

CES National Benchmark Article

BLS Establishment Survey National Estimates Revised to Incorporate March 2015 Benchmarks

Authors: Madison Lau and Kerrie Leslie

About the authors:

Madison Lau and Kerrie Leslie are economists in the Division of Current Employment Statistics – National, Office of Employment and Unemployment Statistics, Bureau of Labor Statistics.

Telephone: (202) 691-6555

Email: [Contact CES](#)

Table of Contents

Introduction.....	3
Summary of the benchmark revisions.....	3
Revisions in the postbenchmark period.....	13
Changes to the CES published series.....	15
Series changes.....	15
Additional series published at first preliminary release of monthly estimates.....	19
Reconstructions.....	21
Services for the elderly and persons with disabilities, January 2000 – March 2015.....	21
Education and health services and membership associations and organizations, March 2006 – February 2009.....	22
Education and health services, March 2009 – February 2010.....	23
Why benchmarks differ from estimates.....	24
Benchmark revision effects for other data types.....	25
Methods.....	30
Benchmark sources and procedures.....	30
Birth/Death.....	30
Seasonal adjustment.....	31
Availability of revised data.....	32
Table of figures.....	33
Tables.....	33
Exhibits.....	33

Introduction

With the release of January 2016 data on February 5, 2016, the Bureau of Labor Statistics (BLS) introduced its annual revision of national estimates of employment, hours, and earnings from the Current Employment Statistics (CES) monthly survey of nonfarm establishments. Each year, the CES survey realigns its sample-based estimates to incorporate universe counts of employment—a process known as benchmarking. Comprehensive counts of employment, or benchmarks, are derived primarily from unemployment insurance (UI) tax reports that nearly all employers are required to file with State Workforce Agencies.

Summary of the benchmark revisions

The March 2015 benchmark level for total nonfarm employment is 140,099,000.

In most years, a discussion of revisions to the not seasonally adjusted employment level for the March benchmark also describes the revisions to the over-the-year change from the previous March benchmark level. This year, with the implementation of the March 2015 benchmark, historical data have been reconstructed back to January 2000 for CES series 65-624120 services for the elderly and persons with disabilities. More information on this historical reconstruction is available in the [Reconstructions](#) section below. As a result of this reconstruction, the March 2014 not seasonally adjusted employment level has also been revised and the revisions associated with this benchmark can be looked at in several ways.

To eliminate the nonstandard impact on the benchmark from the reconstruction to CES series 65-624120 services for the elderly and persons with disabilities, the originally published CES employment levels were adjusted to incorporate the reconstruction prior to calculating the benchmark error and performing the wedge. For more information on the CES wedging process, refer to the [Methods](#) section of this article. This approach better reflects the performance of the estimates for the benchmark time period. *The tables in this article reflect this process.*

Considering only the change to the employment level due to error, which accounts for the decrease of 27,000 due to the reconstruction, total nonfarm employment for March 2015 had a downward revision of -172,000, or -0.1 percent, to 140,099,000. Because the March 2014 employment level now reflects changes due to the reconstruction, another measure of the impact of the benchmark is to consider the over-the-year change revision from March 2014 to March 2015. Prior to the implementation of the benchmark, the level change for total nonfarm over that time period was 3,084,000. After the benchmark, the change is 2,912,000 which is 172,000 less than previously published.

Compared with the sample-based, published estimate for March 2015, the March 2015 benchmark level is 199,000 lower. This is a downward adjustment of -0.1 percent.

[Table 1](#) below shows the recent history of total nonfarm percent and level benchmark revisions. Over the prior ten years, the annual benchmark revision at the total nonfarm level has averaged 0.3 percent (in absolute terms), with an absolute range of 0.0 percent to 0.7 percent.

Table 1. Percent and level differences between nonfarm employment benchmarks and estimates by industry supersector, March 2005-2015 (1)

CES Industry Code	CES Industry Title	Type	2005	2006	2007	2008	2009	2010	2011 (2)	2012	2013 (3)	2014	2015 (4)
00-000000	Total nonfarm	Percent	-0.1	0.6	-0.2	-0.1	-0.7	-0.3	0.1	0.3	-0.1	0.0	-0.1
		Level	-158	752	-293	-89	-902	-378	162	424	-119	67	-172
05-000000	Total private	Percent	-0.2	0.7	-0.2	-0.1	-0.9	-0.4	0.1	0.4	-0.1	0.1	-0.2
		Level	-166	749	-241	-137	-933	-391	134	481	-126	105	-232
10-000000	Mining and logging	Percent	-0.3	1.2	0.0	0.4	-3.5	-3.0	-0.4	1.6	-1.2	-1.8	-2.2
		Level	-2	8	0	3	-25	-20	-3	13	-10	-16	-19
20-000000	Construction	Percent	0.5	2.6	0.1	0.7	-2.9	-1.3	-0.5	1.8	0.3	1.6	0.6
		Level	35	189	6	49	-171	-67	-26	93	14	90	39
30-000000	Manufacturing	Percent	-0.3	-0.1	-1.0	-0.1	-0.7	-1.0	0.1	-0.2	0.2	0.4	-0.1
		Level	-47	-21	-137	-17	-84	-119	9	-25	23	43	-12
40-000000	Trade, transportation, and utilities	Percent	0.3	0.6	0.5	0.2	-1.2	-0.6	0.4	0.6	-0.5	-0.1	0.0
		Level	74	158	140	65	-300	-143	95	145	-131	-31	-5
41-420000	Wholesale trade	Percent	0.4	0.8	0.4	-0.7	-1.2	-2.3	-0.2	0.8	-0.4	-0.8	-0.7
		Level	25.0	47.0	21.5	-43.1	-68.0	-124.5	-13.1	45.3	-20.2	-45.4	-41.3
42-000000	Retail trade	Percent	0.5	0.5	0.7	0.6	-1.6	-0.1	0.6	0.5	-0.8	0.0	-0.2
		Level	74.3	78.0	107.5	92.8	-235.6	-18.4	83.8	78.9	-110.3	5.5	-23.5
43-000000	Transportation and warehousing	Percent	-0.1	1.0	0.3	0.3	0.2	0.1	0.5	0.7	0.1	0.2	1.4
		Level	-4.8	44.9	11.5	15.0	9.9	3.1	22.4	29.4	3.6	9.7	65.3
44-220000	Utilities	Percent	-3.7	-2.1	0.0	0.0	-1.2	-0.6	0.5	-1.5	-0.8	-0.1	-0.8
		Level	-20.6	-11.4	-0.2	-0.2	-6.8	-3.4	2.8	-8.5	-4.6	-0.6	-4.7
50-000000	Information	Percent	-2.1	-0.5	-1.8	0.3	-1.5	-0.4	-0.4	1.8	-0.2	2.4	-1.6
		Level	-64	-15	-54	8	-42	-11	-12	47	-5	66	-44
55-000000	Financial activities	Percent	-0.8	0.4	-1.3	-0.3	-0.1	0.4	0.9	0.6	-0.1	0.2	-0.1
		Level	-68	35	-111	-23	-4	34	69	45	-10	19	-9
60-000000	Professional and business services	Percent	-0.4	1.3	0.2	-0.4	-0.8	0.0	0.7	0.0	0.0	-0.8	-0.6
		Level	-64	230	44	-63	-137	-3	125	2	4	-147	-110

CES Industry Code	CES Industry Title	Type	2005	2006	2007	2008	2009	2010	2011 (2)	2012	2013 (3)	2014	2015 (4)
65-000000	Education and health services	Percent	0.0	0.5	-0.2	-0.1	-0.3	0.0	-0.5	0.0	-0.3	-0.1	0.0
		Level	-5	96	-39	-17	-56	7	-108	-2	-61	-16	-7
70-000000	Leisure and hospitality	Percent	0.4	0.3	-0.8	-1.1	-0.6	-0.6	0.7	0.8	0.5	0.3	-0.3
		Level	44	42	-108	-151	-72	-80	93	104	72	38	-45
80-000000	Other services	Percent	-1.3	0.5	0.3	0.2	-0.8	0.2	-2.0	1.1	-0.4	1.1	-0.4
		Level	-69	27	18	9	-42	11	-108	59	-22	59	-20
90-000000	Government	Percent	0.0	0.0	-0.2	0.2	0.1	0.1	0.1	-0.3	0.0	-0.2	0.3
		Level	8	3	-52	48	31	13	28	-57	7	-38	60

Footnotes

(1) The differences listed in this table reflect the error due to normal benchmarking procedures. Typically this error is equal to the March benchmarked level minus the published March estimated level. However in some years, other factors beyond normal benchmarking procedures influence the difference between the benchmarked and published March estimate levels. Those years are footnoted.

