

## **Labor Market Estimating Conference Methodology**

### *Educational Requirements...*

A total of eight classifications are generally used to represent the typical education level most workers need to enter an occupation: “No formal education credential,” “High school diploma or equivalent,” “Some college, no degree,” “Postsecondary nondegree award,” “Associate’s degree,” “Bachelor’s degree,” “Master’s degree,” and “Doctoral or professional degree.”

To assign a unique educational requirement to each occupation, a master list was developed by combining two products: (1) the Florida SkillsEngine CIP-SOC crosswalk, provided by the REACH Office; and (2) the Education and Training Assignments by detailed occupation, produced by the US Department of Labor, Bureau of Labor Statistics (BLS). The REACH crosswalk used the BLS 2018 SOC taxonomy. The BLS educational assignments also use the 2018 SOC taxonomy in this analysis.

The assignment procedure contained the following steps:

- For occupations that had a one-to-one linkage between the occupation and the educational requirement in PAIRIN’s crosswalk:
  - A direct assignment was made, preserving the PAIRIN code.
  
- For occupations that had multiple educational requirements in PAIRIN’s crosswalk:
  - As directed by the Reimagining Education and Career Help (REACH) and DOE workgroup, 17 occupations (using 2018 SOC counts) were assigned the lower educational requirement.
  
- For occupations that had “Recognized industry credential” as the educational requirement in PAIRIN’s crosswalk:
  - As directed by the REACH and DOE workgroup, 84 occupations (using 2018 SOC counts) were re-named “Postsecondary nondegree award” to match the category name in BLS’s codes (but not necessarily the BLS educational assignment).
  
- For occupations that were absent from PAIRIN’s crosswalk (209):
  - BLS educational requirement codes were assigned.

### ***Determination of Areas of Concern***

#### *Occupational Classification at the Statewide Level...*

As a starting basis, the analysis used the 2018 SOC taxonomy, comprising 848 occupations. Of those, BLS OEWS for fiscal years 2021-22 and 2022-23 referenced 12 occupations from the preceding hybrid 2019 OES taxonomy. These 12 occupations were added into the complete list of 848, and their 28 counterparts from the 2018 SOC taxonomy were removed. The final occupational list used for this analysis was therefore a blend of the 2018 SOC and 2019 OES taxonomies, numbering 832 occupations. The analysis assumes that each of these 832 occupations exists in Florida.

### *Labor Supply...*

The functional labor supply analysis is based on historical labor force and employment data for Florida from BLS and official statewide projections adopted by the Florida Economic Estimating Conference (FEEC) in accordance with ss. 216.133-216.136, Florida Statutes.

The supply determination procedure contained the following steps:

- A ratio of annual occupational employment (including self-employed) to the official labor force projection was calculated for each occupation from Florida's OEWS employment for fiscal years 2020-21 and 2021-22 and Florida's IMPLAN estimates for fiscal year 2020-21. If OEWS data existed, the maximum ratio was selected, otherwise the IMPLAN ratio was utilized as the representative ratio of labor supply for that occupation. The selected ratios were increased proportionally such that the sum of the employment across all occupations represented 100% of the labor force.
- In order to produce labor supply by occupation for each forecasted year, the statewide labor supply was allocated to each occupation based on its adjusted ratio. These ratios were held constant throughout the forecast period.

### *Labor Demand...*

The labor demand analysis utilizes a multi-step approach to estimate 10-year occupational employment, which broadly includes: (1) establishing a base employment value on an occupation-by-occupation basis in fiscal year 2021-22 to moderate the impact of COVID-19 on future employment estimates; and (2) conducting a series of tests based on set criteria to determine the best rate by which to grow each occupation.

The base employment determination procedure contained the following steps:

- Out of 832 occupations, 705 occupations' base years utilized the maximum employment from Florida's OEWS employment for either fiscal years 2020-21 or 2021-22 or Florida's IMPLAN estimates for fiscal year 2020-21, assuming that base-year demand must meet or exceed filled jobs.
- The remaining 127 occupations received special base-employment treatment. If their calculated maximum employment for the 2020-21 and 2021-22 period was at least 10% lower than their calculated maximum employment for the 2016-17, 2017-18, and 2018-19 period, the maximum base employment for the earlier employment period was used. Review showed that a significant number of these occupations were uniquely affected by pandemic effects.

