



Aligning career and technical education with high-wage and high-demand occupations in Tennessee



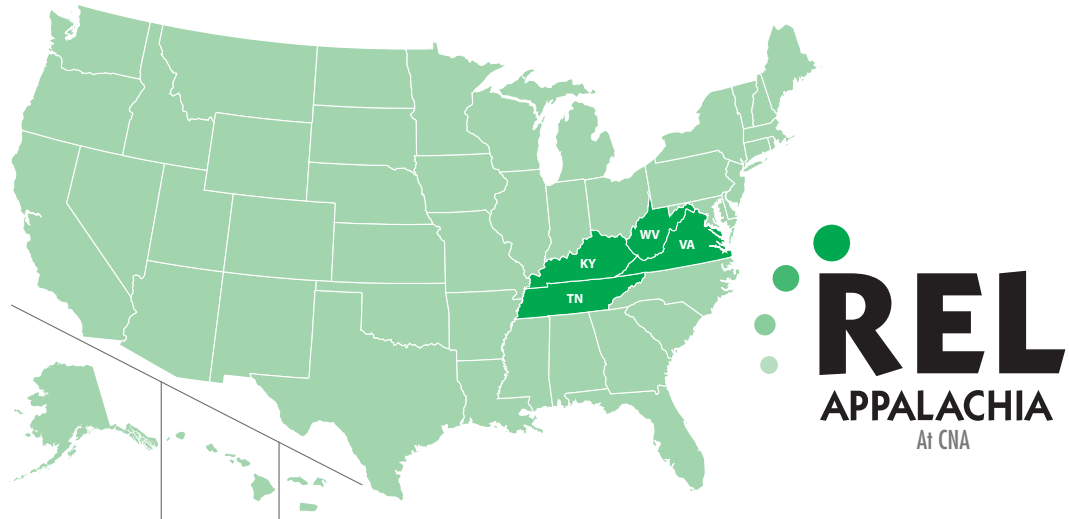


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Summary

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This study examines the availability of career and technical education program areas in Tennessee high schools, concentrations (a three-or-more credit sequence in a program area) completed by 2007/08 high school graduates, and how these concentrations align with jobs in the labor market. It looks at how these outcomes differ, statewide and by region, and identifies corresponding high-wage and high-demand occupations projected over 2006–16.

A primary purpose of career and technical education is to prepare students for “high skill, high wage, or high demand occupations in current or emerging professions” (Perkins IV 2006, Sec. 2-1). How well career and technical education participation corresponds to labor market demands is important for both students and employers. Students want good careers; employers want to fill jobs in high-demand areas. Previous research indicates that policymakers in many states have struggled to align education and training with labor market demands.

This study uses school-level data from the Tennessee Department of Education (2009) on the number and percentage of concentrators (high school graduates completing a three-or-more credit sequence) in each career and technical education program area (agricultural education,

business technology, family and consumer services, health science, marketing, technology engineering, and trade and industrial education), and region-level data on employment projections and median annual wages from the Tennessee Department of Labor and Workforce Development (2009). Data on school characteristics are from the Common Core of Data, maintained by the U.S. Department of Education National Center for Education Statistics (2008b). The school-level data are for 2007/08, occupational wage data are for 2006, and employment projections are for 2006–16.

This study addresses five sets of questions on career and technical education in Tennessee:

- On average, how many program areas are available in high schools, and which are most and least common, statewide and by region (a cluster of neighboring counties with similar labor market characteristics)?
- How does the percentage of high school graduates who graduated from schools with at least one available program area, and of high school graduates who completed at least one concentration, vary by program area and region?
- Statewide and for each region, how many concentrators would need to change

program areas to match the distribution of workers in the labor market? For each program area, how does the percentage of high school graduates who completed a concentration compare with the percentage of workers employed in corresponding occupations?

- For each region, which program areas correspond to low-, moderate-, and high-wage occupations projected over 2006–16? What percentage of jobs projected over 2006–16 are in 2007/08 program areas that correspond to high-wage occupations? What is the percentage of concentrators in these program areas? How do the median annual wages in occupations that correspond to each program area vary by education level?
- For each region, which program areas correspond to low-, moderate-, and high-demand occupations projected over 2006–16? What percentage of jobs projected over 2006–16 are in 2007/08 program areas that correspond to high-demand occupations? What is the percentage of concentrators in these program areas?

Key findings include:

- Statewide, the average number of program areas offered in non-career and technical education schools (schools where students received their diploma and that offer courses in addition to those in career and technical education program areas) was 3.6 (out of 7). Across regions, it ranged from 2.9 to 4.7.
- Statewide, 92 percent of graduates were enrolled in a school offering trade and

industrial education, the program area most commonly available, and 26 percent were enrolled in a school offering technology engineering, the program area least commonly available. The range in program area availability was just as striking by region. Technology engineering was not available to any high school graduates in two regions, but nearly three-fourths (74 percent) of graduates in one region were enrolled in a school that offered it. The percentage of high school graduates who completed at least one concentration ranged from 22 percent to 55 percent by region and from 1 percent (technology engineering) to 20 percent (trade and industrial education) by program area.

- Statewide, 18 percent of concentrators would need to change program areas to match the distribution of workers in the labor market. The values ranged from 14 percent to 35 percent. The greatest differences in the percentage of high school graduates completing a concentration and the percentage of workers in the labor market were in agricultural education (16 percent compared with 1 percent) and in business technology (13 percent compared with 23 percent).
- Except for technology engineering occupations, which were high wage in all regions, occupations classified as high-wage varied by region.
 - Statewide, approximately 17 percent of jobs projected over 2006–16 were in 2007/08 program areas that correspond to high-wage occupations, ranging from 0 percent to 51 percent. The percentage of graduates concentrating in program areas that correspond to high-wage

- occupations was 6 percent statewide, ranging from 0 percent to 13 percent.
- Up to 4.1 percent of jobs in high-wage occupations projected over 2006–16 could potentially be filled by 2007/08 concentrators in corresponding program areas, suggesting that up to 41 percent of these jobs could be filled over the 10-year period if the number of these concentrators remains constant.
 - No program area corresponded to a high-demand occupation in all regions. Business technology and trade and industrial education were the only program areas that did not correspond to a high-demand occupation in any region.
 - Statewide, approximately 31 percent of jobs projected over 2006–16 were
- in 2007/08 program areas that correspond to high-demand occupations, ranging from 12 percent to 84 percent. The percentage of graduates concentrating in program areas that correspond to high-demand occupations was 18 percent, ranging from 3 percent to 66 percent.
- Up to 7.1 percent of jobs in high-demand occupations projected over 2006–16 could potentially be filled by 2007/08 concentrators in corresponding program areas, suggesting that up to 71 percent of these jobs could be filled over the 10-year period if the number of these concentrators remains constant.

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