(2) A review of industries for the possible presence of noncovered employment in benchmark 2011 yielded 13 additional industries. As a result of including these industries, employment for total nonfarm was 95,000 more than the originally published March 2011 estimate level. The difference between the benchmarked and published March 2011 estimate level was 162,000. For this table, the 95,000 amount was added to the original published total nonfarm and total private March 2011 estimates before calculating the percent and level differences. Similarly, for the financial activities and education and health services supersectors, this table displays March 2011 data after incorporating the employment from the additional industries.

(3) The percent and level differences in this column reflect reconstructions to series within CES supersectors financial activities and education and healthcare services. Each first quarter, the Quarterly Census of Employment and Wages (QCEW) program, whose data account for approximately 97 percent of the CES universe scope (see The Sample section of the CES Technical Notes at www.bls.gov/web/empsit/cestn.htm), incorporates updated industry assignments. In 2013, these updates included two substantial groups of nonrandom, noneconomic code changes, one to funds, trusts, and other financial vehicles (NAICS 525), and the other, a reclassification of approximately 466,000 in employment from private households (NAICS 814), which is out of scope for CES, to services for the elderly and persons with disabilities (NAICS 62412), which is in scope. These changes also had an impact, beyond what would be considered typical for a given benchmark year, on corresponding CES series. For more information about the changes to these industries, see the QCEW First Quarter 2013 News Release available at www.bls.gov/news.release/archives/cewqtr_09262013.htm or the Special notice regarding reconstructed data section of the 2013 CES Benchmark Article at www.bls.gov/ces/cesbmart13.pdf.

(4) With the 2015 benchmark, CES reconstructed the national employment series for CES series 65-624120 services for the elderly and persons with disabilities back to January 2000. CES previously reconstructed this series with the 2013 benchmark; however, between the 2013 and 2015 benchmark, a better source of information for the employment within NAICS 62412 for the state of California was found. The inclusion of the reconstructed series resulted in total nonfarm and total private employment that was 27,000 less than the originally published March 2015 estimate level. The difference between the benchmarked and originally published March 2015 estimate level is -199,000 or -0.1 percent. This table displays March 2015 data after accounting for the decrease of 27,000 from the reconstructed series. Similarly, for the education and health services supersector, this table displays March 2015 data after incorporating the reconstructed series.

[To Table of Figures](#)

[Table 2](#) shows the nonfarm employment benchmarks for March 2015, not seasonally adjusted, by industry. The revision to the reconstructed total nonfarm employment is -172,000.

Nine supersectors saw negative revisions. The largest downward revision occurred in professional and business services, -110,000, or -0.6 percent. Within this supersector, the largest revision was in administrative and support services with a revision of -69,400, or -0.9 percent. The next largest downward revision occurred in leisure and hospitality, which experienced a downward revision of -45,000, or -0.3 percent. This downward revision was driven by a large downward revision in food services and drinking places (-60,000, or -0.6 percent). Information was revised downward by -44,000, or -1.6 percent. Within this supersector, the largest downward revision was in telecommunications (-55,500, or -6.9 percent). Other services had a downward revision of -20,000, or -0.4 percent, driven by a large downward revision in membership associations and organizations (-34,200, or -1.2 percent). Mining and logging experienced the largest downward revision in percentage terms among supersectors with a revision of -19,000, or -2.2 percent. Manufacturing and financial activities also had downward revisions of -12,000, or -0.1 percent, and -9,000, or -0.1 percent, respectively. The two smallest downward revisions occurred in education and health services (-7,000, or 0.0 percent) and trade, transportation, and utilities (-5,000, or 0.0 percent).

The remaining two supersectors had upward revisions. The larger upward revision occurred in government by an amount of 60,000, or 0.3 percent. Construction had an upward revision of 39,000, or 0.6 percent.

Table 2. Nonfarm employment benchmarks for industries released with first preliminary estimates, March 2015 (in thousands)

CES Industry Code	CES Industry Title	Benchmark	Estimate ⁽¹⁾	Differences	
				Amount	Percent
00-000000	Total nonfarm	140,099	140,271	-172	-0.1
05-000000	Total private	117,751	117,983	-232	-.2
06-000000	Goods-producing	19,153	19,145	8	.0
07-000000	Service-providing	120,946	121,126	-180	-.1
08-000000	Private service-providing	98,598	98,838	-240	-.2
10-000000	Mining and logging	848	867	-19	-2.2
10-113300	Logging	50.7	52.3	-1.6	-3.2
10-210000	Mining	797.1	814.3	-17.2	-2.2
10-211000	Oil and gas extraction	195.9	196.6	-.7	-.4
10-212000	Mining, except oil and gas	197.1	197.9	-.8	-.4
10-212100	Coal mining	68.0	70.7	-2.7	-4.0
10-212200	Metal ore mining	42.7	42.9	-.2	-.5
10-212300	Nonmetallic mineral mining and quarrying	86.4	84.3	2.1	2.4
10-213000	Support activities for mining	404.1	419.8	-15.7	-3.9
20-000000	Construction	6,051	6,012	39	.6
20-236000	Construction of buildings	1,362.6	1,359.0	3.6	.3
20-236100	Residential building	656.5	660.2	-3.7	-.6
20-236200	Nonresidential building	706.1	698.8	7.3	1.0
20-237000	Heavy and civil engineering construction	845.6	853.8	-8.2	-1.0
20-238000	Specialty trade contractors	3,842.5	3,799.4	43.1	1.1
20-238001	Residential specialty trade contractors	1,647.8	1,637.7	10.1	.6
20-238002	Nonresidential specialty trade contractors	2,194.7	2,161.7	33.0	1.5
30-000000	Manufacturing	12,254	12,266	-12	-.1
31-000000	Durable goods	7,744	7,782	-38	-.5
31-321000	Wood products	372.9	373.4	-.5	-.1
31-327000	Nonmetallic mineral products	383.5	389.2	-5.7	-1.5
31-331000	Primary metals	399.7	405.6	-5.9	-1.5
31-332000	Fabricated metal products	1,465.0	1,468.2	-3.2	-.2
31-333000	Machinery	1,134.0	1,138.6	-4.6	-.4
31-334000	Computer and electronic products	1,050.4	1,055.4	-5.0	-.5
31-334100	Computer and peripheral equipment	158.4	168.2	-9.8	-6.2
31-334200	Communications equipment	88.9	90.0	-1.1	-1.2
31-334400	Semiconductors and electronic components	368.3	369.7	-1.4	-.4
31-334500	Electronic instruments	398.5	390.4	8.1	2.0
31-334600	Miscellaneous computer and electronic products	36.3	37.1	-.8	-2.2
31-335000	Electrical equipment and appliances	382.1	371.7	10.4	2.7
31-336000	Transportation equipment	1,596.8	1,608.6	-11.8	-.7

CES Industry Code	CES Industry Title	Benchmark	Estimate ⁽¹⁾	Differences	
				Amount	Percent
31-336001	Motor vehicles and parts	904.5	919.9	-15.4	-1.7
31-337000	Furniture and related products	375.4	384.6	-9.2	-2.5
31-339000	Miscellaneous durable goods manufacturing	584.1	586.7	-2.6	-.4
32-000000	Nondurable goods	4,510	4,484	26	.6
32-311000	Food manufacturing	1,482.0	1,469.9	12.1	.8
32-313000	Textile mills	117.1	118.7	-1.6	-1.4
32-314000	Textile product mills	114.7	113.3	1.4	1.2
32-315000	Apparel	137.3	137.9	-.6	-.4
32-322000	Paper and paper products	371.4	365.4	6.0	1.6
32-323000	Printing and related support activities	449.9	446.7	3.2	.7
32-324000	Petroleum and coal products	105.4	102.4	3.0	2.8
32-325000	Chemicals	805.8	809.0	-3.2	-.4
32-326000	Plastics and rubber products	683.3	684.8	-1.5	-.2
32-329000	Miscellaneous nondurable goods manufacturing	242.7	235.5	7.2	3.0
40-000000	Trade, transportation, and utilities	26,449	26,454	-5	.0
41-420000	Wholesale trade	5,832.1	5,873.4	-41.3	-.7
41-423000	Durable goods	2,920.5	2,935.0	-14.5	-.5
41-424000	Nondurable goods	2,011.2	2,030.7	-19.5	-1.0
41-425000	Electronic markets and agents and brokers	900.4	907.7	-7.3	-.8
42-000000	Retail trade	15,305.3	15,328.8	-23.5	-.2
42-441000	Motor vehicle and parts dealers	1,900.1	1,897.6	2.5	.1
42-441100	Automobile dealers	1,219.8	1,210.4	9.4	.8
42-441200	Other motor vehicle dealers	139.6	139.1	.5	.4
42-441300	Auto parts, accessories, and tire stores	540.7	548.1	-7.4	-1.4
42-442000	Furniture and home furnishings stores	460.9	457.0	3.9	.8
42-443000	Electronics and appliance stores	510.5	491.6	18.9	3.7
42-444000	Building material and garden supply stores	1,222.7	1,244.0	-21.3	-1.7
42-445000	Food and beverage stores	3,023.1	2,991.0	32.1	1.1
42-446000	Health and personal care stores	1,027.0	1,022.4	4.6	.4
42-447000	Gasoline stations	885.9	884.8	1.1	.1
42-448000	Clothing and clothing accessories stores	1,299.4	1,325.8	-26.4	-2.0
42-451000	Sporting goods, hobby, book, and music stores	609.3	590.6	18.7	3.1
42-452000	General merchandise stores	3,071.8	3,108.7	-36.9	-1.2
42-452100	Department stores	1,305.4	1,304.4	1.0	.1

