

Relative Pay Rates among Census Divisions and Occupational Groups

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Based on the results of the National Compensation Survey, hourly earnings of all workers in private industry and State and local governments averaged \$16.23 in 2001; average earnings varied considerably by census division and major occupational group, ranging from \$32.83 per hour for executive, administrative, and managerial workers in New England to \$8.11 for service occupations in the West South Central division. ¹

The results of the 2001 [National Compensation Survey \(NCS\)](#) represent the fifth annual findings of establishment-based surveys in a sample of 154 metropolitan and nonmetropolitan areas. The sample represents the Nation's 326 metropolitan statistical areas (as defined by the Office of Management and Budget) and the remaining portions of the 50 States. Agricultural, private household, and Federal government workers are not included in the NCS.²

For ease of analysis, average earnings for census divisions, major occupational groups, and selected worker characteristics were compared to the national average and converted to relative earnings. The national average (\$16.23) was assigned a value of 100, and averages for subnational data were converted to a percent of the national estimate. For example, when the average hourly rate for New England (\$17.54) was compared with the national rate, the value for New England converted to 108 ($\$17.54/\$16.23 \times 100 = 108$), which means that average wages in New England are 8 percent above the national average.

Pay Relative Comparisons

At the all-occupational level, average earnings in the Middle Atlantic, Pacific, and New England census divisions were among the highest, registering pay relatives of 115, 109, and 108, respectively. (See table 1.) The pay relative for the East North Central division was 99, while the pay relatives for the remaining four divisions were in the low- to mid-90s. ([Appendix A](#) lists the States included in each of the census divisions.)

White-collar occupations. Nationwide, average hourly earnings of workers in white-collar occupations exceeded those in blue-collar occupations by about 45 percent; white-collar workers exceeded the average hourly earnings of workers in service occupations by about 100 percent. Among the white-collar major occupational groups, executive, administrative, and managerial workers had the highest average earnings, surpassing those of the next highest group, professional specialty and technical, by about 10 percent. The average pay differences between the executive and professional groups varied considerably among the census divisions, ranging from little or no statistically significant differences in several divisions to about a 28-percent advantage for the executive group in the West North Central division. Average earnings for white-collar workers in the lower-paying sales and administrative support major occupational groups were more in line with blue-collar rates than for other white-collar jobs.

Blue-collar occupations. There also was wide pay dispersion among the four blue-collar major occupational groups. (Pay dispersion is a measure of variation in pay among occupational groups.) Nationally, the relative earnings of precision production, craft, and repair workers (106) were higher than the earnings for machine operators, assemblers, and inspectors (76), transportation and material movement workers (83), and handlers, equipment cleaners, helpers, and laborers (64).

Among census divisions, the largest average percentage difference between the highest and lowest paying blue-collar major occupational groups was in the Mountain division, where the average hourly rate for precision production workers (\$17.37) exceeded the rate for handlers (\$9.82) by about 77 percent. (See table 2.) The East North Central division had the smallest earnings percentage difference between these two major occupational groups, about 58 percent.

Service occupations. The service major occupational group includes workers engaged in providing such diverse services as firefighting, cooking, janitorial, and hairdressing. Nationally, among the nine major occupational groups, service workers had

the lowest average hourly earnings, \$9.86. However, some service workers, especially in the protective service area, had average hourly earnings comparable to, or well above, the national average of \$16.23. Police and detective supervisors, for example, averaged \$26.99 per hour.

Among the census divisions, average hourly earnings of service workers in the Middle Atlantic division were about 71 percent of the national average. The Pacific and New England divisions had pay relatives of 69 and 65, respectively. Pay relatives for service workers in the other divisions ranged from 50 in the West South Central division to 61 in the East North Central division.

Full- and part-time workers. Full-time workers averaged \$17.13 per hour in 2001; the average for part-time workers was \$9.17, or about 54 percent of the full-time rate and 57 percent of the national average for all workers. Among the eight census divisions, full-time workers in the Middle Atlantic had the highest average earnings. The Mountain, West North Central, West South Central and South Atlantic divisions had the lowest average earnings. Among part-time workers, average pay was highest in the New England, Pacific, and Middle Atlantic divisions, and lowest in the West South Central and South Atlantic divisions. Full-time workers in the West South Central division had more than twice the hourly average rate of their part-time counterparts, the widest percentage difference among the divisions; the narrowest percentage gap among workers on full- or part-time work schedules occurred in the New England division.

Union and nonunion workers. Union workers averaged \$19.50 per hour, about 26 percent more than the average of \$15.52 for nonunion workers. Among the eight census divisions, average pay of union workers was highest in the Pacific division, although the pay difference between the Pacific and New England divisions was not statistically significant. The average hourly rate for nonunion workers in the Middle Atlantic division (\$18.16) surpassed the average rate for union workers in the West North Central, South Atlantic, and West South Central divisions, but the differences were not statistically significant.

