Introduction

Segregation & Educational Inequity in Pennsylvania

Segregation and educational inequity are harmful to students and weaken school systems. Researchers have found that racially and socioeconomically diverse schools and classrooms provide cognitive and academic benefits to all students.[1] Increasing school funding in poor school districts has been shown to increase years of completed education, improve earnings, and reduce poverty.[2] Closing the achievement gap between white children and black and Hispanic children would boost the US economy by an average of $551 billion per year and generate tax revenues that would dramatically outpace any costs associated with necessary reforms.[3] Yet 62 years after *Brown v. Board of Education* rendered the doctrine of "separate but equal" unconstitutional, Pennsylvania schools are among the most deeply segregated and highly inequitable in the nation.

Even with school segregation on the rise across the country,[4] the degree of segregation in Pennsylvania schools stands out. The rate at which black and Hispanic students attend schools that are over 90% non-white are the 8th and 11th highest in the country, respectively.[5] A recent report found that Pennsylvania is home to six of America's 50 most starkly segregated school district borders, which separate wealthy, predominately white districts from under-resourced schools that serve their mostly non-white neighbors.[6]

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[1] The Century Foundation (2016). The benefits of socioeconomically and racially integrated schools and classrooms. Retrieved from https://tcf.org/content/facts/the-benefits-of-socioeconomically-and-racially-integrated-schools-and-classrooms/; Card, D., & Rothstein, J. (2007). Racial segregation and the black-white test score gap. *Journal of Public Economics*, *91*(11), 2158-2184. Retrieved from http://www.nber.org/papers/w12078.pdf.

[2] Jackson, C.K., Johnson, R.C. & Persico, C. (2015). The effects of school spending on educational and economic outcomes: Evidence from school finance reforms (No. w20847). *National Bureau of Economic Research*. Retrieved from http://socrates.berkeley.edu/~ruckerj/QJE_resubmit_final_version.pdf.

[3] Lynch, R.G., & Oakford, P. (2014). The economic benefits of closing economic achievement gaps: promoting growth and strengthening the nation by improving the educational outcomes of children of color. *Center for American Progress*. Retrieved from https://cdn.americanprogress.org/wp-content/uploads/2014/11/WinningEconomyReport2.pdf.

[4] Orfield, G., Ee, Jongyeon, Frankenberg, Erika, & Siegel-Hawley, Genevieve (2016). *Brown* at 62: School segregation by race, poverty, and state. *The Civil Rights Project/Proyecto Derechos Civiles* at UCLA. Retrieved from https://civilrightsproject.ucla.edu/research/k-12-education/integration-and-diversity/brown-at-62-school-segregation-by-race-poverty-and-state/Brown-at-62-final-corrected-2.pdf.

[5] Orfield, G., Ee, Jongyeon, Frankenberg, Erika, & Siegel-Hawley, Genevieve (2016). *Brown* at 62: School segregation by race, poverty, and state. *The Civil Rights Project/Proyecto Derechos Civiles* at UCLA. Retrieved from https://civilrightsproject.ucla.edu/research/k-12-education/integration-and-diversity/brown-at-62-school-segregation-by-race-poverty-and-state/Brown-at-62-final-corrected-2.pdf.

[6] EdBuild (2016). Fault lines: America's most segregating school district borders. Retrieved from https://s3.amazonaws.com/edbuild-public-data/data/fault+lines/EdBuild-Fault-Lines-2016.pdf.

Meanwhile, school funding in Pennsylvania is ranked as either the most,[7] or among the most,[8] inequitable in the country. Two recent studies by David Mosenkis of POWER documented that Pennsylvania's state funding of public education is also plagued by racial disparities. In 2014, Mosenkis found "dramatically higher per-student [state] funding in districts with predominantly white populations compared to economically similar districts with more racial diversity."[9] In a second study released in July 2016, Mosenkis found that each year Pennsylvania school districts with the fewest white students are shortchanged state funding by almost $2,000 per pupil, while the districts with the most white students receive about $2,000 per pupil more than their "fair share" as determined by Pennsylvania's newly-enacted and bi-partisan supported state funding formula.[10]

Pennsylvania schools also generate among the largest racial and economic achievement gaps in the country. According to an analysis of Pennsylvania's 2013 NAEP scores by the RAND Corporation, the white–black and white–Hispanic achievement gaps in Pennsylvania equate to roughly three years of additional learning for white students compared to black and Hispanic students in Pennsylvania.[11]

Civil Rights Data Collection: A Tool to Examine Educational Disparities

The US Department of Education releases its Civil Rights Data Collection (CRDC) every other year. The CRDC is used by the US Department of Education's Office of Civil Rights in its enforcement and monitoring efforts. The data is also a tool for other offices and federal agencies, policymakers, researchers, educators and school officials to analyze student equity and identify where students are being denied educational opportunities.[12]

The 2013-14 dataset was released in June of 2016 and includes key education and civil rights indicators about every public school in the nation. The CRDC data covers a variety of factors related to educational equity and quality, including: (1) student discipline, (2) training and experience of teachers and other school personnel, (3) the availability of math/science and AP courses, (4) the availability of programs such as dual enrollment and gifted and talented education, and (5) chronic student absenteeism. These educational opportunities and experiences of students are disaggregated by multiple subgroups, including race.[13]

In this report, we analyze the latest CRDC indicators to compare how the educational opportunities and experiences of Pennsylvania's black and Hispanic students differ from those of white

[7] Brown, Emma (2015). Pa. schools are the nation's most inequitable. The new governor wants to fix that. *The Washington Post*. Retrieved from https://www.washingtonpost.com/local/education/pa-schools-are-the-nations-most-inequitable-the-new-governor-wants-to-fix-that/2015/04/22/3d2f4e3e-e441-11e4-81ea-0649268f729e_story.html; Brown, E. (2015). In 23 states, richer school districts get more local funding than poorer districts. *The Washington Post*. Retrieved from https://www.washingtonpost.com/news/local/wp/2015/03/12/in-23-states-richer-school-districts-get-more-local-funding-than-poorer-districts/?tid=a_inl.