The growth rate determination procedure contained the following steps:

- To determine the most appropriate growth rate by occupation, the analysis relied on Florida's per capita OEWS employment (without self-employed) by occupation compared to all states and the District of Columbia for fiscal years 2020-21 and 2021-22. A set of per capita ratios was generated using state employment published by BLS and population data published by the US Census Bureau. Published national OEWS estimates by occupation were used for the series mean, and a standard deviation of per capita employment for each occupation for each fiscal year was calculated. By occupation, Florida's ratios were then compared to the national mean in each year and evaluated to see if they fell within one standard deviation.

- A set of 3 conditions based from the standard deviation analysis were used to determine standard treatment for the assignment of occupational growth rates: (1) occupational employment fell outside of one standard deviation for both years; (2) occupational employment was missing for at least one year, but fell within one standard deviation for the other year; (3) occupational employment fell outside of one standard deviation for one year, but fell within one standard deviation for the other year.
  - Of the 127 occupations that utilized special base-employment, 118 met at least one of the conditions. These occupations were grown by Florida’s Total Resident Population growth rate.
    - The remaining 9 occupations that failed to meet one of the conditions were independently reviewed and assigned variable population growth rates.
  - For the remaining 705 occupations that utilized standard base employment, 556 occupations met either the first or second condition. These occupations were grown by their respective Florida Economic Estimating Conference growth rates and Florida Demographic Estimating Conference growth rates as adopted by the October 2022 Labor Market Estimating Conference, albeit updated with most recent data. For those occupations that were previously treated with a unique growth rate, Florida’s Total Resident Population growth rate was used.
    - For the remaining 149 occupations that failed to meet one of the conditions, 130 occupations were independently reviewed and assigned variable population growth rates. The final 19 occupations maintained the previous unique growth rate adopted at the October 2022 Labor Market Estimating Conference.
  - All teaching and healthcare occupations were designated for independent review, and the Legislators occupation kept static, regardless of their outcomes in the standard deviation analysis.

*Areas of Concern...*

After supply and demand were independently modeled, an analysis was performed to identify those occupations that could potentially be in undersupply in the final year of the forecast horizon. For details, see below.

Occupational Areas of Concern (by educational requirement)

These occupations were identified by comparing occupational supply and demand in the 10th year of the forecast to determine where projected demand exceeds expected supply by more than 10%. Essentially, this condition means that (1) demand exceeds supply currently and will continue to do so in the future, or (2) the growth in future demand will outpace the likely labor supply for that occupation. These findings were produced by a model run that simulated occupation’s employment supply and demand trajectories over the forecast period. The overall methodology:

- Used current occupational shares of the labor supply against the forecast adopted by the Florida Economic Estimating Conference for all future years.
- Selected a base year of potential demand from a maximum of five nonconsecutive years, using the assumption that demand must equal or exceed filled jobs. The base was then grown by various growth rates (predominately population driven).

Although, some occupations have both limited supply and demand, the analysis found that there is reason to believe that a significant gap in supply will exist for 101 out of 832 discrete occupations (12.1%). Note that evolving or emerging trends have yet to be addressed. As such,

this analysis does not alter the existing economic structure, meaning the results represent foundational imbalances that would be expected to persist into the future, absent intervention.

## Sources

### *Occupational Taxonomy – Codes and Titles...*

In certain instances, occupational codes and titles were used in this analysis from the US Department of Labor, Bureau of Labor Statistics, Standard Occupational Classification System and the National Employment Matrix Occupational Coverage, BLS Office of Occupational Statistics and Employment Projections (<https://www.bls.gov/soc/home.htm>). The 2018 Standard Occupational Classification (SOC) was used as the base year OEWS data in this analysis.

The 2018 Standard Occupational Classification (SOC) system is a federal statistical standard used by federal agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data. All workers are classified into one of 867 detailed occupations according to their occupational definition. Excluding the military occupations, there are 848 civilian occupations. To facilitate classification, detailed occupations are combined to form 459 broad occupations, 98 minor groups, and 23 major groups. Detailed occupations in the SOC with similar job duties, and in some cases skills, education, and/or training, are grouped together. This analysis focuses on the 22 civilian occupational groups and excludes military occupations (major group 55). To reflect changes in the economy and the nature of work, the SOC is revised on a 10-year cycle.

