March 2005 Benchmarks for the Nonfarm Payroll Survey

Kirk Mueller

Supervisory Statistician

With the release of data for January 2006, 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 reflect more currently available universe counts of employment—a process known as benchmarking. Comprehensive counts of employment, or benchmarks, are derived primarily from the unemployment insurance (UI) tax reports that nearly all employers are required to file with State Employment Security Agencies.

Summary of the benchmark revisions

The March 2005 benchmark level for total nonfarm employment is 132,038,000; this figure is 158,000 below the sample-based estimate for March 2005, 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 2005, not seasonally adjusted, by industry. No individual supersector dominated in terms of the size of revision. The largest downward revision occurred in other services with a revision of -69,000, or -1.3 percent. The revision can primarily be attributed to membership associations and organizations with a downward revision of 69,200, or 2.4 percent.

Other supersectors had downward revisions of approximately the same magnitude. Estimates in financial activities were revised -68,000, or -0.8 percent, while estimates were revised downward by 64,000 in information and also in professional and business services, or 2.1 percent and 0.4 percent respectively. Within financial activities, credit intermediation and related activities revised -49,000, or -1.7 percent. Telecommunications revised in information by -25,200, or -2.5 percent, while administration and waste services revised -122,100, or -1.6 percent, in professional and business services.

Manufacturing had a smaller revision of -47,000, or -0.3 percent, with non-durable goods accounting for the magnitude with a downward revision of 50,000, or 0.9 percent. Minor downward revisions were present in education and health services (-5,000, or less than 0.05 percent) and mining (-2,000, or -0.3 percent)

Trade, transportation, and utilities revised upward by 74,000, or 0.3 percent. Retail trade dominated with a revision of 74,300, or 0.5% percent, while an upward revision in wholesale trade of 25,000, or 0.4%, was offset by downward revisions in utilities (20,600, or 3.7 percent) and transportation and warehousing (4,800, or 0.1 percent).

Construction estimate were raised by 35,000, or 0.5 percent, and government revised upward by 8,000, or less than 0.05 percent.

Changes to Direct life insurance carriers series

Direct life insurance carriers population levels have historically included presumed non-covered employment that accounted for approximately 100,000, or between 20 and 25 percent, of the employment in the series. With the most recently available County

Business Pattern data, the industry refiling of the Economic Census Bureau led to a large shift of in employment between direct life insurance carriers (NAICS 524113) and direct health and medical insurance carriers (NAICS 524114). As a result, the majority of the presumed non-covered employment previously in direct life insurance is now associated with direct health and medical insurance carriers, leading to large benchmark revisions for these two industries (-93,000 and 95,600 respectively)**.**

Changes to the CES published series list

Changes result from an annual review of sample employment and universe coverage for all estimation cells. Some all employee series will no longer be published as a result of being collapsed into other cells, while other all employee series will be discontinued. Exhibit 3 shows the cells that will be collapsed and renamed. Exhibit 4 shows the discontinued series.

Exhibit 3. Cells renamed/collapsed as of the 2004 benchmark release

Tabcode	Title	Collapsed with	New title	New collapsed cell tabcode
31-334411	Electron tubes	31-334414 and 31-334419	Misc. electronic components	31-334419
31-334414	Electronic capacitors	31-334411 and 31-334419	Misc. electronic components	31-334419
31-334419	Misc. electronic components	31-334414 and 31-334411	Misc. electronic components	31-334419
31-336213	Motor homes	31-336214	Motor homes, travel trailers, and campers	31-336214
31-336214	Travel trailers and campers	31-336213	Motor homes, travel trailers, and campers	31-336214
32-311421	Fruit and vegetable canning	32-311422	Fruit, vegetable, and specialty canning	32-311422

| 32-311422 | Specialty canning | 32-311421 | Fruit, vegetable, and specialty canning | 32-311422 |

Exhibit 4. Discontinued series

Industry title	NAICS code	CES industry code	Next highest published level
All other motor vehicle parts	**336399**	**31336399**	**Other motor vehicle parts (NAICS 33639)**
Sheer hosiery mills	**315111**	**32315111**	**Hosiery and sock mills (NAICS 31511)**
Other hosery and sock mills	**315119**	**32315119**	**Hosiery and sock mills (NAICS 31511)**

Review of the sample receipts has also led to the discontinuation of production worker, hours, and earnings estimates for some small industries that no longer have sufficient sample. Exhibits 5 and 6 shows the series that will be discontinued.