[8] http://www.schoolfundingfairness.org/National_Report_Card_2016.pdf.

[9] Mosenkis, D. (2014). Racial bias in Pennsylvania's funding of public schools. *The Philadelphia Public School Notebook*. Retrieved from http://thenotebook.org/uploads/files/733868014641451895-pa-school-funding-racial-bias.pdf.

[10] Mosenkis, D. (2016). Systemic racial bias in latest Pennsylvania school funding. *Philadelphians Organized to Witness, Empower, and Rebuild*. Retrieved from http://powerinterfaith.org/wp-content/uploads/2016/08/PA-Racial-School-Funding-Bias-July-2016-1-1.pdf.

[11] Karoly, L. A. (2015). The economic impact of achievement gaps in Pennsylvania's public schools. *RAND Corporation*. Retrieved from http://williampennfoundation.org/sites/default/files/reports/RAND_RR1159.pdf.

[12] Civil Rights Data Collection (2011-2012). Retrieved from http://ocrdata.ed.gov/Overview

[13] U.S. Department of Education (2012). *Civil Rights Data Collection*. See http://ocrdata.ed.gov/downloads/UserGuide.pdf

students.[14] We also compare how the racial opportunity gaps in Pennsylvania schools stack up against schools in our neighboring states and across the nation. The disparities we highlight in this report provide important new details related to the negative impact of Pennsylvania's already well-documented problems with racial segregation and disparities in school funding and student outcomes.

Summary of Findings: Pennsylvania's Opportunity Gaps

Our analysis reveals stark disparities in access to a wide range of educational opportunities in Pennsylvania. Specifically we found that:

- Black and Hispanic students in Pennsylvania fare worse than white students in Pennsylvania on all 17 of the CRDC indicators of educational opportunities we examined.
- While racial disparities in access to educational opportunities are a problem all across the region and nation, on most measures the degree of disparity between racial groups is larger in Pennsylvania than in other states in our region, and nationally.
- White students in Pennsylvania schools on average receive better educational opportunities than white students receive in schools in the region and nation.
- In contrast, black and Hispanic students in Pennsylvania schools receive on average worse educational opportunities than black and Hispanic students respectively receive in schools across the region and the nation.

We summarize these findings in Tables 1 and 2 below, with detailed findings under each individual indicator in the pages that follow. In both tables, we indicate whether Pennsylvania fares worse than both the region and nation (red Keystone), better than both the region and nation (green Keystone), or somewhere in-between the region and nation (yellow Keystone). In Table 1 we compare the size of the opportunity gaps in the CRDC indicators between black and white students and Hispanic and white students in Pennsylvania schools to the size of the corresponding gaps between black and white students and Hispanic and white students in schools across the geographic region and nation.[15]

[14] Asian students are the only other racial subgroup that makes up a sizable portion of the CRDC, but we do not present this data in this report. A preliminary analysis of the data revealed that, for the majority of indicators in the CRDC, there were not meaningful disparities between Asian and white students in either Pennsylvania, the region, or the nation. This is consistent with other research, which has also found that educational indicators for certain subgroups of Asian students (in particular Southeast Asian students from Laos, Cambodia, and Vietnam) are often closer to black and Hispanic students. See Joo, N., Reeves, R., & Rodriguez, E. (2016). Asian-American success and the pitfalls of generalization. Brookings Institute. Retrieved from: https://www.brookings.edu/research/asian-american-success-and-the-pitfalls-of-generalization/; Ryan, C. & Bauman, K. (2016). Educational Attainment in the United States: 2015. United States Census Bureau. Retrieved from: https://www.census.gov/content/dam/Census/library/publications/2016/demo/p20-578.pdf. Data on these particular subgroups of Asian students are not reported in the CRDC.

[15] For the geographic region we include all the states bordering Pennsylvania: NY, NJ, DE, MD, WV, and OH.

Table 1. The Size of Opportunity Gaps: Pennsylvania vs. the Region and Nation

	INDICATORS	HOW DOES PENNSYLVANIA COMPARE?	
		Black-White Opportunity Gap in PA vs. Black-White Opportunity Gap in the Region and Nation	Hispanic-White Opportunity Gap in PA vs. Hispanic-White Opportunity Gap in the Region and Nation
Academics	Access to Dual Enrollment		
	Access to Gifted & Talented		
	Enrollment in Gifted & Talented		
	Access to AP courses		
	Enrollment in AP courses		
	Access to Calculus		
	Access to Physics		
	Access to Chemistry		
	Enrollment in Calculus		
	Enrollment in Physics		
	Enrollment in Chemistry		
School Climate Personnel	Access to full-time counselor		
	Student to counselor ratio		
	Teachers with 2+ years of experience		
	Out of school suspensions		
	Retention		
	Chronic absenteeism		

Key

 Pennsylvania better than region (NY, NJ, DE, MD, WV, and OH) and nation

 Pennsylvania better than nation, worse than region

 Pennsylvania better than region, worse than nation

 Pennsylvania worse than region and nation

As shown in Table 1:

- The size of the black-white gaps in Pennsylvania are larger than the black-white gaps in both the region and the nation on 11 of 17 CRDC indicators of opportunity.
- The size of the black-white gaps in Pennsylvania are between the region and nation in 2 and smaller than both the region and the nation in 4 of the CRDC indicators.
- The size of the Hispanic-white gaps in Pennsylvania are larger than the Hispanic-white gaps in both the region and the nation in 11 of 17 CRDC indicators of opportunity
- The size of the Hispanic-white gaps in Pennsylvania are between the region and nation in 5 and smaller than both the region and the nation in 1 of the CRDC indicators.

In Table 2 below, we compare whether white, black, and Hispanic students in Pennsylvania, regardless of the size of the in-state racial opportunity gaps, experience higher or lower access than white, black, and Hispanic students respectively receive in schools across the region and nation.

