

CES National Benchmark Article

BLS Establishment Survey National Estimates Revised to Incorporate March 2014 Benchmarks

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Introduction

With the release of January 2015 data on February 6, 2015, 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 2014 benchmark level for total nonfarm employment is 137,214,000; this figure is 67,000 above the sample-based estimate for March 2014, an adjustment of less than 0.05 percent. [Table 1](#) below shows the recent history of total nonfarm percentage 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 0.1 percent to 0.7 percent.

Table 1. Percent differences between nonfarm employment benchmarks and estimates by industry supersector, March 2004-2014⁽¹⁾

CES Industry Code	CES Industry Title	2004	2005	2006	2007	2008	2009	2010	2011 ⁽²⁾	2012	2013 ⁽³⁾	2014
00-000000	Total nonfarm	0.2	-0.1	0.6	-0.2	-0.1	-0.7	-0.3	0.1	0.3	-0.1	⁽⁴⁾
	(Level difference in thousands)	(203)	(-158)	(752)	(-293)	(-89)	(-902)	(-378)	(67)	(424)	(-119)	(67)
05-000000	Total private	.2	-.2	.7	-.2	-.1	-.9	-.4	⁽⁴⁾	.4	-.1	.1
10-000000	Mining and logging	.7	-.3	1.2	⁽⁴⁾	.4	-3.5	-3.0	-.4	1.6	-1.2	-1.8
20-000000	Construction	.6	.5	2.6	.1	.7	-2.9	-1.3	-.5	1.8	.3	1.6
30-000000	Manufacturing	-.4	-.3	-.1	-1.0	-.1	-.7	-1.0	.1	-.2	.2	.4
40-000000	Trade, transportation, and utilities	.2	.3	.6	.5	.2	-1.2	-.6	.4	.6	-.5	-.1
50-000000	Information	-1.0	-2.1	-.5	-1.8	.3	-1.5	-.4	-.4	1.8	-.2	2.4
55-000000	Financial activities	.1	-.8	.4	-1.3	-.3	-.1	.4	-.2	.6	-.1	.2
60-000000	Professional and business services	-.2	-.4	1.3	.2	-.4	-.8	⁽⁴⁾	.7	⁽⁴⁾	⁽⁴⁾	-.8
65-000000	Education and health services	.2	⁽⁴⁾	.5	-.2	-.1	-.3	⁽⁴⁾	-.6	⁽⁴⁾	-.3	-.1
70-000000	Leisure and hospitality	1.2	.4	.3	-.8	-1.1	-.6	-.6	.7	.8	.5	.3
80-000000	Other services	.5	-1.3	.5	.3	.2	-.8	.2	-2.0	1.1	-.4	1.1
90-000000	Government	.1	⁽⁴⁾	⁽⁴⁾	-.2	.2	.1	.1	.1	-.3	⁽⁴⁾	-.2

⁽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 in the amount of 95,000 was added to the total nonfarm benchmark 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. Portions of the 95,000 amount were also added as appropriate to the original published March 2011 estimates of supersectors financial activities and education and health services before calculating the percent differences.

⁽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 www.bls.gov/web/empsit/cestn.htm#section1), 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.

⁽⁴⁾ Less than 0.05 percent.

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[Table 2](#) shows the nonfarm employment benchmarks for March 2014, not seasonally adjusted, by industry. The revision to the reconstructed total nonfarm employment is 67,000.

Six supersectors had upward revisions. The largest upward revision occurred in construction by an amount of 90,000 or 1.6 percent. Within this supersector, the revision was concentrated in specialty trade contractors, which was revised upward by 92,700, or 2.5 percent. Information had an upward revision of 66,000, or 2.4 percent. Other services was revised upward by 59,000 or 1.1 percent. Manufacturing was revised upward by 43,000, or 0.4 percent, with the majority of the increase attributed to nondurable goods, which experienced an upward revision of 30,000, or 0.7 percent. Leisure and hospitality was also revised upward by 38,000, or 0.3 percent. The smallest upward revision of 19,000, or 0.2 percent occurred in financial activities.

The remaining five supersectors saw negative revisions. The largest downward revision occurred in professional and business services, which decreased by 147,000, or 0.8 percent. Within this supersector, the largest revision was in administrative and support services with a revision of -169,400, or -2.2 percent. The next largest negative revision occurred in government, which experienced a drop of -38,000, or -0.2 percent. Trade, transportation, and utilities was also revised downward by -31,000, or -0.1 percent, with a large decrease occurring in wholesale trade (-45,400, or -0.8 percent). Mining and logging and education and health services exhibited identical level decreases of -16,000 (-1.8 percent and -0.1 percent, respectively).

