MLDS CENTER

Maryland Longitudinal Data System

Better Data • Informed Choices • Improved Results

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School Concentrated Poverty as a Driver of Educational Inequities

17th Annual Maryland Statewide Health Equity Conference, Dec. 3, 2020

Introductions and acknowledgements

- About the presenters:
  - ***Angela K. Henneberger***, Ph.D., is director of the Research Branch at the MLDS Center and Research Assistant Professor at the University of Maryland School of Social Work (SSW).
  - ***Bess A. Rose***, Ed.D., is statistician with the Research Branch at the MLDS Center and the SSW.
- Acknowledgements:
  - Maryland Commission on Innovation and Excellence in Education
  - MLDS Center staff
  - Our study co-authors, Dr. Dawnsha Mushonga, Dr. Boyoung Nam, and Alison Preston

Overview

- Introduction to the MLDS Center
- Race and poverty achievement gaps in educational outcomes
- Schools matter
- The role of school concentrated poverty: Results from the MLDS
  - Algebra test scores
  - High school graduation
  - College enrollment
  - Wages
- Summary and Q & A

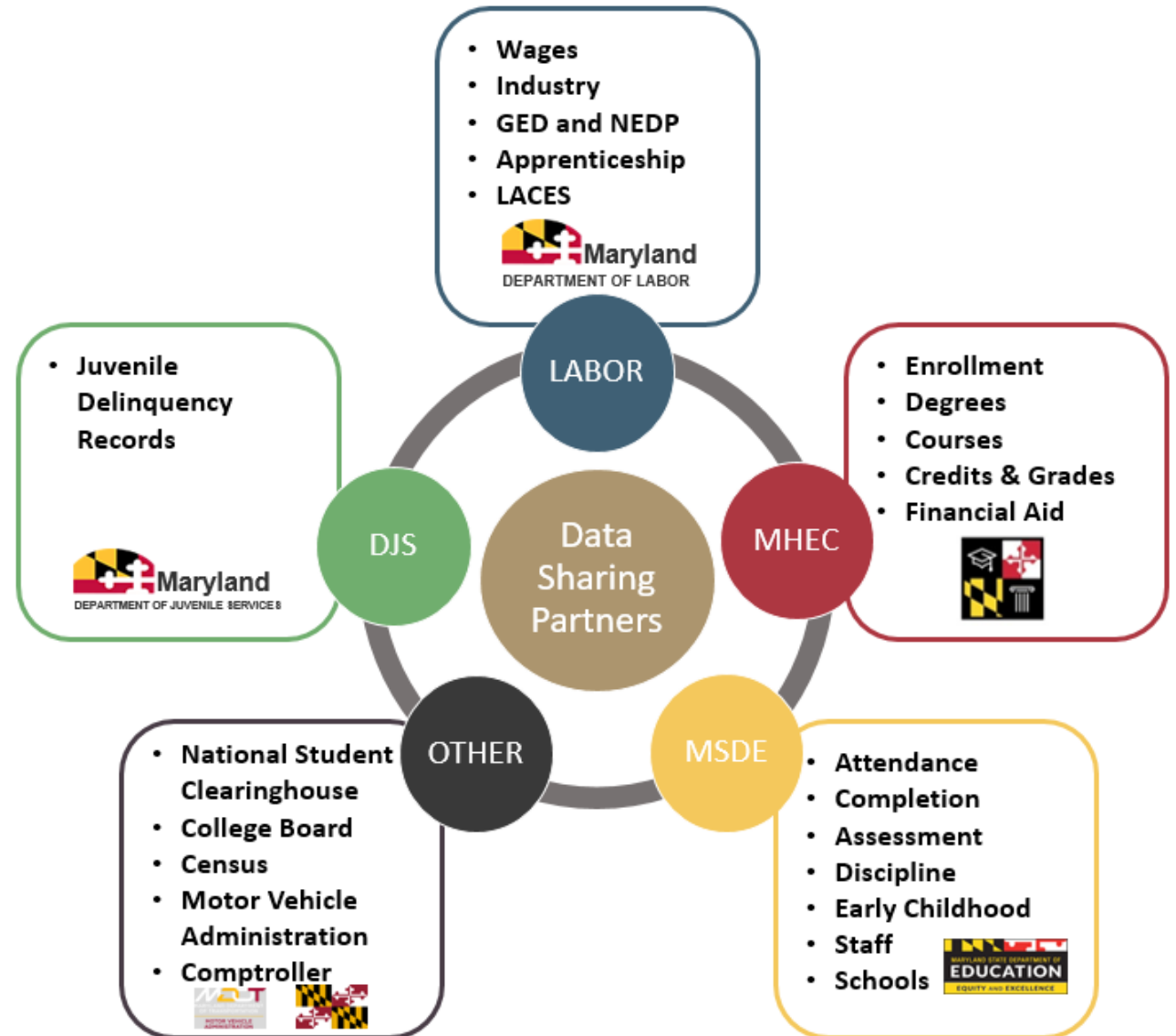# Background and overview: School concentration of poverty

- Children who grow up in poverty score lower on standardized tests, earn worse grades, are less likely to graduate from high school, and are less likely to enroll in college.

- Because of neighborhood segregation, students living in poverty tend to attend schools with other children who are also living in poverty. But does attending a high poverty school affect students' outcomes, apart from the role of their own household poverty?

- By using statistical modeling, this study demonstrated the significant negative impact that school concentration of poverty has on long-term outcomes.
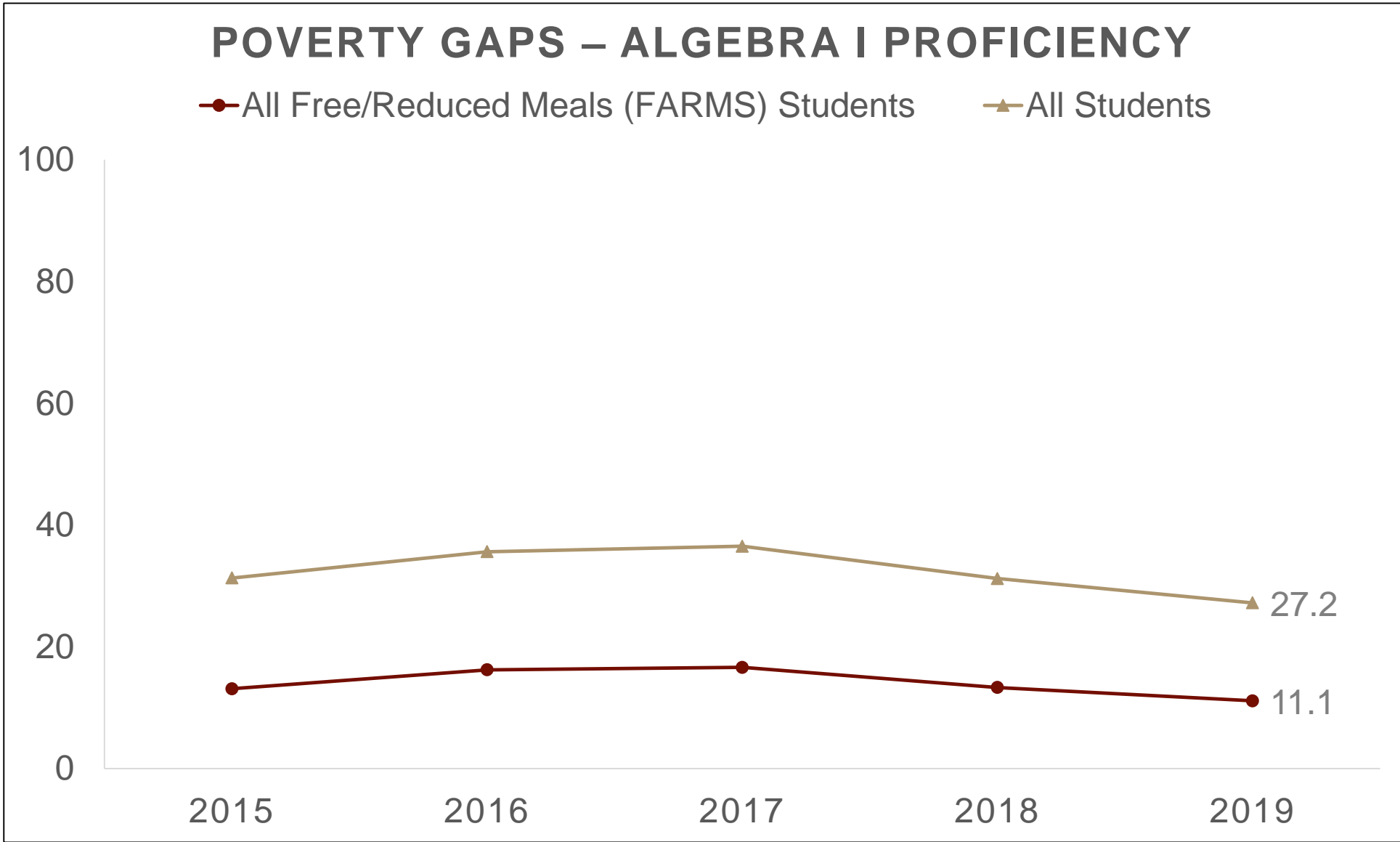
What is the MLDS Center?

