

Benchmark Article

BLS Establishment Estimates Revised to Incorporate March 2008 Benchmarks

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Introduction

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With the release of data for January 2009, 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 2008 benchmark level for total nonfarm employment is 136,944,000; this figure is 89,000 below the sample-based estimate for March 2008, an adjustment of -0.1 percent. [Table 1](#) shows the total nonfarm percentage benchmark revisions for the past ten years.

[Table 2](#) shows the nonfarm employment benchmarks for March 2008, not seasonally adjusted, by industry. As is usually the case, benchmark revisions at many industry levels were larger in percentage terms than at total nonfarm, but were offsetting. Five supersectors had downward revisions. The largest downward revision occurred in leisure and hospitality with a revision of -151,000, or -1.1 percent. The revision is concentrated in limited-service restaurants, revised by -94,100 or -2.7 percent, full-service restaurants, revised by -48,100 or -1.1 percent, and drinking places, alcoholic beverages, revised by -16,100 or -4.6 percent.

Professional and business services was revised -63,000, or -0.4 percent, while financial activities was revised -23,000, or -0.3 percent. Within professional and business services, temporary help services was revised downwards by 24,800, or 1.0 percent. Within financial activities, mortgage and nonmortgage loan brokers revised downwards by 23,200, or 26.3 percent.

Manufacturing and education and health services each had a revision of -17,000, or -0.1 percent. Most of the revision in manufacturing was driven by heavy duty trucks, which was revised down by 10,400, or 34.6 percent. Within education and health services, offices of dentists was the largest downward revision of 15,400, or 1.9 percent.

Six supersectors had upward revisions. Trade, transportation, and utilities was revised upward by 65,000, or 0.2 percent. Within the supersector, retail trade dominated with a revision of 92,800, or 0.6 percent. Also contributing was an upward revision in transportation and warehousing of 15,000, or 0.3 percent, while wholesale trade was revised downwards by 43,100, or 0.7 percent. Other significant upward revisions occurred in construction (49,000 or 0.7 percent) and government (48,000 or 0.2 percent). The other supersectors with upward revisions were other services (revised up 9,000 or 0.2 percent), information (8,000 or 0.3 percent), and mining and logging (3,000 or 0.4 percent).

Revisions in the post-benchmark period

Post-benchmark period estimates from April 2008 to December 2008 were calculated for each month based on new benchmark levels. Also, beginning in April, model-based estimates for the net of birth/death employment were revised to incorporate information from the most recent year of universe employment counts. [Text table A](#) shows the net birth/death model figures for the supersectors over the post-benchmark period. From April 2008 to December 2008, the cumulative net birth/death model added 825,000, compared with 1,005,000 in the previously published April to December estimates.

Text table A. Net Birth/Death Estimates, Post-Benchmark 2008

	Mining & Logging	Construction	Manufacturing	Trade, Transportation, & Utilities	Information	Financial Activities	Professional & Business Services	Education & Health Services	Leisure & Hospitality	Other Services	Monthly Amount Contributed	
2008	April	1	45	-16	17	3	-8	36	31	57	10	176
	May	1	40	4	24	3	3	12	7	75	7	176
	June	2	27	5	17	1	5	18	-8	91	7	165
	July	0	0	-13	-6	-3	-5	-1	4	55	-6	25
	August	1	11	3	14	4	2	20	10	24	3	92
	September	1	9	1	17	1	2	2	14	-32	3	18
	October	1	8	-7	25	2	13	50	27	-26	1	94
	November	0	-7	2	12	2	3	10	8	-11	0	19
	December	0	-10	1	18	3	14	7	7	15	5	60
Cumulative Total	7	123	-20	138	16	29	154	100	248	30	825	

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Revisions to November and December also reflect incorporation of the annual CES sample update and the routine inclusion of additional sample units not available for the respective months' preliminary estimates.

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. The employment counts obtained from quarterly unemployment insurance 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 insures 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—coverage, 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. Over the last decade, annual benchmark revisions at the total nonfarm level have averaged 0.2 percent, with an absolute range of 0.1 percent to 0.6 percent.

Benchmark revision effects for other data types

The routine benchmarking process results in revisions to the series for production and nonsupervisory workers. There are no benchmark employment levels for these series; they are revised by preserving ratios of employment for the particular data type to all employees 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 and average hourly earnings are not benchmarked; they are estimated solely from reports supplied by survey respondents at the basic estimating cell level.

The aggregate industry level of the hours and earnings series are derived as a weighted average. The production or nonsupervisory worker employment estimates for the basic cells are used as weights for the hours and earnings estimates for broader industry groupings. Adjustments of the all employee estimates to new benchmarks may alter the weights, which, in turn, may change the estimates for hours and earnings of production or nonsupervisory workers at higher levels of aggregation.

Generally, new employment benchmarks have little effect on hours and earnings estimates for major groupings. To influence the hours and earnings estimates of a broader 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 group. [Table 4](#) gives information on the levels of specific hours and earnings series resulting from the March 2008 benchmark. At the total private level, there was no change in average weekly hours from the previously published level, while average hourly earnings was increased from the previously published level by 5 cents.

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 unemployment insurance (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 10 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 year 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 months following the March benchmark. New net birth/death model estimates also are calculated and applied during post-benchmark estimation, and new sample is introduced from the annual update.

Benchmark source material. The principal source of benchmark data for private industries is the Quarterly Census of Employment and Wages (QCEW). These employment data are provided to State Employment Security Agencies by employers covered by State UI laws. BLS uses several other sources to establish benchmarks for the remaining 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 nonoffice insurance sales workers, child daycare workers, religious organizations, and private schools and hospitals. Benchmarks for State and local government hospitals and educational institutions are based on the Annual Census of Governments conducted by the Census Bureau. Benchmark 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.

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 business deaths. The timeliest UI universe files available, however, always will be a minimum of 9 months out of date. The CES survey thus can not 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 and stable. To account for this net birth/death portion of total employment, BLS is utilizing an estimation procedure with two components. The first component uses business deaths to impute employment for 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 ARIMA time series model designed to estimate the residual 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 residual 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.

