

Research Findings: The Impacts of the METCO

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What is the Impact of the METCO Program?

Aims of the Project

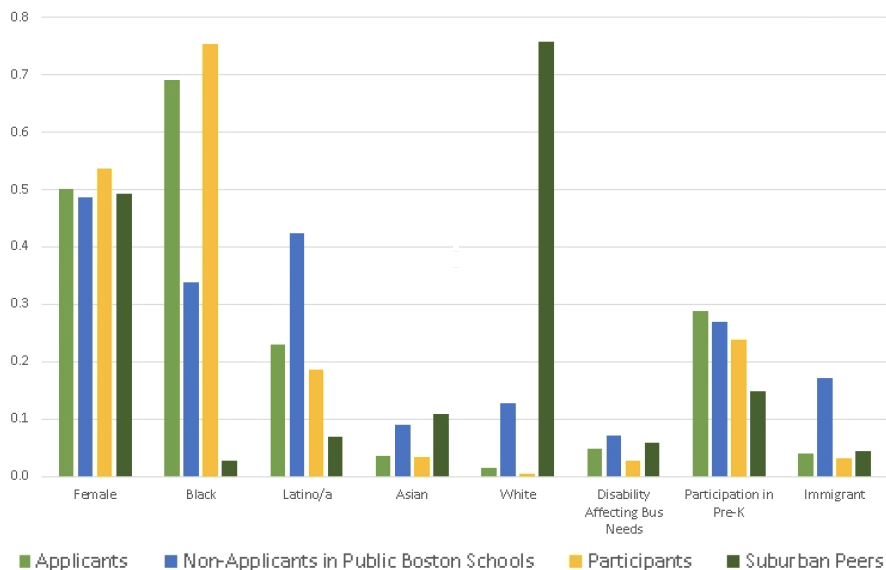
- Understand the impact of METCO on participants and suburban peers
- Describe how METCO affects students' experience
 - types of class, peer, teacher, and school characteristics
- Do certain types of students benefit more?
- Are certain school or district traits associated with better outcomes?
- Research findings can
 - inform future decisions and policies and
 - help other districts that use school assignment to promote equity and access

Background of Project

- Partnership with
 - METCO,
 - Tufts University, and
 - Massachusetts Department of Elementary and Secondary Education (DESE)
- Supported by
 - U.S. Department of Education, Institute for Education Sciences
 - Spencer Foundation
 - Russell Sage Foundation
 - The Boston Foundation
- Quantitative methods
- Research team

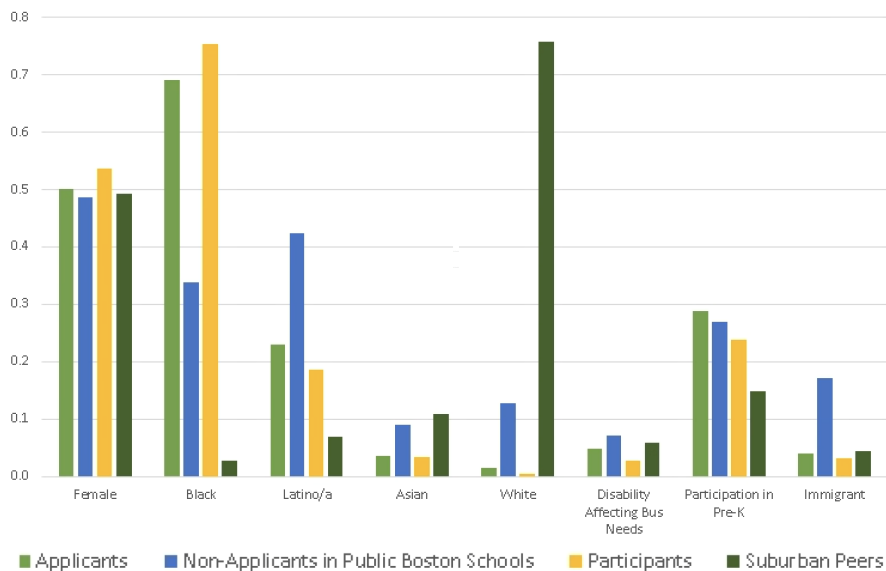
Who applies to METCO?

Black students over-represented relative to non-applicants



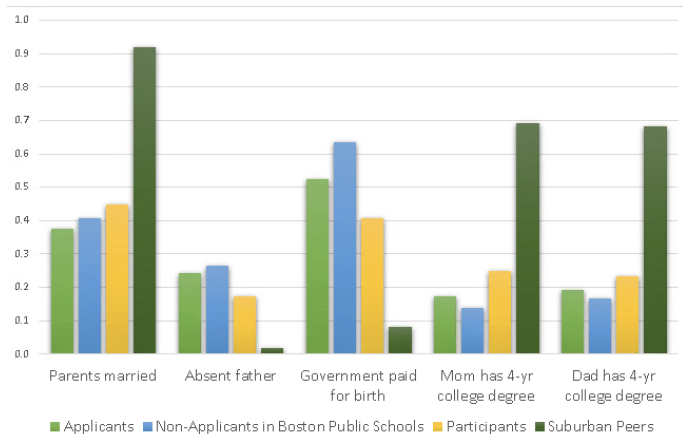
Almost 50% of black students in Boston apply to METCO during this time period