Table 2. Nonfarm employment benchmarks by industry, March 2014 (in thousands)

CES Industry Code	CES Industry Title	Benchmark	Estimate	Differences	
				Amount	Percent
00-000000	Total nonfarm	137,214	137,147	67	(1)
05-000000	Total private	114,989	114,884	105	0.1
06-000000	Goods-producing	18,675	18,558	117	0.6
07-000000	Service-providing	118,539	118,589	-50	(1)
08-000000	Private service-providing	96,314	96,326	-12	(1)
10-000000	Mining and logging	868	884	-16	-1.8
10-113300	Logging	50	52.8	-2.8	-5.6
10-210000	Mining	817.6	830.8	-13.2	-1.6
10-211000	Oil and gas extraction	192.7	206.2	-13.5	-7
10-212000	Mining, except oil and gas	201	205.8	-4.8	-2.4
10-212100	Coal mining	73.6	77.7	-4.1	-5.6
10-213000	Support activities for mining	423.9	418.8	5.1	1.2
20-000000	Construction	5,746	5,656	90	1.6
20-236000	Construction of buildings	1,283.4	1,286.2	-2.8	-0.2
20-236100	Residential building	615.2	621.7	-6.5	-1.1

CES Industry Code	CES Industry Title	Benchmark	Estimate	Differences	
				Amount	Percent
20-236200	Nonresidential building	668.2	664.5	3.7	0.6
20-237000	Heavy and civil engineering construction	823.9	823.8	0.1	(1)
20-238000	Specialty trade contractors	3,638.2	3,545.5	92.7	2.5
30-000000	Manufacturing	12,061	12,018	43	0.4
31-000000	Durable goods	7,600	7,587	13	0.2
31-321000	Wood products	361.9	358	3.9	1.1
31-327000	Nonmetallic mineral products	369.1	371.4	-2.3	-0.6
31-331000	Primary metals	396.3	396.6	-0.3	-0.1
31-332000	Fabricated metal products	1,438.5	1,440.2	-1.7	-0.1
31-333000	Machinery	1,116.1	1,115.2	0.9	0.1
31-334000	Computer and electronic products	1,048.3	1,055.7	-7.4	-0.7
31-334100	Computer and peripheral equipment	158.2	161.9	-3.7	-2.3
31-334200	Communications equipment	95.3	99.5	-4.2	-4.4
31-334400	Semiconductors and electronic components	368	368.6	-0.6	-0.2
31-334500	Electronic instruments	389.6	387.7	1.9	0.5
31-335000	Electrical equipment and appliances	375.3	374.8	0.5	0.1
31-336000	Transportation equipment	1,547.4	1,533.9	13.5	0.9
31-337000	Furniture and related products	366	362.5	3.5	1
31-339000	Miscellaneous durable goods manufacturing	581	578.4	2.6	0.4
32-000000	Nondurable goods	4,461	4,431	30	0.7
32-311000	Food manufacturing	1,460.8	1,458	2.8	0.2
32-313000	Textile mills	117.2	116.9	0.3	0.3
32-314000	Textile product mills	113.2	110.7	2.5	2.2
32-315000	Apparel	142.6	135.6	7	4.9
32-322000	Paper and paper products	372.1	374.5	-2.4	-0.6
32-323000	Printing and related support activities	452.7	440.7	12	2.7
32-324000	Petroleum and coal products	107.5	110.5	-3	-2.8

CES Industry Code	CES Industry Title	Benchmark	Estimate	Differences	
				Amount	Percent
32-325000	Chemicals	797.9	797.4	0.5	0.1
32-326000	Plastics and rubber products	668.6	659.2	9.4	1.4
32-329000	Miscellaneous nondurable goods manufacturing	228.3	227.6	0.7	0.3
40-000000	Trade, transportation, and utilities	25,852	25,883	-31	-0.1
41-420000	Wholesale trade	5,758.3	5,803.7	-45.4	-0.8
41-423000	Durable goods	2,883.8	2,917.2	-33.4	-1.2
41-424000	Nondurable goods	1,989	1,985.6	3.4	0.2
41-425000	Electronic markets and agents and brokers	885.5	900.9	-15.4	-1.7
42-000000	Retail trade	15,009.5	15,004	5.5	(U)
42-441000	Motor vehicle and parts dealers	1,826.3	1,822.9	3.4	0.2
42-441100	Automobile dealers	1,163.7	1,157.5	6.2	0.5
42-442000	Furniture and home furnishings stores	444	442.2	1.8	0.4
42-443000	Electronics and appliance stores	483.2	497.8	-14.6	-3
42-444000	Building material and garden supply stores	1,210.5	1,207.2	3.3	0.3
42-445000	Food and beverage stores	2,943.8	2,957.8	-14	-0.5
42-446000	Health and personal care stores	1,010.3	1,008.4	1.9	0.2
42-447000	Gasoline stations	863.4	859.7	3.7	0.4
42-448000	Clothing and clothing accessories stores	1,320.5	1,338.5	-18	-1.4
42-451000	Sporting goods, hobby, book, and music stores	591.9	574.6	17.3	2.9
42-452000	General merchandise stores	3,043.7	3,053.9	-10.2	-0.3
42-452100	Department stores	1,312.8	1,301.3	11.5	0.9
42-453000	Miscellaneous store retailers	791.3	774.1	17.2	2.2
42-454000	Nonstore retailers	480.6	466.9	13.7	2.9
43-000000	Transportation and warehousing	4,534.5	4,524.8	9.7	0.2
43-481000	Air transportation	440.2	455.2	-15	-3.4
43-482000	Rail transportation	230.3	232.7	-2.4	-1
43-483000	Water transportation	64.9	65.3	-0.4	-0.6

