

News

United States
Department
of Labor



Bureau of Labor Statistics

Washington, D.C. 20212

Technical Contact: (202) 691-6199 NCSinfo@bls.gov
Media Contact: (202) 691-5902
Internet Address: www.bls.gov/ncs

USDL: 08-1015
For Release: 10:00 AM EDT
Friday, July 25, 2008

OCCUPATIONAL PAY COMPARISONS AMONG METROPOLITAN AREAS, 2007

Average pay in the San Jose-San Francisco-Oakland, CA metropolitan area was 19 percent above the national average in 2007, the highest among metropolitan areas studied by the National Compensation Survey (NCS), the Bureau of Labor Statistics of the U.S. Department of Labor reported today. In contrast, pay was lowest in the Brownsville-Harlingen, TX metropolitan area with a pay relative of 76, meaning Brownsville workers earned an average of 76 cents for every dollar earned by workers nationwide. Using data from the NCS, pay relatives—a means of assessing pay differences—are available for each of the 9 major occupational groups within 77 metropolitan areas, as well as averaged across all occupations for each area. (See table 1.)

Pay relatives calculated for all occupations were significantly different from the national average in 67 of the 77 areas. Table A below lists higher and lower paying metropolitan areas among those studied in the NCS. Table B provides higher paying metropolitan area for each of nine major occupational groups. In addition, area-to-area comparisons have been calculated for all 77 metropolitan areas and will soon be available on the BLS website at <http://www.bls.gov/ncs/ocs/payrel.htm>.

Table A. Metropolitan area pay relative rankings (of 77 metropolitan areas surveyed)

| Rank | Metropolitan Area | Pay Relative |
|------|---|--------------|
| 1. | San Jose-San Francisco-Oakland, CA | 119 |
| 2. | New York-Newark-Bridgeport, NY-NJ-CT-PA | 115 |
| 3. | Salinas, CA | 114 |
| 4. | Hartford-West Hartford-Willimantic, CT | 113 |
| 5. | Boston-Worcester-Manchester, MA-NH | 112 |
| 75. | Corpus Christi, TX | 87 |
| 76. | Johnstown, PA | 85 |
| 77. | Brownsville-Harlingen, TX | 76 |

A pay relative is a calculation of pay—wages, salaries, commissions, and production bonuses—for a given metropolitan area relative to the nation as a whole. The calculation controls for differences among areas in occupational composition, establishment and occupational characteristics, and the fact that data are collected for areas at different times during the year. Simple pay comparisons calculating the ratio of the average pay for an area versus the entire United States in percentage terms would not control for interarea differences in occupational composition and other factors, which may have a significant effect on pay relatives. More information on pay relative controls and calculations is available in the Technical Note.

Table B. Metropolitan area pay relative rankings for nine major occupational groups (of 77 metropolitan areas surveyed)

| Major Occupational Group | Rank and Metropolitan Area | Pay Relative |
|---------------------------------------|---|--------------|
| Management, business, and financial | 1. New York-Newark-Bridgeport, NY-NJ-CT-PA | 115 |
| | 2. Salinas, CA | 114 |
| Professional and related | 1. Salinas, CA | 120 |
| | 2. San Jose-San Francisco-Oakland, CA | 118 |
| Service | 1. San Jose-San Francisco-Oakland, CA | 124 |
| | 2. Hartford-West Hartford-Willimantic, CT | 121 |
| Sales and related | 1. Salinas, CA | 128 |
| | 2. San Jose-San Francisco-Oakland, CA | 124 |
| Office and administrative support | 1. San Jose-San Francisco-Oakland, CA | 121 |
| | 2. Boston-Worchester-Manchester, MA-NH | 115 |
| | 2. New York-Newark-Bridgeport, NY-NJ-CT-PA | 115 |
| Construction and extraction | 1. New York-Newark-Bridgeport, NY-NJ-CT-PA | 133 |
| | 2. Chicago-Naperville-Michigan City, IL-IN-WI | 131 |
| Installation, maintenance, and repair | 1. Boston-Worchester-Manchester, MA-NH | 115 |
| | 1. Sacramento-Arden-Arcade-Truckee, CA-NV | 115 |
| Production | 1. Detroit-Warren-Flint, MI | 117 |
| | 1. Seattle-Tacoma-Olympia, WA | 117 |
| Transportation and material moving | 1. Springfield, MA | 113 |
| | 2. Seattle-Tacoma-Olympia, WA | 112 |