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The MLDS Center

Mission: The mission of the MLDS Center is to develop and maintain a data system that contains student data from all levels of education and workforce data in order to provide analyses, produce relevant information, and inform choices to improve student and workforce outcomes, while ensuring the highest standards of system security and data privacy.
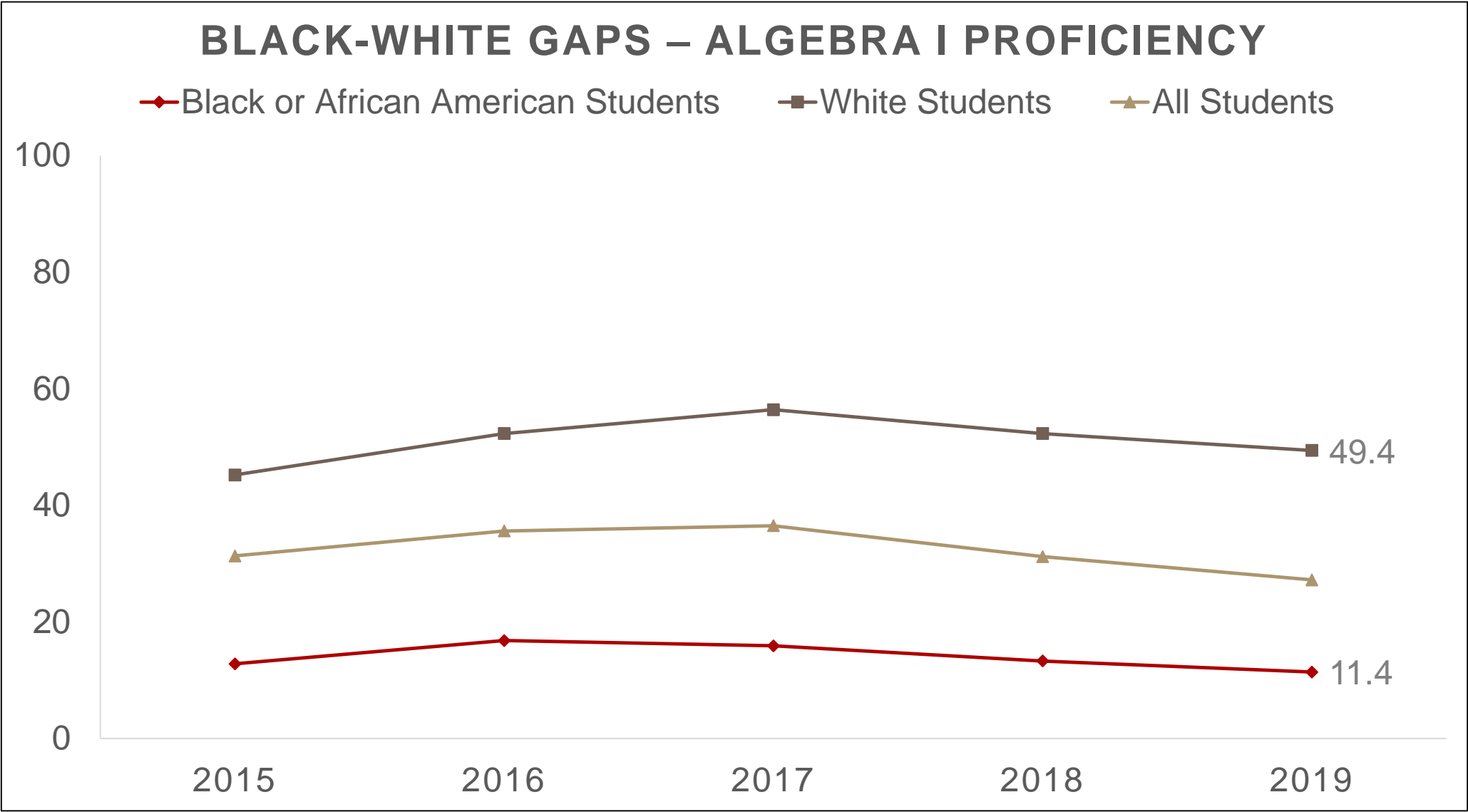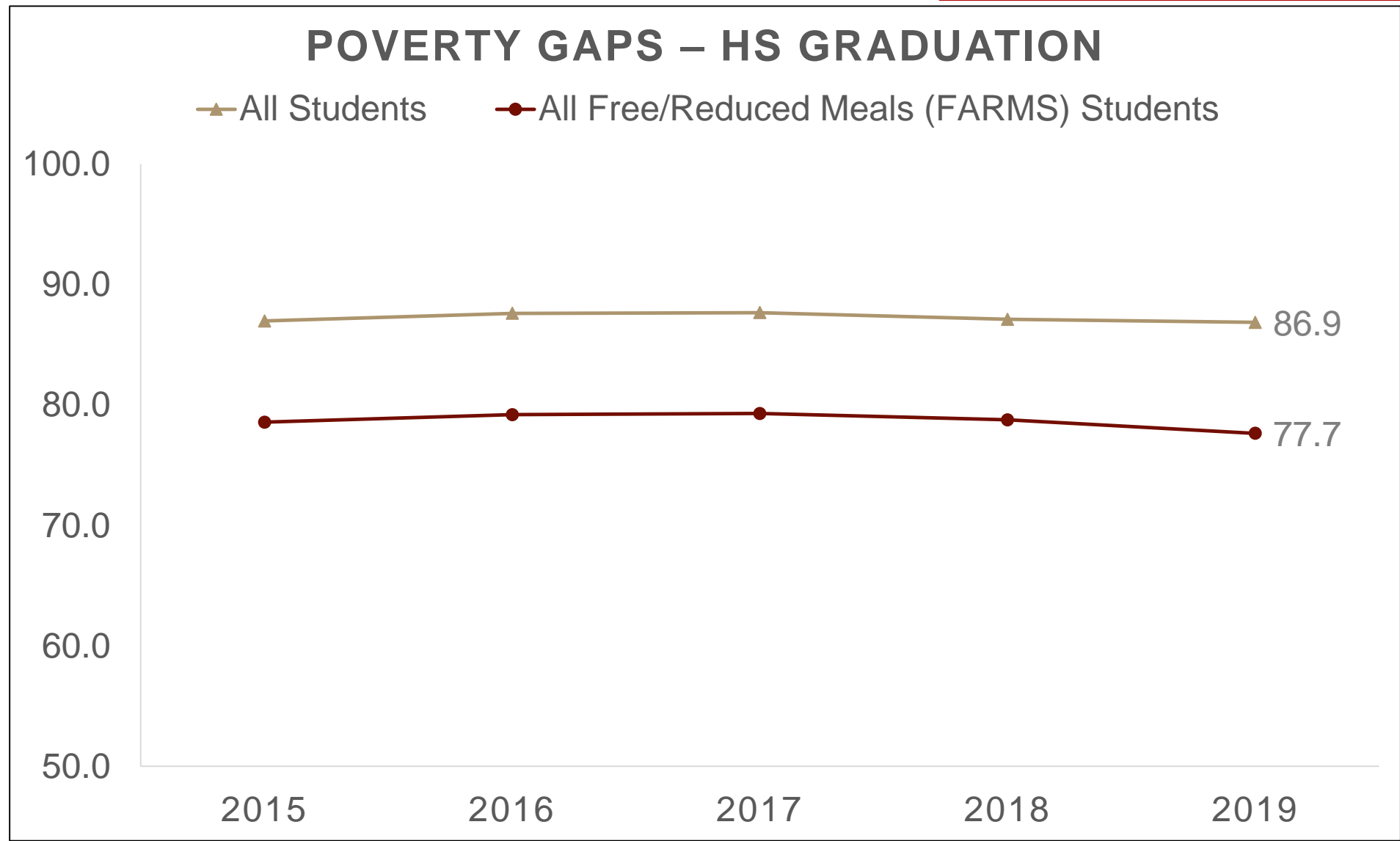
Achievement gaps

