

The 2019 Gap Analysis: Explanation of Method

July 2019

As in the previous iteration of the gap analysis undertaken in 2013, supply was represented by the number of baccalaureate degrees awarded by Florida postsecondary institutions in 2017 as reported to the National Center for Educational Statistics' Integrated Postsecondary Educational Data System (IPEDS).¹ All educational institutions receiving Title IV Financial Aid (approximately 400 in Florida) are required to report these data to IPEDS, assigning a Classification of Instructional Programs (CIP) code to each educational program.

Demand was based on the Florida Department of Economic Opportunity's 2018-2026 Employment Projections.² Florida's Bureau of Workforce Statistics and Economic Research (WSER) produces these 8-year employment projections annually for all industries and occupations. The data used to create these projections are the Quarterly Census of Employment and Wages (QCEW), the Occupational Employment Statistics (OES), and the Current Population Survey (CPS). The projections are based on the separations methodology, which is a change from the previous replacement method. The new separations method considers transfers and exits rather than just replacement openings, which results in a more accurate picture of the workforce, generally reflecting a much higher number of job openings. The separations method better reflects the workforce by differentiating between those who are leaving the labor force entirely and those who are permanently leaving an occupation to enter a new field.

The separations method:³

- is regression-based and statistically more robust than the prior method;
- incorporates demographic variables in its model and other longitudinal data from the CPS monthly surveys; and
- more accurately accounts for future occupational change by incorporating employment projections data, also from OES; and can quickly adjust to new occupations added to the classification system and more accurately estimate occupations with small employment levels.

Each occupation is assigned a Standard Occupational Classification (SOC) code⁴ and an educational attainment level by the U.S. Department of Labor, Bureau of Labor Statistics (BLS).⁵ The BLS taxonomy classifies occupations by the typical level of skills needed to enter an occupation. However, Florida's Workforce Estimating Conference has traditionally used a modified version of educational codes as determined by the Florida Department of Education (FLDOE). The FLDOE codes consider the minimum level of skills needed to enter an occupation. As per the 2013 analysis, this analysis

¹ <https://nces.ed.gov/ipeds/>

² <http://www.floridajobs.org/workforce-statistics/data-center/statistical-programs/employment-projections>

³ http://lmsresources.labormarketinfo.com/library/ep/separations_method_overview.pdf

⁴ <https://www.bls.gov/soc/>

⁵ <https://www.bls.gov/>

uses the BLS taxonomy rather than the FLDOE coding. The BLS designation is used to determine the gap between supply and demand for workers at the bachelor's degree level in Florida because it provides the most accurate depiction of the actual educational level that workers should complete to meet job requirements.

For the 2019 gap analysis, a national CIP-SOC crosswalk⁶ built by the BLS and the U.S. Department of Education's National Center for Education Statistics (NCES) was used as a basis for linking occupations (the SOC code) with their correlated educational programs (the CIP code). When warranted, supplemental CIP to SOC linkages were applied if the BLS crosswalk was deemed incomplete. Unfortunately, there is often not a one-to-one correspondence between CIP and SOC codes because a given educational program can often lead to multiple occupations, and many different educational programs can often supply a given occupation. It is important to note that the educational attainment level was maintained when matching occupations and degree programs so that only the baccalaureate-level program completers were matched to occupations classified at the bachelor's level.

In an effort to limit the problem of occupations linked to multiple academic disciplines and potentially overstating supply, the two following strategies were used.

- Managerial occupations (SOC codes beginning with '11') were excluded from the analysis because they require certain levels of experience beyond a degree, and managerial occupations had the highest number of links to academic disciplines.
- Supply data was adjusted to acknowledge that graduates typically have more than one choice of occupation after graduating. After the initial SOC-to-CIP match to derive the total number of recent graduates qualified for a particular 'target' occupation, it is imperative to also look from CIP-to-SOC to get a sense of all the occupations competing for those graduates. Thus, the adjusted supply was derived by multiplying the total supply of graduates linked to a target occupation by the target occupation's percentage of projected total openings for all the occupations (excluding managers) linked with the disciplines associated with the target occupation.
 - For example, the Financial Analyst occupation has 1,235 projected annual openings that are potentially supplied by the 3,378 graduates annually earning bachelor's degrees from seven academic disciplines: Financial Mathematics, Accounting and Finance, Accounting and Business/Management, General Finance, International Finance, Investments and Securities, and Public Finance (the SOC-to-CIP analysis). At first glance, it appears that there is a substantial oversupply of graduates qualified for the financial analyst openings. However, if one considers the other perspective (the CIP-to-SOC analysis), one also sees that these graduates are qualified for multiple occupations with a combined 18,678 annual openings. (Also note that, as explained above, managerial

⁶ <https://nces.ed.gov/ipeds/cipcode/resources.aspx?y=55>

occupations were excluded from the gap analysis because these occupations also generally require experience.) Therefore, the openings for financial analysts comprised only 6.6% of all the jobs available to these graduates (1,235 financial analyst openings divided by 18,678 total openings). Therefore, only 6.6% of the initial supply of 3,378 graduates is used in the gap analysis, resulting in an annual adjusted supply of 223.

Once the supply and demand data were calculated for each occupation, the 84 occupations that showed any supply gap (where supply was less than the projected annual demand) were sorted. Next, three occupations were removed from consideration because there were no related CIP codes, indicating systemic classification error.⁷ From the remaining list of occupations, a 100-opening threshold was used as an analytical safety net to account for methodological uncertainties (e.g., CIP-SOC mismatches and the vagaries of projecting long-term occupational demand). Additionally, certain SOC and CIP codes were excluded including those not related to the system mission and those ending in 99, which is used to designate a catch-all category and does not imply a strong educational program to occupation relationship.

The final phase of the analysis focused on targeting those academic programs with the highest gap, growth, and wage. The need for additional graduates in these occupations was further confirmed by examining and applying certain contextual metrics, including annual projected demand growth rates and average median wage rates. Staff reviewed the initial gap analysis results, which identified over 140 potential programs, and determined additional criteria that refined the number of programs with the goal of focusing the list on high-demand, high-growth, and high-wage occupations. The additional criteria developed were to include only occupations that have a projected growth rate that is equal to or higher than the statewide average growth rate for all jobs of 10.1% and a median salary of at least \$45,000 dollars per year. It is important to note that certain occupations fell outside the scope of the analysis because they are educationally coded either above the baccalaureate level (e.g., physicians) or below the baccalaureate level (e.g., technicians).

⁷ The three occupations were Compliance Officers [13-1041]; Fundraisers [13-1131]; and Business Operations Specialists, All Other [13-1199].