Exhibit 5. Discontinued production worker, hours, and earnings series

Industry title	NAICS code	CES industry code
Prefabricated metal buildings and components	332311	31-332311

Exhibit 6. Discontinued average overtime series

Industry title	NAICS code	CES industry code
Small arms, ammunition, and other ordnance and assessories	332992,3, 4, 5	31-332995

Photographic and photocopying equipment	333315	31-333315
Motor vehicle steering and suspension parts	33633	31-336330
Accessories and other apparel	3159	32-315900
Miscellaneous coated and treated paper and paper bags	322223, 4, 5, 6	32-322226
Agricultural chemicals	3253	32-325300

Revisions in the post-benchmark period

Post-benchmark period estimates from April 2005 to October 2005 were calculated for each month based on new benchmark levels, new model-based estimates for the net of birth/death employment, and a slightly new sample composition resulting from the annual sample update (beginning with November.)

Text table A shows the net birth/death model figures for the supersectors over the post-benchmark period. From April 2005 to December 2005, the cumulative net birth/death model added 817,000, compared with 866,000 in the previously published April to December estimates.

Revisions to production worker data for Wired Telecommunications (NAICS 51711)

During the benchmark review process, an error was found in the production worker series that affected the December 2004 estimate and as a result the production worker level from that point forward. The production worker series has been corrected for all months from December 2004 forward.

Revisions to historical average weekly earnings annual averages

In reviewing the benchmark data, small differences in the annual average calculation for average weekly earnings were found from 1990 to 2001 for four series that changed their composition with the 2003 Benchmark. The differences were attributable to rounding conventions associated with the data. The annual averages have been corrected to be consistent with annual average calculations of average weekly earnings for all other series. The four series are other pressed and blown glass and glassware (BLS tabulating code 31327212), other computer peripheral equipment (BLS tabulating code 31334119), other major household appliances (BLS tabulating code 31335228), and miscellaneous commercial printing (BLS tabulating code 32323119).

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 from less than 0.05 percent to 0.4 percent.

Benchmark revisions effects for other datatypes

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 levels 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 2005 benchmark. At the total private level, there was a 0.1 of an hour decrease in average weekly hours from the previously published level, while average hourly earnings was unchanged from the previously published level.

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

8

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 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 ARIMA model component is reviewed on a quarterly basis. The net birth/death model component figures are unique to each month and include negative adjustments in some months. Furthermore, these figures may exhibit a seasonal pattern observed in the historical UI universe data series.

The most significant potential drawback to this or any model-based approach is that time series modeling assumes a predictable continuation of historical patterns and relationships and therefore is likely to have some difficulty producing reliable estimates at economic turning points, or during periods when there are sudden changes in trend. BLS will continue researching alternative model-based techniques for the net birth/death component; it is likely to remain the most problematic part of the estimation process.

Availability of revised data

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 **https://www.bls.gov/ces/** the Current Employment Statistics homepage. Employment, hours, and earnings estimates are also published monthly in *Employment and Earnings.*

