


# Local Area Unemployment Statistics

The Local Area Unemployment Statistics (LAUS) program produces monthly and annual estimates of civilian labor force, employed people, unemployed people, and unemployment rates for census regions and divisions, states, counties, metropolitan areas, and many cities. These estimates are key indicators of local economic conditions.



The diagram is a circular flow chart with the text "HANDBOOK of METHODS" in the center. Five arrows form a circle around the center, pointing clockwise. The arrows are labeled: "CONCEPTS" (top), "DATA SOURCES" (right), "DESIGN" (bottom-right), "CALCULATION" (bottom-left), and "PRESENTATION" (left).

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# Concepts

The Local Area Unemployment Statistics (LAUS) program produces monthly labor force estimates for a variety of geographic areas using the concepts and definitions of the Current Population Survey (CPS).

## Labor force concepts

The concepts and definitions used by the LAUS program are the same as those used in the CPS for the national labor force data:

- The *civilian labor force* is made up of all people in the civilian noninstitutional population ages 16 and older classified as either employed or unemployed. (See the definitions below.)
- *Employed people* are all those who, during the reference week (the week including the 12<sup>th</sup> day of the month), (a) did any work as paid employees, worked in their own business or on their own farm, or worked 15 hours or more as unpaid workers in an enterprise operated by a member of their family, or (b) were not working but who had jobs from which they were temporarily absent because of vacation, illness, bad weather, childcare problems, maternity or paternity leave, labor-management dispute, job training, or other family or personal reasons, whether or not they were paid for the time off or were seeking other jobs. Each employed person is counted only once, even if he or she holds more than one job.
- *Unemployed people* are all people who were not employed during the reference week, were available for work, except for temporary illness, and had made specific efforts to find employment some time during the 4-week period ending with the reference week. People who were waiting to be recalled to a job from which they had been laid off need not have been looking for work to be classified as unemployed.

The *unemployment rate* is the unemployed percent of the civilian labor force: 
$$\text{Unemployment rate} = \frac{\text{Unemployment}}{\text{Civilian labor force}} * 100.$$

See the CPS [Concepts and Definitions](#) documentation for additional detail on the labor force definitions.

## Geographic concepts

The LAUS program provides estimates for the following geographic areas:

- Census regions and divisions
- States, the District of Columbia, and Puerto Rico
- Federal statistical areas—metropolitan areas, metropolitan divisions, micropolitan areas, and combined areas
- Small labor market areas
- Counties and county equivalents
- Cities of 25,000 population or more
- All cities and towns in New England, regardless of population
- Parts of cities that cross county boundaries

For more detail on the geographic definitions used by the LAUS program, see the [Geographic Concepts](#) documentation.

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## ***Data Sources***

The Local Area Unemployment Statistics (LAUS) program is a federal–state cooperative program. The Bureau of Labor Statistics (BLS) develops concepts, definitions, and technical procedures and then works with state workforce agencies, which prepare labor force and unemployment estimates. Unlike most other programs at BLS, LAUS does not conduct its own survey. Rather, estimates are produced using data from a variety of survey and administrative sources.

Estimates for census regions and divisions, states, the District of Columbia, and seven substate areas are produced using time-series models. The monthly [Current Population Survey \(CPS\)](#) estimate is the primary input to the employment and unemployment models. The CPS is a monthly survey of approximately 60,000 households that is used to produce monthly labor force estimates for the nation as a whole. The monthly [Current Employment Statistics \(CES\)](#) payroll employment estimate, derived from a survey of business establishments, serves as an input to the employment models. Counts of continued claims without earnings from the state unemployment insurance (UI) systems serve as an input to the unemployment models.

The Handbook method is used for substate estimation. This method uses available information to create area employment and unemployment estimates that are comparable to what would be produced by surveying a representative sample of households in that area, but without the expense of conducting a large labor force survey like the CPS. The method presents a series of estimating building blocks, for which categories of employed and unemployed workers are estimated and then summed. Data sources for the handbook method include the CES, Quarterly Census of Employment and Wages (QCEW), CPS, American Community Survey (ACS), UI claims counts, and population estimates from the U.S. Census Bureau.