CES Industry Code	CES Industry Title	Benchmark	Estimate ⁽¹⁾	Differences	
				Amount	Percent
42-452900	Other general merchandise stores	1,766.4	1,804.3	-37.9	-2.1
42-453000	Miscellaneous store retailers	799.0	797.5	1.5	.2
42-454000	Nonstore retailers	495.6	517.8	-22.2	-4.5
43-000000	Transportation and warehousing	4,758.6	4,693.3	65.3	1.4
43-481000	Air transportation	449.2	442.3	6.9	1.5
43-482000	Rail transportation	247.0	244.4	2.6	1.1
43-483000	Water transportation	65.1	64.8	.3	.5
43-484000	Truck transportation	1,417.9	1,413.5	4.4	.3
43-485000	Transit and ground passenger transportation	488.1	485.0	3.1	.6
43-486000	Pipeline transportation	48.2	48.2	.0	.0
43-487000	Scenic and sightseeing transportation	25.1	25.0	.1	.4
43-488000	Support activities for transportation	641.3	639.6	1.7	.3
43-492000	Couriers and messengers	587.3	579.6	7.7	1.3
43-493000	Warehousing and storage	789.4	750.9	38.5	4.9
44-220000	Utilities	553.3	558.0	-4.7	-.8
50-000000	Information	2,730	2,774	-44	-1.6
50-511000	Publishing industries, except Internet	723.5	716.7	6.8	.9
50-512000	Motion picture and sound recording industries	391.1	381.1	10.0	2.6
50-515000	Broadcasting, except Internet	279.5	289.1	-9.6	-3.4
50-517000	Telecommunications	807.7	863.2	-55.5	-6.9
50-518000	Data processing, hosting and related services	292.3	292.1	.2	.1
50-519000	Other information services	235.5	231.7	3.8	1.6
55-000000	Financial activities	8,037	8,046	-9	-.1
55-520000	Finance and insurance	5,992.2	5,999.8	-7.6	-.1
55-521000	Monetary authorities - central bank	17.7	18.4	-.7	-4.0
55-522000	Credit intermediation and related activities	2,556.8	2,564.8	-8.0	-.3
55-522100	Depository credit intermediation	1,679.3	1,695.6	-16.3	-1.0
55-522110	Commercial banking	1,277.3	1,279.6	-2.3	-.2
55-522200	Nondepository credit intermediation	586.5	581.9	4.6	.8
55-522300	Activities related to credit intermediation	291.0	287.3	3.7	1.3
55-523000	Securities, commodity contracts, investments, and funds and trusts	895.7	890.8	4.9	.5
55-524000	Insurance carriers and related activities	2,522.0	2,525.8	-3.8	-.2

CES Industry Code	CES Industry Title	Benchmark	Estimate ⁽¹⁾	Differences	
				Amount	Percent
55-530000	Real estate and rental and leasing	2,044.6	2,046.5	-1.9	-.1
55-531000	Real estate	1,490.7	1,491.9	-1.2	-.1
55-532000	Rental and leasing services	530.6	531.6	-1.0	-.2
55-533000	Lessors of nonfinancial intangible assets	23.3	23.0	.3	1.3
60-000000	Professional and business services	19,233	19,343	-110	-.6
60-540000	Professional and technical services	8,581.7	8,620.4	-38.7	-.5
60-541100	Legal services	1,112.9	1,115.8	-2.9	-.3
60-541200	Accounting and bookkeeping services	1,084.6	1,116.3	-31.7	-2.9
60-541300	Architectural and engineering services	1,379.8	1,396.2	-16.4	-1.2
60-541400	Specialized design services	130.3	132.2	-1.9	-1.5
60-541500	Computer systems design and related services	1,863.1	1,821.9	41.2	2.2
60-541600	Management and technical consulting services	1,244.0	1,283.2	-39.2	-3.2
60-541700	Scientific research and development services	649.9	645.5	4.4	.7
60-541800	Advertising and related services	475.2	483.1	-7.9	-1.7
60-541900	Other professional and technical services	641.9	626.2	15.7	2.4
60-550000	Management of companies and enterprises	2,189.6	2,192.6	-3.0	-.1
60-560000	Administrative and waste services	8,462.0	8,529.9	-67.9	-.8
60-561000	Administrative and support services	8,076.8	8,146.2	-69.4	-.9
60-561100	Office administrative services	464.0	472.9	-8.9	-1.9
60-561200	Facilities support services	138.8	131.4	7.4	5.3
60-561300	Employment services	3,382.3	3,427.3	-45.0	-1.3
60-561320	Temporary help services	2,747.9	2,770.2	-22.3	-.8
60-561400	Business support services	887.9	908.4	-20.5	-2.3
60-561500	Travel arrangement and reservation services	199.0	196.8	2.2	1.1
60-561600	Investigation and security services	860.6	877.9	-17.3	-2.0
60-561700	Services to buildings and dwellings	1,842.1	1,831.0	11.1	.6
60-561900	Other support services	302.1	300.5	1.6	.5
60-562000	Waste management and remediation services	385.2	383.7	1.5	.4
65-000000	Education and health services	21,973	21,980	-7	.0
65-610000	Educational services	3,615.3	3,617.9	-2.6	-.1

CES Industry Code	CES Industry Title	Benchmark	Estimate ⁽¹⁾	Differences	
				Amount	Percent
65-620000	Health care and social assistance	18,358.1	18,362.2	-4.1	.0
65-620001	Health care	14,883.9	14,927.9	-44.0	-.3
65-621000	Ambulatory health care services	6,765.9	6,808.7	-42.8	-.6
65-621100	Offices of physicians	2,502.1	2,524.8	-22.7	-.9
65-621200	Offices of dentists	894.3	907.5	-13.2	-1.5
65-621300	Offices of other health practitioners	801.9	815.5	-13.6	-1.7
65-621400	Outpatient care centers	734.1	732.3	1.8	.2
65-621500	Medical and diagnostic laboratories	256.6	250.5	6.1	2.4
65-621600	Home health care services	1,294.7	1,294.3	.4	.0
65-621900	Other ambulatory health care services	282.2	283.8	-1.6	-.6
65-622000	Hospitals	4,853.3	4,845.2	8.1	.2
65-623000	Nursing and residential care facilities	3,264.7	3,274.0	-9.3	-.3
65-623100	Nursing care facilities	1,639.7	1,645.0	-5.3	-.3
65-623200	Residential mental health facilities	603.2	614.5	-11.3	-1.9
65-623300	Community care facilities for the elderly	860.5	858.5	2.0	.2
65-623900	Other residential care facilities	161.3	156.0	5.3	3.3
65-624000	Social assistance	3,474.2	3,434.3	39.9	1.1
65-624100	Individual and family services	2,099.6	2,065.4	34.2	1.6
65-624200	Emergency and other relief services	153.7	153.1	.6	.4
65-624300	Vocational rehabilitation services	332.4	329.8	2.6	.8
65-624400	Child day care services	888.5	886.0	2.5	.3
70-000000	Leisure and hospitality	14,599	14,644	-45	-.3
70-710000	Arts, entertainment, and recreation	1,982.2	1,983.7	-1.5	-.1
70-711000	Performing arts and spectator sports	428.9	443.5	-14.6	-3.4
70-712000	Museums, historical sites, and similar institutions	142.9	137.8	5.1	3.6
70-713000	Amusements, gambling, and recreation	1,410.4	1,402.4	8.0	.6
70-720000	Accommodation and food services	12,617.0	12,660.3	-43.3	-.3
70-721000	Accommodation	1,851.6	1,834.9	16.7	.9
70-722000	Food services and drinking places	10,765.4	10,825.4	-60.0	-.6
80-000000	Other services	5,577	5,597	-20	-.4
80-811000	Repair and maintenance	1,267.4	1,261.9	5.5	.4