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 by 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 autocorrelation, 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 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 retail trade. For AHE, the length-of-pay-period variable is significant for wholesale trade, financial activities, professional and business services, and other services. All AWH series in the service-providing

industries except retail trade have been adjusted from January 1990 forward. The AHE series for wholesale trade, 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
10113310	Logging	MULT	X	
10211000	Oil and gas extraction	MULT	X	
10212000	Mining, except oil and gas	-	X	Indirect[1]
10212100	Coal mining	MULT	X	
10213000	Support activities for mining	ADD	X	
20236100	Residential building	-	X	Indirect
20236200	Nonresidential building	-	X	Indirect
20237000	Heavy and civil engineering	ADD	X	

	construction			
20238000	Specialty trade contractors	-	X	Indirect
20238001	Residential specialty trade contractors	MULT	X	Raked[2]
20238002	Nonresidential specialty trade contractors	MULT	X	Raked
31321000	Wood products	ADD	X	
31327000	Nonmetallic mineral products	ADD	X	
31331000	Primary metals	MULT	X	
31332000	Fabricated metal products	ADD	X	
31333000	Machinery	MULT	X	
31334000	Computer and electronic products	-	X	Indirect
31334100	Computer and peripheral equipment	MULT	X	
31334200	Communications equipment	ADD	X	
31334400	Semiconductors and electronic components	MULT	X	
31334500	Electronic instruments	ADD	X	
31335000	Electrical equipment and appliances	MULT	X	
31336000	Transportation equipment	MULT		
31336001	Motor vehicles and parts	MULT		
31337000	Furniture and related	MULT	X	

	products			
31339000	Miscellaneous manufacturing	MULT	X	
32311000	Food manufacturing	MULT	X	
32312000	Beverages and tobacco products	ADD	X	
32313000	Textile mills	MULT	X	
32314000	Textile product mills	ADD	X	
32315000	Apparel	MULT	X	
32316000	Leather and allied products	MULT	X	
32322000	Paper and paper products	ADD	X	
32323000	Printing and related support activities	MULT	X	
32324000	Petroleum and coal products	MULT	X	
32325000	Chemicals	MULT	X	
32326000	Plastics and rubber products	MULT	X	
41423000	Durable goods	MULT	X	
41424000	Nondurable goods	MULT	X	
41425000	Electronic markets and agents and brokers	MULT	X	
42441000	Motor vehicle and parts dealers	-	X	Indirect
42441100	Automobile dealers	MULT	X	
42442000	Furniture and home furnishings stores	MULT	X	
42443000	Electronics and appliance stores	MULT	X	
42444000	Building material	MULT	X	

	and garden supply stores			
42445000	Food and beverage stores	MULT	X	
42446000	Health and personal care stores	MULT	X	
42447000	Gasoline stations	MULT	X	
42448000	Clothing and clothing accessories stores	MULT	X	
42451000	Sporting goods, hobby, book, and music stores	MULT	X	
42452000	General merchandise stores	-	X	Indirect
42452100	Department stores	MULT	X	
42453000	Miscellaneous store retailers	ADD	X	
42454000	Nonstore retailers	MULT	X	
43481000	Air transportation	MULT	X	
43482000	Rail transportation	MULT	X	
43483000	Water transportation	MULT	X	
43484000	Truck transportation	ADD	X	
43485000	Transit and ground passenger transportation	ADD		
43486000	Pipeline transportation	MULT	X	
43487000	Scenic and sightseeing transportation	MULT	X	
43488000	Support activities for transportation	MULT	X	

43492000	Couriers and messengers	ADD	X	
43493000	Warehousing and storage	MULT	X	
44221000	Utilities	MULT	X	
50511000	Publishing industries, except Internet	MULT	X	
50512000	Motion picture and sound recording industries	MULT	X	
50515000	Broadcasting, except Internet	MULT	X	
50516000	Internet publishing and broadcasting	MULT	X	
50517000	Telecommunications	MULT	X	
50518000	ISPs, search portals, and data processing	MULT	X	
50519000	Other information services	MULT	X	
55521000	Monetary authorities - central bank	MULT	X	
55522000	Credit intermediation and related activities	-	X	Indirect
55522100	Depository credit intermediation	MULT	X	
55522110	Commercial banking	MULT	X	
55523000	Securities, commodity contracts, investments	MULT	X	
55524000	Insurance carriers and related activities	MULT	X	

