

Comparing Current and Former Industry and Occupation ECEC Series

by [Harriet G. Weinstein](#) and [Mark A. Loewenstein](#)

Originally Posted: August 25, 2004

BLS recently converted the Employer Costs for Employee Compensation (ECEC) series to new industrial and occupational classification systems. Some of the resulting new series are comparable to the old ones, while others are not.

The BLS data series [Employer Costs for Employee Compensation \(ECEC\)](#), which measures employers' costs per hour worked for total compensation, switched to new industry and occupation classification systems with the release of the March 2004 data.¹ The 2002 [North American Industry Classification System \(NAICS\)](#) is now used to classify industries, replacing the 1987 Standard Industrial Classification (SIC) system.² The 2000 [Standard Occupational Classification \(SOC\)](#) system is used to classify occupations, replacing the [Occupational Classification System \(OCS\)](#).³ SIC- and OCS-based estimates will no longer be produced for the ECEC.

The United States adopted NAICS and SOC as the standard industrial and occupational classification systems to be used by all Federal statistical agencies to provide a means of comparing data across agencies.⁴ The U.S. Office of Management and Budget (OMB) has mandated that all statistical agencies switch to NAICS and SOC.⁵

The conversion to NAICS reflects changes in the economy since the last SIC revision, in 1987. NAICS focuses on *how* products and services are produced, while the SIC system focuses on *what* is produced. Under NAICS, establishments using similar raw material inputs, similar capital equipment, and similar labor are classified in the same industry.

The SOC is designed to cover all occupations in which work is performed for pay or profit, and reflects the current occupational structure in the United States. It contains many new occupations, especially in the service and information fields.

The ECEC was the first product of the [National Compensation Survey \(NCS\)](#)⁶ to be published using NAICS and SOC. The ECEC measures employers' costs per hour worked for total compensation, as well as costs as a percent of total compensation. Total compensation consists of wages and salaries and the cost of employee benefits.

The ECEC switched to NAICS in 2004 because it uses employment estimates from the Current Employment Statistics (CES) survey for its industry weights; the CES had already converted to NAICS, and CES employment estimates are no longer available under the SIC classifications. Current plans call for the NCS products that are not dependent on the CES to convert to NAICS and SOC during the next two years.

Data Comparability

The higher-level occupational and industrial categories, such as civilian workers and private industry workers, are comparable under the new and old classification systems. However, many detailed occupation and industry categories differ in the new systems and thus may not be comparable, even when they have the same title as in the old system. Consequently, caution should be used when comparing industry and occupation estimates across surveys or over time.⁷

From the NCS perspective, a series in the ECEC is defined as comparable under the new and old classification systems if it meets three criteria.⁸ The first criterion is based on the overlap of employment between the two series. A NAICS series is deemed comparable with the corresponding SIC series only if at least 90 percent of the employment in the NAICS classification is also in the SIC category, and at least 90 percent of the employment in the SIC classification is also in the NAICS category. For example, the construction industry meets the first criterion because 97.2 percent of the employees in the SIC-based construction industry are in the NAICS-based construction industry, and 98.9 percent of those in NAICS-based construction are also in SIC-based construction. In contrast, retail trade does not meet this criterion: Although 94.4 percent of the employees in NAICS-based retail trade are also in SIC-based retail trade, only 61.4 percent of those in the

SIC-based retail trade are also in NAICS-based retail trade. Similarly, SOC and OCS series are deemed comparable only if there is at least a 90-percent overlap of employment in each direction.

Table 1 shows the employment overlaps in the NAICS- and SIC-based industry series using data from the Current Employment Statistics survey. Table 2 provides a similar summary for the SOC- and OCS-based occupation series utilizing the data that were used to produce the Employment Cost Index (ECI).

The second comparability criterion is based on a comparison of the average wage of the old and new series. To be deemed comparable, mean wages in the new series must be close to mean wages in the old series. The third criterion is similar to the second, but it is based on a comparison of average rates of total compensation (wages plus benefits). Table 3 presents the ratios of mean wages and mean compensation for the NAICS- and SIC-based industries that met the first criterion of comparability. Table 4 presents the ratios of mean wages and mean compensation for the SOC- and OCS-based occupations. Series are viewed as comparable if the ratios are close to 1.⁹ All industries and occupations that meet the first criterion of a 90-percent employment overlap also meet the wage and compensation criteria. Tables 5 and 6 identify series that meet the three criteria for comparability, as well as those that are new or fail to meet the criteria.

