

## Technical Notes for May 2010 OES Estimates

### Scope of the Survey

The Occupational Employment Statistics (OES) survey is a semiannual mail survey measuring occupational employment and wage rates for wage and salary workers in nonfarm establishments in the United States. OES data available from BLS include cross-industry occupational employment and wage estimates for the nation; over 500 areas, including states and the District of Columbia, metropolitan statistical areas (MSAs), metropolitan divisions, nonmetropolitan areas, and territories; national industry-specific estimates at the NAICS sector, 3-, 4-, and selected 5-digit industry levels; and national estimates by ownership across all industries and for schools and hospitals.

The OES survey is a cooperative effort between BLS and the State Workforce Agencies. BLS funds the survey and provides the procedures and technical support, while the State Workforce Agencies (SWAs) collect most of the data. OES estimates are constructed from a sample of about 1.2 million establishments. Each year, forms are mailed to two semiannual panels of approximately 200,000 sampled establishments, one panel in May and the other in November. May 2010 estimates are based on responses from six semiannual panels collected over a 3-year period: May 2010, November 2009, May 2009, November 2008, May 2008, and November 2007. The overall national response rate for the six panels is 78.2 percent based on establishments and 74.4 percent based on employment. The unweighted employment of sampled establishments across all six semiannual panels represents approximately 62.6 percent of total national employment.

### The Occupational Coding System

The OES survey categorizes workers into nearly 800 detailed occupations based on the Office of Management and Budget's Standard Occupational Classification (SOC) system; together, these detailed occupations make up 22 of the 23 SOC major occupational groups. Major group 55, Military Specific Occupations, is not included. The May 2010 OES estimates mark the first set of estimates based in part on data collected using the 2010 SOC system. Previous estimates were based on the 2000 SOC.

Almost all the occupations in this release are 2010 SOC occupations; however, some are not. In these cases, an estimate for a temporary occupation was created from data reported for one or more occupations in the 2000 SOC combined with data reported for one or more 2010 SOC occupations. Some occupations have the same title as a 2010 SOC occupation, but not the same content. These occupations are marked with an asterisk (\*) and given a temporary code for the OES data. The May 2012 OES data will reflect the full set of detailed occupations in the 2010 SOC. For a list of all occupations, including 2010 SOC occupations, and how data collected on two structures were combined, see the OES Frequently Asked Questions online at [http://www.bls.gov/oes/oes\\_ques.htm#Ques41](http://www.bls.gov/oes/oes_ques.htm#Ques41).

For more information about the SOC system, please see the Bureau of Labor Statistics Web site at <http://www.bls.gov/soc/>.

## **The Industry Coding System**

The OES survey uses the 2007 North American Industry Classification System (NAICS). For more information about NAICS, see the BLS Web site at <http://www.bls.gov/bls/naics.htm>.

The OES survey excludes the majority of the agricultural sector, with the exception of logging (NAICS 113310), support activities for crop production (NAICS 1151), and support activities for animal production (NAICS 1152). Private households (NAICS 814) also are excluded. OES federal government data include the U.S. Postal Service and the federal executive branch only. All other industries, including state and local government, are covered by the survey.

The OES survey covers all full- and part-time wage and salary workers in nonfarm industries. The survey does not include the self-employed, owners and partners in unincorporated firms, household workers, or unpaid family workers.

## **Survey Sample**

The OES survey draws its sample from state unemployment insurance (UI) files. Supplemental sources are used for rail transportation (NAICS 4821) and Guam because they do not report to the UI program. The OES survey sample is stratified by metropolitan and nonmetropolitan area, industry, and size.

To provide the most occupational coverage, larger employers are more likely to be selected than smaller employers. An annual census is taken of the executive branch of the federal government, the U.S. Postal Service, and state government.

## **Concepts**

Occupational employment is the estimate of total wage and salary employment in an occupation. The OES survey defines employment as the number of workers who can be classified as full- or part-time employees, including workers on paid vacations or other types of paid leave; workers on unpaid short-term absences; salaried officers, executives, and staff members of incorporated firms; employees temporarily assigned to other units; and employees for whom the reporting unit is their permanent duty station, regardless of whether that unit prepares their paycheck.