Latinx, Asian, White, immigrant students under-represented



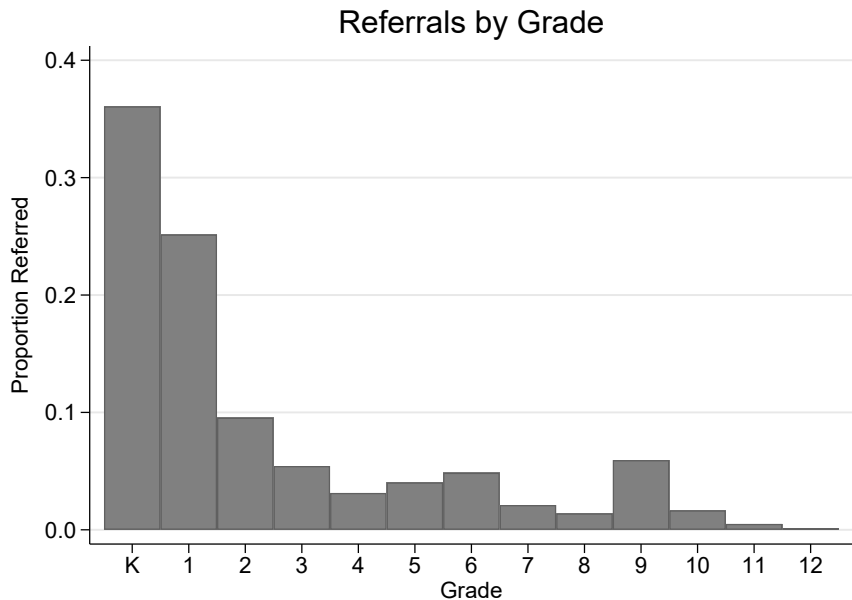
About 20% of Latinx students applied to METCO during this time period.

Varied family structure, income, and education

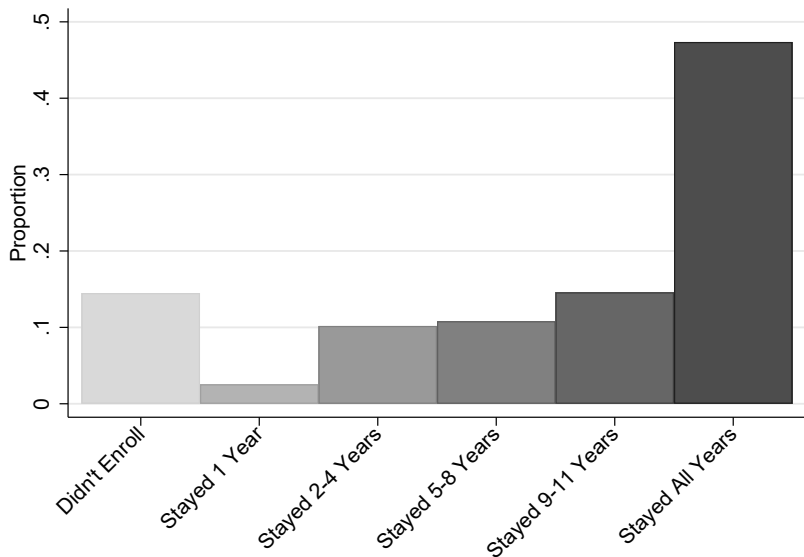


Data come from birth records and reflect traits at the time of birth. Government paid for birth signals that the mother was on Medicaid, Medicare, or another government program for birth and prenatal care. Absent father means no father was listed on the birth certificate. Educational achievement percentages are for those that have parents' educational outcomes data listed on the birth certificate.

Most applicants are referred in K or Grade 1



Of those with K or 1st grade offers, 48% stay until graduation, 14% decline



Effect on METCO applicants

Are students better off switching to high performing suburban schools?

- Access to
 - more advanced coursework
 - higher achieving peers
 - increased expectation of college-going
- Possible challenges
 - transportation costs
 - travel time
 - after school activities
 - parental involvement more difficult
 - increased discrimination or lower expectations
 - suspension, tracking, teacher expectations
 - social challenges
 - after-school socializing

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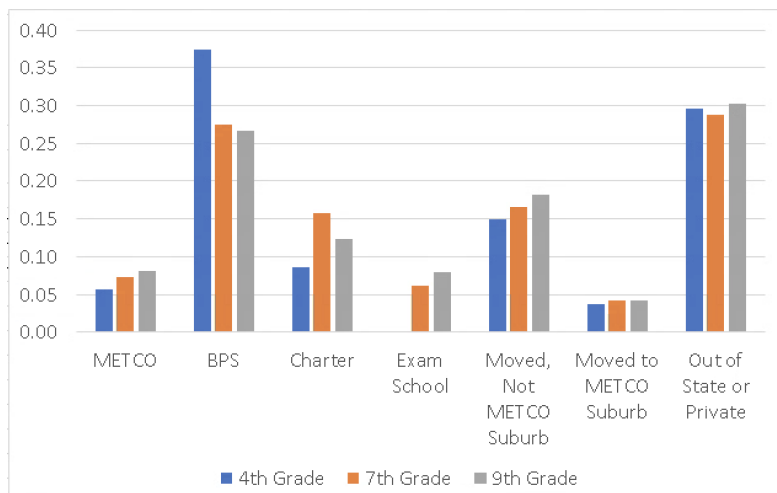
Motivation for Research Method