Students in poverty and Black students have worse educational outcomes

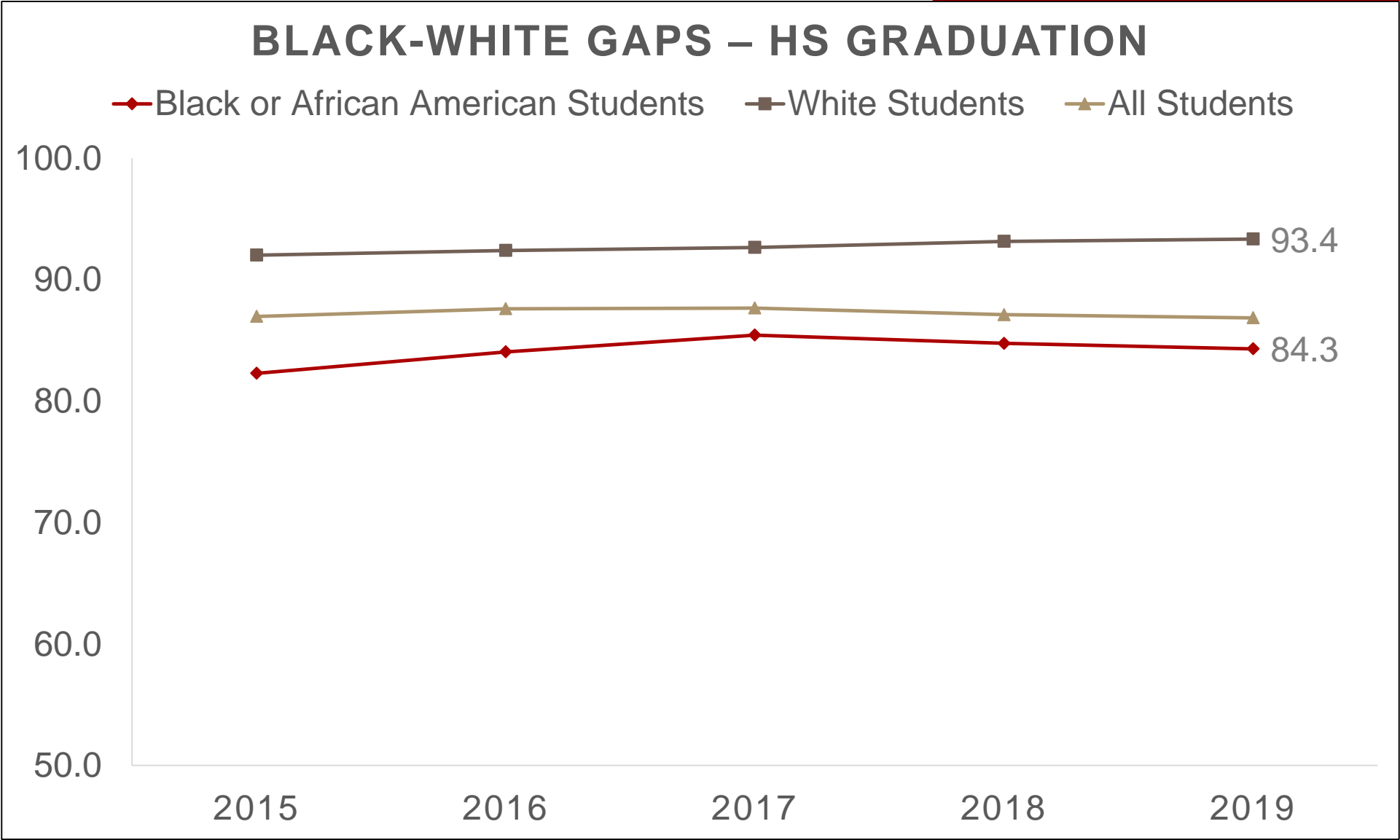# POVERTY GAPS – ALGEBRA I PROFICIENCY

Legend: All Free/Reduced Meals (FARMS) Students; All Students

Data points: All Students ends at 27.2; All FARMS Students ends at 11.1 (2019)

X-axis: 2015, 2016, 2017, 2018, 2019

Source: mdreportcard.org

BLACK-WHITE GAPS – ALGEBRA I PROFICIENCY

Source: mdreportcard.org

POVERTY GAPS – HS GRADUATION

Source: mdreportcard.org

BLACK-WHITE GAPS – HS GRADUATION

Source: mdreportcard.org

POVERTY GAPS –
COLLEGE ENROLLMENT 12 MONTHS POST-HS

Source: mdreportcard.org

**BLACK-WHITE GAPS –
COLLEGE ENROLLMENT 12 MONTHS POST-HS**

Black or African American Students — White Students — All Students
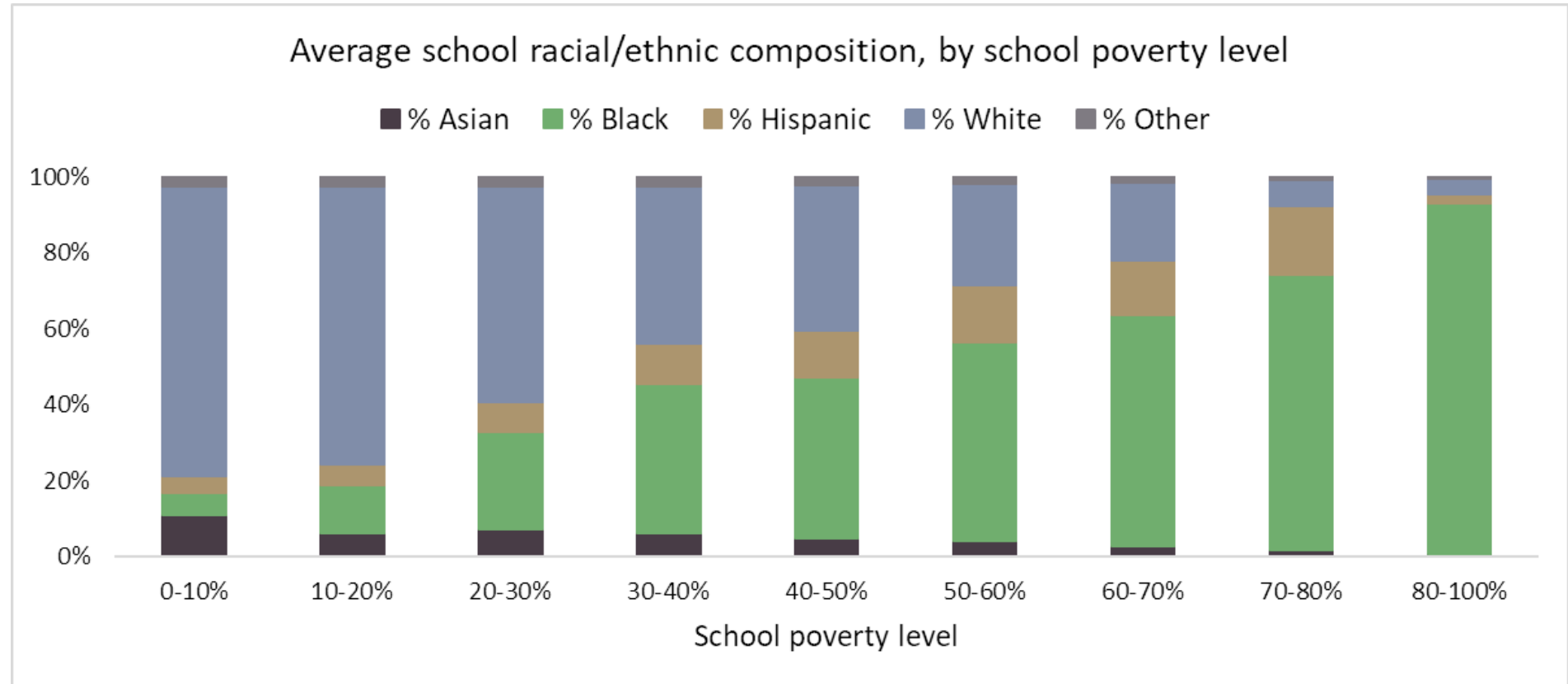
72.8

