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Current Employment Statistics data and their contributions as key economic indicators

To help mark the Monthly Labor Review's centennial, the editors invited several producers and users of BLS data to take a look back at the last 100 years. This article highlights the important role of the Current Employment Statistics (CES) survey as a key source of economic information for data users seeking to obtain a timely and broad view of the U.S. labor market. The CES program publishes first estimates of employment, hours, and earnings each month, approximately 3 weeks after the week including the 12th of the month. CES estimates, widely used on their own, also serve as important inputs to other closely watched economic indicators. Among the users of CES data are government agencies, private businesses, and research organizations.

Richa Ajmera
richa.ajmera@fsis.usda.gov

Richa Ajmera was formerly a senior economist in the Office of Employment and Unemployment Statistics, U.S. Bureau of Labor Statistics.

Angie Clinton
clinton.angie@bls.gov

Angie Clinton is a senior economist in the Office of Employment and Unemployment Statistics, U.S. Bureau of Labor Statistics.

The Current Employment Statistics (CES) survey was first conducted in October 1915 for four manufacturing industries—boots and shoes, cotton goods, cotton finishing, and hosiery and underwear. The first CES data release, published in the January 1916 issue of the *Monthly Review*, indicated that it would be useful to employers in these industries, as well as to workers, the unemployed, and policymakers:

> The amount of authoritative data concerning the ebb and flow of industrial employment in the United States is limited. The necessity for figures on this subject is apparent. Every successful employer must know his own business, and to continue successful [sic] he needs to know the condition of the industry of which his establishment is a part, for so closely are industrial affairs related that the prosperity of any establishment may be affected materially by the conditions of the industry as a whole. To the workingmen, the unemployed, and those seeking to relieve unemployment such figures are also of service.[1]

Over the past 100 years, the CES survey has evolved considerably. In 2015, CES published more than 900 national employment series for nonfarm and government industries. Two sets of estimates of hours and earnings for private sector employees also were produced—one for all employees and one for production employees in goods-producing industries and nonsupervisory employees in private service-providing industries. Further, numerous additional series were derived from basic estimates. CES also has expanded to produce estimates, by industry, for all 50 states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and about 450 metropolitan areas and divisions.

CES data serve as one of the first available monthly economic indicators for evaluating the health of the U.S. economy. Each month, the U.S. Bureau of Labor Statistics (BLS) publishes estimates of employment, hours, and earnings from the CES survey. The Employment Situation, a news release combining national estimates from the CES survey and labor force data from the Current Population Survey (CPS), is published about 3 weeks after the week that includes the 12th of the month. The reference period for CES respondents is the pay period that includes the 12th of the month. BLS releases CES estimates for states and metropolitan areas about 2 weeks after the release of national estimates.

Because of their breadth of industry detail, geographic scope, and timeliness, CES data are followed closely by a wide array of economic data users—policymakers, government agencies and entities, major news media, financial market analysts in the United States and around the world, and other business and academic analysts, researchers, and forecasters. This article highlights the strengths of CES data and their important contributions as economic indicators.

Why follow CES?

The breadth and quality of CES data help one understand why data users choose to follow them. The CES survey, also known as the payroll or establishment survey, is a monthly survey of approximately 146,000 businesses and government agencies representing about 623,000 worksites throughout the United States. Using data from this sample, BLS produces and publishes estimates of employment, hours, and earnings for the nation, states, and metropolitan areas, by detailed industry. The CES survey produces over 27,000 data series for the nation and about 23,000 series for states and areas.[2]

CES employment series include all employees, production and nonsupervisory employees (referred to in this article as production employees),[3] and women employees. Monthly employment estimates for major industry sectors and some detailed industries begin as early as 1939, but all employment series generally begin no later than 1990.

BLS also produces estimates of average hourly earnings, average weekly hours, and, for manufacturing industries, average weekly overtime hours. Hours and earnings estimates cover private sector workers in two employee sets—all employees and production employees. Since 1964, monthly estimates of hours and earnings for production employees have been produced for all private industry sectors. The hours and earnings estimates for all employees start in 2006.

BLS also derives other series, such as average weekly earnings and diffusion indexes, from the basic series of employment, hours, and earnings. Each month, CES publishes real earnings (a Principal Federal Economic

Indicator) in conjunction with the release of the Consumer Price Index (CPI). Average hourly and average weekly earnings are deflated by the CPI to provide information on the real buying power of consumers.