CES Industry Code	CES Industry Title	Benchmark	Estimate ⁽¹⁾	Differences	
				Amount	Percent
80-812000	Personal and laundry services	1,381.3	1,373.2	8.1	.6
80-813000	Membership associations and organizations	2,928.0	2,962.2	-34.2	-1.2
90-000000	Government	22,348	22,288	60	.3
90-910000	Federal	2,734.0	2,719.0	15.0	.5
90-911000	Federal, except U.S. Postal Service	2,141.7	2,125.8	15.9	.7
90-919120	U.S. Postal Service	592.7	592.8	-.1	.0
90-920000	State government	5,250.0	5,239.0	11.0	.2
90-921611	State government education	2,582.1	2,600.7	-18.6	-.7
90-922000	State government, excluding education	2,667.9	2,638.2	29.7	1.1
90-930000	Local government	14,364.0	14,330.0	34.0	.2
90-931611	Local government education	8,164.3	8,133.7	30.6	.4
90-932000	Local government, excluding education	6,199.3	6,196.4	2.9	.0

Footnotes

⁽¹⁾ The CES estimates in this column contain reconstructions to series within the education and health services supersector. With the 2015 benchmark, CES reconstructed the national employment series for CES series 65-624120 services for the elderly and persons with disabilities back to January 2000. CES previously reconstructed this series with the 2013 benchmark; however, between the 2013 and 2015 benchmark, a better source of information for the employment within NAICS 62412 for the state of California was found. The inclusion of the reconstructed series resulted in total nonfarm and total private employment that was 27,000 less than the originally published March 2015 estimate level. The difference between the benchmarked and originally published March 2015 estimate level is -199,000 or -0.1 percent. This table displays March 2015 data after accounting for the decrease of 27,000 from the reconstructed series. Similarly, for the education and health services supersector, this table displays March 2015 data after incorporating the reconstructed series.

[To Table of Figures](#)

Revisions in the postbenchmark period

From April 2015 to December 2015, also known as the postbenchmark period, estimates were recalculated for each month based on new benchmark levels and new net birth/death factors. Net birth/death factors were revised to incorporate information from the most recent year of universe employment counts. [Table 3](#) shows the net birth/death model values for the supersectors over the postbenchmark period. From April 2015 to December 2015, the net birth/death model cumulatively added 928,000, compared with 852,000 in the previously published April 2015 to December 2015 employment estimates.

Table 3. Net birth/death estimates by industry supersector, April-December 2015 (in thousands)

CES Industry Code	CES Industry Title	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Cumulative Total
10-000000	Mining and logging	0	1	1	2	1	1	1	0	0	7
20-000000	Construction	33	40	23	11	12	7	11	-10	-19	108
30-000000	Manufacturing	-1	6	4	-3	4	2	2	4	2	20
40-000000	Trade, transportation, and utilities	4	25	9	3	18	8	28	8	5	108
41-420000	Wholesale trade	-4	5	-1	-3	4	0	7	3	2	13
42-000000	Retail trade	5	15	7	7	9	5	17	5	3	73
43-000000	Transportation and warehousing	3	5	3	-1	5	3	4	0	0	22
44-220000	Utilities	0	0	0	0	0	0	0	0	0	0
50-000000	Information	2	5	0	2	4	-3	6	4	0	20
55-000000	Financial activities	-1	6	1	2	5	-1	17	4	9	42
60-000000	Professional and business services	81	20	3	28	24	-16	78	7	-13	212
65-000000	Education and health services	19	15	-16	11	23	9	44	15	-4	116
70-000000	Leisure and hospitality	76	91	83	62	21	-37	-12	-20	4	268
80-000000	Other services	10	8	6	-3	3	-1	3	1	0	27
Total nonfarm birth/death adjustment		223	217	114	115	115	-31	178	13	-16	928

[To Table of Figures](#)

[Table 4](#) presents revised total nonfarm employment data on a seasonally adjusted basis for January 2015 through December 2015. The revised data for April 2015 forward incorporate the effect of applying the rate of change measured by the sample to the new benchmark level, as well as updated net birth/death model adjustments and new seasonal adjustment factors. Revisions to November and December also reflect incorporation of additional sample receipts.

Table 4. Differences in seasonally adjusted levels and over-the-month changes, total nonfarm employment, January - December 2015 (in thousands)

2015	Levels			Over-the-month Changes		
	As Previously Published	As Revised	Difference	As Previously Published	As Revised	Difference
January	140,793	140,623	-170	201	221	20
February	141,059	140,888	-171	266	265	-1
March	141,178	140,972	-206	119	84	-35
April	141,365	141,223	-142	187	251	64
May	141,625	141,496	-129	260	273	13
June	141,870	141,724	-146	245	228	-17
July	142,093	142,001	-92	223	277	54
August	142,246	142,151	-95	153	150	-3
September	142,391	142,300	-91	145	149	4
October	142,698	142,595	-103	307	295	-12
November	142,950	142,875	-75	252	280	28
December ^(p)	143,242	143,137	-105	292	262	-30

Footnotes

^(p) Preliminary

[To Table of Figures](#)

Changes to the CES published series

With the release of the January 2016 first preliminary estimates, CES incorporated series changes related to annual sample adequacy and disclosure review, and began publishing additional industry employment data with the first preliminary release of monthly estimates.

Series changes

All CES series are evaluated annually for sample size, coverage, and response rates. The following changes result from a re-evaluation of the sample and universe coverage for CES industries, which are based on North American Industry Classification System (NAICS) industries. Some small industries no longer have sufficient sample to be estimated and published separately and will be combined with other similar industries for estimation and publication purposes. The following information is also available at www.bls.gov/web/empsit/cesnewseries.htm.

A list of currently published CES series is available at www.bls.gov/web/empsit/cesseriespub.htm.

Some series have new CES industry codes or titles as a result of the series changes ([Exhibit 1](#)). These CES industry code or title changes have been applied to all data types published for the designated series. Historical data for those series with new CES industry codes or CES industry titles were impacted as noted on the remainder of this page; historical data are available under the new CES industry codes or CES industry titles.

Exhibit 1. Series with CES industry code or title changes

NAICS Code	Previous		New	
	CES Industry Code	CES Industry Title	CES Industry Code	CES Industry Title
3325,6	31-332600	Spring and wire products	31-332600	Hardware, spring, and wire products
334112,8	31-334118	Computer terminals and other computer peripheral equipment	31-334118	Computer storage devices, terminals, and other peripheral equipment
31522,4,8	32-315280	Women's and all other cut and sew apparel	32-315280	Cut and sew apparel, except contractors
62322	65-623220	Residential mental and substance abuse care	65-623220	Residential mental health and substance abuse facilities
62412	65-624120	Services for the elderly and disabled	65-624120	Services for the elderly and persons with disabilities
811112,3	80-811113	Automotive transmission repair	80-811113	Automotive exhaust system and transmission repair
81292,9	80-812990	All other personal services	80-812990	All other personal services, including photofinishing

[To Table of Figures](#)

[Exhibit 2](#) through [Exhibit 7](#) reference the new CES industry codes and titles, not the previous CES industry codes and titles, as noted in [Exhibit 1](#).

Only directly estimated data types¹ are included in the exhibits:

- Employment of All Employees (AE)
- AE Average Weekly Hours (AE AWH)
- AE Average Hourly Earnings (AE AHE)
- AE Average Weekly Overtime Hours (AE AWOH)
- Employment of Production and Nonsupervisory Employees (PE)
- PE Average Weekly Hours (PE AWH)
- PE Average Hourly Earnings (PE AHE)
- PE Average Weekly Overtime Hours (PE AWOH)
- Employment of Women Employees (WE)

¹ CES estimates data in two ways: directly and indirectly. Directly estimated data types refer to data types for which estimates are calculated directly from the responding sample. Indirectly estimated data types refer to data types for which estimates are calculated from other directly estimated data types. Average weekly earnings of all employees and indexes of aggregate weekly hours of all employees are examples of indirectly estimated data types. For more information on indirectly estimated data types, see the CES Technical Notes available at www.bls.gov/web/empsit/cestn.htm.

The directly estimated data types listed except for AE are collectively called non-AE data types. In order to more easily identify affected series, since AE series are published at a more detailed industry level than non-AE series, series changes are shown for [AE](#) and [non-AE](#) data types. The non-AE tables cover all directly estimated non-AE data types.

