sampled from strata defined by age, industry, and size.

Each stratum's birth sample size is calculated by dividing the number of births in the stratum by the stratum reweight. If the stratum has three or fewer birth units, then all the birth units in the stratum are selected. Weights are assigned to the birth sample units by dividing the number of total birth units in the sample strata by the actual number of birth units selected for that strata. All the sampled birth units are then distributed evenly into three sample panels that are rolled into the sample over the quarter.

Last Modified Date: July 13, 2020

Calculation

The Job Openings and Labor Turnover Survey (JOLTS) program uses the following methodologies to generate the estimates. The methodologies below are presented in terms of their order of operation.

Unit nonresponse adjustment

A multiplicative nonresponse adjustment factor (NRAF) is used to inflate the weight of respondents in an estimation cell to adjust for nonrespondents. The weight of all nonrespondents is redistributed among the respondents to preserve the total weighted employment of the cell. The NRAF is calculated by dividing the weighted frame employment of the viable establishments in the cell by the weighted frame employment of usable sample units in the cell:

$$\text{NRAF}_{\text{cell}} = \frac{\sum_{i \in \text{cell, viable}} w_i \text{emp}_i}{\sum_{i \in \text{cell, usable}} w_i \text{emp}_i}$$

where,

the subscript “cell” denotes the industry division, census region, and establishment size,

i designates the *i*th establishment,

v designates viable units, that is, those in-scope sampled units which are capable of reporting; that is, sampled units that are not out of business, out of scope, or duplicates,

u designates usable units, a subset of viable units, that is those units which responded to the JOLTS with usable data,

emp_i is the sample frame employment of the *i*th unit, and

W_i is the sampling weight of the *i*th unit.

Note: By definition, NRAF > 1 as the number of usable units is less than or equal to the number of viable units.

Item nonresponse adjustment

Item nonresponse occurs when a respondent reports some of the JOLTS data elements, but not others.

To impute data elements that have not been reported, the JOLTS program classifies establishments based on their employment dynamic—expanding, stable, or contracting—and imputes items within those groups. Thus, expanding establishments donate estimated item values to expanding establishments, stable to stable, and contracting to contracting. Drawing imputed values from a model-based donor distribution derived from reported

data within a dynamic grouping reduces variation in the estimates. The imputation model also ensures that imputed data within each dynamic group is consistent with reported data within the group without biasing the means of the data elements or substantially lowering their variances.

Estimating procedures

A Horvitz–Thompson estimator with a ratio adjustment is used to produce estimates of levels of surveyed data elements at different degrees of geographical and industrial detail. To calculate the estimated level for each data element for a given month in a basic estimation cell, the following steps are performed:

To ratio-adjust JOLTS employment to Current Employment Statistics (CES) employment, it is necessary to calculate the Summed Weighted Total Employment (SWTE) for each JOLTS industry division within a census region (region/id).

The final weighted JOLTS employment for each record in a region/id cell is calculated by multiplying the following: sample weight* NRAF*reported JOLTS employment for that record.

The SWTE is calculated in each region/id cell by summing the final weighted JOLTS employment in each region/id cell.

The benchmark factor (BMF) is calculated by dividing CES employment (at the region/id level) by the SWTE (at the region/id level).

The CES program produces an industry employment estimate using a much larger sample than JOLTS.

Ratio adjusting JOLTS data element estimates to CES industry employment increases the statistical reliability of all JOLTS data element estimates:

$$BMF_{id,cr} = \frac{CES_{id,cr}}{\sum_{i \in id,cr} w_i \times e_i}$$

where,

the subscript id,cr denotes industry division and census region,

BMF_{id,cr} is the benchmark factor for industry and census region,

CES_{id,cr} designates industry division and census region employment,

w_i is the sampling weight reflecting all adjustments (NRAF, atypical data adjustment, etc.) for sample unit i, and

e_i = reported employment from sample unit i.

