



MLDS CENTER

Maryland Longitudinal
Data System

Better Data • Informed Choices • Improved Results

The Role of Concentrated
Poverty and Race in Long-
Term Academic and
Workforce Outcomes

Task Force on Reconciliation
and Equity

May 8, 2019

<https://mldscenter.maryland.gov>

v

Thank you to the Chairman and to the members of the task force for inviting us to speak for the commission.

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

This research originated as a request from Senator Bill Ferguson of Baltimore City. Parts of this research were presented previously at the Maryland Commission on Innovation and Excellence in Education.




Overview

- What is the MLDS Center?
- The problem
- How does the MLDS Center measure race and poverty?
- The overlap of race and poverty
- Results from Maryland's data
- Summary, next steps and Q & A

What is the MLDS Center?

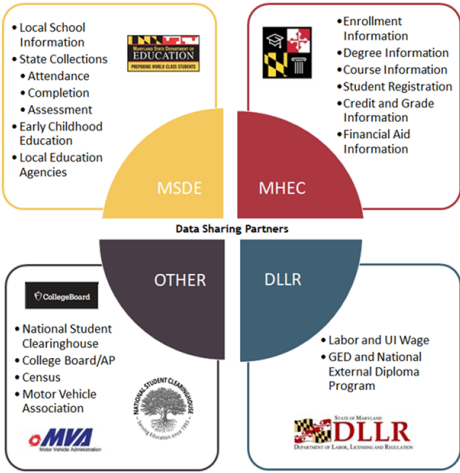
mldscenter.maryland.gov

5



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.



The MLDS Center is an independent unit of State government.

The Center receives and links data from three partner agencies -

1. The Maryland State Department of Education provides data for Maryland public K-12 students
2. The Maryland Higher Education Commission provides data for students attending Maryland 2-year and 4-year public and private colleges
3. The Department of Labor, Licensing and Regulation provides workforce data.

The Center also receives data from the National Student Clearinghouse on out-of-state college enrollments for students who attended 12th grade in Maryland.

The problem

Students in poverty and Black students have worse educational outcomes

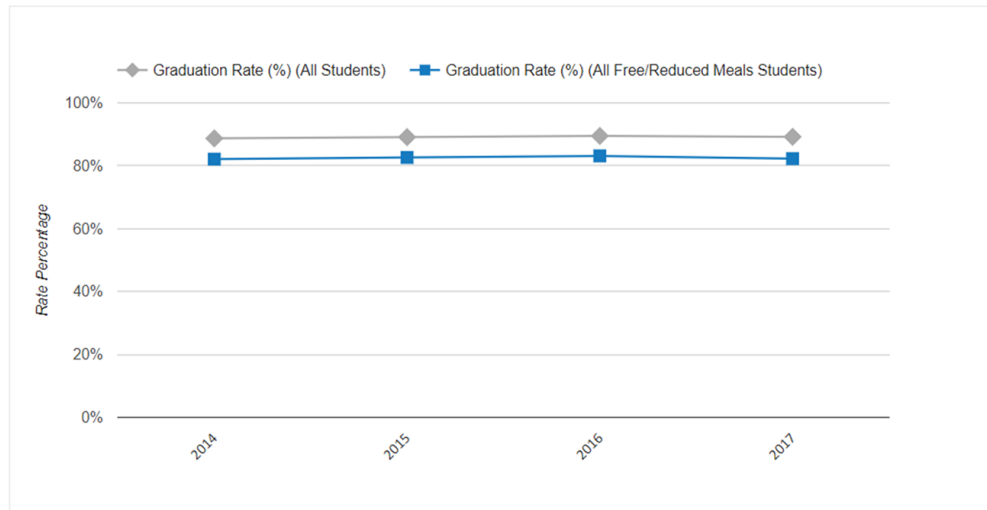
As you're already aware, Maryland is faced with large gaps in educational performance for students living in poverty and for African-American or Black students.

Cohort Graduation Rate Trend Data (2014 - 2017) ⓘ

Data Last Updated: 3/5/2019

Source: mdreportcard.org

7



Filter Results:

Cohort Type: 5-Year Adj Cohort, Gender: All Students, Special Services: FARMS, Race and Ethnicity: All Students