CES Industry Code	CES Industry Title	Benchmark	Estimate	Differences	
				Amount	Percent
43-484000	Truck transportation	1,374.3	1,367.7	6.6	0.5
43-485000	Transit and ground passenger transportation	476.9	468.3	8.6	1.8
43-486000	Pipeline transportation	46.5	45.1	1.4	3
43-487000	Scenic and sightseeing transportation	24.5	23.8	0.7	2.9
43-488000	Support activities for transportation	613.7	599.8	13.9	2.3
43-492000	Couriers and messengers	539.2	541	-1.8	-0.3
43-493000	Warehousing and storage	724	725.9	-1.9	-0.3
44-220000	Utilities	549.7	550.3	-0.6	-0.1
50-000000	Information	2,719	2,653	66	2.4
50-511000	Publishing industries, except Internet	723.7	726.5	-2.8	-0.4
50-512000	Motion picture and sound recording industries	380.1	313	67.1	17.7
50-515000	Broadcasting, except Internet	281.5	287.5	-6	-2.1
50-517000	Telecommunications	849.4	854.4	-5	-0.6
50-518000	Data processing, hosting and related services	274.4	267.8	6.6	2.4
50-519000	Other information services	209.6	203.3	6.3	3
55-000000	Financial activities	7,889	7,870	19	0.2
55-520000	Finance and insurance	5,894.9	5,868.9	26	0.4
55-521000	Monetary authorities - central bank	18.2	18	0.2	1.1
55-522000	Credit intermediation and related activities	2,562.8	2,571.1	-8.3	-0.3
55-522100	Depository credit intermediation	1,712.6	1,705	7.6	0.4
55-522110	Commercial banking	1,301.2	1,280.9	20.3	1.6
55-523000	Securities, commodity contracts, investments, and funds and trusts	874.2	870.5	3.7	0.4
55-524000	Insurance carriers and related activities	2,439.7	2,409.3	30.4	1.2

CES Industry Code	CES Industry Title	Benchmark	Estimate	Differences	
				Amount	Percent
55-530000	Real estate and rental and leasing	1,994.2	2,000.6	-6.4	-0.3
55-531000	Real estate	1,459.4	1,458.3	1.1	0.1
55-532000	Rental and leasing services	511.3	520.2	-8.9	-1.7
55-533000	Lessors of nonfinancial intangible assets	23.5	22.1	1.4	6
60-000000	Professional and business services	18,685	18,832	-147	-0.8
60-540000	Professional and technical services	8,310.3	8,326.6	-16.3	-0.2
60-541100	Legal services	1,118	1,134.4	-16.4	-1.5
60-541200	Accounting and bookkeeping services	1,058	1,052.3	5.7	0.5
60-541300	Architectural and engineering services	1,344.1	1,369.1	-25	-1.9
60-541500	Computer systems design and related services	1,742.1	1,728.6	13.5	0.8
60-541600	Management and technical consulting services	1,208.2	1,199.1	9.1	0.8
60-550000	Management of companies and enterprises	2,146.5	2,112.8	33.7	1.6
60-560000	Administrative and waste services	8,228	8,392.2	-164.2	-2
60-561000	Administrative and support services	7,852.1	8,021.5	-169.4	-2.2
60-561300	Employment services	3,251.7	3,427.2	-175.5	-5.4
60-561320	Temporary help services	2,626	2,741.2	-115.2	-4.4
60-561400	Business support services	873.8	858.5	15.3	1.8
60-561700	Services to buildings and dwellings	1,803.9	1,802.3	1.6	0.1
60-562000	Waste management and remediation services	375.9	370.7	5.2	1.4
65-000000	Education and health services	21,465	21,481	-16	-0.1
65-610000	Educational services	3,555.4	3,539.1	16.3	0.5