61.8
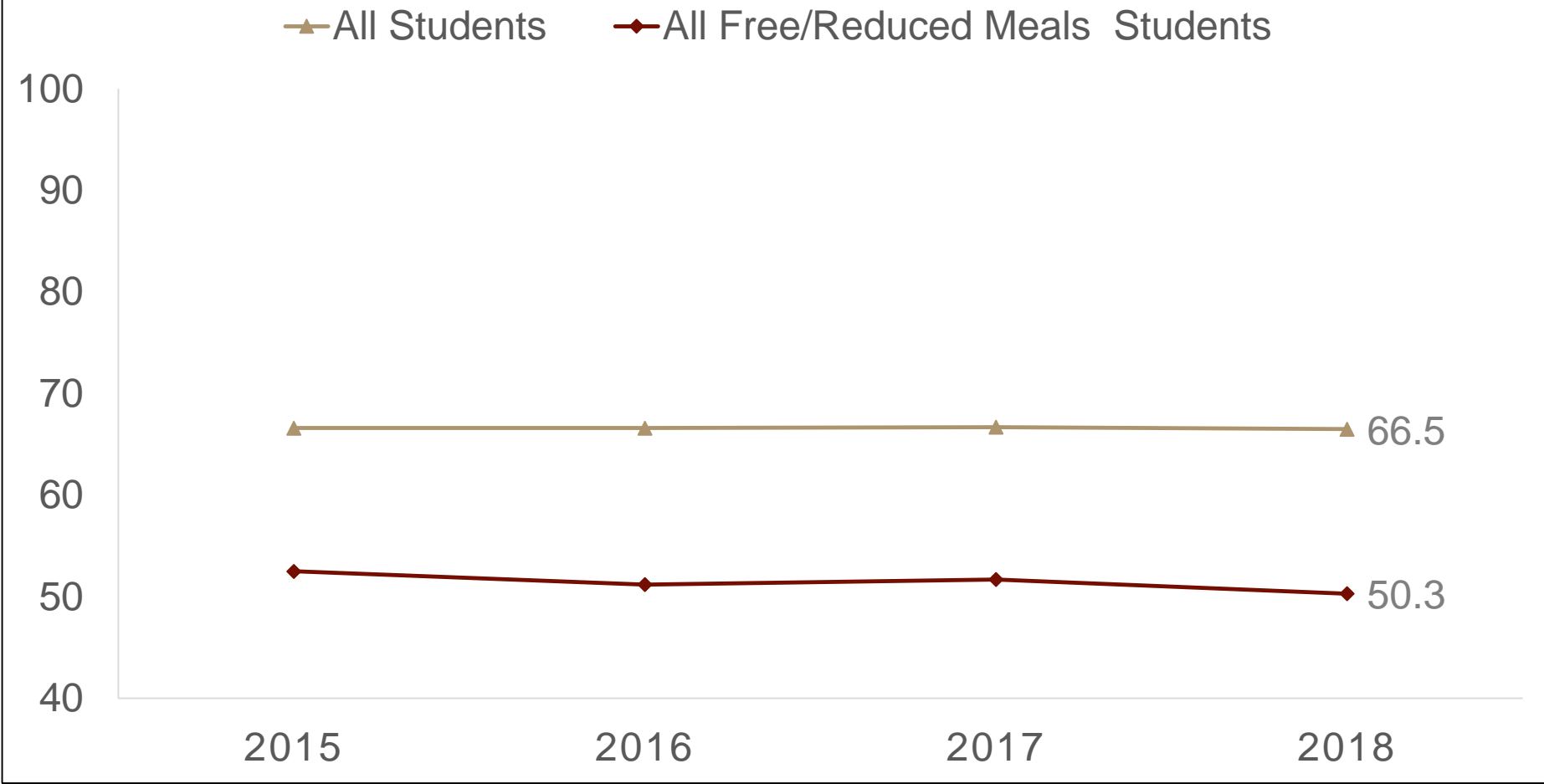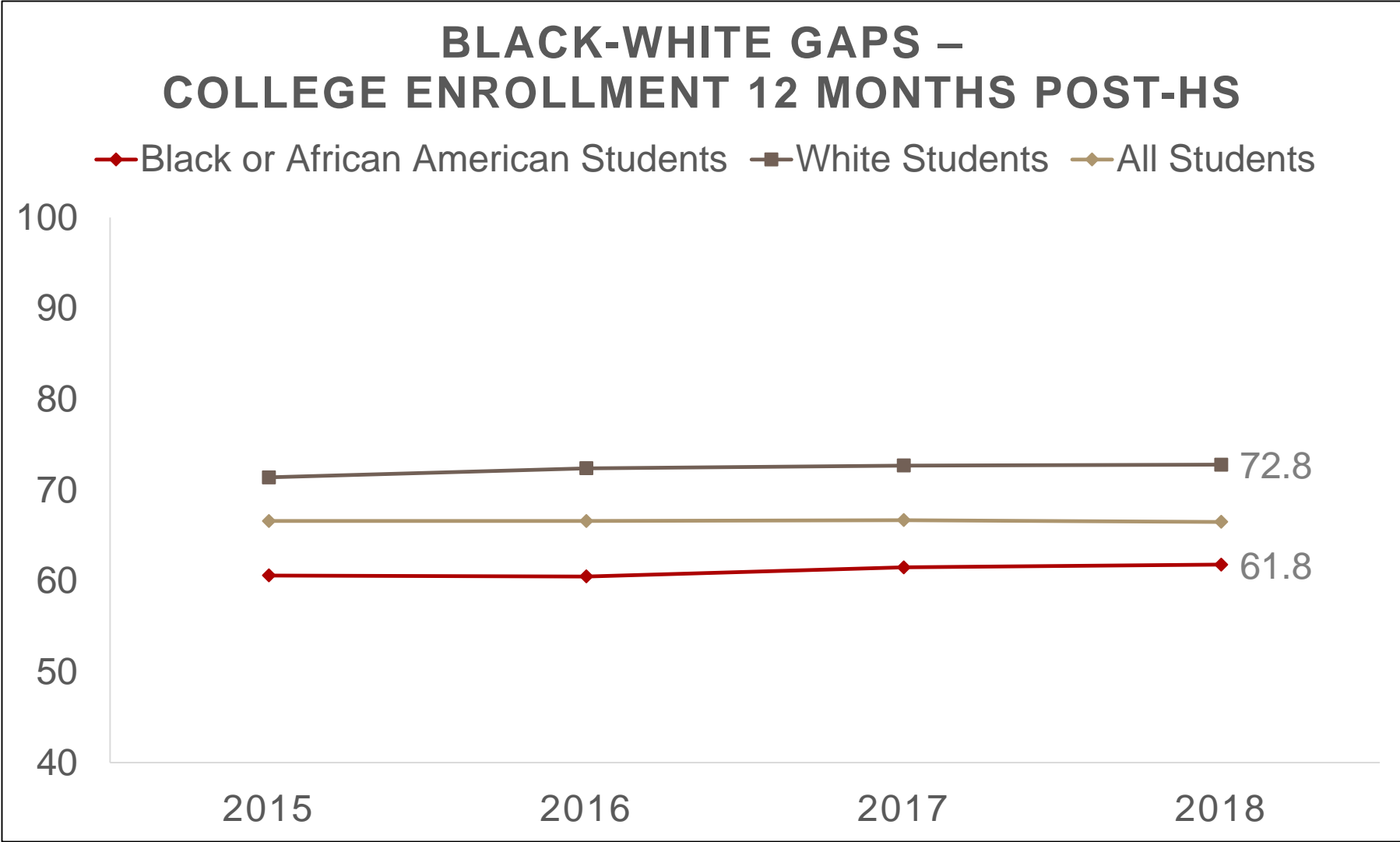
Source: mdreportcard.org

Schools matter

School poverty and racial composition

Low poverty schools are mostly White; high poverty schools are mostly Black

Average school racial/ethnic composition, by school poverty level

■ % Asian   ■ % Black   ■ % Hispanic   ■ % White   ■ % Other

(bar chart: vertical axis 0% to 100%; horizontal axis "School poverty level" with categories 0-10%, 10-20%, 20-30%, 30-40%, 40-50%, 50-60%, 60-70%, 70-80%, 80-100%)

School poverty level

Schools matter

"Multilevel, or hierarchical, models have brought about *a revolution in the analysis of school effects*. Rather than choosing between the student level or school level as the primary unit of analysis, HLMs allow the researchers to *simultaneously model hypotheses about effects that occur at each level*. These advances allow educational researchers to model more effectively *how, and for whom, schools make a difference*."

– Schools and Inequality: A Multilevel Analysis of Coleman's Equality of Educational Opportunity Data (Borman & Dowling, 2010)