See the [calculation](#) section for more detail on the methodology for producing state and area estimates.

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## *Design*

The Local Area Unemployment Statistics (LAUS) program does not conduct its own survey. Rather, it uses a hierarchy of non-survey methodologies for producing monthly labor force estimates for approximately 7,500 subnational areas. Four measures are produced for each geographic area: civilian labor force, employed people, unemployed people, and the unemployment rate. Employed and unemployed persons are independently estimated. Civilian labor force is then summed from the employed and unemployed, while the unemployment rate is calculated as the unemployed percent of the civilian labor force.

Estimates for states are derived from signal-plus-noise models that use the monthly employment and unemployment measures tabulated from the Current Population Survey (CPS) as the primary input. Payroll employment estimates from the Current Employment Statistics (CES) survey of establishments and unemployment insurance (UI) claims counts from the state workforce agencies are also used as model inputs to mitigate volatility in the employment and unemployment measures tabulated directly from the CPS. These models are controlled, or forced to sum, to the national not-seasonally-adjusted employment and unemployment estimates from the CPS. They furthermore serve as controls for substate areas, so that the monthly estimates are additive and comparable across geographic levels. LAUS data for counties (or cities and towns in the New England states) are developed through a building-block approach known as the Handbook method. In the Handbook method, each category of employed or unemployed persons is independently estimated, then added together to produce total Handbook employment and unemployment estimates. These Handbook-based estimates are controlled to the statewide model-based totals to produce the LAUS employment and unemployment estimates.

For multi-county areas, such as many of the metropolitan areas delineated by the Office of Management and Budget, LAUS estimates are summed from the Handbook-based data for their component counties (or component cities and towns in the New England states).

LAUS estimates for cities outside of New England are produced through a disaggregation technique using Census Bureau employment and population data and UI claims counts.

See the [calculation](#) section for further detail on the state and substate methodologies.

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## Calculation

The LAUS program uses a hierarchy of nonsurvey methodologies to produce monthly estimates of the civilian labor force, employed persons, unemployed persons, and unemployment rates for approximately 7,500 subnational areas. Estimates for states

### Estimates for states

Monthly labor force data for all states and the District of Columbia are based on the time-series approach to sample survey data.<sup>1</sup> This approach reduces the high variability in monthly Current Population Survey (CPS) estimates that results from the small CPS sample sizes for the states and the District. Actual monthly CPS sample estimates are represented in signal-plus-noise form as the sum of a stochastic true labor force series (signal) and error (noise) generated by sampling only a portion of the total population and expressed as

$$y_t = Y_t + e_t$$

where:  $y_t$  = CPS estimate

$Y_t$  = true labor force value (signal)

$e_t$  = sampling error (noise).

The signal is represented by a time-series model that incorporates historical relationships in the monthly CPS estimates along with auxiliary data from the state unemployment insurance (UI) systems and the [Current Employment Statistics](#) (CES) survey. This time-series model is combined with a noise model that reflects key characteristics of the sampling error to produce estimates of the true labor force values.<sup>2</sup> This estimator is optimal under the model assumptions and has been shown by Bell and Hillmer<sup>3</sup> to be design-consistent under general conditions.

Two models—one for the employment level and a second for the unemployment level—were developed for each state on the basis of data from 1976 through present. The labor force level and unemployment rate are derived from the employment and unemployment measures produced by the two respective models. The signals for both models are based on a basic structural model that decomposes a series into stochastic trend-cycle ( $T_t$ ), seasonal ( $S_t$ ), and irregular ( $I_t$ ) components.<sup>4</sup> The model is of the following form:

$$Y_t = T_t + S_t + I_t$$

The trend-cycle and seasonal components have mutually independent normal disturbance terms that cause them to drift slowly over time. The variances of these disturbances constitute the hyperparameters of the signal and determine the properties of the individual components. A positive variance for a component implies that it is

stochastic (meaning it is not perfectly predictable from past history), and a zero variance implies deterministic behavior (that is, a fixed pattern over time). The irregular component is treated as an uncorrelated zero-mean disturbance with fixed variance.

