**Appendix A**

**The Gap Analysis: Explanation of Method**

In the Commission’s work, supply was represented by the number of baccalaureate degrees awarded by Florida schools in 2010-11 as reported to the National Center for Educational Statistics’ Integrated Postsecondary Educational Data System (IPEDS). 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 Long-term Employment Projections that are presented annually at the fall Workforce Estimating Conference of the Florida Legislature. The projections are prepared using a commonly accepted methodology developed by a consortium of labor market information offices across the country. Demand for labor is forecast by industry (for over 300 industries) and by sub-state region. Industry demand for labor is transformed to demand by occupation for approximately 800 occupations by applying a staffing pattern specific to each industry. The staffing pattern is produced by the annual Occupational Employment Statistics (OES) survey, which includes data from more than 55,000 employers representing more than 4.4 million employees each year. Additional adjustment factors by the U.S. Bureau of Labor Statistics are applied to account for expected occupational change and retirements. Annual demand for labor is based on total annual openings, which is comprised of new job growth (expected increase in demand for labor due to economic growth in the industry) and replacements (job openings due to workers retiring or leaving the labor force).

Each occupation is assigned a Standard Occupational Classification (SOC) code and an educational attainment level by the U.S. Department of Labor Bureau of Labor Statistics (BLS). 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. A third potential source for occupational demand by educational level is the American Community Survey[[1]](#footnote-1) (ACS), which provides survey data on the educational attainment of employees actually working in the occupation.

The Commission decided to use the U.S. Bureau of Labor Statistics (BLS) taxonomy, rather than the Florida Department of Education (FLDOE) codes or the American Community Survey (ACS) methodology. The Commission chose to use the BLS method 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 in order to meet job requirements. The Commission was concerned that the FLDOE coding scheme underestimates baccalaureate demand while the ACS methodology overestimates it.

The FLDOE codes were created 15 years ago to direct state Workforce Investment Act funding to less-than-a-baccalaureate-level training programs and thus have an inherent bias toward classifying occupations at a less-than-baccalaureate-degree level. Further, this modification makes comparisons of Florida’s labor market projections with those of other states and of the nation as a whole very difficult, if not impossible. In addition, the ACS data has an unknown amount of distortions due to phenomena such as “up-skilling” and “down-skilling” (e.g., waiters with baccalaureate degrees). The self-reported nature of the ACS also adds to this effect.

Chart 1 below shows the impact the FLDOE and BLS methods have on classifying all of Florida’s current jobs (in 2012) by level of education. The green bars represent a breakout of Florida’s jobs based on the FLDOE method and is currently used for Workforce Estimating Conference materials. The dark blue bars report the percentage of Florida’s 2012 occupations based on the Bureau of Labor Statistics taxonomy. And, the light blue bars show the breakout of jobs by education for the entire nation using the BLS method. When using the standard BLS method (blue bars), Florida’s economic workforce is on par with the national average for each educational level.

For the Commission’s gap analysis presented in this report, a national CIP-SOC crosswalk 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). 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 a given occupation can often be supplied by many different educational programs. Further, the list of CIP codes are updated annually and can better capture emerging fields, whereas the SOC codes are only updated every ten years and so potentially miss new occupations and emerging industries. 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 326 projected annual openings that are potentially supplied by the 3,093 graduates annually earning bachelor’s degrees from three academic disciplines: Accounting and Finance, Accounting and Business Management, and General 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 you consider the other perspective (the CIP-to-SOC analysis), you also see that these graduates are qualified for multiple occupations with a combined 4,641 annual openings. (Also note that, as explained above, we excluded managerial occupations from the gap analysis because these occupations also require experience.) Therefore, the openings for financial analysts comprised only 7% of all the jobs available to these graduates (326 financial analyst openings divided by 4,641 total openings). Therefore, only 7% of the initial supply of 3,093 graduates is used in the gap analysis, resulting in an annual adjusted supply of 217.

Once the supply and demand data were calculated for each occupation, the 35 occupations that showed any supply gap (where supply was less than the projected annual demand) were sorted. Next, seven occupations were removed from consideration because an absence of IPEDS data for their related CIP codes indicated systemic classification error.[[2]](#footnote-2) From the remaining list of occupations, we created a 100-opening threshold as an analytical safety net to account for methodological uncertainties (e.g., CIP-SOC mismatches and the vagaries of projecting long-term occupational demand).

The need for additional graduates in these occupations was further confirmed by examining certain “contextual metrics,” including annual projected demand growth rates, short-term demand as indicated by Help Wanted Online data, the existence of a waiting labor force “warehoused” by the recession, and average entry wage rates. In addition, 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., nurses).

Based on this supply-demand gap analysis, the Commission chose to focus its attention on the occupations with the largest gaps.

Further explanation of the methodology for the gap analysis is also available at the Florida Board of Governors web site.[[3]](#footnote-3)

1. The American Community Survey is administered by the United States Bureau of the Census: “The American Community Survey (ACS) is an ongoing statistical survey that samples a small percentage of the population every year -- giving communities the information they need to plan investments and services.” Retrieved September 19, 2013 from [http://www.census.gov/acs/www/#](http://www.census.gov/acs/www/) [↑](#footnote-ref-1)
2. The seven occupations were Compliance Officers, Exc. Safety, Agri, Constr & Transp. [13-1041]; Biological Technicians [19-4021]; Literacy, Remedial and GED Teachers and Instructors [25-3011]; Securities and Financial Services Sales Agents [41-3031]; Sales Representatives, Wholesale & Mfg, Tech. & Sci. Products [41-4011]; Captains, Mates, and Pilots of Water Vessels [53-5021]; and Ship Engineers [53-5031]. [↑](#footnote-ref-2)
3. Please consult the archive of meeting materials for the Access and Educational Attainment Commission, available at <http://www.flbog.edu/about/commission.php>. [↑](#footnote-ref-3)