Wages for the OES survey are straight-time, gross pay, exclusive of premium pay. Base rate; cost-of-living allowances; guaranteed pay; hazardous-duty pay; incentive pay, including commissions and production bonuses; and tips are included. Excluded are overtime pay, severance pay, shift differentials, nonproduction bonuses, employer cost for supplementary benefits, and tuition reimbursements.

OES receives wage rate data for the federal government, the U.S. Postal Service, and some state governments. For the remaining establishments, the OES survey collects wage data in 12 intervals. For each occupation, respondents are asked to report the number of employees paid within specific wage intervals. The intervals are defined both as hourly rates and the corresponding annual rates, where the annual rate for an occupation is calculated by multiplying the hourly wage rate by a typical work year of 2,080 hours. The responding establishments are instructed to report the hourly rate for part-time

workers, and to report annual rates for occupations that are typically paid at an annual rate but do not work 2,080 hours per year, such as teachers, pilots, and flight attendants. Other workers, such as some entertainment workers, are paid hourly rates, but generally do not work 40 hours per week, year round. For these workers, only an hourly wage is reported.

### **Estimation Methodology**

The OES survey is designed to produce estimates by combining six panels of data collected over a 3-year period. With the exception of the May 2008 panel, each OES panel includes approximately 200,000 establishments. Due to budget constraints, the May 2008 sample was reduced to approximately 174,000 establishments. The full six-panel sample of nearly 1.2 million establishments allows the production of estimates at detailed levels of geography, industry, and occupation.

*Wage updating.* Significant reductions in sampling errors are obtained by combining six panels of data, particularly for small geographic areas and occupations. Wages for the current panel need no adjustment. However, wages in the five previous panels need to be updated to the current panel's reference period.

The OES program uses the BLS Employment Cost Index (ECI) to adjust survey data from prior panels before combining them with the current panel's data. The wage updating procedure adjusts each detailed occupation's wage rate, as measured in the earlier panel, according to the average movement of its broader occupational division.

*Imputation.* About 20 percent of establishments do not respond for a given panel. A "nearest neighbor" hot deck imputation procedure is used to impute missing occupational employment totals. A variant of mean imputation is used to impute missing wage distributions.

*Weighting and benchmarking.* The sampled establishments are weighted to represent all establishments for the reference period. Weights are further adjusted by the ratio of employment totals (the average of November 2009 and May 2010 employment) from the BLS Quarterly Census of Employment and Wages to employment totals from the OES survey.

### **For More Information**

Answers to frequently asked questions about the OES data are available at  
[http://www.bls.gov/oes/oes\\_ques.htm](http://www.bls.gov/oes/oes_ques.htm)

Detailed technical information about the OES survey is available in our Survey Methods and Reliability Statement on the BLS website at  
[http://www.bls.gov/oes/current/methods\\_statement.pdf](http://www.bls.gov/oes/current/methods_statement.pdf)

## How were the occupations in the May 2010 estimates created from data based on the 2000 and 2010 SOCs?

The May Data for the November 2009 and May 2010 panels were collected based on the 2010 SOC, while data for the four older panels were collected based on the 2000 SOC. With a few exceptions, almost all the occupations are the same in the 2000 and 2010 occupational classifications systems, or occupations could be combined in one year to be the equivalent of an occupation in another year. Whenever possible, the 2010 occupation was used in estimation. However, there were several cases where occupations from the two structures had to be combined into a hybrid occupation, used temporarily in OES only. The starting point for combining data collected under both systems was the SOC crosswalk (see <http://www.bls.gov/soc/>). In order to better address the OES customers' need for detailed occupational data, however, sometimes OES combined data differently. For example, the SOC crosswalk shows that the new 2010 SOC occupation solar photovoltaic installers is crosswalked to several 2000 occupations, including carpenters, electricians, and roofers. For the 2010 OES estimates, these lines of the crosswalk were ignored, and estimates are available for each of the occupations carpenters, roofers, and electricians, even though it is possible that in the four earlier panels of data, employers may have reported solar photovoltaic panel installers in these occupations. The full set of occupations for 2010 and the occupations on which they are based is available for download here ([http://www.bls.gov/oes/may\\_2010\\_occs.xls](http://www.bls.gov/oes/may_2010_occs.xls)). Listed below are the occupations which are in the 2010 OES estimates, but not in the 2010 SOC.