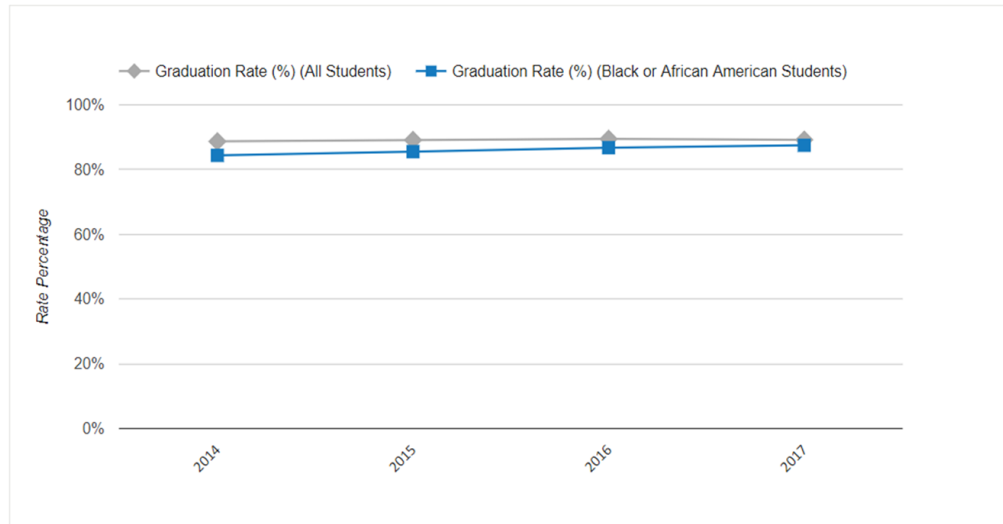
From the Maryland Report Card website published by the Maryland State Department of Education, we see persistent gaps in graduation rates for students eligible for free or reduced-price meals. The overall five-year cohort graduation rate in 2017 was about 89% but for FARMS students it was about 82%.

Cohort Graduation Rate Trend Data (2014 - 2017)

Data Last Updated: 3/5/2019

Source: mdreportcard.org

8



Filter Results:

Cohort Type: 5-Year Adj Cohort, Gender: All Students, Special Services: All Students, Race and Ethnicity: African Am.

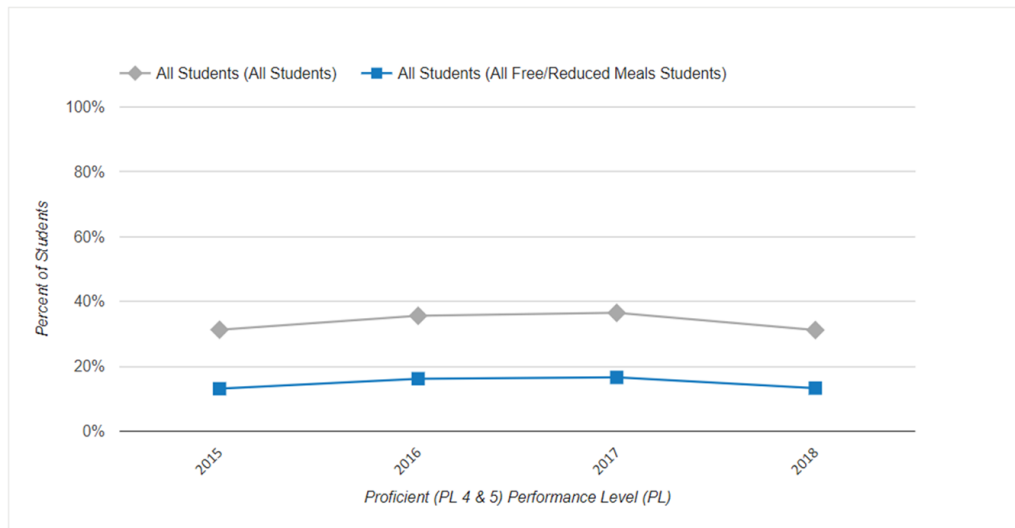
We also see gaps in graduation rates for Black students. The overall five-year cohort graduation rate in 2017 was 89% but for Black students it was 87.5%. This gap has been slowly shrinking between 2014 and 2017.

Mathematics Trend Data (2015 - 2018)

Data Last Updated: 7/30/2018

Source: mdreportcard.org

9



Filter Results:

Assessment Type: Math - Algebra I, Gender: All Students, Special Services: FARMs, Race and Ethnicity: All Students