The models use information from state CPS time series. A natural extension of the structural model is to allow one or more of the unobserved components of the signal to be related to corresponding components in another series. State-specific monthly covariates have been developed from auxiliary data sources: UI claims from the federal-state UI system are used for the unemployment model, and nonagricultural payroll employment estimates from the CES program are used for the employment model. The model for the regressor  $X_t$ , follows the same basic structural form as for  $Y_t$ , with stochastic trend, seasonal, and irregular components.

The current models use a regressor format. CES employment and UI claims are seasonally adjusted with their respective univariate model, and then each is used as the regressor variable in its respective model of employment or unemployment.

The second major component of the signal-plus-noise model deals with CPS sampling errors.<sup>5</sup> Because of this survey's complex design, the behavior of the observed sample estimates differs in important ways from that of the true values. Sampled households rotate in and out of the CPS over a period of 16 months, such that 75 percent of the sample from month to month consists of the same households and 50 percent from year to year. (See the Current Population Survey *Handbook of Methods* chapter.) Also, sample redesigns and large fluctuations in the size of the labor force cause changes in the variance of the estimates. These two features of the CPS—an overlapping sample design and changes in reliability—induce strong positive autocorrelation and heteroskedasticity in the standard errors. These characteristics can seriously contaminate estimates of the true labor force if the sampling error is ignored in the estimation process. For this reason, it is important to specify a model of the standard error process and combine it with the model of the signal, to estimate the unobserved components of the CPS. The standard error model is specified as

$$e_t = \gamma_t e_t^* e_t = \gamma_t e_t^*$$

with  $e_t^*$  reflecting the autocovariance structure, assumed to follow an autoregressive moving average (ARMA) process, and  $\gamma_t$  representing a changing variance over time. The parameters of the ARMA model are derived from sampling error autocorrelations developed independently of the time-series model from design-based information. The CPS error variances are estimated using the method of generalized variance functions.<sup>6</sup>

The unknown hyperparameters of the signal are estimated by maximum likelihood, using the Kalman filter algorithm. Given these estimated hyperparameters, the Kalman filter is used to decompose the observed CPS into its signal and noise components. This algorithm efficiently updates the model estimates as new data become available each month. For the latest month, the Kalman filter calculates estimates on the basis of all available data but does not revise estimates for the previous months with the latest data. Previous estimates are updated by a

Kalman filter smoother, which revises a given period's estimate by using all data available, both before and after the month. This smoothing procedure is performed only at the end of each year.

## Real-time benchmarking

LAUS model estimates are adjusted using a process of real-time benchmarking, whereby each month, state model estimates are controlled to the CPS national estimates of employment and unemployment, such that the not-seasonally-adjusted estimates for all states and the District of Columbia sum to the national not seasonally adjusted estimates. By forcing state model estimates to add to current monthly national CPS estimates, real-time protection is provided for the models because the benchmarked estimators reflect changes in the labor force as they occur. Another benefit of benchmarking is to ensure comparability between estimates at different levels of geography.

Real-time benchmarking occurs as part of the estimation process. First, employment and unemployment estimates for census divisions are created from CPS-only univariate signal-plus-noise models that are controlled to the national not-seasonally-adjusted CPS estimates. Then, state models are estimated and controlled to the appropriate division estimates.

## State-specific outliers

State-specific outliers are external shocks that represent departures from the normal behavior of a series. The effect of an outlier specific to a given state is not spread to other states. This is accomplished by estimating outliers at the state level and then aggregating these effects to the appropriate division level and the national level. The outliers are subtracted from the state, division, and national CPS series. The division models are estimated from the adjusted division-level CPS data and then benchmarked to the national CPS with the same outlier effects removed. The states are estimated from the adjusted state CPS data and benchmarked in the same manner to the adjusted benchmarked division model estimates. Once benchmarking is complete, the outlier is added back to the state, division, and national totals, preserving additivity.

