

## The Impact of Career and Technical Education on Post-Secondary Credentialing

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*Career and technical education (CTE) has become a key focus of stakeholders across the political spectrum. It has been shown to be an effective means of promoting numerous desired outcomes, including increased chances of high school graduation, improved chances of enrolling in advanced math and science courses, and increased earnings after high school. One area that has been overlooked is the direct connection between high school CTE course taking in a given cluster and eventual receipt of a postsecondary education (PSE) credential in that same CTE cluster. This study explores that connection. Through our analyses, we found significant relationships between specific CTE clusters in high school and eventually receiving a PSE credential in that same cluster. This clustered approach, and the observed differences in clustered connections, shows the importance of evaluating CTE not solely as a single unit, but as a group of specific clusters as well. A detailed examination of the engineering pathway in particular highlights opportunities to promote equity for underrepresented groups in high demand fields.*

In the United States, CTE is enjoying renewed attention from a broad array of stakeholders. With the 2015 passage of the Every Student Succeeds Act (ESSA), greater attention has been placed on college and career readiness. Considering the growing body of research emphasizing the benefits of CTE, the discussion of high school and postsecondary CTE in the nation is likely to remain a central focus in the national policy discussion. The Carl D. Perkins Career and Technical Education Improvement Act of 2006 supports the development of academic and career and technical skills among both secondary and postsecondary education students who elect to enroll in CTE programs. To understand this connection empirically, Mr. Plasman and his colleagues explore the relationship between CTE cluster pathway high school course taking and receipt of a credential in that cluster in PSE.

### Key Findings

- Students who complete more coursework in high school in a given CTE cluster are more likely to major in that same area in college.
- The most prominent links exist in agriculture, applied STEM (computer and information sciences, and engineering/engineering technology), business, health, and trade at both the AA and BA levels. The applied STEM and business clusters extended to receipt of a Master's degree.
- In the engineering/engineering technology cluster, participation in high school course taking is especially beneficial for female students.

### Increase in Probability of Receiving a Credential in a Given CTE Cluster per CTE High School Unit

	AA	BA
Agriculture	1.2%	--
Applied STEM	1.2%	3.1%
Engineering	--	2.8%
Business	1.1%	3.7%
Communications	--	1.8%
Health	3.1%	2.5%
Legal	--	--
Public Service	--	--
Trade	0.8%	--

*Note: -- indicates a non-significant relationship*

### Implications for Policy

First, the purposeful injection of CTE clusters into the high school curriculum over the past decades appears to have been one way to help stimulate future pursuits in those areas. Therefore, CTE may be one way to foster and solidify these pathways. Second, certain cluster pathways experienced stronger relationships than others. Therefore, stakeholders should examine other means to promote pathways in the clusters with weak relationships. Third, strong partnerships between high schools and local colleges could help determine if high school CTE could potentially address issues of attrition in college. Finally, given the evident gender gap in the engineering profession, engineering/engineering technology courses may help increase the chances that female students pursue an engineering degree at a higher rate than male students, thereby helping to close the gap.