Table 2. Opportunities in Pennsylvania Compared to the Region and Nation

	INDICATORS	HOW DOES PENNSYLVANIA COMPARE? White Students in PA vs. White Students in Region and Nation	Black Students in PA vs. Black Students in Region and Nation	Hispanic Students in PA vs. Hispanic Students in Region and Nation
Academics	Access to Dual Enrollment			
	Access to Gifted & Talented			
	Enrollment in Gifted & Talented			
	Access to AP courses			
	Enrollment in AP courses			
	Access to Chemistry			
	Access to Physics			
	Access to Calculus			
	Enrollment in Chemistry			
	Enrollment in Physics			
	Enrollment in Calculus			
School Climate Personnel	Access to full-time counselor			
	Student to counselor ratio			
	Teachers with 2+ years of experience			
	Out of school suspensions			
	Retention			
	Chronic absenteeism			

Key

 Pennsylvania better than region (NY, NJ, DE, MD, WV, and OH) and nation

 Pennsylvania better than nation, worse than region

 Pennsylvania better than region, worse than nation

 Pennsylvania worse than region and nation

As shown in Table 2:

- White students in Pennsylvania have better access to 12 out of 17 indicators than do white students in both the region and nation.
- In contrast, black students in Pennsylvania have worse access to 11 indicators than black students in the region and the nation.
- Hispanic students in Pennsylvania have worse access to 8 indicators than Hispanic students in the region and the nation.

Definitions

The term "gap" is used in this report to refer to the difference between the share of white students and the share of black or Hispanic students identified as having access to a CRDC indicator. There are only a few instances (none of which occur in Pennsylvania) in which the gap is negative, indicating that students of color have either a higher rate of experiencing a good outcome or a lower rate of experiencing a bad outcome.

"Likelihood" is calculated by dividing one proportion from another. For example, when we say that white students in Pennsylvania are 1.4 times as likely as black students to attend a school that offers Calculus, that number is simply 91% - the proportion of white students in Pennsylvania who attend a school that offers Calculus – divided by 67% - the proportion of black students in Pennsylvania who attend a school that offers Calculus.

Detailed Findings

Our full findings are organized into three broad categories: access to rigorous academics, access to counselors and experienced teachers, and access to a positive school climate. Detail on our methodology and a discussion of data limitations are provided in the Technical Appendix.

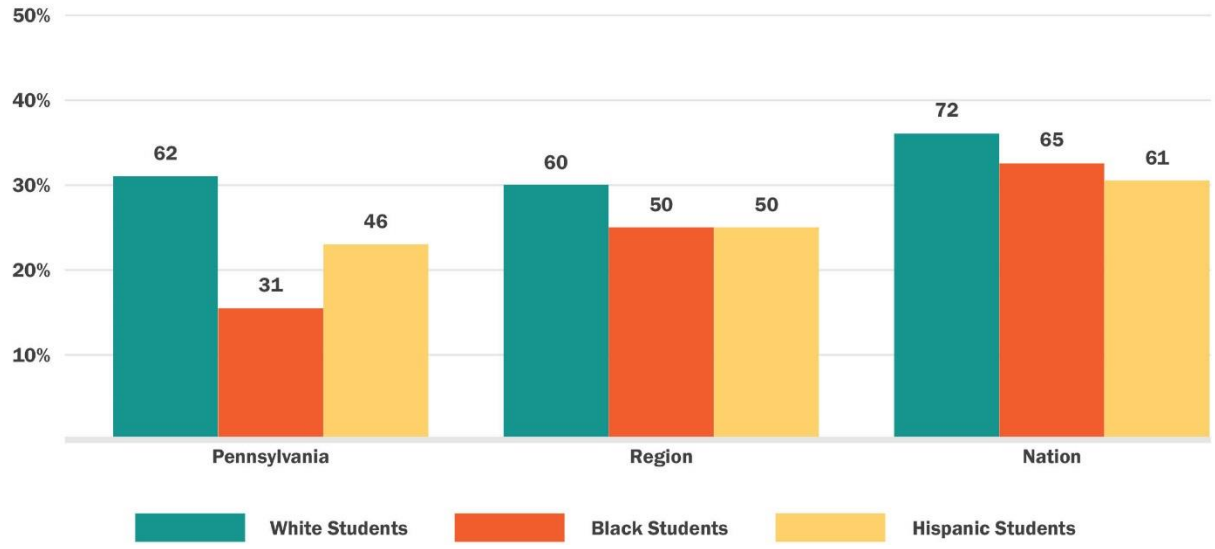
Access to Rigorous Academics

Below we examine gaps in access to academic programs and courses which have demonstrated outcomes on student success. These rigorous academic offerings include dual enrollment programs, gifted and talented programs, AP courses, and advanced math and science offerings such as Chemistry, Physics, and Calculus. When provided in the CRDC data, we analyze both the rates at which students have *access* to these programs (i.e. attend a school that provides the program) and the rates at which students are actually *enrolled* in those programs.

Dual Enrollment

Dual enrollment programs, which allow high school students to simultaneously enroll in college courses, have been shown to benefit underachieving students and those who are underrepresented in higher education. Students who participate are more likely than similar students to graduate from high school, enroll in college, and persist in college.[16] The CRDC data is useful to determine which students attend a school that offers dual enrollment, but does not report actual enrollment in a dual enrollment program by race.

Figure 1. Proportion of students attending a school that offers dual enrollment



Findings:

- There are larger opportunity gaps in access to dual enrollment for black and Hispanic students in Pennsylvania than in both the region and the nation.
- Black students in Pennsylvania are half as likely to have access to dual enrollment programs as are their white peers in Pennsylvania.
- Hispanic students in Pennsylvania are about a third less likely to have access to dual enrollment as white students.
- Both black and Hispanic students in Pennsylvania fare worse than black and Hispanic peers in the region and the nation.