Availability of revised data

[LABSTAT](http://www.bls.gov/labstat/), the BLS public database on the Internet, contains all historical employment, hours, and earnings data revised as a result of this benchmark, including both unadjusted and seasonally adjusted data. The data can be accessed at <http://www.bls.gov/ces/>, the Current Employment Statistics homepage.

Changes to the CES published series

All CES series are evaluated annually for sample size, coverage, and response rates. The following series changes result from a re-evaluation of the sample and universe coverage for NAICS industries. Some series proved to have sufficient sample to be broken into more detail. Other small industries no longer have sufficient sample to be estimated and published separately and have been combined with other similar industries for estimation and publication purposes, as shown below. Most of the collapsed and deleted series are in the manufacturing sector where employment has been declining over a number of years. Historical data for the series with changed scope were reconstructed to provide consistent time series.

Exhibit 1. Newly published series effective with the March 2008 benchmark revisions			
Industry title	NAICS code	CES industry code	New industry
Biotechnology research	541711	60541711	Biotechnology research was broken out from Research and development in the physical, engineering, and life sciences (NAICS 541710).
Physical, engineering, and life sciences research	541712	60541712	Physical, engineering, and life sciences was broken out from Research and development in the physical, engineering, and life sciences (NAICS 541710).

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Exhibit 2. Series with changed scope			
Industry title	NAICS code	CES industry code	Industries collapsed
All other plywood and engineered wood products	321213,4,9	31321214	Engineered wood members and trusses (NAICS 321213,4) is collapsed with Reconstituted wood products (NAICS 321219). The collapsed series is renamed All other plywood and engineered wood products.
Glass containers and products made of purchased glass	327213,5	31327215	Glass containers (NAICS 327213) is collapsed into Glass products made of purchased glass (NAICS 327215). The collapsed series is renamed Glass containers and products made of purchased glass.
Miscellaneous electronic instruments	334514,6,7,8,9	31334519	Irradiation apparatus (NAICS 334517) is collapsed into Miscellaneous electronic instruments (NAICS 334519).
All other electrical equipment and components	33592,9	3133599	Communication and energy wires and cables (NAICS 33592) is collapsed into All other electrical equipment and components (NAICS 33599).
All other miscellaneous manufacturing	33993,9	3133999	Dolls, toys, and games (NAICS 33993) is collapsed into All other miscellaneous manufacturing (NAICS 33999).
Women's and all other cut and sew apparel	31523,9	3231529	Women's cut and sew apparel (NAICS 31523) is collapsed into Other cut and sew apparel (NAICS 31529). The collapsed series is renamed Women's and all other cut and sew apparel.
Petrochemicals, industrial gases, synthetic dyes, and pigments	32511,2,3	3232513	Petrochemicals and industrial gases (NAICS 32511,2) is collapsed into Synthetic dyes and pigments (NAICS 32513). The collapsed series is renamed Petrochemicals, industrial gases, synthetic dyes, and pigments.
Urban transit systems and interurban and rural bus transportation	4851,2	434852	Urban transit systems (NAICS 4851) is collapsed into Interurban and rural bus transportation (NAICS 4852). The collapsed series is renamed Urban transit systems and interurban and rural transportation.

Exhibit 2. Series with changed scope			
Industry title	NAICS code	CES industry code	Industries collapsed
Support activities for water transportation, except marine cargo handling	48831,3,9	4348839	Port and harbor operations (NAICS 48831) is collapsed into Navigational services and other water transportation support activities (NAICS 48833,9). The collapsed series is renamed Support activities for water transportation, except marine cargo handling.
Historical sites, zoos, botanical gardens, nature parks, and similar institutions	71212,3,9	707121219	Historical sites (NAICS 71212) is collapsed into Zoos, botanical gardens, nature parks, and similar institutions (NAICS 71213,9). The collapsed series is renamed Historical sites, zoos, botanical gardens, nature parks, and similar institutions.

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Exhibit 3. Discontinued all employee series			
Industry title	NAICS code	CES industry code	Next highest published level
Pottery, ceramics, and plumbing fixtures	32711	3132711	Clay products and refractories (NAICS 3271)
Clay building materials and refractories	32712	3132712	Clay products and refractories (NAICS 3271)
Glass containers	327213	31327213	Glass and glass products (NAICS 3272)
Iron, steel pipe, and tube from purchased steel	33121	3133121	Steel products from purchased steel (NAICS 3312)
Rolling and drawing of purchased steel	33122	3133122	Steel products from purchased steel (NAICS 3312)
Rolled steel shapes	331221	31331221	Steel products from purchased steel (NAICS 3312)
Nonferrous metal, except CU and AL, shaping	33149	3133149	Other nonferrous metal production (NAICS 3314)
Steel foundries	331512,3	31331513	Ferrous metal foundries (NAICS 33151)
Air and gas compressors	333912	31333912	Pumps and compressors (NAICS 33391)
Pumps and pumping equipment, including measuring and dispensing	333911,3	31333913	Pumps and compressors (NAICS 33391)
Irradiation apparatus	334517	31334517	Electronic Instruments (NAICS 3345)
Small electronic appliances	33521	3133521	Household appliances (NAICS 3352)

