Quarterly Census of Employment and Wages

The Quarterly Census of Employment and Wages (QCEW) is a quarterly count of employment and wages reported by employers. The QCEW covers more than 95 percent of U.S. jobs available at the county, Metropolitan Statistical Area (MSA), state, and national level, by detailed industry. The primary source for the QCEW is administrative data from state unemployment insurance (UI) programs. These data are supplemented by data from two U.S. Bureau of Labor Statistics (BLS) surveys: the Annual Refiling Survey (ARS) and the Multiple Worksite Report (MWR). Before publication, BLS and state workforce agencies review and enhance the QCEW data, correcting errors, imputing for nonresponse, and confirming and annotating unusual movements.

Quick Facts: Quarterly Census of Employment and Wages	
Subject areas	Employment, Pay
Key measures	County wages Employment Number of establishments County employment
How the data are obtained	Administrative records
Classification system	Industry
Periodicity of data availability	Annual, Monthly, Quarterly
Geographic detail	County, Metro area, National, State
Scope	Government, Private sector, State and local government
Key products	• County Employment and Wages news release • Employment and Wages Online Annual Averages • Employment and Wages Archives • QCEW Open Data Access • QCEW Downloadable Data Files • QCEW Hurricane Flood Zone Maps
Program webpage	• www.bls.gov/cew

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Concepts

The Quarterly Census of Employment and Wages (QCEW) consists of a monthly count of employment, quarterly counts of wage levels and business establishments, and a count of workers' average weekly wages at multiple levels of geographic and industrial detail for use by academic researchers, local governments and other federal agencies, and the public in general. An establishment is commonly understood as a single economic unit, such as a farm, a mine, a factory, or a store, that produces goods or services. Establishments are typically at one physical location and engaged in one, or predominantly one, type of economic activity for which a single industrial classification may be applied. An establishment is in contrast to a firm, or a company, which is a business and may consist of one or more establishments, where each establishment may participate in a different predominant economic activity. The QCEW provides an employment benchmark and sample frames for other Bureau of Labor Statistics (BLS) programs, as well as a basis of estimation of the wage and salary component for the Bureau of Economic Analysis Personal Income statistic. Standard sources used by the QCEW program are the North American Industry Classification System (NAICS), for industry detail; Federal Information Processing Standards, for geographic area codes; and the Office of Management and Budget, for size classes.

The QCEW makes use of a number of key variables:

- *Establishment count* is the aggregation of establishments in a given geographic area, in a given industry, with a given ownership status (that is, private or public), or any combination of the three.
- *Employment* is the count of only filled jobs, whether full or part time, and temporary or permanent, by place of work. The quarterly reports include the establishment's monthly employment levels for the pay periods that include the 12th of the month.
- *Wages* are the total compensation paid, including bonuses, stock options, severance pay, profit distributions, the cash value of meals and lodging, tips and other gratuities, and, in some states, employer contributions to certain deferred compensation plans (such as 401(k) plans), during the calendar quarter, regardless of when the services were performed.
- *Establishment size* are based on the classification of an establishment on the basis of the number of employees reported.
- *Industry* is the classification applied to each establishment on the basis of its primary economic activity.
- *County* is the primary local geographic designation for an establishment. It is assigned based on physical location.
- *Township* is a secondary local geographic designation, used primarily in the New England states and New Jersey.
- *Geocode* is a set of longitudinal and latitudinal coordinates identifying the location of the establishment.

Establishments are asked to provide physical addresses for their business activities. The addresses are then converted into geocodes by the BLS Office of Technology and Survey Processing and are provided to the states to add to the data. The geocodes are entered into Geographic Information Software to create detailed maps of the locations of establishments and their economic and administrative attributes.

Scope and exclusions

QCEW monthly employment data represent the number of covered workers who worked during, or received pay for, the pay period that included the 12th day of the month. Covered *private-industry employees* include most corporate officials, all executives, all supervisory personnel, all professionals, all clerical workers, many farmworkers, all wage earners, all piece workers, and all part-time workers. Workers on paid sick leave, paid holiday, paid vacation, and the like are also covered. Workers on the payroll of more than one firm during the period are counted by each employer that is subject to unemployment insurance (UI), as long as those workers satisfy the preceding definition of employment. Workers are counted even though their wages may not be subject to UI tax in the latter months of the year. In this regard, the federal UI taxable wage base is the first $7,000 paid in wages to each employee during a calendar year. Thus, at whatever point in the year an employee reaches that accumulation of wages, he or she is no longer taxed in the months remaining.

Government employment at all federal agencies for any given month is based on the number of people who worked during, or received pay for, the pay period that included the 12th of the month. Employment data reported for federal civilian employees are a byproduct of the operations of state workforce agencies in administering the provisions of Title XV of the Social Security Act of the Unemployment Compensation Federal Employees (UCFE) program. Federal employment data are based on reports of monthly employment and reports of quarterly wages, both submitted quarterly to state agencies. Reports are submitted for all federal installations with employees covered by the act, except for certain national security agencies, which are excluded for security reasons.

Besides excluding the aforementioned national security agencies, QCEW excludes proprietors, the unincorporated self-employed, unpaid family members, certain farm and domestic workers from having to report employment data, and railroad workers covered by the railroad unemployment insurance system. Excluded as well are workers who earned no wages during the entire applicable pay period because of work stoppages, temporary layoffs, illness, or unpaid vacations. Excluded from QCEW federal government employment are elected officials in the executive or legislative branch, members of the armed forces or the Commissioned Corps of the National Oceanic and Atmospheric Administration, individuals serving on a temporary basis in case of fire, storm, earthquake, or other similar emergency, and individuals employed under a Federal relief program to relieve them from unemployment. For a complete list of federal government exclusions, see appendix A of the UCFE Instructions for Federal Agencies. Excluded from QCEW state and local government employment are elected officials, members of a legislative body or members of the judiciary, members of the state National Guard or Air National Guard, and employees serving on a temporary basis in case of fire, storm, snow, earthquake, flood or similar declared emergency. For a complete list of state and local governments excluded services, see the coverage section of the most recent Comparison of State UI Laws.

Wages in most states covered employers' reported total compensation paid during the calendar quarter, regardless of when the services were performed. A few state laws, however, specify that wages be reported for or be based on the period during which services are performed rather than the period during which compensation is paid. Under most state laws or regulations, wages include bonuses, stock options, severance pay, the cash value of meals and lodging, tips and other gratuities. In some states, wages also include employer contributions to certain deferred compensation plans, such as 401(k) plans.

Covered employers' contributions to old-age, survivors, and disability insurance; health insurance; UI; workers' compensation; and private pension and welfare funds are not reported as wages. Employee contributions for the same purposes, however, as well as money withheld for income taxes, union dues, and so forth, are reported, even though they are deducted from the worker's gross pay.

Comparisons of related data series

For any given quarter, BLS publishes three different establishment-based employment measures. Each of the three measures—the QCEW, Business Employment Dynamics (BED), and Current Employment Statistics (CES)—is based on QCEW establishment reports, which are an enhanced and corrected version of quarterly unemployment insurance (UI) employment reports. Each measure has a somewhat different universe of coverage, estimation procedure, and publication product.

Differences in coverage and estimation methods can result in somewhat different measures of employment change over time. It is important to understand program differences and the intended uses of the program products. Exhibit 1 presents important differences among the three BLS employment measures.

Exhibit 1. Characteristics of Quarterly Census of Employment and Wages (QCEW), Business Employment Dynamics (BED), and Current Employment Statistics (CES) employment measures

Characteristic	QCEW	BED	CES
See footnotes at end of table.			
Source	• Count of UI administrative records submitted by 10.4 million establishments in the first quarter of 2020	• Count of longitudinally linked UI administrative records submitted by 8.3 million private sector employers in 2020	• Sample survey: 697,000 establishments
Coverage	• Coverage for UI and Unemployment Compensation for Federal Employees (UCFE); coverage is required of all employers subject to state and federal UI laws	• UI coverage, excluding government, private households, and establishments with zero employment	Nonfarm wage and salary jobs:
			• Jobs covered by UI; excluded are agricultural jobs, jobs in private households, and jobs held by self-employed workers
			• Jobs not covered by UI, including railroad jobs, jobs in religious organizations, and other non-UI-covered jobs
			• Jobs covered by UI; excluded are agricultural jobs, jobs in private households, and jobs held by self-employed workers
Publication frequency	• Quarterly, within five months after the end of each quarter	• Quarterly, seven months after the end of each quarter	• Monthly, usually the 3rd Friday after the end of the week including the 12th of the month
Use of UI file	• Directly summarizes and publishes each new quarter of UI data	• Links each new UI quarter to longitudinal database and directly summarizes gross job gains and losses	• Uses UI file as a sampling frame and to annually realign sample-based estimates to population counts (benchmarking)

Exhibit 1. Characteristics of Quarterly Census of Employment and Wages (QCEW), Business Employment Dynamics (BED), and Current Employment Statistics (CES) employment measures

Characteristic	QCEW	BED	CES
Principal product	• A quarterly and annual universe count of establishments, employment, and wages at the county, MSA, state, and national level, by detailed industry	• Quarterly employer dynamics data on establishment openings, closings, expansions, and contractions, at the national level by NAICS supersector and size of firm, and at the state private sector total level	• Current monthly estimates of employment, hours, and earnings at the MSA, state, and national level, by industry
		• Future expansions to include data with greater industry detail and data at the county and MSA level	
Principal uses	• Detailed locality data	• Provides business cycle analysis: Analysis of employer dynamics underlying economic expansions and contractions	• Is a Principal Federal Economic Indicator
	• Periodic universe counts for benchmarking sample survey estimates	• Analysis of employment expansion and contraction by size of firm	• Serves as an official time series for employment change
	• A sample frame for BLS establishment surveys		• Provides input into other major economic indicators
Program websites	• www.bls.gov/cew/	• www.bls.gov/bdm/	• www.bls.gov/ces/

Source: U.S. Bureau of Labor Statistics.

Comparisons with other data programs

BLS publishes three different establishment-based employment measures for any given quarter. Each of these measures—the QCEW, BED, and CES—makes use of the quarterly UI employment reports in producing data. Each measure, however, has a somewhat different universe of coverage and estimation procedure, and each produces a different publication. Other data series are briefly covered here.

Current Population Survey

The Current Population Survey (CPS) is a monthly survey of households conducted by the Bureau of Census for the Bureau of Labor Statistics. BLS uses CPS data to provide monthly estimates on the labor force, employment unemployment, and other related data. CPS employment data are estimated from a survey of about 60,000 U.S. households, while QCEW employment data are summarized from quarterly reports submitted by 10.0 million U.S. establishments. CPS counts employed people, whereas the QCEW program counts covered workers who earned wages during the pay period that includes the 12th of the month. Consequently, the CPS includes people “with a job but not at work” who earn no wages, for example, workers on extended unpaid leaves of absence. QCEW data, by contrast, exclude unpaid workers. QCEW data count separately each job held by multiple jobholders. Although the CPS counts such workers once, in the job at which they worked the most hours, it does have some multiple jobholder data. The CPS counts employed persons at their place of residence; the QCEW program counts jobs at the place of work. CPS also differs from the QCEW program, in that it includes self-employed people; unpaid family workers employed 15 or more hours during the survey period; and a greater proportion of agricultural and domestic workers. CPS data exclude people under age 16, while the QCEW program counts all covered workers, regardless of age.

Local Area Unemployment Statistics

The Local Area Unemployment Statistics (LAUS) program is a hierarchy of nonsurvey methodologies, designed to replicate the household-based concepts from the Current Population Survey (CPS) in order to produce monthly unemployment rate estimates by state and local areas. For each of the roughly 7,000 unique subnational areas, the LAUS program independently estimates employed people and unemployed people. These estimates are summed to derive civilian labor force, and then the unemployment rate is calculated as the percent unemployed of the civilian labor force.

The LAUS employment measure pertains to employed people by their place of residence. Employed people, in accordance with the CPS concept, are those who did any work at all for pay or profit during the survey reference week, including work in their own unincorporated business or on a farm. This is distinct from the QCEW employment measure, which pertains to counts of jobs subject to unemployment insurance laws by place of employment.

Another way to understand the scope difference between the LAUS and QCEW programs is through the framework of supply and demand. LAUS estimates relative slack in the supply of labor at the local level, and doing so requires measures of how many people are working, versus not employed but actively seeking work. QCEW provides counts of the met demand for workers by establishments subject to unemployment insurance laws. For a given area, only if all working residents had one job at an establishment operating within that same area, with no workers at any of the establishments operating within that area commuting from outside of that area, would the LAUS and QCEW employment levels match. This would preclude self-employment, most agricultural work, multiple jobholding, telecommuting, and cross-border commutation.