Student factors 44%

School factors 56%

Test scores
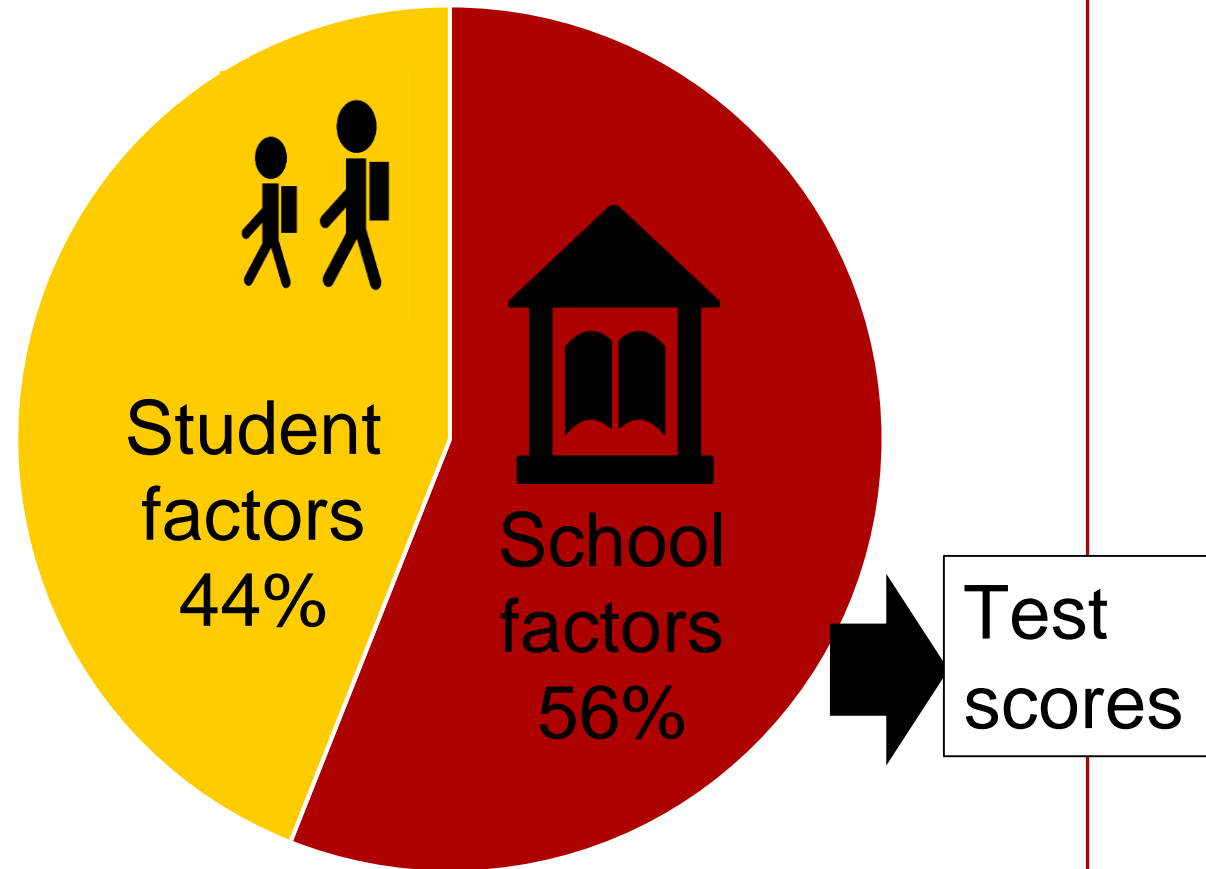
The role of school concentrated poverty: Results from the MLDS

Disentangling the roles of student poverty, school concentration of poverty, student race/ethnicity, and school racial/ethnic composition

Methods

- This study used statistical modeling to estimate the impact of school concentration of poverty on each outcome, controlling for students' household poverty, students' race/ethnicity and school racial/ethnic composition.

- We examined a cohort of students who started out in 6th grade in 2007-08 and followed them through middle and high school to one year past graduation.

- Outcomes included Algebra standardized test scores, high school graduation, college enrollment, and wages earned during the first year after high school.

Findings: Educational outcomes

- Attending high poverty middle and high schools predicted worse educational outcomes, regardless of students' experiences with poverty at home.

- Controlling for household and school poverty shifted some observed racial/ethnic gaps.

  - Black-White gaps in standardized test scores persisted regardless of poverty level.

  - Black-White gaps in high school graduation and postsecondary enrollment rates disappeared or reversed after accounting for poverty and school-level racial/ethnic composition.

Predicted outcomes

- We used the model results to calculate predicted outcomes for different racial/ethnic groups, in schools with average racial/ethnic compositions:
  - Students with average experiences of household and school poverty (average poverty),
  - Students with longer durations of household poverty than average (high household poverty), and
  - Students with high durations of household poverty who also attended schools with higher concentrations of poverty (high household and school poverty).
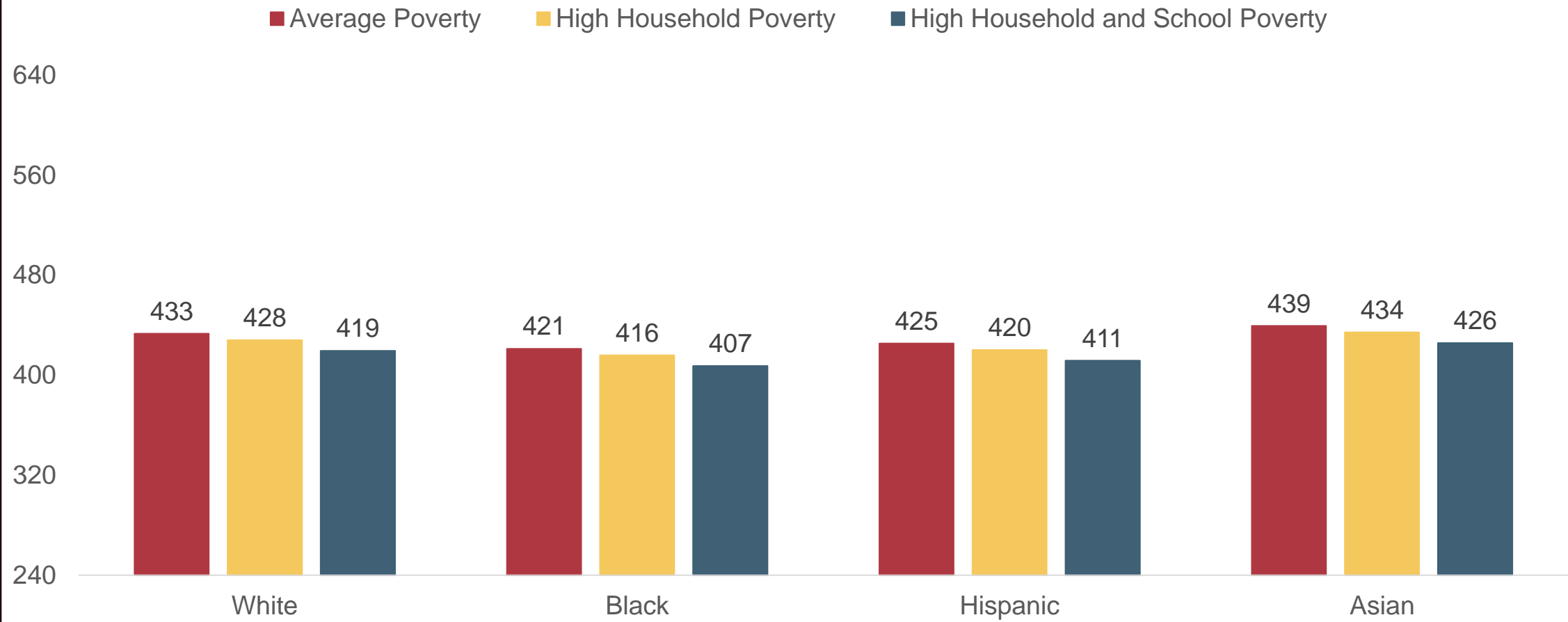
HSA Algebra Score