55525000	Funds, trusts, and other financial vehicles	MULT	X	
55531000	Real estate	ADD	X	
55532000	Rental and leasing services	MULT	X	
55533000	Lessors of nonfinancial intangible assets	MULT	X	
60541000	Professional and technical services	-	X	Indirect
60541100	Legal services	MULT	X	
60541200	Accounting and bookkeeping services	ADD	X	
60541300	Architectural and engineering services	MULT	X	
60541500	Computer systems design and related services	MULT	X	
60541600	Management and technical consulting services	ADD	X	
60551000	Management of companies and enterprises	MULT	X	
60561000	Administrative and support services	-	X	Indirect
60561300	Employment services	MULT	X	
60561320	Temporary help services	MULT	X	
60561400	Business support	ADD	X	

	services			
60561700	Services to buildings and dwellings	MULT	X	
60562000	Waste management and remediation services	MULT	X	
65611000	Educational services	MULT	X	
65621000	Ambulatory health care services	-	X	Indirect
65621100	Offices of physicians	ADD	X	
65621400	Outpatient care centers	MULT	X	
65621600	Home health care services	MULT	X	
65622000	Hospitals	MULT	X	
65623000	Nursing and residential care facilities	-	X	Indirect
65623100	Nursing care facilities	ADD	X	
65624000	Social assistance	-	X	Indirect
65624400	Child day care services	ADD	X	
70711000	Performing arts and spectator sports	MULT	X	
70712000	Museums, historical sites, zoos, and parks	MULT	X	
70713000	Amusements, gambling, and recreation	MULT	X	
70721000	Accommodations	MULT	X	
70722000	Food services and drinking places	ADD	X	

80811000	Repair and maintenance	ADD	X	
80812000	Personal and laundry services	MULT	X	
80813000	Membership associations and organizations	ADD		
90911000	Federal, except U.S. Postal Service	MULT	X	
90919120	U.S. Postal Service	MULT	X	
90921611	State government education	ADD	X	
90922000	State government, excluding education	MULT	X	
90931611	Local government education	ADD	X	
90932000	Local government, excluding education	ADD	X	Election adjustment[3]

	Seasonal Adjustment - WW			
NAICS Tabcode		Mode	4/5 week adj	Other adj
10000000	Natural resources and mining	MULT	X	
10210000	Mining	MULT	X	
20000000	Construction	MULT	X	
31000000	Durable goods	MULT	X	
32000000	Nondurable goods	MULT	X	
41420000	Wholesale trade	MULT	X	
42000000	Retail trade	MULT	X	
43000000	Transportation and warehousing	ADD	X	
44220000	Utilities	MULT	X	
50000000	Information	MULT	X	
55520000	Finance and insurance	MULT	X	
55530000	Real estate and rental and leasing	ADD	X	
60540000	Professional and technical services	MULT	X	
60550000	Management of companies and enterprises	ADD	X	
60560000	Administrative and waste services	ADD	X	
65610000	Educational services	MULT	X	
65620000	Health care and social assistance	MULT	X	
70710000	Arts, entertainment,	MULT	X	

	and recreation			
70720000	Accommodations and food services	MULT	X	
80000000	Other services	MULT	X	
90910000	Federal	MULT	X	
90920000	State government	MULT	X	
90930000	Local government	MULT	X	Election adjustment

	Seasonal Adjustment - PW			
NAICS Tabcode		Mode	4/5 week adj	Other adj
10000000	Natural resources and mining	ADD	X	
20000000	Construction	ADD	X	
31321000	Wood products	ADD	X	
31327000	Nonmetallic mineral products	ADD	X	
31331000	Primary metals	MULT	X	
31332000	Fabricated metal products	MULT	X	
31333000	Machinery	MULT	X	
31334000	Computer and electronic products	MULT	X	
31335000	Electrical equipment and appliances	MULT	X	
31336000	Transportation equipment	MULT		
31336001	Motor vehicles and parts	MULT		
31337000	Furniture and related products	MULT	X	
31339000	Miscellaneous manufacturing	MULT	X	
32311000	Food manufacturing	MULT	X	
32312000	Beverages and tobacco products	ADD	X	
32313000	Textile mills	MULT	X	
32314000	Textile product mills	ADD	X	

