2022 Occupational Employment and Wage Statistics (OEWS)

Technical Notes

Operating under a Cooperative Agreement with the U.S. Department of Labor, Bureau of Labor Statistics (BLS), the Occupational Employment and Wage Statistics (OEWS) program in Kentucky conducts a semi-annual survey of employers to collect employment and wage rates by occupation for wage and salary workers in non-farm establishments. The resulting data are used to generate annual occupational employment and wage estimates for the state and sub-state areas.

The OEWS survey is funded through BLS, which provides detailed program procedures and technical support, while the state collects the bulk of the data from employers. Data are collected during two panels each year, one in May and one in November. The resulting estimates are based on data collected in six consecutive panels over a three-year period.

Because wages may shift over the course of the three-year period, wages for the first five panels are adjusted using BLS Employment Cost Index (ECI) factors *prior* to combining with the current panel data. ECI adjustments are not applied to the most recent (current) panel data. The ECI is a measure of the change of the cost of labor over time. More information on ECI is available at https://www.bls.gov/eci/.

The estimates released in 2022 (also referred to as May 2021 estimates), were generated from data collected from the panels referencing November 2018 to May 2021. BLS produces occupational employment and wage estimates for the nation, states, Metropolitan Statistical Areas (MSA), and balance-of-state areas. To further meet the needs of local data users, Kentucky Center for Statistics (KYSTATS) utilizes OEWS data and BLS methodology to calculate sub-state level estimates for the ten Local Workforce Areas (LWAs).

OEWS does not produce occupational wage projections, benefits estimates, estimates of unemployment by occupation, or occupational estimates by demographic characteristics.

The OEWS survey is designed to create detailed, cross-sectional, employment and wage estimates, providing a “snapshot” of occupational employment and wages for a particular area and time. Estimates are not intended to be used as a time series. Challenges in using occupational estimates as a time series include changes in occupational, industry, and geographical classification systems; changes in data collection methodology and procedures; changes in the survey reference periods; changes in mean wage estimation methodology; and other features of the OEWS methodology. (See Implementation of the 2018 SOC.)

In addition, users of the 2022 Kentucky and Local Workforce Area Employment and Wage Estimates may encounter differences in the number of occupations for which estimates are available. Such variations may be due to a number of factors: the occupation may not be common in the area; the occupation may have failed to pass confidentiality guidelines; the primary employers of an occupation may not have been in the sample or failed to respond to the survey; or the occupation may not have passed statistical reliability criteria.

Users should also note that, although most occupations have estimates of both hourly and annual wages, some occupations, such as teachers, pilots, and flight attendants, only report annual wages due to variations in the number of hours worked for these occupations. Similarly, occupations that generally work less than 40 hours per week (e.g., some entertainment workers) report only hourly wages.

Occupational Classification
The OEWS survey categorizes workers into approximately 800 detailed occupations based on the Office of Management and Budget's (OMB) Standard Occupational Classification (SOC) System. These detailed occupations encompass 22 of the 23 major occupational groups as defined by OMB. Major Occupational Group 55 (Military Specific Occupations) is not included. Detailed information on the SOC system is available at https://www.bls.gov/soc/.

Implementation of the 2018 SOC
Users should note that the estimates published in 2022 are the first based solely on the new 2018 SOC. Because OEWS estimates are generated using data collected from six surveys over a three-year period, the estimates released during the calendar years 2020 and 2021 relied on data collected and coded under two different classification systems (the 2010 SOC and 2018 SOC). As a result, the estimates for these two years were based on a hybrid of the two systems. Estimates published prior to 2020 were based on the 2010 SOC.

Details on the implementation of the 2018 SOC, including a list of 2021 and earlier hybrid occupations, is available at https://www.bls.gov/oes/soc_2018.htm.

Industry Classification
OEWS estimates utilize the OMB's 2017 North American Industry Classification System (NAICS). National industry-specific occupational employment and wage estimates are available at the 2-digit sector level, 3-digit subsector level, and most 4-digit industry group level. Select 5 and 6-digit industry level estimates are also available at the national level. Additional information on the NAICS is available at https://www.bls.gov/bls/naics.htm.

As with the estimates released last year, 2022 estimates are based on 2017 NAICS. OEWS survey panels prior to May 2017 were collected utilizing the 2012 NAICS. These earlier data have been cross-walked to the 2017 NAICS.

Sample Coverage
The OEWS survey sample is drawn from employers covered by the state unemployment insurance (UI) program. Non-covered employers in NAICS 4821, *Rail Transportation*, are also included.

State and local government are included in the sample. Federal coverage is limited to the Federal Executive Branch and the U.S. Postal Service and is collected annually in June by the U.S. Office of Personnel Management.

Excluded from the survey are employers in NAICS 814, *Private Households,* and most employers in the Agriculture Sector (NAICS 11) with the exception of NAICS 113310, *Logging*; NAICS 1151, *Support Activities for Crop Production*; and NAICS 1152, *Support Activities for Animal Production.*

Employment
Employment is defined as the number of full-time and part-time employees, workers on paid vacation or other types of paid leave; workers on unpaid, short-term absence; workers assigned temporarily to other units, and paid owners, officers, and staff of incorporated firms. Excluded are self-employed, proprietors, owners, and partners of unincorporated firms, and unpaid family workers.