■ Average Poverty　　■ High Household Poverty　　■ High Household and School Poverty

640			
560			
480			
400			
320			
240			
White	Black	Hispanic	Asian
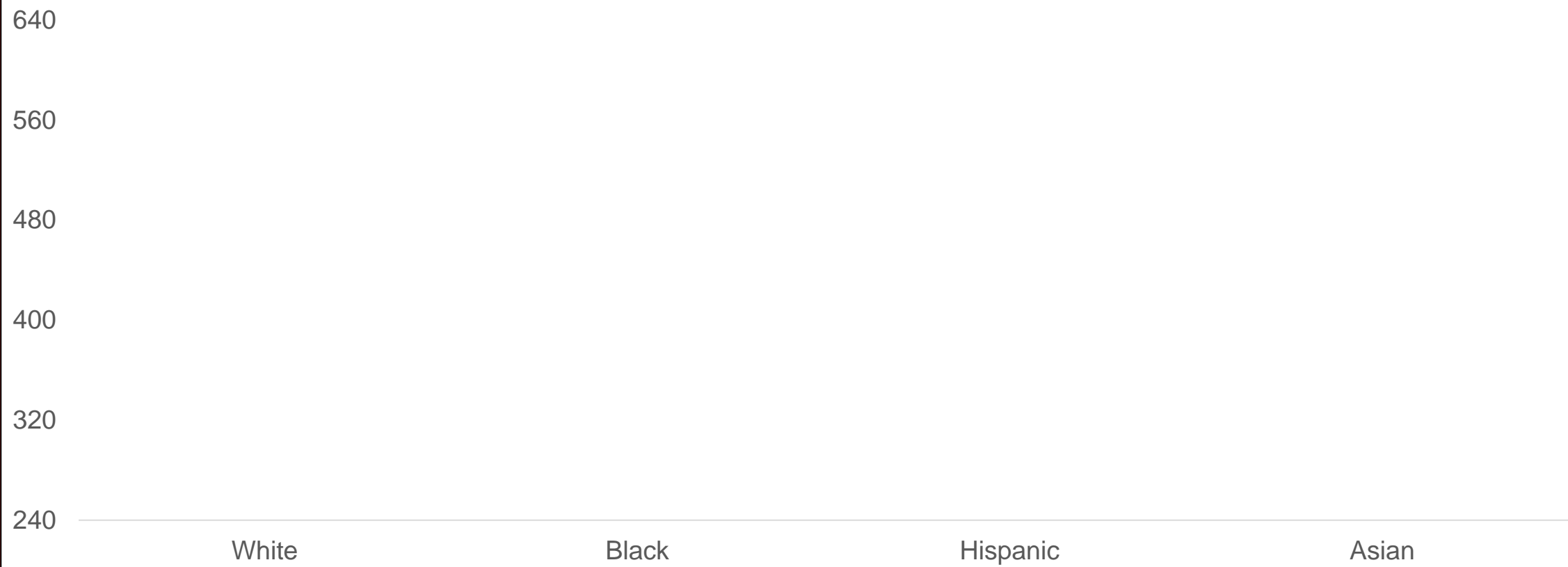
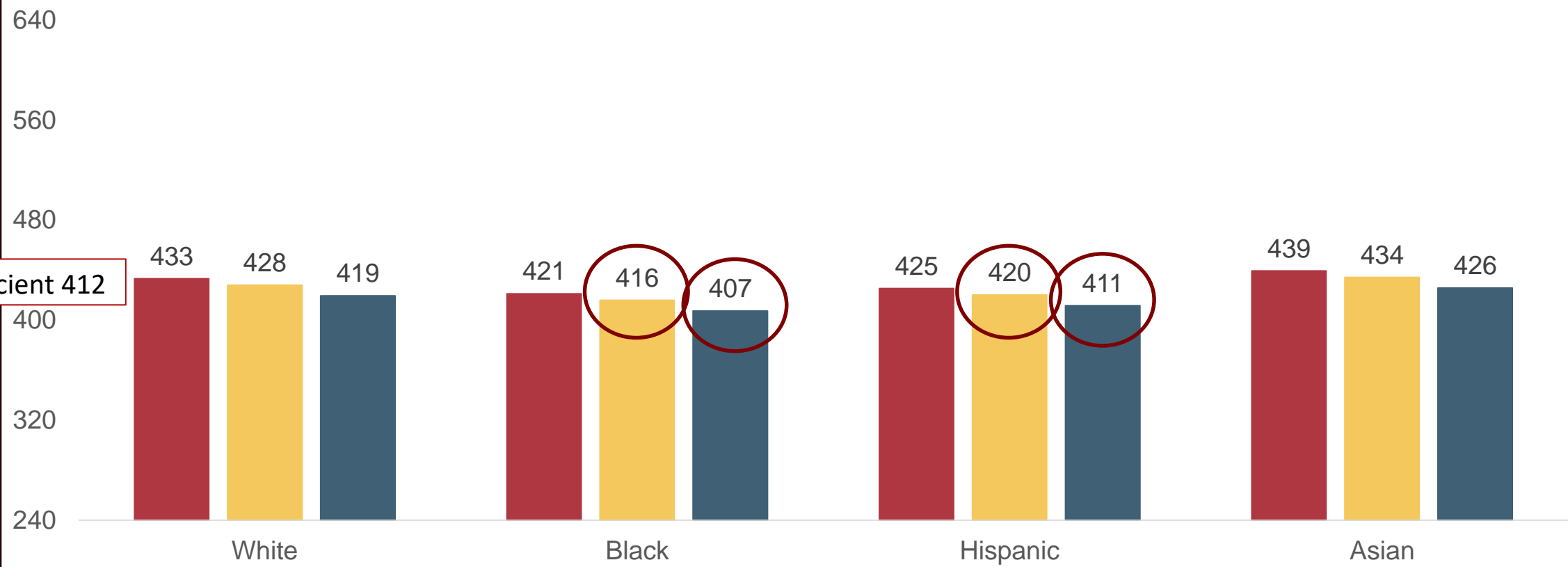Model-based predictions for students in schools with average racial/ethnic composition.

HSA Algebra Score

Model-based predictions for students in schools with average racial/ethnic composition.

HSA Algebra Score

- Average Poverty
- High Household Poverty
- High Household and School Poverty

Proficient 412

	Average Poverty	High Household Poverty	High Household and School Poverty
White	433	428	419
Black	421	416	407
Hispanic	425	420	411
Asian	439	434	426

Model-based predictions for students in schools with average racial/ethnic composition.

On-Time High School Graduation

■ Average Poverty ■ High Household Poverty ■ High Household and School Poverty
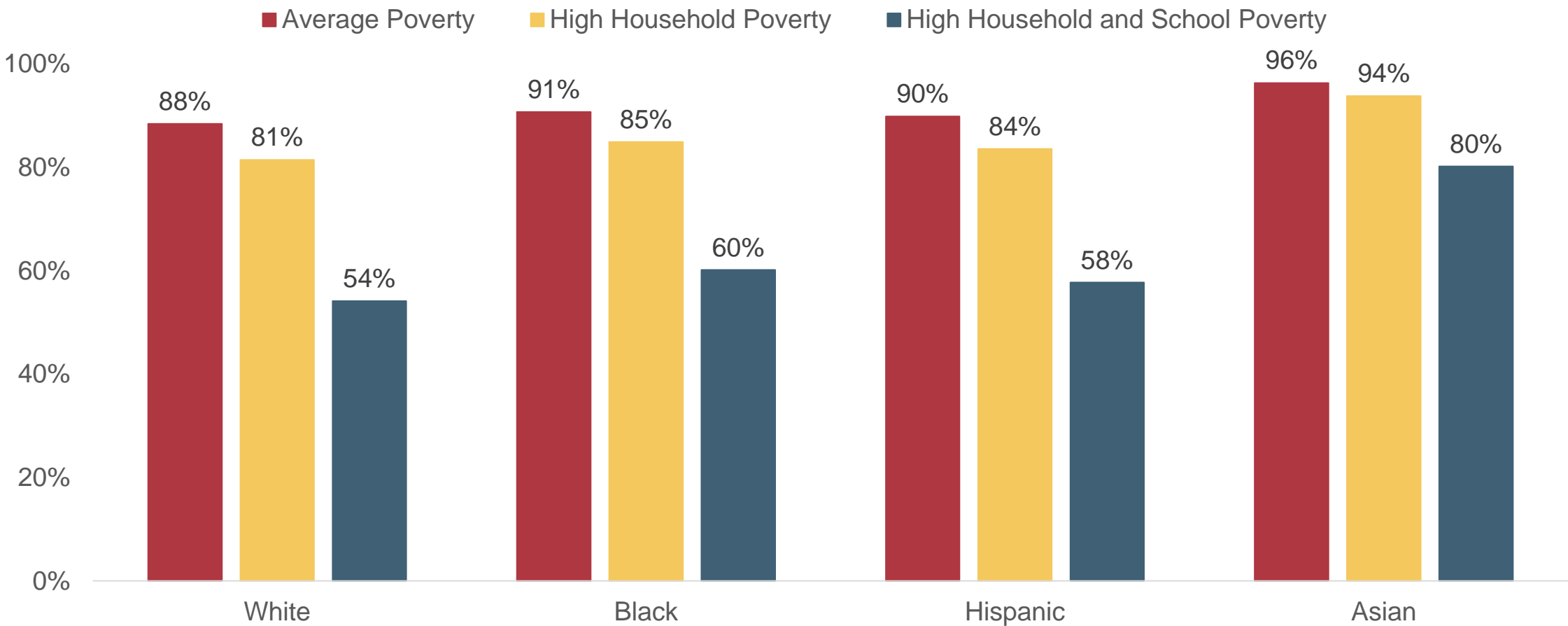
Model-based predictions for students in schools with average racial/ethnic composition.