32315000	Apparel	MULT	X
32316000	Leather and allied products	MULT	X
32322000	Paper and paper products	ADD	X
32323000	Printing and related support activities	MULT	X
32324000	Petroleum and coal products	MULT	X
32325000	Chemicals	ADD	X
32326000	Plastics and rubber products	MULT	X
41420000	Wholesale trade	MULT	X
42000000	Retail trade	MULT	X
43000000	Transportation and warehousing	MULT	X
44220000	Utilities	MULT	X
50000000	Information	MULT	X
55000000	Financial activities	ADD	X
60000000	Professional and business services	MULT	X
65000000	Education and health services	MULT	X
65620001	Health care	MULT	X
70000000	Leisure and hospitality	MULT	X
80000000	Other services	ADD	X

	Seasonal Adjustment - AWH				
NAICS Tabcode		**Mode**	**4/5 week adj**	**10/11 day adj**	**Easter/ Labor Day adj**
10000000	Natural resources and mining	MULT	X		X
20000000	Construction	ADD	X		X
31321000	Wood products	MULT	X		X
31327000	Nonmetallic mineral products	MULT	X		X
31331000	Primary metals	MULT	X		X
31332000	Fabricated metal products	MULT	X		X
31333000	Machinery	MULT	X		X
31334000	Computer and electronic products	MULT	X		X
31335000	Electrical equipment and appliances	MULT	X		X
31336000	Transportation equipment	MULT	X		X
31336001	Motor vehicles and parts	MULT	X		X
31337000	Furniture and related products	MULT	X		X
31339000	Miscellaneous manufacturing	MULT	X		X
32311000	Food manufacturing	MULT	X		X
32312000	Beverages and tobacco products	ADD	X		X
32313000	Textile mills	MULT	X		X
32314000	Textile product mills	MULT	X		X

Code	Name				
32315000	Apparel	MULT	X		X
32316000	Leather and allied products	MULT	X		X
32322000	Paper and paper products	MULT	X		X
32323000	Printing and related support activities	MULT	X		X
32324000	Petroleum and coal products	MULT	X		X
32325000	Chemicals	MULT	X		
32326000	Plastics and rubber products	MULT	X		X
41420000	Wholesale trade	MULT		X	X
42000000	Retail trade	MULT		X	
43000000	Transportation and warehousing	MULT		X	X
44220000	Utilities	MULT	X		
50000000	Information	MULT		X	
55000000	Financial activities	MULT		X	
60000000	Professional and business services	MULT		X	X
65000000	Education and health services	MULT		X	
65620001	Health care	MULT		X	
70000000	Leisure and hospitality	MULT		X	
80000000	Other services	MULT		X	X

	Seasonal Adjustment - AHE			
NAICS Tabcode		**Mode**	**4/5 week adj**	**10/11 day adj**
10000000	Natural resources and mining	ADD	X	
20000000	Construction	ADD	X	
31000000	Durable goods	ADD	X	
32000000	Nondurable goods	MULT	X	
41420000	Wholesale trade	ADD		X
42000000	Retail trade	ADD	X	
43000000	Transportation and warehousing	MULT	X	
44220000	Utilities	MULT	X	
50000000	Information	MULT	X	
55000000	Financial activities	MULT		X
60000000	Professional and business services	MULT		X
65000000	Education and health services	MULT	X	
70000000	Leisure and hospitality	ADD	X	
80000000	Other services	MULT		X

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

[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

Table 1. Percent differences between nonfarm employment benchmarks and estimates by industry division, March 1996-2005 [1]

Industry	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Total	(²)	0.4	(²)	0.2	0.4	-0.1	-0.2	-0.1	0.2	-0.1
Total Private	0.1	0.5	0.1	0.2	0.3	-0.2	-0.4	-0.2	0.2	-0.2
Government	-0.1	-0.4	-0.2	0.1	0.6	0.3	1.0	0.3	0.1	(²)

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

(2) Less than 0.05 percent.