The pay relative for construction and extraction occupations in the New York-Newark-Bridgeport area was 133, meaning the pay in the New York metropolitan area for that occupational group averaged 33 percent more than the national average pay for that occupational group. By contrast, the pay relative for workers in construction and extraction in the Brownsville-Harlingen, Texas area was 66, meaning pay for workers in those occupations averaged 34 percent less than the national average.

Using pay relative data

To assist data users in analyzing these data, tests have been conducted to determine whether differences between each pay relative and the pay relative for the nation as a whole are statistically significant (that is, the pay for the given occupation in that area is too different from the national average to be accounted for by the survey sample). Similar tests are conducted for the area-to-area comparisons. In Table 1, statistically significant pay relatives are denoted with an asterisk (*). More information on significance testing is available in the Technical Note.

Yearly differences in area and occupational group differences in pay relatives do not infer changes in underlying economic conditions.

Table 1. Pay relatives for major occupational groups in metropolitan areas, National Compensation Survey, July 2007

(Average pay nationally for all occupations and for each occupational group shown = 100.)

| Metropolitan Area ¹ | All occupations | Management, business, and financial | Professional and related | Service | Sales and related | Office and administrative support | Construction and extraction | Installation, maintenance, and repair | Production | Transportation and material moving |
|---|-----------------|-------------------------------------|--------------------------|---------|-------------------|-----------------------------------|-----------------------------|---------------------------------------|------------|------------------------------------|
| United States | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Amarillo, TX | 88* | 88* | 83* | 86* | 91* | 88* | 81* | 85* | 91* | 92* |
| Atlanta-Sandy Springs-Gainesville, GA-AL | 101 | 103 | 102 | 96* | 96 | 106* | 91* | 100 | 104 | 106 |
| Austin-Round Rock, TX | 96* | 95* | 94* | 90* | 104* | 96* | 87* | 104* | 96* | 92* |
| Birmingham-Hoover, AL | 94* | 94* | 96* | 99 | 95* | 97* | 86* | 94* | 88* | 95* |
| Bloomington, IN | 90* | 87* | 92* | 87* | 83* | 91* | 76* | 81* | 97 | 105* |
| Bloomington-Normal, IL | 101 | 103* | 102* | 103* | 99 | 96* | 106* | 93 | 109* | 104* |
| Boston-Worcester-Manchester, MA-NH | 112* | 108* | 109* | 114* | 106* | 115* | 125* | 115* | 108* | 111* |
| Brownsville-Harlingen, TX | 76* | 77* | 88* | 76* | 68* | 77* | 66* | 86* | 76* | 74* |
| Buffalo-Niagara-Cattaraugus, NY | 101* | 90* | 94* | 108* | 102 | 98* | 114* | 105* | 107* | 103* |