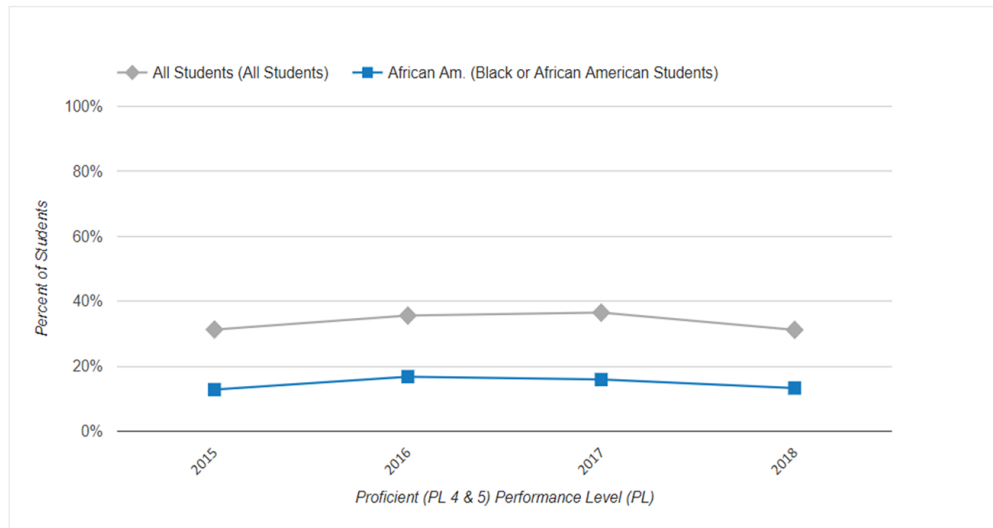
For performance on standardized tests, we see even larger gaps. For example, for the percentage of students proficient on Algebra I, we again see gaps for students in poverty. Overall, 31% of students score proficient or above, whereas only 13% of FARMs students scored proficient or above.

Mathematics Trend Data (2015 - 2018)

Data Last Updated: 7/30/2018

Source: mdreportcard.org

10



Filter Results:

Assessment Type: Math - Algebra I, Gender: All Students, Special Services: All Students, Race and Ethnicity: African Am

We see the exact same gaps in standardized test scores for Black students, with 13% scoring at or above proficient.



How does the MLDS Center measure race and poverty?



How does the MLDS Center define race?

- 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

The MLDS Center receives race information from two of our partner agencies: The Maryland State Department of Education and the Maryland Higher Education Commission.

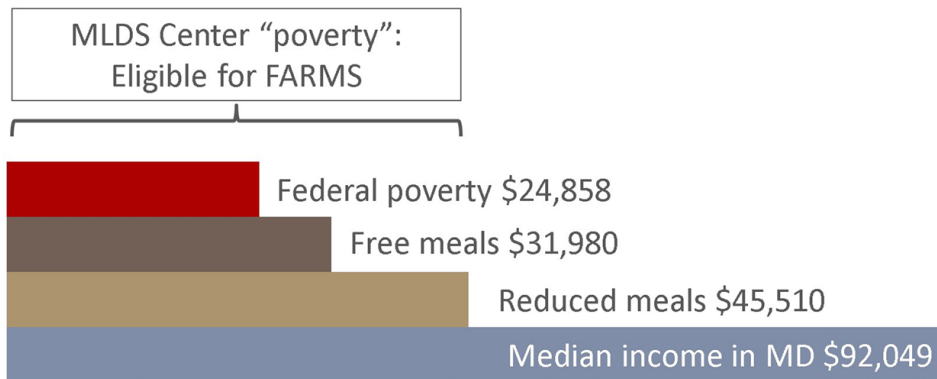
Race is categorized into 6 categories, plus unknown.

Ethnicity is categorized separately from race and is categorized as Hispanic or Latino or Not Hispanic or Latino, plus unknown.

In this study, our modeling approach required us to collapse categories into Black, White, and Other. These values were aggregated to the school level to create school-level racial composition.