### Occupations which are in the 2010 OES estimates, but not in the 2010 SOC.

OES 2010 code	OES title	How the occupations is based on 2000 and 2010 SOC codes	Notes
11-9013	Farmers, Ranchers, and Other Agricultural Managers	This occupation is a combination of data collected for the 2010 SOC occupation 11-9013 and the 2000 SOC occupations 11-9011 Farm, ranch and other agricultural managers and 11-9012 Farmers and ranchers	2010 occupation
13-1078	Human Resources, Training, and Labor Relations Specialists, All Other*	This OES occupation is a combination of data collected for the 2010 SOC occupations 13-1071 Human Resources Specialists and 13-1075 Labor Relations Specialists and the 2000 SOC occupations 13-1071 Employment, Recruitment, and Placement Specialists and 13-1079 Human Resources, Training, and Labor Relations Specialists, All Other.	
15-1150	Computer Support Specialists*	This OES occupation is a combination of data collected for the 2010 SOC occupations 15-1151 Computer User Support Specialists and 15-1152 Computer Network Support Specialists and the 2000 SOC occupation 15-1041 Computer Support Specialists.	
15-1179	Information Security Analysts, Web Developers, and Computer Network Architects*	This OES occupation is a combination of data collected for the 2010 SOC occupations 15-1122 Information Security Analysts, 15-1134 Web Developers, 15-1143 Computer Network Architects and the 2000 SOC occupation 15-1081 Network Systems and Data Communications Analysts.	
15-1799	Computer Occupations, All Other*	This OES occupation is a combination of data collected for the 2010 SOC occupation 15-1199 Computer Occupations, All Other and the 2000 SOC occupation 15-1099 Computer Specialists, All Other.	

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**Occupations which are in the 2010 OES estimates, but not in the 2010 SOC. (continued)**

OES 2010 code	OES title	How the occupations is based on 2000 and 2010 SOC codes	Notes
21-1798	Community and Social Service Specialists, All Other*	This OES occupation is a combination of data collected for the 2010 SOC occupations 21-1094 Community Health Workers and 21-1099 Community and Social Service Specialists, All Other and the 2000 SOC occupation 21-1099 Community and Social Service Specialists, All Other.	
25-2041	Special Education Teachers, Preschool, Kindergarten, and Elementary School*	This occupation is a combination of the 2000 SOC occupation 25-2041 Special education teachers, preschool, kindergarten, and elementary school, and the 2010 SOC occupations 25-2051 Special education teachers preschool, and 25-2052 Special education teachers, kindergarten and elementary.	2000 occupation
25-3999	Teachers and Instructors, All Other*	This occupation is a combination of the 2000 SOC occupation 25-3099 Teachers and instructors, all other; the 2010 SOC occupations 25-2059 Special education teachers, all other, 25-3099 Teachers and instructors, all other, and the OES only occupation, substitute teachers, for which data was collected in only 1 third of the panels used in 2010 estimates.	Teachers and Instructors, All Other, including special education teachers not specified separately
29-1111	Registered Nurses*	This occupation is a combination of data collected for the 2000 SOC occupation 29-1111 Registered nurses; and the 2010 occupations 29-1141 Registered nurses, 29-1151 Nurse anesthetists, 29-1161 Nurse midwives, and 29-1171 Nurse practitioners.	2000 occupation
29-1128	Therapists, All Other*	This OES occupation is a combination of data collected for the 2010 SOC occupations 29-1128 Exercise Physiologists, 29-1129 Therapists, All Other and the 2000 SOC occupation 29-1129 Therapists, All Other.	Therapists, All Other, including exercise physiologists*
29-2037	Radiologic Technologists and Technicians*	This OES occupation is a combination of data collected for the 2010 SOC occupations 29-2034 Radiologic Technologists, 29-2035 Magnetic Resonance Imaging Technologists and the 2000 SOC occupation 29-2034 Radiologic Technologists and Technicians.	Radiologic Technologists and Technicians, including Magnetic Resonance Imaging Technologists
29-2799	Health Technologists and Technicians, All Other*	This OES occupation is a combination of data collected for the 2010 SOC occupations 29-2057 Ophthalmic Medical Technicians, 29-2092 Hearing Aid Specialists, 29-2099 Health Technologists and Technicians, All Other and the 2000 SOC occupation 29-2099 Health Technologists and Technicians, All Other.	Health Technologists and Technicians, All Other, including hearing aid specialists and ophthalmic medical technicians
29-9799	Healthcare Practitioners and Technical Workers, All Other*	This OES occupation is a combination of data collected for the 2010 SOC occupations 29-9092 Genetic Counselors, 29-9099 Healthcare Practitioners and Technical Workers, All Other and the 2000 SOC occupation 29-9099 Healthcare Practitioners and Technical Workers, All Other.	Healthcare Practitioners and Technical Workers, All Other, including genetic counselors
31-1012	Nursing Aides, Orderlies, and Attendants*	This occupation is a combination of the 2000 SOC occupation 31-1012 Nursing aides, orderlies, and attendants, and the 2010 SOC occupations 31-1014 Nursing aides and 31-1015 Orderlies	2000 occupation
31-9799	Healthcare Support Workers, All Other*	This OES occupation is a combination of data collected for the 2010 SOC occupations 31-9097 Phlebotomists, 31-9099 Healthcare Support Workers, All Other and the 2000 SOC occupation 31-9099 Healthcare Support Workers, All Other.	Healthcare Support Workers, All Other, including phlebotomists