The sum of sub-state area employment figures may not total to statewide employment for several reasons including: rounding; suppression of employment in areas where the estimates do not meet criteria for publication because of reliability or confidentiality; employment from cross-state metropolitan areas that are not included in the statewide total; and establishments whose employees are located within the state, and counted in the statewide total, but not assigned to a particular sub-state area.

Wages and Earnings
Wages are defined as straight time, gross pay, exclusive of premium pay. Base rate, cost-of-living allowances, tips, guaranteed pay, hazardous-duty pay, incentive pay, commissions, and production bonuses are included. Excluded are back pay, jury duty pay, overtime pay, on-call pay, severance pay, shift differentials, non-production bonuses, and tuition reimbursements. A full listing of included and excluded pay can be found at https://www.bls.gov/respondents/oes/payterms.htm#attendance_bonus.

Employers report the number of employees in an occupation and the corresponding wage rates for those employees. Establishments are instructed to provide hourly rates for part-time workers and annual rates for occupations that are typically paid an annual salary, but do not work 2,080 hours per year (i.e., teachers). The survey data are placed into 12 wage intervals, which are defined both as hourly rates and the corresponding annual rates (where annual rate = hourly rate x 2,080 hours).

Kentucky employs the 10th percentile and 90th percentile, respectively, for entry and experience level wage estimates.

MB3 Estimation
With this round of estimates, OEWS implemented a new model-based methodology known as MB3. MB3 uses data provided by survey respondents to model occupational staffing and wage data for all establishments in the population, including not only those that did not respond to the survey or did not meet stability criteria, but also those that were not sampled.

Donor establishment data, from units who responded to the survey, are used to predict data for unobserved establishments in the population. Donor establishments are matched to recipients based on industry, geography, ownership, size, and survey panel; with donors that are more similar to the unobserved establishment being given more weight when determining the modeled data. While a donor pool consisting of ten nearest neighbor responding establishments is typically used, as few as five donors may be used if more are not available.

To set each establishment's population employment, an average of the May 2021 and November 2020 employment from the Quarterly Census of Employment and Wages (QCEW) program is used. Wage data collected in earlier survey panels are then adjusted to the

reference date of the estimates[1] while donor wages are adjusted for differences between the donor and the recipient, including characteristics such as geography and industry.

Duplicate Percentile Wages in Small Cells or When Wage Rates Are Highly Clustered
At this time MB3 uses exact response data (point data) for wage rates to compute wage interval means, but does not directly assign this point data to respondents in estimation at this time. Instead, the same wage interval mean is assigned for all employment within an area/occupational group for direct matches. An adjusted version of this value is assigned to predicted units. If an estimate is based on a small number of responses, it is possible that all data used for the estimate has the same wage value. When this occurs, the same wage rate value may be observed at multiple percentile values.

Duplicate Wages Across Occupational Groups in Small Areas
Interval means for MB3 are calculated by area/occupational group by ownership for each panel. All direct match data for the same occupational group, area group, ownership, and panel will have the same wage rate applied to the given wage interval data. This means that there can be larger clumps of data at certain wage values. This is especially true for the area level estimates, since all of the direct match data for a given area is automatically in the same area group for the wage interval mean calculation. Therefore, only the occupational group, ownership, and panel will create the differences in a given wage interval applied value, which increases the chance of getting a matching percentile wage estimates between two occupations that are in the same occupation group.

Prediction data also get these same wage rates applied initially, but then are further adjusted for differences between the predicted cell and the model input data, making it less likely for there to be duplicate percentile wage estimates when the percentile cutoff is at a predicted cell wage line.

Additional information on the MB3 estimation methodology is available at https://www.bls.gov/oes/methods_21.pdf.

Confidentiality
BLS has a strict confidentiality policy to ensure that the survey sample composition, reporters, and names of respondents are kept confidential. Additionally, the policy assures respondents that published estimates will not reveal the identity of any specific respondent or allow the data of a specific respondent to be inferred. The most relevant statute which governs BLS confidentiality is the Confidential Information Protection and Statistical Efficiency Act (CIPSEA). Published estimates are screened to ensure that these confidentiality requirements are met. For additional information regarding confidentiality, please visit the BLS website at https://www.bls.gov/bls/confidentiality.htm.

Impacts of the COVID-19 Pandemic
The occupational employment and wage estimates published in 2022 were generated utilizing survey data collected during the reference period of November 2018 to May 2021. Although this three-year data collection window began prior to the COVID-19 pandemic, later survey

[1] For example, the reference date of the estimates published in 2022 is May 2021.

panels within this timeframe were affected by lower response rates due to difficulties in collecting data from employers. Lower response rates may negatively impact data availability and data quality.

Additional information on the OEWS Program is available at https://www.bls.gov/oes/home.htm.