Bureau of Economic Analysis

The Bureau of Economic Analysis (BEA) Regional Income Division produces local personal income and employment estimates (along with regional GDP and other data) for counties, metropolitan statistical areas, and other local area aggregates. These data are available to search at https://apps.bea.gov/itable/iTable.cfm?ReqID=70&step=1. BEA regional data are based primarily on QCEW data, with other outside inputs for non-QCEW concepts used for a few industries. Regional data are produced using selected NAICS industries from 2001–forward, with selected Standard Industry Classification (SIC) industries used for data from 1969–2000. QCEW establishment counts, employment, and wages are produced for all NAICS industries at the national, state, county, and Metropolitan Statistical Area (MSA)-level detail back to 1990, with SIC industry data available from 1975–2000.

Although BEA local area estimates include QCEW (data) for a large portion of their employment and compensation inputs, with reconciliation against QCEW data prior to publication, these BEA products include resources outside of QCEW, and are therefore not directly comparable to QCEW. More information about BEA regional data can be found at https://www.bea.gov/resources/methodologies/local-area-personal-income-employment.

Office of Personnel Management

The U.S. Office of Personnel Management (OPM) publishes a statistical series on Federal employment and payrolls with information on employing agencies, types of positions and appointments, and characteristics of employees. Data on Federal employment covered by the UCFE series provide industry, local area, and monthly employment detail not available in the OPM series.

Both UCFE and OPM data exclude active duty members of the Armed Forces, temporary emergency workers employed to cope with catastrophes, and officers and crew members of some U.S. vessels. UCFE and OPM data differ in coverage of workers. For example, UCFE, but not OPM, includes Department of Defense workers paid from nonappropriated funds and employees of county agricultural stabilization and conservation committees, State and area marketing committees, and the Agricultural Extension Service. OPM, but not UCFE, includes workers who are not U.S. citizens and who are employed outside the United States and its territories; workers paid on a contract or fee basis; paid patients or inmates of Federal homes, hospitals, or institutions; and student employees of Federal hospitals, clinics, or laboratories.

The UCFE and OPM programs also differ in the payroll reference period. UCFE employment data relate to the payroll period that includes the 12th day of the month. OPM data, however, relate to people employed on the last workday of the month, or the last pay period before the end of the month, plus all intermittent employees.

OPM federal data and information can be accessed from the OPM Policy Federal Employment Reports page. Questions about OPM federal employment data can be directed to fedstats@opm.gov or by calling 202-606-1789.

Quarterly Workforce Indicators

The Quarterly Workforce Indicators (QWI), which uses QCEW and UI data as a major input (see Longitudinal Employer-Household Dynamics), provides local labor market statistics by industry, worker demographics, employer age and size. Unlike statistics tabulated from firm or person-level data, the QWI source data are unique job-level data that link workers to their employers. Because of this link, labor market data in the QWI is available by worker age, sex, educational attainment, and race and ethnicity. This allows for analysis by demographics of a particular local labor market or industry—for instance, identifying industries with aging workforces. Links between workers and firms also allow the QWI to identify worker flows—hires, separations, and turnover—as well as net employment growth. More information about QWI is available at https://lehd.ces.census.gov/doc/QWI_101.pdf.

County Business Patterns (CBP)

County Business Patterns (CBP) is an annual series provided by the U.S. Census Bureau that provides subnational economic data by industry. This series includes the number of establishments, employment during the week of March 12, first quarter payroll, and annual payroll.

Exhibit 2 . Quarterly Census of Earnings and Wages (QCEW) and County Business Program (CBP) comparison

Concept	QCEW	CBP
Data sources	The administrative dataset produced by state unemployment insurance (UI) programs is the major data source for QCEW. This administrative dataset is improved and expanded in a number of ways.	CBP data items are extracted from the Business Register (BR), a database of all known single and multi-establishment employer companies maintained and updated by the U.S. Census Bureau.
	The administrative data comes from Quarterly Contributions Reports (QCR) from all private sector, state and local government employers, as well as Federal employers via the Report of Federal Employment and Wages (RFEW).	The BR includes the Company Organization Survey, which provides data for multi-establishment companies, as well as data for single-establishment companies, obtained from various Census Bureau programs, such as the Economic Census, Annual Survey of Manufactures and Current Business Surveys, as well as from administrative record sources. Since 1991, industry classifications for some businesses have also been obtained and improved through periodic comparisons with classifications of the Bureau of Labor Statistics.
	QCEW data is then improved and expanded using data from the Multiple Worksite Report (MWR) and Annual Refiling Survey (ARS), which provide accurate physical location (address) and economic activity (industry) details for all worksites involved in UI coverage programs.	For more information on CBP data, see the CBP About this Program page.
	After collection, the dataset is improved by editing conducted by staff in state agencies and by staff working at BLS.	
	For more information on QCEW data sources, see the QCEW Overview Data Sources.	
Coverage and methodology	QCEW includes employment and wages from more than 10.4 million establishments in every NAICS industry. Exclusions include national security and active-duty military, proprietors, the unincorporated self-employed, unpaid family members, certain farm and domestic workers from having to report employment data, and railroad workers covered by the railroad unemployment insurance system.	CBP covers more than 6 million single-unit establishments and 1.8 million multi-unit establishments in most NAICS industries, excluding self-employed individuals; crop and animal production; rail transportation; Postal Service; pension, health, welfare, and vacation funds; trusts, estates, and agency accounts; private households; and public administration. CBP also excludes most establishments reporting government employees.
	More information about these concepts is available from the Scope and exclusions section of the QCEW Handbook of Methods.	More information about County Business Patterns data is available from the CBP Methodology page.
Industry classification	Data from 2017 to 2021 are classified under the NAICS 2017 system. For more information about the industrial classification system for a given reference period in QCEW, see the Industry Classification Systems Used By QCEW page.	Data from 2017 to 2021 are classified under the NAICS 2017 system. For more information about the industrial classification system for a given reference period in CBP, see the Comparability with Other data section.
Frequency	Quarterly, first released within 5 months after the end of each reference quarter.	No quarterly data available.
	Annually, first released within 6 months after the end of each reference year.	Annually, available approximately 16 months after the end of each reference year.
Historical data	Data from 1975 to present are available online in several formats from our QCEW Databases.	Data from 1986 to present are available online in several formats from CBP Datasets.
	Data from 1938 through 1974 are available in paper copy versions through the Federal Depository Libraries.	Data prior to 1986 are available through The National Archives.

Exhibit 2 . Quarterly Census of Earnings and Wages (QCEW) and County Business Program (CBP) comparison

Concept	QCEW	CBP
Data available	Establishment, employment and wage data, along with related location quotients and over-the-year changes, are available for all the counties in the United States, Puerto Rico and the U.S. Virgin Islands, as well as every Metropolitan Statistical Area (MSA), every state, and the nation. For every area listed above, data is available for all NAICS industry levels, as well as BLS supersector and domain levels of industry.	Information is available on the number of establishments, employment during the week of March 12, first quarter payroll, and annual payroll at the U.S. level and by state, county, metropolitan area, ZIP Code, and Congressional District Levels. Data for Puerto Rico and the Island Areas are available at the state and county equivalent levels.
	Additionally, QCEW produces data and maps for Hurricane Flood Zones on the Gulf and Atlantic Coasts, as well as recently updated Nonprofit Research Data for the National and State area levels.	Data for establishments are presented down to the 6-digit NAICS industry, legal form of organization (U.S. and state only), and employment size class.
	For QCEW data access, see the QCEW Databases page.	For CBP data access, see the CBP data page.

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Data Sources

For each state, the microdata of the Quarterly Census of Employment and Wages (QCEW) are the basis for the QCEW report and are fundamentally a byproduct of the unemployment insurance (UI) accounting system in that state.[1] The states receive a Quarterly Contributions Report (QCR) from all private sector employers, as well as from state and local governments covered under the UI program. Along with these accounting reports, employers provide funds for their contributions payable, which finance the UI benefits system in each state. Federal government employers provide statistical reports via the Report of Federal Employment and Wages; these reports contain only employment and wages data, for each employer's installations within each state. Normally, private sector employers submit one contribution report covering all of their economic activities conducted in a given state. For employers having only a single physical location or worksite in a state, and thus operating under a single assigned industry and geographic code, the data from the accounting file are sufficient for statistical purposes.

However, such data are inadequate for statistical purposes for employers with multiple establishments in a given state or for employers engaged in different industrial activities within a state. In these cases, the employer's QCR reflects only statewide employment and wages, so it is not disaggregated by establishment or worksite. Although this level of data is sufficient for many purposes of the UI program, more detailed information is required to create a sampling frame and to meet the needs of several ongoing federal–state statistical programs. The QCEW report contains employer name and address information and serves as a sampling frame for BLS establishment-based surveys.

Surveys

The QCEW conducts two surveys in addition to collecting administrative data. Approximately one-third of all private sector businesses with more than three employees are contacted annually by the Annual Refiling Survey (ARS), and establishments with multiple locations are given the Multiple Worksite Report (MWR). The ARS verifies and collects geographic and industry information about businesses, and the MWR collects employment and wage data about businesses in order to make geographic and industry estimates. Both surveys collect data via paper forms and electronically. Data collection via paper forms uses the services of a private contractor to handle various administrative aspects of the process. Electronic data collection is done through MWRWeb, ARSWeb (for single-establishment employers), NVMWeb (for multiple-establishment employers), and the Electronic Data Interchange (EDI) Center (for exceptionally large employers). There are three ARS forms: BLS 3023-NVS (for single-establishment employers), BLS 3023-NVM (for multiple-establishment employers), and BLS 3023-NCA (for employers with unclassified industry establishments—that is, establishments which are not assigned any NAICS Industry code). The ARS is designed to collect specific information concerning the employer's industrial activity, geographic location, business mailing address, and physical address. The information is used to ensure that each establishment is assigned to the correct industry and that each address geocodes the correct geographic location of the establishment. The ARS also asks employers to identify the locations of new worksites they have established in the state. If these employers meet QCEW program reporting criteria, then an MWR requesting information on employment and wages for each worksite each quarter is mailed to the employer. Thus, the ARS is also used to identify new potential MWR-eligible employers.

The MWR is collected on a quarterly basis from all eligible (that is, multiple-establishment) employers for data from the previous quarter. The ARS is conducted on a 3-year cycle, with approximately one-third of all business establishments sampled each year. During this cycle, BLS identifies which establishments have changed from one type of business to another and reclassifies them under a different NAICS code. For example, brew pub establishments can change from a pub establishment to an eating and drinking establishment, and because of this change, they are placed on a 3-year cycle. Establishments that are classified into certain NAICS industries and that traditionally do not change industries very often are put on a 6-year cycle. Cemeteries are an example of such establishments. Still other establishments are assigned NAICS code 999999 (unclassified). These establishment are unclassified because the state does not have enough data to categorize them definitively into a particular NAICS code. There are a number of reasons for having insufficient data. For one, when originally setting up the business, the establishment could have left out relevant details. Another possibility is that the state deemed the NAICS code assigned to be incorrect and tried to contact the establishment but did not receive a response. To reduce the number of unclassified establishments, the state surveys them annually.

Readers may find forms and information as follows:

- MWR forms at https://www.bls.gov/respondents/mwr/forms/mwr-forms.htm
- General information on MWR at https://www.bls.gov/respondents/mwr/home.htm
- Information on reporting MWR data via the Web at https://www.bls.gov/respondents/mwr/web-reporting.htm
- ARS forms at https://www.bls.gov/respondents/ars/forms.htm
- Electronic Data Interchange (EDI) reporting at https://www.bls.gov/respondents/mwr/electronic-data-reporting.htm

Confidentiality

The Confidential Information Protection and Statistical Efficiency Act of 2002 (CIPSEA) safeguards the confidentiality of individually identifiable information acquired under a pledge of confidentiality for exclusively statistical purposes. CIPSEA limits access of such information to authorized individuals with a need to know and levies fines and penalties for any knowing and willful disclosure of individually identifiable information by any BLS officer, employee, or agent. BLS policy on the confidential nature of respondent identifiable information (RII) states, “RII acquired or maintained by the BLS for exclusively statistical purposes and under a pledge of confidentiality shall be treated in a manner that ensures the information will be used only for statistical purposes and will be accessible only to authorized individuals with a need-to-know.” This policy remains in effect; however, the extent of confidentiality maintained within each state varies in accordance with the laws of that state. Accordingly, the statement on the ARS and MWR forms make no promise of confidentiality. However, once the QCEW data are furnished to BLS and are in its possession, the data are considered confidential and are covered by CIPSEA. BLS considers the maintenance of the confidentiality of data collected under a pledge of confidentiality to be critical to QCEW program integrity.

Authorization and participation

The ARS and the MWR are authorized by federal law 29 U.S.C. 2. Although employer cooperation is not required by federal law, 28 states have laws that mandate the completion of the ARS.[2] And, 30 states have laws that mandate the completion of the MWR.[3] To encourage respondents to report their information, states offering them a

number of ways to submit their data. By thus allowing respondents several reporting options, states are able to relieve some of the burden from the respondents.

