

News

United States
Department
of Labor



Bureau of Labor Statistics

Washington, D.C. 2012

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

USDL: 09-0843
For Release: 10:00 AM EDT
Friday, July 24, 2009

OCCUPATIONAL PAY COMPARISONS AMONG METROPOLITAN AREAS, 2008

Average pay for civilian workers in the San Jose-San Francisco-Oakland, CA metropolitan area was 19 percent above the national average in 2008, one of 77 metropolitan areas studied by the National Compensation Survey (NCS), the Bureau of Labor Statistics of the U.S. Department of Labor reported today. The Brownsville-Harlingen, TX metropolitan area had a pay relative of 77, meaning workers earned an average of 77 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 nine major occupational groups within surveyed metropolitan areas, as well as averaged across all occupations for each area. The average pay relative nationally for all occupations and for each occupational group equals 100. (See table 1.)

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 to 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.

Pay relatives calculated for all occupations were significantly different from the national average in 65 of the 77 areas. Table A below lists selected metropolitan area pay relatives compared to average pay nationally among those studied in the NCS. Table B provides selected metropolitan area pay relatives 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. Selected metropolitan area pay relatives (of 77 metropolitan areas surveyed)

Metropolitan Area	Pay Relative (Average pay nationally = 100)
San Jose-San Francisco-Oakland, CA	119
New York-Newark-Bridgeport, NY-NJ-CT-PA	114
Boston-Worcester-Manchester, MA-NH	111
Los Angeles-Long Beach-Riverside, CA	109
Washington-Baltimore-Northern Virginia, DC-MD-VA-WV	109
Chicago-Naperville-Michigan City, IL-IN-WI	108
Philadelphia-Camden-Vineland, PA-NJ-DE-MD	105
Atlanta-Sandy Springs-Gainesville, GA-AL	100
Houston-Baytown-Huntsville, TX	98
Dallas-Fort Worth, TX	97

Table B. Selected metropolitan area-to-national pay relatives for nine major occupational groups, 2008 (of 77 metropolitan areas surveyed)

Major Occupational Group	Metropolitan Area	Pay Relative
Management, business, and financial	New York-Newark-Bridgeport, NY-NJ-CT-PA	115
	Salinas, CA	113
Professional and related	Salinas, CA	120
	San Jose-San Francisco-Oakland, CA	119
Service	San Jose-San Francisco-Oakland, CA	126
	Salinas, CA	123
Sales and related	Salinas, CA	129
	San Jose-San Francisco-Oakland, CA	122
Office and administrative support	San Jose-San Francisco-Oakland, CA	120
	New York-Newark-Bridgeport, NY-NJ-CT-PA	116
Construction and extraction	New York-Newark-Bridgeport, NY-NJ-CT-PA	132
	Chicago-Naperville-Michigan City, IL-IN-WI	131
Installation, maintenance, and repair	Salinas, CA	124
	San Jose-San Francisco-Oakland, CA	117
Production	Sacramento-Arden-Arcade-Truckee, CA-NV	121
	Bloomington-Normal, IL	116
	Detroit-Warren-Flint, MI	116
	Seattle-Tacoma-Olympia, WA	116
Transportation and material moving	Springfield, MA	114
	Fort Collins-Loveland, CO	113

The pay relative for construction and extraction occupations in the New York-Newark-Bridgeport, NY-NJ-CT-PA area was 132, meaning the pay in the New York metropolitan area for that occupational group averaged 32 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. (See table 1.)

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 difference in pay for occupations in that area from the national average cannot be accounted for by sampling error). 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 pay relative controls, calculations, and significance testing is available in the Technical Note.

Yearly differences in area and occupational group 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 2008