Exhibit 3. Discontinued all employee series			
Industry title	NAICS code	CES industry code	Next highest published level
Major appliances	33522	3133522	Household appliances (NAICS 3352)
Communication and energy wires and cables	33592	3133592	Other electrical equipment and components (NAICS 3359)
Dolls, toys, and games	33993	3133993	Other miscellaneous manufacturing (NAICS 3399)
Sugar	31131	3231131	Sugar and confectionary products (NAICS 3113)
Women's cut and sew apparel	31523	3231523	Cut and sew apparel (NAICS 3152)
Leather and hide tanning and finishing and other leather products	3161,9	323169	Leather and allied products (NAICS 316)
Petrochemicals and industrial gases	32511,2	3232512	Basic chemicals (NAICS 3251)
Resin and synthetic rubber	32521	3232521	Resin, rubber, and artificial fibers (NAICS 3252)
Synthetic rubber	325212	32325212	Resin, rubber, and artificial fibers (NAICS 3252)
Unlaminated plastics profile shapes	326121	32326121	Plastics pipe, fittings, and profile shapes (NAICS 32612)
Plastics pipe and pipe fittings	326122	32326122	Plastics pipe, fittings, and profile shapes (NAICS 32612)
Other chemicals	42469	4142469	Chemicals (NAICS 4246)
Sea, coastal, and Great Lakes transportation	4831	434831	Water transportation (NAICS 483)
Urban transit systems	4851	434851	Transit and ground passenger transportation (NAICS 485)
Port and harbor operations	48831	4348831	Support activities for water transportation (NAICS 4883)
Historical sites	71212	7071212	Museums, historical sites, zoos, and parks (NAICS 7121)
Amusement and theme parks	71311	7071311	Amusement parks and arcades (NAICS 7131)
Amusement arcades	71312	7071312	Amusement parks and arcades (NAICS 7131)

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Exhibit 4. Discontinued production worker, hours, and earnings series		
Industry title	NAICS code	CES industry code
Office supplies, except paper	33994	3133994
Paperboard mills	32213	3232213
Manifold business forms printing	323116	32323116
Dried and dehydrated food	311423	32311423

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Exhibit 5. Discontinued average overtime series		
Industry title	NAICS code	CES industry code
Office supplies, except paper	33994	3133994
Paperboard mills	32213	3232213

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Exhibit 6. Change in title		
CES industry code	Original industry title	New industry title
10000000	Natural resources and mining	Mining and logging

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Small domain model

The employment estimator for lessors of nonfinancial intangible assets (CES industry code 555330000) has been changed from the standard CES weighted-link-relative technique to the CES Small Domain Model (SDM). The SDM is used for industries where the sample alone is insufficient for reliable estimates. The CES SDM is a Weighted Least Squares model with two employment inputs: (1) an estimate based on available CES sample for that series, and (2) an ARIMA projection based on 10 years of historical QCEW data. Further background on the SDM is provided in the [CES technical notes](#).

This brings the number of industries estimated by using SDM to six. The other industries are direct health and medical insurance carriers, tax preparation services, other technical consulting services, remediation services, and recreational and vacation camps.

Seasonal adjustment procedure

BLS uses X-12 ARIMA software developed by the U.S. Census Bureau to seasonally adjust national employment, hours, and earnings series derived from the CES program. Individual series are seasonally adjusted using either a multiplicative or an additive model ([Exhibit 7](#)), and seasonal adjustment factors are directly applied to the component levels. For employment, individual 3-digit NAICS levels are seasonally adjusted, and higher level aggregates are formed summing these components. Seasonally adjusted totals for hours and earnings are obtained by taking weighted averages of the seasonally adjusted data for the component series.

Special model adjustments

Variable survey intervals. Beginning with the release of the 1995 benchmark, BLS refined the seasonal adjustment procedures to control for survey interval variations, sometimes referred to as the 4- versus 5-week effect. Although the CES survey is referenced to a consistent concept - the pay period including the 12th of each month - inconsistencies arise because there are sometimes 4 and sometimes 5 weeks between the week including the 12th in a given pair of months. In highly seasonal industries, these variations can be an important determinant of the magnitude of seasonal hires or layoffs that have occurred at the time the survey is taken, thereby complicating seasonal adjustment.

Standard seasonal adjustment methodology relies heavily on the experience of the most recent 3 years to determine the expected seasonal change in employment for each month of the current year. Prior to the implementation of the adjustment, the procedure did not distinguish between 4- and 5-week survey intervals, and the accuracy of the seasonal expectation depended in large measure on how well the current year's survey interval corresponded with those of the previous 3 years. All else the same, the greatest potential for distortion occurred when the current month being estimated had a 5-week interval but the 3 years preceding it were all 4-week intervals, or conversely when the current month had a 4-week interval but the 3 years preceding it were all 5-week intervals.

BLS adopted REGARIMA (regression with auto-correlated errors) modeling to identify the estimated size and significance of the calendar effect for each published series. REGARIMA combines standard regression analysis, which measures correlation among two or more variables, with ARIMA modeling, which describes and predicts the behavior of data series based on its own past history. For many economic time series, including nonfarm payroll employment, observations are auto-correlated over time; that is, each month's value is significantly dependent on the observations that precede it. These series, therefore, usually can be successfully fit using ARIMA models. If auto-correlated time series are modeled through regression analysis alone, the measured relationships among other variables of interest may be distorted due to the influence of the auto-correlation. Thus, the REGARIMA technique is appropriate for measuring relationships among variables of interest in series that exhibit auto-correlation, such as nonfarm payroll employment.

In this application, the correlations of interest are those between employment levels in individual calendar months and the lengths of the survey intervals for those months. The REGARIMA models evaluate the variation in employment levels attributable to 11 separate survey interval variables, one specified for each month, except March. March is excluded because there are almost always 4 weeks between the February and March surveys. Models for individual basic series are fit with the most recent 10 years of data available, the standard time span used for CES seasonal adjustment.

The REGARIMA procedure yields regression coefficients for each of the 11 months specified in the model. These coefficients provide estimates of the strength of the relationship between employment levels and the number of weeks between surveys for the 11 modeled months. The X-12 ARIMA software also produces diagnostic statistics that permit the assessment of the statistical significance of the regression coefficients, and all series are reviewed for model adequacy.

Because the 11 coefficients derived from the REGARIMA models provide an estimate of the magnitude of variation in employment levels associated with the length of the survey interval, these coefficients are used to adjust the CES data to remove the calendar effect. These "filtered" series then are seasonally adjusted using the standard X-12 ARIMA software.

For a few series, REGARIMA models do not fit well; these series are seasonally adjusted with the X-12 software but without the interval effect adjustment. There are several additional special effects modeled through the REGARIMA process; they are described below.