CES Industry Code	CES Industry Title	Benchmark	Estimate	Differences	
				Amount	Percent
65-620000	Health care and social assistance	17,909.8	17,941.4	-31.6	-0.2
65-621000	Ambulatory health care services	6,556.1	6,597.3	-41.2	-0.6
65-621100	Offices of physicians	2,448.7	2,473.9	-25.2	-1
65-621400	Outpatient care centers	698.5	705.9	-7.4	-1.1
65-621600	Home health care services	1,240	1,265.7	-25.7	-2.1
65-622000	Hospitals	4,767.3	4,792.7	-25.4	-0.5
65-623000	Nursing and residential care facilities	3,239.6	3,234.9	4.7	0.1
65-623100	Nursing care facilities	1,644.3	1,644.1	0.2	(1)
65-624000	Social assistance	3,346.8	3,316.5	30.3	0.9
65-624400	Child day care services	866.4	876.1	-9.7	-1.1
70-000000	Leisure and hospitality	14,181	14,143	38	0.3
70-710000	Arts, entertainment, and recreation	1,927.5	1,939.7	-12.2	-0.6
70-711000	Performing arts and spectator sports	421	420.9	0.1	(1)
70-712000	Museums, historical sites, and similar institutions	138	134.5	3.5	2.5
70-713000	Amusements, gambling, and recreation	1,368.5	1,384.3	-15.8	-1.2
70-720000	Accommodation and food services	12,253.4	12,203.2	50.2	0.4
70-721000	Accommodation	1,819.2	1,805.9	13.3	0.7
70-722000	Food services and drinking places	10,434.2	10,397.3	36.9	0.4
80-000000	Other services	5,523	5,464	59	1.1
80-811000	Repair and maintenance	1,232.3	1,209	23.3	1.9
80-812000	Personal and laundry services	1,351.9	1,351.7	0.2	(1)
80-813000	Membership associations and organizations	2,938.6	2,903.4	35.2	1.2
90-000000	Government	22,225	22,263	-38	-0.2
90-910000	Federal	2,716	2,705	11	0.4
90-911000	Federal, except U.S. Postal Service	2,127.5	2,117.6	9.9	0.5
90-919120	U.S. Postal Service	588.2	587.1	1.1	0.2

CES Industry Code	CES Industry Title	Benchmark	Estimate	Differences	
				Amount	Percent
90-920000	State government	5,211	5,217	-6	-0.1
90-921611	State government education	2,565.4	2,565.2	0.2	(1)
90-922000	State government, excluding education	2,645.1	2,651.8	-6.7	-0.3
90-930000	Local government	14,298	14,341	-43	-0.3
90-931611	Local government education	8,129	8,147.8	-18.8	-0.2
90-932000	Local government, excluding education	6,169.3	6,193.1	-23.8	-0.4

⁽¹⁾ Less than 0.05 percent.

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Revisions in the postbenchmark period

From April 2014 to December 2014, also known as the postbenchmark period, estimates were calculated 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 2014 to December 2014, the net birth/death model cumulatively added 968,000, compared with 841,000 in the previously published April to December employment estimates.

Table 3. Net birth/death estimates by industry supersector, April – December 2014 (in thousands)

CES Industry Code	CES Industry Title	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Cumulative Total
10-000000	Mining and logging	2	2	2	2	1	1	1	1	0	12
20-000000	Construction	35	37	24	12	12	7	12	-10	-21	108
30-000000	Manufacturing	0	6	4	-3	4	1	3	2	0	17
40-000000	Trade, transportation, and utilities	21	24	12	7	14	9	28	10	4	129
50-000000	Information	0	5	0	-1	3	-1	6	3	0	15
55-000000	Financial activities	8	8	4	3	4	-1	16	3	10	55
60-000000	Professional and business services	81	22	5	35	19	-12	76	14	-10	230
65-000000	Education and health services	22	13	-14	7	21	12	35	14	-3	107
70-000000	Leisure and hospitality	82	81	86	62	23	-33	-17	-22	4	266
80-000000	Other services	12	6	6	-2	3	-2	4	1	1	29
Total nonfarm birth/death adjustment		263	204	129	122	104	-19	164	16	-15	968

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[Table 4](#) presents revised total nonfarm employment data on a seasonally adjusted basis for January 2014 through December 2014. The revised data for April 2014 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.

Table 4. Differences in seasonally adjusted levels and over-the-month changes, total nonfarm employment, January - December 2014 (in thousands)

2014	Levels			Over-the-month changes		
	As Previously Published	As Revised	Difference	As Previously Published	As Revised	Difference
January	137,539	137,642	103	144	166	22
February	137,761	137,830	69	222	188	-34
March	137,964	138,055	91	203	225	22
April	138,268	138,385	117	304	330	26
May	138,497	138,621	124	229	236	7
June	138,764	138,907	143	267	286	19
July	139,007	139,156	149	243	249	6
August	139,210	139,369	159	203	213	10
September	139,481	139,619	138	271	250	-21
October	139,742	139,840	98	261	221	-40
November	140,095	140,263	168	353	423	70
December ^(p)	140,347	140,592	245	252	329	77

^(p)Preliminary.