The first three exhibits reference the AE data type and the second three exhibits reference all non-AE data types. The three exhibits in each group display the discontinued, collapsed, and new series. Discontinued series exhibits ([Exhibit 2](#) and [Exhibit 5](#)) display series for which the data types noted are no longer published. Collapsed series exhibits ([Exhibit 3](#) and [Exhibit 6](#)) display series for which the data types noted are no longer published because the industry no longer has sufficient sample to be estimated and published separately. Affected industries have been combined with other similar industries for estimation and publication purposes. Historical data for these series were reconstructed to provide consistent time series. New series exhibits ([Exhibit 4](#) and [Exhibit 7](#)) display series for which the data types noted are now published.

AE exhibits

Exhibit 2. Discontinued AE series

NAICS Code	CES Industry Code	CES Industry Title	Next Highest Published Industry Title (CES Industry Code)
42432	41-424320	Men's and boys' clothing	Apparel and piece goods (41-424300)

[To Table of Figures](#)

Exhibit 3. Collapsed AE series

NAICS Code	CES Industry Code	CES Industry Title	Collapsed into CES Industry Title (CES Industry Code)
3325	31-332500	Hardware	Hardware, spring, and wire products (31-332600)
334112	31-334112	Computer storage devices	Computer storage devices, terminals, and other peripheral equipment (31-334118)
31522	32-315220	Men's and boys' cut and sew apparel	Cut and sew apparel, except contractors (32-315280)
811112	80-811112	Automotive exhaust system repair	Automotive exhaust system and transmission repair (80-811113)
81292	80-812920	Photofinishing	All other personal services, including photofinishing (80-812990)

[To Table of Figures](#)

Exhibit 4. New AE series

There are no new AE series published.

[To Table of Figures](#)

Non-AE exhibits

Exhibit 5. Discontinued Non-AE series

NAICS Code	CES Industry Code	CES Industry Title	Discontinued From Publication	Next Highest Published Industry Title (CES Industry Code)
21232	10-212320	Sand, gravel, clay, and refractory mining	WE	Nonmetallic mineral mining and quarrying (10-212300)
21239	10-212390	Other nonmetallic mineral mining	WE	Nonmetallic mineral mining and quarrying (10-212300)
3271	31-327100	Clay products and refractories	AE AWH, AE AHE	Nonmetallic mineral products (31-327000)
3272	31-327200	Glass and glass products	AE AWH, AE AHE	Nonmetallic mineral products (31-327000)
3322	31-332200	Cutlery and hand tools	AE AWH, AE AHE, WE	Fabricated metal products (31-332000)
332321	31-332321	Metal windows and doors	AE AWH, AE AHE	Ornamental and architectural metal products (31-332320)
332323	31-332323	Ornamental and architectural metal work	AE AWH, AE AHE	Ornamental and architectural metal products (31-332320)
336111	31-336111	Automobiles	AE AWH, AE AHE	Automobiles and light trucks (31-336110)
336112	31-336112	Light trucks and utility vehicles	AE AWH, AE AHE	Automobiles and light trucks (31-336110)
337215	31-337215	Showcases, partitions, shelving, and lockers	PE, PE AWH, PE AHE	Furniture and related products (31-337000)
3152	32-315200	Cut and sew apparel	AE AWH, AE AHE	Apparel (32-315000)
3151,9	32-315900	All other apparel manufacturing	AE AWH, AE AHE	Apparel (32-315000)
32612	32-326120	Plastics pipe, fittings, and profile shapes	AE AWH, AE AHE	Plastics products (32-326100)
32613,6	32-326160	Plastics bottles and laminated plastics plate, sheet, and shapes	AE AWH, AE AHE	Plastics products (32-326100)
44811	42-448110	Men's clothing stores	PE, PE AWH, PE AHE	Clothing stores (42-448100)
5172	50-517200	Wireless telecommunications carriers (except satellite)	PE, PE AWH, PE AHE	Telecommunications (50-517000)
5174,9	50-517900	Other telecommunications	PE, PE AWH, PE AHE	Telecommunications (50-517000)
52222	55-522220	Sales financing	PE, PE AWH, PE AHE	Nondepository credit intermediation (55-522200)

NAICS Code	CES Industry Code	CES Industry Title	Discontinued From Publication	Next Highest Published Industry Title (CES Industry Code)
54141	60-541410	Interior design services	PE, PE AWH, PE AHE	Specialized design services (60-541400)
56141	60-561410	Document preparation services	PE, PE AWH, PE AHE	Business support services (60-561400)
71321	70-713210	Casinos, except casino hotels	PE, PE AWH, PE AHE	Gambling industries (70-713200)
71329	70-713290	Other gambling industries	PE, PE AWH, PE AHE	Gambling industries (70-713200)

[To Table of Figures](#)

Exhibit 6. Collapsed Non-AE series

There are no collapsed non-AE series.

[To Table of Figures](#)

Exhibit 7. New Non-AE series

There are no new non AE series published.

[To Table of Figures](#)

Additional series published at first preliminary release of monthly estimates

Additional industry employment data are now published by the CES program with the first preliminary release of monthly estimates. Twenty-seven additional industries are now available in the [Employment Situation Table B-1](#) for both not seasonally adjusted and seasonally adjusted employment. [Exhibit 8](#) details the additional industries that are available:

Exhibit 8. Additional CES series available with first preliminary release

NAICS Code	CES Industry Code	CES Industry Title	CES Series ID	
			Not Seasonally Adjusted	Seasonally Adjusted
2122	10-212200	Metal ore mining	CEU1021220001	CES1021220001
2123	10-212300	Nonmetallic mineral mining and quarrying	CEU1021230001	CES1021230001
3343,6	31-334600	Miscellaneous computer and electronic products	CEU3133460001	CES3133460001
4412	42-441200	Other motor vehicle dealers	CEU4244120001	CES4244120001
4413	42-441300	Auto parts, accessories, and tire stores	CEU4244130001	CES4244130001
4529	42-452900	Other general merchandise stores	CEU4245290001	CES4245290001

NAICS Code	CES Industry Code	CES Industry Title	CES Series ID	
			Not Seasonally Adjusted	Seasonally Adjusted
5222	55-522200	Nondepository credit intermediation	CEU5552220001	CES5552220001
5223	55-522300	Activities related to credit intermediation	CEU5552230001	CES5552230001
5414	60-541400	Specialized design services	CEU6054140001	CES6054140001
5417	60-541700	Scientific research and development services	CEU6054170001	CES6054170001
5418	60-541800	Advertising and related services	CEU6054180001	CES6054180001
5419	60-541900	Other professional and technical services	CEU6054190001	CES6054190001
5611	60-561100	Office administrative services	CEU6056110001	CES6056110001
5612	60-561200	Facilities support services	CEU6056120001	CES6056120001
5615	60-561500	Travel arrangement and reservation services	CEU6056150001	CES6056150001
5616	60-561600	Investigation and security services	CEU6056160001	CES6056160001
5619	60-561900	Other support services	CEU6056190001	CES6056190001
6212	65-621200	Offices of dentists	CEU6562120001	CES6562120001
6213	65-621300	Offices of other health practitioners	CEU6562130001	CES6562130001
6215	65-621500	Medical and diagnostic laboratories	CEU6562150001	CES6562150001
6219	65-621900	Other ambulatory health care services	CEU6562190001	CES6562190001
6232	65-623200	Residential mental health facilities	CEU6562320001	CES6562320001
6233	65-623300	Community care facilities for the elderly	CEU6562330001	CES6562330001
6239	65-623900	Other residential care facilities	CEU6562390001	CES6562390001
6241	65-624100	Individual and family services	CEU6562410001	CES6562410001
6242	65-624200	Emergency and other relief services	CEU6562420001	CES6562420001
6243	65-624300	Vocational rehabilitation services	CEU6562430001	CES6562430001

[To Table of Figures](#)

Reconstructions

Three separate data reconstructions were performed as part of the 2015 CES benchmark. [Exhibit 9](#) outlines at the most detailed published levels, the CES series, data types, and timespans that were impacted by reconstructions of data.

Exhibit 9. CES detailed series involved in data reconstructions

CES Industry Code(s)	CES Industry Title(s)	Data Type(s) Involved	Timespan	Additional Information
65-624120	Services for the elderly and persons with disabilities	Employment of all employees (AE); employment of production and nonsupervisory employees (PE); and employment of women employees (WE)	January 2000 – March 2015	
65-000000; 80-813000	Education and health services; Membership associations and organizations	All hours and earnings data types related to AE	March 2006 – February 2009	These data were suppressed on November 24, 2015.
65-000000	Education and health services	Employment of PE; all hours and earnings data types for both AE and PE	March 2009 – February 2010	

[To Table of Figures](#)

Services for the elderly and persons with disabilities, January 2000 – March 2015

The CES series 65-624120 services for the elderly and persons with disabilities was previously reconstructed with the 2013 benchmark due a correction in the coding of UI records for several state programs that provide funding for services for the elderly and persons with disabilities. That reconstruction was developed based upon the best information available at the time for the programs. For more information, see the 2013 CES National Benchmark Article at www.bls.gov/ces/cesbmart13.pdf.