(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	89*	98	83*	91*	91*	89*	86*	91*	94*	92*
Atlanta-Sandy Springs-Gainesville, GA-AL	100	102	102	96*	96	105*	88*	101	103	101
Austin-Round Rock, TX	93*	92*	92*	91*	95*	94*	82*	103	91	92*
Birmingham-Hoover, AL	96*	103	100	96*	93	97	85*	102	91*	102
Bloomington, IN	90*	91*	91*	86*	83*	92*	77*	81*	99	104*
Bloomington-Normal, IL	101	100	102*	106*	102	95*	103	94	116*	99
Boston-Worcester-Manchester, MA-NH	111*	105*	108*	114*	109*	115*	120*	113*	106*	110*
Brownsville-Harlingen, TX	77*	90*	87*	80*	70*	76*	66*	90*	75*	72*
Buffalo-Niagara-Cattaraugus, NY	99*	89*	92*	107*	93*	95*	113*	101	108*	98*
Charleston-North Charleston-Summerville, SC	92*	92*	95*	87*	96*	95*	78*	86*	102	99
Charlotte-Gastonia-Concord, NC-SC	99	105	94*	97	100	99	91*	99	103	98
Chicago-Naperville-Michigan City, IL-IN-WI	108*	104	107*	107*	107*	110*	131*	110*	103	105*
Cincinnati-Middletown-Wilmington, OH-KY-IN	99	95	102	101	94	99	91	100	100	103
Cleveland-Akron-Elyria, OH	99	100	97	100	94*	100	103	105	102	102
Columbus-Marion-Chillicothe, OH	99	96	96*	102	100	98	99	99	101	100
Corpus Christi, TX	89*	85*	88*	85*	89*	86*	99	101	92*	87*
Dallas-Fort Worth, TX	97*	99	99	92*	105	100	90*	97	91*	102
Dayton-Springfield-Greenville, OH	96*	100	92*	95*	95*	91*	94*	93*	105*	102*
Denver-Aurora-Boulder, CO	104*	100	103	106*	104	104*	98	116*	104	104
Detroit-Warren-Flint, MI	104*	95*	103*	100	99	103*	100	99	116*	108*
Elkhart-Goshen, IN	96*	96*	92*	94*	91*	93*	110*	87*	98	102*
Fort Collins-Loveland, CO	102*	93*	96*	99	103*	104*	103*	108*	103	113*
Grand Rapids-Wyoming, MI	99	90*	95	105*	106	99	108*	94*	101	98
Great Falls, MT	88*	86*	77*	96*	87*	80*	114*	98	93*	97*
Greensboro-High Point, NC	95*	100	94*	92*	99	98*	88*	87*	99	103
Greenville-Mauldin-Easley, SC	93*	105	88*	94*	88*	97	78*	85*	106*	93*
Hartford-West Hartford-Willimantic, CT	111*	105	108*	120*	109	113*	113*	107	112*	109*
Hickory-Lenoir-Morganton, NC	94*	95*	84*	89*	94*	93*	97	93*	101	101
Honolulu, HI	105*	105	101	116*	109*	96*	118*	112*	109	96
Houston-Baytown-Huntsville, TX	98*	103	101	85*	102	99	91*	96	100	94*
Huntsville-Decatur, AL	96*	95	96*	94*	99	95*	89*	92*	99	101
Indianapolis-Anderson-Columbus, IN	95*	81*	97*	93*	84*	97	92*	96	109*	100
Iowa City, IA	97*	98	93*	101	96*	99	104	100	99	94*
Johnstown, PA	86*	83*	84*	91*	85*	87*	91	88*	85*	83*
Kansas City, MO-KS	99	92*	98	98	102	98	98	98	102	97
Kennewick-Pasco-Richland, WA	102*	102	95*	111*	103*	96*	107*	100	100	105*
Knoxville, TN	91*	105	99	82*	98*	90*	78*	82*	86*	96*
Lincoln, NE	88*	83*	83*	91*	85*	88*	85*	89*	88*	99
Los Angeles-Long Beach-Riverside, CA	109*	110*	110*	112*	111*	107*	111*	110*	99	102

See footnotes at end of table.