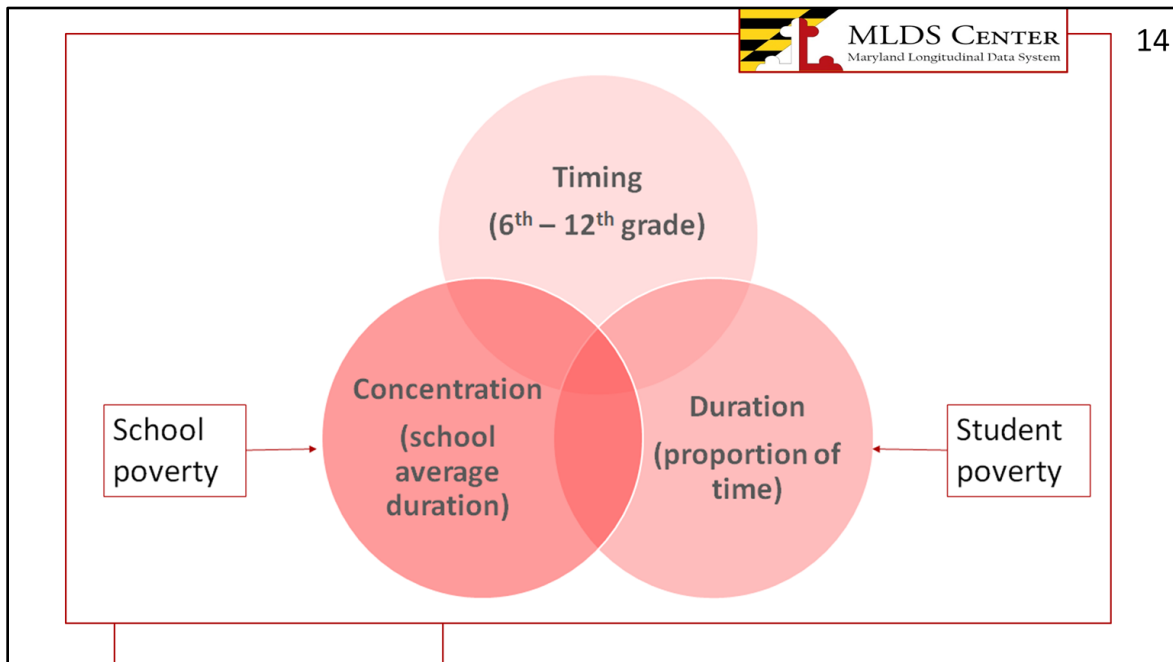


How does the MLDS Center define “poverty”?



Household income thresholds for a family of 4

In the MLDS data, each school enrollment record for each student has a YES/NO flag indicating their eligibility for free- or reduced-price meals. This is the data commonly used to talk about poverty in schools. This flag only indicates whether a student’s household income was below 185% of the federal poverty level at that particular point in time. As you can see here, the threshold for a family of 4 in 2015 was \$45,510.



Prior research has shown that there are 3 distinct aspects of poverty that influence children's development. Our study addresses all 3.

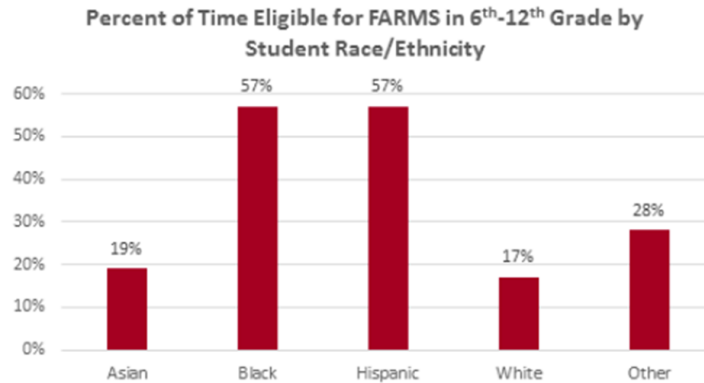
First, timing indicates when the child experienced poverty. For this study, we look at grades 6 - 12.

Second, duration indicates the length of time the child experienced poverty. For this study, we use the proportion of time eligible for free or reduced-price meals. So our student poverty measure captures duration, not just poverty status at a particular point in time.

Third, concentration of poverty indicates the child's school context in terms of the poverty experienced by schoolmates. We use the average duration for all students in the school.

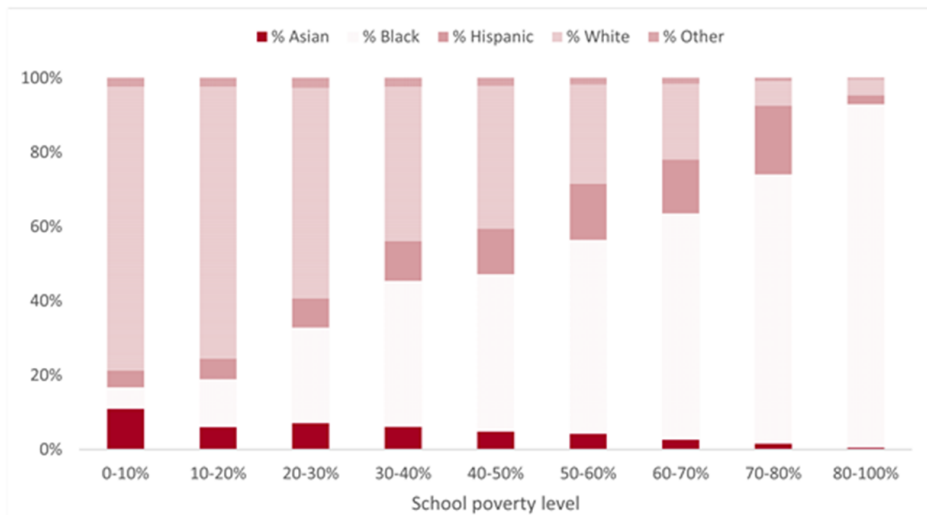


The overlap of race and poverty



- In the United States minority students are disproportionately low-income.
- Using data from the MLDS, we see here that Black and Hispanic students spend on average 57% of their time eligible for FARMS in 6th-12th grades.
- In contrast, White students spend on average 17% of their time eligible for FARMS in 6th-12th grades.