| Charleston-North Charleston-Summerville, SC | 91* | 94* | 92* | 85* | 97* | 93* | 78* | 82* | 101 | 102* |
| Charlotte-Gastonia-Concord, NC-SC | 102 | 102 | 92* | 101 | 112* | 102 | 89* | 99 | 102 | 99 |
| Chicago-Naperville-Michigan City, IL-IN-WI | 108* | 102 | 108* | 107* | 109* | 110* | 131* | 112* | 105* | 105* |
| Cincinnati-Middletown-Wilmington, OH-KY-IN | 97* | 93* | 99 | 102 | 92 | 97* | 90 | 99 | 100 | 99 |
| Cleveland-Akron-Elyria, OH | 101 | 96 | 100 | 101 | 98 | 101 | 102 | 102 | 104 | 105* |
| Columbus-Marion-Chillicothe, OH | 99 | 103 | 95* | 101 | 105 | 98 | 99 | 101 | 96 | 98 |
| Corpus Christi, TX | 87* | 88* | 90* | 83* | 87* | 86* | 94* | 79* | 92* | 86* |
| Dallas-Fort Worth, TX | 97* | 99 | 99 | 93* | 101 | 99 | 89* | 96* | 91* | 97 |
| Dayton-Springfield-Greenville, OH | 97* | 100 | 94* | 96* | 97* | 92* | 102 | 100 | 106* | 102* |
| Denver-Aurora-Boulder, CO | 103* | 100 | 100 | 106* | 105 | 102* | 92 | 107* | 100 | 103 |
| Detroit-Warren-Flint, MI | 105* | 98 | 104* | 103* | 98 | 105* | 101 | 97 | 117* | 109* |
| Elkhart-Goshen, IN | 95* | 99 | 91* | 97* | 94* | 92* | 114* | 89* | 96* | 99 |
| Fort Collins-Loveland, CO | 101* | 94* | 97* | 96* | 105* | 102* | 104* | 104* | 100 | 109* |
| Grand Rapids-Wyoming, MI | 100 | 89* | 94* | 104* | 105* | 98* | 119* | 99 | 101 | 98* |
| Great Falls, MT | 88* | 82* | 77* | 96* | 90* | 83* | 110* | 93* | 100 | 96* |
| Greensboro-High Point, NC | 94* | 91* | 94* | 94* | 86* | 96* | 88* | 92* | 102* | 102* |
| Greenville-Mauldin-Easley, SC | 93* | 97* | 89* | 97 | 87* | 93* | 79* | 84* | 106* | 93* |
| Hartford-West Hartford-Willimantic, CT | 113* | 111* | 109* | 121* | 107 | 112* | 115 | 111 | 112* | 108* |
| Hickory-Lenoir-Morganton, NC | 95* | 94* | 85* | 92* | 91* | 95* | 102 | 89* | 100 | 101 |
| Honolulu, HI | 104* | 107* | 100 | 113* | 108* | 96* | 115* | 107* | 110 | 100 |
| Houston-Baytown-Huntsville, TX | 95* | 99 | 97 | 86* | 95* | 98 | 90* | 92* | 102 | 94* |
| Huntsville-Decatur, AL | 96* | 92* | 95* | 98 | 102 | 93* | 89* | 90* | 101 | 95* |
| Indianapolis-Anderson-Columbus, IN | 96* | 79* | 97 | 94* | 94 | 96* | 96* | 95 | 106* | 97 |
| Iowa City, IA | 97* | 102 | 92* | 100 | 93* | 98 | 104* | 102 | 100 | 98 |
| Johnstown, PA | 85* | 79* | 85* | 87* | 86* | 84* | 96* | 89* | 84* | 86* |
| Kansas City, MO-KS | 98 | 91* | 98 | 97 | 100 | 98 | 102 | 99 | 106 | 97 |
| Kennewick-Pasco-Richland, WA | 103* | 96 | 96* | 114* | 102 | 100 | 109* | 96* | 97* | 104* |
| Knoxville, TN | 92* | 103 | 99 | 83* | 99 | 95* | 82* | 85* | 88* | 96* |
| Lincoln, NE | 88* | 84* | 85* | 92* | 84* | 88* | 84* | 94* | 89* | 93* |
| Los Angeles-Long Beach-Riverside, CA | 107* | 107* | 107* | 109* | 114* | 107* | 111* | 110* | 100 | 104 |

See footnotes at end of table.

Table 1. Pay relatives for major occupational groups in metropolitan areas, National Compensation Survey, July 2007 — Continued

(Average pay nationally for all occupations and for each occupational group shown = 100.)