Table 2. Nonfarm employment benchmarks by industry, March 2005

(Numbers in thousands)

Industry	Benchmark	Estimate	Difference	
			Amount	Percent
Total nonfarm	132,038	132,196	-158	-0.1
Total private	109,892	110,058	-166	-0.2
Goods-producing	21,640	21,654	-14	-0.1
Service-providing	110,398	110,542	-144	-0.1
Private service-providing	88,252	88,404	-152	-0.2
Natural resources and mining	602	604	-2	-0.3
Logging	64	65	-1	-1.6
Mining	539	540	-1	-0.2
Oil and gas extraction	124	123	1	0.8
Mining, except oil and gas	203	209	-6	-3.0
Coal mining	72	76	-4	-5.6
Support activities for mining	213	208	5	2.3

Construction	6,838	6,803	35	0.5
Construction of buildings	1,628	1,635	-7	-0.4
Heavy and civil engineering construction	842	827	15	1.8
Specialty trade contractors	4,369	4,341	28	0.6
Manufacturing	14,200	14,247	-47	-0.3
Durable goods	8,930	8,927	3	(¹)
Wood products	551	547	4	0.7
Nonmetallic mineral products	491	489	2	0.4
Primary metals	469	466	3	0.6
Fabricated metal products	1,511	1,513	-2	0.4
Machinery	1,157	1,153	4	0.3
Computer and electronic products	1,312	1,323	-11	-0.8
Computer and peripheral equipment	205	211	-6	-2.9
Communications equipment	147	153	-6	-4.1
Semiconductors and electronic components	450	446	4	0.9
Electronic instruments	434	435	-1	-0.2
Electrical equipment and appliances	438	444	-6	-1.4
Transportation equipment	1,785	1,778	7	0.4
Furniture and related products	568	566	2	0.4
Miscellaneous manufacturing	649	649	0	0
Nondurable goods	5,270	5,320	-50	-0.9
Food manufacturing	1,458	1,470	-12	-0.8

Beverages and tobacco products	187	186	1	0.5
Textile mills	224	229	-5	-2.2
Textile product mills	172	178	-6	-3.5
Apparel	265	263	2	0.8
Leather and allied products	40	43	-3	-7.5
Paper and paper products	488	500	-12	-2.5
Printing and related support activities	648	655	-7	-1.1
Petroleum and coal products	109	113	-4	-3.7
Chemicals	877	878	-1	-0.1
Plastics and rubber products	802	805	-3	-0.4
Trade, transportation, and utilities	25,501	25,427	74	0.3
Wholesale trade	5,699	5,674	25	0.4
Electronic markets and agents and brokers	724	713	11	1.5
Retail trade	14,951	14,877	74	0.5
Motor vehicle and parts dealers	1,904	1,901	3	0.2
Automobile dealers	1,258	1,248	10	0.8
Furniture and home furnishings stores	567	557	10	1.8
Electronics and appliance stores	522	517	5	1.0
Building material and garden supply stores	1,243	1,240	3	0.2
Food and beverage stores	2,779	2,794	-15	-0.5
Health and personal care stores	941	943	-2	-0.2
Gasoline stations	860	865	-5	-0.6