[16] Hughes, K. L., Rodriguez, O., Edwards, L., & Belfield, C. (2012). Broadening the benefits of dual enrollment community. *Community College Research Center*, Teacher's College, Columbia University. Available at http://files.eric.ed.gov/fulltext/ED533756.pdf

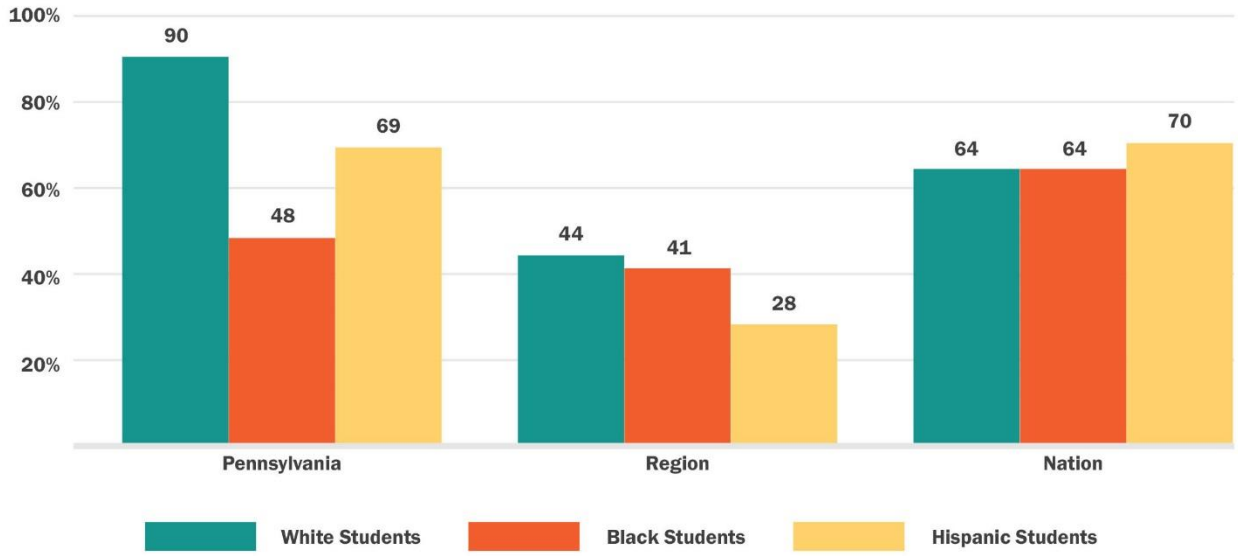
Gifted and Talented Programs

Gifted and Talented Education (GTE) programs are defined by the federal government as those programs that offer additional services or activities to students who demonstrate high achievement capability, in order to fully develop those capabilities.[17] Below we provide two measures of educational opportunity related to these programs: Access to GTE, and enrollment in these programs.

Access to Gifted and Talented Education

Nationwide, black and Hispanic students are underrepresented in GTE programs.[18] This underrepresentation may be a result of differential access to schools that offer GTE. By law, Pennsylvania schools must provide access to GTE.[19] However, funding cuts have left cash-strapped districts like Philadelphia, which serves a large proportion of non-white students, unable to deliver on this mandate.[20]

Figure 2. Proportion of students that attend a school with a GTE program



Findings:

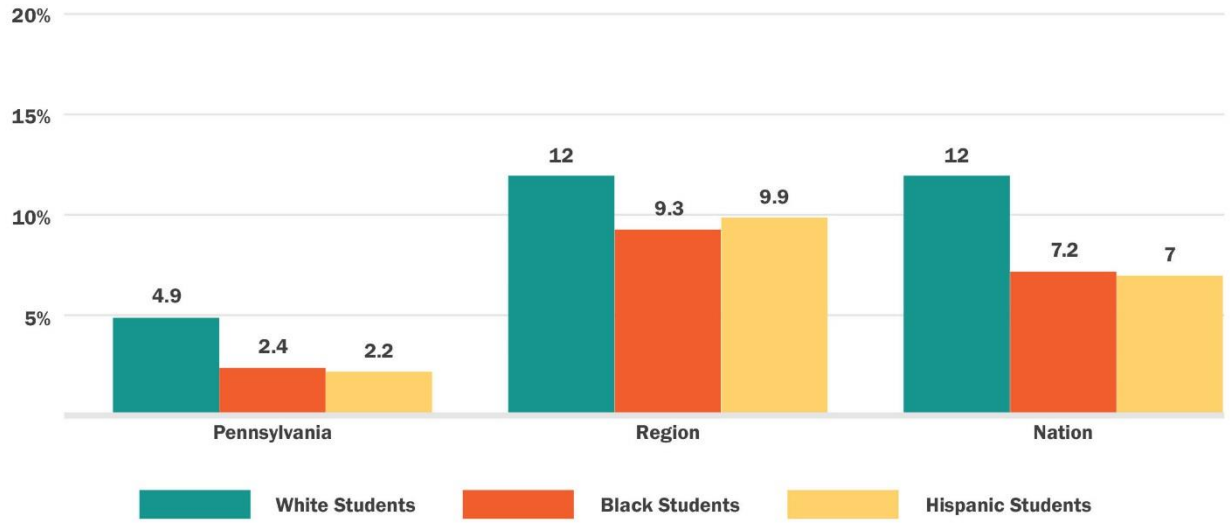
- In Pennsylvania, white students are almost twice as likely to attend a school with GTE as black students (90% versus 48%). This gap is nearly nonexistent for the region and the nation.
- White students are 1.3 times as likely to attend a school that has a GTE program as Hispanic students (90% compared to 69%) in Pennsylvania. This gap is larger in Pennsylvania than it is in the region and in the nation.
- White students in Pennsylvania are more likely to attend a school with GTE than their white peers regionally and nationally.
- Black and Hispanic students have better access than their peers regionally, but worse than black and Hispanic students nationally.