Since the initial reconstruction was completed, the state of California Labor Market Information (LMI) agency continued to work on analyzing the data for the In-Home Support Services (IHSS) program with the authorized payroll agent. The payroll agent had switched to a new payroll processing system, providing more accurate employment counts for the IHSS program. The prior system's primary focus was to ensure that wages were reported in the correct quarter, and did not focus on employment counts.

Further examination of the data from the IHSS program led the state of California LMI agency and BLS to the conclusion that further refinement to the services for the elderly and persons with disabilities employment series was appropriate.

This reconstruction resulted in revisions to the not seasonally adjusted data from January 2000 to March 2015. Seasonally adjusted data for this series and its aggregates were subject to revision back to January 1990.

Education and health services and membership associations and organizations, March 2006 – February 2009

On November 24, 2015, BLS suppressed all employee hours and earnings data for CES series 65-000000 education and health services and 80-813000 membership associations and organizations and their aggregates due to an error introduced during the 2009 CES benchmark. All employee (AE) hours and earnings data became official BLS series with the release of the 2009 CES benchmark. This meant that, for the first time, these previously experimental data were subjected to the same benchmarking procedures as the production and nonsupervisory employee (PE) hours and earnings data. During the 2009 CES benchmark, the AE hours and earnings data for the two series noted above for the time period of the experimental data series (March 2006 – February 2009) were not subjected to the same benchmarking procedures for that time period as their PE hours and earnings data counterparts; this also impacted the aggregates of the two noted series.

To correct for errors for the entire experimental time period (March 2006 – February 2009), BLS applied benchmarking procedures to the AE hours and earnings data for the two noted series consistent with the benchmarking procedures for PE hours and earnings data. For the summary levels of the two noted series, the AE hours and earnings data were then re-aggregated to account for the updated AE hours and earnings data.

This reconstruction resulted in revisions to the not seasonally adjusted data from March 2006 to February 2009. The seasonally adjusted data for these series were subject to revision back to March 2006, which is the start of the time series.

All industries and data types impacted by this reconstruction are listed in the exhibits below:

Exhibit 10. Industries involved in the CES data suppression

CES Industry Code	CES Industry Title
05-000000	Total private
08-000000	Private service-providing
65-000000	Education and health services
80-000000	Other services
80-813000	Membership associations and organizations

[To Table of Figures](#)

Exhibit 11. Data types involved in the CES data suppression

Data Type Code	Data Type Name
02	Average weekly hours of all employees
03	Average hourly earnings of all employees
11	Average weekly earnings of all employees
12	Average weekly earnings of all employees, 1982-1984 dollars
13	Average hourly earnings of all employees, 1982-1984 dollars
16	Indexes of aggregate weekly hours of all employees, 2007=100
17	Indexes of aggregate weekly payrolls of all employees, 2007=100
19	Average weekly hours of all employees, quarterly averages, seasonally adjusted
56	Aggregate weekly hours of all employees, thousands
57	Aggregate weekly payrolls of all employees, thousands

[To Table of Figures](#)

Education and health services, March 2009 – February 2010

While reviewing the error that resulted in the suppression of CES all employee (AE) hours and earnings data on November 24, 2015, BLS discovered additional errors in the employment of production and nonsupervisory employees (PE) and in the hours and earnings for both AE and PE for CES series 65-000000 education and health services. These errors spanned March 2009 to February 2010. These additional errors were also the result of inconsistently applied benchmarking procedures in this series during the 2009 CES benchmark.

To correct for these errors, BLS applied consistent benchmarking procedures to these series.

This reconstruction resulted in revisions to the not seasonally adjusted data from March 2009 to February 2010. Seasonally adjusted data for this series and its aggregates were subject to revision back to January 1990 for the employment of PE and PE hours and earnings data and back to March 2006 for the AE hours and earnings data.

All industries and data types impacted by this reconstruction are available in the exhibits below:

Exhibit 12. Industries involved in this CES reconstruction

CES Industry Code	CES Industry Title
05-00000	Total private
08-00000	Private service-providing
65-00000	Education and health services

[To Table of Figures](#)

Exhibit 13. Data types involved in this CES reconstruction

Data Type Code	Data Type Name
02	Average weekly hours of all employees
03	Average hourly earnings of all employees
06	Production and nonsupervisory employees, thousands
07	Average weekly hours of production and nonsupervisory employees
08	Average hourly earnings of production and nonsupervisory employees
11	Average weekly earnings of all employees
12	Average weekly earnings of all employees, 1982-1984 dollars
13	Average hourly earnings of all employees, 1982-1984 dollars
16	Indexes of aggregate weekly hours of all employees, 2007=100
17	Indexes of aggregate weekly payrolls of all employees, 2007=100
19	Average weekly hours of all employees, quarterly averages, seasonally adjusted
30	Average weekly earnings of production and nonsupervisory employees
31	Average weekly earnings of production and nonsupervisory employees, 1982-84 dollars
32	Average hourly earnings of production and nonsupervisory employees, 1982-84 dollars
34	Indexes of aggregate weekly hours of production and nonsupervisory employees, 2002=100
35	Indexes of aggregate weekly payrolls of production and nonsupervisory employees, 2002=100
36	Average weekly hours, production/nonsupervisory employees, quarterly averages, seasonally adjusted
56	Aggregate weekly hours of all employees, thousands
57	Aggregate weekly payrolls of all employees, thousands
81	Aggregate weekly hours of production and nonsupervisory employees, thousands
82	Aggregate weekly payrolls of production and nonsupervisory employees, thousands

[To Table of Figures](#)

Why benchmarks differ from estimates

A benchmark revision is the difference between the benchmark employment level for a given March and its corresponding sample-based estimate. The overall accuracy of the establishment survey is usually gauged by the size of this difference. The benchmark revision often is regarded as a proxy for total survey error, but this does not take into account error in the universe data or infrequent events such as historical reconstructions. The employment counts obtained from quarterly UI tax forms are administrative data that reflect employer record-keeping practices and differing state laws and procedures. The benchmark revision can be more precisely interpreted as the difference between two independently derived employment counts, each subject to its own error sources.

Like all sample surveys, the establishment survey is susceptible to two sources of error: sampling error and nonsampling error. Sampling error is present any time a sample is used to make inferences about a population. The magnitude of the sampling error, or variance, relates directly to sample size and the percentage of the universe covered by that sample. The CES monthly

survey captures slightly under one-third of the universe, exceptionally high by usual sampling standards. This coverage ensures a small sampling error at the total nonfarm employment level. More information on the reliability of CES estimates is available in the Reliability section of the CES Technical Notes at www.bls.gov/web/empsit/cestn.htm.

Both the universe counts and the establishment survey estimates are subject to nonsampling errors common to all surveys – measurement, response, and processing errors. The error structures for both the CES monthly survey and the UI universe are complex. Still, the two programs generally produce consistent total employment figures, each validating the other.

Benchmark revision effects for other data types

The routine benchmarking process results in revisions to the series for employment of production and nonsupervisory employees (PE) and employment of women employees (WE). There are no benchmark employment levels for these series; they are revised by preserving ratios of employment for the particular data type to employment of all employees (AE) prior to benchmarking, and then applying these ratios to the revised employment of all employees. These figures are calculated at the basic cell level and then aggregated to produce the summary estimates.

Average weekly hours, average hourly earnings, and in manufacturing industries, average weekly overtime hours are not benchmarked; they are estimated solely from reports supplied by survey respondents at the basic estimating cell level.

The aggregate industry levels of the hours and earnings series are derived as a weighted average. The employment of all employees estimates or the employment of production and nonsupervisory employees estimates for the basic cells essentially act as weights for their respective hours and earnings estimates for broader industry groupings. Adjustments of the employment of all employees estimates to new benchmarks may alter the weights used for both AE and PE hours and earnings, which, in turn, may change the estimates for both AE and PE hours and earnings at higher levels of aggregation.