States are required to attain a 70-percent response rate to the ARS for the establishments they survey or an 80-percent response rate among employees in those establishments. The ARS website email “blast” prior to the first (hardcopy) mailing (to 2012 ARS Web respondents), an ARS one-page letter prior to the first mailing, follow-up mailings of the ARS and MWR forms and cover letters to non-respondents to the first mailing, and ARSWeb and MWRWeb email solicitations to any non-respondents whose email address is on file, as well as telephone contact of key non-respondents, are used to increase response rates. State agencies use specific techniques for converting nonparticipants to participants and for partial collection. Another technique is to assign codes to establishments that fail to respond after extensive follow-up efforts. The codes assigned are NAICS codes based on (1) their distribution across other establishments with the same NAICS codes and (2) other characteristics. States may review system-assigned NAICS codes and may overlay them with codes they have assigned.

Quality control and validation

As data are collected through the ARS and MWR surveys, quality control procedures ensure that the information collected is accurate. These procedures include follow-up of all nonrespondents and validation of all edit failures, which are incorporated into the design of the QCEW. Edit failures occur when State systems kick back any discrepancy in the data and state staff must resolve or bypass the discrepancy manually before the data can be saved. The states and the BLS regional offices also receive both training in industry coding and procedural assistance in conducting the survey. Regional offices conduct yearly quality assurance reviews in each state that is under their jurisdiction. States and regional offices receive training specifically in areas of industry coding and survey procedures in order to promote consistency within the states. Consistency ensures that all states code industries in a similar manner. The procedural assistance that states and regional offices receive is in the area of how to administer the survey. Included are protocols for suggestions on how to increase response rates (for example, certain telephone guidelines may be issued regarding the most effective way to turn a refusal into compliance) and how to maintain quality assurance (how to deal with edit failures and why edit failures occur).

There is an auto check for respondents who complete the MWR online. If wages are too high or too low, or if employment has changed drastically from the previous month or quarter, then the system asks the respondents, in real time, the reason for the change. Other, similar automated checks are in place in the state systems when the respondent enters data. MWR respondents are unable to save the data unless the checks are overridden or amended.

Industries that are hard to measure or reach have specific protocols in place as well. Guidelines are given to states for the most effective ways to reach companies in such industries and, once contact is made, how to ask them for their information most effectively. For example, when companies are unable to be reached, looking at what they do on their website helps. However, when what the website says is unclear, another idea is to look at which positions the companies are recruiting for. This method usually helps with companies in scientific and engineering industries, because the position descriptions listed reveal what type of specific work the company does. There are many more ways of canvassing companies for information as well.

NOTES

[1] Included in the QCEW microdata are data for U.S. territories and the District of Columbia. For simplicity, they are referred to as states in this document.

[2] The Annual Refiling Survey (ARS) is mandatory for the following states: California, Colorado, Connecticut, Florida, Georgia, Hawaii, Iowa, Kansas, Louisiana, Maine, Maryland, Nebraska, Nevada, New Hampshire, New Jersey, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Puerto Rico, Rhode Island, South Carolina (mandatory only for employers with more than 21 employees), Utah, Vermont, Virginia, U.S. Virgin Islands, and West Virginia.

[3] The Multiple Worksite Report (MWR) is mandatory for the following states: Alabama, California, Colorado, Connecticut, Florida, Georgia, Iowa, Kansas, Louisiana, Maine, Maryland, Minnesota, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Puerto Rico, Rhode Island, South Carolina, Utah, Vermont, Virginia, U.S. Virgin Islands, and West Virginia.

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Design

This section is based largely on the 2021 Office of Management and Budget (OMB) clearance of the Quarterly Census of Employment and Wages (QCEW) program.

The sampling frame universe

The universe respondent sampling frame BLS uses for the QCEW program consist of the 50 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands. The data source for these 53 entities is the Quarterly Contribution Reports (QCR) submitted to State Workforce Agencies (SWAs) by employers subject to state unemployment insurance (UI) laws. The QCEW data—which are compiled for each calendar quarter—provide a comprehensive business name and address file with monthly employment and quarterly wage information by industry. The data are available at the six-digit North American Industry Classification System (NAICS), national, state, Metropolitan Statistical Area (MSA), and county levels for employers subject to state UI laws. Similar data for federal government employees covered by the Unemployment Compensation for Federal Employees program (UCFE) also are included.

The QCEW program provides a virtual census of nonagricultural employees and their wages, with about 44 percent of the workers in agriculture covered as well. As shown in table 1 in the December 2019 data release, the number of covered private business establishments (worksites) is about 9.84 million, and the number of covered employment is about 128.27 million. Additionally, about 60,000 federal government, 70,000 state government, and 170,000 local government establishments are covered. In December 2019, the total number of covered establishments is about 10.29 million, and the total number of covered employment is about 150.85 million. The QCEW series has broad economic significance in measuring labor trends and major industry developments, in time series analyses and industry comparisons, and in special studies, such as analyses of establishments, employment, and wages by size of establishment.

The BLS role in the QCEW program is to establish and enforce uniform methods and processes that yield a consistent level of data quality for the multifaceted uses of QCEW data.

The BLS role is to take in raw UI administrative data and:

- to understand error components,
- to address each with methods and processes,
- to reduce resulting error,
- to yield high-quality economic data, and
- to create a high-quality sample frame for other establishment surveys.

The improvement processes include but are not limited to: efficiency in data collection from large multi-establishment employers through Electronic Data Interchange (EDI); statistically valid procedures for editing, estimating missing reports and data elements, record linkage and standardized processing systems, training of staff; and quality controls procedures for data review. (See sections 2b and 2c on estimation procedures and reliability for details.)[1] After the data have gone through extensive review at the state, regional, and national levels,

BLS summarizes these data to produce totals for all counties, MSAs, the states, and the nation by various industrial levels.

Reliability

Since the QCEW is a census, the data are only subject to non-sampling errors. To control for these non-sampling errors, BLS has extensive quality control procedures that include:

1. improved data collection methods especially for large multi-establishment employers through EDI;
2. standardized data processing systems that include edits, imputation, record linkages including address standardization and industrial classification coding;[2] and
3. standardized training of staff at state, regional, and national levels in the review of data according to the guidelines provided by the QCEW policy council and stated in official memorandums (available upon request).[3]

Records that fail these edits are individually reviewed. Respondents are contacted often to validate significant movements or to correct the data.

The three most important initiatives undertaken by BLS to enhance the quality of QCEW data are the establishment of the Multiple Worksites Report (MWR) Survey, the Annual Re-filing Survey (ARS), and the development of a new comprehensive processing system for states use. Two separate OMB clearances are obtained for the ARS and MWR Survey. The MWR survey is sent quarterly to multi-establishment employers for the purpose of asking them to break out their consolidated UI reports to the establishment level. For example, some employers provide data for all of their operations within a state or at the county level; the MWR asks the employer to provide information for each establishment so that all records on the file can be at the establishment level, which is generally the sampling unit for most BLS surveys. This also improves the quality of local economic data by more accurately reporting the location and type of economic activity.

The ARS is conducted annually on about one-third of the establishments on the frame for the purpose of updating the industrial classification, business name, reporting and physical location addresses, and auxiliary status. Establishments with more than three employees are eligible for the ARS. Each eligible establishment is placed into a 3-year cohort using a random selection process. In order to ensure data quality, state and regional staff are trained extensively in industrial classification coding. Additionally, standardized systems are provided to the state and regions to process the data.

Revisions

For the first quarter of each year, QCEW data are published five times. The original data are first released in September of the same year followed by revisions in the following December, March, June, and September. For example, March 2019 data were first published in September 2019, then in December 2019, and subsequently in March, June, and September of 2020. The second-quarter data are published four times; and the third-quarter data are published three times; and the fourth-quarter data are published twice. Table 5 provides data for the initial publication of each quarter in 2019 to their final publication in September 2020. As shown in table 6, the largest revision generally occurs from initial publication to the first revision, as missing reports, including out-of-business

reports, for late responding employers come in. The magnitude of revisions is relatively small; that is, less than 0.05 percentage points.

Data collection cycles

The QCEW program is quarterly, as employers are required to file Quarterly Contribution reports (i.e. UI reports) on a quarterly basis.

Methods for maximizing response rates

Response rates are generally very high because employers are required to file Quarterly Contributions Reports under the UI law for each state. The unit response rates for employment are about 96 percent (table 2 and about 97 percent (table 4) for wages as reporting of wages are required by UI law. The response rates based on total covered employment are about 97 percent (table 3), as the nonresponse is mostly concentrated among smaller establishments.

Growth of Electronic Data Interchange (EDI), the direct transfer of data from the firm to BLS, also provides a high level of response and stability. BLS currently collects over 80,000 reports from nearly 100 large firms with about 10 million employees via EDI. For final estimates, virtually all of these firms provide data by EDI.

BLS initiatives

BLS has undertaken several research initiatives in the control and measurement of nonsampling error. The 1991 Current Employment Statistics (CES) survey's benchmark employment estimate transmitted to the QCEW revealed a substantial nonsampling error problem caused by payroll-processing firms. The American Statistical Association formed a committee to review BLS procedures and issued a report in January 1994.[4] BLS adopted most of the report's recommendations. BLS also conducted a Response Analysis Survey (RAS) of payroll-processing firms.[5] The purpose of the survey was twofold: to identify practices that can affect the data collected by the CES survey and the QCEW (the benchmark source data), and to educate payroll processors on proper reporting procedures. In addition, BLS conducted a RAS of CES and QCEW covered employment reporting.[6] The survey identified factors that affected both CES and QCEW reporting within the same firm. Based on these RAS studies, BLS undertook an extensive education program with CES respondents. This included highlighting correct reporting of problem items on the CES report form and the inclusion of special notices on correct reporting in the monthly advance notice fax message. In 2008, another RAS was conducted and an executive summary of the report details the findings of the survey.[7]

Statistical aspects contact

Mr. Edwin Robison, Chief, Statistical Methods Staff of the Office of Employment and Unemployment Statistics (phone: 202-691-6363), is responsible for the statistical aspects of the QCEW program. As mentioned in the above paragraph, BLS seeks consultation with other outside experts on an as needed basis. The QCEW Policy Council,

composed of 10 state representatives and BLS staff, has been consulted on the content, uses, and methodology of the program.

Table 1. Quarterly Census of Employment and Wages (QCEW) summary data for 50 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands, 2019 4th quarter (in thousands)

Industry description	Number of establishments	Employment, October 2019	Employment, November 2019	Employment, December 2019
See footnotes at end of table.				
Total	10,364	149,527	150,260	150,005
Total private	9,303	127,321	127,943	127,781
Agriculture, forestry, fishing, and hunting	108	1,361	1,251	1,164
Mining	33	665	653	643
Utilities	19	548	548	548
Construction	840	7,661	7,575	7,438
Nondurable manufacturing	135	4,812	4,801	4,802
Durable manufacturing	222	7,971	8,018	8,026
Wholesale trade	618	5,894	5,906	5,914
Retail trade	1,047	15,588	16,072	16,150
Transportation and warehousing	266	5,612	5,818	5,944
Information	190	2,842	2,900	2,865
Finance and insurance	503	6,055	6,071	6,084
Real estate and rental and leasing	424	2,322	2,318	2,325
Professional, scientific, and technical services	1,289	9,626	9,684	9,699
Management of companies and enterprises	71	2,408	2,414	2,420
Administrative and support and waste management services	578	9,484	9,518	9,366
Educational services	130	3,038	3,063	3,016
Healthcare and social assistance	1,659	20,325	20,415	20,440
Arts, entertainment, and recreation	158	2,414	2,304	2,320
Accommodation and food services	733	14,046	13,964	13,956
Other services, except public administration	869	4,574	4,574	4,575
Unclassified	171	147	152	156
Federal government	61	2,854	2,861	2,866
State government	71	4,871	4,877	4,854
Local government	171	14,688	14,786	14,711

Note: Industries are categorized by North American Industry Classification System (NAICS) code.
Source: U.S. Bureau of Labor Statistics.

Table 2. Percentage of imputed establishments, total private, January 2001–December 2019

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
See footnotes at end of table.												