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Changes to the CES published series

With the release of the January 2015 first preliminary estimates, CES incorporated series changes related to annual sample adequacy and disclosure review, and began publishing previously available but not published seasonally adjusted derivative series.

Series changes

All CES series are evaluated annually for sample size, coverage, and response rates. The following series changes result from a reevaluation of the sample and universe coverage for NAICS industries.

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 section; 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		CES Industry Code	New CES Industry Title
	CES Industry Code	CES Industry Title		
332996,9	31-332999	Miscellaneous fabricated metal products	31-332999	Miscellaneous fabricated metal products and ball and roller bearings
3346	31-334600	Miscellaneous media manufacturing and reproduction	31-334600	Miscellaneous computer and electronic products

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[Exhibit 2](#) through [Exhibit 7](#) show 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:

- All Employees (AE)
- AE Average Weekly Hours (AE AWH)
- Production Employees (PE)
- PE Average Weekly Hours (PE AWH)

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 at www.bls.gov/web/empsit/cestn.htm.

- AE average hourly earnings (AE AHE)
- AE Average Weekly Overtime Hours (AE AWOH)
- Women Employees (WE)
- PE average hourly earnings (PE AHE)
- PE Average Weekly Overtime Hours (PE AWOH)

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 exhibits are split by AE and non-AE data types. The non-AE tables cover all directly estimated non-AE data types.

The first group of series changes exhibits contains three exhibits referencing the AE data type and the second group contains three exhibits referencing 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

There are no discontinued AE series.

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Exhibit 3. Collapsed AE series

NAICS Code	CES Industry Code	CES Industry Title	Collapsed into CES Industry
332991	31-332991	Ball and roller bearings	Collapsed into miscellaneous fabricated metal products and ball and roller bearings (31-332999)
3343	31-334300	Audio and video equipment	Collapsed into miscellaneous computer and electronic products (31-334600)
45393	42-453930	Manufactured and mobile home dealers	Collapsed into all other miscellaneous store retailers (42-453990)

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Exhibit 4. New AE series

There are no new AE series published.

Non-AE exhibits

Exhibit 5. Discontinued Non-AE series

NAICS Code	CES Industry Code	CES Industry Title	Discontinued From Publication	Next Highest Published Industry⁽²⁾
236116	20-236116	New multifamily general contractors	AE AHE, AE AWH	Residential building (20-236100)
236117	20-236117	New housing operative builders	AE AHE, AE AWH	Residential building (20-236100)
3311	31-331100	Iron and steel mills and ferroalloy production	WE	Primary metals (31-331000)
3313	31-331300	Alumina and aluminum production	WE	Primary metals (31-331000)
33151	31-331510	Ferrous metal foundries	AE AHE, AE AWH, AE AWOH	Foundries (31-331500)
33152	31-331520	Nonferrous metal foundries	AE AHE, AE AWH, AE AWOH	Foundries (31-331500)
332321	31-332321	Metal windows and doors	AE AWOH	Ornamental and architectural metal products (31-332320)
332323	31-332323	Ornamental and architectural metal work	AE AWOH	Ornamental and architectural metal products (31-332320)
332999	31-332999	Miscellaneous fabricated metal products	AE AHE, AE AWH, AE AWOH, PE, PE AHE, PE AWH, PE AWOH, WE	All other fabricated metal products (31-332990)
333517	31-333517	Machine tool manufacturing	AE AHE, AE AWH, AE AWOH, PE, PE AHE, PE AWH, PE AWOH	Metalworking machinery (31-333500)
337122	31-337122	Nonupholstered wood household furniture	AE AHE, AE AWH, AE AWOH, PE, PE AHE, PE AWH, WE	Other household and institutional furniture (31-337120)
337124,5,7	31-337127	Miscellaneous household and institutional furniture	AE AHE, AE AWH, AE AWOH, PE, PE AHE, PE AWH, WE	Other household and institutional furniture (31-337120)

NAICS Code	CES Industry Code	CES Industry Title	Discontinued From Publication	Next Highest Published Industry ⁽²⁾
311611	32-311611	Animal, except poultry, slaughtering	AE AWOH	Animal slaughtering and processing (32-311600)
311612,3	32-311613	Meat processed from carcasses, and rendering and meat byproduct processing	AE AWOH	Animal slaughtering and processing (32-311600)
45399	42-453990	All other miscellaneous store retailers	AE AHE, AE AWH, PE, PE AHE, PE AWH, WE	Other miscellaneous store retailers (42-453900)
54186	60-541860	Direct mail advertising	PE, PE AHE, PE AWH	Advertising and related services (60-541800)

⁽²⁾ The industry listed is the next highest published industry for all data types discontinued from publication.