[19] National Association for Gifted Children. Retrieved from http://www.nagc.org/resources-publications/resources/definitions-giftedness
[18] Dynarski, S. (2016). Why talented Black and Hispanic students can go undiscovered. *The New York Times*. Retrieved from http://www.nytimes.com/2016/04/10/upshot/why-talented-black-and-hispanic-students-can-go-undiscovered.html
[19] 22 Pa. Code § 16.1 (available at http://www.pacode.com/secure/data/022/chapter16/s16.21.html).
[20] Socolar, P. (2011). What gets cut, what gets spared. *The Notebook*. Retrieved from http://thenotebook.org/articles/2011/04/27/what-gets-cut-what-gets-spared.

Enrollment in GTE

How schools measure a student's "giftedness" varies from district to district and state to state, but in most cases the first step towards GTE identification is nomination by a teacher and/or parent. Some of the underrepresentation by race in GTE may be due to identification bias. Studies have shown that teachers are more likely to nominate a student for GTE if that student is of the same race.[21]

Figure 3. Proportion of students enrolled in a GTE program among students who attend a school that has a GTE program



Findings:

- The gap in enrollment in GTE between black and white students is smaller in Pennsylvania than in the region or nation, while the Hispanic-white gap is smaller than the nation and larger than the region.
- However, white students who attend a school that offers GTE are more than twice as likely to be enrolled in the program as black or Hispanic students. These disparities in likelihood are larger than in the region or the nation.
- Rates of enrollment in GTE in Pennsylvania are markedly lower for all types of students than in either the region or the rest of the country, where white, black and Hispanic students are two to four times as likely to enroll in GTE as white, black, and Hispanic students in Pennsylvania respectively.

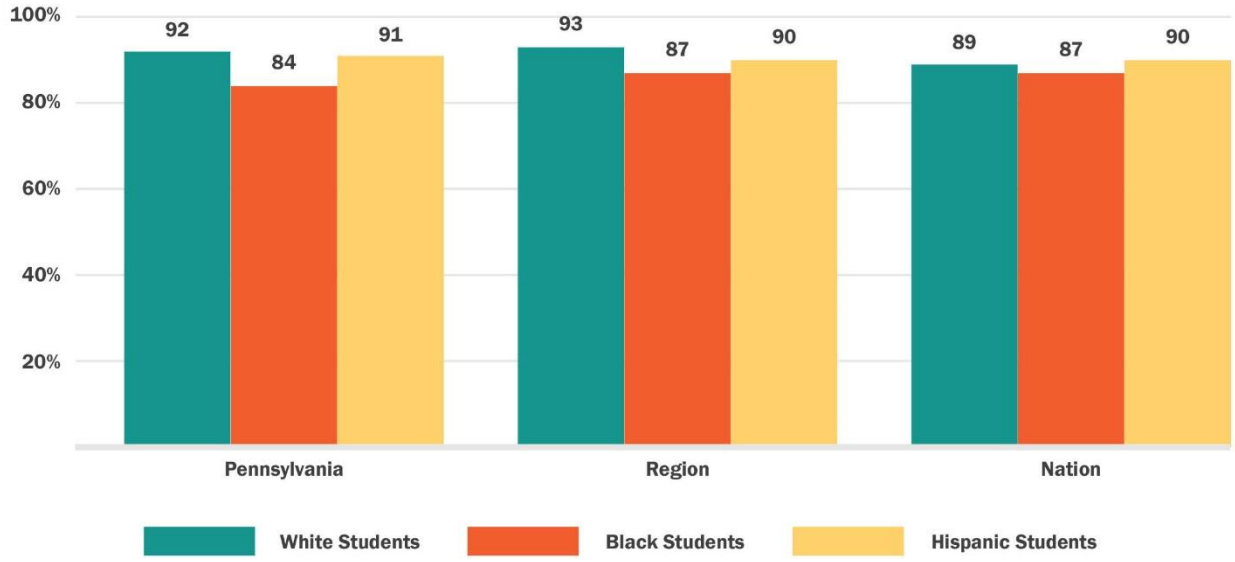
[19] Wong, Alia (2016). Why are there so few black children in gifted programs?. *The Atlantic*. Retrieved from http://www.theatlantic.com/education/archive/2016/01/why-are-there-so-few-black-children-in-gifted-and-talented-programs/424707/.

Advanced Placement

Advanced Placement (AP) is a cooperative educational program between secondary and post-secondary schools that provides high school students with the opportunity to take rigorous courses in one of 35 subjects and earn college credit. AP is intended to prepare students for the rigor of college work, while also reducing time to degree and the cost of college.[22] Research has found that, controlling for student characteristics including prior achievement, AP courses are associated with an increased probability of (1) enrolling in college, (2) enrolling in a four-year university immediately after high school, and (3) earning a Bachelor's degree.[23] Below we examine patterns of who participates in AP using two metrics: access to schools that offer AP courses; and, in schools that do offer AP, rates of actual enrollment in an AP course.

Access to AP Courses

Figure 4. Proportion of students attending a school that offers at least one AP course