- Differences between METCO students' outcomes and BPS outcomes can't tell us the **effect** of participating in METCO
- Some of the differences could be due to the types of families that choose to apply to METCO
- A variety of factors might lead families to choose METCO
 - some of those factors may make their kids more or less likely
 - score higher on the MCAS
 - more likely to graduate from high school
 - to envision themselves going to college, etc.
- So if we want to know the impact of METCO,
 - we need to compare students that are similar to each other **EXCEPT** for some went to METCO and some didn't

Comparing Similar Students

- Compare students
 - who applied to METCO and got referred
 - to those that also applied but did not get referred
- This means that differences we see in METCO vs. non-METCO outcomes cannot be attributed to differences in family or student characteristics

Where are students enrolling if they don't get offers?



This shows where applicants who do not receive offers in Kindergarten or 1st grade enroll. Therefore the students in the comparison group will be mostly in Boston Public Schools (BPS) or another district that is not a METCO suburb. The out of state or private school students appear in the college outcomes analysis, but not the K-12 or employment data. BPS includes the Exam schools.

- Massachusetts Department of Elementary and Secondary Education
 - enrollment
 - K-12 outcomes
 - College outcomes (from National Student Clearinghouse)
 - earnings (from Massachusetts Department of Unemployment Assistance)
- METCO application records (1966 - present)
- Massachusetts Department of Health Birth Records data for demographic and socioeconomic data
- Today's presentation shows results for
 - The ~20,000 students who applied to METCO and entered 1st grade between 2002-03 and 2016-17.
 - Last MCAS results year 2018-19 school year (not analyzing COVID-era yet)
 - For career outcomes - focus is on older cohorts that are now 35 or older

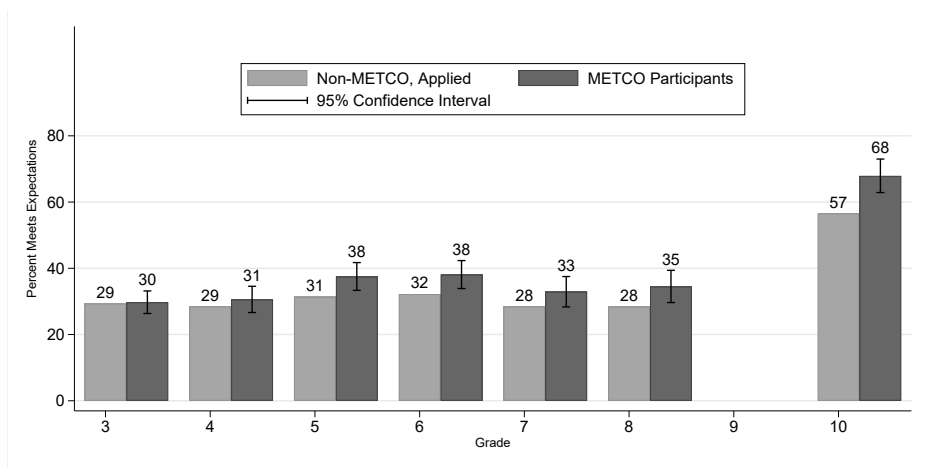
Results: Impact on METCO Applicants

K-12 Performance

Large gains in Math MCAS across all grades

- METCO leads applicants to
 - score higher on MCAS Math in grades 3 - 8 & 10 compared to those that apply and don't get in
 - score over 30% closer to the state average for Math in their grade relative to those that don't get in
 - 50% closer for 10th grade
 - effects similar size to the lottery estimates of Boston charter schools' impact

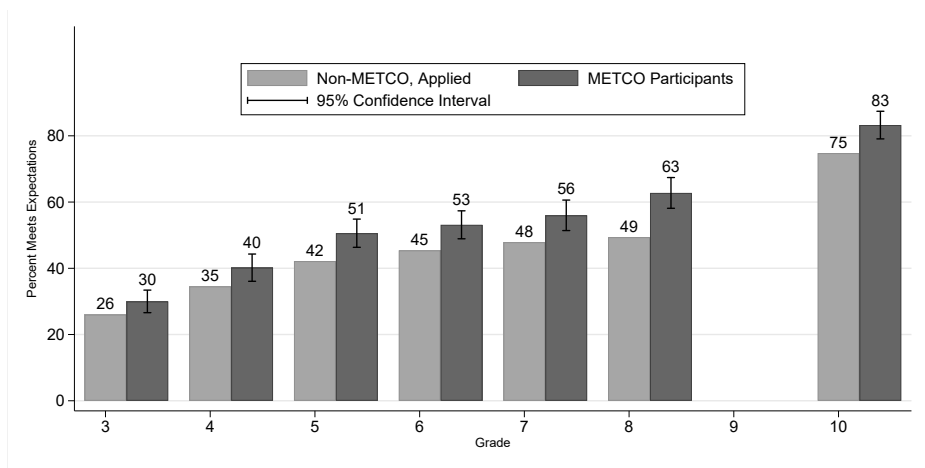
5-10 perc. pt more likely to “meet expectations” in Math



Students 5 - 10 percentage points more likely to “meet expectations” in grades 5, 6, 8, 10. This figure plots the regressions results for METCO applicants who entered 1st grade in 2002-03 through 2016-17, adjusting for demographics and age at application. N=17K.