| Metropolitan Area ¹ | All occupations | Management, business, and financial | Professional and related | Service | Sales and related | Office and administrative support | Construction and extraction | Installation, maintenance, and repair | Production | Transportation and material moving |
|--|-----------------|-------------------------------------|--------------------------|---------|-------------------|-----------------------------------|-----------------------------|---------------------------------------|------------|------------------------------------|
| Louisville/Jefferson | | | | | | | | | | |
| County-Elizabethtown-Scottsburg, KY-IN | 95* | 90* | 91* | 103* | 99 | 96* | 106* | 92* | 99 | 91* |
| Memphis, TN-MS-AR | 95* | 96* | 88* | 87* | 100 | 98* | 93* | 99 | 97* | 96* |
| Miami-Fort Lauderdale-Pompano Beach, FL ... | 98* | 104 | 97 | 100 | 95* | 97 | 93 | 96 | 95* | 101 |
| Milwaukee-Racine-Waukesha, WI | 101 | 99 | 96* | 100 | 105 | 103* | 109 | 102 | 104 | 105 |
| Minneapolis-St. Paul-St. Cloud, MN-WI | 109* | 111 | 104* | 116* | 110* | 104* | 111* | 104 | 115* | 108* |
| Mobile, AL | 89* | 78* | 83* | 86* | 95* | 92* | 92* | 98 | 93* | 101 |
| New Orleans-Metairie-Kenner, LA | 98* | 90* | 100 | 94* | 102 | 99 | 93* | 93* | 101 | 104* |
| New York-Newark-Bridgeport, NY-NJ-CT-PA .. | 115* | 115* | 116* | 115* | 115* | 115* | 133* | 114* | 106* | 110* |
| Ocala, FL | 90* | 80* | 83* | 93* | 93* | 91* | 81* | 106* | 92* | 103* |
| Oklahoma City, OK | 90* | 86* | 88* | 91* | 89* | 88* | 103 | 107* | 85* | 84* |
| Orlando-Kissimmee, FL | 91* | 91 | 85* | 94 | 101 | 88* | 90* | 91 | 85 | 107 |
| Palm Bay-Melbourne-Titusville, FL | 94* | 85* | 87* | 101 | 96* | 88* | 92* | 103 | 107* | 106* |
| Philadelphia-Camden-Vineland, PA-NJ-DE-MD | 105* | 106* | 108* | 105* | 98 | 106* | 106* | 112* | 99 | 104 |
| Phoenix-Mesa-Scottsdale, AZ | 98 | 102 | 101 | 99 | 106 | 99 | 82* | 103 | 97 | 100 |
| Pittsburgh-New Castle, PA | 96* | 94* | 95* | 96* | 90* | 97 | 98 | 97 | 98 | 95* |
| Portland-Vancouver-Beaverton, OR-WA | 104* | 100 | 97 | 111* | 114* | 106 | 115* | 111* | 100 | 99 |
| Providence-New Bedford-Fall River, RI-MA | 109* | 106* | 113* | 116* | 102 | 107* | 113* | 111* | 111* | 106* |
| Reading, PA | 102* | 110* | 92* | 100 | 106* | 101* | 102 | 108* | 101* | 99 |
| Reno-Sparks, NV | 97* | 95* | 95* | 98* | 104* | 97* | 94* | 109* | 97* | 98 |
| Richmond, VA | 98* | 98 | 95* | 97* | 95* | 101 | 92* | 101 | 102 | 100 |
| Rochester, NY | 97* | 89* | 96* | 106* | 97* | 98* | 98 | 88* | 99 | 99 |
| Rockford, IL | 98* | 88* | 97* | 98* | 98 | 96* | 107* | 99 | 102* | 102* |
| Sacramento-Arden-Arcade-Truckee, CA-NV ... | 108* | 103 | 110* | 112* | 104 | 106* | 101 | 115* | 114* | 109* |
| Salinas, CA | 114* | 114* | 120* | 118* | 128* | 113* | 126* | 107* | 101 | 104* |
| San Antonio, TX | 91* | 93* | 92* | 87* | 96 | 91* | 97 | 102 | 98 | 89* |
| San Diego-Carlsbad-San Marcos, CA | 109* | 108* | 110* | 115* | 105 | 106* | 111* | 109* | 105 | 101 |
| San Jose-San Francisco-Oakland, CA | 119* | 112* | 118* | 124* | 124* | 121* | 123* | 114* | 108* | 109* |
| Seattle-Tacoma-Olympia, WA | 110* | 103 | 102 | 119* | 113* | 106* | 110* | 107* | 117* | 112* |
| Springfield, MA | 110* | 101 | 112* | 107* | 110* | 110* | 109* | 103 | 109* | 113* |
| Springfield, MO | 88* | 84* | 87* | 87* | 92* | 87* | 77* | 87* | 93* | 97* |
| St. Louis, MO-IL | 102 | 96 | 100 | 97* | 96 | 100 | 121* | 110* | 106 | 110* |
| Tallahassee, FL | 92* | 83* | 86* | 96 | 91* | 91* | 81* | 88* | 93* | 93* |
| Tampa-St. Petersburg-Clearwater, FL | 94* | 90* | 91* | 94* | 97 | 97* | 98 | 94 | 93* | 102 |
| Virginia Beach-Norfolk-Newport News, VA-NC | 91* | 86* | 90* | 94* | 92* | 92* | 84* | 94* | 92* | 90* |
| Visalia-Porterville, CA | 98* | 106 | 103 | 101 | 98 | 98 | 89* | 90* | 103* | 93* |
| Washington-Baltimore-Northern Virginia, DC-MD-VA-WV | 108* | 104* | 111* | 106* | 106* | 112* | 100 | 114* | 107* | 106* |
| York-Hanover, PA | 97* | 105* | 99 | 98* | 90* | 96* | 99 | 98 | 97* | 104* |
| Youngstown-Warren-Boardman, OH-PA | 96* | 99 | 93* | 93* | 86* | 92* | 95* | 94* | 101 | 110* |

