

New Study Finds High Quality Career and Technical Education Can Significantly Improve Student Outcomes

By Shaun M. Dougherty ¹

If we want all of our young people to have the opportunity to thrive, it is more important than ever that high schools be designed to maximize the chances that students will graduate, and that when they do, they are prepared to enter college or have skills valued in the labor force. High-quality career and technical education (CTE) has the potential to help students achieve both of these ends, and there is increasing evidence in Massachusetts that regional vocational and technical high schools (RVTS) may be particularly effective at ensuring school completion and the earning of potentially valuable industry-recognized credentials while in high school.

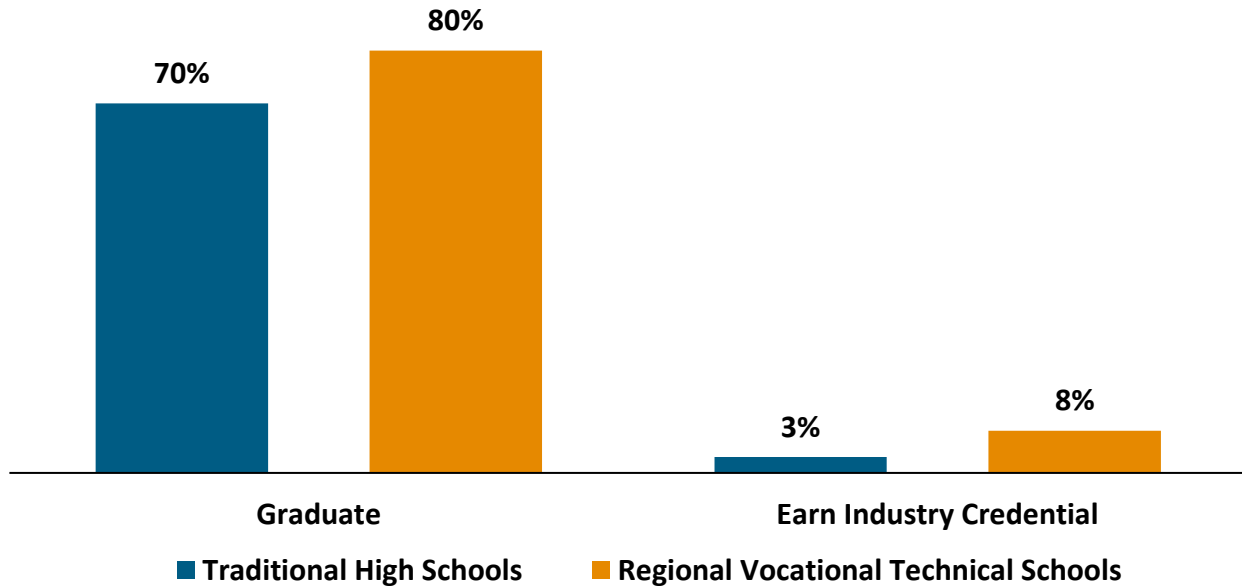
Earlier research has demonstrated that CTE can provide long-term financial benefits to participants, yet hardly any studies rigorously explored academic impacts. In new research, I show that students who are just admitted to three oversubscribed RVTS have substantially higher probabilities (7-10 percentage points) of persisting in and graduating from high school and are more likely to earn industry-recognized credentials (see chart below). They also score just as well on the state MCAS exams compared to students who also applied and just missed getting in. In addition, when extending the analysis to other RVTS, effects appear to be similar, though data limitations affect how much these results can be generalized to other schools. The higher levels of attainment of high school diplomas and industry credentials right at the threshold of being admitted, compared to not, demonstrate the positive effects for students on the margin.

These findings are important to education policy in Massachusetts, but also to those interested in college and career readiness, and cost-effective social policy in general. They suggest that under certain circumstances, it is possible to generate large impacts on graduation probabilities, without sacrificing subject-specific knowledge (at least in math and language arts), and the potential to earn credentials that may also have market value to employers.

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Students Admitted to Regional Vocational Schools More Likely to Graduate, Earn Industry Credentials

Percentage of comparable students (those just above and below the admission cutoff for oversubscribed regional vocational schools) who graduate from high school, earn an industry-recognized credential



What Makes the Bay State Special When It Comes to CTE?

In Massachusetts, many students have access to a fairly unique CTE program through the regional vocational and technical high schools.² Unlike many states, Massachusetts offers an atypical option to access CTE. In an RVTS every student who attends takes some form of CTE course of study (multi-course sequences in the same area or program). While students in traditional high schools may also take a series of courses in the same CTE program, the RVTS structure offers other important differences. For instance, students in an RVTS remain in the same CTE area in grades 10 through 12 often with the same peers and teachers. In addition, by offering both traditional academic and technical coursework under the same roof, they also have the potential for increased coordination among instructors in both classroom settings, thereby bringing some of the relevance of the CTE coursework into the realm of math, English, science, and social studies. These structures, as well as the fact that they often offer a greater variety of CTE programs from which students can choose, mean that the CTE experience in an RVTS is quite different from what is possible in a traditional high school setting.

The Massachusetts case is also interesting because, for years, descriptive evidence revealed two things: first, RVTS have, on average, higher high school graduation rates than the state, and two, that many of the RVTS were oversubscribed and therefore could only serve a fraction of the students who expressed interest in attending the school. Both of these factors have complicated efforts to both understand the true potential impact of these schools, and to ensure full access to the RVTS model for students who would like to attend. However, because many RVTS receive more applications than they have seats available in a given year, and because I have data on application scores, admissions cutoffs, and

² Only Connecticut, New Jersey, New York, and Tennessee have models analogous to that of Massachusetts, though Career Academies in other states may share some characteristics.

subsequent student performance, it was possible to compare outcomes of students who just got in with those that just missed getting in. By making this comparison, I then could attribute differences in outcomes to the causal effect of getting into an oversubscribed RVTS.

Limitations & Takeaways

In my analysis, I did not examine college enrollment after high school, however, I found no difference in the average MCAS score for those who did and did not attend RVTS schools, nor in their probability of passing both exams required to earn a high school diploma. This means, despite popular concerns that CTE may not be as academically focused, there is no evidence of differential or negative impacts on academic outcomes. In addition, my research relied on gaining access to admissions records from a relatively small number of schools with a history of being oversubscribed, meaning that if there are substantial differences between the conditions at the schools I studied and other RVTS, these findings may not generalize as well to other settings.

My analysis and research suggests at least four important, and policy relevant conclusions. First, RVTS participation in Massachusetts seems to positively impact student persistence in and completion of high school. Second, student performance on test scores is not adversely affected, with RVTS students scoring comparably on the MCAS. Third, for those just admitted to an RVTS the chances of earning an industry-recognized credential are bolstered, suggesting that even while the general skills measured by the MCAS are maintained, the specific skills offered in CTE coursework is enhanced. Finally, the positive impacts on the marginal students admitted to RVTS that are oversubscribed suggests that those marginal students who just missed attending likely also would benefit if access was expanded.