Table 2. Percentage of imputed establishments, total private, January 2001–December 2019

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	5.96	5.96	5.99	5.72	5.73	5.81	5.04	5.06	5.08	5.02	5.04	5.09
2002	5.57	5.58	5.57	5.12	5.12	5.19	4.98	4.99	5.04	4.75	4.78	4.82
2003	6.25	6.26	6.26	5.65	5.62	5.70	5.27	5.27	5.29	5.49	5.51	5.57
2004	5.98	5.97	5.98	5.83	5.80	5.93	5.50	5.50	5.62	5.33	5.35	5.45
2005	5.66	5.68	5.74	5.13	5.11	5.28	5.23	5.25	5.26	4.65	4.71	4.80
2006	5.96	5.98	6.01	4.96	4.91	5.01	4.89	4.97	5.01	4.46	4.55	4.60
2007	5.14	5.28	5.31	4.59	4.70	4.78	4.37	4.40	4.45	4.15	4.18	4.25
2008	5.29	5.27	5.33	4.19	4.18	4.31	4.19	4.17	4.24	3.83	3.88	3.99
2009	4.88	4.90	4.99	4.12	4.09	4.21	3.71	3.72	3.79	3.64	3.66	3.81
2010	4.85	4.87	4.89	4.22	4.22	4.42	4.33	4.34	4.56	3.83	3.87	4.02
2011	4.76	4.80	4.88	5.02	5.02	5.21	3.44	3.46	3.59	2.93	3.00	3.12
2012	3.73	3.73	3.79	3.71	3.70	3.84	3.38	3.38	3.52	4.00	4.03	4.14
2013	4.28	4.19	4.27	3.43	3.43	3.58	3.01	2.95	3.06	2.95	2.90	3.04
2014	4.11	4.04	4.11	2.89	2.81	2.95	2.74	2.74	2.87	2.65	2.68	2.77
2015	3.38	3.38	3.41	2.78	2.74	2.84	3.36	3.36	3.49	2.52	2.56	2.68
2016	4.46	4.46	4.54	3.16	3.16	3.33	2.77	2.78	2.87	3.16	3.20	3.31
2017	3.87	3.87	3.89	2.95	2.94	3.04	2.36	2.39	2.47	2.31	2.35	2.47
2018	3.97	3.96	4.02	2.72	2.72	2.82	2.43	2.46	2.57	2.33	2.37	2.51
2019	3.29	3.26	3.34	2.93	2.94	3.05	2.76	2.77	2.90	2.25	2.29	2.43

Note: Data include total private establishments (excluding households) in 50 states and the District of Columbia. Data do not include Puerto Rico and U.S. Virgin Islands.
Source: U.S. Bureau of Labor Statistics.

Table 3. Percentage of imputed employment, total private, January 2001–December 2019

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
See footnotes at end of table.												
2001	5.14	5.09	5.10	4.76	4.70	4.74	4.41	4.38	4.47	4.68	4.68	4.74
2002	4.41	4.42	4.38	4.16	4.13	4.24	4.49	4.44	4.47	4.26	4.20	4.23
2003	4.92	4.93	4.82	4.36	4.29	4.39	4.62	4.54	4.58	4.62	4.61	4.57
2004	4.52	4.42	4.35	4.70	4.59	4.77	5.07	5.01	5.24	4.54	4.48	4.49
2005	4.10	4.09	4.12	3.80	3.74	4.09	3.96	3.95	3.83	3.82	3.78	3.79
2006	3.78	3.74	3.75	3.14	3.04	3.06	3.29	3.31	3.28	3.23	3.28	3.27
2007	3.28	3.28	3.24	2.95	2.89	2.94	3.08	3.08	3.10	2.86	2.82	2.87
2008	3.07	2.97	3.00	2.60	2.53	2.68	2.69	2.58	2.68	2.49	2.44	2.56
2009	2.84	2.75	3.26	2.35	2.29	2.36	2.34	2.30	2.51	2.34	2.26	2.34
2010	2.85	2.81	2.79	2.32	2.25	2.43	2.70	2.67	3.09	2.42	2.44	2.57
2011	2.80	2.79	2.89	3.04	2.99	3.25	2.32	2.33	2.41	2.22	2.23	2.27
2012	2.49	2.41	2.45	2.37	2.30	2.45	2.31	2.18	2.29	2.71	2.53	2.64
2013	2.72	2.54	2.62	2.17	2.13	2.28	2.34	2.14	2.26	2.21	1.97	2.13
2014	2.46	2.31	2.37	1.88	1.80	1.92	1.91	1.84	1.96	2.13	2.09	2.19
2015	2.07	2.03	2.07	1.78	1.71	1.83	1.96	1.89	2.05	1.73	1.73	1.87
2016	2.17	2.14	2.23	1.56	1.56	1.87	1.72	1.67	1.84	1.94	1.90	2.00
2017	1.90	1.90	1.91	1.58	1.58	1.71	1.47	1.47	1.58	1.48	1.52	1.60
2018	1.98	1.96	2.05	1.55	1.55	1.64	1.50	1.47	1.62	1.57	1.61	1.71
2019	1.91	1.87	1.93	1.65	1.63	1.77	1.65	1.62	1.83	1.64	1.63	1.75

Note: Data include total private establishments (excluding households) in 50 states and the District of Columbia. Data do not include Puerto Rico and U.S. Virgin Islands.
Source: U.S. Bureau of Labor Statistics.

Table 4. Percentage of imputed wages in the Quarterly Census of Employment and Wages (QCEW), by quarter and year, first quarter 2001–fourth quarter 2019

See footnotes at end of table.

Quarter and year	Total establishment count	Percentage imputed
First quarter 2001	7,743,963	4.26
Second quarter 2001	7,752,694	4.24
Third quarter 2001	7,803,541	3.18
Fourth quarter 2001	7,839,471	3.11
First quarter 2002	7,891,412	3.94
Second quarter 2002	7,901,173	3.40
Third quarter 2002	7,935,862	3.31
Fourth quarter 2002	7,973,775	3.28
First quarter 2003	8,013,297	4.78
Second quarter 2003	8,002,961	3.76
Third quarter 2003	8,060,296	3.46
Fourth quarter 2003	8,081,182	3.50
First quarter 2004	8,129,247	4.31
Second quarter 2004	8,133,737	4.07
Third quarter 2004	8,192,688	3.71
Fourth quarter 2004	8,259,088	3.70
First quarter 2005	8,314,712	4.15
Second quarter 2005	8,335,131	3.62
Third quarter 2005	8,407,905	3.65
Fourth quarter 2005	8,464,375	3.13
First quarter 2006	8,542,371	4.39
Second quarter 2006	8,550,053	3.61
Third quarter 2006	8,617,164	3.52
Fourth quarter 2006	8,703,001	3.06
First quarter 2007	8,718,045	3.94
Second quarter 2007	8,720,237	3.49
Third quarter 2007	8,785,200	3.20
Fourth quarter 2007	8,836,877	2.96
First quarter 2008	8,875,359	4.04
Second quarter 2008	8,876,227	3.34
Third quarter 2008	8,918,706	3.24
Fourth quarter 2008	8,943,568	2.99
First quarter 2009	8,878,407	4.10
Second quarter 2009	8,819,252	3.27
Third quarter 2009	8,826,095	3.08
Fourth quarter 2009	8,845,544	2.93
First quarter 2010	8,802,125	3.99
Second quarter 2010	8,769,242	3.53
Third quarter 2010	8,802,038	3.30
Fourth quarter 2010	8,842,899	2.94

Table 4. Percentage of imputed wages in the Quarterly Census of Employment and Wages (QCEW), by quarter and year, first quarter 2001–fourth quarter 2019

Quarter and year	Total establishment count	Percentage imputed
First quarter 2011	8,820,545	4.32
Second quarter 2011	8,828,478	4.08
Third quarter 2011	8,876,724	2.59
Fourth quarter 2011	8,921,357	1.95
First quarter 2012	8,951,937	2.89
Second quarter 2012	8,968,693	2.84
Third quarter 2012	8,918,033	2.59
Fourth quarter 2012	8,958,625	3.25
First quarter 2013	8,946,733	3.33
Second quarter 2013	9,003,016	2.68
Third quarter 2013	9,047,292	2.29
Fourth quarter 2013	9,050,707	2.46
First quarter 2014	9,045,619	3.45
Second quarter 2014	9,041,974	2.14
Third quarter 2014	9,092,059	2.17
Fourth quarter 2014	9,149,628	1.96
First quarter 2015	9,178,990	2.69
Second quarter 2015	9,221,367	2.21
Third quarter 2015	9,266,222	2.86
Fourth quarter 2015	9,319,488	1.85
First quarter 2016	9,320,160	3.88
Second quarter 2016	9,371,351	2.72
Third quarter 2016	9,432,306	2.35
Fourth quarter 2016	9,489,189	2.76
First quarter 2017	9,472,782	3.18
Second quarter 2017	9,527,202	2.47
Third quarter 2017	9,532,898	1.89
Fourth quarter 2017	9,591,535	1.81
First quarter 2018	9,618,757	2.80
Second quarter 2018	9,663,973	2.07
Third quarter 2018	9,731,525	1.83
Fourth quarter 2018	9,781,919	1.78
First quarter 2019	9,815,176	2.81
Second quarter 2019	9,857,279	2.45
Third quarter 2019	9,926,960	2.28
Fourth quarter 2019	9,990,093	1.77

Source: U.S. Bureau of Labor Statistics.

Table 5. Revisions in published Quarterly Census of Employment and Wages (QCEW) data for March 2019, U.S. total, September 2019–September 2020

News release	Total records	First revision	Second revision	Third revision	Fourth revison	Total revisions since first release

See footnotes at end of table.

Table 5. Revisions in published Quarterly Census of Employment and Wages (QCEW) data for March 2019, U.S. total, September 2019–September 2020

News release	Total records	First revision	Second revision	Third revision	Fourth revison	Total revisions since first release
March 2019 (September 2019 release)	146,497,599					
March 2019 (December 2019 release)	146,513,849	16,250				
March 2019 (March 2020 release)	146,514,210		361			
March 2019 (June 2020 release)	146,527,125			12,915		
March 2019 (September 2020 release)	146,553,073				25,948	
Total revision since September 2019						55,474
June 2019 (December 2019 Release)	149,089,158					
June 2019 (March 2020 Release)	149,133,921	44,763				
June 2019 (June 2020 Release)	149,157,402		23,481			
June 2019 (September 2020 Release)	149,191,158			33,756		
Revision since December 2019						102,000
September 2019 (March 2020 release)	148,556,525					
September 2019 (June 2020 release)	148,655,575	99,050				
September 2019 (September 2020 release)	148,701,484		45,909			
Revision since March 2020						144,959
December 2019 (June 2020 release)	149,857,130					
December 2019 (September 2020 release)	150,005,303	148,173				
Revision since June 2020						148,173

Source: U.S. Bureau of Labor Statistics.

Table 6. Percentage of revisions in published Quarterly Census of Employment and Wages (QCEW) data for March 2019, from original to next publication, December 2019–September 2020

Preliminary publication	March 2019 (December 2019 Release)	June 2019 (March 2020 Release)	September 2019 (June 2020 Release)	December 2019 (September 2020 Release)
See footnotes at end of table.				
Percentage of revision from preliminary published data	0.01	0.03	0.07	0.1

Source: U.S. Bureau of Labor Statistics.

Table 7. Percentage of revision from original to final publication, March to December 2019 preliminary publication to September 2020 release

Preliminary publication	March 2019 (September 2020 release)	June 2019 (September 2020 release)	September 2019 (September 2020 release)	December 2019 (September 2020 release)
See footnotes at end of table.				
Percentage of revision from preliminary published data	0.04	0.07	0.1	0.1

Source: U.S. Bureau of Labor Statistics.

NOTES

[1] Kenneth Robertson, Larry Huff, Gordon Mikkelson, Timothy Pivetz, and Alice Winkler, "Improvement in record linkage processes for the Bureau of Labor Statistics' Business Establishment List," In *Record linkage techniques -- 1997: Proceedings of an international workshop and exposition*, pp. 212-221, https://www.nap.edu/read/6491/chapter/10#212.

[2] Official memorandums to the states and regional staff about the QCEW program are available upon request by contacting the QCEW program at https://www.bls.gov/cew/contact.htm.

[3] Ivan P. Fellegi and Alan B. Sunter, "A theory for record Linkage," *Journal of the American Statistical Association*, vol. 64 no. 32, pp. 1183–1210, https://www.jstor.org/stable/2286061.

[4] American Statistical Association Panel for the Bureau of Labor Statistics' Current Employment Statistics Survey, "A research agenda to guide and improve the Current Employment Statistics survey" (Alexandria, VA: American Statistical Association, January 1994), available upon request.

[5] Karen L. Goldenberg, Susan E. Moore, and Richard J. Rosen, "Commercial payroll software and the quality of employment data," *Proceedings of the Survey Research Methods Section, American Statistical Association, August 13–18, 1994* (Toronto: American Statistical Association, 1994), https://www.asasrms.org/Proceedings/papers/1994_178.pdf.

[6] George S. Werking, Richard L. Clayton, and Richard J. Rosen, "Studying the causes of employment count differences reported in two BLS programs," *Proceedings of the Survey Research Methods Section, American Statistical Association, August 13–17, 1995* (Orlando, FL: American Statistical Association, 1995), https://www.asasrms.org/Proceedings/papers/1995_137.pdf.

[7] Sally Anderson, Margaret Applebaum, Michele Eickman, Greg Erkens, Kristin Fairman, Jeffrey Groen, Steve Kroll, Chris Manning, and Polly Phipps, "Differences in seasonality between the CES and QCEW programs: results from the 2008 Response Analysis Survey" (U.S. Bureau of Labor Statistics, August 21, 2009), https://www.asasrms.org/Proceedings/y2009/Files/304445.pdf.