Table 1. Pay relatives for major occupational groups in metropolitan areas, National Compensation Survey, July 2008 — 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	94*	89*	91*	97*	102	97*	93	91*	102	91*
Memphis, TN-MS-AR	94*	93*	92*	86*	102	97*	95*	99	94*	94*
Miami-Fort Lauderdale-Pompano Beach, FL ...	98*	105	96*	101	97	100	91*	96	92*	97
Milwaukee-Racine-Waukesha, WI	99	97	95*	97	106	101	105	98	105*	104
Minneapolis-St. Paul-St. Cloud, MN-WI	108*	108	103*	116*	107*	104*	114*	102	111*	107*
Mobile, AL	92*	94	91*	90*	93	93*	93*	88*	96*	98
New Orleans-Metairie-Kenner, LA	97*	93*	102	95*	97	97	94	95*	104	101
New York-Newark-Bridgeport, NY-NJ-CT-PA ..	114*	115*	115*	114*	113*	116*	132*	113*	107*	108*
Ocala, FL	89*	77*	84*	93*	91*	90*	76*	101	94*	101
Oklahoma City, OK	92*	87*	90*	91*	95*	89*	114*	96	85*	86*
Orlando-Kissimmee, FL	91*	89*	87*	90*	96	90*	94*	96	99	108
Palm Bay-Melbourne-Titusville, FL	92*	86*	86*	96	93*	88*	93*	99	107*	112*
Philadelphia-Camden-Vineland, PA-NJ-DE-MD	105*	104*	107*	104*	97	106*	104	110*	99	104
Phoenix-Mesa-Scottsdale, AZ	99	102	101	99	108*	99	91*	102	96	100
Pittsburgh-New Castle, PA	95*	88*	94*	95*	92*	97*	93*	95	97	95
Portland-Vancouver-Beaverton, OR-WA	105*	98	100	112*	109*	107*	114*	116*	103	102
Providence-New Bedford-Fall River, RI-MA	108*	102	111*	113*	102	106*	110*	111*	110*	108*
Reading, PA	101	106*	92*	99	107*	100	102	99	102*	99
Reno-Sparks, NV	99*	96*	98*	99	106*	100	88*	102	98	101
Richmond, VA	97*	97	96*	97*	94*	101	88*	99	105*	99
Rochester, NY	99*	91	98*	109*	98*	99	95	88*	103	98*
Rockford, IL	98*	89*	97	101	97*	96*	110*	96*	100	103*
Sacramento-Arden-Arcade-Truckee, CA-NV ...	109*	106*	114*	112*	108	106*	113*	110*	121*	109*
Salinas, CA	113*	113*	120*	123*	129*	108*	126*	124*	93*	104*
San Antonio, TX	91*	95*	93*	89*	86*	90*	100	99	93*	91*
San Diego-Carlsbad-San Marcos, CA	109*	106*	107*	118*	103	105*	109*	109*	106*	101
San Jose-San Francisco-Oakland, CA	119*	111*	119*	126*	122*	120*	123*	117*	108*	109*
Seattle-Tacoma-Olympia, WA	110*	103	106*	117*	113*	105*	110*	106*	116*	110*
Springfield, MA	110*	100	110*	109*	111*	108*	109*	99	110*	114*
Springfield, MO	89*	84*	85*	88*	93*	87*	79*	86*	94*	98*
St. Louis, MO-IL	104*	100	100	98	98	101	116*	112*	108*	110
Tallahassee, FL	89*	83*	82*	95	91*	89*	91*	84*	92*	94*
Tampa-St. Petersburg-Clearwater, FL	93*	93*	90*	94*	100	96*	100	91*	91*	97
Virginia Beach-Norfolk-Newport News, VA-NC	92*	85*	91*	95*	95*	91*	85*	93*	89*	92*
Visalia-Porterville, CA	100	89*	103	104*	102	96	87*	96*	103	107*
Washington-Baltimore-Northern Virginia, DC-MD-VA-WV	109*	105*	110*	106*	108*	112*	101	114*	105*	108*
York-Hanover, PA	95*	110*	98	96	90*	93*	98	92*	96*	98
Youngstown-Warren-Boardman, OH-PA	93*	99	90*	93*	87*	94*	90*	89*	94*	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 high-paying management, business, and financial occupational group to the number of workers in all occupations is under 6 percent, whereas nationally this ratio is nearly 10 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 wages. 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 metropolitan area is \$33.14 and the average pay for construction and extraction workers in the United States is \$20.91.² 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:

$$(\$33.14 \div \$20.91) * 100 \cong 158$$

This comparison does not control for differences between New York and the nation in the mix of occupations, industries, and other factors. A more accurate estimate of the geographic effect of wages in New York can be obtained by taking these differences into account. Controlling for differences in occupational composition, establishment and occupational characteristics, and the payroll reference date in New York relative to the nation as a whole, the pay relative for construction and extraction occupations in New York is 132.

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 national average 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 that 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.

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. Such non-sampling error was not specifically measured. However,

non-sampling error 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. This release provides data for the civilian economy, which includes the total private nonfarm economy excluding private households, and the public sector excluding the federal government. 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 James E. Smith and Robert W. Van Giezen, "Change Comes to the National Compensation Survey Locality Wage Bulletins," *Compensation and Working Conditions Online*, January 24, 2007 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. With the collection of the 2008 data, the NCS is in its second 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. For more information on the area definitions, see Jason Techonica, "New Area Sample Selected for the National Compensation Survey," *Compensation and Working Conditions Online*, April 25, 2005 at <http://www.bls.gov/opub/cwc/cm20050318ar01p1.htm>.

Historical pay relatives data are available for the survey years 1992-1996, 1998, 2002, 2004-2007. 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 since 2004 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 caution.

Pay relatives were estimated using a multivariate regression technique designed 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 from the National Compensation Survey 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 2008 Occupational Employment and Wage Estimates, <http://www.bls.gov/oes/current/oesrcma.htm>.

² Average pay for construction and extraction workers in New York 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 2008 and the forthcoming National Compensation Survey: Occupational Wages in the United States, 2008, <http://www.bls.gov/ncs/ocs/compub.htm>.