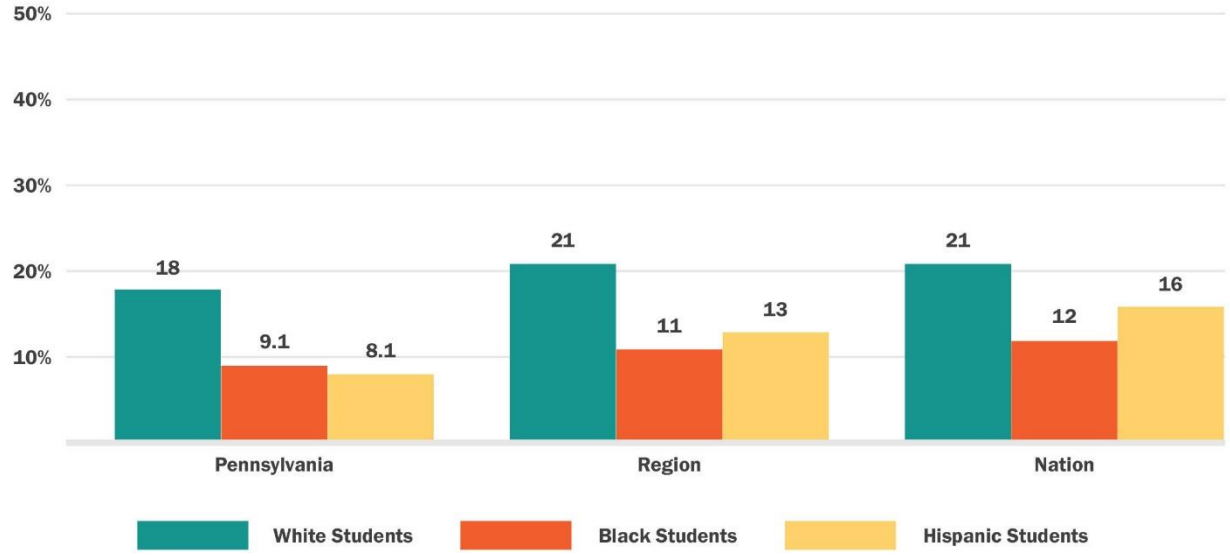
Findings:

- For students overall, Pennsylvania provides similar access to AP courses compared to the region and the nation.
- The black-white gap in access to AP courses, at 8 percentage points, is worse in Pennsylvania than in either the region or the nation.
- The Hispanic-white gap in access to AP courses is modest, ranging from 1 to 3 percentage points. It is somewhat smaller in Pennsylvania than in the region; and about the same as is seen nationwide.

[22] College Board (2016). The advanced placement program. Retrieved from http://apcentral.collegeboard.com/apc/public/program/index.html.
[23] American School Counselor Association (2013). Empirical research studies supporting the value of school counseling. Retrieved from https://www.schoolcounselor.org/asca/media/asca/Careers-Roles/Effectiveness.pdf.

Enrollment in AP Courses

Figure 5. Proportion of students enrolled in at least one AP course among students who attend a school that offers at least one AP course



Findings:

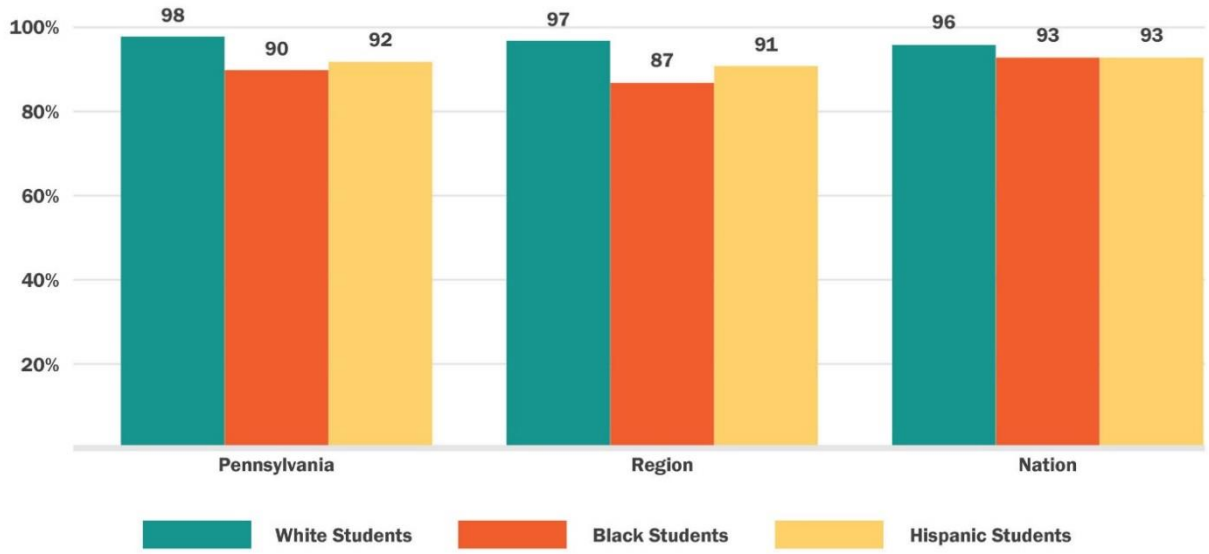
- Within Pennsylvania schools that offer AP courses, white students are about twice as likely to be enrolled in an AP course as are their black and Hispanic peers.
- This disparity in Pennsylvania is similar to the region and the nation for black students, but is larger for Hispanic students.
- White, black, and Hispanic students are less likely to be enrolled in AP in Pennsylvania than students of the same race in schools across the region and nation.

Access to Rigorous Coursework

With employers concerned about a lack of preparedness for the 21st century workforce, access to rigorous courses is a top priority for many policymakers. In particular, courses such as Chemistry, Physics, and Calculus are often pre-requisites for college majors in the all-important fields of science, technology, engineering and math. The CRDC data allows us to track the opportunity to take rigorous coursework in two ways: access to schools that offer rigorous courses; and actual enrollment in those courses when they are offered. In Figures 6-8, we analyze access to all three courses.