Average School-Level Racial/Ethnic Composition by School-Level Poverty



- ☐ Additionally, in the United States, minority students and low-income students are disproportionately clustered within schools
- ☐ Using data from the MLDS, here, we graph school poverty on the X axis and the racial/ethnic composition of the school is represented by the patterned bars.
- ☐ You can see that as school poverty increases, the proportion of the school population that is Black also increases.
- ☐ This is mostly true for the Hispanic population too, except when reaching the 80-100% school poverty level.



Results from Maryland's data

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

With data from the MLDS, which includes all public school students across the state, and links their grades 6 through 12 school enrollment records to their postsecondary and workforce records, we are able to conduct advanced statistical modeling using a multilevel approach with students nested within schools, in order to disentangle the distinct roles of student and school poverty as well as student race and ethnicity and school composition. We looked at a number of outcomes: scores on standardized tests, graduating from high school, enrolling in postsecondary, and wages earned in the first year after high school.



Overview of findings

- Students who experienced 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**

Here is a brief overview of our findings.

First, we consistently found that students' own individual experiences with poverty were significantly related to educational outcomes. Controlling for race/ethnicity and school environment, students with longer durations of poverty are predicted to have lower test scores, to be less likely to graduate from high school, and less likely to enroll in college.

Second, we found that apart from students' individual experiences with poverty, attending schools with higher concentrations of poverty led to worse educational outcomes.

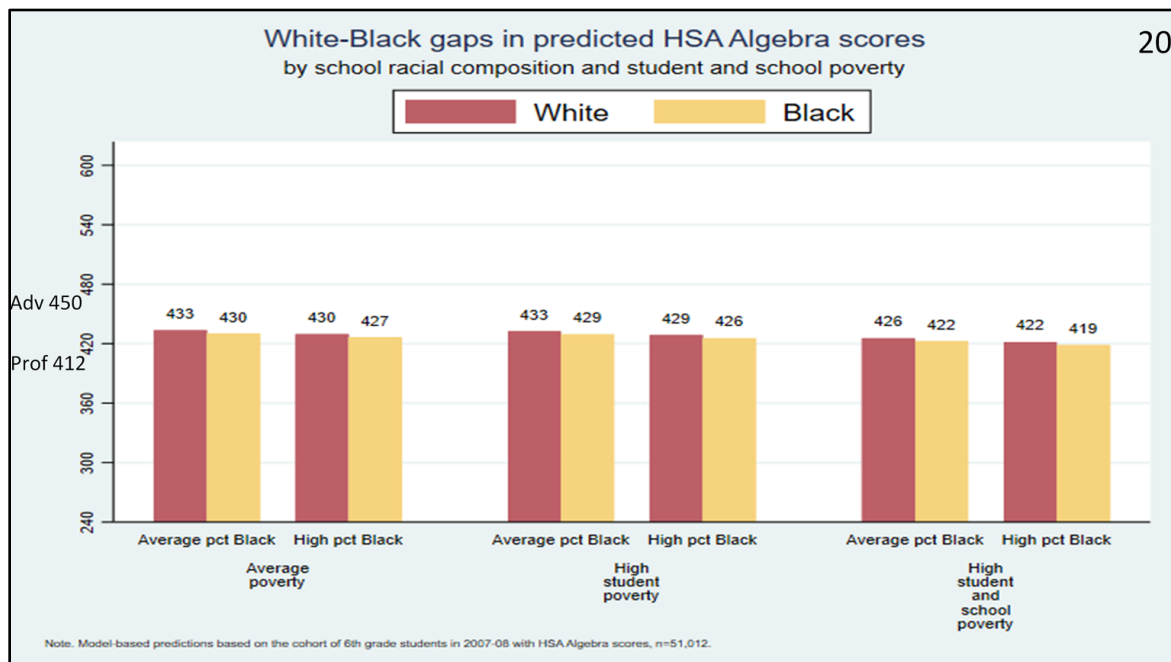
Third, we found that when it comes to standardized tests, Black students – after controlling for individual and school poverty, and school composition – had persistently lower test scores and lower post-high school wages than similar white students.

Finally, we found – surprisingly – that when it comes to other outcomes besides standardized test scores and wages, Black students were more likely to complete high school and enroll in college than white students with similar poverty histories attending similar schools.



Results: Standardized test scores

First we'll discuss results for standardized test scores. We looked at the High School Assessments in Algebra and English – these were the high school tests consistently required for graduation for this cohort. We also found similar results for other standardized tests (PSAT and SAT).



Results for HSA Algebra are a good example of what we found regarding standardized test scores.

After controlling for student and school poverty, Black students have lower predicted scores, compared to white students with similar poverty backgrounds in similar schools.