## Smoothed seasonal adjustment process

In 2010, a smoothed seasonal adjustment process was introduced to reduce the number of spurious fluctuations in the seasonally adjusted estimates due primarily to noise introduced in real-time benchmarking. State labor force estimates were smoothed with the use of the Henderson trend filter, which uses weighted moving averages to suppress irregular fluctuations in the seasonally adjusted series, leaving the trend more visible. Two-sided, symmetric moving averages (up to 13 months in length) were used to smooth the historical series, while a one-sided, asymmetric (7-month) average was used in real time.

The fourth generation of models decompose the estimates of employed and unemployed persons into trend-cycle, seasonal, and irregular components. The trend component of each measure is then smoothed using a Trend-Cycle Cascade Filter, which combines the Henderson trend filter with a seasonal filter. This combined filter suppresses variability due to real-time benchmarking while simultaneously removing any residual seasonality that may be present in the series. The resulting smoothed seasonally adjusted unemployment rate estimates are published on the BLS website and analyzed in the monthly state news release. During estimation for the current year, the smoothed-seasonally adjusted estimates for a given month are created using an asymmetric filter that incorporates



information from previous observations only. For annual revisions, historical data are smoothed using a two-sided filter.

## Estimates for substate areas

Estimates for counties (or cities and towns in the New England states) are developed through a building block approach known as the Handbook method. An exception is seven substate areas that are modeled using the same estimation techniques as the states. Data for multicounty areas are summed from the Handbook-based data for their component counties, while estimates for subcounty areas, such as cities, are produced using disaggregation techniques.

### Modeled substate areas

In addition to the state models, there are seven substate areas that are modeled utilizing the same regressor structure as the state estimates. Estimates for Los Angeles County, New York City, and the balances of California and New York State are each modeled. Estimates for the state of California are then derived by summing the estimates for Los Angeles County and the balance of California. Similarly, estimates for New York State are derived by summing the estimates for New York City and the balance of New York State. Model-based estimates also are produced for five additional substate areas and their respective balances of state: the Chicago-Naperville-Arlington Heights, IL Metropolitan Division; the Cleveland-Elyria, OH Metropolitan Statistical Area; the Detroit-Warren-Dearborn, MI Metropolitan Statistical Area; the Miami-Miami Beach-Kendall, FL Metropolitan Division; and the Seattle-Bellevue-Everett, WA Metropolitan Division. For these five areas, substate and balance-of-state estimates are controlled to their respective state totals.

### The Handbook method

With the exception of the seven substate area models discussed, the Handbook method is used for substate estimation. This method is an effort to use available information to create employment and unemployment estimates for an area that are comparable to what would be produced by a representative sample of households in that area, without the expense of conducting a large labor force survey like the CPS. The method presents a series of estimating building blocks, for which categories of employed and unemployed workers are estimated and then summed.

### EMPLOYMENT

The total employment estimate for a particular area is based on data from several sources. The two main sources are the CES survey, the state-designed monthly survey of establishments, and the Quarterly Census of Employment and Wages (QCEW), a universe count of employment covered by the UI system. (See the [QCEW chapter](#).) These sources are designed to produce estimates of the total number of employees on payrolls in nonfarm industries for a particular area.

Because employment estimates from these sources are based on the location of the establishment, these place-of-work estimates must be adjusted to reflect the place-of-residence concept used in the CPS survey of households. Resident employment includes workers living and working in the same area and also those who work in other areas within commuting distance. Estimates of resident employment should, therefore, reflect establishment employment changes in those related commutation areas as well. LAUS uses dynamic residency

ratios to provide this adjustment, using American Community Survey (ACS) commutation data. Separate residency adjustment ratios are developed for each estimating area and additional areas with at least 10 percent of residents commuting into the estimating area for work. Ratios for each of the commuting areas are multiplied by their respective monthly nonfarm jobs estimates to produce estimates of estimating area residents who work in each of the commuting areas. Separate commuting area estimates are summed to create a total of the resident nonfarm wage and salary employment for the area. This adjustment also accounts for multiple jobholding and unpaid absences in the payroll employment estimates. Next, these nonagricultural wage and salary employment estimates are disaggregated to the county level or the Minor Civil Division (MCD) level in New England using ACS nonagricultural wage and salary employment ratios.