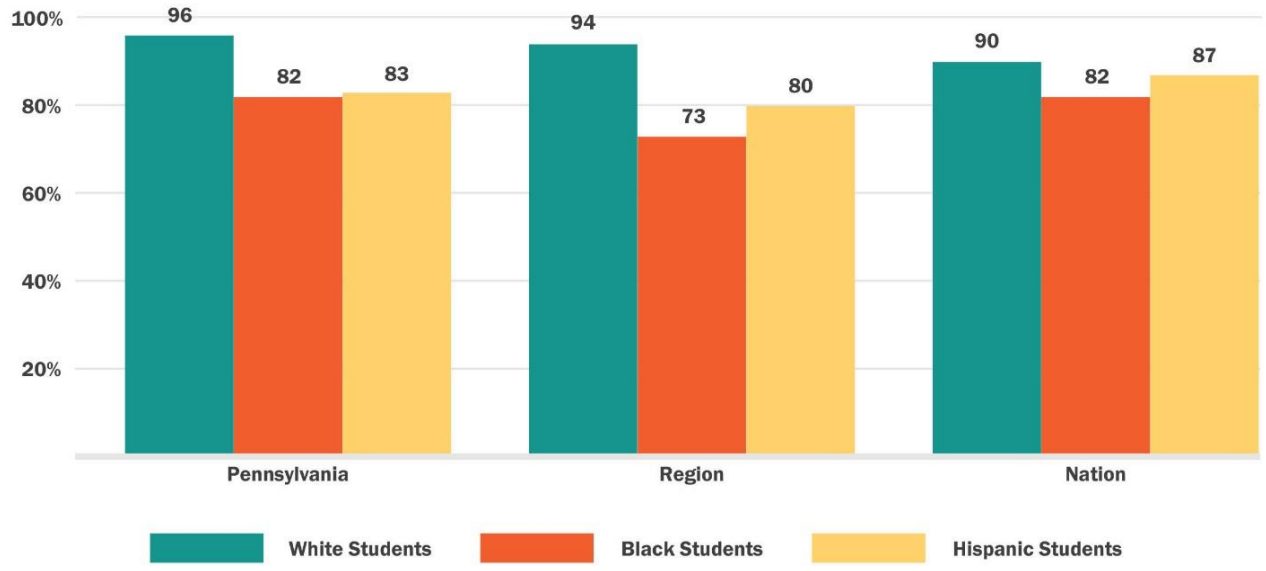
Access to Chemistry

Figure 6. Proportion of students attending a school that offers Chemistry



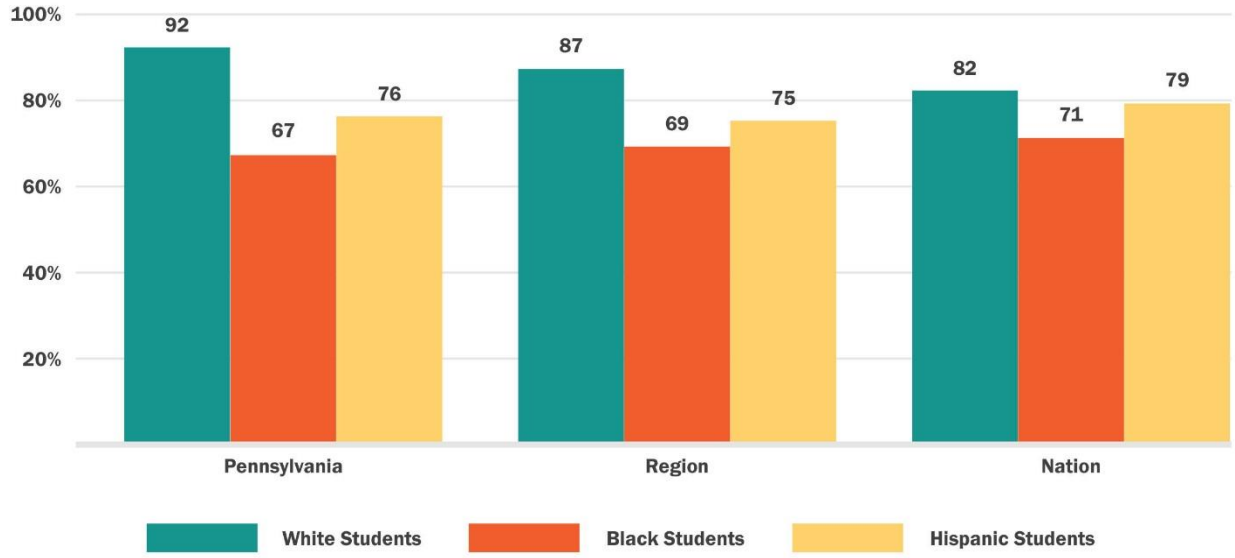
Access to Physics

Figure 7. Proportion of students that attend a school that offers Physics



Access to Calculus

Figure 8. Proportion of students that attend a school that offers Calculus



Findings:

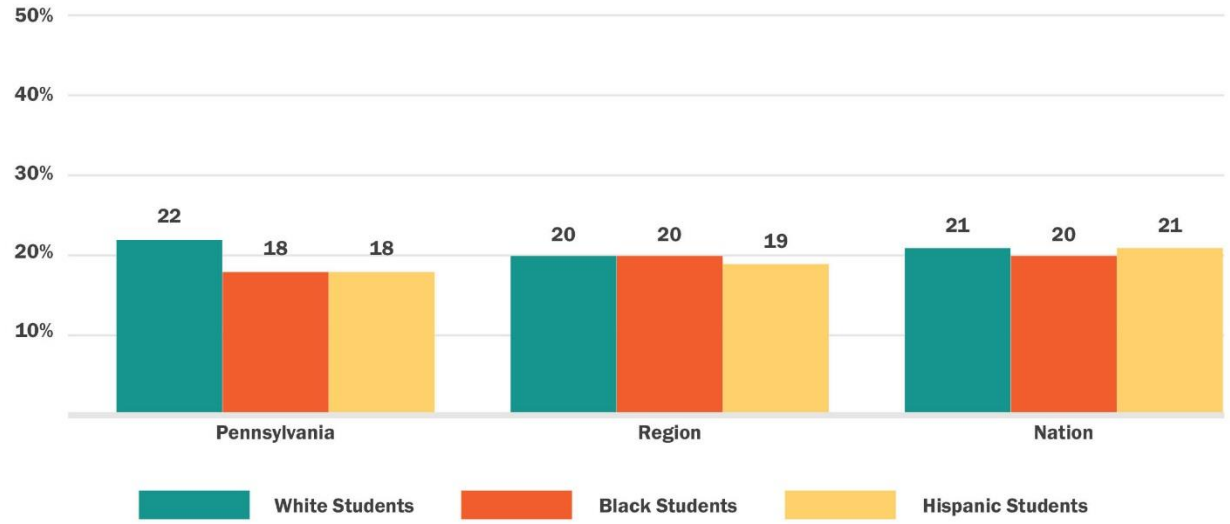
- Black-white and Hispanic-white gaps in access to Chemistry, Physics, and Calculus courses are found in Pennsylvania as well as throughout the region and the nation.
- In general, Pennsylvania's black-white and Hispanic-white gaps in access to rigorous coursework are larger than in the nation and similar to those found in the region.