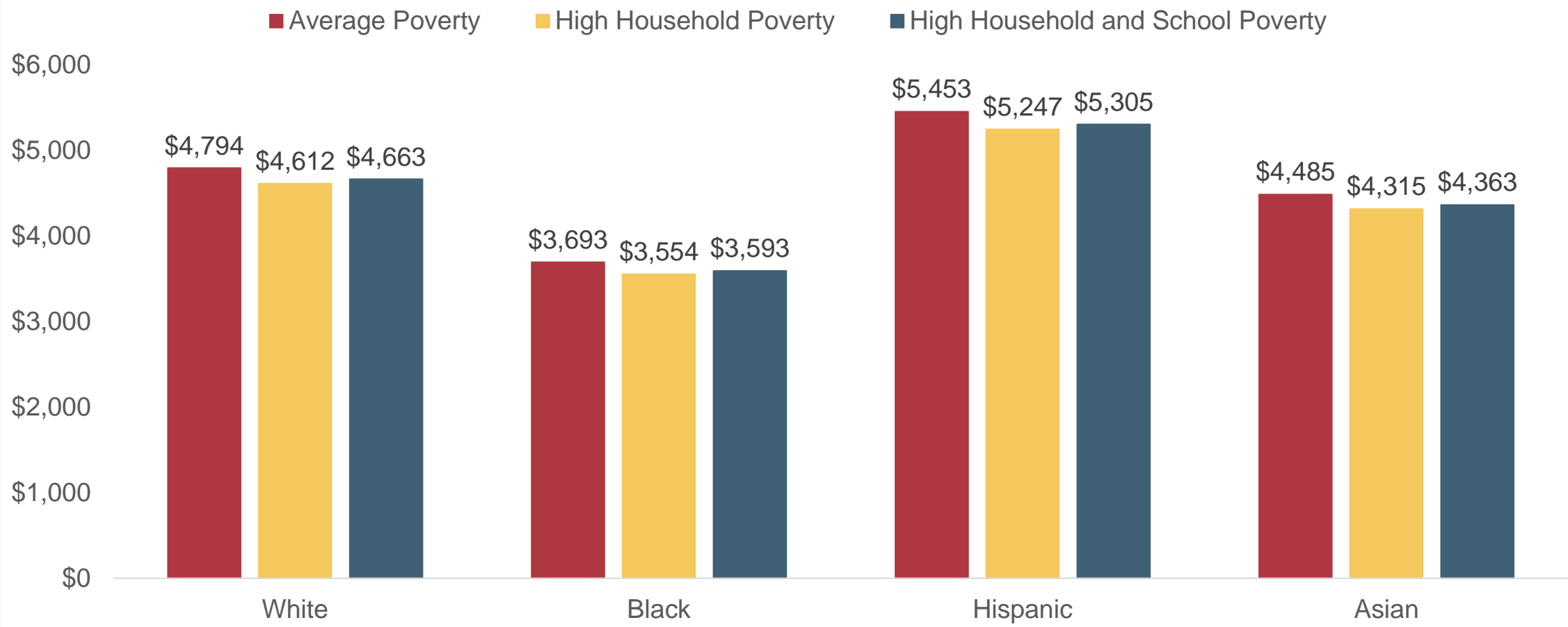College Enrollment within 1 Year of On-Time High School Graduation
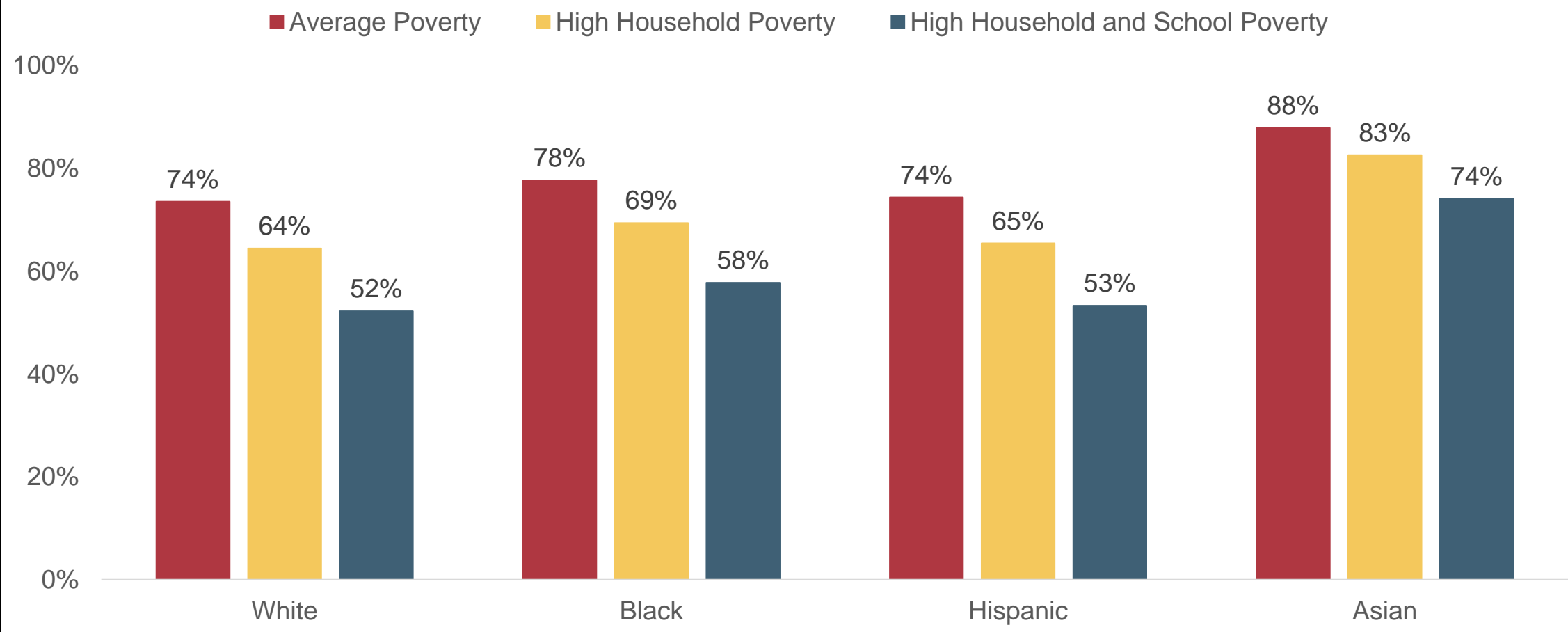
Model-based predictions for students in schools with average racial/ethnic composition.

Findings: Wage outcomes

- Wages earned within a year of on-time high school graduation.
- Among students who *were not* enrolled in college: household poverty was associated with *lower* annual wages.
- Among students who *were* enrolled in college: both household and school poverty were associated with *higher* annual wages.
- Race/ethnicity played a much larger role than past experiences with poverty in post-high school wages.

Wages in 1st Year after High School (Non-College Enrollees)

Model-based predictions for students in schools with average racial/ethnic composition.

Wages in 1st Year after High School (College Enrollees)
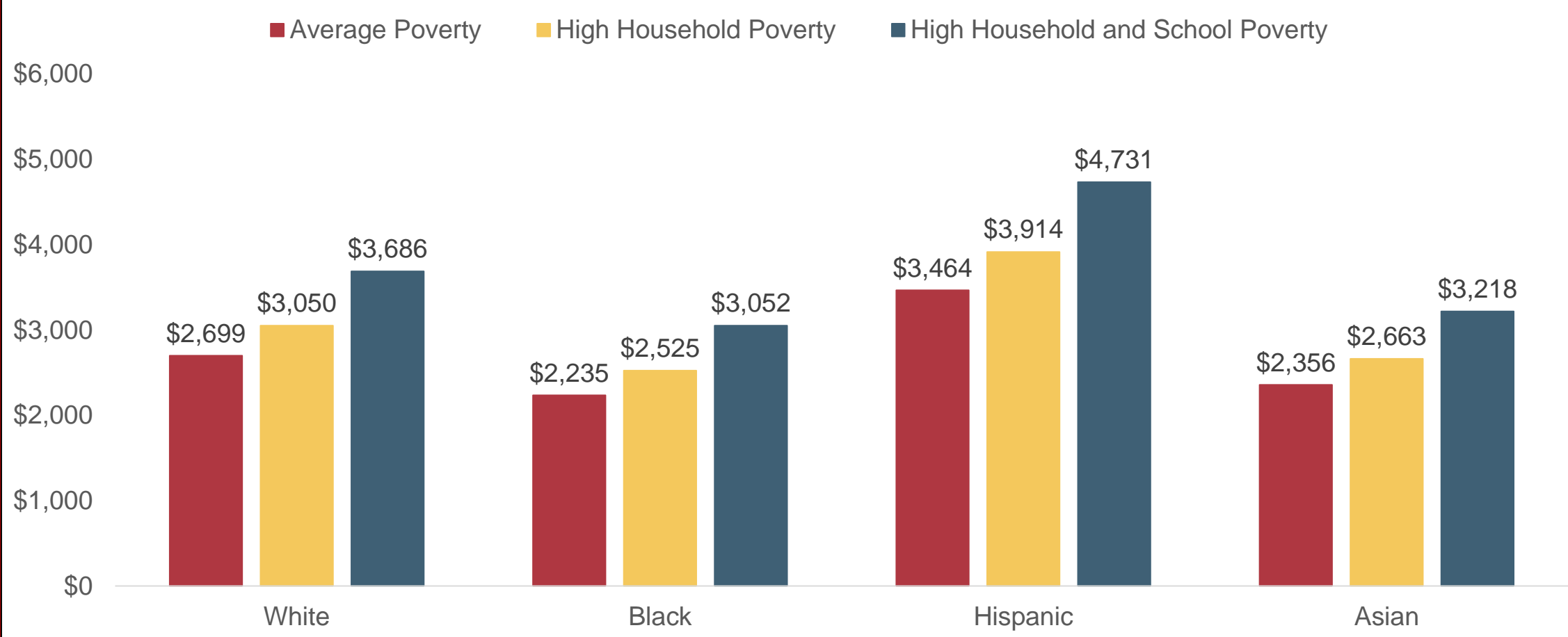
Model-based predictions for students in schools with average racial/ethnic composition.