Time and incentive workers. Wages of time workers are based solely on an hourly rate or salary; incentive workers are those whose wages are at least partially based on productivity payments such as piece rates, commissions, and production bonuses. Nationwide, average hourly pay of incentive workers was about 27 percent more than time-paid workers, \$20.38 versus \$16.00. Among the census divisions, there were considerable differences in the pay gaps between these two pay systems. In New England, for example, there was very little difference in average pay; in some other divisions, however, the average hourly rate of incentive workers exceeded those of time workers by sizable amounts.

Since the National Compensation Survey is a sample survey and subject to sampling error, caution must be exercised in making direct salary comparisons of published estimates. This is especially true for incentive-paid workers because the standard error for these workers is higher than for most other estimates. (See the section on data reliability that follows for an explanation of standard errors.)

Metropolitan and nonmetropolitan areas. Metropolitan and nonmetropolitan summary earnings data also are available by census division. Workers in metropolitan areas generally had higher average earnings than workers in nonmetropolitan areas. In the Mountain division, however, nonmetropolitan area workers had higher average earnings than their metropolitan area counterparts.

The average hourly earnings differences between metropolitan and nonmetropolitan workers were minimal (and not statistically significant) in the East North Central and West South Central divisions. In the West North Central division, however, metropolitan area workers had about a 20-percent pay advantage over nonmetropolitan area workers.

Pay spreads for occupations within census divisions. Within the census divisions, average hourly earnings of the highest and lowest paying major occupational groups varied considerably. For example, in the Pacific census division, the average hourly pay of executives (\$29.13) was about 164 percent higher than the average pay of handlers (\$11.04). This contrasted with the approximately 229-percent advantage in the average pay of the highest paid occupational group (executives) over the lowest paid group (service workers) in the West South Central division.

Occupational pay dispersion across census divisions. Table 2 presents average hourly earnings for the nine major occupational groups and eight census divisions, along with a measure of dispersion for occupations across divisions.

Transportation and material moving occupations posted the narrowest average earnings gap among the groups and across the divisions. For these transportation workers, there was about a 20-percent difference in average hourly earnings of the highest paying census division (\$14.83 in the Middle Atlantic) and the lowest paying division (\$12.35 in the West South Central). This contrasted with the 43-percent difference in average hourly earnings of workers in service occupations in the highest and lowest paying census divisions.

Data Reliability

The data in this article are estimates from a scientifically selected probability sample. There are two types of errors possible in an estimate based on a sample survey: sampling errors and nonsampling errors.

Sampling errors occur because observations come only from a sample and not from an entire population. The sample used for the NCS is one of a number of possible samples of the same size that could have been selected using the sample design. Estimates derived from the different samples would differ from each other.

A measure of the variation among these differing estimates is called the *standard error* or *sampling error*. It indicates the precision with which an estimate from a particular sample approximates the average result of all possible samples. The relative standard error is the standard error divided by the estimate.³

The standard error can be used to calculate a "confidence interval" around a sample estimate. As an example, the mean hourly earnings for incentive-paid workers in New England were \$17.87, with a relative standard error of 13.5 percent for this estimate. At the 90-percent level, the confidence interval for this estimate is \$13.90 to \$21.84 (\$17.87 plus or minus 1.645 times 13.5 percent [i.e., 0.135] = \$3.97); (\$17.87 + \$3.97 = \$21.84; \$17.87 - \$3.97 = \$13.90). If all possible samples were selected to estimate the population value, the interval from each sample would include the true population value approximately 90 percent of the time.

Nonsampling errors also affect survey results. They can stem from many sources, such as inability to obtain information for some establishments, difficulties with survey definitions, inability of the respondents to provide correct information, or mistakes in recording or coding the data obtained. Although they are not specifically measured, the nonsampling errors are expected to be minimal due to the extensive training of the field economists who gather the survey data by personal visit, computer edits of the data, and detailed data review.

Appendix A: Nine Census Divisions And States Included In Each Division.

New England	Middle Atlantic ⁴	East North Central ⁵	West North Central ⁶
Connecticut Maine Massachusetts New Hampshire Rhode Island Vermont	New Jersey New York Pennsylvania	Illinois Indiana Michigan Ohio Wisconsin	Iowa Kansas Minnesota Missouri Nebraska North Dakota South Dakota

South Atlantic	East South Central ⁷	West South Central	Mountain	Pacific
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Delaware	Alabama	Arkansas	Arizona	Alaska
District of Columbia	Kentucky	Louisiana	Colorado	California
Florida	Mississippi	Oklahoma	Idaho	Hawaii
Georgia	Tennessee	Texas	Montana	Oregon
Maryland			Nevada	Washington
North Carolina			New Mexico	
South Carolina			Utah	
Virginia			Wyoming	
West Virginia				

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Notes

1 Data are presented for eight census divisions; data for the East South Central division are not included because they do not meet BLS publication standards. Certain series are not published when the number of observations is insufficient to warrant presentation. Prepublication review of data prevents possible disclosure of information about a specific establishment.

2 For more information on the NCS, see *National Compensation Survey: Occupational Wages in the United States, 2001*, Bulletin 2552 (Bureau of Labor Statistics, January 2003); see also the NCS website at <http://stats.bls.gov/ncs/home.htm>.

3 Relative standard errors for all published earnings' estimates can be found in *National Compensation Survey: Occupational Wages in the United States, 2001*, Bulletin 2552; and on the NCS website at <http://stats.bls.gov/ncs/home.htm>.