Thus, the equation used to compute the estimate of a data element is

$$\sum_{\text{cell}} (\text{weight} \times \text{NRAF} \times \text{BMF}) \times \text{reported data element}$$

where weight is the recomputed (that is, reweight) sampling weight.

Automated outlier detection

Winsorization is a statistical process commonly used to reset outlier values to a predetermined threshold value, also called the cutoff value. In JOLTS, an independent cutoff value is established for each employment size and data element (job openings, hires, etc.). Any reported value exceeding the cutoff is reset to the cutoff value.

Birth–death model

As with any sample survey, the JOLTS sample can only be as current as its sampling frame. The time lag from the birth of an establishment until its appearance in the sampling frame is approximately 1 year. In addition, many new establishments fail within the first year. Because new and short-lived universe establishments cannot be reflected in the sampling frame immediately, the JOLTS sample cannot capture job openings, hires, and separations from these establishments during their early existence. BLS has developed a model for estimating birth and death activity in current months by examining data on birth and death activity in previous years as collected by the Quarterly Census of Employment and Wages (QCEW), and projecting forward to the present using over-the-year change in the Current Employment Statistics (CES). The birth–death model also uses historical JOLTS data to calculate the amount of churn (meaning the rates of hires and separations) that exists in establishments of various sizes. The model then combines the calculated churn with the projected employment change to estimate the number of hires and separations that take place in these establishments that cannot be measured through sampling.

The model-based estimate of total separations is distributed to the three components of total separations—quits, layoffs and discharges, and other separations—in proportion to their contribution to the sample-based estimate of total separations. In addition, job openings in the establishments modeled are estimated by computing the ratio of openings to hires in the collected data and applying that ratio to the modeled hires. The estimates of job openings, hires, and separations produced by the birth–death model are then added to the sample-based estimates produced from the survey to arrive at the estimates for job openings, hires, and separations.

Estimates review and outlier selection. Estimates are examined for atypical or large movements, and values that appear questionable are flagged for verification. Microdata are examined in the verification process. If microdata is confirmed to be atypical, outliers are then selected. Outliers selected manually have their weight changed to 1.0 and are disqualified as acting as donors during item imputation. After estimates review, the not seasonally adjusted estimates are re-run and again reviewed.

Alignment

The JOLTS figure for hires minus separations should be comparable to the CES over-the-month net employment change. Because of its large sample size and annual benchmarking to universe counts of employment from the QCEW program, the CES series is considered a highly accurate measure of net employment change. However, definitional differences, as well as sampling and nonsampling errors between the two surveys, have caused JOLTS to diverge from the CES survey over time. To limit the divergence and to improve the quality of the JOLTS hires and separations series, BLS implemented a monthly alignment method. Simply put, there are four steps to this method: seasonally adjust, align, back out the seasonal adjustment factors, and re-seasonally adjust.

The monthly alignment method applies the seasonally adjusted CES employment trend to the seasonally adjusted JOLTS implied employment trend (hires minus separations), keeping the two trends consistent while preserving the seasonality of the JOLTS data. First, the two series are seasonally adjusted and the difference between the JOLTS implied employment trend and the CES net employment change is calculated. Next, the JOLTS implied employment trend is updated to equal the CES net employment change through a proportional adjustment. This proportional adjustment procedure modifies the two components (hires and separations) in proportion to their contribution to the total churn (hires plus separations). For example, if the hires estimate makes up 40 percent of the churn for a given month, it will receive 40 percent, and separations will receive 60 percent, of the needed adjustment.

The following is an example of the alignment method:

Let Hires denote the number of hires.

Let Seps denote the number of separations.

Let Cesemp represent CES employment.

$$\text{Hires}_{sa} = 40$$

$$\text{Seps}_{sa} = 60$$

$$D \text{ Cesemp} = -25$$

In this case, hires minus separations does not equal the change in CES employment.

