



## **METHODOLOGY: Long-Term Employment Projections**

The projections in this report are based on methodologies developed by US DOL for projecting state and area occupational needs. The industry employment projections are estimated using an area's past industry employment trends and national information, which are then refined by a review of current economic developments that affect employment within each industry.

Employment projections count the number of jobs (including full- and part-time) as opposed to the number of workers.

Base year data, the date for the beginning year of the projection period, are a "snap-shot" of employment at a point in time. Preliminary employment projections are produced using various economic models. The methods and economic models are provided to all state Labor Market Information programs to insure consistent methodology and outcomes across the nation. Using these methods, analysts review preliminary industry employment projection numbers and make adjustments based on local area and State economic developments that may occur during the projection period.

Long-term industry employment projections are developed using one of several unique forecasting methods including time-share, shift-share, extrapolation, or regression model. The forecasting method selected is then paired with analysis using state-specific inputs. Occupational projections are prepared by applying occupational staffing patterns for each industry to industry employment projections. The staffing patterns used are derived from information collected by the OES survey.

Historical industry employment utilized in the projection process is primarily derived from employment reported at the establishment level through the Quarterly Census of Employment and Wages (QCEW) program, at the 2- and 3-digit NAICS level. Because QCEW data captures only those workers covered by unemployment insurance, QCEW data is supplemented with employment data from the Current Employment Statistics (CES) program, the U.S. Census Bureau, Bureau of Economic Analysis (BEA), and the Census of Agriculture. Employment projection inputs measure wage and salary workers, as well as self-employed workers, farmers and farm workers, private household workers, and other residual employment. Therefore, base employment estimates used for projections will likely differ from those reported by other sources, including QCEW.

**Projection estimates include the following:**

- Nonfarm employment by major industry sector
- Self-employed workers who work for profit or fees in their own business, profession, trade, or farm. The estimated and projected employment numbers contain all workers who are primarily self-employed and wage and salary workers who hold a secondary job as self-employed workers. Examples of self-employed workers are: Farmers and Ranchers, Door-to-Door Sales Workers, Writers and Authors, and any occupation that customarily has self-employed workers.
- Unpaid family workers who work without pay for 15 or more hours per week on a farm or in a business operated by a member of the household to whom they are related by birth or marriage.
- Private household workers employed as domestic workers whose primary activities are to maintain the household. Over 90 percent of all private household workers are concentrated in three occupations: (1) Personal and Home Care Aides, (2) Child Care Workers, and (3) Maids.

In addition, some industries incorporate both private- and public-sector employment in order to comply with the methods used to collect occupational staffing patterns. For example, state and local government educational services employment is included in the educational services sector in the projections process, but is actually included in the government sector in QCEW.

When industry and occupational staffing patterns are merged to project occupational employment, BLS national occupational change factors (the projected change in the distribution of occupations within an industry) are applied to produce new occupational staffing patterns. The new patterns are adjusted to equal the projected employment by industry. The projected employment of an occupation, therefore, is based on changes in the proportion of workers in the occupation in each industry and the growth rates of the industries in which employment in that occupation is found. For more detailed information on projections methodology visit [http://www.bls.gov/emp/ep\\_projections\\_methods.htm](http://www.bls.gov/emp/ep_projections_methods.htm) and <https://support.projectionscentral.com/>.

**Source:**

Projection methodologies are consistent across all states and it is therefore redundant for each state to create its own explanation of methodology. The explanation of methodology provided above was originally created by the New Mexico Department of Workforce Solutions and the California Employment Development Department and later adopted by the Arizona Office of Economic Opportunity.