Estimates for employment not represented in the establishment series—agricultural workers and nonfarm self-employed workers, unpaid family workers, and private household workers—are derived by disaggregation using data from the CPS and the ACS. These components, plus the wage and salary component, represent total handbook employment. To develop estimates for employment not covered by the establishment series, the state-level 5-year weighted-average CPS estimates of nonfarm self-employed, unpaid family, and private household workers are controlled to the national CPS all-other employment total for the current month. All-other employment data from the ACS are then used to estimate shares for allocating the state-level CPS all-other employment data to substate areas. Agricultural employment estimates also are developed from CPS and ACS data. Again, the 5-year weighted-average CPS statewide agricultural employment is controlled to the national CPS agricultural employment total for the current month, then ACS agricultural employment data are used to distribute the CPS monthly, 5-year weighted-average CPS statewide agricultural employment to substate areas.

## **UNEMPLOYMENT**

The estimate of unemployment is an aggregate of the estimates for each of the two building-block categories: those covered by the UI system and those outside its scope (called the noncovered). The covered category consists of people who are currently receiving UI benefits and people who have exhausted their benefits. The noncovered category consists of people who are ineligible to receive UI benefits.

A count of the covered unemployed who collected UI benefits during the reference week (the week of the 12th) and also had no earnings due to employment is obtained directly from state, federal, and railroad unemployment programs. Estimates of unemployed people who have exhausted their benefits (known as exhaustees) are based upon the number of claimants who received their final payments in the week before the reference week, plus an estimate of exhaustees from previous periods who are still unemployed. This calculation involves estimating the percentage of long-term unemployed who continue to remain unemployed each week and applying that percentage to the exhaustee pool.

Noncovered unemployed are those people who are not in the scope of the UI system. Many of the unemployed were not employed immediately before their current spell of unemployment and, thus, did not meet the wage and employment experience requirements to qualify for UI compensation. Because UI compensation is not a criterion for determining unemployment status in the CPS, these individuals, known as entrants to the labor force, are counted as unemployed and included in LAUS estimates.

Unemployed entrants are divided into two groups: new entrants and reentrants. New entrants are individuals who have entered the labor force for the first time. Reentrants are individuals who have reentered the labor force after a period of neither employment nor unemployment. Both new entrants and reentrants are estimated from state-level CPS data on a 5-year weighted average for each month. Then, the averages for each state are controlled to the corresponding national total for the current month. Next, these adjusted statewide entrant totals are distributed to each county (minor civil division, or MCD, in New England), using population shares based on the latest annual July-1 population estimates from the Census Bureau. A county new entrant estimate is calculated as its share of the state population ages 16–19, multiplied by the total statewide new entrant estimate. Reentrants are estimated by a similar procedure, using each county’s share of the state population ages 20 years and older and the statewide reentrant total.

**SUBSTATE ADJUSTMENT FOR CONSISTENCY AND ADDITIVITY**

Each month, Handbook estimates are prepared for counties or MCDs that exhaust each state geographically. To obtain an estimate for a given area, a Handbook share is computed for that area; this is defined as the ratio of the area's Handbook estimate to the sum of the Handbook estimates for all counties or MCDs in the state. The area's Handbook share is then multiplied by the current statewide modeled estimate to produce the final adjusted county or MCD estimate of employment:

$$E_{\alpha(t)} = E_{s(t)} * HBE_{\alpha(t)} / \sum HBE_{\alpha(t)}$$

where

**E** = total employment

**HBE** = handbook employment

**α** = area

**S** = state

**t** = time.

The additivity procedure for unemployment is analogous:

$$U_{\alpha(t)} = U_{s(t)} * HBU_{\alpha(t)} / \sum HBU_{\alpha(t)}$$

where

**U** = total unemployment

$HBU_{a(t)}$  = handbook unemployment

$a$  = area

$s$  = state

$t$  = time.

