

# Educational Progress and Economic Opportunity in the Commonwealth: Lessons from the SLDS

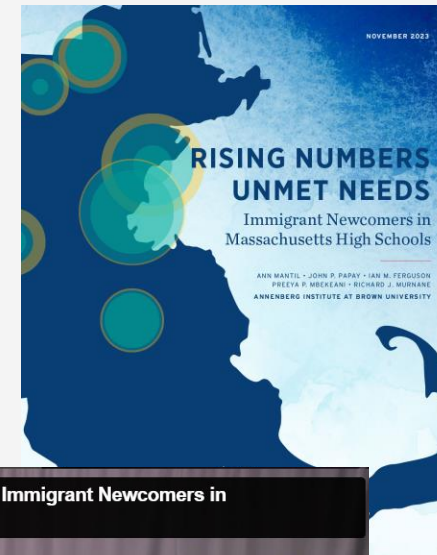
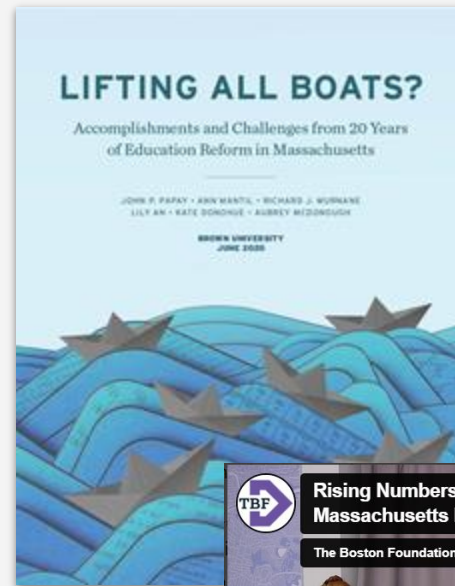
Educational Opportunity in Massachusetts Project

June 20, 2024



# Educational Opportunity in Massachusetts

A long-standing research-practice partnership between researchers at Annenberg and the Massachusetts Departments of Elementary and Secondary Education and Higher Education. Our work analyzes how students progress to and through the state's K-16 education system and into the workforce, with a specific focus on providing evidence to inform policy and practice in the Commonwealth. We use rich longitudinal data to explore students' backgrounds in nuanced ways, including by race/ethnicity, language, immigrant status, and country of origin.



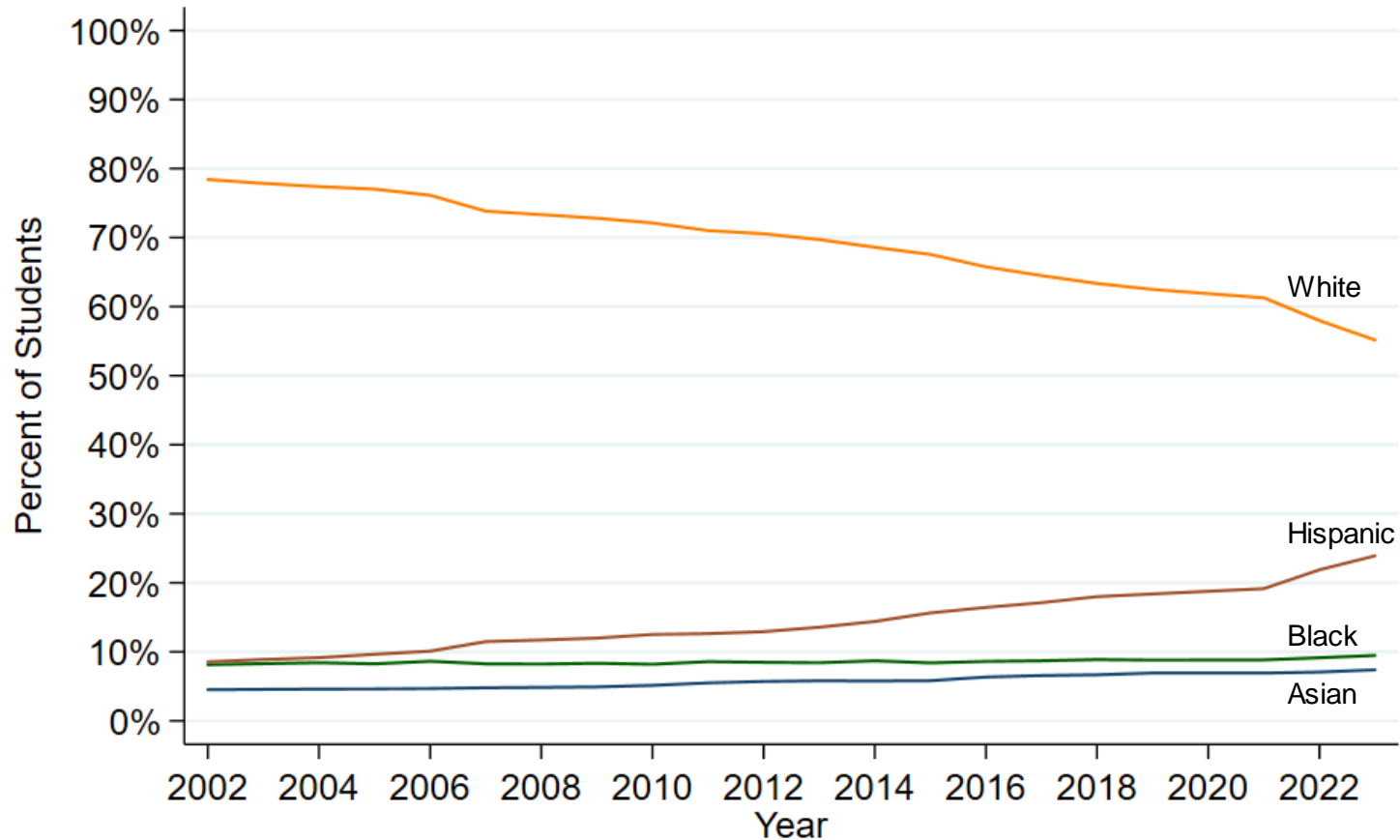
## Five key themes

- The demographics of students served by the MA public education system have changed dramatically over the past 20 years, with implications for measuring progress over time.
- **Both** MCAS scores and high-school course grades are important and distinct predictors of long-run outcomes, but many students and families may not be receiving accurate signals of their preparation for college and careers.
- Educational attainment and skills are key drivers of economic opportunity, and some schools enhance these better than others.
- Rates of college enrollment and completion for academically strong students from low-income families and from historically marginalized groups are low, particularly after the pandemic.
- Associate degree attainment and transfer rates for students enrolled in MACCs have stayed flat, but many more students who transfer are graduating from a four-year college.

## Important notes on our analyses

- Outcomes such as earnings & college attainments take time to stabilize, so our evidence comes from past data.
- We draw on lessons from many reports and studies we have done via this partnership. They use somewhat different samples and definitions. When possible we have updated to incorporate more recent data.
- We focus primarily on students who start in MA K-12 public schools (even for our analyses of public higher education in the state).
- Labor market outcomes are limited to in-state earnings reported to the UI system.

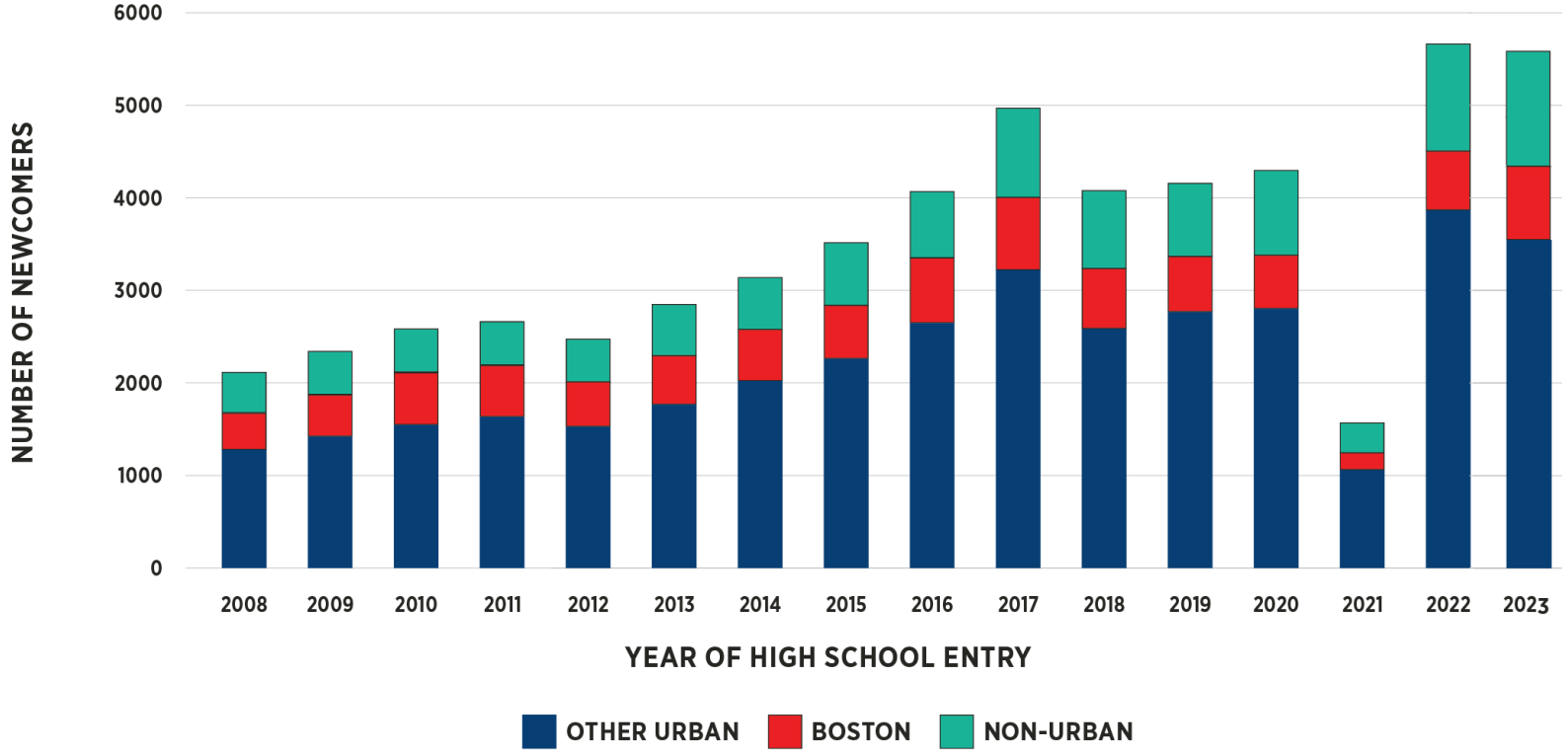
# The demographics of students served by the MA K-12 public school system have changed dramatically over the past 20 years.