Students in schools with larger Black populations also have lower predicted scores, compared to similar students in schools with smaller Black populations.

School percent Black was negatively related to HSA Algebra but not significant for HSA English.



Predicted standardized test scores: Summary

Controlling for poverty and race/ethnicity:

1. Student poverty: Students with longer duration of poverty are predicted to have lower scores
2. School poverty: Students who attend schools with higher concentrations of poverty are predicted to have lower scores
3. Student race/ethnicity: Black students are predicted to have lower scores than white students with similar poverty backgrounds
4. School race/ethnicity composition: Students in schools with larger Black populations are predicted to have lower scores on HSA Algebra than similar students in schools with smaller Black populations

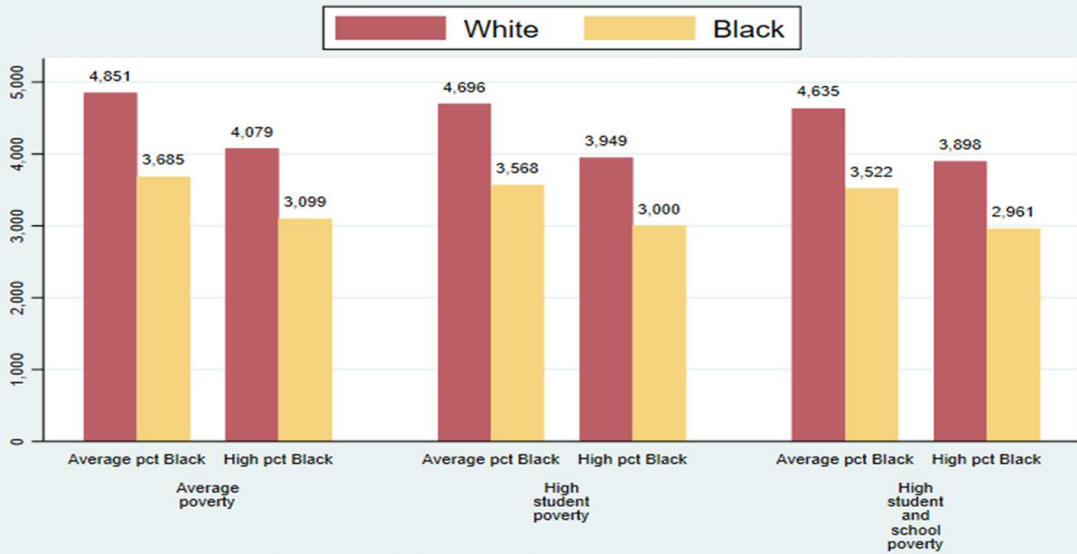


Results: Wages for high school graduates not enrolled in college

Next, let's move on to results for wages. It is important to note that our data only include the dollar amount of wages earned, per person per quarter. Our data do not include the number of hours worked. So if an employer reported that an individual earned \$2,000 in a quarter, we do not know if that person was paid \$100 an hour for 20 hours of work, or \$10 an hour for 200 hours of work. We only know the total dollar amount. Also, we only have data for employers subject to Unemployment Insurance. We do not have data from the federal government, the military, or independent contractors.

White-Black gaps in predicted MD wages - not enrolled in postsecondary
by school racial composition and student and school poverty

23



Note. Model-based predictions based on the cohort of 6th grade students in 2007-08 who graduated from high school on time and were not enrolled in postsecondary, n=8,529.

These are the predicted total wages for the four quarters after high school, for high school graduates who were not enrolled in college.

For these graduates, race was a much larger factor in wages than student or school poverty.

Black students have lower predicted wages, compared to white students with similar poverty backgrounds who had attended similar schools.

Students who had attended schools with larger Black populations also have lower predicted wages, compared to similar students who had attended schools with smaller Black populations.



Wages - not enrolled in college: Summary

Controlling for poverty and race/ethnicity:

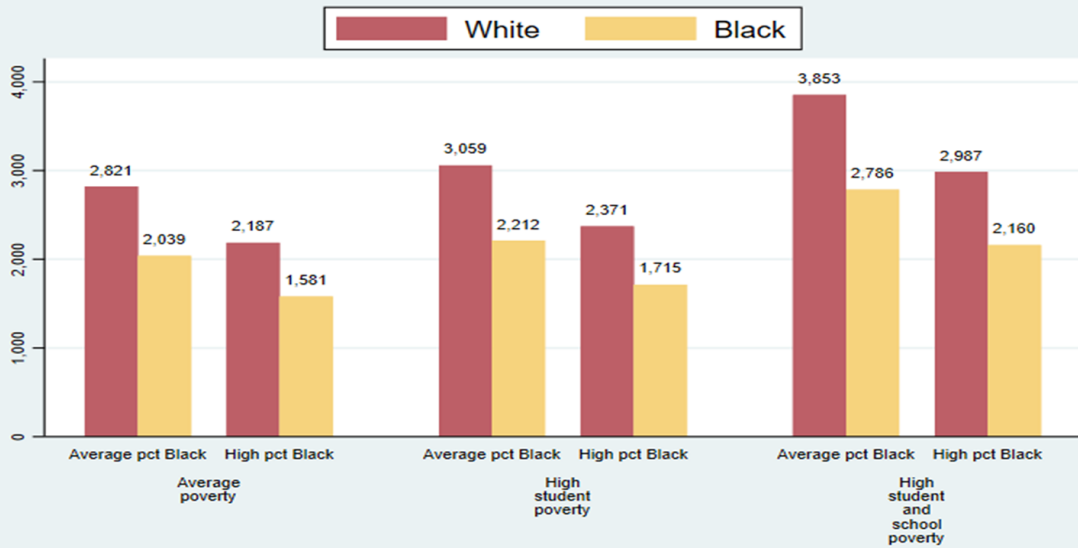
1. Student poverty: Students with longer duration of poverty are predicted to have slightly lower wages
2. School poverty: Students who attend schools with higher concentrations of poverty are predicted to have about the same wages
3. Student race/ethnicity: Black students are predicted to have 28% lower wages than white students with similar poverty backgrounds
4. School race/ethnicity composition: Students in schools with larger Black populations are predicted to have lower wages than similar students in schools with smaller Black populations

Results: Wages for high school graduates enrolled in college in Maryland

Next we have the wages for high school graduates who were enrolled in college in Maryland. Again, unfortunately, we do not know how many hours they worked, we only know the total wages earned.

White-Black gaps in predicted MD wages - enrolled in MD postsecondary
by school racial composition and student and school poverty

26



For these graduates enrolled in college in Maryland, we again see that Black students have lower predicted wages, compared to white students with similar poverty backgrounds who had attended similar schools. Additionally, students who had attended schools with larger Black populations also have lower predicted wages, compared to similar students who had attended schools with smaller Black populations.

Student and school poverty play more of a role here than we saw previously with the graduates who were not enrolled in college.



Wages - enrolled in college in Maryland: Summary

Controlling for poverty and race/ethnicity:

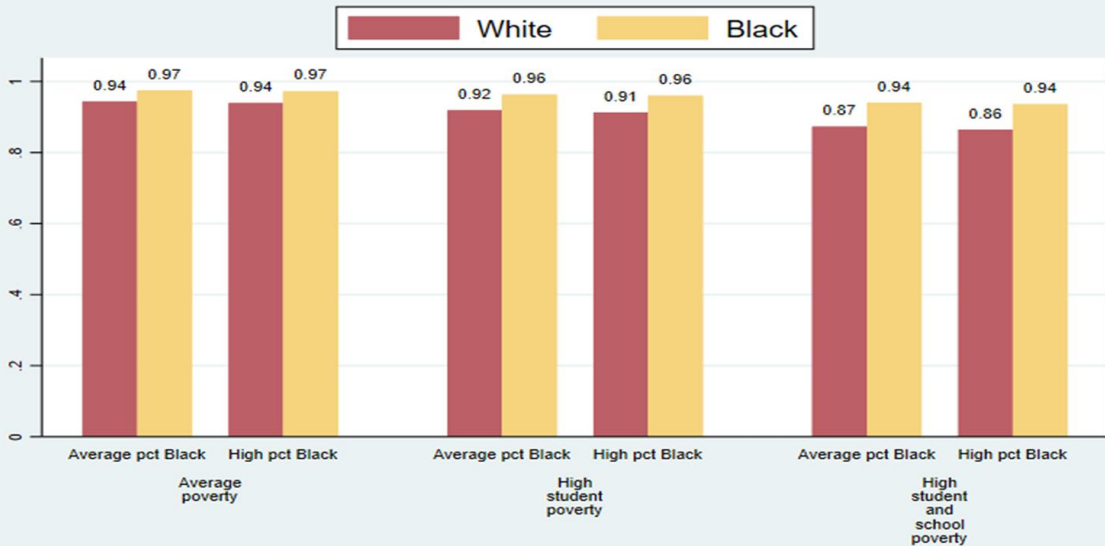
1. Student poverty: Students with longer duration of poverty are predicted to have higher wages
2. School poverty: Students who attend schools with higher concentrations of poverty are predicted to have higher wages
3. Student race/ethnicity: Black students are predicted to have 32% lower wages than white students with similar poverty backgrounds
4. School race/ethnicity composition: Students in schools with larger Black populations are predicted to have lower wages than similar students in schools with smaller Black populations