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**Occupations which are in the 2010 OES estimates, but not in the 2010 SOC. (continued)**

OES 2010 code	OES title	How the occupations is based on 2000 and 2010 SOC codes	Notes
39-4831	Funeral Service Managers, Directors, Morticians, and Undertakers	This OES occupation is a combination of data collected for the 2010 SOC occupations 11-9061 Funeral Service Managers, 39-4031 Morticians, Undertakers and Funeral Directors and the 2000 SOC occupation 11-9061 Funeral Directors.	
41-9799	Sales and Related Workers, All Other*	This OES occupation is a combination of data collected for the 2010 SOC occupations 13-1131 Fundraisers, 41-9099 Sales and Related Workers, All Other and the 2000 SOC occupation 41-9099 Sales and Related Workers, All Other.	Sales and Related Workers, All Other, including fundraisers
43-9799	Office and Administrative Support Workers, All Other*	This OES occupation is a combination of data collected for the 2010 SOC occupations 43-3099 Financial Clerks, All Other, 43-9199 Office and Administrative Support Workers, All Other and the 2000 SOC occupation 43-9199 Office and Administrative Support Workers, All Other.	Office and Administrative Support Workers, All Other, including finance clerks not identified separately
47-4799	Construction and Related Workers, All Other*	This OES occupation is a combination of data collected for the 2010 SOC occupations 47-2231 Solar Photovoltaic Installers, 47-4099 Construction and Related Workers, All Other and the 2000 SOC occupation 47-4099 Construction and Related Workers, All Other.	Construction and Related Workers, All Other including solar photovoltaic installers
49-9799	Installation, Maintenance, and Repair Workers, All Other*	This OES occupation is a combination of data collected for the 2010 SOC occupations 49-9081 Wind Turbine Service Technicians, 49-9099 Installation, Maintenance, and Repair Workers, All Other and the 2000 SOC occupation 49-9099 Installation, Maintenance, and Repair Workers, All Other.	Installation, Maintenance, and Repair Workers, All Other, including wind turbine service technicians
51-9151	Photographic Process Workers and Processing Machine Operators	This occupation is a combination of the 2010 SOC occupation 51-9151 Photographic Process Workers and Processing Machine Operators, and the 2000 SOC occupations 51-9131 Photographic process workers, and 51-9132 Photographic processing machine operators	2010 occupation
51-9399	Production Workers, All Other*	This OES occupation is a combination of data collected for the 2010 SOC occupations 51-3099 Food Processing Workers, All Other, 51-9199 Production Workers, All Other and the 2000 SOC occupation 51-9199 Production Workers, All Other.	Production workers, all other, including food processing workers not specified separately*

\* Occupation titles followed by \* have the same title, but not necessarily the same content as 2010 SOC occupations.