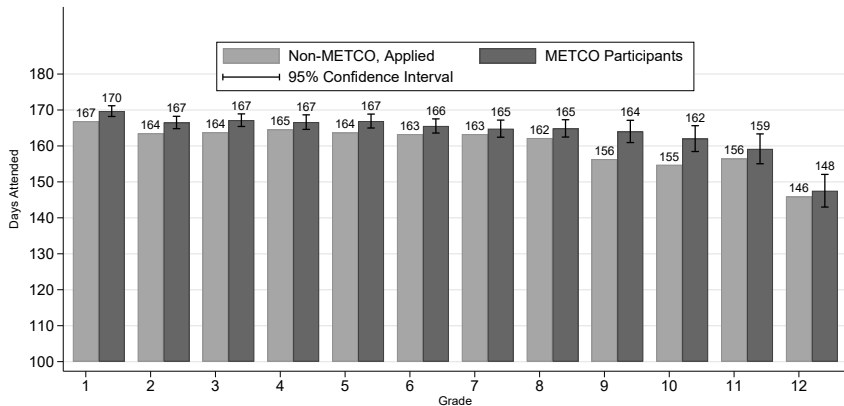
- METCO leads applicants to
 - score higher on MCAS ELA in grades 3 - 8 compared to those that apply and don't get in
 - score over 50% closer to the state average for ELA in their grade relative to those that don't get in
 - over 2/3rd closer for 10th grade
 - effects similar size to the lottery estimates of Boston charter schools' impact

6-10 perc. pt more likely to “meet expectations” in ELA



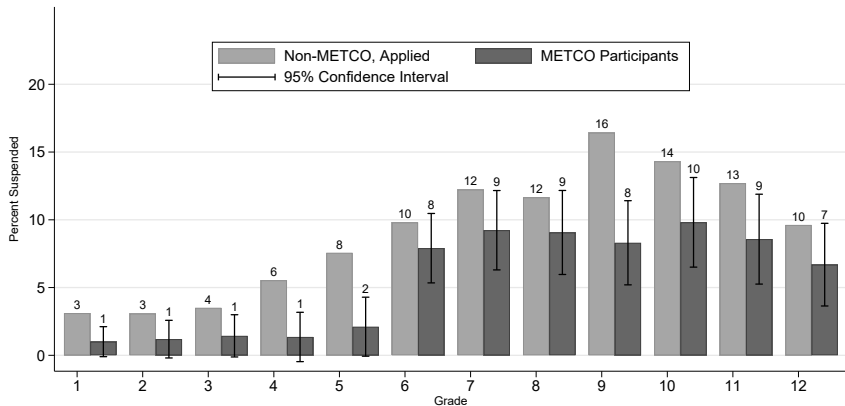
Students more 6 - 10 percentage points more likely to “meet expectations” in grades 5 -8, 10. This figure plots the regressions results for METCO applicants who entered 1st grade in 2002-03 through 2016-17, adjusting for demographics and age at application. N=17K.

About +3 days per year increase in attendance



This figure plots the regressions results for METCO applicants who entered 1st grade in 2002-03 through 2019-20, adjusting for demographics and age at application. N=20K.

Decreased suspension rates by 2-8 percentage pts

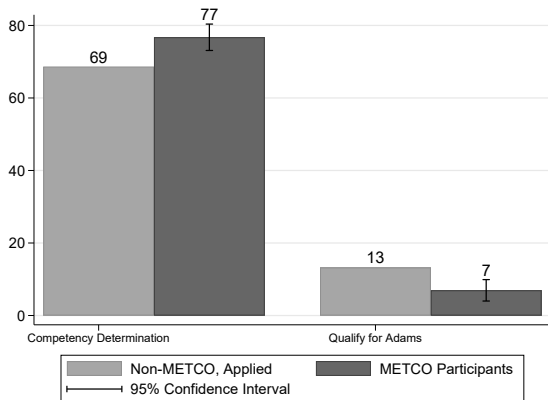


This figure plots the regressions results for METCO applicants who entered 1st grade in 2002-03 through 2019-20, adjusting for demographics and age at application. N=20K.