4 The Middle Atlantic census division also includes the New York, NY, Consolidated Metropolitan Statistical Area (which comprises parts of New York, New Jersey, Connecticut, and Pennsylvania), and the Philadelphia, PA, Consolidated Metropolitan Statistical Area (which comprises parts of Pennsylvania, New Jersey, Delaware, and Maryland).

5 The East North Central census division also includes the Cincinnati, OH, Consolidated Metropolitan Statistical Area (which comprises parts of Ohio, Kentucky, and Indiana).

6 The West North Central census division also includes the St. Louis, MO, Metropolitan Statistical Area (which comprises parts of Missouri and Illinois), and the Minneapolis-St. Paul, MN, Metropolitan Statistical Area (which comprises parts of Minnesota and Wisconsin).

7 The East South Central census division also includes the Louisville, KY, Metropolitan Statistical Area (which comprises parts of Kentucky and Indiana), and the Memphis, TN, Metropolitan Statistical Area (which comprises parts of Tennessee, Arkansas, and Mississippi). As noted in the text, data for the East South Central division did not meet publishability standards.

Table 1. Relative pay levels for all civilian workers by eight census divisions, major occupational group, and selected characteristics, National Compensation Survey, 2000-2001

Major occupational group	United States (1)	Census divisions (2)							
		New England	Middle Atlantic	East North Central	West North Central	South Atlantic	West South Central	Mountain	Pacific
All civilian workers	100	108	115	99	92	94	93	91	109
White-collar occupations	122	141	143	119	111	115	115	109	130
White collar, excluding sales	131	150	150	124	120	124	126	114	139
Professional specialty and technical	161	161	192	157	137	155	160	149	169
Executive, administrative, and managerial	177	202	199	175	175	164	164	154	179
Sales	85	83	100	96	75	76	76	83	85
Administrative support	79	87	86	76	73	77	73	72	87
Blue-collar occupations	85	79	91	90	83	79	77	86	90
Precision production, craft, and repair	106	106	118	110	104	99	95	107	116
Machine operators, assemblers, and inspectors	76	70	75	84	79	73	65	67	70
Transportation and material moving	83	87	91	88	78	76	76	87	91
Handlers, equipment cleaners, helpers and laborers	64	62	70	70	63	60	56	61	68
Service occupations	61	65	71	61	58	55	50	53	69
Worker characteristics									
Full time (3)	106	114	123	104	98	99	98	96	115
Part time (3)	57	68	61	56	53	50	47	53	65
Union	120	128	123	119	111	107	110	113	131
Nonunion	96	104	112	93	89	92	92	88	101
Time	99	108	115	97	90	92	91	89	108
Incentive	126	110	130	140	137	126	123	120	122
Metropolitan areas	101	109	116	99	95	95	93	89	109
Nonmetropolitan areas	–	96	102	97	80	82	89	108	–

Footnotes:

(1) U.S. average for all workers = \$16.23 = 100.

(2) Data for the East South Central division are not shown because they do not meet BLS publication criteria.

(3) Employees are classified as working full or part time on the basis of the definitions used by the establishment employing them.

Note: Blanks indicate that the data for that cell do not meet BLS publication criteria.

Table 2. Average (mean) hourly earnings and dispersion percents for all civilian workers by major occupational groups in eight census divisions, all civilian workers, National Compensation Survey, 2000-2001

Major occupational groups	Census divisions (1)								Dispersion percent (2)
	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	West South Central	Mountain	Pacific	
White-collar occupations:									
Professional speciality and technical	\$26.17	\$31.12	\$25.46	\$22.23	\$25.10	\$25.91	\$24.12	\$27.42	40
Executive, administrative, and managerial	32.83	32.26	28.44	28.48	26.67	26.67	24.94	29.13	32
Sales	13.43	16.18	15.54	12.23	12.28	12.34	13.48	13.78	32
Administrative support	14.09	13.95	12.28	11.87	12.51	11.91	11.74	14.20	21
Blue-collar occupations:									
Precision production, craft, and repair	17.22	19.19	17.89	16.87	16.04	15.47	17.37	18.78	24
Machine operators, assemblers, and inspectors	11.43	12.20	13.58	12.90	11.91	10.58	10.87	11.40	28
Transportation and material moving	14.12	14.83	14.22	12.68	12.40	12.35	14.20	14.69	20
Handlers, equipment cleaners, helpers and laborers	10.11	11.38	11.33	10.27	9.69	9.11	9.82	11.04	25
Service occupations	10.56	11.58	9.97	9.48	8.95	8.11	8.60	11.19	43

Footnotes:

(1) Data for the East South Central division are not shown because they do not meet BLS publication criteria.

(2) The dispersion percent shows, within an occupational group, the percentage difference between average earnings in the highest paying census division and the lowest paying division. For example, the average hourly rate of professional specialty and technical workers in the Middle Atlantic division (\$31.12) exceeded the average rate of the same group in the West North Central division (\$22.23) by 40 percent.

Note: Average hourly earnings of all U.S. civilian workers = \$16.23.