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Exhibit 6. Collapsed Non-AE series

There are no collapsed non-AE series.

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Exhibit 7. New Non-AE series

There are no new non-AE series published.

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Seasonally adjusted data publication change

Seasonally adjusted estimates for the indirectly estimated data types associated with series not available until the second preliminary release are now available with the second preliminary release. This change in publication status does not impact the seasonally adjusted series published for a given month with the first preliminary release of CES data. Approximately 8,300 more seasonally adjusted derivative series will be published.

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.

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 production and nonsupervisory employees and women employees. There are no benchmark employment levels for these series; they are revised by preserving ratios of employment for the particular data type to all employee employment prior to benchmarking, and then applying these ratios to the revised all employee figures. 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 all employee employment estimates or the production and nonsupervisory employee employment estimates for the basic cells essentially act as weights for their respective hours and earnings estimates for broader industry groupings. Adjustments of the all employee 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 2014 benchmark. Total private average hourly earnings increased by two cents for AE and PE from the previously published level.

Table 5. Effect of March 2014 benchmark revisions to AE AWH and AE AHE estimates, selected industries

CES Industry Code	CES Industry Title	Average Weekly Hours			Average Hourly Earnings		
		Estimated	Revised	Difference	Estimated	Revised	Difference
05-000000	Total private	34.7	34.7	0	\$24.48	\$24.50	\$0.02
06-000000	Goods-producing	40.5	40.5	0	25.64	25.62	-.02
08-000000	Private service-providing	33.6	33.6	0	24.21	24.23	.02
10-000000	Mining and logging	45	45.1	.1	31.13	31.04	-.09
20-000000	Construction	38.7	38.6	-.1	26.55	26.53	-.02
30-000000	Manufacturing	41	41	0	24.80	24.79	-.01
31-000000	Durable goods	41.5	41.5	0	26.17	26.18	.01
31-321000	Wood products	41	41	0	18.20	18.17	-.03
31-327000	Nonmetallic mineral products	41.7	41.7	0	22.63	22.63	0
31-331000	Primary metals	43.6	43.6	0	24.92	24.94	.02
31-332000	Fabricated metal products	41.6	41.6	0	22.20	22.20	0
31-333000	Machinery	41.8	41.8	0	26.94	26.95	.01
31-334000	Computer and electronic products	40.2	40.2	0	33.73	33.73	0
31-335000	Electrical equipment and appliances	40.6	40.6	0	25.05	25.05	0
31-336000	Transportation equipment	43.1	43.1	0	29.85	29.94	.09
31-336001	Motor vehicles and parts	43.4	43.5	.1	24.40	24.50	.10
31-337000	Furniture and related products	39.9	39.9	0	19.43	19.46	.03
31-339000	Miscellaneous durable goods manufacturing	39.3	39.3	0	23.71	23.71	0
32-000000	Nondurable goods	40.3	40.2	-.1	22.38	22.34	-.04

CES Industry Code	CES Industry Title	Average Weekly Hours			Average Hourly Earnings		
		Estimated	Revised	Difference	Estimated	Revised	Difference
32-311000	Food manufacturing	39.8	39.8	0	18.46	18.47	.01
32-313000	Textile mills	41.4	41.4	0	17.53	17.53	0
32-314000	Textile product mills	37.8	37.8	0	16.14	16.13	-.01
32-315000	Apparel	37.2	37.3	.1	17.15	17.17	.02
32-322000	Paper and paper products	42.4	42.4	0	24.58	24.60	.02
32-323000	Printing and related support activities	37.5	37.5	0	22.65	22.65	0
32-324000	Petroleum and coal products	43.6	43.4	-.2	38.09	37.58	-.51
32-325000	Chemicals	41.8	41.8	0	29.83	29.83	0
32-326000	Plastics and rubber products	41.3	41.3	0	20.53	20.52	-.01
32-329000	Miscellaneous nondurable goods manufacturing	37.4	37.4	0	21.32	21.32	0
40-000000	Trade, transportation, and utilities	34.6	34.6	0	21.45	21.44	-.01
41-420000	Wholesale trade	39.3	39.3	0	28.18	28.17	-.01
42-000000	Retail trade	31.3	31.3	0	16.94	16.95	.01
43-000000	Transportation and warehousing	38.6	38.6	0	22.88	22.90	.02
44-220000	Utilities	42.3	42.3	0	35.72	35.72	0
50-000000	Information	37.5	37.4	-.1	34.05	34.08	.03
55-000000	Financial activities	37.8	37.8	0	30.87	30.87	0
60-000000	Professional and business services	36.6	36.7	.1	29.39	29.49	.10
65-000000	Education and health services	32.8	32.8	0	24.57	24.59	.02
70-000000	Leisure and hospitality	26.5	26.5	0	13.78	13.79	.01