Clothing and clothing accessories stores	1,354	1,346	8	0.6
Sporting goods, hobby, book, and music stores	628	621	7	1.1
General merchandise stores	2,847	2,784	63	2.2
Department stores	1,546	1,569	-23	-1.5
Miscellaneous store retailers	881	897	-16	-1.8
Nonstore retailers	425	412	13	3.1
Transportation and warehousing	4,298	4,303	-5	-0.1
Air transportation	504	505	-1	-0.2
Rail transportation	227	222	5	2.2
Water transportation	57	59	-2	-3.5
Truck transportation	1,360	1,356	4	0.3
Transit and ground passenger transportation	402	404	-2	-0.5
Pipeline transportation	38	39	-1	-2.6
Scenic and sightseeing transportation	22	21	1	4.5
Support activities for transportation	548	550	-2	-0.4
Couriers and messengers	564	576	-12	-2.1
Warehousing and storage	577	570	7	1.2
Utilities	554	574	-20	-3.6
Information	3,056	3,120	-64	-2.1
Publishing industries, except Internet	904	906	-2	-0.2
Motion picture and sound recording industries	364	377	-13	-3.6
Broadcasting, except Internet	325	331	-6	-1.8
Internet publishing and broadcasting	30	35	-5	-16.7

Telecommunications	1,003	1,028	-25	-2.5
ISPs, search portals, and data processing	379	394	-15	-4.0
Other information services	51	51	0	0
Financial activities	8,063	8,131	-68	-0.8
Finance and insurance	5,980	6,034	-54	-0.9
Monetary authorities--central bank	21	20	1	4.8
Credit intermediation and related activities	2,844	2,893	-49	-1.7
Depository credit intermediation	1,761	1,792	-31	-1.8
Commercial banking	1,292	1,306	-14	-1.1
Securities, commodity contracts, investments	783	785	-2	-0.3
Insurance carriers and related activities	2,244	2,250	-6	-0.3
Funds, trusts, and other financial vehicles	88	85	3	3.4
Real estate and rental and leasing	2,083	2,097	-14	-0.7
Real estate	1,419	1,426	-7	-0.5
Rental and leasing services	638	647	-9	-1.4
Lessors of nonfinancial intangible assets	26	24	2	7.7
Professional and business services	16,540	16,604	-64	-0.4
Professional and technical services	7,024	6,986	38	0.5
Legal services	1,157	1,153	4	0.3
Accounting and bookkeeping services	951	983	-32	-3.4
Architectural and engineering services	1,268	1,277	-9	-0.7
Computer systems design and related services	1,178	1,175	3	0.3
Management and technical consulting services	824	789	35	4.2

Management of companies and enterprises	1,739	1,718	21	1.2
Administrative and waste services	7,778	7,900	122	-1.6
Administrative and support services	7,448	7,581	-133	-1.8
Employment services	3,376	3,510	-134	-4.0
Temporary help services	2,377	2,396	-19	-0.8
Business support services	767	757	10	1.3
Services to buildings and dwellings	1,600	1,601	-1	-0.1
Waste management and remediation services	330	319	11	3.3
Education and health services	17,355	17,360	-5	(^{1})
Educational services	2,961	2,973	-12	-0.4
Health care and social assistance	14,395	14,387	8	0.1
Ambulatory health care services	5,049	5,030	19	0.4
Offices of physicians	2,070	2,089	-19	-0.9
Outpatient care centers	467	453	14	3.0
Home health care services	806	796	10	1.2
Hospitals	4,311	4,340	-29	-0.7
Nursing and residential care facilities	2,834	2,823	11	0.4
Nursing care facilities	1,573	1,569	4	0.3
Social assistance	2,201	2,194	7	0.3
Child day care services	791	799	-8	-1.0
Leisure and hospitality	12,365	12,321	44	0.4
Arts, entertainment, and recreation	1,707	1,655	52	3.0
Performing arts and spectator sports	350	342	8	2.3
Museums, historical sites, zoos, and parks	112	108	4	3.6

Amusements, gambling, and recreation	1,245	1,204	41	3.3
Accommodations and food services	10,657	10,667	-10	-0.1
Accommodations	1,748	1,769	-21	-1.2
Food services and drinking places	8,909	8,898	11	0.1
Other services	5,372	5,441	-69	-1.3
Repair and maintenance	1,239	1,235	4	0.3
Personal and laundry services	1,270	1,274	-4	-0.3
Membership associations and organizations	2,863	2,933	-70	-2.4
Government	22,146	22,138	8	(¹)
Federal	2,716	2,709	7	0.3
Federal, except U.S. Postal Service	1,946	1,932	14	0.7
U.S. Postal Service	770	777	-7	-0.9
State government	5,157	5,168	-11	-0.2
State government education	2,397	2,433	-36	-1.5
State government, excluding education	2,760	2,736	24	0.9
Local government	14,273	14,261	12	0.1
Local government education	8,186	8,177	9	0.1
Local government, excluding education	6,088	6,084	4	0.1

(¹) Less than 0.05 percent.