Last Modified Date: March 01, 2021

Calculation

Data from the Quarterly Census of Employment and Wages (QCEW) are aggregations of various kinds of business establishment data, including geographical, industry, ownership, and establishment size data. QCEW data are not estimates. On occasion, when business establishment data are of poor quality or missing entirely, they may be imputed. (See Design section for more information on imputation in QCEW data.) Proration is used to handle multiple-establishment employers for whom the top employment and wage levels are known but distribution at the establishment level is unknown.

Editing and validating data

QCEW data are validated at the U.S. Bureau of Labor Statistics (BLS) during a pre-established data review period after the completion of data collection and editing conducted by state workforce agency staff. Edits reduce approximately 10.5 million records to a manageable level. Establishments with no change or a statistically insignificant change to their economic data are ignored. Economic data types include employment, wages, industry, and county. QCEW criteria for reviewing individual establishment records are based on over-the-year changes to employment or wage levels for the establishment relative to the total employment level of the county it is located in. Data are validated to keep the number of establishment records that require review at a reasonable level while ensuring that detailed, county-level aggregations remain accurate. Program analysts review only employment and wage changes that exceed the criteria. Any large-scale changes that the analysts find in economic data need to be verified or corrected by working with state workforce agency staff. One of several methods used to validate significant changes is to seek corroboration with total wage-record counts. Wage records, provided directly by the employer, can be used to confirm both current levels and year-ago levels. The availability of wage record counts varies from state to state. As necessary, state staff contact respondents to obtain corrected data.

As a result of this data review process, BLS and state staff make corrections as needed before publication. These corrections can be made to any quarters for the current year. Additionally, in the first quarter, the previous year's data can be corrected for the last time.

Calculation procedure

The aggregated totals of employment and wages for each subdomain (e.g., industry, geography, and size) of the QCEW are simply the sum of the establishments belonging to that subdomain. Averages and other statistics for each subdomain are derived by performing the appropriate arithmetic functions.

As mentioned, the BLS role is to impose quality on the raw data. One of the processes for doing so involves editing the data and conducting validation checks. The basic monthly employment edit consists of a six-step statistical test that includes the use of multiple t-tests for month-to-month changes, over-the-year changes, and a 12-month variation in data; some tests are conducted on levels while others are conducted on rates of change.[1]

Imputation

Although BLS receives QCEW files from all 53 entities in a timely manner, the files contain estimates for late and missing respondents. Therefore, one step in the data process is to estimate the number of late respondents, the number of missing respondents (i.e., unit nonresponse) and of the number of missing data elements (i.e., item nonresponse). As shown in table 2 of the Design section, as of June 2019 about 4 percent of establishments failed to respond to the QCEW in a timely manner and thus required imputation; the corresponding percentage for employment in that same month and year was about 2 percent, as shown in table 3 of the Design section. The nonresponse rate for wages was about 4 percent in the first quarter, 2019, as shown in table 4 of the Design section.

The current method of imputation applies, to the missing establishment, the change from a year earlier to the previous month's employment or quarterly wages in order to estimate the current month's employment or quarterly wages. That is, the current month's employment for a missing establishment is equal to the previous month's employment multiplied by its change from a year earlier; a similar procedure is applied to estimate total quarterly wages. A drawback to this procedure is that it uses the trend from a year earlier rather than the current trend.[2]

BLS has conducted extensive research on alternative imputation methods for both employment and wages. The findings of the research indicate that current trends exhibited by the reported data from similar cells should be applied to nonrespondents. BLS defines the procedure for doing so as the ratio method. According to this method, the ratio for a particular estimation cell is computed as the sum of a current month's reported employment divided by the sum of the previous month's reported employment. To impute the current month's employment for a nonrespondent, the ratio is then multiplied by the nonrespondent's previous month's employment. A similar procedure is applied to impute average quarterly wages. The ratio method of imputation will be implemented in the new QCEW processing system.[3]

Another data-processing step is to link the QCEW data across quarters for various purposes, including (1) editing and imputation; (2) separating establishments into new establishments (openings or births), continuous establishments (existing businesses), and out-of-business establishments (closings or deaths); and (3) performing longitudinal research.[4]

Changes in employment levels

While collecting data, analysts may see large increases or declines in employment levels within an establishment. These changes may be verified by identifying a predecessor or successor establishment, respectively. Any such change may be due to a number of factors, including a merger between companies, the acquisition of one company by another, improved reporting by a multiple-establishment employer, and a physical relocation of employees. Often, states contact the employer in question to verify the shifts in the data and get an explanation as to why they occurred.

QCEW program analysts may also seek to validate data by asking questions of the State Workforce Agency staff. The questions usually are about an unexpected or large change in the economic or administrative data of a

specific establishment or group of establishments. The agency provides the analysts with edited unemployment insurance (UI) data and often has firsthand knowledge of the changes to the data.

Other changes in economic activity

Breaks in published data—sudden shifts in employment or wage levels at the macrolevel—can occur for a number of reasons. One major reason is a change in coding, due to either a physical relocation of an establishment, a change in primary economic activity, a change in industry definition, or the correction of a reporting error. Another reason is a change in the reporting status of an establishment. Some businesses with multiple establishments incorrectly identify themselves as a single unit. Eventually, if they are able to provide a breakout of economic and administrative detail for all of their subunits, it turns out that many of these units are in different counties and may require different industry codes.

Adjustments and related changes

Both adjusted over-the-year growth rates for the third month of the quarter and average weekly wages are published in the QCEW County Employment and Wages quarterly news release. These growth rates are not published anywhere else. The over-the-year changes in employment and wages are adjusted to account for most of the administrative corrections made to the underlying establishment reports. Adjustments are made by modifying the previous-year levels used to calculate the over-the-year changes. Over-the-year percent changes are calculated with the use of an adjusted version of the final, unpublished quarterly data of the previous year as the base data. The unpublished previous-year levels do not match the unadjusted data maintained on the BLS website. Over-the-year changes based on data from the website or from data published in previous BLS news releases may differ substantially from the over-the-year changes presented in the QCEW news release.

Other administrative changes

The adjusted data used to calculate the over-the-year changes presented in the QCEW news release account for most of the administrative changes: those occurring when employers update the industry, location, or ownership information of their establishments. The most common administrative adjustments are the result of updated information about which particular county a given establishment is located in. Included in these adjustments are administrative changes involving the classification of establishments whose county was previously reported as “unknown” or simply “statewide” or whose industry was reported as “unknown”. The classification “statewide” is used primarily for multiple-establishment employers with locations in multiple counties. It appears on the accounts master record that aggregates all establishment data. The classification is sometimes used by establishments whose economic activity has no primary location. The classification “unknown” is used by a state that is unable to identify the physical location of an establishment. Beginning with the first quarter of 2008, adjusted data account for administrative changes caused by multiple-establishment employers that submit reports for each of their establishments rather than reporting as a single entity. Beginning with the second quarter of 2011, adjusted data account for selected large administrative changes in employment and wages. These new adjustments allow the QCEW to include county employment and wage growth rates in the news release that would otherwise not meet publication standards.

The adjusted data used to calculate the over-the-year changes presented in any County Employment and Wages news release are valid for comparisons between the starting and ending points (a 12-month period) used in that particular release. Comparisons may not be valid for any period other than the one featured in a release even if the changes were calculated by using adjusted data.

Confidentiality

Finally, in accordance with BLS policy, data reported under a promise of confidentiality are published in a way so as to protect the identifiable information of respondents. BLS withholds the publication of UI-covered employment and wage data for any industry level when necessary to protect the identity of employers. Totals at the industry level for the states and the nation include the undisclosed data suppressed within the detailed tables without revealing those data. QCEW confidentiality concepts and practices are largely based on the "Statistical Policy Working Paper 22" (PDF) developed by the Federal Committee on Statistical Methods.

For more information about Confidentiality concepts, as it relates to QCEW data disclosure, see this document about Confidentiality and Data Disclosure.

NOTES

[1] The wage edit includes the use of an interquartile test developed by David Hoaglin, Boris Iglewicz, and John Tukey, "Performance of some resistant rules for outlier labeling," *Journal of the American Statistical Association,* December 1986, pp. 991–999, https://www.jstor.org/stable/2289073?seq=1#metadata_info_tab_contents. The edit conditions and formulas are described in "Appendix-F: Edit conditions and formulas," *QCEW Operating Manual* (U.S. Bureau of Labor Statistics, 2007), www.reginfo.gov/public/do/DownloadDocument?objectID=48010401.

[2] The imputation formulas used by BLS are described in chapter 8, "Imputation of Missing and Delinquent Data," and Appendix J of the *QCEW Operating Manual* (U.S. Bureau of Labor Statistics, 2007), www.reginfo.gov/public/do/DownloadDocument?objectID=48010401.

[3] For details of the method, including various exceptions, see *ICR documents* (Office of Information and Regulatory Affairs, Office of Management and Budget, Executive Office of the President), http://www.reginfo.gov/public/do/PRAViewDocument?ref_nbr=201406-1220-001.

[4] Details of the methodology are given in Ivan P. Fellegi and Alan B. Sunter, "A theory for record linkage," *Journal of the American Statistical Association*, 1969, vol. 64, no. 328, pp. 1183–1210; and Kenneth Robertson, Larry Huff, Gordon Mikkelson, Timothy Pivetz, and Alice Winkler, "Improvement in record linkage processes for the Bureau of Labor Statistics' Business Establishment List," pp. 212-221 in Wendy Alvey and Bettye Jamerson, eds., Record linkage techniques—1997, https://www.nap.edu/read/6491/chapter/10#212: Proceedings of an International Workshop and Exposition, March 20–21, 1997, Arlington, VA. Washington, DC: Federal Committee on Statistical Methodology, Office of Management and Budget, 1997. For more information on establishment linkage, births, and deaths, see "Business Employment Dynamics," *Handbook of Methods* (U.S. Bureau of Labor Statistics), https://www.bls.gov/opub/hom/bdm/home.htm.

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Presentation

This section provides some information on the ways Quarterly Census of Employment and Wages (QCEW) data are presented. It also provides more information on the users and uses of these data. Because the QCEW is a census, there are confidentiality protection requirements that are different from those which apply to BLS survey products. All QCEW products are evaluated for the presence of data that may provide sensitive information regarding employment and wages reported by a particular employer. BLS withholds QCEW data to the extent needed to protect the confidentiality of sensitive data. Details regarding the methods used to protect the data are not shared so that the protection will maintain its strength.

Reliability

The QCEW is designed in such a way that it can identify industries by geographical location and link establishments by multiple worksites in order to produce firm-level data. The QCEW has a longitudinal database in which it can link data over time and capture business mergers and acquisitions. This database can also link firm-level data over time using unemployment insurance (UI) numbers.

An inherent strength of the QCEW is its basis in mandatory UI reporting and the built-in potency of that system. For example, each initial claim for UI benefits includes a check ensuring that the employer exists and is contributing to the UI compensation fund. Based on a weekly survey of more than 270,000 initial claims and more than 14 million claims in total, the system ensures complete coverage.

Publications

The QCEW is published quarterly, in two consecutive releases, and about 5 months after the reference period has ended. The first release is the traditional County Employment and Wages news release, which presents adjusted data that are never revised, and is available within 5 months after the end of the quarter. Then, about 2 weeks after this news release has been published, the QCEW full data release occurs. Quarterly and annual data included in the full data release are unadjusted and preliminary until finalized with the publication of the following reference period first quarter of data. The full data are available from QCEW database resources at https://www.bls.gov/cew/data.htm. More information about the schedule of these QCEW releases can be found at https://www.bls.gov/cew/release-calendar.htm.

The County Employment and Wages news release focuses on large counties in the United States (counties with an annual average employment level of 75,000 or greater) and their growth in employment and wages in the third month of the quarter and in average weekly wages (AWW) for the quarter. Growth rates are calculated on an over-the-year basis and are adjusted to mute the effects of noneconomic changes. A variety of charts and tables in the news release highlight the counties with the 10 highest and 5 lowest rates of growth in employment and AWW. Another section of the release focuses on the 10 largest counties in the United States by annual average employment level. The release also includes three tables, one showing adjusted employment and wage growth for all counties with employment of 75,000 or greater, a second presenting adjusted employment and wage growth for

the 10 largest counties by level of employment, and a third displaying adjusted employment and wage growth for every state.

The tables in the "Employment and Wages, Annual Averages" are published annually on the QCEW program's website on the same day as the first-quarter full data release is published for the next year. For example, the 2018 Employment and Wages, Annual Averages was published the same day as the 2019 first-quarter QCEW full data release.

QCEW data are regularly updated after their initial release and are not considered final until the end of the first quarter of the next reference year. Once data are final, they are not edited. If errors are found in publications after particular data are released, a corrected version of the data is released along with a note on what was changed. These notes can be found in the "QCEW Notices" section of the program web page.