Race/ethnicity of first-time 10<sup>th</sup> grade test-takers, 2002 to 2023 school years.

- The share of White students has fallen from nearly 80% in 2002 to just over 50% in 2023.
- The share of Hispanic students has nearly doubled.
- While changes in the state's measures of family income make comparisons over time hard, the number of students from low-income families has doubled.

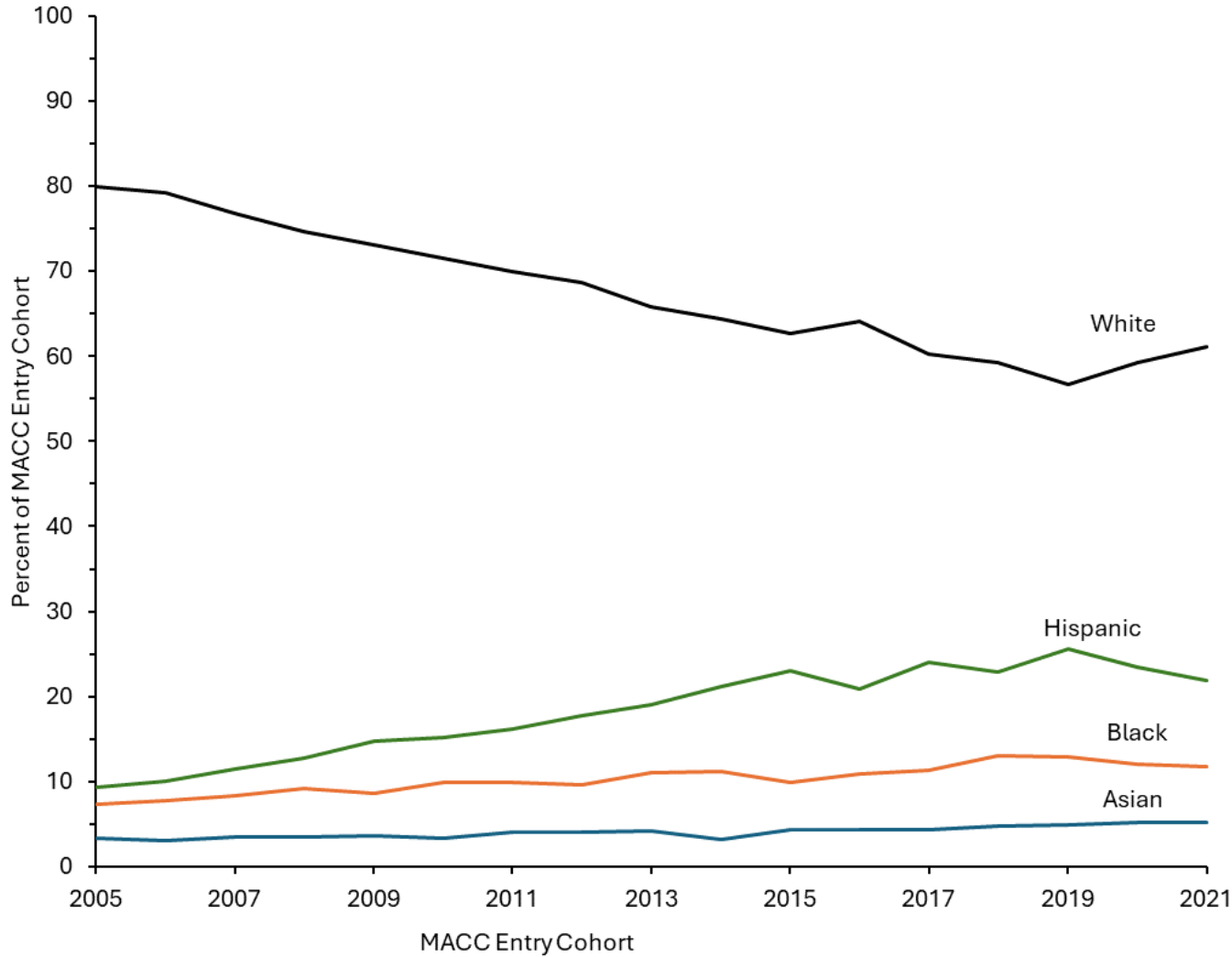
# The number of immigrant newcomers to MA high schools has nearly tripled in the past decade.



Total Number of Newcomers, Overall and by District Type of First High School Enrollment, 2008 to 2023 school years.

- Today, 1 of every XX high schoolers is an English learner.
- Newcomers represent about 7 percent of all new students in MA high schools.
- 103 districts served at least 5 high-school newcomers in 2023, compared to 59 in 2008.
- Districts like Lynn, Framingham, New Bedford, and Lowell have seen the number of newcomers increase at least 5x since 2008.

# Large demographic and preparation shifts have occurred in MA higher education, particularly community colleges.



Race/ethnicity of MA public high school graduates who enroll in a community college degree program within one year of graduating from high school, 2005 to 2021 entrants.

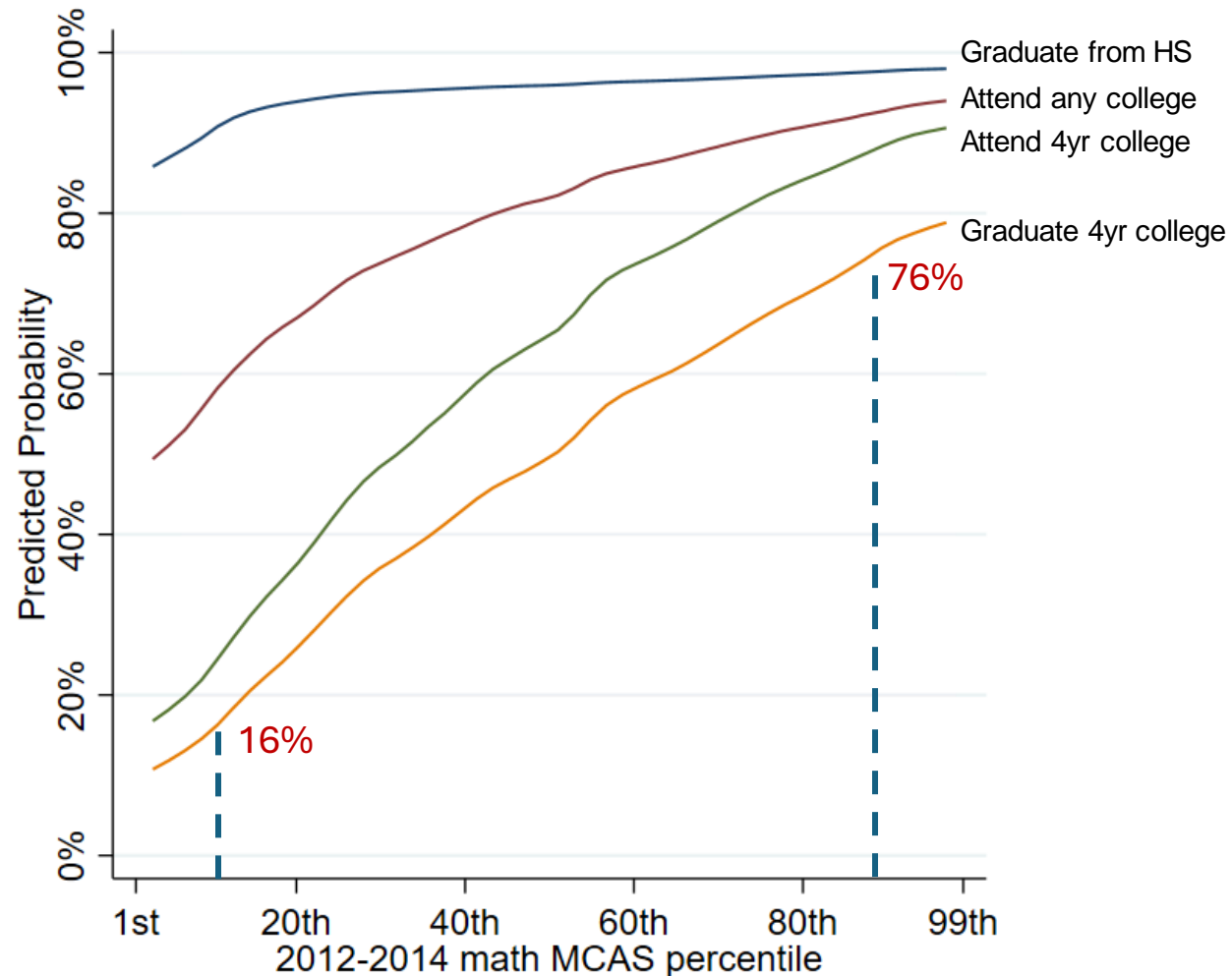
- The share of white MACC entrants (from MA public high schools) has fallen from 80% for 2005 entrants to 60% for 2021 entrants.
- The demographic composition of MA high school graduates who enroll in a MACC has changed faster than the composition of MA public high-school graduates as a whole.