Industry classification. All data on employment, hours, and earnings for the nation, states, and metropolitan areas are classified in accordance with the North American Industry Classification System, developed under the auspices of the Office of Management and Budget.[4] The United States, Canada, and Mexico share this classification system, which allows a direct comparison of economic data across the three countries.[5]

Revisions. Because not all respondents report their payroll data by the initial release of employment, hours, and earnings, CES estimates are considered preliminary when first published each month. BLS continues to collect payroll data and revises estimates twice before the annual benchmark update (discussed below). For a given month, BLS publishes second preliminary estimates 1 month after the initial release and final sample-based estimates 2 months after the initial release. The estimates published with the second and third (final) releases incorporate additional data from respondents and corrected data. With each new monthly observation and the revisions to previous months' estimates, BLS recalculates CES seasonal adjustment factors, which also can contribute to revisions in the seasonally adjusted estimates.[6]

Benchmarking. On an annual basis, BLS recalculates nearly 2 years of CES data in a process known as benchmarking. The process corrects for sampling and modeling error by reanchoring sample-based estimates for March of each year to nearly complete employment counts based primarily on unemployment insurance tax records.[7] Historically, benchmark revisions of total nonfarm employment have been relatively small, averaging 0.3 percent (in absolute terms) from March 2005 through March 2015.[8]

Seasonality. CES data are available both seasonally adjusted and not seasonally adjusted. To reveal underlying economic trends, the seasonal adjustment process removes from the data the effects of normal employment variation, which results from recurring events within a year (such as holidays and weather changes). BLS uses a concurrent seasonal adjustment methodology for national CES estimates that incorporate estimates up through the current month's data.

Uses and users of CES data

CES data as inputs to other important economic indicators. While CES estimates, on their own, serve as important economic indicators for analyzing the health of the U.S. economy, they also serve as inputs to other economy-wide indicators. Total nonfarm employment and aggregate weekly hours (the product of employment and average weekly hours) are considered coincident economic indicators. In other words, employment and aggregate hours are indicative of the current state of the economy and tend to move in sync with U.S. business cycles, reaching peaks and troughs at about the same time as the cycle. In fact, the Business Cycle Dating Committee of the National Bureau of Economic Research (NBER) uses CES employment data to determine turning points in the U.S. business cycle.

Table 1 shows the relationship between turning points in the U.S. business cycle, as determined by NBER, and turning points in CES employment. Eight out of 11 peak months in CES employment coincided within 3 months of the NBER peak months. Eight out of the 11 trough months coincided within 3 months of the NBER trough months. However, this coincident pattern for identifying business cycle troughs (i.e., ending points of recessions)

broke down after the last two recessions. CES employment continued to decline for 21 months after the end of the 2001 recession and for 8 months after the June 2009 business cycle trough. For both recessions, NBER found that business cycle peak dates coincided with the peaks in CES employment, whereas the central indicators—real gross domestic product and real gross domestic income—gave mixed signals about the peak dates.[9]

Table 1. Turning points in the U.S. business cycle and CES employment

NBER turning points		CES employment turning points		Months lead (lag)	
Peak month	Trough month	Peak month	Trough month	Peak month	Trough month
November 1948	October 1949	September 1948	October 1949	2	0
July 1953	May 1954	July 1953	August 1954	0	(3)
August 1957	April 1958	April 1957	June 1958	4	(2)
April 1960	February 1961	April 1960	February 1961	0	0
December 1969	November 1970	March 1970	November 1970	(3)	0
November 1973	March 1975	July 1974	April 1975	(8)	(1)
January 1980	July 1980	(1)	(1)	(1)	(1)
July 1981	November 1982	July 1981	December 1982	0	(1)
July 1990	March 1991	June 1990	May 1991	1	(2)
March 2001	November 2001	February 2001	August 2003	1	(21)
December 2007	June 2009	January 2008	February 2010	(1)	(8)

Notes:

(1) No peak or trough month declared for CES data because period of decline did not meet criteria. For information on how peaks and troughs are identified in CES data, see https://www.bls.gov/ces/cespeaktrough.htm.

Note: CES data are subject to annual benchmarking and reseasonal adjustment.

Sources: U.S. Bureau of Labor Statistics and National Bureau of Economic Research.

