

High School Dual Enrollment

Effects of High School Dual Enrollment Algebra Course-Taking on Early STEM Outcomes in College

The CCRC study summarized here investigates the early college outcomes of Florida high school students who enrolled in a dual enrollment college algebra course. Among students on the margin of eligibility for taking the course, the study finds that Black and Hispanic students who did take it were more likely than those who did not to both choose a STEM major and persist in a STEM program in their first year of college.

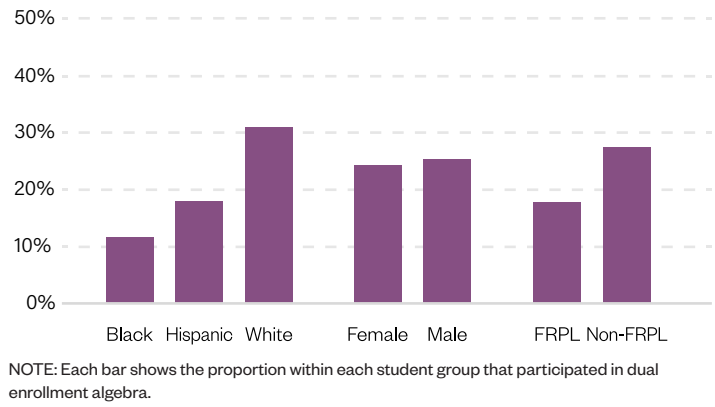
Using descriptive analysis and a fuzzy regression discontinuity design (FRDD), the study examines outcomes of Florida students who were 9th graders in 2007 and later took the math section of the state’s college placement test (CPT). The FRDD analysis estimates the effects of taking dual enrollment algebra in grades 11-12 by comparing students who scored just above and just below the CPT cutoff for eligibility for enrollment in dual enrollment college algebra (the cutoff score varied among colleges). The study is limited to high-achieving high school students who were likely interested in participating in dual enrollment algebra. It is also limited to high school students who attended in-state public two-year and four-year colleges.

Descriptive Findings

PARTICIPATION

Using raw data on students who took the math section of the CPT, the study compares the characteristics of students who did and did not enroll in dual enrollment algebra. Dual enrollment algebra course takers were more likely to be White and from a more affluent background.

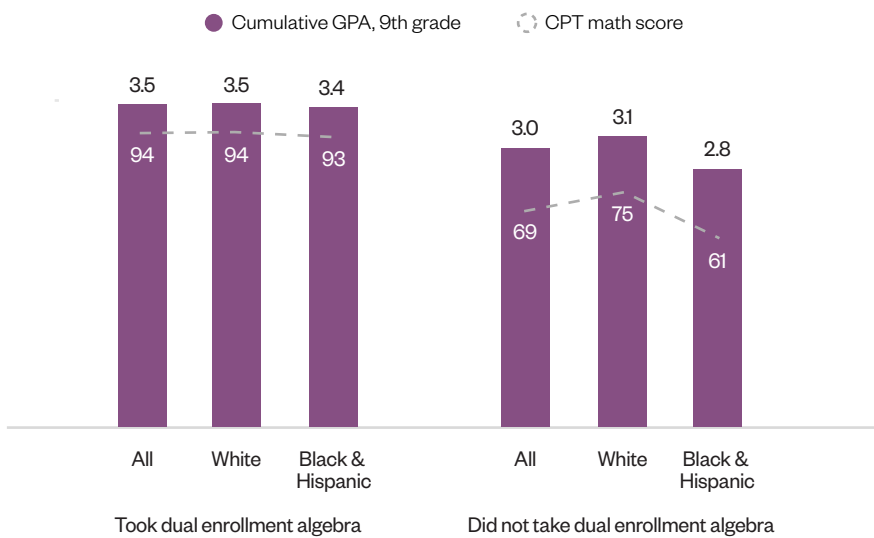
Participation Rates



ACADEMIC PREPARATION

Among students who took the math section of the CPT, dual enrollment algebra course takers were, on average, better academically prepared than non-participants. On a scale from 20 to 120, dual enrollment algebra participants scored 94 points on the CPT math, while non-participants scored 70 points. Dual enrollment algebra students also had higher 9th grade GPAs than their counterparts (3.5 vs. 3.0).

GPA and CPT Math Scores

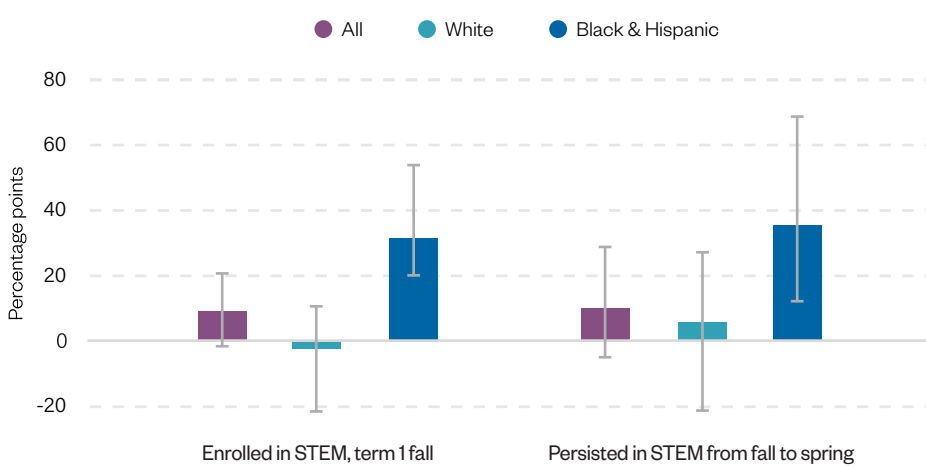


FRDD Causal Analysis

STEM OUTCOMES

Among students whose scores on the math section of the CPT were at the margin of eligibility for participating in dual enrollment algebra, taking the course did not alter the likelihood of on-time high school graduation, college enrollment, or college choice. It did, however, increase the likelihood of choosing a STEM major at college entry. This result is driven entirely by Black and Hispanic students (pooled sample), not White students. Taking the course also increased the likelihood of STEM persistence in the first term, though the full-sample result is imprecise and insignificant. Nonetheless, the effects on choosing a STEM major and persisting in STEM in the first term are large—roughly a 20-percentage-point higher likelihood for each outcome—among the pooled sample of Black and Hispanic students.

Percentage Point Difference in Early STEM Outcomes Between Dual Enrollment Algebra Participants and Similar Non-Participants on the Margin of Eligibility, by Race/Ethnicity



Implications

The results suggest that dual enrollment algebra has particularly strong effects on beginning and persisting in college as a STEM major for Black and Hispanic students. The evidence supports efforts to expand access to dual enrollment algebra for underrepresented minorities as a strategy for reducing racial/ethnic disparities in STEM postsecondary education and employment.

FURTHER READING

For more on this research, read *Can dual enrollment algebra reduce racial/ethnic gaps in early STEM outcomes? Evidence from Florida*, by Veronica Minaya