New Series

The March 2004 ECEC introduced several series (the information industry, for example) that did not exist under the former classification systems (SIC and OCS). These industrial and occupational categories were formed by recombining pieces of the previous classification systems. In addition, the following NAICS-based industries meet the three comparability criteria described earlier, but they have not been published previously (NAICS codes in parentheses):

- Finance and insurance (52)
- Credit intermediation and related activities (522)
- Insurance carriers and related activities (524)
- Leisure and hospitality (71, 72)
- Accommodation and food services (72)

Occupational series are presented by the aggregate groups specified in the [2000 Standard Occupational Classification \(SOC\) system](#). The white-collar and blue-collar series that appeared in previous releases were dropped. The white-collar group consisted of occupations with disparate wage and compensation rates. For example, as shown in the March 2004 ECEC release, the hourly total compensation rate for civilian workers in management, professional and related occupations was twice that of those in sales and office occupations, (\$40.64 and \$18.81, respectively).

The ECEC conversion to the SOC system resulted in the introduction of a new series, "primary, secondary, and special education school teachers."¹⁰ BLS will continue to publish data for the broader group "teachers," which includes the new category, as well as "postsecondary teachers" and "other teachers and instructors," (the latter group includes "adult literacy, remedial education and GED teachers and instructors").¹¹

Harriet G. Weinstein

Senior Labor Economist, Office of Compensation Levels and Trends, Bureau of Labor Statistics.

Telephone: (202) 691-6232; E-mail: Weinstein.Harriet@bls.gov

Mark A. Loewenstein

Senior Research Economist, Compensation Research and Program Development Group, Bureau of Labor Statistics.

Telephone: (202) 691-7385; E-mail: Loewenstein.Mark@bls.gov

Notes

Acknowledgment: The authors would like to thank John L. Bishow for compiling data used in this article.

¹ *Employer Costs for Employee Compensation—March 2004*, USDL 04-1105 (U.S. Department of Labor, June 24, 2004); available on the Internet at <http://www.bls.gov/ncs/ect/sp/ecnr0050.pdf>

2 For more information on NAICS, including background and definitions, see *North American Industry Classification System: United States, 2002*; or visit the NAICS page of the BLS website at <http://www.bls.gov/bls/naics.htm>. For more information on the SIC system, see *Standard Industrial Classification Manual: 1987* (Office of Management and Budget, 1987).

3 For more information on the 2000 SOC system, see *Standard Occupational Classification Manual: 2000* (Office of Management and Budget, October 2000); or visit the SOC page of the BLS website at <http://www.bls.gov/soc/>. For more information on the OCS, see *Occupational Classification System Manual (OCSM)*, on the Internet at <http://www.bls.gov/ncs/ocs/ocsm/commain.htm>.

4 In the case of NAICS, the new classification system also was developed to provide a means of comparing statistical data from the United States, Canada, and Mexico.

5 For background information on the conversion to NAICS, see *North American Industry Classification System: United States, 2002*; or visit the NAICS page of the BLS website at <http://www.bls.gov/bls/naics.htm>. For background information on the conversion to SOC, see *Standard Occupational Classification Manual: 2000*; or visit the SOC page of the BLS website at <http://www.bls.gov/soc/>.

6 In the **National Compensation Survey (NCS)**, from which the ECEC is derived, the data cover all civilian workers, defined by NCS as those employed in private industry and in State and local government. Other NCS products provide comprehensive measures of occupational earnings, compensation cost trends, benefit incidence, and detailed benefit provisions. Detailed occupational earnings are available for localities, broad geographic regions, and the Nation. The index component of the NCS, the **Employment Cost Index (ECI)**, measures changes in labor costs, holding employment composition fixed.

7 In addition, it should be noted that users who need percent changes in employer costs with the composition of employment held constant should use the **Employment Cost Index (ECI)**. The ECEC, in contrast to the ECI, reflects changing employment structure.

8 Industries and occupations that meet the NCS comparability criteria are not necessarily deemed comparable for other BLS statistical series, which have their own comparability criteria.

9 A more technical discussion that presents 95-percent confidence intervals for the ratio of mean SOC- and OCS-based wages and that of mean NAICS- and SIC-based wages can be found in "Wage and Compensation Comparisons across SOC/OCSM Occupational Categories and to NAICS/SIC Industry Categories," available from the authors upon request.

10 See *Employer Costs for Employee Compensation--March 2004*, p. 7, table 2. The new category includes "preschool and kindergarten teachers," "elementary and middle school teachers," "secondary school teachers," and "special education teachers."