Total employment and unemployment estimates for counties and MCDs then are aggregated to create estimates for multi-entity labor markets areas and related geography, such as metropolitan and micropolitan areas.

## Estimates for parts of counties

Current labor force estimates at the subcounty level are required by several federal allocation programs. However, the Handbook method was not designed for these small areas because the data required to compute independent handbook estimates generally are not available. Based on data availability, two alternative methods are used to disaggregate the county estimates to the subarea level.

The population- and claims-based method is the standard technique for disaggregation. If residence-based UI claims data are available for the subareas within the county, the ratio of the subarea to the total number of claims within the county is used to disaggregate the estimate of covered unemployed to the subarea level. The new entrant and reentrant components of unemployed are disaggregated from the county using subarea shares of county population for the 16-to-19 age group and 20 and older age groups, respectively. Employment is disaggregated using distributions calculated from the ACS that are indexed to the July-1 population estimates for the reference year. This combination of techniques is used to derive estimates for cities with populations of more than 25,000.

If the necessary UI claims data are not available at the subarea level, the ACS-share method is used. This method uses distributions calculated from the ACS that are indexed to the July-1 population estimates for the reference year for both employment and unemployment disaggregation.

## Seasonal adjustment of metropolitan areas

Employment and unemployment estimates for metropolitan areas and metropolitan divisions are seasonally adjusted each month, using a model-based approach known as SEATS, which stands for Signal Extraction in ARIMA (Auto Regressive Integrated Moving Average) Time Series. The trend estimate, which is derived from the SEATS decomposition of the series into its trend, seasonal, and irregular components, is the seasonally adjusted LAUS estimate. These data are published via [supplemental tables](#) on the BLS website.

## Annual processing

At the end of each year, LAUS conducts a review of model performance. States provide information about their economies. Month-to-month movements and observations are examined to determine if they are reflective of economic events or if any should be considered outliers.

At the beginning of each year, LAUS receives new population controls from the Census Bureau. CPS estimates for states, census divisions, and the United States are revised, using these new estimates of the civilian noninstitutional population ages 16 and older. Revisions to state model inputs—specifically, CES and UI—also are received. State and substate models then are reestimated to incorporate changes in inputs and population controls, using all data in the series. Revised statewide estimates are controlled to updated census division models that sum to national totals, all reflecting the new population controls. (The official U.S. totals generally are not revised to reflect new population estimates. Rather, the new controls are implemented in January.)

Substate estimates are revised to incorporate any changes in the inputs, such as revisions in the employment estimates based on place of work, revisions to UI claims data, and updated historical relationships. Area Handbook estimates then are revised and readjusted to sum to the revised state estimates of employment and unemployment. Areas for which the estimates are disaggregated are revised, using updated population estimates for the indexing of disaggregation ratios.

## Decennial updates

Approximately once per decade, the LAUS program conducts major redesigns of its methodology in order to continue to improve labor force estimates for states and substate areas. In 2015, a fourth generation of time-series models was introduced, and improvements were made to several aspects of the Handbook methodology, including the incorporation of data from the ACS. The state series was reestimated back to the beginning of the series in 1976, and substate estimates were comprehensively revised back to 2010. See "[Changes to state and local area labor force estimation in 2015](#)" for documentation relating to the redesign.

Concurrent with the methodological changes each decade, the LAUS program also implements new census-based federal statistical area delineations, as issued by the Office of Management and Budget (OMB). For more information and documentation on the delineations based on the 2010 Census that were implemented in 2015, see <https://www.bls.gov/lau/lausmsa.htm>.