Summary

Summary of findings

- Students who experienced household poverty for longer periods of time have worse educational outcomes.
- School concentration of poverty, regardless of individual experience, predicts worse educational outcomes.
- **Black-white gaps in standardized test scores and wages persist regardless of poverty.**
- **Black-white gaps in high school graduation and postsecondary enrollment are reversed when controlling for poverty and school composition.**
- **Race plays a larger role in wage outcomes than does poverty.**

Implications for racial/ethnic gaps

- When similarly situated, Blacks and Whites have similar likelihood of graduating on time and enrolling in college – important steps to successful adulthood.

- The problem is that Blacks and Whites are not similarly situated – they are residentially and academically segregated and Blacks experience poverty disproportionately.

- After accounting for household poverty and concentrated poverty, Black-White achievement gaps are partially closed.

- Black-White differences in wages are not explained by prior poverty experiences or school membership; racism in hiring and pay rates could explain wage gaps.
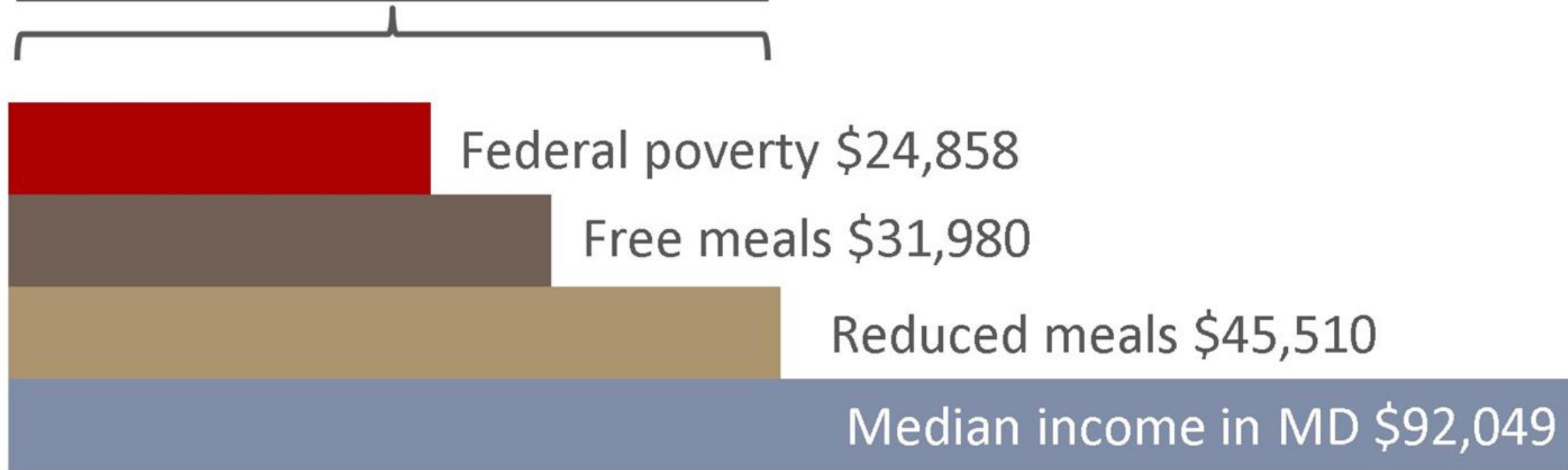
Questions?

- For additional information: MLDSCenter.maryland.gov
- Contact us: MLDS.Center@Maryland.gov

How does the MLDS Center measure race and poverty?

How does the MLDS Center define "poverty"?

MLDS Center "poverty":
Eligible for FARMS

Federal poverty $24,858

Free meals $31,980

Reduced meals $45,510

Median income in MD $92,049

Household income thresholds for a family of 4

How does the MLDS Center define race and ethnicity?

- ❑ Race
  - ❑ Asian
  - ❑ Black
  - ❑ White
  - ❑ Native Hawaiian or Other Pacific Islander
  - ❑ American Indian or Alaska Native
  - ❑ Two or More Races
  - ❑ Unknown
- ❑ Ethnicity
  - ❑ Hispanic or Latino
  - ❑ Not Hispanic or Latino
  - ❑ Unknown
- ❑ For this study we combined these into non-Hispanic Asian, non-Hispanic Black, non-Hispanic White, Hispanic, other
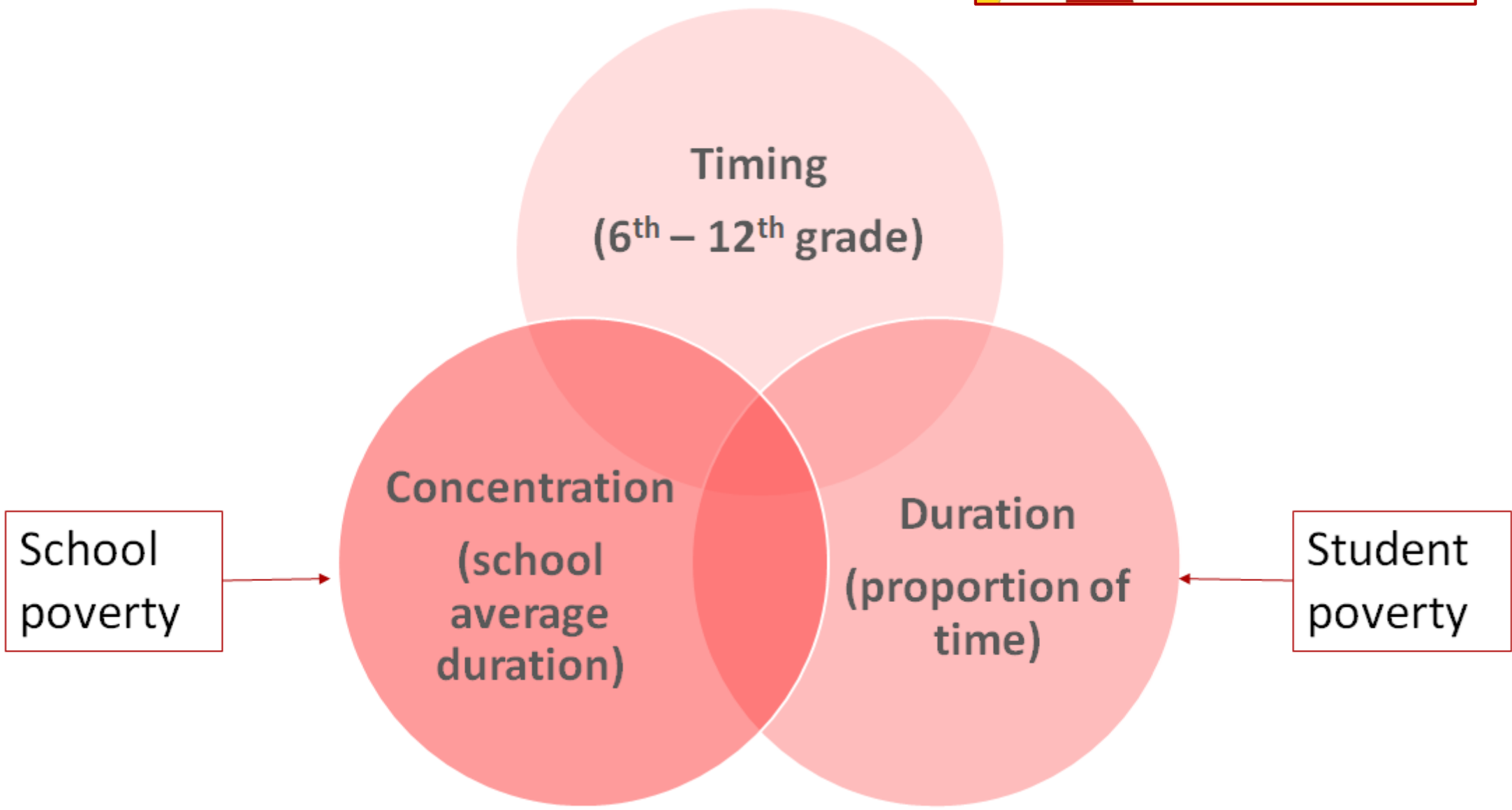
The overlap of race and poverty

On average, Black students are in poverty for most of their adolescence, while White students are not

Average duration of household poverty during grades 6-12, by race/ethnicity

- Asian — 19%
- Black — 57%
- Hispanic — 57%
- White — 17%
- Other — 28%