QCEW program analysts have published a number of articles in the principal journal of BLS, Monthly Labor Review.[1] QCEW has also written interesting data stories for Beyond the Numbers. [2] Also, QCEW data are often used in the BLS Office of Publications daily graphics-oriented publication TED: The Economics Daily. [3] State partners of the QCEW use the data to write features on local areas, to research industry-specific trends, and to promote economic activity happening in their state.

The QCEW has the benefit of a large, dataset in the form of 10.5 million employer reports. Users can easily manipulate the dataset and create interesting, relevant, and useful data. This aspect, unique among BLS programs, gives users the opportunity to create interesting, relevant, and useful new datasets.

Hurricane maps and tables

QCEW establishment data were matched with data from geographic files of potential flood zones due to hurricanes. (See hurricane maps and tables.) Matching was done for every state along the Atlantic and Gulf of Mexico coasts and for more than 150 counties within those states. Geographic information software flagged individual establishments as either in or not in flood zones, for a scale of increasing storm intensity. The establishments were then aggregated by flood zone, and maps and tables were created to illustrate which states and counties were at great economic risk due to hurricanes.

Nonprofit data

In accordance with unemployment insurance (UI) laws, some establishments are not required to contribute to UI, but rather reimburse the UI system when a claim is made. In most states, these "reimbursable" accounts are restricted to 501(c) (3) nonprofit organizations. (See nonprofit data available.) The QCEW flags establishments that are "reimbursables" on its records. These records were matched against Internal Revenue Service data for verification, then compiled to create a new dataset for private sector establishments, employment, and wages for the portion of the nonprofit sector made up of 501(c) (3) organizations.

Nonprofit Data is managed by the Business Employment Dynamics (BDM) program, which is part of the QCEW program. To contact the BDM program, visit the BDM contact page.

Data correction

If an error is found in a published QCEW data product (news release, data table, etc.), the product is corrected and republished or incorrect data products are removed. Corrected products will clearly note that a correction was made (as possible). A record of the error will be added to the list of BLS errata, and data users who have signed up to receive notifications from the QCEW program are alerted via email. All relevant documentation is updated, and, if appropriate, new webpages are created to document the error and its correction.

Revisions

QCEW data for the first quarter of each year are published five times. The original data are first released in September of that year and are followed by revisions in December of the same year and in March, June, and September of the next year. For example, March 2020 data are first published in September 2020, and revisions of the March data are published in December 2020 and then in March, June, and September of 2021. Second-quarter data are published four times, third-quarter data three times, and fourth-quarter data twice.

Table 5 in the Design section of this handbook shows the path of data for March 2019 from their initial publication in September 2019 to their final publication in September 2020. The initial published value of March 2019 employment is 146,497,599 jobs as seen in the first column. In the same row, the four subsequent columns are the revised values of March 2019 employment in each of the subsequent four quarters. In the next four columns, the difference between the current published value and the value of the previous quarter's published value is shown. The final column shows the difference between the original published value and the final value published 1 year later. As shown in table 6 in the Design section of this handbook, the largest revision generally occurs from initial publication to the first revision, as missing reports, including reports of business deaths.[4] Revisions occur due to employers responding late.[5] The magnitude of the revisions is relatively small, less than 0.05 percentage point. Table 7 in the Design section of this handbook shows the percentage of revision from the original value to the final publication value.

Data available

QCEW data are available online via Open Data Access or the BLS Database. Preliminary data are published each quarter, with a lag of roughly 5 months after the third month of the publication quarter. All quarters are considered open for updates until the publication of first-quarter data for the next year. Data are available at the county, Metropolitan Statistical Area (MSA), state, and national level by industry, down to the six-digit level of detail for privately owned establishments as well as local, state, and federal government agencies.

Through its Open Data Access and QCEW Data Viewer feature, the QCEW program provides a collection of comma-separated values (CSV) files, designed to allow third-party programmers, developers, and organizations to retrieve published QCEW data in CSV format. The Open Data Access webpage provides links to QCEW CSV file documentation, as well as to sample code in several languages. QCEW CSV files are organized by industry, by area, and by establishment size class. An industry file contains all the records associated with the industry over a single period. An area file contains all the records associated with the area over a single period. A size file contains all records published within a specific size class for the first quarter of a specified year. All published QCEW data are provided by each set of files. The files contain precalculated location quotients, which are values that quantify

how concentrated a particular industry is in a county or state, compared with how concentrated that industry is in the nation.

QCEW's Data Viewer interface uses these same CSV files to build custom HTML tables based on selected criteria.

Users and uses of QCEW data

QCEW data are widely used by federal statistical agencies, BLS surveys, and other public and private establishments as a basis for their statistics and research publications.

Bureau of Economic Analysis

The Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce uses QCEW data as a base for developing the national, state, and local area wage and salary components of personal income. Personal income is a major part of the National Income and Product Accounts and the Regional Economic Accounts. QCEW wages accounted for 47.3 percent of total personal income and 94.2 percent of the wage and salary component of personal income in 2019.

The BEA also revises annual estimates according to QCEW wage and salary disbursements data. QCEW wages, which include irregular pay, such as bonuses and gains from the exercise of stock options, are more comprehensive. Personal Income estimates for prior quarters are revised each release. The revised estimates reflect the inclusion of newly available tabulations of prior quarter QCEW wage data.

QCEW collaborates with the BEA to enhance data available on Foreign Direct Investment (FDI) in the United States. How is this possible? In the simplest terms, QCEW is "matching" two large datasets to deliver a new meaningful data. This cooperative research data supplements existing BEA FDI data and allows data users to analyze FDI at finer geographic and industrial levels.

Finally, BEA uses QCEW employment data as a major input for the wage and salary employment component of their National and Regional (Local Area) employment data. Data from this program at BEA can be found by using the BEA Interactive Data Application. Basically, BLS provides QCEW microdata to the BEA during each quarterly cycle of data production, which the BEA uses to inform their employment data for all areas. More information about how this data is used by BEA can be found by directly contacting the BEA helpdesk.

Energy Information Administration

In 2017, BLS began providing QCEW microdata files, via a Memorandum of Understanding (MOU), to the Energy Information Administration (EIA) so that its analysts could develop a statistical sample. EIA uses these QCEW employer reports to update its sampling frame for the Manufacturing Energy Consumption Survey (MECS), Petroleum Product Sales Identification Survey (PPSIS), and the Motor Gasoline Price Survey (MGPS).

- EIA uses BLS data to improve the quality of the MECS frame. MECS is a national sample survey that collects information on the stock of U.S. manufacturing establishments, their energy-related building characteristics, and their energy consumption and expenditures. This sample allows EIA to report separate

estimates of energy use for 21 3-digit industry subsectors, and 50 industry groups and industries according to the North American Industry Classification System (NAICS).

- EIA uses BLS data to identify petroleum marketers for the re-opening of the PPSIS which is designed to obtain information on the size, type, and geographic location of fuel oil-related business concerns. The data are used as a frame by EIA to select samples for other refined petroleum product surveys that are part of EIA's Petroleum Marketing Program, and to report to Congress and others when requested.
- EIA uses BLS data to update the sample frame of gas stations owners. The MGPS is a weekly mandatory sample survey designed to collect data by telephone on the cash, pump price (including taxes) of self-serve, unleaded gasoline, by grade of gasoline. The statistics are widely used to inform the public and policymakers about current retail gasoline prices, and is one of EIA's most viewed products.

Social Security Administration

The Social Security Administration (SSA) uses QCEW data as a quality check against data provided by the Internal Revenue Service (IRS). This allows SSA to improve its estimates of Old Age and Survivors and Disability Insurance (OASDI) and Hospital Insurance (HI) covered and taxable wages and employment for the most recent historical periods. This, in turn, allows the Treasury to make more accurate transfers from the general fund to the OASDI and HI trust funds. For the annual Trustees Reports, this provides legislators and the general public with more accurate estimates of the effects of present and proposed legislation on the future status of the OASDI and HI trust funds.

SSA also uses QCEW data as a quality check against data provided by employers on Forms W-2. This allows them to improve their estimates of the average U.S. wage for the latest prior historical year. Each October, the SSA estimates the annual U.S. wage for the prior year to set the Average Wage Index (AWI) for that year. This, in turn, is used to set automatic adjustments in the contribution and benefit base, bend points, earnings test exempt amounts, and other wage-indexed amounts for the upcoming year.

Employment and Training Administration

The QCEW program provides data necessary to both the Employment and Training Administration (ETA) of the U.S. Department of Labor and State workforce agencies for use in administering the workforce security program. QCEW data accurately reflect the extent of coverage of state unemployment insurance (UI) laws. These data are used to measure UI revenues; national, state, and local area employment; and total and UI-taxable wage trends. The information is used as an input for actuarial studies, determination of employer UI tax experience ratings, and UI maximum weekly benefit levels. ETA research using QCEW data helps measure the solvency of UI trust funds. States also use monthly QCEW employment data in the calculation of insured unemployment rates (IUR) for federal-state extended benefits (EB) triggers.

Census Bureau

The Census Bureau uses QCEW program industrial classification information to assign industry codes to some employers in their Business Registry (BR). Since 1991, under a directive from the Office of Management and Budget, the Census Bureau has requested assistance from BLS with industrial classification information from its Business Establishment List (BEL). This project is conducted to maintain and strengthen industrial classifications on the Census Bureau's BR, which is the sampling frame for their establishment surveys. The sharing of these codes reduces costs and respondent burden. Also, increased consistency of industry codes leads

to greater uniformity in the resulting economic data flowing from the BLS and the Census Bureau at national, state, and county levels. Consequently, the data produced from these agencies using input from BLS and Census Bureau are therefore are therefore of higher quality. For example, state and county personal income estimates from the Bureau of Economic Analysis (BEA) will benefit from consistent coding.

Longitudinal Employer-Household Dynamics

The Longitudinal Employer-Household Dynamics (LEHD) program uses the QCEW data as a major input of their Quarterly Workforce Indicators (QWI) data. LEHD uses QCEW data to produce employment, business dynamics, and earnings data back to the 1990s for selected areas, with the most recent LEHD data available for the nation, states, counties, MSAs, and workforce investment areas (WIAs). More information about LEHD's usage of QCEW can be found in The LEHD Infrastructure Files and the Creation of the Quarterly Workforce Indicators.

Bureau of Labor Statistics

QCEW data are important for several other BLS programs. Here is some related information about these programs, and how they use QCEW information for their products.

NATIONAL COMPENSATION SURVEY

The National Compensation Survey (NCS) is an establishment-based survey used to provide comprehensive measures of:

- the Employment Cost Index (ECI);
- Employer Costs for Employee Compensation (ECEC), including wages and salaries, and benefits,
- Compensation trends; and
- the incidence of employer-sponsored benefits among workers.

The NCS also publishes estimates on the provisions of selected employer-sponsored benefit plans. The NCS uses a sample of approximately 8,000 private industry and state and local government establishments, selected primarily from the QCEW administrative records of UI-covered employers.

For more information about these concepts, contact NCS at https://data.bls.gov/forms/ncs.htm?/ncs/cwcconta.htm.

OCCUPATIONAL REQUIREMENTS SURVEY

The Occupational Requirements Survey (ORS) is an establishment-based survey and provides information on the requirements of work based on collected data from approximately 26,500 private industry and state and local government establishments. The sample is selected primarily from the QCEW administrative records of UI-covered employers. The ORS program provides job-related information about the physical demands, environmental conditions, education and training, and mental requirements of jobs in the U.S. economy.

For more information about these concepts, contact ORS at https://data.bls.gov/forms/ors.htm?/ncs/ors/home.htm.

CURRENT EMPLOYMENT STATISTICS

Current Employment Statistics (CES) estimates of employment, average weekly and hourly earnings, and average weekly hours are derived from an employer survey of approximately 689,000 nonfarm establishments, selected primarily from the QCEW administrative records of UI-covered employers. CES also uses QCEW employment to

benchmark their national and state employment estimates annually. Finally, CES uses information from Business Employment Dynamics (BED), derived from QCEW, as an input in the CES Birth/Death Model, a statistical modeling technique for handling business openings and closings while tracking current monthly employment.

For information on CES National concepts, contact information is available at https://data.bls.gov/forms/ces.htm?/ces/contact.htm.

For information on CES State and Area concepts, please contact State and Area CES at https://data.bls.gov/forms/sae.htm?/sae/790cont.htm.

INJURIES, ILLNESSES AND FATALITIES

The Injuries, Illnesses and Fatalities (IIF) program operates the Survey of Occupational Injuries and Illnesses (SOII), which provides annual estimates on the rate and number of nonfatal work-related injuries and illnesses and how these statistics vary by incident, industry, geography, occupation, and other characteristics. Each year, the SOII selects approximately 230,000 private industry and public sector (state and local government) establishments from a sampling frame primarily derived from QCEW administrative records of UI-covered employers. The SOII also uses employment data derived primarily from the QCEW to benchmark national and state industry-level estimates to current year employment levels.