MCAS 10<sup>th</sup> grade test scores and high school course grades appear to reflect complementary but somewhat different skills that predict long-term outcomes.

**Both** are important predictors of long-run outcomes.



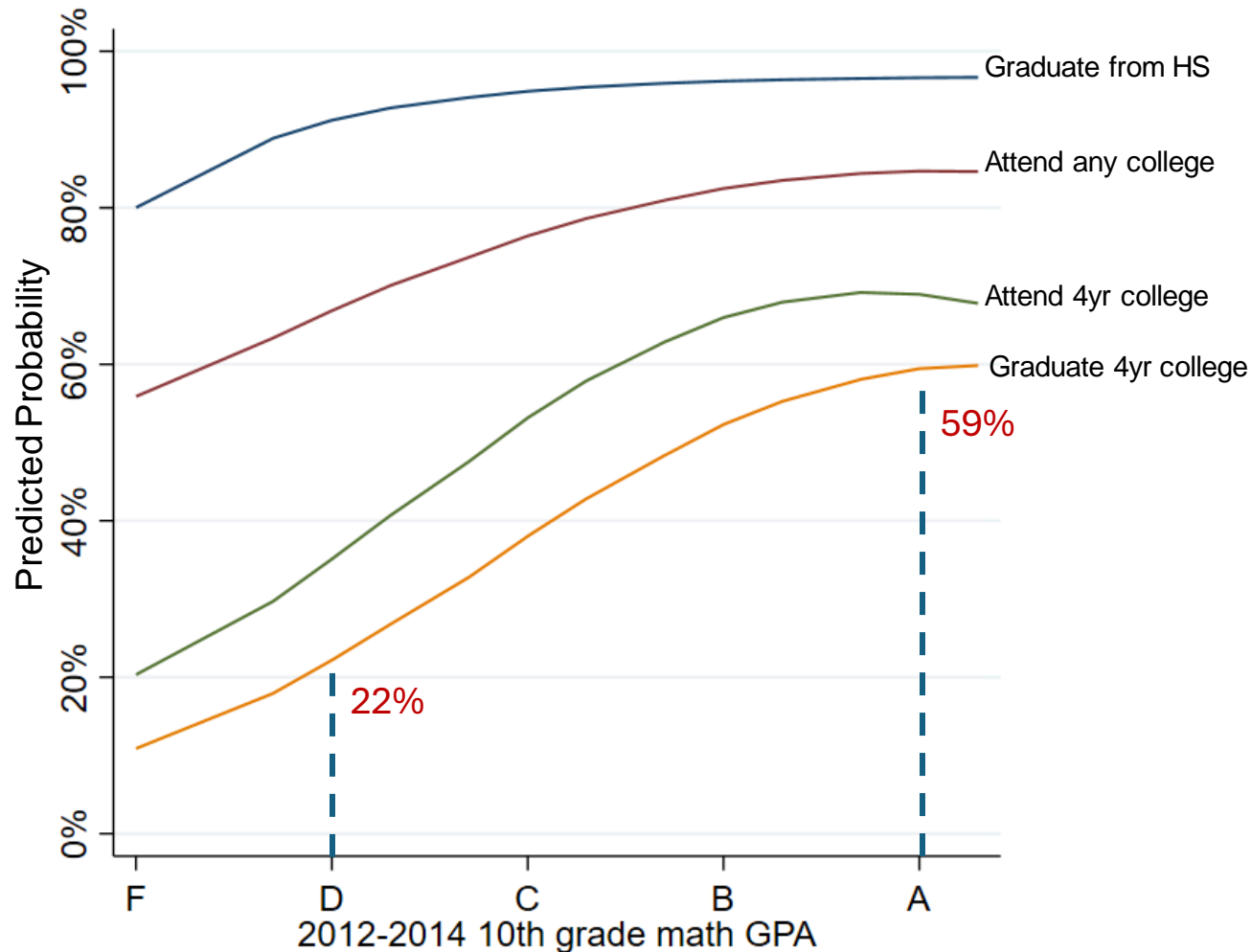
# Comparing students with the same *high-school grades*, those with *higher MCAS scores* are much more likely to enroll in and graduate from college.



Predicted probability of high school graduation, college enrollment, and college completion by MCAS score for students with average 10th grade math GPA.

- Among students with average 10<sup>th</sup> grade math GPA, 76% of those scoring at the 90<sup>th</sup> percentile graduate from a 4-year college, compared to 16% scoring at the 10<sup>th</sup> percentile.
- We see similar patterns among students who attend the same high school.

# Comparing students with the *same MCAS scores*, those with *higher course grades* are more likely to enroll in and graduate from college.

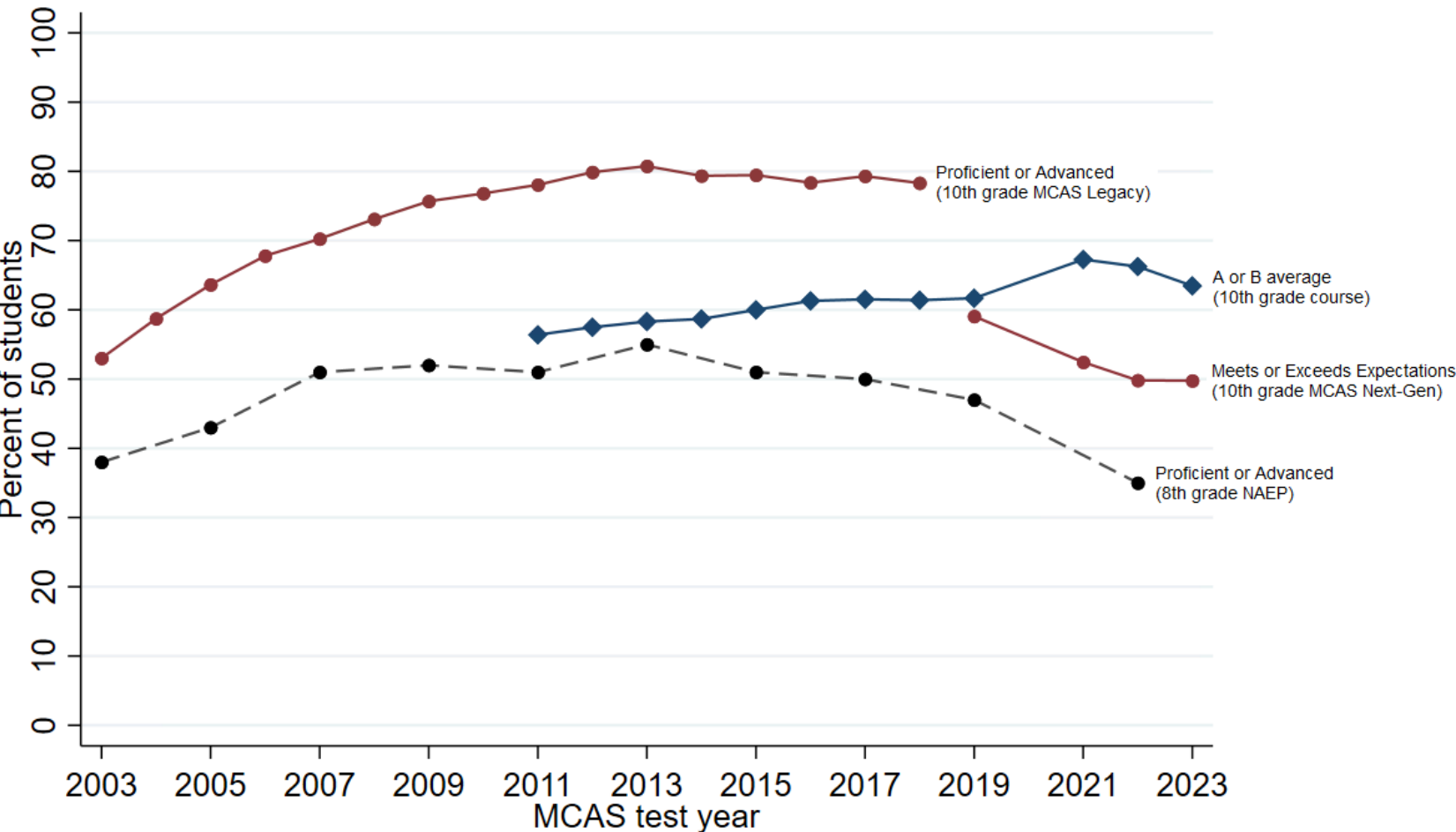


Predicted probability of high school graduation, college enrollment, and college completion by 10<sup>th</sup> grade math course grades for students with average 10<sup>th</sup> grade math MCAS score.