Table 3. Differences in seasonally adjusted levels and over-the-month changes, total nonfarm employment, January 2005-October 2005

(In thousands)

	Levels		Over-the-month changes		
	As previously published	As revised	As previously published	As revised	Difference
2005:					
January	132,573	132,471	124	76	-48
February	132,873	132,736	300	265	-35
March	132,995	132,876	122	140	18
April	133,287	133,104	292	228	-64
May	133,413	133,210	126	106	-20
June	133,588	133,376	175	166	-9
July	133,865	133,617	277	241	-36
August	134,013	133,792	148	175	27
September	134,030	133,840	17	48	31
October	134,055	133,877	25	37	12

(p): Preliminary

Table 4. Hours and earnings estimates, selected industries, March 2005

Industry	Average weekly hours	Average hourly earnings
Total private	33.4	$15.95
Goods-producing	39.6	17.37
Natural resources and mining	44.9	18.33
Construction	37.8	19.24
Manufacturing	40.4	16.42
Durable goods	40.8	17.16
Wood products	39.2	13.13
Nonmetallic mineral products	41.1	16.30
Primary metals	43.0	18.76
Fabricated metal products	40.6	15.63
Machinery	42.2	17.03
Computer and electronic products	39.5	17.96
Electrical equipment and appliances	40.0	15.11

Transportation equipment	42.2	21.83
Furniture and related products	39.4	13.36
Miscellaneous manufacturing	39.0	14.03
Nondurable goods	39.6	15.19
Food manufacturing	38.2	13.01
Beverages and tobacco products	39.9	18.99
Textile mills	40.3	12.26
Textile product mills	39.6	11.57
Apparel	36.3	10.07
Leather and allied products	37.6	11.48
Paper and paper products	41.7	17.95
Printing and related support activities	38.4	15.68
Petroleum and coal products	44.6	24.80
Chemicals	42.3	19.48
Plastics and rubber products	39.8	14.71
Private service-providing	32.1	15.58

Trade, transportation, and utilities	33.2	14.86
Wholesale trade	37.5	17.88
Retail trade	30.3	12.35
Transportation and warehousing	36.8	16.59
Utilities	40.1	26.31
Information	36.2	21.64
Financial activities	35.6	17.76
Professional and business services	33.9	17.89
Education and health services	32.4	16.50
Leisure and hospitality	25.4	9.08
Other services	30.7	14.18

Text Table A. Net Birth/Death Estimates, Post-Benchmark 2005

(In thousands)

2005:	Natural Resources & Mining	Construction	Manufacturing	Trade, Transportation, & Utilities	Information	Financial Activities	Professional & Business Services	Education & Health Services	Leisure & Hospitality	Other Services	Monthly Amount Contributed
April	-2	34	1	11	-5	-3	64	21	90	-5	206
May	1	38	8	24	4	2	19	14	75	6	191
June	1	29	8	22	0	5	25	-1	81	6	176
July	1	-11	-21	-22	-6	-9	-15	-11	32	-10	-72
August	1	16	0	23	4	8	23	19	27	4	125
September	1	11	6	20	-2	4	13	19	-25	3	50
October	1	0	-4	14	9	24	35	20	-42	0	57
November	-1	-6	1	14	4	5	4	8	-9	1	21
December	0	-5	2	19	1	13	10	5	15	3	63
Cumulative Total	3	106	1	125	9	49	178	94	244	8	817