Results: High school graduation and postsecondary enrollment

White-Black gaps in predicted probability of ever graduating from high school
by school racial composition and student and school poverty

29



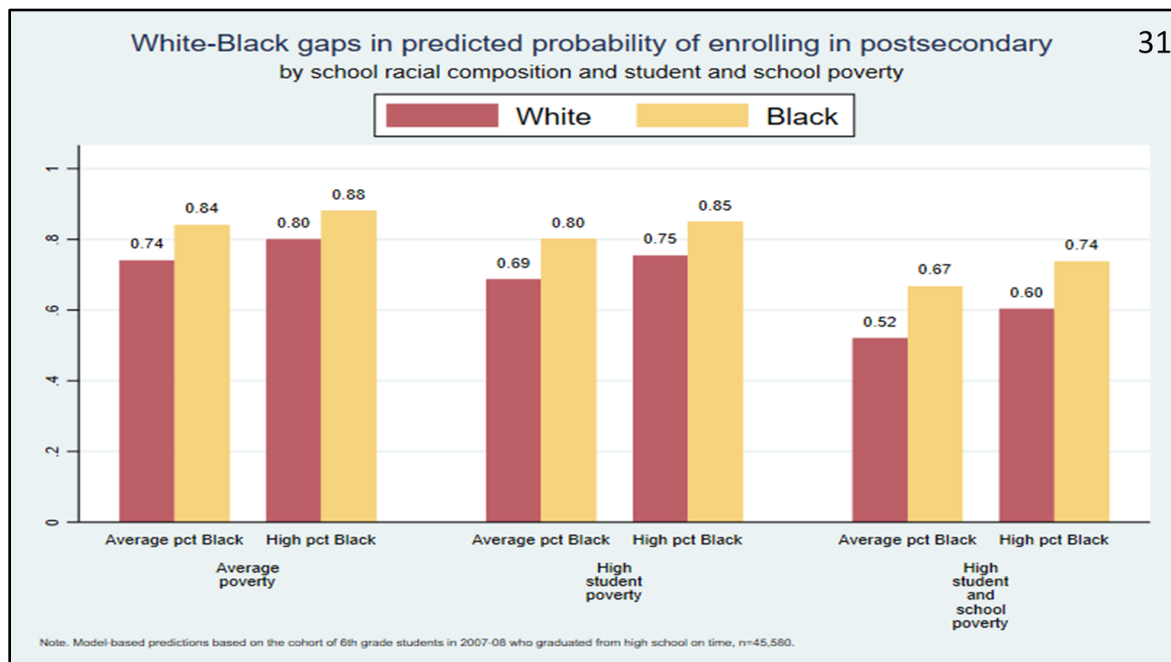
Here are the model-based predictions for likelihood to ever graduate from high school. The method used here provides us with the ability to compare apples to apples. The multilevel model controls for school membership and student and school factors. After doing so, we find that Black students are significantly more likely than similar white students in similar schools to graduate from high school. The size of the Black population in the school does not make a significant difference. Both student and school poverty play a negative role.



Predicted HS graduation ever: Summary

Controlling for poverty and race/ethnicity:

1. Student poverty: Students with longer duration of poverty are less likely to ever graduate from high school
2. School poverty: Students who attend schools with higher concentrations of poverty are less likely to ever graduate from high school
3. Student race/ethnicity: Black students are **more** likely to ever graduate from high school than white students with similar poverty backgrounds
4. School race/ethnicity composition: Students in schools with larger Black populations have about the same likelihood to ever graduate from high school than similar students in schools with smaller Black populations



Next, we looked at predicted likelihood of enrolling in postsecondary education. Our data include enrollment in public and independent state-aided 2-year and 4-year colleges and universities in Maryland as well as public and private colleges and universities outside Maryland. Due to data limitations, we could only look at college enrollment within one year after finishing high school, and only for those who graduated from high school on time.

We again see that Black students – after controlling for poverty and school composition – have slightly better outcomes – here they are more likely to enroll in college than similar white students.

Again we see that both student and school poverty play a negative role.



Predicted postsecondary enrollment: Summary

Controlling for poverty and race/ethnicity:

1. Student poverty: Students with longer duration of poverty are less likely to enroll in postsecondary within 1 year of on-time high school graduation
2. School poverty: Students who attend schools with higher concentrations of poverty are less likely to enroll in postsecondary
3. Student race/ethnicity: Black students are **more** likely to enroll in postsecondary than white students with similar poverty backgrounds
4. School race/ethnicity composition: Students in schools with larger Black populations are **more** likely to enroll in postsecondary than similar students in schools with smaller Black populations



Summary

So, to wrap things up, let's briefly review our findings to date.



Summary of findings

- Students who experienced 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**



Questions?

- Contact us: MLDS.Center@Maryland.gov