* The pay relative for this area is significantly different from the national average of all areas at the 10 percent level of significance. For additional details, see the Technical Note.

¹ A metropolitan area can be a Metropolitan Statistical Area (MSA) or Combined Statistical Area (CSA) as defined by the Office of Management and Budget, December 2003.

Technical Note

Pay relative controls and calculations

Pay relatives control for differences among areas in occupational composition as well as establishment and occupational characteristics. Metropolitan areas often differ greatly in the composition of establishments and occupations that are available to the local workforce. For example, in Brownsville-Harlingen, Texas, the ratio of workers in the typically high-paying management, business, and financial occupations group to the number of workers in all occupations is under 6 percent, whereas nationally this ratio is nearly 9 percent.¹ In addition to these factors, the NCS collects compensation data for metropolitan areas at different times during the year. Payroll reference dates differ between areas, which makes direct comparisons between areas difficult.

The pay relative approach controls for these differences to isolate the geographic effect on wage determination. To illustrate the importance of controlling for these effects, consider the following example. The average pay for construction and extraction workers in the New York-Newark-Bridgeport, NY-NJ-CT-PA area is \$30.42 and the average pay for construction and extraction workers in the entire United States is \$20.14.² A simple pay comparison can be calculated from the ratio of the two average pay levels, multiplied by 100 to express the comparison as a percentage. The pay comparison in the example is calculated as:

$$(\$30.42 \div \$20.14) * 100 \cong 151$$

This comparison does not control for differences between the New York-Newark-Bridgeport, NY-NJ-CT-PA metropolitan area and the nation in the mix of occupations, industries, and other factors. A more accurate estimate of the geographic effect of wages can be obtained by taking these differences into account. Controlling for differences in occupational composition, establishment and occupational characteristics, and the payroll reference date relative to the nation as the whole, the pay relative for construction and extraction occupations in New York-Newark-Bridgeport, NY-NJ-CT-PA is equal to 133.

Sampling errors and statistical significance

Because the NCS is a sample survey, data are subject to sampling error. For the data presented here, sampling error are differences that occur between the pay relatives estimated from the sample and the true pay relatives derived from the population. It is important to assess whether differences between each pay relative and the pay relative for the nation as a whole is likely to be the result of sampling error or of true differences in pay levels. To perform this assessment, a test of statistical significance is conducted.

The test constructs a 90-percent confidence interval that assumes the given area's true pay relative is equal to the national average. The confidence interval is constructed so that there is a 90-percent probability the pay relative calculated from any one sample is contained within the confidence interval. If from a single sample a calculated pay relative falls within the confidence interval, then the pay relative is not statistically significant and the hypothesis that the true pay relative is equal to the national average is accepted. However, if the pay relative falls outside of the constructed confidence interval then the pay relative is statistically significant at the 10-percent level. The hypothesis that the given area's pay relative is equal to the pay relative for the nation is rejected and one can conclude with reasonable confidence that the true pay relative is different from the national average. Statements involving multiple comparisons in the text, however, such as those using largest or smallest, could not be validated.