- METCO still reduces likelihood of suspension after Chapter 222 suspension reform which lowered the suspension rates among non-METCO students

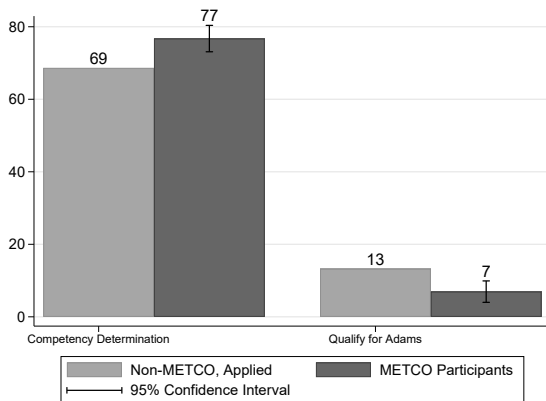
High School Completion & College Preparation

More likely to get competency determination



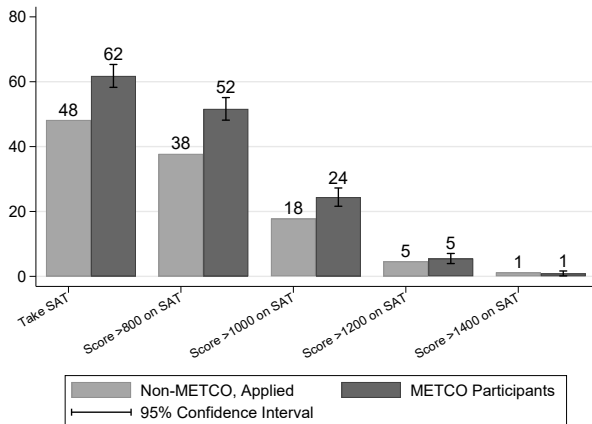
Students 9 percentage points more likely to get Competency Determination. This figure plots the regressions results for METCO applicants who entered 1st grade in 2002-03 through 2011-12, adjusting for demographics and age at application. N=10K.

Less likely to get Adams Scholarship



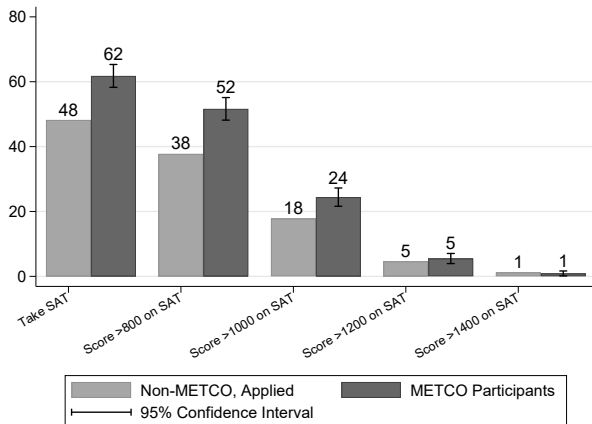
Students 5 percentage points less likely to be in the top 10% of their district's students to qualify for Adam's Scholarship. This figure plots the regressions results for METCO applicants who entered 1st grade in 2002-03 through 2011-12, adjusting for demographics and age at application. N=10K.

More likely to take SAT and score at least 1000



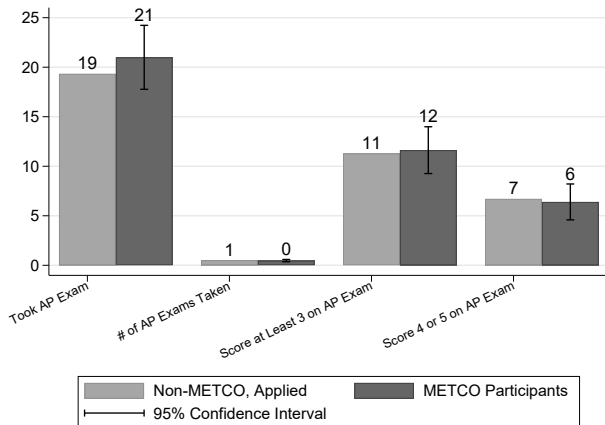
Students 14 percentage points (pp) more likely to take the SAT, 15 pp more likely to score >1000, and 7 pp more likely to score >1200. This figure plots the regressions results for METCO applicants who entered 1st grade in 2002-03 through 2011-12, adjusting for demographics and age at application. N=10K.

But not more likely to earn top SAT scores



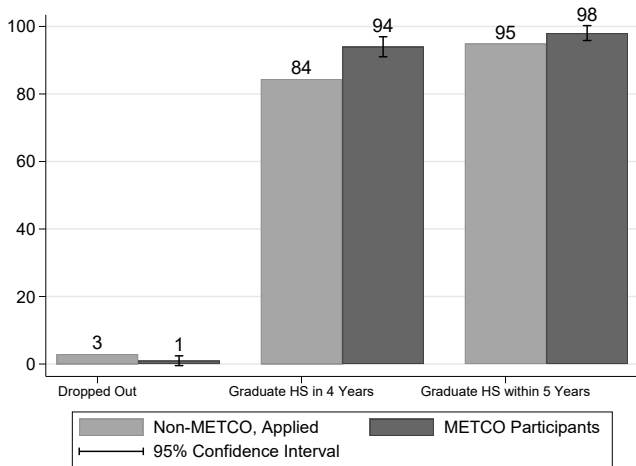
Students 14 percentage points (pp) more likely to take the SAT, 15 pp more likely to score >1000, and 7 pp more likely to score >1200. This figure plots the regressions results for METCO applicants who entered 1st grade in 2002-03 through 2011-12, adjusting for demographics and age at application. N=10K.

No difference in AP taking or scores



This figure plots the regressions results for METCO applicants who entered 1st grade in 2002-03 through 2011-12,, adjusting for demographics and age at application. N=10K.