- Among students with average 10<sup>th</sup> grade math MCAS scores, 59% of those earning an A in their 10<sup>th</sup> grade math class graduate from a 4-year college, compared to 22% earning a D.
- Same patterns hold if we compare students who attend the same schools.

# Increases in average MCAS scores and student grades do not appear to reflect increases in students' underlying skills.

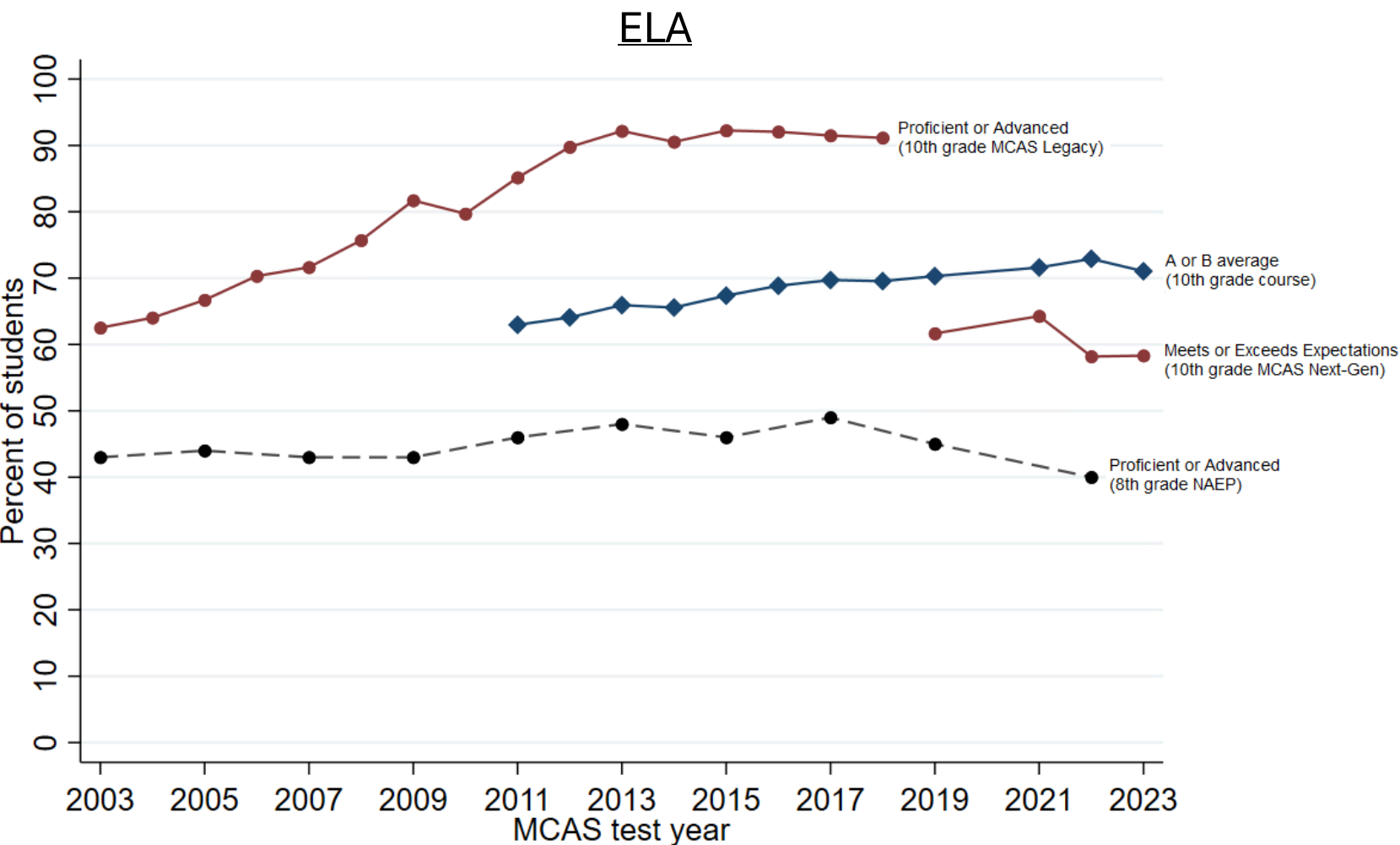
## Mathematics



Trends in 10th grade MCAS test proficiency, course grades, and 8th grade NAEP proficiency from 2003 to 2023, in mathematics.

- We compare 10<sup>th</sup> grade test scores and course grades to 8<sup>th</sup> grade NAEP scores.
- Until 2008, improvements in math MCAS scores were largely reflected in NAEP scores. From 2008 until the pandemic, MCAS scores increased by NAEP scores stayed flat. Both Next-Gen MCAS and NAEP scores dropped during the pandemic.
- Course grades have risen, despite falling test scores and rising absenteeism in recent years. The share of students earning an A has close to doubled since 2011.

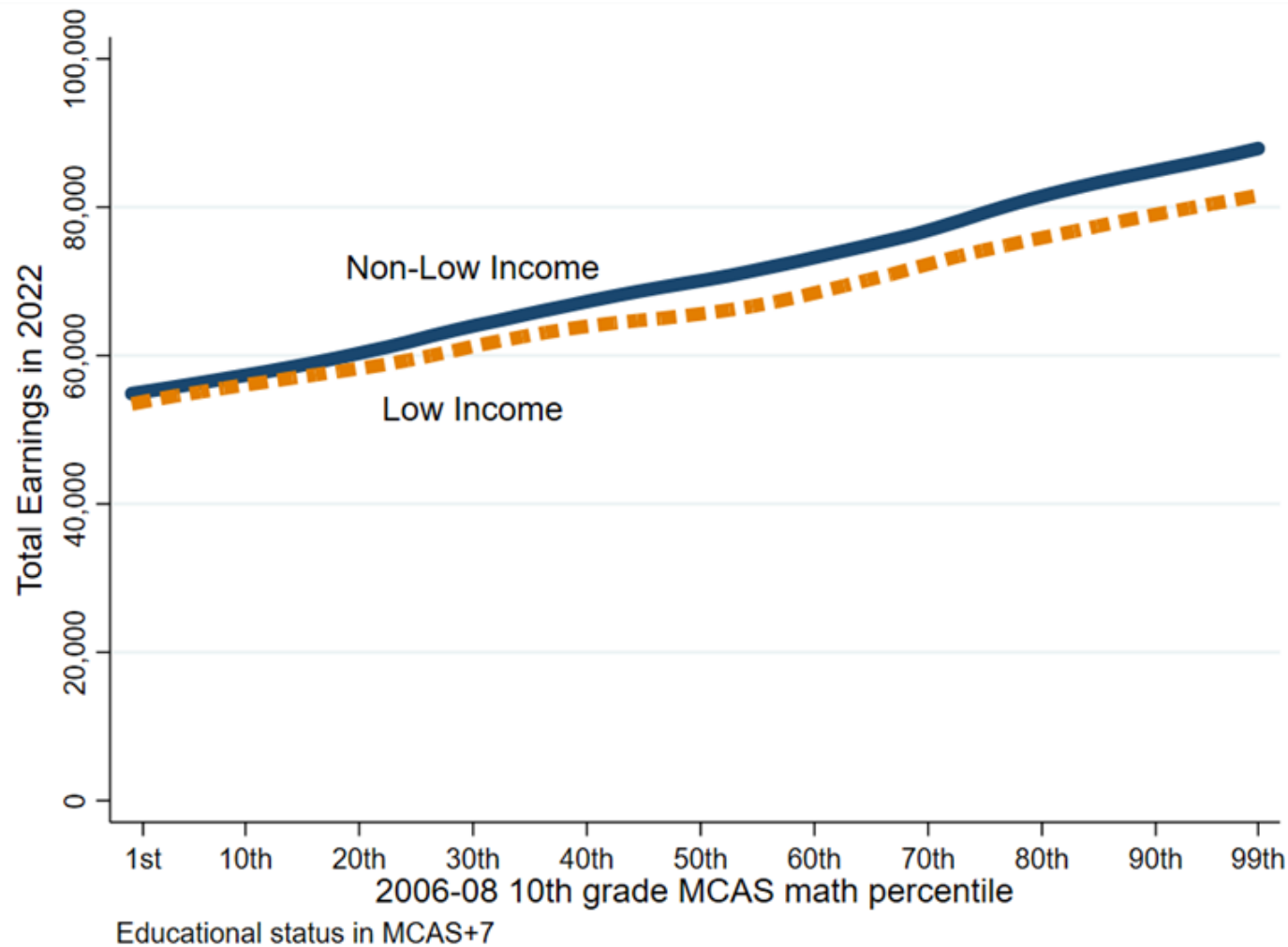
# Recent increases in average MCAS scores and student grades do not appear to reflect increases in students' underlying skills.