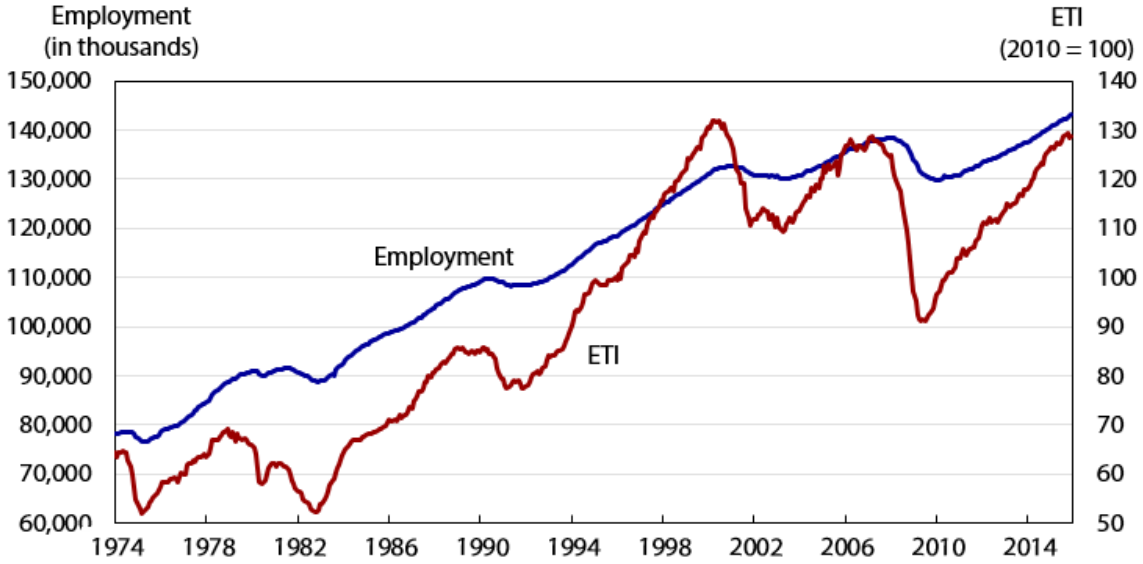
The Federal Reserve uses aggregate weekly hours in manufacturing, mining and logging, electric and gas utilities, and publishing industries to calculate industrial production indexes (IPIs), which measure real output in those industries.[10] Investors use IPIs to analyze growth in these industries. Growth in month-over-month IPIs for a particular industry signals that companies within that industry are performing well.[11]

The Bureau of Economic Analysis uses aggregate weekly earnings (the product of average hourly earnings, average weekly hours, and employment) for all private sector jobs to estimate wages and salaries for personal income, a coincident economic indicator.[12]

The Conference Board combines various statistics to produce its composite leading and coincident economic indexes. These indexes are designed to signal peaks and troughs in the U.S. business cycle and to summarize and reveal common turning-point patterns in economic data by smoothing out some of the volatility of individual economic series. The Coincident Economic Index provides information on the current state of the economy. CES employment is a direct input into the index, whereas aggregate weekly earnings for all private industries and aggregate weekly hours of production employees in selected industries are indirect inputs (through personal income and industrial production, respectively).

The Conference Board's Leading Economic Index is used to predict the direction of the economy's movements in months to come. The manufacturing workweek from the CES survey, also useful as a short-term predictor of changing economic trends, is a direct input into the index.[13]

Figure 1. Total nonfarm employment and Employment Trend Index (ETI), 1974–2015



Sources: U.S. Bureau of Labor Statistics and The Conference Board.

Changes in employment trends of the temporary help services industry typically lead employment changes for the overall U.S. economy. Therefore, The Conference Board uses temporary help employment from the CES survey as an input in calculating the Employment Trend Index. This index aggregates eight separate economic indicators and offers a short-term, forward look at potential changes in employment trends.[14] (See figure 1.)

CES data used in other BLS programs. CES data are used as inputs to other BLS data, in programs such as the Local Area Unemployment Statistics (LAUS) program, which produces statistics on the labor force by state and metropolitan area. LAUS uses CES state and area employment estimates as primary inputs to its employment estimates for states and metropolitan areas. LAUS data are based on place of residence, whereas CES estimates are based on location of work. Therefore, LAUS adjusts its estimates with U.S. Census Bureau data, to "residency-adjust" the CES employment inputs.

The National Compensation Survey program, another user of CES data, produces statistics on employer cost levels (Employer Costs of Employee Compensation (ECEC) estimates), changes in employer labor costs (Employment Cost Index), and employee healthcare and retirement benefits. ECEC estimates are weighted by current employment derived from CES employment estimates and from the Quarterly Census of Employment and Wages program.

The Job Openings and Labor Turnover Survey (JOLTS) uses CES employment as a monthly benchmark. A gauge of labor shortages and churn, data collected by JOLTS include estimates of job openings, hires, and separations. JOLTS weighted employment is ratio adjusted to match CES employment each month, and the resulting ratio is then applied to these estimates. JOLTS also aligns estimates of hires and separations to closely track CES over-the-month employment changes.

The Office of Productivity and Technology produces measures of labor productivity (output per hour), unit labor costs, and multifactor productivity (output per unit of combined inputs) for major U.S. economic sectors and

industries. The labor hours measure underlying the productivity series is based primarily on CES employment and average weekly hours data, supplemented with CPS hours data (adjusted to an hours-worked concept) for self-employed and unpaid family workers. Productivity and related cost measures may be used to analyze and forecast changes in prices, wages, production, and technology.

