The Academic Impact of Career and Technical Education in Massachusetts

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Author(s): Shaun M. Dougherty  
Affiliation: Neag School of Education, University of Connecticut  
Link: Request a copy from the author at shaun.dougherty@uconn.edu

Key Findings

I studied the academic impact of being admitted to an oversubscribed regional vocational and technical school in Massachusetts. I find:

• Enrolling in and attending an oversubscribed regional vocational and technical school increased the probability of on-time graduation to nearly 100 percent, as compared to a rate of roughly 60 percent for those who just missed being admitted and did not attend one of these schools.

• Differences in the probability of passing the MCAS do not explain the graduation outcomes, since performance on the grade 10 MCAS in mathematics and ELA did not differ among students who did and did not win a place in an oversubscribed school.

Research Questions

This paper seeks to understand the impact of being admitted to an oversubscribed regional vocational and technical school by asking the question:

• For public-school students in Massachusetts, does just being admitted to and participating in career and technical education through an oversubscribed regional vocational and technical school improve educational outcomes relative to students who applied but just missed receiving an offer to attend one of these schools?

Data

I collected admission records for four regional vocational and technical schools (RVTSs) in Massachusetts who had received substantially more applications for admissions than they had seats to offer their incoming ninth-grade classes during the academic years 2006–07 and 2007–08. I then matched this data to administrative records available through the state student information (SIMS) and test score (MCAS) data. I use on-time graduation—that is, graduation within four years of first commencing ninth grade—as my primary outcome of interest. I also use MCAS data to estimate whether differences in graduation outcomes appear related to differences in test-score performance. Only two of the four schools for whom data was originally collected appear in the analyses because their data did not conform to the characteristics required by my analytic technique (regression discontinuity).

Research Methods

I used the application and admissions records, matched to state databases, to estimate whether being offered a spot in an oversubscribed regional vocational and technical schools resulted in a higher probability of eventually enrolling for those offered a spot compared to those not initially offered a seat.
I did this by comparing the probability that a student enrolls in a RVTS for those students at or above the admissions cutoff score compared to those just below that cutoff score. I then use the differences in enrollment (as a function of the offer) to compare the graduation and test-score outcomes of students who were similar on their application criteria, but different in whether they were admitted and enrolled. Students who apply to an RVTS are rated on four or five criteria (prior grades, attendance, discipline, counselor recommendation, and in some instances an interview). Scores in these four or five areas are then combined to yield an overall admissions score ranging from 0 to 100. Students are ranked in descending order and admitted, highest to lowest, until all seats are filled.

**Detailed Results**

**On-time graduation**
- Students who are offered a seat in an oversubscribed regional vocational and technical school were 12 percentage points more likely to graduate from high school, regardless of whether they actually enroll.
- Enrolling in and attending an oversubscribed regional vocational and technical school increased the probability of on-time graduation to nearly 100 percent, as compared to a rate of roughly 60 percent for those who just missed being admitted and did not attend one of these schools.
- Students who were initially offered a seat in an oversubscribed school were 30 percentage points more likely to enroll than their peers who just missed an offer.

**Effects on MCAS performance**
- Students near the threshold for admission represented roughly the 40th percentile of statewide performance in grade 8 MCAS math performance.
- No statistically significant difference emerged between the grade 10 ELA or mathematics MCAS performance of students who are just admitted to an RVTS compared to those who just miss being admitted, though estimates in my sample are imprecise.
- Students near the cutoff for admissions are slightly less likely to have MCAS scores, in large part because some students who do not graduate never have valid MCAS scores.

**Admissions processes**
- Two schools that used a rolling admissions process and offered slots later in the spring and summer saw no difference in the probability of enrolling as a function of getting an offer of admission. This suggests that my findings apply most credibly to schools that offer nearly all slots in close time order and may not apply to schools who make offers long after the initial set of admissions decisions are made.

**Implications for Policy and Practice**

On-time graduation provides a substantial potential financial benefit to both students and the Commonwealth. Given the similarity of students near the admissions cutoff who are and are not admitted to this subset of schools, it seems that increasing access to an oversubscribed RVTS for those initially denied a seat may help increase graduation rates. If this result applies more broadly to all RVTS, then this might also make it desirable to expand capacity at schools not currently oversubscribed.