11 Under the former (OCS) system, the group "teachers" included the following subgroups: "teachers, college and university" (now "postsecondary"); "prekindergarten and kindergarten teachers"; "elementary school teachers"; "secondary school teachers"; "teachers, special education"; "teachers, not elsewhere classified"; "substitute teachers"; and "vocational and educational counselors." Under SOC, the group "teachers" includes only "postsecondary teachers"; "primary, secondary, and special education school teachers"; and "other teachers and instructors."

Table 1. NAICS–SIC Employment Crosswalk

NAICS	NAICS code	SIC code	SIC to NAICS (percent of employees)	NAICS to SIC (percent of employees)
Construction(1)	23	15-17	97.2	98.9
Manufacturing(1)	31-33	20-39	98.2	91.5
Trade, transportation, and utilities	22, 42, 44, 45, 48, 49	40-59	68.9	99.0
Wholesale trade	42	50, 51	84.9	99.7
Retail trade	44, 45	52-59	61.4	94.4
Transportation and warehousing	48, 49	40-48	62.1	89.7
Utilities	22	49	70.1	100.0
Information	51	27, 48, 73, 78, 82	23.9	99.1
Financial activities(1)	52,53	60-67	90.4	90.4

Footnotes:
(1) Previously published under the SIC classification system.

Source: Bureau of Labor Statistics, Current Employment Statistics

NAICS	NAICS code	SIC code	SIC to NAICS (percent of employees)	NAICS to SIC (percent of employees)
Finance and insurance	52	60, 61, 62	94.7	97.6
Credit intermediation and related activities	522	60, 61	92.0	98.5
Insurance carriers and related activities	524	63, 64	93.9	100.0
Real estate and rental and leasing	53	65, 73, 75, 78	14.7	95.0
Professional and business services	54, 55, 56	42, 49, 73, 87	74.3	73.3
Professional, scientific, and technical services	54	73, 87	38.7	72.9
Administrative and support and waste management and remediation services	56	42, 49, 73	52.5	83.8
Education and health services	61, 62	80, 82	96.8	80.6
Educational services(1)	61	82	97.5	94.3
Elementary and secondary schools(1)	6111	821	99.4	100.0
Junior colleges and colleges, universities, and professional schools(1)	6112, 6113	822	98.4	100.0
Health care and social assistance	62	80, 83	96.7	99.2
Hospitals(1)	622	806	98.8	100.0
Nursing and residential care facilities	623	805	99.2	73.4
Leisure and hospitality	71, 72	58, 70, 79, 84	98.1	98.6
Accommodation and food services	72	58, 70	98.9	98.9
Other services (except Public administration)	81	72, 75, 86, 88	84.6	81.6
Public administration(1)	92	91-97	99.4	94.8

Footnotes:

(1) Previously published under the SIC classification system.

Source: Bureau of Labor Statistics, Current Employment Statistics

Table 2. SOC–OCS Employment Crosswalk

SOC (group codes in parentheses)	SOC to OCS (percent of employees)	OCS to SOC (percent of employees)
Management, professional, and related (11-29)	92.8	97.0
Management, business, and financial(1) (11-13)	90.1	93.2
Professional and related(2) (15-29)	91.3	96.2
Teachers (25-1000, 25-2000, 25-3000)	99.3	94.9
Primary, secondary, and special education school teachers (25-2000)	99.9	90.6
Registered nurses (29-1111)	100.0	98.7
Service (31-39)	94.8	96.5
Sales and office (41-43)	96.3	94.1
Sales and related (41)	98.2	95.3
Office and administrative support(3) (43)	94.4	92.6
Natural resources, construction, and maintenance (45-49)	94.8	49.9
Construction and extraction (47)	68.9	30.4
Installation, maintenance, and repair (49)	88.2	42.9
Production, transportation, and material moving (51-53)	62.1	96.8
Production (51)	66.9	99.1
Transportation and material moving (53)	55.3	93.0

Footnotes:
(1) Previously titled executive, administrative, and managerial.
(2) Previously titled professional specialty and technical.
(3) Previously titled administrative support, including clerical.

Source: Bureau of Labor Statistics, unpublished data used to compile the Employment Cost Index.

Table 3. Mean wage and compensation ratios of NAICS and SIC industry category

INDUSTRY	Mean NAICS Wage/Mean SIC Wage	Mean NAICS Compensation/Mean SIC Compensation
Construction	1.0001	1.0003
Manufacturing	0.9952	0.9950
Financial activities	0.9912	0.9905
Finance and insurance	1.0003	1.0004
Credit intermediation and related activities	1.0002	1.0007
Insurance carriers and related activities	0.9945	0.9942
Educational services	1.0004	1.0000
Elementary and secondary schools	1.0003	1.0003
Junior colleges and colleges, universities, and professional schools	1.0018	1.0015
Healthcare and social assistance	1.0007	0.9999
Hospitals	0.9995	0.9998
Leisure and hospitality	0.9981	0.9984

Source: Bureau of Labor Statistics, unpublished data used to compile the Employment Cost Index.