Then,

$$D = (\text{Hires}_{sa} - \text{Seps}_{sa}) - \Delta \text{Cesemp}$$

$$D = (40 - 60) - (-25) = 5$$

where D denotes the divergence between CES employment trend and JOLTS hires minus separations.

Let PAHires_sa denote the proportionally adjusted seasonally adjusted hires.

Let PASeps_sa denote the proportionally adjusted seasonally adjusted separations.

Let Hires_A denote aligned hires.

Let Seps_A denote aligned separations.

Then,

$$\text{PAHires}_{sa} = \frac{\text{Hires}_{sa}}{(\text{Hires}_{sa} + \text{Seps}_{sa})} \times D$$

$$\text{PAHires}_{sa} = \frac{40}{(40 + 60)} \times 5 = 2$$

And,

$$\text{PASeps}_{sa} = \frac{\text{Seps}_{sa}}{(\text{Hires}_{sa} + \text{Seps}_{sa})} \times D$$

$$\text{PASep}_{sa} = \frac{60}{(40 + 60)} \times 5 = 3$$

Finally,

$$\text{Hires}_A = \text{Hires}_{sa} - \text{PAH}_{sa} = 40 - 2 = 38$$

$$\text{Seps}_A = \text{Seps}_{sa} + \text{PAS}_{sa} = 60 + 3 = 63$$

This yields the following:

Seasonally adjusted hires minus seasonally adjusted separations is equal to the change in CES employment.

Resulting in,

$$\Delta \text{Cesemp} = \text{Hires}_A - \text{Seps}_A$$

$$\Delta \text{CESemp} = 38 - 63 = -25$$

Job openings are aligned based on the ratio of job openings to hires from the not seasonally adjusted estimates. This ratio of job openings to hires is applied to the updated hires to compute the updated job openings. The adjusted job openings, hires, and separations are converted back to not seasonally adjusted data by reversing the application of the original seasonal adjustment factors.

Example:

Let JO denote job openings.

Let JO_A denote aligned job openings.

JO=11

To obtain aligned job openings,

$$JO_A = \frac{JO}{H} \times Hires_A$$

$$JO_A = \frac{11}{40} \times 38 = 10.45$$

The monthly alignment procedure assures a close match of the JOLTS implied employment trend with the CES employment trend for the not seasonally adjusted data. The aligned not seasonally adjusted estimates are then published.

Seasonal adjustment

After alignment, the X-13-ARIMA-SEATS seasonal adjustment program is used to seasonally adjust the JOLTS series. Seasonal adjustment is the process of estimating and removing periodic fluctuations caused by events such as weather, holidays, and the beginning and ending of the school year. Seasonal adjustment makes it easier to observe fundamental changes in data series, particularly those associated with general economic expansions and contractions. Each month, a concurrent seasonal adjustment methodology uses all relevant data, up to and including the data for the current month, to calculate new seasonal adjustment factors.

Moving averages are used as seasonal filters in seasonal adjustment. JOLTS seasonal adjustment includes both additive and multiplicative models, as well as REGARIMA (regression with autocorrelated errors) modeling, to improve the seasonal adjustment factors at the beginning and end of the series and to detect and adjust for outliers in the series.

Variance estimation

The estimation of sample variance for the JOLTS survey is accomplished by using the balanced half samples (BHS) method. This replication technique uses half samples of the original sample to calculate estimates. The sample variance is calculated by measuring the variability of the subsample estimates. The sample units in each cell—where a cell is based on region, industry, and size class—are divided into two random groups. The basic BHS method is applied to both groups. The cells are subdivided systematically, in the same order as the initial sample selection. Weights for units in the half sample are multiplied by a factor of $1 + \alpha$, whereas weights for units not in the half sample are multiplied by a factor of $1 - \alpha$, where

$$\alpha = (1 + \gamma\sqrt{1 - f_{t,h}})$$

in which γ is Fay's factor (0.5). Fay's method is a generalized form of BHS which uses the full sample but with unequal weighting for each half-sample. Sample weights are adjusted by α in the formula above by setting $\gamma = 0.5$ for those units outside the half-sample and are adjusted by α by setting $\gamma = 1.5$ for those units within the half-sample.