### NOTES

<sup>1</sup> W.R. Bell, and S.C. Hillmer, "The Time Series Approach to Estimation for Repeated Surveys," *Survey Methodology*, 1990, pp. 195–215; and A.J. Scott, T.M.F. Smith, and R.G. Jones, "Analysis of Repeated Surveys Using Time Series Methods," *Journal of the American Statistical Association*, 1974, pp. 674–678.

<sup>2</sup> Richard B. Tiller, "Model-Based Labor Force estimates for Sub-National Areas with large Survey Errors" (U.S. Bureau of Labor Statistics, 2006), <https://www.bls.gov/osmr/research-papers/2006/pdf/st060010.pdf>.

<sup>3</sup> W.R. Bell and S.C. Hillmer, "The Time Series Approach to Estimation for Repeated Surveys," *Survey Methodology*, 1990 pp. 195–215.

<sup>4</sup> A.C. Harvey, *Forecasting, Structural Time Series Models, and the Kalman Filter* (New York: Cambridge University Press, 1989).

<sup>5</sup> Richard B. Tiller, "Time Series Modeling of Sample Survey Data from the U.S. Current Population Survey," *Journal of Official Statistics*, 1992, pp. 149–166.

<sup>6</sup> T.S. Zimmerman, and E. Robison, "Report on Revised State GVF Parameters for CPS Monthly Employment and Unemployment Estimates in States, District of Columbia, and Four Substate Areas: 1976-Present," BLS internal memorandum, 1996.

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# Presentation

LAUS estimates are published in monthly and annual news releases and in the time-series database.

## Publication of LAUS estimates

Data from the Local Area Unemployment Statistics (LAUS) program are made available to users in a variety of ways. Labor force and unemployment data are published monthly for states and the model-based substate areas in a news release entitled [State Employment and Unemployment](#). Estimates for metropolitan areas and divisions are published monthly in a news release entitled [Metropolitan Area Employment and Unemployment](#). A variety of supplemental tables and maps are published on the website along with each news release.

Annual average data are published each year in a news release entitled [Regional and State Unemployment](#), which typically is issued in late February. This release presents data on the population, civilian labor force, employed, unemployed, and unemployment rate for regions, divisions, and states.

Current and historical data from the LAUS program for all 7,500 areas also are available online in the Bureau's public database. Users may access the data through the [BLS website](#) or [by download](#).

The press releases highlight preliminary estimates for the current month, which are revised the following month. If additional corrections are needed, the data will be footnoted in the public database and noted on the BLS errata page. At the end of each calendar year, estimates are revised for up to five previous years. See the [calculation](#) section, annual processing subsection, for more information.

## Limitations of the data

Model-based error measures are available for regions, divisions, and states. (See [Information on Model-Based Error Measures for Regions, Divisions, and States](#).) Analysis in the monthly *State Employment and Unemployment* news release reflects the use of these error measures.

Estimates not directly derived from sample surveys or statistical modeling are subject to errors resulting from the estimation processes used and from the limitations of the data sources used. The error structure associated with these estimates is complex, and information on the magnitude of the overall errors is not available.

## Uses of LAUS data

LAUS estimates of state and local unemployment and unemployment rates are used by federal agencies to determine the eligibility of an area for benefits under various federal programs. These include the Workforce Innovation and Opportunity Act (WIOA), the Temporary Assistance for Needy Families (TANF) program, the Emergency Food and Shelter Program (EFSP), the Emergency Food Assistance Program (TEFAP), the Historically Underutilized Business Zones (HUBZone) program, and Labor Surplus Area (LSA) designations. Under most programs, unemployment data are used to determine the distribution of funds to be allocated to each eligible

area. In the case of the HUBZone and LSA designations, data are used in the determination of area eligibility for benefits.

## Publication of subnational data from the Current Population Survey

BLS publishes a limited amount of subnational data from the Current Population Survey (CPS) on an annual basis. Unlike the LAUS employment and unemployment estimates, which are produced using either models (at the state level) or the Handbook method (at the substate level), these estimates are direct survey data from the CPS. The primary publication is the [Geographic Profile of Employment and Unemployment](#), which contains data for census regions and divisions and states. Data are provided on the employed and unemployed by selected demographic and economic characteristics.