For more information about these concepts, contact IIF at https://data.bls.gov/forms/iif.htm?/iif/oshcont1.htm.

JOB OPENINGS AND LABOR TURNOVER SURVEY

The Job Openings and Labor Turnover Survey (JOLTS) prepares monthly estimates for the nation, private sector, government, and various industry breakouts based on NAICS sector. JOLTS estimates of job openings, hires, quits, layoffs and discharges, other separations, and total separations are derived from an establishment-based survey of approximately 16,000 nonfarm establishments, selected primarily from the QCEW administrative records of UI-covered employers. JOLTS also collects employment data for use in monthly benchmarking to the CES employment estimates. The CES employment estimates, and therefore the JOLTS estimates, are benchmarked annually to the QCEW employment data.

For more information about these concepts, contact JOLTS at https://data.bls.gov/forms/iif.htm?/iif/oshcont1.htm.

OCCUPATIONAL EMPLOYMENT STATISTICS

The Occupational Employment Statistics (OES) program provides employment and wage estimates for workers in nonfarm establishments, by occupation and industry nationally, and by occupation and area for more than 650 geographical areas. Workers are classified into more than 800 occupations according to the Standard Occupational Classification (SOC) system. OES estimates are available for all 50 states, the District of Columbia, Guam, Puerto Rico, the U.S. Virgin Islands, and 600 metropolitan and nonmetropolitan areas. Industry-specific estimates are available for approximately 415 industry classifications at the national level. The OES data are based on a sample of approximately 1.2 million business establishments drawn primarily from QCEW and collected over a 3-year period. OES employment estimates are benchmarked to the average of QCEW employment for the May reference date of the estimates and the previous November.

For more information about these concepts, contact OES at https://data.bls.gov/forms/oes.htm?/oes/oes_con.htm.

QCEW NONPROFIT RESEARCH DATA

QCEW Nonprofit Research Data, where QCEW was 'matched' to publicly available nonprofit datasets from the IRS, which allowed BLS to deliver data on establishments, employment, and wages of the nonprofit sector. This product was recently updated, in August 2018, with 2016 research data, as well as with finer geographic and industrial detail—including annual average establishments and employment, and total annual wages at the county level for the Educational Services sector, Health Care and Social Assistance sector, and Other Services sector. Comments on these data and underlying methodology can be submitted to the Business Employment Dynamics (BED) information line.

CONSUMER PRICE INDEX

Beginning in September 2019, the Consumer Price Index (CPI) program plans to end the Telephone Point-of-Purchase Survey (TPOPS) and to obtain its retail establishment frame from the same household survey used to obtain the expenditure weights needed to calculate the index. The change to the Consumer Expenditure Surveys (CE) information will eliminate redundancies and inefficiencies in survey operations, and will result in lower household burden. The CPI program plans to refine the location and address data reported in the CE by comparing the household reported data to establishments in the Quarterly Census of Employment and Wages (QCEW) business registry.

Additional uses

QCEW data are used by businesses and by public and private research organizations for economic forecasting, transportation planning, industry and regional analysis, impact studies, and other tasks. In addition, many types of media (newspapers, internet, etc.) use QCEW for fact-based content and reporting on local and national industry establishment, employment, and wage concepts and trends. Finally, educational institutions use QCEW data for understanding the labor market, economic research, and career planning.

NOTES

[1] See, for example, Jennifer Cruz, Peter W. Smith, and Sara Stanley, “The Marcellus Shale gas boom in Pennsylvania: employment and wage trends,” *Monthly Labor Review*, February 2014, https://www.bls.gov/opub/mlr/2014/article/the-marcellus-shale-gas-boom-in-pennsylvania.htm.

[2] See, for example, Paul Ferree and Peter W. Smith, “Employment and wage changes in oil-producing counties in the Bakken Formation, 2007–2011,” April 2013, https://www.bls.gov/opub/btn/volume-2/employment-wages-bakken-shale-region.htm.

[3] See, “Average weekly wages among largest counties, third quarter 2014 to third quarter 2015,” March 11, 2016, https://www.bls.gov/opub/ted/2016/average-weekly-wages-among-largest-counties-third-quarter-2014-to-third-quarter-2015.htm; “Sweets for the sweet: employment at gift-related retailers,” February 12, 2016, https://www.bls.gov/opub/ted/2016/sweets-for-the-sweet-establishments-and-employment-of-gift-retailers.htm; and “Hurricane Katrina: a look back at employment and unemployment,” August 25, 2015, https://www.bls.gov/opub/ted/2015/hurricane-katrina-a-look-back-at-employment-and-unemployment.htm.

[4] For a definition of “business deaths,” see “Business Employment Dynamics: concepts,” *Handbook of Methods* (U.S. Bureau of Labor Statistics, December 24, 2015), https://www.bls.gov/opub/hom/bdm/concepts.htm.

[5] Note that the percentage for the first release is negative because the revised value was lower than the previously published value.

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History

The Quarterly Census of Employment and Wages (QCEW) is an administrative dataset guided by unemployment insurance (UI) coverage laws.[1] These laws vary across states. They have evolved over time and continue to do so from state to state and year to year. More information about UI coverage historically can be found at https://www.bls.gov/cew/additional-resources/federal-unemployment-insurance-employment-coverage-timeline.htm. The following timeline presents important events in the history of the QCEW program.

Year	Event
1935	Social Security Act is passed and establishes the basic framework of the Federal-State system of unemployment insurance (UI).
1938	The Federal Unemployment Tax Act becomes effective and is administered by U.S. Department of Labor (DOL).
1938	The Railroad Retirement Unemployment Insurance Act was approved, providing coverage for railroad workers separate from federal unemployment tax.
1945	The Federal Unemployment Tax Act is amended to exclude service performed for an international organization from coverage.
1946	Extends UI coverage to maritime service. Provides that a state can cover the crew of an American vessel if the operating office is within the state.
1948	The Federal Unemployment Tax Act is amended to exclude services performed by a news agent from coverage.
1948	Supreme Court rules to limit the term "employee" to an employee under the common law rule of "master–servant" relationship, retroactive to 1939.
1950	*Employment and Wages* is first issued as a semiannual report by the Social Security Administration (SSA).
1950	*Social Security Act Amendments of 1950* is passed, redefining exclusion for casual labor not related to the employer's usual course of business.
1953	The Federal Unemployment Tax Act is amended to permit states to cover services performed by general agents of the Secretary of Commerce in connection with American vessels owned or chartered to the United States under certain conditions.
1954	The Federal Unemployment Tax Act is amended to include organizations that test for public safety in the list of nonprofit organizations for which services are excludable.
1954	Extended coverage to Federal civilian employees employed after December 31, 1954, subject to benefit provisions of state laws, under Title XV of the Social Security Act, the Unemployment Compensation for Federal Employees (UCFE) program.
1956	Effective January 1, 1956, UI coverage was extended to employers of 4 or more workers in 20 weeks in a calendar year.
1958	*Ex-servicemen's Unemployment Compensation Act of 1958 (UCX)* establishes a permanent program to provide benefits for veterans under the law of the state in which a claim is filed to coincide with the end of special coverage for Korean veterans.
1960	*Social Security Amendments of 1960* is passed that takes effect on January 1, 1961, coverage under the UCFE program is extended to certain instrumentalities that were neither wholly nor partially covered by FUTA, such as Federal Reserve banks, land banks, and credit unions.
1960	Puerto Rico is brought into the Federal-State unemployment insurance (UI) system, as are American aircraft employment and certain nonprofit institutions.
1961	*Mutual Educational and Cultural Exchange Act of 1961* amends the Federal Unemployment Tax Act by providing an exclusion for services performed by a nonresident alien while temporarily in the United States as a nonimmigrant.
1970	*Employment Security Amendments of 1970* extends coverage, effective January 1, 1972, to several groups previously uncovered. For details, see https://www.bls.gov/cew/additional-resources/federal-unemployment-insurance-employment-coverage-timeline.htm#1961-70
1972	The Bureau of Labor Statistics (BLS) assumes responsibility for publication of the now quarterly *Employment and Wages*. *Employment and Wages* was first issued as a semiannual report.
1975	*Employment and Wages* becomes an annual publication.

Year	Event
1976	*The Unemployment Compensation Amendments of 1976* that becomes effective January 1, 1978, extends coverage to: agricultural labor for employers with 10 or more workers in 20 weeks or who paid $20,000 or more in cash wages in any calendar quarter; household workers of employers who paid $1,000 or more in any calendar quarter for such services; State and local governments with certain minor exceptions; and employees of nonprofit elementary and secondary schools.
1976	The Virgin Islands is permitted to become part of the Federal-State unemployment insurance system.
1981	*Economic Recovery Tax Act of 1981* adds to exclusions from the Federal Unemployment Tax Act coverage services excluded from Federal Insurance Contributions Act under section 3121(b)(2) of the Internal Revenue Code.
1982	*Tax Equity and Fiscal Responsibility Act of 1982* excludes from the Federal Unemployment Tax Act (and Federal Insurance Contributions Act) coverage of certain direct sellers and real estate sellers who are licensed direct sellers of real estate or who execute an agreement with an employer in which substantially all remuneration is based on sales or output (commission).
1986	*Consolidated Omnibus Budget Reconciliation Act of 1985* creates permanent exemption for summer camp counselors and certain fishing boat crew members, with conditions.
1986	*Tax Reform Act of 1986* creates Indian Tribal Government exclusions for services performed: before, on, or after date of enactment (October 22, 1986), but before January 1, 1988, and during a period in which the Indian tribal government is not covered by a state UI program
1988–91	Business Establishment List Improvement project moves from data collection on a reporting unit basis to a worksite basis.
1989	States begin providing data to the Quarterly Census of Employment and Wages (QCEW) at the business establishment level.
1994–97	The Microdata/Macrodata (MIC/MAC) project creates a single file that combines both microdata and macrodata.
1995	The Electronic Data Interchange (EDI) Collection Center is established.
1996	*Small Business Job Protection Act of 1996* passes and becomes effective January 1, 1996. *Personal Responsibility and Work Opportunity Reconciliation Act of 1996* is passed and the amendments apply to remuneration paid after December 31, 1984, and before January 1, 1995.
1997	*Balanced Budget Act of 1997* amends the Federal Unemployment Tax Act to permit states to exclude from coverage services performed by certain election officials for less than $1,000 and also persons committed to a penal institution.
1997	The North American Industry Classification System (NAICS) is developed to replace the Standard Industrial Classification (SIC) system.
2000	*Consolidated Appropriations Act, 2001* amends the Federal Unemployment Tax Act to treat Indian tribes (governmental entities and any subdivision, subsidiary, or business enterprise wholly owned by the tribe) similar to state and local governments.
2002	QCEW program publishes data under NAICS 2002 codes and starts publishing data quarterly.
2003	The Business Employment Dynamics program publishes first quarterly release using QCEW establishment data.
2003	BLS begins releasing fully detailed industry data at the county, Metropolitan Statistical Area (MSA), state, and national levels.
2007	QCEW data are published under revised NAICS 2007 codes.
2010	Last printed edition of *Employment and Wages, Annual Averages* is published. Online versions of this publication are available at https://www.bls.gov/cew/publications/employment-and-wages-annual-averages/home.htm.
2012	QCEW data are published under revised NAICS 2012 codes.
2014	QCEW data are made available publicly as an open data product. QCEW data are published under revised NAICS 2012 codes.
2017	QCEW data are published under revised NAICS 2017 codes.
2018	QCEW quarterly data are separated into two releases every quarter.
2020	*California Assembly Bill No. 5* changes the state's coverage of UI effective on January 1, 2020. This bill includes a three-part test to determine if a worker should be considered an independent contractor or if an employee should be covered by unemployment insurance.
2020	Starting with the November 2020 QCEW news release, QCEW began implementing a new imputation method.

Program identification and data publication

The QCEW program was initially named Employment Security Report 202, after the form on which data were collected. In 1998, to give some context to what the program produced, the name was changed to Covered Employment and Wages (CEW). The program became known as the Quarterly Census of Employment and Wages in 2002, to describe the mission more accurately.

The Standard Industrial Classification system (SIC) was used by the QCEW program to code establishments by industry until the fall of 2002, when the North American Industry Classification System (NAICS) was utilized in the publication of 2001 data.

In the late 1970s and early 1980s, special extracts and aggregations were provided to the public via mainframe computer tape and, later, on floppy disks. Alternatively, special print tables were produced with the information, as requested by customers. Data were subject to basic disclosure limitation procedures.

Following the early 1980s and into the late 1990s, the QCEW program followed a similar data pattern, but with more sophisticated disclosure limitation procedures. Some data requests were filled via CD, while more complicated requests required that BLS be reimbursed. During this timeframe, QCEW established subscription agreements with some of the larger private data companies. These companies would get updated files when they were available. Although data were scheduled to be released quarterly, they were actually released irregularly. On occasion, there were delays that pushed back file creation until more than one added quarter of data could be released at once.