The finite population correction (f) factor is calculated as

$$f_{t,h} = \frac{I_{t,h}}{\sum_{i=1}^{n_h} w_i^{SEL}}$$

Where,

$I_{t,h}$ is the number of units reporting employment in allocation stratum h at time t ,

n_h is the number of sample units in allocation stratum h ,

and the variable w_i^{SEL} is the sample selection weight of sample unit i .

Benchmarking and annual estimates

The JOLTS data are revised annually to reflect annual updates to the CES employment estimates. The JOLTS employment levels (not published) are ratio-adjusted to the CES employment levels, and the resulting ratios are applied to all JOLTS data elements. This annual benchmarking process results in revisions to both the seasonally adjusted and not seasonally adjusted JOLTS data series, for the period since the last benchmark was established. The seasonally adjusted data are recalculated for the most recent 5 years in order to reflect updated seasonal adjustment factors. Further, the alignment methodology creates a dependency of the not seasonally adjusted estimates on the seasonal adjustment process. Therefore, the data series that are not seasonally adjusted are

also recalculated for the most recent 5 years in order to reflect the effect of the updated seasonal adjustment factors on the alignment process.

Response rates

Unit and item response rates are tracked on a monthly basis to measure data quality and usability. Refusal rates, initiation rates, and collection rates are also calculated and monitored.

Reliability of the estimates

JOLTS estimates are subject to two types of error: sampling error and nonsampling error.

Sampling error can result when a sample, rather than an entire population, is surveyed. There is a chance that the sample estimates may differ from the true population values they represent. The exact difference, or sampling error, varies with the particular sample selected, and this variability is measured by the standard error of the estimate. BLS analysis is generally conducted at the 90-percent level of confidence. This means that there is a 90-percent chance that the true population mean will fall into the interval created by the sample mean plus or minus 1.65 standard errors. Estimates of median standard errors are released on a monthly basis as part of the significant change tables on the [JOLTS webpage](#) and are available upon request. Standard errors are updated annually with the most recent 5 years of data.

The JOLTS estimates are also affected by nonsampling error. Nonsampling error can occur for many reasons, including the failure to include a segment of the population, the inability to obtain data from all units in the sample, the inability or unwillingness of respondents to provide data on a timely basis, mistakes made by respondents, errors made in the collection or processing of the data, and errors from the employment benchmark data used in estimation.

The JOLTS program uses quality control procedures to reduce nonsampling error in the survey's design. See the Data Sources section.

Last Modified Date: July 13, 2020

Presentation

The Job Openings and Labor Turnover Survey (JOLTS) program publishes seasonally adjusted and not seasonally adjusted estimates at the total nonfarm, total private, and government levels for all sampled North American Industry Classification System (NAICS) sectors and subsectors and total nonfarm estimates by region. Estimates are published monthly, with the publication dates set prior to the beginning of each calendar year. Estimates are released at 10 a.m. eastern time on the publication dates, which are usually in the second week of the month.

Estimates of rates and levels are summarized in the JOLTS monthly news release for the current month and the revised previous month estimates and are available at <https://www.bls.gov/news.release/pdf/jolts.pdf>. Archived news releases are also available on the [JOLTS website](#). Time series data are accessible via the JOLTS website by using the [database tools](#). Significant change tables provide tests of significance for over-the-month and over-the-year changes. The [JOLTS Publications section](#) of the JOLTS website provides JOLTS-related articles from the *Monthly Labor Review* and other BLS sources.

JOLTS produces both a preliminary and final estimate each month with the final estimate being the revised preliminary estimate. The revised estimate incorporates any corrected or late-reported microdata. If additional corrections are needed, the data will be footnoted in the public database and noted on the BLS errata page. Please see Calculation section for a description of sampling and nonsampling error.