Trends in 10th grade MCAS test proficiency, course grades, and 8th grade NAEP proficiency from 2003 to 2023, in ELA.

- In ELA, NAEP performance has remained flat while MCAS scores rose substantially through 2013.

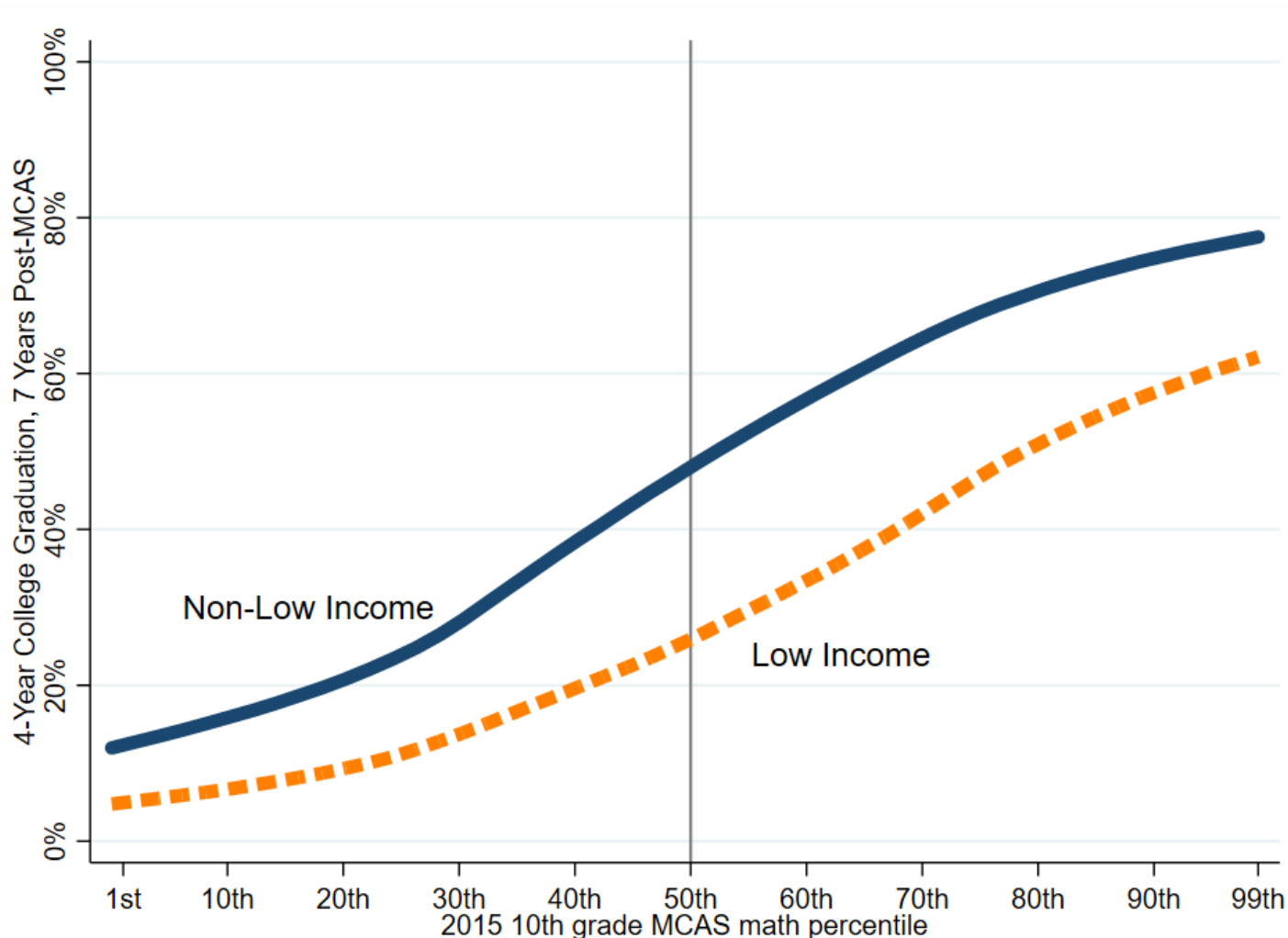
# Educational attainment and skills are drivers of opportunity. Comparing students with the same MCAS scores & attainment, earnings gaps are quite small.



Total 2022 earnings by MCAS math percentile, 4-year college graduates, 2006 to 2008 test-takers.

- Four-year college graduates from low-income families have similar later earnings as higher-income college graduates with the same MCAS math scores.
- This pattern holds for graduates of MA public 4-year colleges as well as for students at other education levels.
- ELs actually earn more than non-ELs with similar high-school test scores and attainments.

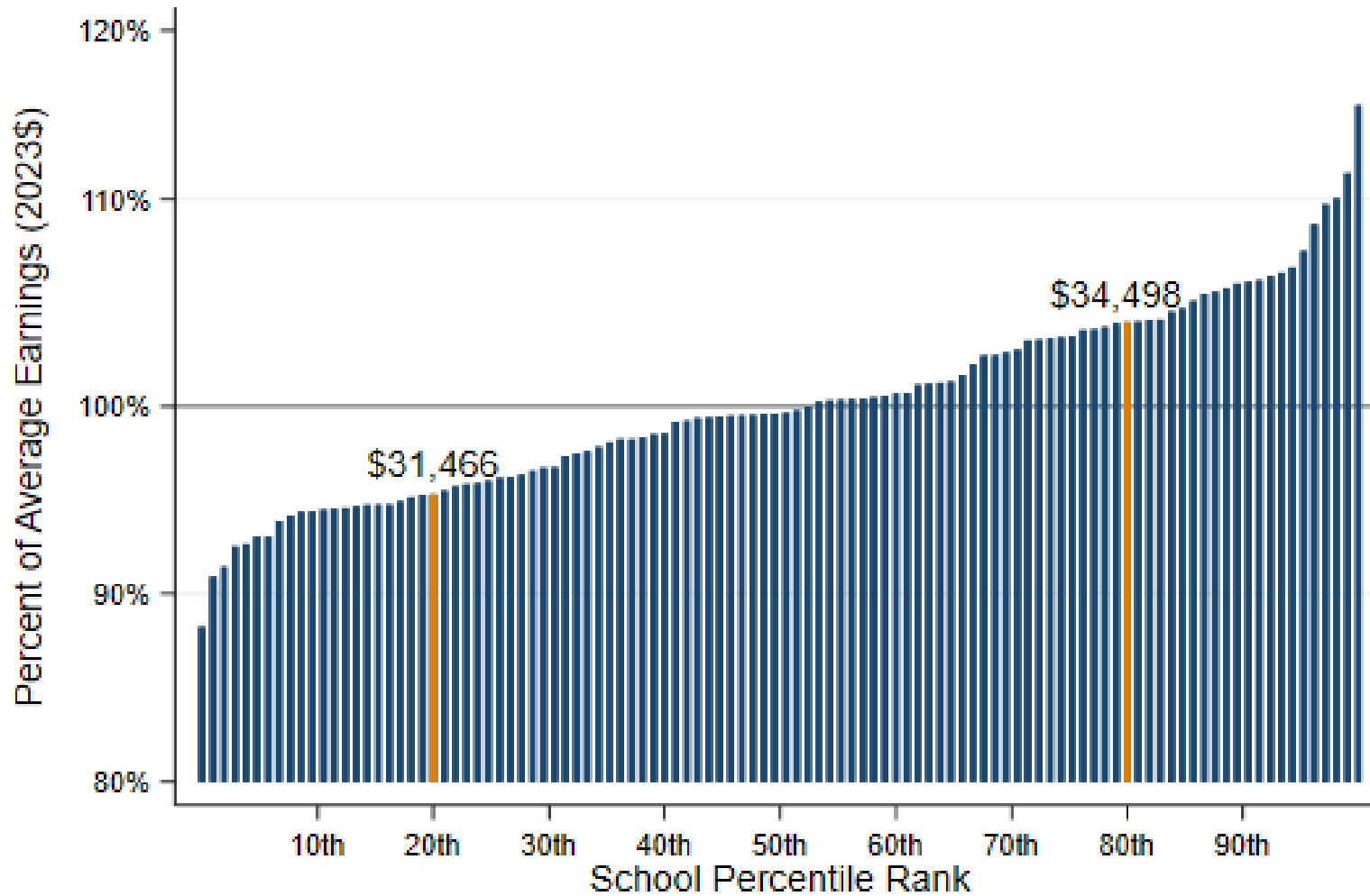
# There are striking gaps in 4-year college completion by family income, even among students with similar MCAS scores.