Generally, new employment benchmarks have little effect on hours and earnings estimates for major industry groupings. To influence the hours and earnings estimates of a broader industry group, employment revisions have to be relatively large and must affect industries that have hours or earnings averages that are substantially different from those of other industries in their broader group. [Table 5](#) and [Table 6](#) provide information on the levels of specific hours and earnings series resulting from the March 2015 benchmark. At the total private level, there was no change in average weekly hours estimates for both AE and PE from the previously published level. Total private average hourly earnings increased by two cents for AE and PE from the previously published level.

Table 5. Effect of March 2015 benchmark revisions to AE AWH and AE AHE estimates, selected industries

CES Industry Code	CES Industry Title	Average Weekly Hours			Average Hourly Earnings		
		Estimated ⁽¹⁾	Revised	Difference	Estimated ⁽¹⁾	Revised	Difference
05-000000	Total private	34.7	34.7	0.0	\$25.03	\$25.05	\$0.02
06-000000	Goods-producing	40.3	40.3	.0	26.11	26.11	.00
08-000000	Private service-providing	33.6	33.6	.0	24.78	24.80	.02
10-000000	Mining and logging	44.0	44.0	.0	31.31	31.35	.04
20-000000	Construction	38.6	38.6	.0	27.30	27.31	.01
30-000000	Manufacturing	40.9	40.9	.0	25.16	25.16	.00
31-000000	Durable goods	41.3	41.3	.0	26.47	26.48	.01
31-321000	Wood products	39.8	39.8	.0	18.52	18.49	-.03
31-327000	Nonmetallic mineral products	40.9	40.9	.0	23.23	23.24	.01
31-331000	Primary metals	43.2	43.2	.0	25.06	25.08	.02
31-332000	Fabricated metal products	41.3	41.3	.0	22.61	22.62	.01
31-333000	Machinery	41.5	41.5	.0	27.17	27.17	.00
31-334000	Computer and electronic products	40.4	40.4	.0	34.05	34.05	.00
31-335000	Electrical equipment and appliances	40.5	40.5	.0	25.64	25.64	.00
31-336000	Transportation equipment	43.1	43.1	.0	29.91	29.94	.03
31-336001	Motor vehicles and parts	43.9	43.8	-.1	24.77	24.63	-.14
31-337000	Furniture and related products	39.3	39.3	.0	19.62	19.64	.02
31-339000	Miscellaneous durable goods manufacturing	39.4	39.4	.0	24.31	24.31	.00
32-000000	Nondurable goods	40.1	40.1	.0	22.81	22.81	.00
32-311000	Food manufacturing	39.8	39.8	.0	18.78	18.80	.02
32-313000	Textile mills	42.1	42.1	.0	18.24	18.24	.00
32-314000	Textile product mills	37.8	37.8	.0	15.82	15.83	.01
32-315000	Apparel	36.8	36.8	.0	16.88	16.87	-.01
32-322000	Paper and paper products	41.6	41.6	.0	25.39	25.38	-.01
32-323000	Printing and related support activities	37.6	37.6	.0	22.66	22.66	.00
32-324000	Petroleum and coal products	42.2	42.2	.0	38.95	39.05	.10
32-325000	Chemicals	42.0	42.0	.0	31.01	31.01	.00

CES Industry Code	CES Industry Title	Average Weekly Hours			Average Hourly Earnings		
		Estimated ⁽¹⁾	Revised	Difference	Estimated ⁽¹⁾	Revised	Difference
32-326000	Plastics and rubber products	41.4	41.4	.0	20.73	20.73	.00
32-329000	Miscellaneous nondurable goods manufacturing	35.8	35.8	.0	21.88	21.88	.00
40-000000	Trade, transportation, and utilities	34.7	34.7	.0	21.78	21.79	.01
41-420000	Wholesale trade	39.2	39.2	.0	28.55	28.55	.00
42-000000	Retail trade	31.4	31.4	.0	17.35	17.35	.00
43-000000	Transportation and warehousing	38.8	38.9	.1	22.91	23.01	.10
44-220000	Utilities	42.9	42.8	-.1	37.08	37.04	-.04
50-000000	Information	36.9	36.9	.0	34.89	35.08	.19
55-000000	Financial activities	38.1	38.1	.0	31.59	31.59	.00
60-000000	Professional and business services	36.5	36.5	.0	30.28	30.31	.03
65-000000	Education and health services	32.9	32.9	.0	25.08	25.13	.05
70-000000	Leisure and hospitality	26.5	26.5	.0	14.27	14.27	.00
80-000000	Other services	32.0	32.0	.0	22.45	22.57	.12

Footnotes

⁽¹⁾ The CES estimates in this column contain reconstructions to series within CES supersectors. With the 2015 benchmark, CES reconstructed the national employment series for CES series 65-624120 services for the elderly and persons with disabilities back to January 2000, which can impact education and health services. CES previously reconstructed this series with the 2013 benchmark; however, between the 2013 and 2015 benchmark, a better source of information for the employment within NAICS 62412 for the state of California was found. The inclusion of the reconstructed series resulted in total nonfarm and total private employment that was 27,000 less than the originally published March 2015 estimate level. The difference between the benchmarked and originally published March 2015 estimate level is -199,000 or -0.1 percent. These changes to the employment data can lead to changes in hours and earnings data at higher level industries. This table displays March 2015 data after accounting for the decrease of 27,000 from the reconstructed series. Similarly, for the education and health services supersector, this table displays March 2015 data after incorporating the reconstructed series.

[To Table of Figures](#)

Table 6. Effect of March 2015 benchmark revisions to PE AWH and PE AHE estimates, selected industries

CES Industry Code	CES Industry Title	Average Weekly Hours			Average Hourly Earnings		
		Estimated ⁽¹⁾	Revised	Difference	Estimated ⁽¹⁾	Revised	Difference
05-000000	Total private	33.8	33.8	0.0	\$21.00	\$21.02	\$0.02
06-000000	Goods-producing	41.0	41.0	.0	21.75	21.75	.00
08-000000	Private service-providing	32.6	32.6	.0	20.85	20.87	.02
10-000000	Mining and logging	46.0	45.9	-.1	26.60	26.59	-.01
20-000000	Construction	38.9	38.9	.0	25.02	25.02	.00
30-000000	Manufacturing	41.8	41.7	-.1	19.78	19.78	.00
31-000000	Durable goods	42.1	42.1	.0	20.86	20.86	.00
31-321000	Wood products	40.3	40.4	.1	15.85	15.84	-.01
31-327000	Nonmetallic mineral products	41.4	41.4	.0	19.46	19.50	.04
31-331000	Primary metals	43.4	43.4	.0	22.58	22.60	.02
31-332000	Fabricated metal products	42.4	42.4	.0	18.84	18.84	.00
31-333000	Machinery	41.9	41.9	.0	21.17	21.18	.01
31-334000	Computer and electronic products	40.9	40.9	.0	23.12	23.12	.00
31-335000	Electrical equipment and appliances	42.0	42.0	.0	18.71	18.71	.00
31-336000	Transportation equipment	44.1	44.1	.0	25.09	25.09	.00
31-336001	Motor vehicles and parts	44.7	44.7	.0	21.56	21.43	-.13
31-337000	Furniture and related products	39.8	39.8	.0	15.95	15.94	-.01
31-339000	Miscellaneous durable goods manufacturing	40.1	40.1	.0	17.45	17.45	.00
32-000000	Nondurable goods	41.2	41.2	.0	17.97	17.99	.02
32-311000	Food manufacturing	40.5	40.5	.0	15.69	15.70	.01
32-313000	Textile mills	43.1	43.1	.0	14.42	14.42	.00
32-314000	Textile product mills	37.0	37.0	.0	13.35	13.36	.01
32-315000	Apparel	38.1	38.1	.0	13.51	13.51	.00
32-322000	Paper and paper products	43.1	43.1	.0	21.12	21.10	-.02
32-323000	Printing and related support activities	39.8	39.8	.0	18.24	18.24	.00
32-324000	Petroleum and coal products	45.6	45.7	.1	37.21	37.31	.10
32-325000	Chemicals	42.9	42.9	.0	21.60	21.60	.00
32-326000	Plastics and rubber products	42.2	42.2	.0	16.75	16.74	-.01
32-329000	Miscellaneous nondurable goods manufacturing	38.3	38.3	.0	18.81	18.81	.00