In addition to sampling error, pay relatives are subject to a variety of sources that can adversely influence the estimates. The NCS may be unable to obtain information for some establishments; there may be difficulties

with survey definitions; respondents may be unable to provide correct information, or mistakes in recording or coding the data may occur. Non-sampling errors of these kinds were not specifically measured. However, they are expected to be minimal due to the extensive training of the field economists who gathered the survey data, computer edits of the data, and detailed data review.

Survey methodology

The National Compensation Survey (NCS) collects earnings and other data on employee compensation covering over 800 detailed occupations. Average occupational earnings from the NCS are published annually for 77 metropolitan areas and for the United States as a whole. Beginning in 2006, the NCS implemented a number of significant survey changes including imputing for temporary non-response situations and benchmarking estimated employment. For more details on these changes, see the article at <http://www.bls.gov/opub/cwc/cm20070122ar01p1.htm>.

The NCS program collects data in U.S. Office of Management and Budget (OMB) defined geographic areas. The NCS is in its first year of a six-year transition from the June 1993 OMB area definitions to the December 2003 OMB area definitions. The area titles have been updated to reflect the new area definitions; however, the private industry sample is based on the 1993 area definitions. Area titles are subject to annual OMB revision. For more information on the area definitions, see Jason Tehonica, "New Area Sample Selected for the National Compensation Survey," *Compensation and Working Conditions Online*, April 25, 2005, on the Internet at: <http://www.bls.gov/opub/cwc/cm20050318ar01p1.htm>.

Historical pay relative data are available for 1992-1996, 1998, 2002, and 2004-2006. There are several differences between the recent pay relatives and the pay relatives for earlier years, including different industry and occupation classification systems, varying methodology, and different survey designs. These differences limit comparability. The pay relatives for 2004 through 2007 were calculated using the same industry and occupation classification systems, methodology, and survey design. Nonetheless, comparisons between the estimates for these years should be made only with a high degree of caution.

Pay relatives were estimated using a multivariate regression technique methodology to control for interarea differences. This technique controls for the following ten characteristics:

- Occupational type
- Industry type
- Work level
- Full-time / part-time status
- Time / incentive status
- Union / nonunion status
- Ownership type
- Profit / non-profit status
- Establishment employment
- Payroll reference date

Even accounting for the characteristics used in the current regression analysis, there is still significant wage variation across the areas. The variation is due to differences in wage determinants that were not included in the model. Examples of these determinants include price levels, environmental amenities such as a pleasant climate, and cultural amenities.

The pay relative regression methodology introduces another type of error. Regression models are subject to specification error. The significance test does not specifically measure specification error. However, care was taken to minimize this form of error by an extensive search across specifications for the model that performs best in terms of predictive accuracy.

For more details, see Maury B. Gittleman, "Pay Relatives for Metropolitan Areas in the U.S." *Monthly Labor Review*, March 2005, pp. 46-53, and Parastou Karen Shahpoori, "Pay Relatives for Major Metropolitan Areas," *Compensation and Working Conditions*, Spring 2003.

Obtaining information

Articles, bulletins, and other information may be obtained by calling (202) 691-6199, sending email to NCSinfo@bls.gov, or visiting the Internet site <http://www.bls.gov/ncs>. Information in this release will be made available to sensory impaired individuals upon request. Voice phone: (202) 691-5200; Federal Relay Service Number: 1-800-877-8339.

¹ Data for this example are based on the May 2007 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates, <http://www.bls.gov/oes/current/oesrcma.htm>.

² Average pay for construction and extraction workers in the New York - Newark - Bridgeport, NY-NJ-CT-PA metropolitan area and for the United States are based on wage estimates published in the New York - Newark - Bridgeport, NY-NJ-CT-PA, National Compensation Survey, May 2007 and the upcoming National Compensation Survey: Occupational Wages in the United States, July 2007, <http://www.bls.gov/ncs/ocs/ncswage.htm>.