Construction series. Beginning with the 1996 benchmark revision, BLS utilized special treatment to adjust construction industry series. In the application of the interval effect modeling process to the construction series, there initially was difficulty in accurately identifying and measuring the effect because of the strong influence of variable weather patterns on employment movements in the industry. Further research allowed BLS to incorporate interval effect modeling for the construction industry by disaggregating the construction series into its finer industry and geographic estimating cells and tightening outlier designation parameters. This allowed a more precise identification of weather-related outliers that had masked the interval effect and clouded the seasonal adjustment patterns in general. With these outliers removed, interval effect modeling became feasible. The result is a seasonally adjusted series for construction that is improved because it is controlled for two potential distortions: unusual weather events and the 4- versus 5-week effect.

Floating holidays. BLS is continuing the practice of making special adjustments for average weekly hours and average weekly overtime series to account for the presence or absence of religious holidays in the April survey reference period and the occurrence of Labor Day in the September reference period, back to the start date of each series.

Local government series. A special adjustment also is made in November each year to account for variations in employment due to the presence or absence of poll workers in the local government, excluding educational services series.

Refinements in hours and earnings seasonal adjustment. With the release of the 1997 benchmark, BLS implemented refinements to the seasonal adjustment process for the hours and earnings series to correct for distortions related to the method of accounting for the varying length of payroll periods across months. There is a significant correlation between over-the-month changes in both the average weekly hour (AWH) and the average hourly earnings (AHE) series and the number of weekdays in a month, resulting in noneconomic fluctuations in these two series. Both AWH and AHE show more growth in "short" months (20 or 21 weekdays) than in "long" months (22 or 23 weekdays). The effect is stronger for the AWH than for the AHE series.

The calendar effect is traceable to response and processing errors associated with converting payroll and hours information from sample respondents with semi-monthly or monthly pay periods to a weekly equivalent. The response error comes from sample respondents reporting a fixed number of total hours for workers regardless of the length of the reference month, while the CES conversion process assumes that the hours reporting will be variable. A constant level of hours reporting most likely occurs when

employees are salaried rather than paid by the hour, as employers are less likely to keep actual detailed hours records for such employees. This causes artificial peaks in the AWH series in shorter months that are reversed in longer months.

The processing error occurs when respondents with salaried workers report hours correctly (vary them according to the length of the month), which dictates that different conversion factors be applied to payroll and hours. The CES processing system uses the hours conversion factor for both fields, resulting in peaks in the AHE series in short months and reversals in long months.

REGARIMA modeling is used to identify, measure, and remove the length-of-pay-period effect for seasonally adjusted average weekly hours and average hourly earnings series. The length-of-pay-period variable proves significant for explaining AWH movements in all the service-providing industries except utilities. For AHE, the length-of-pay-period variable is significant for wholesale trade, retail trade, information, financial activities, professional and business services, and other services. All AWH series in the service-providing industries except utilities have been adjusted from January 1990 forward. The AHE series for wholesale trade, retail trade, information, financial activities, professional and business services, and other services have been adjusted from January 1990 forward as well. For this reason, calculations of over-the-year change in the establishment hours and earnings series should use seasonally adjusted data.

The series to which the length-of-pay-period adjustment is applied are not subject to the 4- versus 5-week adjustment, as the modeling cannot support the number of variables that would be required in the regression equation to make both adjustments. See [Exhibit 7](#) for series that have the calendar effects modeling described above.

Exhibit 7. Model specifications				
Seasonal Adjustment - AE				
NAICS Tabcode	Tabcode title	Mode	4/5 week adj	Other adj
1011331000	Logging	MULT	X	
1021100000	Oil and gas extraction	MULT	X	
1021200000	Mining, except oil and gas	-	X	Indirect ¹
1021210000	Coal mining	MULT	X	
1021300000	Support activities for mining	ADD	X	
2023610000	Residential building	-	X	Indirect
2023620000	Nonresidential building	-	X	Indirect
2023700000	Heavy and civil engineering construction	ADD	X	
2023800000	Specialty trade contractors	-	X	Indirect
2023800100	Residential specialty trade contractors	MULT	X	Raked ²
2023800200	Nonresidential specialty trade contractors	ADD	X	Raked
3132100000	Wood products	ADD	X	

Exhibit 7. Model specifications**Seasonal Adjustment - AE**

NAICS Tabcode	Tabcode title	Mode	4/5 week adj	Other adj
3132700000	Nonmetallic mineral products	ADD	X	
3133100000	Primary metals	MULT	X	
3133200000	Fabricated metal products	MULT	X	
3133300000	Machinery	MULT	X	
3133400000	Computer and electronic products	-	X	Indirect
3133410000	Computer and peripheral equipment	MULT	X	
3133420000	Communications equipment	MULT	X	
3133440000	Semiconductors and electronic components	MULT	X	
3133450000	Electronic instruments	MULT	X	
3133500000	Electrical equipment and appliances	MULT	X	
3133600000	Transportation equipment	ADD		
3133600100	Motor vehicles and parts	ADD		
3133700000	Furniture and related products	ADD	X	
3133900000	Miscellaneous manufacturing	MULT	X	
3231100000	Food manufacturing	MULT	X	
3231200000	Beverages and tobacco products	MULT	X	
3231300000	Textile mills	MULT	X	
3231400000	Textile product mills	MULT	X	
3231500000	Apparel	MULT	X	
3231600000	Leather and allied products	MULT	X	
3232200000	Paper and paper products	MULT	X	
3232300000	Printing and related support activities	MULT	X	
3232400000	Petroleum and coal products	MULT	X	
3232500000	Chemicals	MULT	X	
3232600000	Plastics and rubber products	MULT	X	
4142300000	Durable goods	MULT	X	
4142400000	Nondurable goods	MULT	X	
4142500000	Electronic markets and agents and brokers	MULT	X	
4244100000	Motor vehicle and parts dealers	-	X	Indirect
4244110000	Automobile dealers	ADD	X	
4244200000	Furniture and home furnishings stores	MULT	X	

