Education Meets Opportunity Platform (EMOP)

Florida Department of Education

Comparing Florida's Postsecondary Career Technical Education (CTE) Programs

Policy Paper

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Purpose

This document is intended to be a high-level summary of the Education Meets Opportunity Platform (EMOP) Return on Investment (ROI) dashboard postsecondary CTE program analysis, directed at stakeholders and policymakers seeking to familiarize themselves with the data and methodology in the analysis. For a more in-depth understanding of the data and methodology, readers should look at the data pipeline documentation and analysis documentation, respectively.

Overview of the Analysis

This analysis compares the impact of completion of different postsecondary CTE programs in Florida on students' labor market activity and social benefits consumption within Florida. The RIPL team facilitated a discovery period with the FL Department of Education and REACH Office to determine appropriate research questions that would produce meaningful insights into the outcomes of postsecondary CTE programs. The outcomes analyzed include:

- Employment in the two years following program completion
- Earnings in the two years following program completion
- SNAP and TANF benefits received in the two years following program completion
- Continuing education by enrolling in additional postsecondary programs within one year of completion

While we compare the outcomes of students across different postsecondary CTE programs, we do not compare individuals in postsecondary CTE to any comparison group not enrolled in any CTE program. When we measure the impact of a program, that impact is relative to the average postsecondary CTE program, not relative to a counterfactual[1] where a student instead did not enroll in CTE.

Method

To analyze the outcomes of interest, we examine the average outcomes of students who completed each program, with and without adjustments for pre-program characteristics that are related to the outcomes. The adjustments are done using an ordinary least squares (OLS) regression[2]. This allows us to separate out correlations between outcomes and programs from correlations between outcomes and student characteristics. Although the analysis is not a causal analysis, using the adjusted averages is closer to estimating a causal impact than simply looking at the raw averages. If a particular program merely enrolled a set of students who already had high earnings before beginning a postsecondary CTE program, this method avoids attributing their future high earnings to that program.

Groups of Programs

Programs are defined by subject matter and by the type of credential offered, which is either a certificate or an associate of science degree. Individual programs are identified by 10-digit Classification of Instructional Programs (CIP) codes. We group all students across the state of Florida with the same 10-digit CIP code together.

We can examine (raw and adjusted[3]) outcomes within larger groupings of programs. This can be useful to compare outcomes across specific and/or broad program categories. For example, one could compare all "fire protection" postsecondary CTE programs to all "human development" postsecondary CTE programs

[1] A counterfactual is a hypothetical scenario where a treated group did not receive any treatment but was otherwise the same. So in this case, the counterfactual we would be interested in is if we could observe what happened to the students that completed a program *had they not completed it*. In practice this is not possible to actually observe, but it is sometimes possible to find another group of students who are similar to the completers in the pre-program period.

[2] Ordinary least squares (OLS) is a statistical method used to estimate the relationship between one variable (dependent) and one or a group of other variables (independent). OLS models the relationship between the variables as linear; that is, that as an independent variable increases (holding any other independent variables constant), the dependent variable changes proportionally.

[3] In an OLS regression, we calculate the raw average of an outcome across different categories of a variable (like CTE programs). We also adjust the averages by including covariates (also called control variables) in the regression – this adjustment allows one to first account for differences in those covariates before looking at the differences across programs. With an adjustment, we can then calculate the differences across programs *at the average values of the covariates*. We can then interpret adjusted results as "for the average Floridian."

to get a better understanding of the extent that specific programs follow the trends of their broader CIP categories and identify any outlying programs for further examination. The available groupings are:

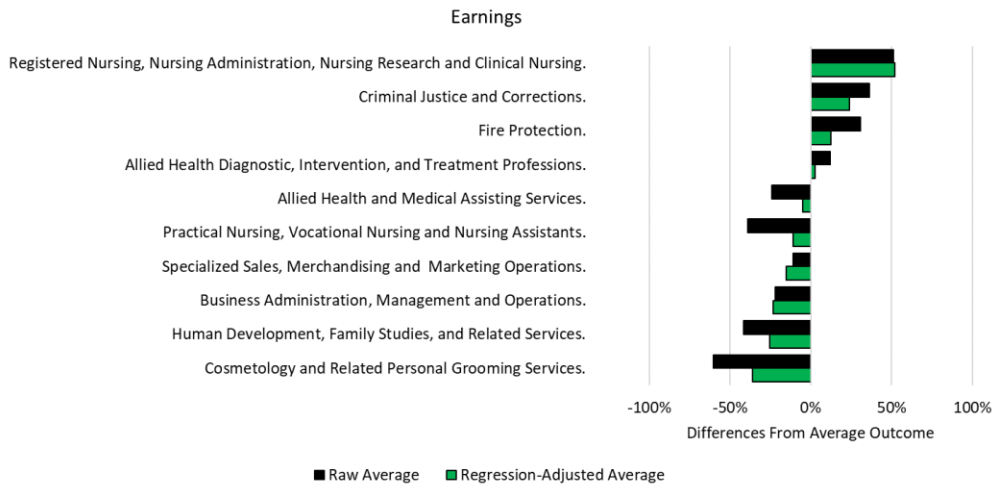
- 4-digit CIP code
- 4-digit CIP code by credential offered
- 6-digit CIP code
- 6-digit CIP code by credential offered
- 10-digit CIP code

Sample Period

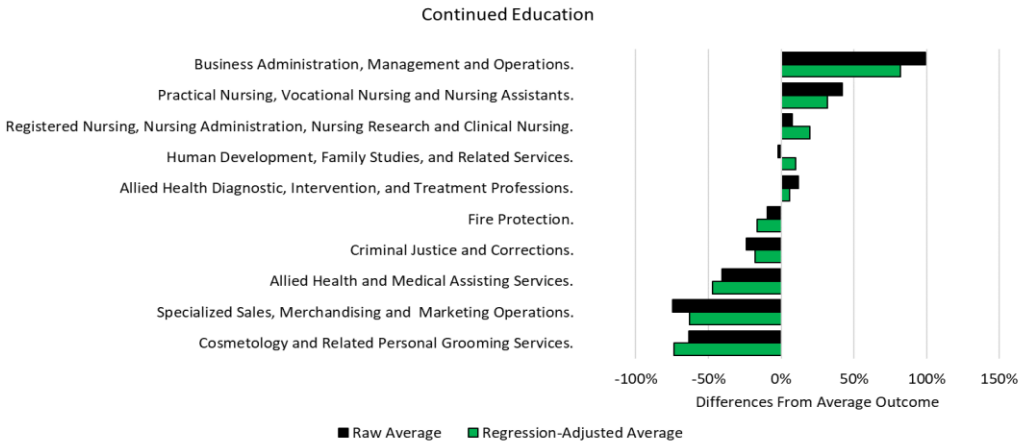
The analysis uses administrative data from before a student enrolls in a postsecondary CTE program and from after a student completes a postsecondary CTE program. Due to limitations in access to earnings data, only the cohorts of students who began a program on or after early spring 2017 and who completed a program on or before early summer 2019 are included in the analysis. This decision ensures that the same number of quarters of wage data is used across the analysis.

Example

The figure below shows the results for the earnings outcome for programs aggregated to the 4-digit CIP code, selecting only the ten 4-digit CIP codes with the most completers in the years 2017-2019. The quantities are specified as percentage differences from the average post-completion earnings among the entire sample of postsecondary CTE program completers.



The following figure shows the percentage differences in the fraction of students continuing on to another education enrollment within a year of completion, among the same set of CTE program completers. Above, we saw that students who completed programs in “business administration” and “practical nursing” had somewhat low earnings. However, below we see that they were far more likely than students in the average program to pursue further credentials. Analyzing multiple outcomes can be crucial for understanding the full impact of a program.



Data Sources

This analysis uses data on postsecondary CTE program enrollment and completion as well as demographic information about students from both the Florida College System (FCS) and the Workforce Development Information System (WDIS). It also relies on Unemployment Insurance (UI) records of individuals' non-contractor earnings and SNAP and TANF benefits data from the Department of Children and Families (DCF).