Probability of graduating from a four-year college, by MCAS math percentile and family income, 2015 first-time 10<sup>th</sup> grade test-takers.

- At the median MCAS score, higher-income students are 26 percentage points more likely to graduate from a 4-year college than low-income students.
- Differences in high school skills measured by MCAS, post-secondary enrollment, and post-secondary success are major drivers of educational inequality.

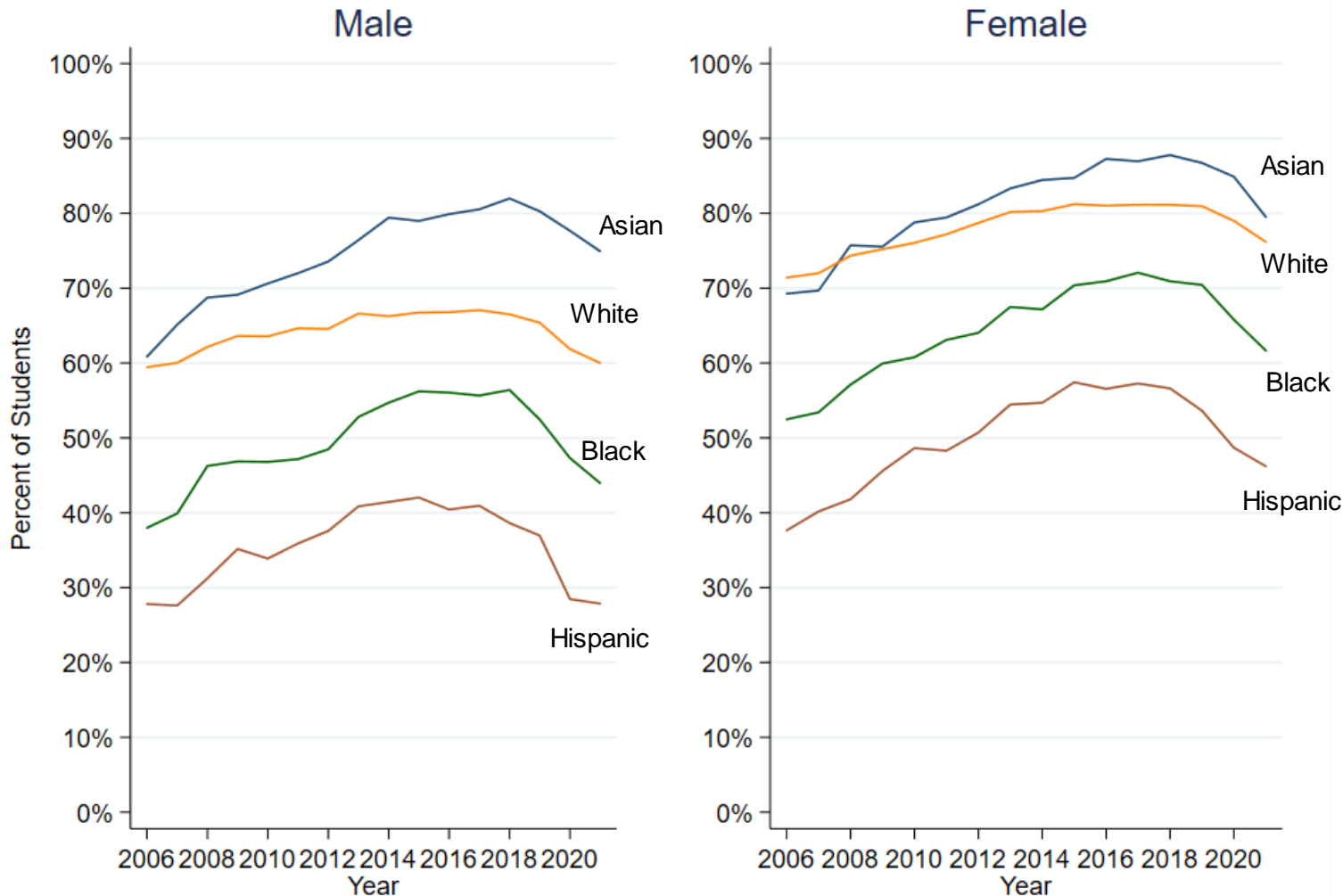
# Some high schools improve later earnings for low-income students much more than others.



Estimated average earnings in 2017-2019 (expressed in 2023 constant dollars) for low-income students who entered 9<sup>th</sup> grade in a high-poverty high school from 2003. to 2005, by high school.

- We look at low-income students who attend high-poverty high schools in 2003 to 2005.
- We compare students with same demographics, 8<sup>th</sup> grade test-scores, 8<sup>th</sup> grade course-taking, parent education, etc.
- Moving from a 20th percentile high school to an 80th percentile school is associated with a 15% increase in annual earnings (about \$3,900).

# College-going declined during the pandemic, particularly for students from historically marginalized backgrounds.



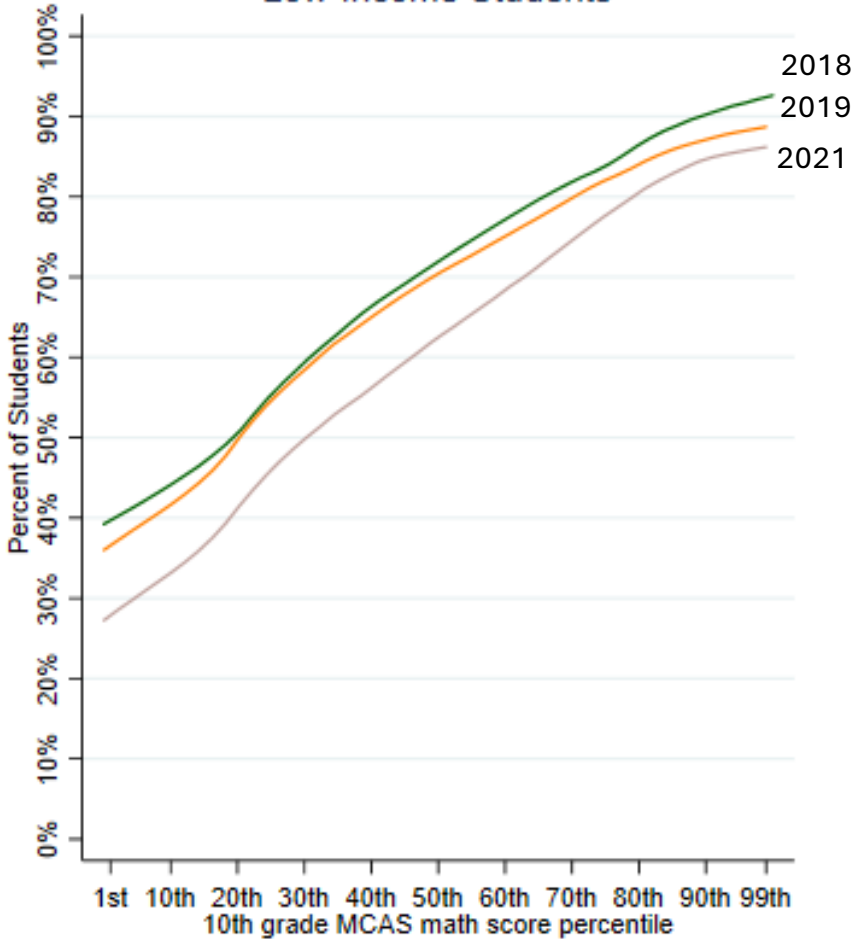
College enrollment by the fall of the year after expected cohort graduation, by race and gender.

- College enrollment increased for all groups before 2014, and then began to slide before the pandemic.
- Pandemic-era losses in college enrollment were substantial, and delayed enrollments exacerbated inequality.
- College-going declines for Hispanics (and especially Hispanic males) were particularly large.