BLS also produces employment projections for 10 years into the future. CES estimates of employment by industry, supplemented with data from the CPS survey, serve as the base-year employment from which projections are made. Employment projections are widely used by policymakers and other officials to make decisions about education and training policy, funding, and program offerings. In addition, federal agencies, researchers, and academia use employment projections to understand potential future trends in the economy and the labor market.[15]

Uses of CES data in formulating monetary and fiscal policy. Policymakers closely follow CES data for their depth of coverage—geographic and industry detail—and for their timely release each month. The Federal Reserve uses CES data to gauge economic conditions in the U.S. labor market when formulating monetary policy. Federal, state, and local government officials use CES employment and aggregate earnings data to forecast tax revenues and plan budgets. Thus, CES data are useful in determining both monetary and fiscal policy.

Other uses of CES data. Each year, CES data are used by a broad spectrum of researchers, including BLS economists, to analyze the economy, labor markets, and industries. For example, Lawrence Mishel and colleagues used various CES statistics in analyzing the economic experience of workers and their families in the United States.[16]

CES data also are used in the private sector by firms, labor unions, universities, trade associations, and research organizations to study economic conditions and to develop plans for the future. Firms, for example, may use CES employment, hours, and earnings data for planning business activity. A manufacturer could choose to set up factories in an area with a strong manufacturing sector and a skilled workforce. Likewise, a retail chain may decide to open an upscale store or an economy store on the basis of average earnings in an area. Businesses use CES data for forecasting and economic analysis of the labor market and the overall U.S. economy. Every month, national and local news media report results from the CES news releases. Also, trade association journals, the labor press, and general reference works regularly republish CES data in summary form or for specific industries or areas.

Conclusion

The CES program produces employment, hours, and earnings estimates for approximately 900 industries for the nation, states, and areas. National CES estimates represent some of the earliest economic indicators of the U.S. economy. CES data, important not only on their own, serve as inputs into other key economic indicators. The data also provide an important source of information for businesses, major news media, researchers, and students.

SUGGESTED CITATION

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NOTES

1 “Amount of employment in certain industries in October and November, 1915,” *Monthly Review*, vol. II, no. 1, January 1916, pp. 11–12.

2 See “Current Employment Statistics—CES (national)” (U.S. Bureau of Labor Statistics), https://www.bls.gov/ces/.

3 Production employees are defined differently depending on the industry. Production and nonsupervisory employees include production employees in mining and logging and manufacturing, construction employees in construction, and nonsupervisory employees in private service-providing industries.

4 For more information on the North American Industry Classification System, see “Introduction to NAICS” (U.S. Census Bureau), https://www.census.gov/eos/www/naics/.

5 For example, a recent article on bilateral trade directly compares CES estimates of U.S. industry employment with similar estimates for Mexico and Canada; see Christopher E. Wilson, “Working together: economic ties between the United States and Mexico” (Washington, DC: Mexico Institute, Woodrow Wilson International Center for Scholars, November 2011), https://www.wilsoncenter.org/sites/default/files/Working%20Together%20Full%20Document.pdf.

6 See “Revisions,” in *Technical notes for the Current Employment Statistics survey* (U.S. Bureau of Labor Statistics, February 5, 2016), https://www.bls.gov/web/empsit/cestn.pdf.

7 Unemployment insurance tax records are collected, reviewed, and edited through the BLS Quarterly Census of Employment and Wages program, https://www.bls.gov/cew/.

8 For more information on the benchmark process, see the latest CES national benchmark article at https://www.bls.gov/web/empsit/cesbmart.pdf.

9 “The NBER’s business cycle dating procedure: frequently asked questions” (Cambridge, MA: National Bureau of Economic Research), http://www.nber.org/cycles/recessions_faq.html.

10 “Industrial production and capacity utilization—G.17” (Board of Governors of the Federal Reserve System), http://www.federalreserve.gov/releases/g17/About.htm.

11 “Industrial Production Index—IPI,” *Investopedia*, http://www.investopedia.com/terms/i/ipi.asp.

12 The latest news release for personal income from the Bureau of Economic Analysis is available at http://www.bea.gov/newsreleases/national/pi/pinewsrelease.htm.

13 “Global business cycle indicators” (The Conference Board), https://www.conference-board.org/data/bcicountry.cfm?cid=1.

14 “The Conference Board Employment Trend Index (ETI)” (The Conference Board), https://www.conference-board.org/data/eti.cfm.

15 See “Employment projections” (U.S. Bureau of Labor Statistics), https://www.bls.gov/emp/.

16 Lawrence Mishel, Josh Bivens, Elise Gould, and Heidi Shierholz, *The state of working America*, 12th ed. (Ithaca, NY: Cornell University Press, 2012).

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