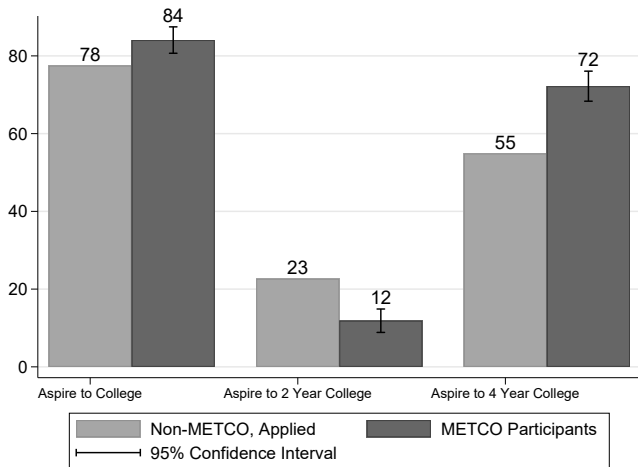
Dropout rate cut by 1/3rd, ↑ 4-yr graduation by 10 perc pts



This figure plots the regressions results for METCO applicants who entered 1st grade in in 2002-03 through 2010-11, adjusting for demographics and age at application. N=7K.

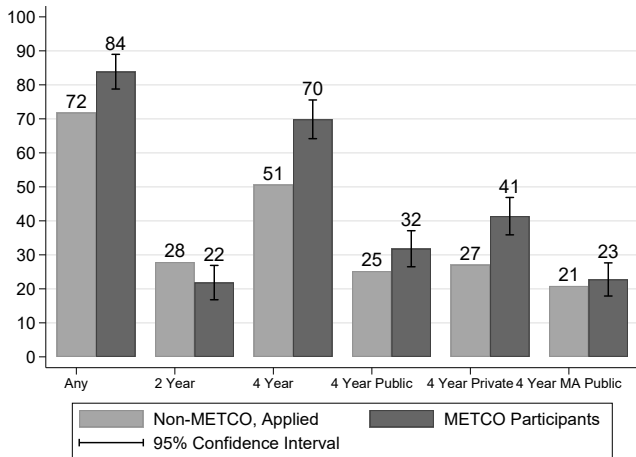
College Outcomes

Increased college aspirations, ↑ 17 perc pts for 4-year



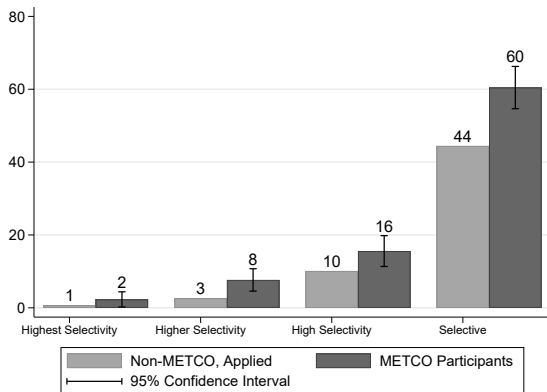
This figure plots the regressions results for METCO applicants who entered 1st grade in in 2002-03 through 2011-12, adjusting for demographics and age at application. From a state survey administered to 10th graders. N=8K.

Increased college going, ↑ 17 perc pts for 4-year



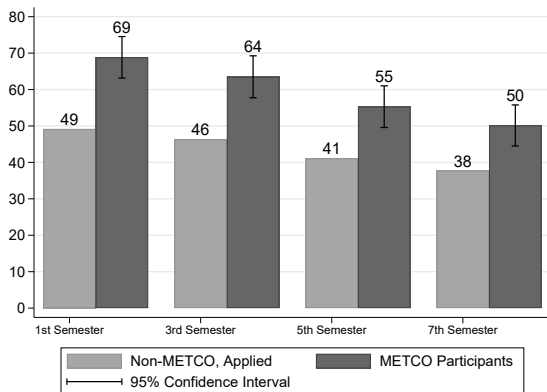
Enrollment within 18 months of projected high school graduation date. This figure plots the regressions results for METCO applicants who entered 1st grade in 2002-03 through 2004-05, adjusting for demographics and age at application. N=2.5K.

More likely to attend all but the most selective colleges



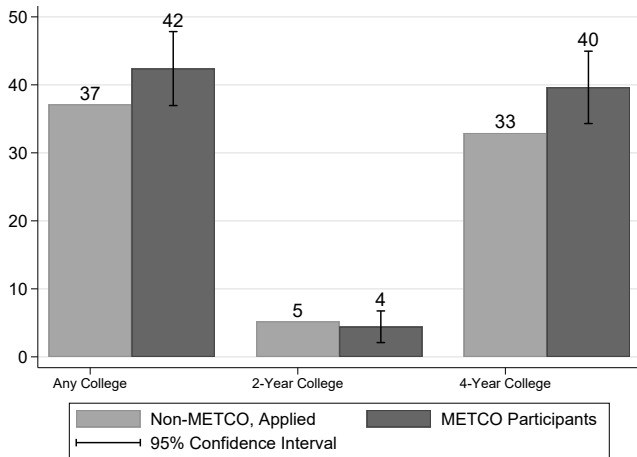
Enrollment within 18 months of projected high school graduation date. This figure plots the regressions results for METCO applicants who entered 1st grade in 2002-03 through 2004-05, adjusting for demographics and age at application. Competitiveness determined by Barron's College Rankings. N=3K.