CES Industry Code	CES Industry Title	Average Weekly Hours			Average Hourly Earnings		
		Estimated	Revised	Difference	Estimated	Revised	Difference
80-000000	Other services	32	32.1	.1	21.87	21.96	.09

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Table 6. Effect of March 2014 benchmark revisions to PE AWH and PE AHE estimates, selected industries

CES Industry Code	CES Industry Title	Average Weekly Hours			Average Hourly Earnings		
		Estimated	Revised	Difference	Estimated	Revised	Difference
05-000000	Total private	33.8	33.8	0	\$20.59	\$20.61	\$0.02
06-000000	Goods-producing	41.3	41.3	0	21.42	21.42	0
08-000000	Private service-providing	32.6	32.6	0	20.42	20.44	.02
10-000000	Mining and logging	47.6	47.6	0	26.79	26.75	-.04
20-000000	Construction	39.2	39.2	0	24.43	24.43	0
30-000000	Manufacturing	41.9	41.9	0	19.54	19.53	-.01
31-000000	Durable goods	42.4	42.4	0	20.63	20.65	.02
31-321000	Wood products	41.8	41.8	0	15.56	15.53	-.03
31-327000	Nonmetallic mineral products	42.5	42.5	0	18.63	18.64	.01
31-331000	Primary metals	44.1	44.2	.1	22.06	22.07	.01
31-332000	Fabricated metal products	42.5	42.5	0	18.63	18.63	0
31-333000	Machinery	43.2	43.3	.1	20.95	20.96	.01
31-334000	Computer and electronic products	40.8	40.8	0	23.57	23.57	0
31-335000	Electrical equipment and appliances	41.3	41.3	0	18.10	18.10	0
31-336000	Transportation equipment	43.7	43.7	0	24.91	24.98	.07

CES Industry Code	CES Industry Title	Average Weekly Hours			Average Hourly Earnings		
		Estimated	Revised	Difference	Estimated	Revised	Difference
31-336001	Motor vehicles and parts	43.9	43.9	0	21.44	21.51	.07
31-337000	Furniture and related products	40.8	40.8	0	15.63	15.63	0
31-339000	Miscellaneous durable goods manufacturing	40	40	0	17.47	17.47	0
32-000000	Nondurable goods	41.2	41.2	0	17.72	17.68	-.04
32-311000	Food manufacturing	40.3	40.3	0	15.50	15.50	0
32-313000	Textile mills	41.7	41.7	0	14.09	14.09	0
32-314000	Textile product mills	37.5	37.5	0	13.25	13.25	0
32-315000	Apparel	39.1	39.2	.1	13.34	13.34	0
32-322000	Paper and paper products	43.7	43.7	0	20.16	20.18	.02
32-323000	Printing and related support activities	39	39	0	18.02	18.02	0
32-324000	Petroleum and coal products	45.9	45.7	-.2	36.37	35.70	-.67
32-325000	Chemicals	43	43	0	21.47	21.47	0
32-326000	Plastics and rubber products	41.9	41.9	0	16.36	16.36	0
32-329000	Miscellaneous nondurable goods manufacturing	40.3	40.3	0	18.72	18.72	0
40-000000	Trade, transportation, and utilities	33.6	33.6	0	18.26	18.26	0
41-420000	Wholesale trade	39	39	0	23.22	23.21	-.01
42-000000	Retail trade	29.8	29.8	0	14.34	14.35	.01
43-000000	Transportation and warehousing	38.3	38.4	.1	20.40	20.44	.04
44-220000	Utilities	42	42	0	32.84	32.84	0

CES Industry Code	CES Industry Title	Average Weekly Hours			Average Hourly Earnings		
		Estimated	Revised	Difference	Estimated	Revised	Difference
50-000000	Information	36.4	36.2	-.2	28.84	28.83	-.01
55-000000	Financial activities	37.3	37.3	0	24.78	24.77	-.01
60-000000	Professional and business services	35.8	35.8	0	24.47	24.55	.08
65-000000	Education and health services	32.1	32	-.1	21.49	21.51	.02
70-000000	Leisure and hospitality	25.5	25.5	0	11.99	11.99	0
80-000000	Other services	31	31	0	18.40	18.50	.10

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Vintage data

Due to user interest in versions of CES estimates from original to current publication, CES compiled vintage data tables that display the CES published employment values for a given reference month across time. CES vintage data can be found at www.bls.gov/ces/cesvininfo.htm.

Three-month moving average

Effective with the release of January 2015 data, the establishment survey will introduce two new data series: total nonfarm employment, 3-month average change and total private employment, 3-month average change. Both series are seasonally adjusted.

Methods

Benchmark adjustment procedure

Establishment survey benchmarking is done on an annual basis to a population derived primarily from the administrative file of employees covered by UI. The time required to complete the 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.