Exhibit 7. Model specifications				
Seasonal Adjustment - AE				
NAICS Tabcode	Tabcode title	Mode	4/5 week adj	Other adj
4244300000	Electronics and appliance stores	MULT	X	
4244400000	Building material and garden supply stores	MULT	X	
4244500000	Food and beverage stores	MULT	X	
4244600000	Health and personal care stores	MULT	X	
4244700000	Gasoline stations	MULT	X	
4244800000	Clothing and clothing accessories stores	MULT	X	
4245100000	Sporting goods, hobby, book, and music stores	MULT	X	
4245200000	General merchandise stores	-	X	Indirect
4245210000	Department stores	MULT	X	
4245300000	Miscellaneous store retailers	MULT	X	
4245400000	Nonstore retailers	MULT	X	
4348100000	Air transportation	MULT	X	
4348200000	Rail transportation	MULT	X	
4348300000	Water transportation	MULT	X	
4348400000	Truck transportation	ADD	X	
4348500000	Transit and ground passenger transportation	ADD		
4348600000	Pipeline transportation	MULT	X	
4348700000	Scenic and sightseeing transportation	ADD	X	
4348800000	Support activities for transportation	ADD	X	
4349200000	Couriers and messengers	MULT	X	
4349300000	Warehousing and storage	ADD	X	
4422100000	Utilities	MULT	X	
5051100000	Publishing industries, except Internet	MULT	X	
5051200000	Motion picture and sound recording industries	MULT	X	
5051500000	Broadcasting, except Internet	MULT	X	
5051700000	Telecommunications	MULT	X	
5051800000	Data processing, hosting, and related services	MULT	X	
5051900000	Other information services	MULT	X	
5552100000	Monetary authorities-central bank	MULT	X	
5552200000	Credit intermediation and related activities	-	X	Indirect

Exhibit 7. Model specifications				
Seasonal Adjustment - AE				
NAICS Tabcode	Tabcode title	Mode	4/5 week adj	Other adj
5552210000	Depository credit intermediation	MULT	X	
5552211000	Commercial banking	MULT	X	
5552300000	Securities, commodity contracts, investments	MULT	X	
5552400000	Insurance carriers and related activities	MULT	X	
5552500000	Funds, trusts, and other financial vehicles	MULT	X	
5553100000	Real estate	MULT	X	
5553200000	Rental and leasing services	MULT	X	
5553300000	Lessors of nonfinancial intangible assets	MULT	X	
6054100000	Professional and technical services	-	X	Indirect
6054110000	Legal services	MULT	X	
6054120000	Accounting and bookkeeping services	ADD	X	
6054130000	Architectural and engineering services	ADD	X	
6054150000	Computer systems design and related services	ADD	X	
6054160000	Management and technical consulting services	MULT	X	
6055100000	Management of companies and enterprises	MULT	X	
6056100000	Administrative and support services	-	X	Indirect
6056130000	Employment services	MULT	X	
6056132000	Temporary help services	MULT	X	
6056140000	Business support services	ADD	X	
6056170000	Services to buildings and dwellings	MULT	X	
6056200000	Waste management and remediation services	ADD	X	
6561100000	Educational services	ADD	X	
6562100000	Ambulatory health care services	-	X	Indirect
6562110000	Offices of physicians	MULT	X	
6562140000	Outpatient care centers	MULT	X	
6562160000	Home health care services	ADD	X	
6562200000	Hospitals	MULT	X	
6562300000	Nursing and residential care facilities	-	X	Indirect
6562310000	Nursing care facilities	MULT	X	
6562400000	Social assistance	-	X	Indirect
6562440000	Child day care services	ADD	X	

Exhibit 7. Model specifications				
Seasonal Adjustment - AE				
NAICS Tabcode	Tabcode title	Mode	4/5 week adj	Other adj
7071100000	Performing arts and spectator sports	MULT	X	
7071200000	Museums, historical sites, zoos, and parks	MULT	X	
7071300000	Amusements, gambling, and recreation	ADD	X	
7072100000	Accommodation	MULT	X	
7072200000	Food services and drinking places	ADD	X	
8081100000	Repair and maintenance	MULT	X	
8081200000	Personal and laundry services	MULT	X	
8081300000	Membership associations and organizations	ADD		
9091100000	Federal, except U.S. Postal Service	ADD	X	
9091912000	U.S. Postal Service	MULT	X	
9092161100	State government education	ADD	X	
9092200000	State government, excluding education	MULT	X	
9093161100	Local government education	ADD	X	
9093200000	Local government, excluding education	ADD	X	Election adjustment ³

Seasonal Adjustment - WW				
NAICS Tabcode	Tabcode title	Mode	4/5 week adj	Other adj
1000000000	Mining and Logging	MULT	X	
1021000000	Mining	MULT	X	
2000000000	Construction	MULT	X	
3100000000	Durable goods	MULT	X	
3200000000	Nondurable goods	MULT	X	
4142000000	Wholesale trade	MULT	X	
4200000000	Retail trade	MULT	X	
4300000000	Transportation and warehousing	MULT	X	
4422000000	Utilities	MULT	X	
5000000000	Information	MULT	X	
5552000000	Finance and insurance	MULT	X	

Seasonal Adjustment - WW				
NAICS Tabcode	Tabcode title	Mode	4/5 week adj	Other adj
5553000000	Real estate and rental and leasing	MULT	X	
6054000000	Professional and technical services	ADD	X	
6055000000	Management of companies and enterprises	MULT	X	
6056000000	Administrative and waste services	MULT	X	
6561000000	Educational services	ADD	X	
6562000000	Health care and social assistance	ADD	X	
7071000000	Arts, entertainment, and recreation	ADD	X	
7072000000	Accommodation and food services	ADD	X	
8000000000	Other services	ADD	X	
9091000000	Federal	MULT	X	
9092000000	State government	ADD	X	
9093000000	Local government	MULT	X	Election adjustment ³

Seasonal Adjustment - PW				
NAICS Tabcode	Tabcode title	Mode	4/5 week adj	Other adj
1000000000	Mining and Logging	MULT	X	
2000000000	Construction	ADD	X	
3132100000	Wood products	ADD	X	
3132700000	Nonmetallic mineral products	ADD	X	
3133100000	Primary metals	MULT	X	
3133200000	Fabricated metal products	MULT	X	