From the late 1990s forward, requests that required reimbursement slowed and then ceased. More sophisticated disclosure limitation procedures were used. Early online tools offered annual average data for 1997 forward. In the early 2000s, a small number of downloadable files were posted on the BLS File Transfer Protocol site.

In 2014, QCEW data were made available as an open data product via comma-separated values (CSV) files on the program's web page. Open data, as described in OMB memorandum M-13-13 (PDF), refers to publicly available data structured in a way that enables the data to be fully discoverable and usable by end users. The CSV files are designed to allow third-party programmers, developers, and organizations to retrieve published QCEW data in CSV format. QCEW CSV files are organized by industry, by area, and by establishment size class.

Beginning with the publication of fourth quarter 2017 QCEW data, published in mid-2018, BLS accelerated the news release 2 weeks ahead of the normal full QCEW data update. BLS has changed this release schedule for two reasons. The first is to share QCEW data for all states faster. The second is to release the data before the Bureau of Economic Analysis (BEA) publishes quarterly gross domestic product (GDP) data, which uses the most recent QCEW wage data. BEA personal income estimates are heavily based on QCEW wages. For their earliest estimates, BEA uses Current Employment Statistics (CES) data to project wages. After BLS shares QCEW data with BEA, the GDP estimates are updated, replacing the CES-based forecast with QCEW wage data.

After reviewing the QCEW program's procedures, BLS decided with the fourth quarter 2017 QCEW data to begin issuing the County Employment and Wages news release earlier.

The first QCEW release is a traditional news release, with a partial data update. This partial update will consist of the most recent monthly and quarterly levels presented in the County Employment and Wages news release. (See tables 1, 2, and 3.) The second QCEW release, consisting of the full QCEW dataset (current quarter, as well as any current year quarter, QCEW data), is published two weeks after the first QCEW (news) release.

Major projects

The QCEW program has undertaken several major projects in its brief history.

Business Establishment List (BEL) Improvement Project

BLS initiated the BEL Improvement Project to obtain information on multiple-establishment employers on a quarterly basis. The project involved changing the collection of data on employment and wages for multiple-establishment employers from a reporting-unit (county or industry total) basis to an individual-worksite (establishment) basis. As part of this change, the size criterion used to define multiple-establishment employers was lowered to include employers of smaller establishments. As a result, both the number of establishments and the number of multiple-establishment employers increased. The State Statistical Supplement forms that were previously used to collect county and industry summary-level data on multiple-establishment employers were replaced by the Multiple Worksite Report (MWR), a standardized form for use in all states.

The BEL project began in late 1988, using the Annual Refiling Survey (ARS). The survey obtained worksite identification information for existing multiple-establishment employers and identified those multiple-establishment employers which were previously categorized as single-unit employers. To capture ARS physical location address information for single-unit employers, the SIC Refiling Control System (SRCS) was modified in mid-1988 and the new version was provided to the states. The new, standardized MWR received OMB clearance and was mandated for state use beginning with data for the first quarter of 1991. (Note that, although state use of the form was mandatory, depending on state UI laws, it was not mandatory that all employers in the state use the form.) The MWR was intended to collect quarterly information on employment and wages from multiple-establishment employers.

The MWR was a major component of the BEL improvement project launched in 1989. The BEL moved the BLS sampling frame from a reporting-unit to an establishment basis. The Longitudinal Data Base (LDB) was established and later became part of the popular Business Employment Dynamics (BED) program. As mentioned earlier, the MWR replaced State Statistical Supplement forms. Several states had already collected establishment-level data, and their forms served as a model for the MWR. The initial quarter during which MWR establishment-level data were collected was the first quarter of 1991. The MWR enabled the QCEW program to be the first in BLS to develop a standardized magnetic-media reporting format. The MWR was implemented in September 1992.

Electronic Data Interchange (EDI) Collection Center

In 1995, BLS established the EDI Collection Center in Chicago, IL, to improve and to expedite the MWR collection process. Employers who complete the MWR for multiple-location businesses submit information on employment and wages via an electronic medium directly to the collection center, instead of submitting separate forms or files to each individual state agency. The collection center then edits the employers' data and forwards the data to the appropriate state agency. The EDI Collection Center is geared toward firms that meet certain size thresholds.

Electronic and web-based filing has reduced costs considerably for large and midsized employers. MWR web data collection started with data for the first quarter of 2007. The MWR electronic-reporting format is now routinely included in the products of prominent payroll- and tax-reporting software developers. Since 2012, BLS has successfully worked with a contractor to print, mail, receive, and scan returned MWR forms to state agencies, substantially reducing their workloads..

First quarter 2019 (initial enhanced quarterly Unemployment Insurance file)	Number or percentage of employers
Percentage of employers filing the MWR	1.4
Percentage of national worksites	17.3
Percentage of national employment	41.05

It is useful to examine some recent statistics regarding overall MWR data collection. In that regard, the numbers in the following tabulation, for the first quarter of 2019, exhibit a stable pattern that appears to be the usual pattern for MWR statistics:

As the data above show, 1.4 percent of employers completed the MWR for about 17 percent of national worksites and more than 41 percent of national employment. Moreover, 60 percent of all MWR employment came electronically, from either the EDI Center or MWRweb. Of this 60 percent, the EDI Center collected 24 percent of total MWR employment while MWRweb accounted for 36 percent.

Microdata/Macrodata (MIC/MAC) Project

Prior to 1989, states submitted only an enhanced file containing macrolevel employment and wage data. That meant that the highest level of detail received by the QCEW program was aggregate data cells made up of a combination of industry, county, and ownership codes.

In the first quarter of 1989, states began delivering a quarterly microdata file that included individual business establishment data. At the time, states were submitting nine separate deliverables per year: four quarterly microdata files, four quarterly macrodata files, and the annual Control File, providing Code Change Supplement data.

Development of the MIC/MAC project began in 1994. Teams consisting of BLS staff from both the national office and regional offices, as well as state staff members, were established to define the new processing requirements and deliverable standards. State and BLS systems were updated to reflect these major operational changes. The mission was to create a single quarterly file that would make possible the creation of macrolevel totals from the

microdata. The project would promote more efficiency by eliminating duplication of work in reviewing and correcting the micro- and macrodata files. The project would also create uniformity in the micro- and macrolevel totals, as well as in the editing standards for the states and BLS. The first MIC/MAC files were submitted to BLS in the third quarter of 1997, providing for a more efficient work process and producing higher quality data.

SIC-to-NAICS conversion

The SIC system was established in the 1930s in order to classify establishments by their primary type of activity. The system was updated multiple times in its history of being utilized by the QCEW (formerly, ES-202) program; significant changes were made in 1967, 1972, and 1987. In July 1992, the Office of Management and Budget (OMB) established the Economic Classification Policy Committee, chaired by the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce, with representatives from the U.S. Bureau of the Census (now the U.S. Census Bureau) of the U.S. Department of Commerce and from BLS. The OMB charged the committee with conducting a “fresh slate” examination of economic classifications for statistical purposes and determining the desirability of developing a new industry classification system for the United States that would be based on a single economic concept. In 1997, NAICS was introduced, the product of a cooperative effort on the part of the official statistical agencies of the United States, Canada, and Mexico.

In the fall of 2002, the QCEW program published its 2001 data using NAICS 2002 classified industry data for the first time. Over several years prior to that milestone, state agencies had worked to convert more than 8 million establishments to NAICS. Along with the initial 1997 version of NAICS and the 2002 update, versions were released in 2007, 2012, and 2017, to reflect changes to the economy.

One of the major changes to industry coding that was introduced by NAICS was the sector called information (NAICS 51), which includes establishments producing and distributing information and cultural products, establishments providing the means to transmit or distribute these products, and establishments providing data or communications services, including data processing. Another new sector introduced by NAICS was management of companies and enterprises (NAICS 55).

The BLS conversion to NAICS was notable for its detail. An example may be seen in the construction (NAICS 23) sector. Within the specialty trade contractors (NAICS 238) subsector in the BLS implementation of NAICS, each base group in specialty trade contractors—for example, masonry contractors (NAICS 23814) or roofing contractors (NAICS 23816)—is further divided, on the basis of whether the establishment's predominant activity is in residential construction or nonresidential construction.[2]

Early BEA finance data

BEA is responsible for producing quarterly estimates of gross domestic product (GDP) and personal income (PI). A key component of the GDP and PI numbers is data on wages, from the QCEW program. Prior to 2008, BEA had difficulty estimating wages in a number of industries. The most difficult industry was finance (NAICS 52), because wage levels for that industry are greatly affected by irregular payments (for example, bonuses and stock options). These irregular payments are usually made in either the fourth or first quarter. In 2008, at BEA's request, BLS

agreed to deliver first-quarter macrodata earlier than is customary, in order to enable BEA to adjust its estimates by means of QCEW total wage levels.

In early July of 2008, the 10 states with the largest proportion of national aggregate wages in the finance industry participated in a pilot test of accelerated macrodata delivery to BEA. The early-delivery pilot proved to be highly successful with major national users, such as the U.S. Department of the Treasury and the Council of Economic Advisers, which noted a decrease in revisions. On the basis of this success, BEA asked the QCEW program to provide early macrodata as a deliverable each first quarter, beginning with the first quarter of 2009. The BEA wage estimates that are being improved with QCEW data are national, not state, metro, or local, estimates.

Business Employment Dynamics

The Business Employment Dynamics (BED) program uses QCEW establishment data to produce a quarterly series of gross job gains and gross job losses for the entire economy. The program published its first release in 2003. The data covered the period from 1992 through 2002, with subsequent quarterly updates published since then. (For more on BED, visit the BLS website Business Employment Dynamics and the BLS Handbook of Methods for BED.)

QCEW Imputation Improvement Project (QIIP)

The economic situation in 2020, which reflects the impact of COVID-19, may not have been optimally captured with the old QCEW imputation method. In 2020, BLS explored three imputation (specific techniques of handling for non-response from active establishments) improvements. These improvements were accepted for production. The imputations were first used for the second published version of data for the first quarter of 2020 and for all versions of QCEW data beginning with the first published data for the second quarter of 2020.

The first improvement is a version of the ratio method of imputation described below.

BLS has conducted extensive research on alternative imputation methods for both employment and wages. The findings of the research indicate that current trends reported by similar businesses should be applied to nonrespondents. BLS defines the procedure for doing so as the ratio method. According to this method, the ratio for a particular estimation cell is computed as the sum of a current month's reported employment (from similar businesses) divided by the sum of the previous month's reported employment. To impute the current month's employment for a nonrespondent, the ratio is then multiplied by the nonrespondent's previous month's employment. A similar procedure is applied to impute total quarterly wages.

The second improvement immediately identifies missing employers that are likely to have ceased operations. This eliminates imputation for many establishments that are out of business. The improvement uses counts of claims for unemployment benefits, aggregated by employer, to mechanically identify businesses that are likely to have ceased operations.

The third improvement is the use of benefit claims counts by state QCEW staff as a supplement to existing manual data review. Tables presenting the impact of the ratio method and the new identification of out-of-business establishments are available from the 2020 2nd quarter QCEW Improved Imputation Methodology Impact worksheet.

NOTES

[1] For the most recent changes to federal and state UI legislation, see "Most recent comparison of state UI laws," (U.S. Department of Labor, March 29, 2004), https://oui.doleta.gov/unemploy/statelaws.asp#Statelaw.

[2] For more information on NAICS, see "North American Industry Classification System (NAICS) at BLS," (U.S. Bureau of Labor Statistics, February 27, 2020), https://www.bls.gov/bls/naics.htm.

For QCEW's industry finder web application, visit https://data.bls.gov/cew/apps/bls_naics/v2/bls_naics_app.htm#tab=hierarchy&naics=2017&hier=default; and David R. H. Hiles, "A first look at employment and wages using NAICS," *Monthly Labor Review*, December 2001, pp. 22–31, https://www.bls.gov/opub/mlr/2001/12/art3full.pdf.

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More Information

Additional information on the QCEW can be found online at https://www.bls.gov/cew

For questions by email, fill out the request for information using the Information and Help form.

For questions by telephone, call (202) 691-6567.

For BLS QCEW Survey Respondents

Multiple Worksite Report (MWR): mwr.helpdesk@bls.gov

Industry Verification Form (ARS): contact your respective state office.

For more information on data collection forms, visit the Info for Survey Participants page.

For research access to QCEW data

On-site Visiting Researcher program

For programs outside QCEW using QCEW data

- State-published data
- The cooperating State Workforce Agencies (SWAs) have labor market information offices that publish and disseminate QCEW data for their states.
- Federally published data
- CES technical note
- OES survey methods and reliability statement
- LAUS estimation methodology
- JOLTS Birth-Death Model
- BRS technical notes
- SOII calculation-benchmark factors
- BEA wages and salary disbursements
- BEA Local Personal Income and Employment methodology
- Census Quarterly Workforce Indicators (QWI) 101
- Census Business Builder (CBB)
- FRED – Federal Reserve Bank of St. Louis

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