Benchmarks are established for each basic estimating cell and are aggregated to develop published levels. On a not seasonally adjusted basis, the sample-based estimates for the year preceding and the nine months following the benchmark also are then subject to revision. Employment estimates for the months between the most recent March benchmark and the previous year's benchmark are adjusted using a "wedge-back" procedure. In this process, the difference between the benchmark level and the previously published March estimate for each estimating cell is computed. This difference, or error, is linearly distributed across the 11 months of estimates subsequent to the previous benchmark; eleven-twelfths of the March difference is added to February estimates, ten-twelfths to January estimates, and so on, ending with the previous April estimates, which receive one-twelfth of the March difference. The wedge procedure assumes that the total estimation error accumulated at a steady rate since the last benchmark. Applying previously derived over-the-month sample changes to the revised March level yields revised estimates for the nine months following the March benchmark (also referred to as the post benchmark period, see [Revisions in the post benchmark period](#)). New net birth/death model estimates also are calculated and applied during post benchmark estimation.

Benchmark source material

The principal source of benchmark data for private industries is the Quarterly Census of Employment and Wages (QCEW). The QCEW scope is defined by employment data provided to state employment security agencies by employers covered by state UI laws. BLS uses several other sources to establish benchmarks for the industries partially covered or exempt from mandatory UI coverage, accounting for nearly 3 percent of the nonfarm employment total.

Data on employees covered under Social Security laws, published by the U.S. Census Bureau in [County Business Patterns](#), are used to augment UI data for industries not fully covered by the UI scope, such as Non-office insurance sales workers, child daycare workers, Religious organizations, and Private schools and hospitals. Noncovered employment for state and local government hospitals and educational institutions is based on the Annual Survey of Public Employment and Payroll (ASPEP) conducted by the Census Bureau. Noncovered employment data from these sources are available only on a lagged basis. Extrapolation to a current level is accomplished by applying the employment trends from the UI-covered part of the population in these industries to the noncovered part. Universe data for interstate railroads are obtained from the Railroad Retirement Board. More information on calculating noncovered employment in the CES program is available in the CES Technical Notes at www.bls.gov/web/empsit/cestn.htm#NCE.

Business birth and death estimation

Regular updating of the CES sample frame with information from the UI universe files helps to keep the CES survey current with respect to employment from business births and deaths. However, the timeliest UI universe files available will always be a minimum of six to seven months out of date. The CES survey thus cannot rely on regular frame maintenance alone to provide estimates for business birth and death employment contributions. BLS has researched both sample-based and model-based approaches to measuring birth units that have not yet appeared on the UI universe frame. Since the research demonstrated that sampling for births was not feasible in the very short CES production timeframes, the Bureau is utilizing a model-based approach for this component.

Earlier research indicated that while both the business birth and death portions of total employment are generally significant, the net contribution is relatively small. To account for this net birth/death portion of total employment, BLS is utilizing an estimation procedure with two components. The first component excludes employment losses from business deaths from sample-based estimation in order to offset the missing employment gains from business births. This is incorporated into the sample-based link relative estimate procedure by simply not reflecting sample units going out of business, but imputing to them the same trend as the other firms in the sample. 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. The historical time series used to create and test the ARIMA model was derived from the UI universe micro level database, and reflects the actual net of births and deaths over the past five years. The net birth/death model component figures are unique to each month and include negative adjustments in some months. Furthermore, these figures exhibit a seasonal pattern similar to the seasonal patterns of the continuing businesses.

Only error from the second component is directly measurable. Error from this component is measured by comparing the actual net of births and deaths from March 2013-14 — once it becomes available — with the model-based estimate. As [Table 7](#) shows, the actual net birth/death for April 2013 to March 2014 was approximately 202,000 above the forecasted amount used in the CES monthly estimates for the time period.

Table 7. Differences between forecasted and actual net birth/death, total private employment, April 2013 – March 2014 (in thousands)

Benchmark 2014	2013												Total
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
Actual Net Birth/Death	277	201	129	143	127	-19	164	22	-26	-252	141	64	971
Forecast Net Birth/Death	236	210	140	86	99	-30	159	-11	-12	-307	124	75	769
Difference	41	-9	-11	57	28	11	5	33	-14	55	17	-11	202
Cumulative Difference	41	32	21	78	106	117	122	155	141	196	213	202	

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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. Some data published on previous dates can be accessed through the CES Vintage data webpage at www.bls.gov/ces/vininfo/.

Seasonal adjustment procedure

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/empsit/cestn.htm#section5e. For more information on seasonal adjustment model specifications and special model adjustments, please see the Seasonal Adjustment Model Specification List section of the CES Seasonal Adjustment Files and Documentation page, available at www.bls.gov/web/empsit/cesseasadj.htm#samodel.

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