Seasonal Adjustment - PW				
NAICS Tabcode	Tabcode title	Mode	4/5 week adj	Other adj
3133300000	Machinery	MULT	X	
3133400000	Computer and electronic products	MULT	X	
3133500000	Electrical equipment and appliances	MULT	X	
3133600000	Transportation equipment	ADD		
3133600100	Motor vehicles and parts	ADD		
3133700000	Furniture and related products	MULT	X	
3133900000	Miscellaneous manufacturing	MULT	X	
3231100000	Food manufacturing	MULT	X	
3231200000	Beverages and tobacco products	ADD	X	
3231300000	Textile mills	MULT	X	
3231400000	Textile product mills	MULT	X	
3231500000	Apparel	MULT	X	
3231600000	Leather and allied products	MULT	X	
3232200000	Paper and paper products	MULT	X	
3232300000	Printing and related support activities	MULT	X	
3232400000	Petroleum and coal products	MULT	X	
3232500000	Chemicals	ADD	X	
3232600000	Plastics and rubber products	MULT	X	
4142000000	Wholesale trade	MULT	X	
4200000000	Retail trade	MULT	X	
4300000000	Transportation and warehousing	MULT	X	
4422000000	Utilities	MULT	X	
5000000000	Information	MULT	X	
5500000000	Financial activities	MULT	X	

Seasonal Adjustment - PW				
NAICS Tabcode	Tabcode title	Mode	4/5 week adj	Other adj
6000000000	Professional and business services	MULT	X	
6500000000	Education and health services	ADD	X	
7000000000	Leisure and hospitality	ADD	X	
8000000000	Other services	MULT	X	

Seasonal Adjustment - AWH					
NAICS Tabcode	Tabcode title	Mode	4/5 week adj	10/11 day adj	Easter/Labor Day adj
1000000000	Mining and Logging	MULT	X		X
2000000000	Construction	ADD	X		X
3132100000	Wood products	MULT	X		X
3132700000	Nonmetallic mineral products	MULT	X		X
3133100000	Primary metals	MULT	X		X
3133200000	Fabricated metal products	MULT	X		X
3133300000	Machinery	MULT	X		X
3133400000	Computer and electronic products	MULT	X		X
3133500000	Electrical equipment and appliances	MULT	X		X
3133600000	Transportation equipment	MULT	X		X
3133600100	Motor vehicles and parts	MULT	X		X
3133700000	Furniture and related products	MULT	X		X
3133900000	Miscellaneous manufacturing	MULT	X		X
3231100000	Food manufacturing	MULT	X		X

Seasonal Adjustment - AWH					
NAICS Tabcode	Tabcode title	Mode	4/5 week adj	10/11 day adj	Easter/Labor Day adj
3231200000	Beverages and tobacco products	MULT	X		X
3231300000	Textile mills	ADD	X		X
3231400000	Textile product mills	MULT	X		X
3231500000	Apparel	MULT	X		X
3231600000	Leather and allied products	MULT	X		X
3232200000	Paper and paper products	MULT	X		X
3232300000	Printing and related support activities	MULT	X		X
3232400000	Petroleum and coal products	MULT	X		X
3232500000	Chemicals	MULT	X		
3232600000	Plastics and rubber products	MULT	X		X
4142000000	Wholesale trade	MULT		X	X
4200000000	Retail trade	MULT		X	
4300000000	Transportation and warehousing	MULT		X	X
4422000000	Utilities	MULT	X		
5000000000	Information	MULT		X	
5500000000	Financial activities	MULT		X	
6000000000	Professional and business services	MULT		X	X
6500000000	Education and health services	MULT		X	
7000000000	Leisure and hospitality	MULT		X	
8000000000	Other services	MULT		X	X

Seasonal Adjustment - AHE				
NAICS Tabcode	Tabcode title	Mode	4/5 week adj	10/11 day adj

Seasonal Adjustment - AHE				
NAICS Tabcode	Tabcode title	Mode	4/5 week adj	10/11 day adj
1000000000	Mining and Logging	MULT	X	
2000000000	Construction	MULT	X	
3100000000	Durable goods	ADD	X	
3200000000	Nondurable goods	MULT	X	
4142000000	Wholesale trade	ADD		X
4200000000	Retail trade	MULT		X
4300000000	Transportation and warehousing	MULT	X	
4422000000	Utilities	ADD	X	
5000000000	Information	MULT		X
5500000000	Financial activities	MULT		X
6000000000	Professional and business services	MULT		X
6500000000	Education and health services	ADD	X	
7000000000	Leisure and hospitality	MULT	X	
8000000000	Other services	MULT		X

Seasonal Adjustment Comparison - AOT					
NAICS Tabcode	Tabcode title	Mode	4/5 week adj	10/11 day adj	Easter/Labor Day adj
31000000	Durable goods	MULT	X		X
32000000	Nondurable goods	MULT	X		X

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¹ Seasonal adjustment occurs at the lowest available industry level.

² Residential and nonresidential specialty trade estimates are raked to the specialty trade estimates to ensure consistency.

³ Special adjustment for the presence/absence of poll workers in local government.

Benchmark Tables

[Table 1. Percent differences between nonfarm employment benchmarks and estimates by industry division, March 1999-2008](#)

[Table 2. Nonfarm employment benchmarks by industry, March 2008](#)

[Table 3. Differences in seasonally adjusted levels and over-the-month changes, total nonfarm employment, January 2008-December 2008](#)

[Table 4. Hours and earnings estimates, selected industries, March 2008](#)

Industry	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total	0.2	0.4	- 0.1	- 0.2	- 0.1	0.2	- 0.1	0.6	-0.2	-0.1
Total private	.2	.3	- .2	- .4	- .2	.2	- .2	.7	-.2	-.1
Mining and logging					.9	.7	-.3	1.2	⁽²⁾	.4
Construction					-.8	.6	.5	2.6	.1	.7
Manufacturing					-1.1	-.4	-.3	-.1	-1.0	-.1
Trade, transportation, and utilities					⁽²⁾	.2	.3	.6	.5	.2
Information					-2.6	-1.0	-2.1	-.5	-1.8	.3
Financial activities					.2	.1	-.8	.4	-1.3	-.3
Professional and business services					-.7	-.2	-.4	1.3	.2	-.4
Education and health services					.3	.2	⁽²⁾	.5	-.2	-.1
Leisure and hospitality					.5	1.2	.4	.3	-.8	-1.1
Other services					1.4	.5	-1.3	.5	.3	.2
Government	.1	.6	.3	1.0	.3	.1	⁽²⁾	⁽²⁾	-.2	.2

⁽¹⁾ Differences are based on comparisons of final published March estimates and benchmark levels, as originally published.