Annual estimates of rates and levels of hires, quits, layoffs and discharges, other separations, and total separations are published in the January news release, which comes out in March each year. The annual estimates of levels are approximately equal to the sum of the 12 published monthly levels. The annual estimates of rates are computed by dividing the annual level by the Current Employment Statistics (CES) annual average employment level and multiplying the resulting quotient by 100. The annual rate is approximately equal to the sum of the 12 monthly rates.

Annual estimates are not calculated for job openings. Job openings are a stock, or point-in-time, measurement on the last business day of each month. Only jobs still open on the last day of the month are counted. For the same reason that job openings are not cumulated throughout each month, annual figures for job openings are not created by summing the monthly estimates. Because hires and separations are flow measures and are cumulated over the month with a total reported for the month, these annual figures are calculated by summing the monthly estimates.

Last Modified Date: July 13, 2020

History

Key developments

- **1998**: BLS begins development of the Job Openings and Labor Turnover Survey
- **2000**: Collection of JOLTS microdata begins
- **2002**: JOLTS data are first released, as an experimental series, to the public
- **2004**: JOLTS data are converted from an experimental series to an official BLS series
- **2006**: JOLTS publishes the first annual hires and separations series
- **2010**: JOLTS web collection is implemented for reporting establishments
- **2010**: Experimental size class estimates are developed and released for the first time
- **2017**: Experimental firm size estimates are produced in two releases
- **2019**: Experimental state estimates are released for the first time

The Bureau of Labor Statistics began developing the Job Openings and Labor Turnover Survey (JOLTS) program in 1998 in order to assess the unmet demand for labor in the U.S. labor market. The collection, estimation, and analysis of data began in 2000. JOLTS data were first released to the public in 2002, with a monthly series dating back to December 2000. In 2004, the JOLTS program converted from an experimental series to an official Bureau of Labor Statistics (BLS) series. On March 14, 2006, JOLTS published the first annual hires and separations series.

Subsequent to these milestones, JOLTS has continued to expand the number of published industry sectors. Improvements and updates to the collection and estimation methodologies also continues. In April 2010, web collection was implemented for reporting establishments. Experimental size class estimates were developed and released for the first time in 2010. First, experimental establishment size class estimates were made available to the public. In 2017, experimental firm size estimates were subsequently produced in two releases.

Prior to the inception of the JOLTS program, the CES conducted a federal–state cooperative BLS program called the Labor Turnover Survey (LTS) that published turnover data from 1959 to 1981. Questions on job vacancies were added to the LTS in 1969. BLS produced vacancy rates from 1969 through 1973 for nine selected manufacturing industries and selected states and metropolitan areas.

Archives

- [March 14, 2013](#)

Last Modified Date: July 13, 2020

More Information

The following are important notes about using Job Openings and Labor Turnover (JOLTS) program data.

In January 2002, the enrollment of the full complement of panels, based on the Standard Industrial Classification (SIC) system, was completed. In May 2003, the enrollment of the supplemental panels needed to produce estimates based on the North American Industry Classification System (NAICS) was completed. The data collected up until this time are from less than a full sample. Therefore, estimates from earlier months should be used with caution, because fewer sampled establishments reported data at that time.

In March 2002, Bureau of Labor Statistics (BLS) procedures for collecting data on hires and separations were revised to address possible underreporting. As a result, JOLTS estimates of hires and separations for months prior to March 2002 may not be comparable with estimates for March 2002 and later.

When the Department of Homeland Security was formed, approximately 180,000 employees were transferred to that agency. In March 2003, Office of Personnel Management records show that these transfers were completed. The inclusion of transfers in the JOLTS definitions of hires and separations is intended to cover ongoing movements of workers between establishments. By contrast, the Department of Homeland Security reorganization was a massive one-time event, and the inclusion of these intergovernmental transfers would distort the federal government time series. The hires and separations estimates for federal government does not reflect these transfers.

Technical references

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Last Modified Date: July 13, 2020