The 2018 SOC taxonomy with the 848 civilian occupations is the starting point. However, data are not yet available for 28 of these detailed occupations. Instead, BLS published aggregated data for 12 occupations representing the 28 detailed occupations, resulting in a total of 832 occupations with published data in this analysis.

The 2018 taxonomy replaces the 2019 OEWS hybrid taxonomy used in prior Labor Market Estimating Conferences.

### *Employment by Occupation...*

- State Occupational Employment and Wage Estimates, US Department of Labor, Bureau of Labor Statistics, [https://www.bls.gov/oes/current/oes\\_fl.htm](https://www.bls.gov/oes/current/oes_fl.htm).
- Florida Department of Economic Opportunity, Bureau of Workforce Statistics and Economic Research, [OES Occupational Employment Statistics and Wages - FloridaJobs.org](https://www.floridajobs.org/oes).

The Occupational Employment and Wage Statistics (OEWS) survey is a national semiannual survey measuring occupational employment and wage rates for wage and salary workers in nonfarm establishments in the United States. It is the most detailed public source of occupational data available in terms of both occupational nomenclature and local geographies. OEWS estimates are constructed from a sample of about 1.1 million national establishments. Each year, two semiannual panels of approximately 180,000 to 185,000 sampled establishments are contacted, one panel in May and the other in November. Responses are obtained by mail, internet or other electronic means, email, telephone, or personal visit. The May 2020 estimates are based on responses from six semiannual panels collected over a 3-year period: May 2020, November 2019, May 2019, November 2018, May 2018, and November 2017. The unweighted sampled employment of 83 million across all six semiannual panels represents approximately 56% of total national employment. In Florida, the OEWS survey draws its sample from state Reemployment Assistance (unemployment insurance) files. This

data source excludes the self-employed since they are not subject to the Reemployment Assistance tax and the OEWS does not collect data on them. The Florida sample for OEWS is slightly less than 11,000 units (establishments) per survey panel and approximately 66,000 total units over the six panels comprising the data used to publish the annual release.

National self-employment factors were applied to occupational employment based on data from the US Department of Labor, Bureau of Labor Statistics. These factors expand the occupational employment estimates to account for the self-employed. Some occupations, such as barbers and real estate brokers, tend to have more self-employed or sole proprietors (unincorporated businesses) than others. Wages for the OEWS 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.

In order to combine the panels, wage data collected over the span of the three years is updated to the current panel's reference period using the BLS Employment Cost Index (ECI). Wages for the current panel need no further adjustment. 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. For more information on the methodology, please see [https://www.bls.gov/oes/current/oes\\_tec.htm](https://www.bls.gov/oes/current/oes_tec.htm).

#### *Employment Estimates from IMPLAN...*

IMPLAN ([www.implan.com](http://www.implan.com)) is a proprietary economic modeling platform that combines a set of extensive databases, economic factors, multipliers, and demographic statistics with a highly refined modeling system. IMPLAN is based on an input-output economic model. Input-output analysis is a form of economic analysis based on the interdependencies between economic sectors. Input-output is commonly used to estimate the impacts of "shocks" to an economy and to analyze their resulting ripple effects. IMPLAN data contains 546 sectors representing all private industries in the United States as defined by the North American Industry Classification System (NAICS) codes. Employment, employee compensation, industry expenditures, commodity demands, relationships between industries, and more are collected to form IMPLAN's ever-growing database.

#### *Florida SkillsEngine CIP to SOC Crosswalk...*

Florida SkillsEngine, a subcontractor of PAIRIN Inc., created a new CIP to SOC crosswalk under contract with the Florida Department of Education using data from the National Center for Education Statistics (NCES). PAIRIN describes the crosswalk as follows: "The Classification of Instructional Programs (CIP) provides a taxonomic scheme that supports the accurate tracking and reporting of fields of study and program completions activity. The value of a CIP to SOC crosswalk is to demonstrate the connection between the world of work and the world of education using CIP programs and SOC occupational titles as functional proxies. These proxies are imperfect representations of their respective 'worlds', each with inherently different qualities, organizational constructs, and clearing mechanisms. The ultimate goal of a CIP to SOC crosswalk is to draw a reasonable association between these two worlds so the educational community can, if it chooses, demonstrate or plan to offer programs-of-study aligned with existing or future labor market demand."