⁽²⁾ Less than 0.05 percent.

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Table 2. Nonfarm employment benchmarks by industry, March 2008 (levels in thousands)

Industry	Benchmark	Estimate	Difference	
			Amount	Percent
Total nonfarm	136,944	137,033	-89	-0.1
Total private	114,104	114,241	-137	-0.1
Goods-producing	21,347	21,312	35	0.2
Mining and logging	741	738	3	0.4
Logging	55	57	-2	-3.6
Mining	686	680	6	0.9
Oil and gas extraction	155	155	0	⁽¹⁾
Mining, except oil and gas	215	219	-4	-1.9
Coal mining	78	79	-1	-1.3
Support activities for mining	316	307	9	2.8
Construction	7,047	6,998	49	0.7
Construction of buildings	1,651	1,609	42	2.5
Heavy and civil engineering construction	909	896	13	1.4
Specialty trade contractors	4,487	4,494	-7	-0.2
Manufacturing	13,559	13,576	-17	-0.1
Durable goods	8,599	8,626	-27	-0.3
Wood products	471	485	-14	-3
Nonmetallic mineral products	468	477	-9	-1.9
Primary metals	451	452	-1	-0.2
Fabricated metal products	1,551	1,552	-1	-0.1
Machinery	1,193	1,196	-3	-0.3
Computer and electronic products	1,254	1,252	2	0.2
Computer and peripheral equipment	183	186	-3	-1.6
Communications equipment	128	129	-1	-0.8
Semiconductor and electronic components	437	428	9	2.1
Electronic instruments	443	446	-3	-0.7
Electrical equipment and appliances	426	419	7	1.6
Transportation equipment	1,656	1,653	3	0.2
Furniture and related products	499	510	-11	-2.2
Miscellaneous manufacturing	633	631	2	0.3
Nondurable goods	4,960	4,950	10	0.2
Food manufacturing	1,459	1,450	9	0.6

Table 2. Nonfarm employment benchmarks by industry, March 2008 (levels in thousands)

Industry	Benchmark	Estimate	Difference	
			Amount	Percent
Beverage and tobacco products	193	185	8	4.1
Textile mills	159	159	0	(1)
Textile product mills	151	154	-3	-2
Apparel	203	198	5	2.5
Leather and allied products	33	34	-1	-3
Paper and paper products	447	455	-8	-1.8
Printing and related support activities	606	613	-7	-1.2
Petroleum and coal products	114	110	4	3.5
Chemicals	852	859	-7	-0.8
Plastics and rubber products	743	733	10	1.3
Service-providing	115,597	115,721	-124	-0.1
Private service-providing	92,757	92,929	-172	-0.2
Trade, transportation, and utilities	26,330	26,265	65	0.2
Wholesale trade	5,981	6,024	-43	-0.7
Electronic markets and agents and brokers	846	836	10	1.2
Retail trade	15,279	15,186	93	0.6
Motor vehicle and parts dealers	1,875	1,890	-15	-0.8
Automobile dealers	1,220	1,230	-10	-0.8
Furniture and home furnishings stores	542	563	-21	-3.9
Electronics and appliance stores	549	531	18	3.3
Building material and garden supply stores	1,242	1,229	13	1
Food and beverage stores	2,849	2,865	-16	-0.6
Health and personal care stores	1,003	989	14	1.4
Gasoline stations	844	844	0	(1)
Clothing and clothing accessories stores	1,446	1,447	-1	-0.1
Sporting goods, hobby, book and music stores	637	643	-6	-0.9
General merchandise stores	3,023	2,908	115	3.8
Department stores	1,545	1,498	47	3
Miscellaneous store retailers	834	845	-11	-1.3
Nonstore retailers	435	434	1	0.2
Transportation and warehousing	4,515	4,500	15	0.3
Air transportation	503	505	-2	-0.4

Table 2. Nonfarm employment benchmarks by industry, March 2008 (levels in thousands)

Industry	Benchmark	Estimate	Difference	
			Amount	Percent
Rail transportation	230	232	-2	-0.9
Water transportation	63	59	4	6.3
Truck transportation	1,389	1,396	-7	-0.5
Transit and ground passenger transportation	434	427	7	1.6
Pipeline transportation	41	41	0	(1)
Scenic and sightseeing transportation	23	26	-3	-13
Support activities for transportation	588	584	4	0.7
Couriers and messengers	573	579	-6	-1
Warehousing and storage	672	652	20	3
Utilities	555	555	0	(1)
Information	3,016	3,008	8	0.3
Publishing industries, except Internet	892	882	10	1.1
Motion picture and sound recording industries	381	379	2	0.5
Broadcasting, except Internet	318	322	-4	-1.3
Telecommunications	1,027	1,020	7	0.7
Data processing, hosting, and related services	265	273	-8	-3
Other information services	134	132	2	1.5
Financial activities	8,171	8,194	-23	-0.3
Finance and insurance	6,056	6,103	-47	-0.8
Monetary authorities - central bank	23	21	2	8.7
Credit intermediation and related activities	2,765	2,814	-49	-1.8
Depository credit intermediation	1,823	1,820	3	0.2
Commercial banking	1,361	1,343	18	1.3
Securities, commodity contracts, investments	868	866	2	0.2
Insurance carriers and related activities	2,311	2,315	-4	-0.2
Funds, trusts, and other financial vehicles	90	87	3	3.3
Real estate and rental and leasing	2,115	2,091	24	1.1
Real estate	1,469	1,441	28	1.9
Rental and leasing services	618	618	0	(1)
Lessors of nonfinancial intangible assets	28	31	-3	-10.7
Professional and business services	17,733	17,796	-63	-0.4
Professional and technical services	7,883	7,891	-8	-0.1