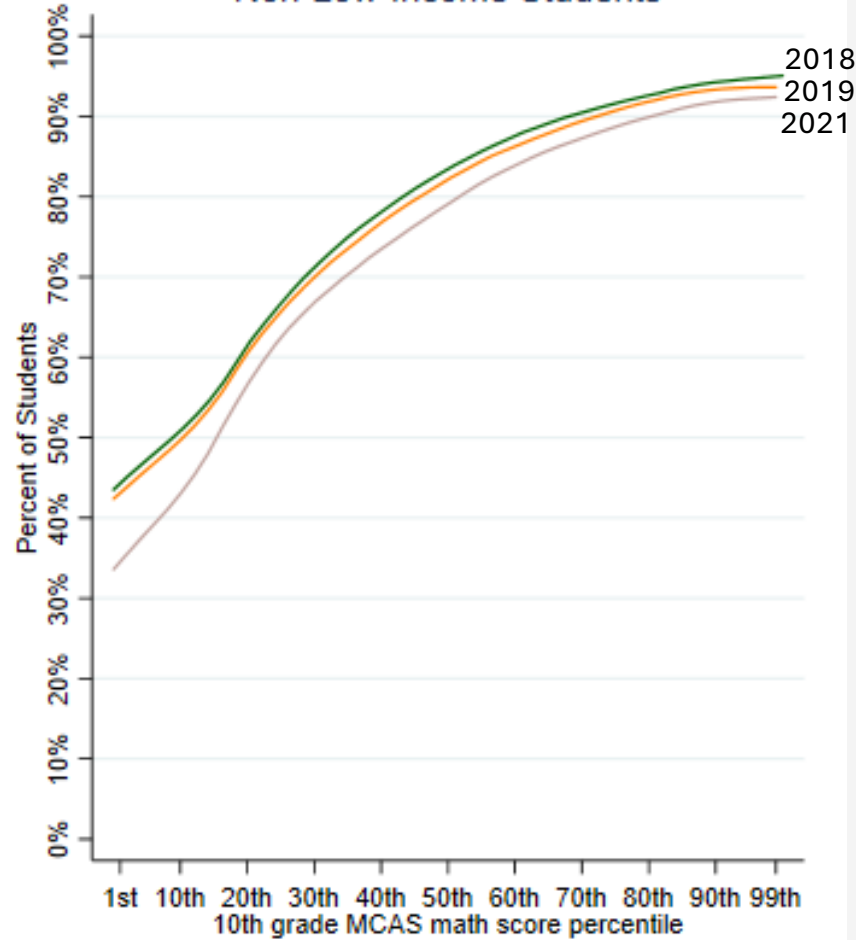


# College-going declined substantially during the pandemic, even for high-performing students.

Low-Income Students

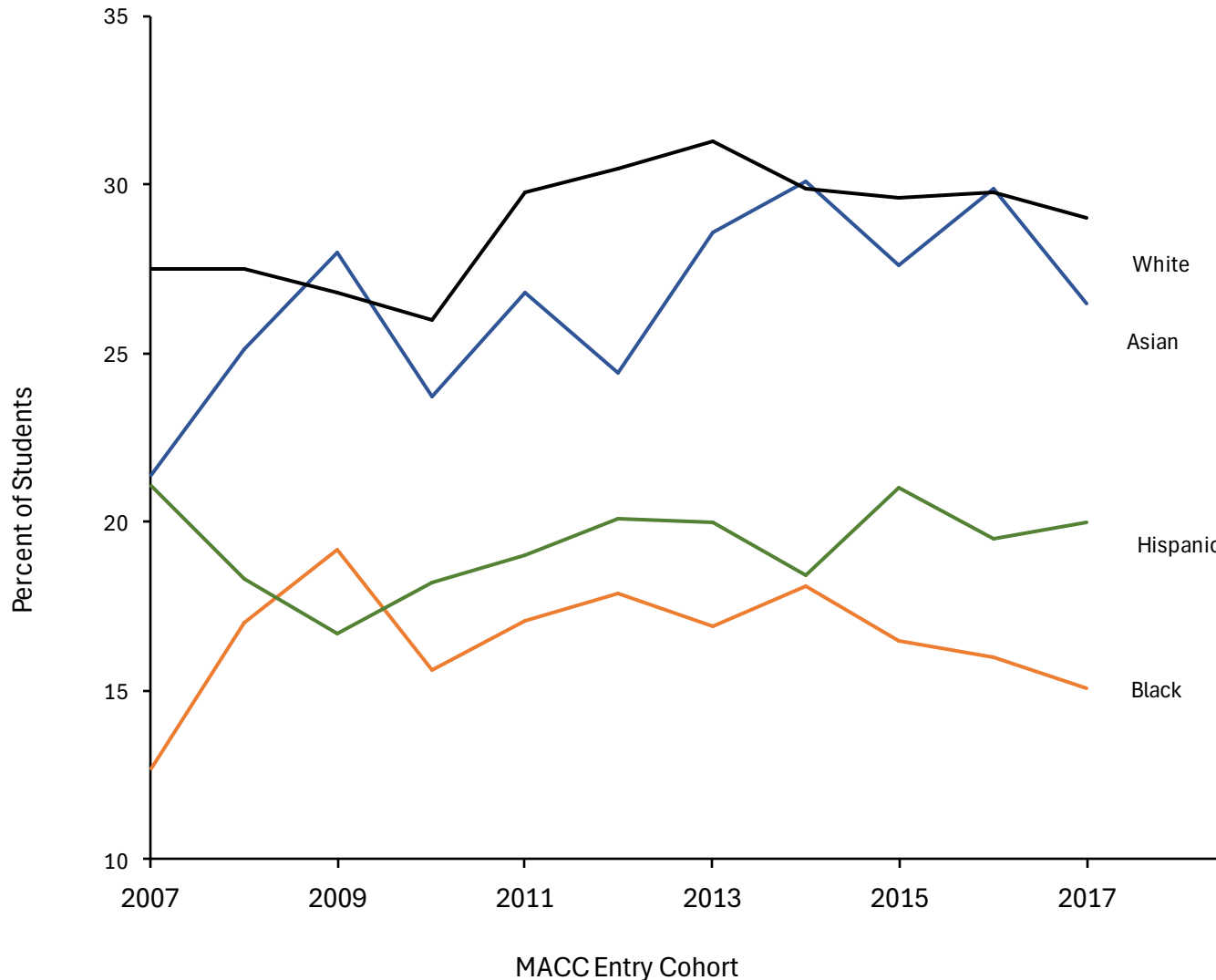


Non-Low-Income Students



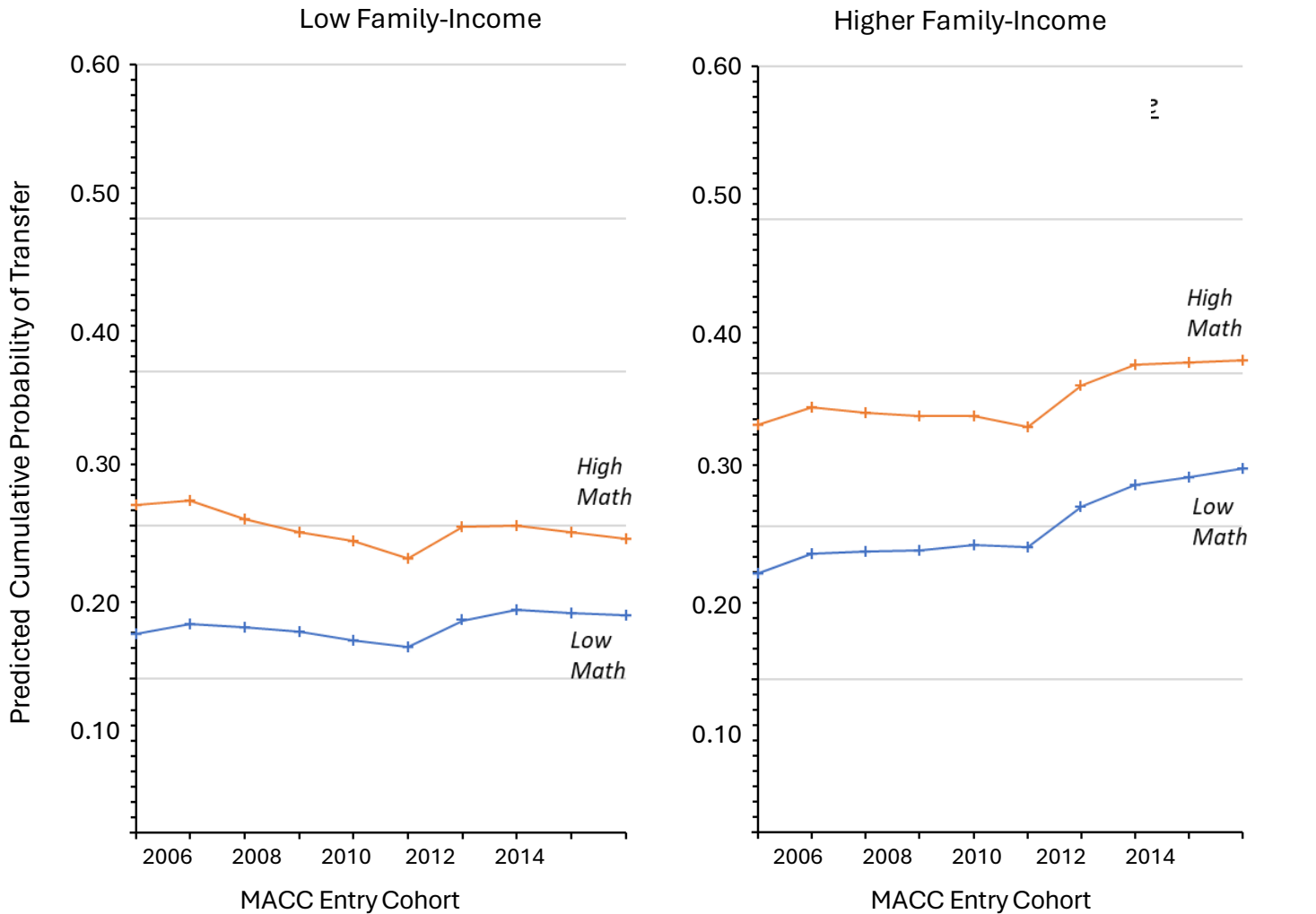
- Across the MCAS test-score distribution, college-going fell.
- Impacts were greater for low-income students. There is a growing number of low-income students who have graduated from high school, have strong preparation for post-secondary education, and are not yet enrolled.
- NOTE: We cannot look at 2022 graduates because they did not take the MCAS.