Increased college persistence, but substantial drop off in enrollment



This figure plots the on-time enrollment in college semesters regressions results for METCO applicants who entered 1st grade in 2002-03 through 2004-05, adjusting for demographics and age at application. On-time is defined as starting college within 6 months from the projected high school graduation date and progressing two semesters a year. N=3K.

Increased 4-yr college graduation by 6 percentage pts



This figure plots the 6-year college graduation rate regression results for METCO applicants who entered 1st grade in 2002-03 through 2004-05, adjusting for demographics and age at application. N=3K.

Employment and Earnings

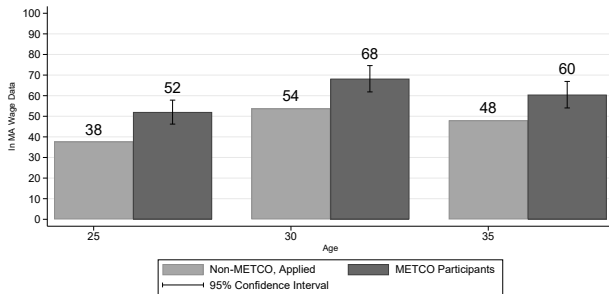
Employment and Earnings data

- Data come from the Massachusetts Department of Unemployment Assistance
- For people who were enrolled in Massachusetts public school when they were 14 or older between 2001 to 2023
- Excludes jobs that don't contribute to MA payroll taxes
 - federal and military jobs,
 - self-employment, and
 - jobs outside of Massachusetts
- Over 85% of students who graduated from a MA public high school have a record

Increased likelihood of employment in MA

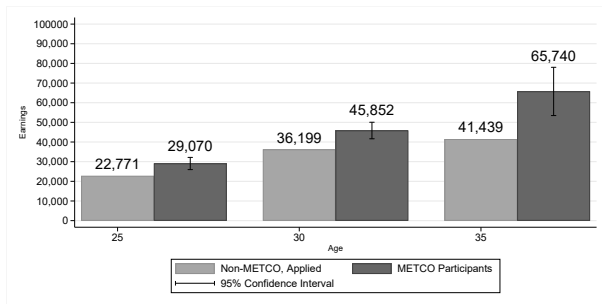
- Higher likelihood of employment in MA in jobs that contribute to MA payroll taxes
- So METCO reduces the likelihood of at least one of the following
 - moving out of state
 - working for federal or military jobs
 - being self employed
 - being unemployed
- Among those who have at least one job that contributes to MA payroll taxes,
 - METCO alums have higher rate of employment at age 25
 - and similar rates of employment at 30 and 35

Increased likelihood of employment in MA



This figure plots the regression results for employment at age 25, 30, and 35 for METCO applicants who entered 1st grade in 1990-91 through 1993-94, adjusting for demographics and age at application. N=3K. Government employees, self-employed, or out-of-Massachusetts earners have values of 0 since they do not appear in the wage data. Approximately 1/3rd of the sample never appears in the earnings data from age 19 - 35 meaning they never have a job that contributes to payroll tax in Massachusetts (e.g., employed out of state, by government, or by themselves). Restricting to those that appear in the earnings data shows an increased likelihood of employment at age 25, but similar rates of employment at 30 and 35.

Increased earnings



This figure plots the earnings at age 25, 30, and 35 regression results for METCO applicants who entered 1st grade in 1990-91 through 1993-94, adjusting for demographics and age at application. N=3K. Adjusted to 2019 dollars. People with zero earnings or government employees, self-employed, or out-of-Massachusetts earners are missing from this analyses. Alternative models that include these individuals with earnings equal to zero show similar patterns and effect sizes, but lower means.

Describing the METCO Experience

- Attend schools with more AP class offerings
 - +4 classes on average

- No difference in AP course-taking
 - 32% of students take at least 1 AP
- Slight, significant increases HS math, science, foreign language, and arts course-taking.

Course tracking

- Participating in METCO makes students more likely to be in classes with relatively lower performing peers
- Method:
 - Find the Math and ELA classmates of METCO applicants
 - Take the average of their classmates' prior year test scores
 - Compare the class averages for METCO students to the other classes in the grade
- Those that don't get into METCO are in classes near the grade average
 - their Math and ELA classes are of similar prior ability to the grade average
- METCO participants are about
 - 14 percentage points more likely to be in the bottom half of Math classes
 - 10 percentage points more likely to be in the bottom half of ELA classes
- Holds true for elementary, middle, and high school grades

Interpreting course tracking results

- Unclear if they would gain even more from METCO by being in higher performing classes
 - Course assignments could be the right fit for students
 - Or there could be potential bias in the classroom/course assignment process

- Even though they are more likely to be in relatively lower performing classes, METCO students
 - have higher achieving peers
 - 0.43 standard deviations higher on Math and ELA exams
 - with higher attendance rates
 - 2.5 - 4 additional days
 - lower suspension rates than non-referred applicants
 - 3.7 - 5.7 percentage points lower