Table 2. Nonfarm employment benchmarks by industry, March 2008 (levels in thousands)

Industry	Benchmark	Estimate	Difference	
			Amount	Percent
Legal services	1,163	1,166	-3	-0.3
Accounting and bookkeeping services	1,064	1,100	-36	-3.4
Architectural and engineering services	1,431	1,443	-12	-0.8
Computer systems design and related services	1,427	1,387	40	2.8
Management and technical consulting services	989	989	0	(1)
Management of companies and enterprises	1,896	1,830	66	3.5
Administrative and waste services	7,955	8,075	-120	-1.5
Administrative and support services	7,604	7,717	-113	-1.5
Employment services	3,176	3,352	-176	-5.5
Temporary help services	2,372	2,397	-25	-1.1
Business support services	837	799	38	4.5
Services to buildings and dwellings	1,721	1,727	-6	-0.3
Waste management and remediation services	352	358	-6	-1.7
Education and health services	18,833	18,850	-17	-0.1
Educational services	3,153	3,178	-25	-0.8
Health care and social assistance	15,679	15,672	7	(1)
Ambulatory health care services	5,588	5,600	-12	-0.2
Offices of physicians	2,238	2,246	-8	-0.4
Outpatient care centers	528	512	16	3
Home health care services	942	940	2	0.2
Hospitals	4,588	4,595	-7	-0.2
Nursing and residential care facilities	2,994	2,974	20	0.7
Nursing care facilities	1,611	1,605	6	0.4
Social assistance	2,511	2,504	7	0.3
Child day care services	879	875	4	0.5
Leisure and hospitality	13,156	13,307	-151	-1.1
Arts, entertainment, and recreation	1,837	1,864	-27	-1.5
Performing arts and spectator sports	385	409	-24	-6.2
Museums, historical sites, zoos, and parks	124	124	0	(1)
Amusements, gambling, and recreation	1,328	1,332	-4	-0.3
Accommodation and food services	11,319	11,443	-124	-1.1
Accommodation	1,825	1,791	34	1.9

Industry	Benchmark	Estimate	Difference	
			Amount	Percent
Food services and drinking places	9,494	9,652	-158	-1.7
Other services	5,518	5,509	9	0.2
Repair and maintenance	1,243	1,254	-11	-0.9
Personal and laundry services	1,317	1,303	14	1.1
Membership associations and organizations	2,958	2,951	7	0.2
Government	22,840	22,792	48	0.2
Federal	2,732	2,710	22	0.8
Federal, except Postal Service	1,977	1,976	1	0.1
U.S. Postal Service	756	734	22	2.9
State government	5,293	5,303	-10	-0.2
State government education	2,483	2,486	-3	-0.1
State government excl. education	2,810	2,817	-7	-0.2
Local government	14,815	14,779	36	0.2
Local government education	8,441	8,408	33	0.4
Local government excl. education	6,374	6,371	3	(1)

(1) Less than 0.05 percent.

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2008:	Levels			Over-the-month changes		
	As previously published	As revised	Difference	As previously published	As revised	Difference
January	138,002	138,080	78	-76	-72	4
February	137,919	137,936	17	-83	-144	-61
March	137,831	137,814	-17	-88	-122	-34
April	137,764	137,654	-110	-67	-160	-93
May	137,717	137,517	-200	-47	-137	-90
June	137,617	137,356	-261	-100	-161	-61
July	137,550	137,228	-322	-67	-128	-61
August	137,423	137,053	-370	-127	-175	-48

Table 3. Differences in seasonally adjusted levels and over-the-month changes, total nonfarm employment, January 2008-December 2008 (in thousands)

	Levels			Over-the-month changes		
September	137,020	136,732	-288	-403	-321	82
October	136,597	136,352	-245	-423	-380	43
November	136,013	135,755	-228	-584	-597	-13
December (p)	135,489	135,178	-370	-524	-577	-53

(p): Preliminary

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Table 4. Hours and earnings estimates for selected industries, March 2008

Industry	Average Weekly Hours	Average Hourly Earnings
Total private	33.8	\$17.97
Goods-producing	40.4	19.06
Mining and Logging	45.7	22.29
Construction	38.5	21.44
Manufacturing	41.1	17.62
Durable goods	41.4	18.56
Wood products	38.3	13.92
Nonmetallic mineral products	42.6	16.79
Primary metals	43.0	20.23
Fabricated metal products	41.7	16.86
Machinery	42.8	17.87
Computer and electronic products	41.0	20.76
Electrical equipment and appliances	41.2	15.64
Transportation equipment	42.5	23.52
Furniture and related products	38.5	14.42
Miscellaneous manufacturing	39.4	15.08
Nondurable goods	40.5	16.01
Food manufacturing	40.3	13.85
Beverages and tobacco products	39.9	19.73
Textile mills	38.8	13.45
Textile product mills	39.4	11.77

Table 4. Hours and earnings estimates for selected industries, March 2008		
Industry	Average Weekly Hours	Average Hourly Earnings
Apparel	36.9	11.35
Leather and allied products	39.0	12.81
Paper and paper products	43.3	18.70
Printing and related support activities	38.7	16.64
Petroleum and coal products	42.8	27.06
Chemicals	41.9	19.31
Plastics and rubber products	41.1	15.72
Private service-providing	32.5	17.70
Trade, transportation, and utilities	33.3	16.14
Wholesale trade	38.6	20.08
Retail trade	30.0	12.88
Transportation and warehousing	36.7	18.20
Utilities	43.0	28.90
Information	36.7	24.62
Financial activities	36.2	20.17
Professional and business services	35.1	21.00
Education and health services	32.7	18.74
Leisure and hospitality	25.3	10.77
Other services	30.9	16.11

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Last Modified Date: February 6, 2009