# 5-year Associate Degree rates differ by race/ethnicity but are modest for all groups.



- There are large differences in community college degree attainment by race/ethnicity. Among enrollees in degree programs, Asian and White students are nearly twice as likely to earn their credential as Black students.
- Even for White and Asian students who have the highest completion rates, less than 1/3 of students earn their AA degree.

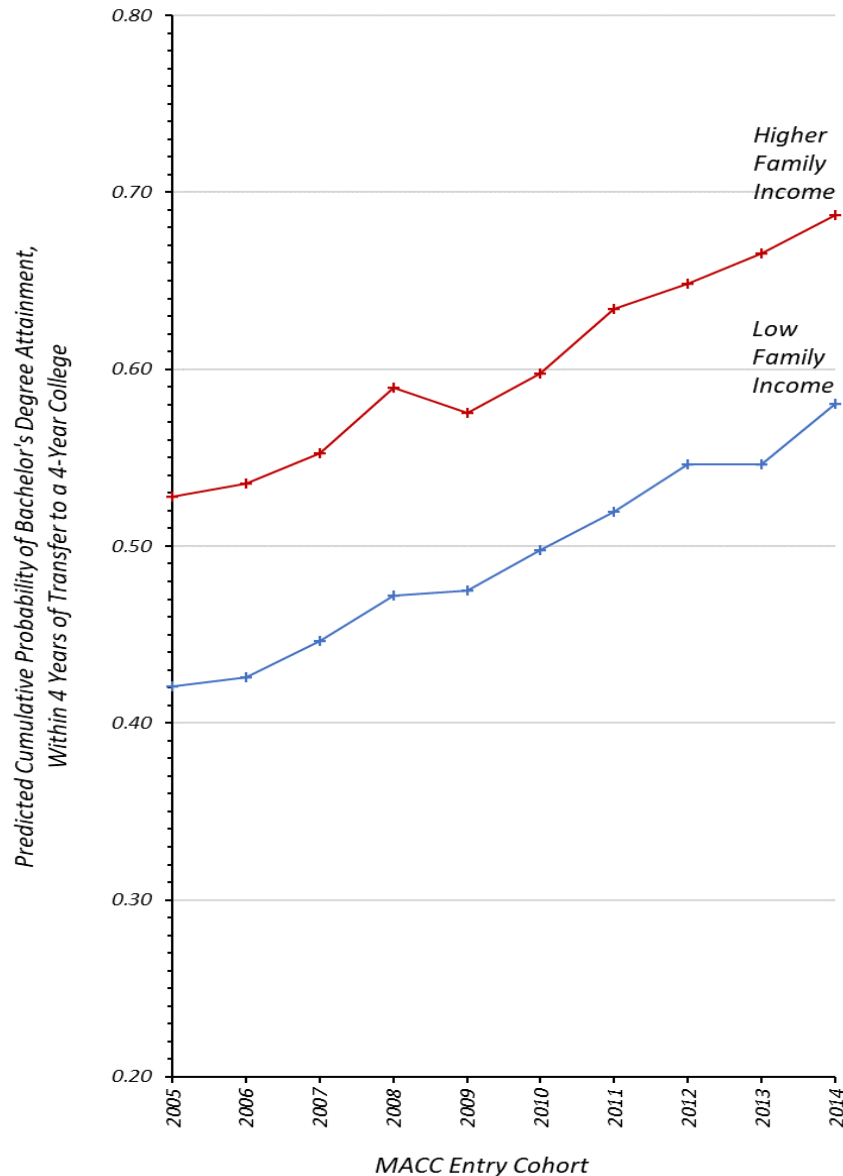
# Community colleges are an important pathway to four-year institutions.



Predicted Cumulative Probability of Student Transfer to a 4-Year Institution, Within Six Years of MACC Entry

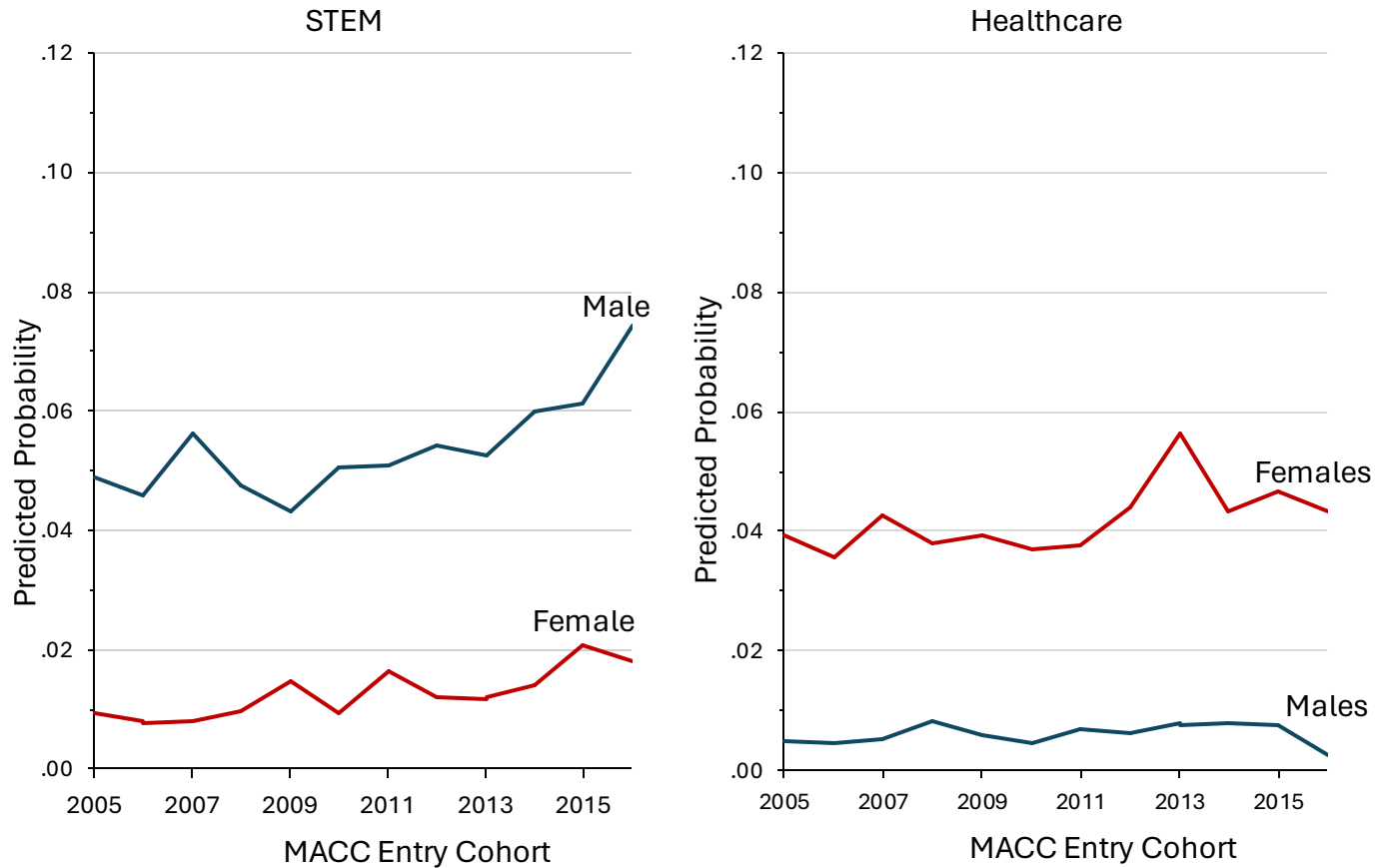
- Transfer rates increased across cohorts for higher-income students.
- In recent cohorts, low-income students with high MCAS math scores have lower transfer rates than higher-income students with low MCAS scores.

# Four-year college success for students who have transferred has risen substantially.



- Four-year college completion rates for students who do transfer have risen substantially for both low-income and higher-income students.
- Only 44% of low-income students who entered MACC degree programs in the fall of 2005 and transferred earned a four-year degree, compared to nearly 60% among 2014 entrants.

# The percentage of MACC students earning ADs in STEM has increased markedly, but the percentage earning ADs in high-demand health care specialties has not.



Predicted probabilities of earning an associate degree within six years of MACC entry, plotted annually across the 2005 through 2016 MACC entry cohorts by student gender, for the STEM (left panel) and healthcare (right panel) specialties.

- For both male and female students, the share of MACC entrants earning an AD in STEM has increased substantially.
- Despite strong labor market demand, there has been no real increase in the share of students earning health care credentials.

# Key themes

- The demographics of students served by the MA public education system have changed dramatically over the past 20 years, with implications for measuring progress over time.
- **Both** MCAS scores and high-school course grades are important and distinct predictors of long-run outcomes, but many students and families may not be receiving accurate signals of their preparation for college and careers.
- Educational attainment and skills are key drivers of economic opportunity, and some schools enhance these better than others.
- Rates of college enrollment and completion for academically strong students from low-income families and from historically marginalized groups are low, particularly after the pandemic.
- Associate degree attainment and transfer rates for students enrolled in MACCs have stayed flat, but many more students who transfer are graduating from a four-year college.