INDUSTRY	Mean NAICS Wage/Mean SIC Wage	Mean NAICS Compensation/Mean SIC Compensation
Accommodation and food services	1.0008	1.0026
Public Administration	1.0018	1.0013

Source: Bureau of Labor Statistics, unpublished data used to compile the Employment Cost Index.

Table 4. Mean wage and compensation ratios by SOC and OCS occupational category

OCCUPATION	Mean SOC Wage/Mean OCS Wage	Mean SOC Compensation/Mean OCS Compensation
Management, professional and related	0.9900	0.9901
Management, business, financial	0.9973	0.9964
Professional and related	0.9850	0.9855
Teachers	1.0057	1.0048
Primary, secondary, and special education school teachers	1.0087	1.0103
Registered nurses	0.9997	0.9999
Service	1.0048	1.0047
Sales and office	0.9958	0.9966
Sales and related	0.9989	0.9985
Office and administrative support	0.9925	0.9934

Source: Bureau of Labor Statistics, unpublished data used to compile the Employment Cost Index.

Table 5. ECEC industrial comparability between NAICS and SIC

NAICS (sector in parentheses)	Series meets definition of comparability	Break in series or new series
Goods-producing industries	X	
Construction (23)	X	
Manufacturing (31-33)	X	
Service-providing industries(1)	X	
Information (51)		X
Trade, transportation, and utilities (42, 44, 45, 48, 49, 22)		X
Wholesale trade (42)		X
Retail trade (44, 45)		X
Transportation and warehousing (48, 49)		X
Utilities (22)		X
Financial activities(2) (52, 53)	X	
Finance and insurance (52)		X
Credit intermediation and related activities (522)		X

Footnotes:
 (1) Previously titled service-producing industries.
 (2) Previously titled finance, insurance, and real estate.
 (3) Previously titled elementary and secondary education.
 (4) Previously titled higher education.

NAICS (sector in parentheses)	Series meets definition of comparability	Break in series or new series
Insurance carriers and related activities (524)		X
Real estate and rental and leasing (53)		X
Professional and business services (54, 55, 56)		X
Professional, scientific, and technical services (54)		X
Administrative and support and waste management and remediation services (56)		X
Education and health services (61, 62)		X
Educational services (61)	X	
Elementary and secondary schools ⁽³⁾ (611110)	X	
Junior colleges and colleges, universities, and professional schools ⁽⁴⁾ (611210, 611310)	X	
Health care and social assistance (62)		X
Hospitals (622)	X	
Nursing and residential care facilities (623)		X
Leisure and hospitality (71, 72)		X
Accommodation and food services (72)		X
Other services (except Public administration) (81)		X
Public administration (92)	X	

Footnotes:

- (1) Previously titled service-producing industries.
- (2) Previously titled finance, insurance, and real estate.
- (3) Previously titled elementary and secondary education.
- (4) Previously titled higher education.

Table 6. ECEC occupational comparability between SOC and OCS

SOC (sector in parentheses)	Series meets definition of comparability	Break in series or new series
Management, professional, and related (11-29)		X
Management, business, and financial ⁽¹⁾ (11-13)	X	
Professional and related ⁽²⁾ (15-29)	X	
Teachers (25-1000, 25-2000, 25-3000)	X	
Primary, secondary, and special education school teachers (25-2000)		X
Registered nurses (29-1111)	X	
Service (31-39)	X	
Sales and office (41-43)		X
Sales and related (41)	X	
Office and administrative support ⁽³⁾ (43)	X	
Natural resources, construction, and maintenance (45-49)		X

Footnotes:

- (1) Previously titled executive, administrative, and managerial.
- (2) Previously titled professional specialty and technical.
- (3) Previously titled administrative support, including clerical.

SOC (sector in parentheses)	Series meets definition of comparability	Break in series or new series
Construction and extraction (47)		X
Installation, maintenance, and repair (49)		X
Production, transportation, and material moving (51-53)		X
Production (51)		X
Transportation and material moving (53)		X
Footnotes: (1) Previously titled executive, administrative, and managerial. (2) Previously titled professional specialty and technical. (3) Previously titled administrative support, including clerical.		

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