CES Industry Code	CES Industry Title	Average Weekly Hours			Average Hourly Earnings		
		Estimated ⁽¹⁾	Revised	Difference	Estimated ⁽¹⁾	Revised	Difference
40-000000	Trade, transportation, and utilities	33.6	33.6	.0	18.66	18.67	.01
41-420000	Wholesale trade	38.9	38.9	.0	23.63	23.63	.00
42-000000	Retail trade	29.8	29.8	.0	14.67	14.69	.02
43-000000	Transportation and warehousing	38.6	38.7	.1	20.82	20.88	.06
44-220000	Utilities	42.7	42.7	.0	34.07	34.02	-.05
50-000000	Information	36.2	36.1	-.1	28.70	28.82	.12
55-000000	Financial activities	37.6	37.6	.0	25.35	25.36	.01
60-000000	Professional and business services	35.7	35.7	.0	24.91	24.95	.04
65-000000	Education and health services	32.1	32.1	.0	21.92	21.97	.05
70-000000	Leisure and hospitality	25.3	25.3	.0	12.38	12.38	.00
80-000000	Other services	30.8	30.8	.0	18.94	19.07	.13

Footnotes

⁽¹⁾ The CES estimates in this column contain reconstructions to series within CES supersectors. With the 2015 benchmark, CES reconstructed the national employment series for CES series 65-624120 services for the elderly and persons with disabilities back to January 2000, which can impact education and health services. CES previously reconstructed this series with the 2013 benchmark; however, between the 2013 and 2015 benchmark, a better source of information for the employment within NAICS 62412 for the state of California was found. The inclusion of the reconstructed series resulted in total nonfarm and total private employment that was 27,000 less than the originally published March 2015 estimate level. The difference between the benchmarked and originally published March 2015 estimate level is -199,000 or -0.1 percent. These changes to the employment data can lead to changes in hours and earnings data at higher level industries. This table displays March 2015 data after accounting for the decrease of 27,000 from the reconstructed series. Similarly, for the education and health services supersector, this table displays March 2015 data after incorporating the reconstructed series.

[To Table of Figures](#)

Methods

Benchmark sources and procedures

Establishment survey benchmarking is done on an annual basis to a population derived primarily from the administrative file of employees covered by UI. All employers covered by UI laws are required to report employment and wage information to the appropriate Labor Market Information (LMI) agency four times per year. Approximately 97 percent of total nonfarm employment within the scope of the establishment survey is covered by UI. A benchmark for the remaining 3 percent is constructed from alternate sources, primarily records from the Railroad Retirement Board (RRB), County Business Patterns (CBP), and Annual Survey of Public Employment and Payroll (ASPEP). This 3 percent is collectively referred to as noncovered employment. Noncovered employment data from these sources are available only on a lagged basis. More information on calculating noncovered employment in the CES program is available in the Benchmarks section of the CES Technical Notes at www.bls.gov/web/empsit/cestn.htm.

The time required to complete the benchmark revision process—from the full collection of the UI population data to publication of the revised industry estimates—is about ten months. The benchmark adjustment procedure replaces the March sample-based employment estimates with UI-based population counts for March. The benchmark therefore determines the final employment levels, while sample movements capture month-to-month trends.

On a not seasonally adjusted basis, the sample-based estimates for the year preceding and the nine months following the benchmark month (March) are also subject to revision; seasonally adjusted data are subject to revision back five years. Employment estimates for the months between the most recent March benchmark and the previous year's benchmark are adjusted using a linear "wedge-back" procedure, which assumes that the total estimation error accumulated at a steady rate since the last benchmark. For the nine months following the March benchmark (also referred to as the postbenchmark period), CES applies previously derived over-the-month sample changes to the revised March level to get the revised estimates (see [Revisions in the postbenchmark period](#)). New net birth/death model estimates also are calculated and applied during postbenchmark estimation. More information on benchmarks in the CES program is available in the Benchmarks section of the CES Technical Notes at www.bls.gov/web/empsit/cestn.htm.

Birth/Death

The CES sample alone is not sufficient for estimating the total nonfarm employment level because each month new firms generate employment that cannot be captured through the sample. There is an unavoidable lag between a firm opening for business and its appearance on the CES sample frame. The sample frame is built from Unemployment Insurance (UI) quarterly tax records. These records cover virtually all U.S. employers and include business births, but they only become available for updating the CES sampling frame 7 to 9 months after the reference month. After the births appear on the frame, there is also time required for sampling, contacting, and soliciting cooperation from the firm, and verifying the initial data provided. In practice, BLS cannot sample and begin to collect data from new firms until they are at least a year old.

BLS has researched both sample-based and model-based approaches to measuring birth units that have not yet appeared on the UI universe frame. The research demonstrated that sampling for births was not feasible in the very short CES production timeframes, so the Bureau utilizes a model-based approach for this component. This model incorporates two components, the first component is an indirect imputation for business deaths and the second component is an Autoregressive Integrated Moving Average (ARIMA) time series model designed to estimate the net birth/death employment not accounted for by the imputation from the first component. More information on the CES birth/death model is available in the Birth/Death Model section of the CES Technical Notes at www.bls.gov/web/empcit/cestn.htm.

Only error from the second component is directly measurable. Error from this component is measured by comparing the actual net of births and deaths with the model-based adjustment that was used in the CES sample-based estimates. Most recently, the data from April 2014 to March 2015 can be measured. As [Table 7](#) shows, the actual net birth/death for April 2014 to March 2015 was approximately 79,000 above the forecasted amount used in the CES monthly estimates for the same time period.

Table 7. Differences between forecasted and actual net birth/death, total private employment, April 2014-March 2015 (in thousands)

	2014									2015			Total
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
Actual Net Birth/Death	250	249	112	99	143	-37	204	8	-21	-202	125	46	976
Forecast Net Birth/Death	263	204	129	122	104	-19	164	16	-15	-275	132	72	897
Difference	-13	45	-17	-23	39	-18	40	-8	-6	73	-7	-26	79
Cumulative Difference	-13	32	15	-8	31	13	53	45	39	112	105	79	

[To Table of Figures](#)

Seasonal adjustment

Typically, five years' worth of seasonally adjusted data are revised with each CES annual benchmark. As with the not seasonally adjusted data, if additional seasonally adjusted revisions to the seasonal adjustment data are made with a benchmark, those revisions will be noted in previous sections of this article.

For technical information on how seasonal adjustment is performed in the CES program, refer to the Seasonal Adjustment section of the CES Technical Notes, available at www.bls.gov/web/empcit/cestn.htm.

For information on seasonal adjustment model specifications and special model adjustments, see the CES Seasonal Adjustment Files and Documentation page, available at www.bls.gov/web/empcit/cesseasadj.htm.

Availability of revised data

[LABSTAT](#), the BLS public database, contains all historical employment, hours, and earnings data revised as a result of this benchmark, including both not seasonally adjusted and seasonally adjusted data. The data can be accessed at www.bls.gov/ces, the CES homepage.

Previously published data are available on both a not seasonally adjusted and seasonally adjusted basis for all CES industries down to the 3-digit level from the CES Vintage Data page, available at www.bls.gov/web/empsit/cesvininfo.htm.

Table of figures

Tables

Table 1. Percent and level differences between nonfarm employment benchmarks and estimates by industry supersector, March 2005-2015 ⁽¹⁾	4
Table 2. Nonfarm employment benchmarks for industries released with first preliminary estimates, March 2015 (in thousands)	7
Table 3. Net birth/death estimates by industry supersector, April-December 2015 (in thousands).....	13
Table 4. Differences in seasonally adjusted levels and over-the-month changes, total nonfarm employment, January - December 2015 (in thousands).....	14
Table 5. Effect of March 2015 benchmark revisions to AE AWH and AE AHE estimates, selected industries.....	26
Table 6. Effect of March 2015 benchmark revisions to PE AWH and PE AHE estimates, selected industries.....	28
Table 7. Differences between forecasted and actual net birth/death, total private employment, April 2014-March 2015 (in thousands)	31

Exhibits

Exhibit 1. Series with CES industry code or title changes	16
Exhibit 2. Discontinued AE series	17
Exhibit 3. Collapsed AE series	17
Exhibit 4. New AE series.....	17
Exhibit 5. Discontinued Non-AE series.....	18
Exhibit 6. Collapsed Non-AE series	19
Exhibit 7. New Non-AE series.....	19
Exhibit 8. Additional CES series available with first preliminary release	19
Exhibit 9. CES detailed series involved in data reconstructions	21
Exhibit 10. Industries involved in the CES data suppression	22
Exhibit 11. Data types involved in the CES data suppression.....	23
Exhibit 12. Industries involved in this CES reconstruction.....	23
Exhibit 13. Data types involved in this CES reconstruction.....	24

Last Modified Date: April 1, 2016

Madison Lau and Kerrie Leslie, Economists
U.S. Bureau of Labor Statistics | Division of Current Employment Statistics – National
PSB Suite 4860, 2 Massachusetts Avenue, NE Washington, DC 20212-0001
www.bls.gov/CES | Telephone: 1-202-691-6555 | Email: [Contact CES](#)