Teacher characteristics

- Fewer teachers of color
 - by 5-6 percentage points
- Fewer novice teachers
 - by 4-5 percentage points
- Higher average teacher salaries
 - by \$6,000
 - But a lot of variation for teacher salaries (especially when compared to BPS' 105K)

- Smaller class sizes
 - by 2.5 students
- Better guidance counselor ratios
 - by ~50 fewer students per counselor
- Higher spending per pupil
 - by ~\$1,300
 - But, a lot of variation for spending per pupil (especially when compared to BPS' 24K)

Special education classification

- More likely to get classified as special education
- Specifically full-inclusion classification
 - substantially separate classrooms and partial inclusion are less likely
- Unclear whether this is students getting support they need to succeed or overclassification

Differences across student characteristics

Stronger effects for first-gen college students

- METCO shifts students from schools where about 1/2 of students enroll in a 4-year college
 - to schools where over 3/4th pursue a 4-year degree.
 - Shift in college expectations
- METCO has largest impact on students whose parents did not graduate college.
 - ↑ MCAS scores
 - ↑ 4-year college aspirations by 17 percentage points
 - ↑ 4-year college enrollment by 21 percentage points
 - ↑ colleges of all levels of selectivity
 - 7 percentage point ↑ in 4-year college graduation
- Effects for applicants with at least one college-educated parent are not as strong
 - For them, METCO doesn't lead to a large shift in peers' college-going rates
 - They had a relatively higher likelihood of going to college without METCO

Boys benefit most

- Boys experience the strongest gains from the program
- Why?
 - girls score higher on MCAS overall
 - girls who don't get into METCO go to schools with higher performing MCAS peers
- Consistent with other research that finds boys are relatively more affected by segregation (Chetty & Hendren 2015)

Impact on Suburban Students

- Opposition to school integration efforts cite concern that it will lower test scores, worsen behavior, and create more classroom disruption
- There's been increasing resistance to integration efforts (e.g., Howard County, Maryland, Montgomery, County, Maryland)
- More generally, parents' perception of school quality and reputation is highly influenced by the share of students of color (Wells, 2015; Ellen, 2000)
- These concerns, whether implicit or explicit, counteract integration efforts and worsen school segregation

How to study impact on suburban peers

- Most schools in METCO suburban districts enroll METCO participants from Boston at some point in time
 - but not all grade cohorts within a school have METCO students
- Some schools have years where they pause accepting new METCO kindergartners or 1st graders.
- Other schools started or stopped enrolling METCO participants during the past 20 years.
- Use variation in cohorts with and without METCO to analyze the effect of METCO peers

- Compare the outcomes of students with METCO peers in their grades
 - to others without METCO peers who are in a slightly older or younger grade within the same school
- Controls for school-specific factors that don't change quickly
 - e.g. 3rd graders in 2012, 2013, 2014 in the same school will have a lot of commonalities in their school experiences
- To control for factors that vary with time, use other METCO schools that consistently enroll METCO participants
 - For example, if overall attendance rates are lower in one year due to a particularly bad flu season, these comparison schools will adjust for that difference.
- Estimates the impact of having any METCO participants in a grade cohort

Impact of METCO on suburban students

- Find no effect on
 - test scores,
 - suspensions, or
 - attendance
- Having METCO peers does not change the proportion of a student's classmates that are suspended
 - -> no indication that students experience more disruptions due to having METCO peers
- Findings are consistent across all suburban districts
- Effects are similar when grade cohorts have relatively more and relatively fewer METCO participants.
- -> No evidence of negative peer effects on suburban peers

Next steps

Next project looks at longer run social & civic impacts

- Next project uses applicants from 1966 - 2000s and their peers
- Social & family
 - Social integration in the schools using high school yearbook club and sports data
 - Likelihood of marrying or co-parenting with someone of a different race/ethnicity
 - Teen pregnancy, # of kids
 - Timing of marriage and kids
- Intergenerational & neighborhood choice
 - Where do they live as an adult? How diverse?
 - Where do they send their kids to school?
 - Moving to METCO suburb in adulthood?
- Civic
 - Registering to vote
 - party affiliation
 - voter participation
 - contributing to political campaigns of candidates of color

Areas for potential improvements

- **Course assignment process**
 - Can METCO students enroll in more advanced courses & APs?
- **Suspensions**
 - While METCO reduces the likelihood that students are suspended, students from Boston are more likely to be suspended than their suburban peers.
- **SAT Prep supports**
 - Additional support to help METCO students earn higher scores
- **College application support**
 - Could help students match with more selective schools which often provide more generous financial aid
- **College persistence support**
 - Help alumni navigate and persist in college to increase the college graduation rates

- Enrolling in high performing suburban schools generates large and lasting gains for METCO participants
 - Higher Math and English test scores
 - Reduced suspension
 - Increased attendance
 - Increased on-time high school graduation
 - Improved college aspirations, college going, and graduation
 - Increased earnings and likelihood of working in MA
- No evidence of effect of METCO on suburban peers' test scores or classroom behavior

Thank you!

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