The [Alternative Measures of Labor Underutilization for States](#) is published on a four-quarter moving average basis using CPS data. These six measures, U-1 through U-6, provide a narrower or broader definition of unemployment or underemployment.

Subnational CPS data also appear in reports throughout the year that focus on specific topics, including multiple jobholding, employment status of veterans, minimum wage workers, union affiliation, and median weekly earnings by gender.

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# History

## Timeline Events

The effort to develop unemployment estimates for subnational areas began during World War II under the War Manpower Commission, with the aim of identifying areas where a labor market imbalance had been created due to inadequate labor supply, material shortages, or transportation difficulties. After the war, emphasis was placed on identifying areas of labor surplus, and a program of classifying areas in accordance with severity of unemployment was established.

In 1950, the Department of Labor's Bureau of Employment Security (now the Employment and Training Administration) published a handbook, *Techniques for Estimating Unemployment*, so that comparable estimates of the unemployment rate could be produced for all states. This led to the formulation of the "Handbook method" in the late 1950s. The Handbook method is a series of computational steps designed to produce local employment and unemployment estimates, using available data at a much lower cost than a direct survey.

In 1972, BLS assumed technical responsibility for the program and began to refine the concepts and methods used to estimate the labor force, employment, and unemployment at the subnational level. In 1973, a new system for developing labor force estimates was introduced, combining the Handbook method with the concepts, definitions, and estimation controls from the Current Population Survey (CPS).

Beginning in 1978, the monthly CPS data were used for official statewide labor force estimates for 10 large states—California, Florida, Illinois, Massachusetts, Michigan, New Jersey, New York, Ohio, Pennsylvania, and Texas—and for 2 substate areas—Los Angeles County and New York City. (North Carolina was added in 1985.) These states and areas were referred to as "direct-use" areas, because they used the CPS data without any mathematical or statistical adjustments. Official monthly estimates for the remaining "non-direct-use" states were based on the Handbook method adjusted to CPS controls.

In 1985, a state-based design for the CPS was fully implemented for the first time, to incorporate 1980 Census information and to improve reliability for each of the 50 states and the District of Columbia.

Beginning in 1989, Handbook estimation for the 39 non-direct-use states and the District of Columbia was discontinued in favor of time-series statistical modeling. The models were developed by BLS and tested by state workforce agencies. (Estimates for most substate areas continue to be based on the Handbook method.)

In 1994, in conjunction with a major redesign of the CPS, a second generation of time-series models was introduced, based on a "signal-plus-noise" approach.

In 1996, the number of households in the CPS sample was temporarily reduced, resulting in the elimination of direct use of the CPS for monthly estimation in the 11 large states, the Los Angeles-Long Beach Metropolitan Area, and New York City. Beginning with January 1996, labor force estimates for these subnational areas have been based on the time-series modeling approach used in the other 39 states and the District of Columbia.

In 2005, improved third-generation time-series estimates for modeled areas were introduced, along with real-time benchmarking of state estimates to the national CPS estimates. Also introduced were new time-series models for five metropolitan areas and the respective balances of their states, as well as improved substate estimation in the Handbook method.

In 2011, seasonal adjustment was introduced for nonmodeled metropolitan areas and metropolitan divisions.

In 2015, LAUS updated its state and modeled substate area estimation methodologies by introducing the fourth generation of LAUS models, which included improvements to the model structure, real-time benchmarking, the treatment of outliers, and trend-cycle filters, which improve seasonal adjustment. In addition, updates were made to the Handbook method, including the incorporation of data from the Census Bureau's American Community Survey (ACS) into the substate estimation procedure.

## Archives

- [July 14, 1997](#)

*Last Modified Date: January 09, 2018*

## More Information

Additional information about the LAUS program, including frequently asked questions, contacts, and technical references, are online at the [LAUS homepage](#).

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