Enrollment in Rigorous Courses

In Figures 9-11, we analyze the percentage of white, black, and Hispanic students who actually enroll in Chemistry, Physics, and Calculus when they attend a school that offers those courses.

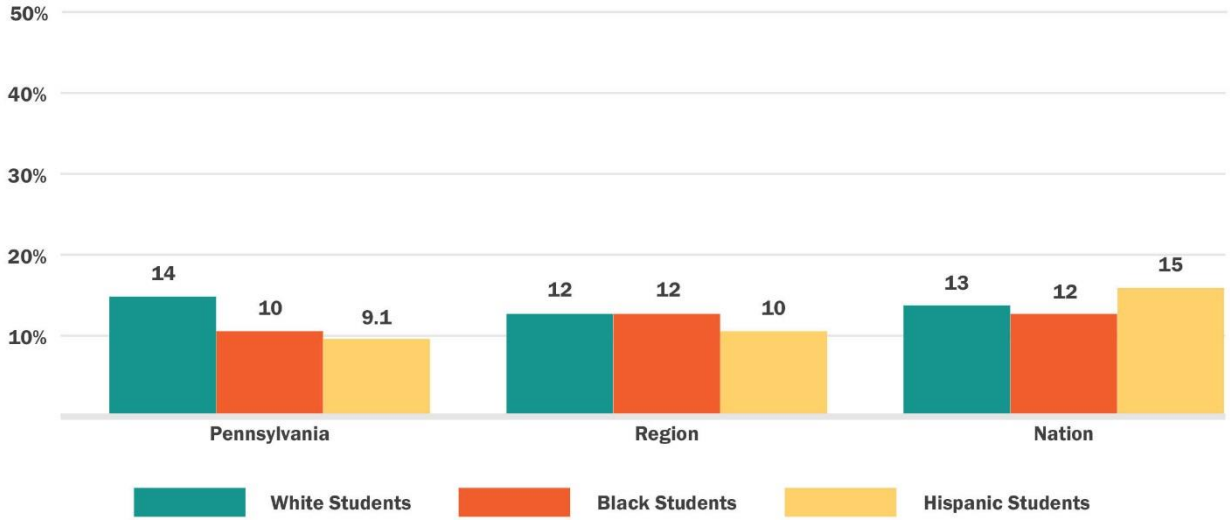
Enrollment in Chemistry

Figure 9. Proportion of students enrolled in Chemistry among students who attend a school that offers Chemistry



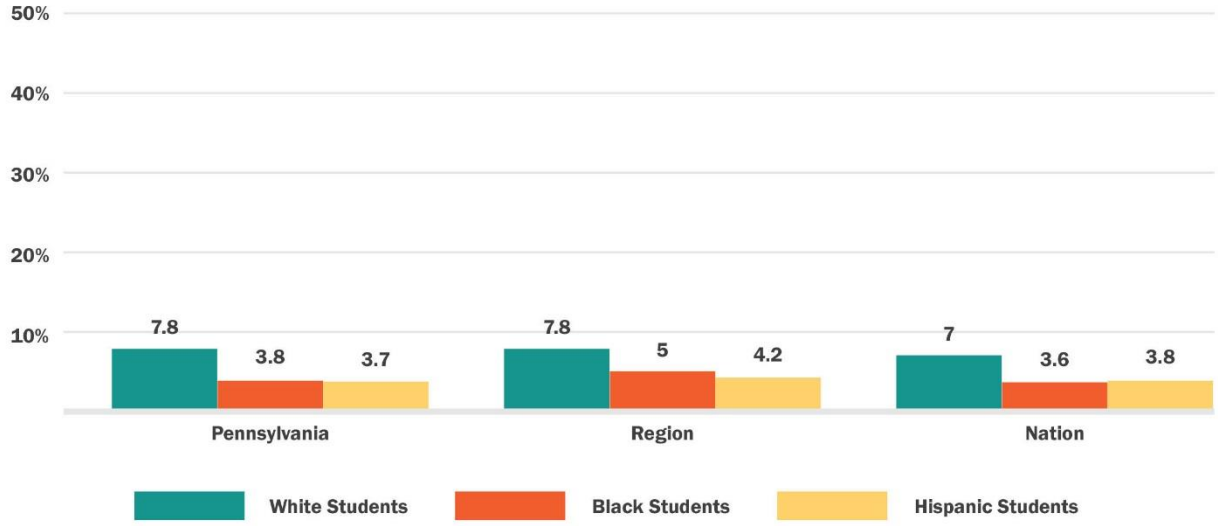
Enrollment in Physics

Figure 10. Proportion of students enrolled in Physics among students who attend a school that offers Physics



Enrollment in Calculus

Figure 11. Proportion of students enrolled in Calculus among students who attend a school that offers Calculus



Findings:

- Pennsylvania's black-white and Hispanic-white gaps in enrollment in Chemistry, Physics, and Calculus are larger than gaps in the region and the nation.
- While black and Hispanic students in Pennsylvania experiences gaps in all three subjects, sizable gaps for black and Hispanic students in the region and nation exist only in Calculus.

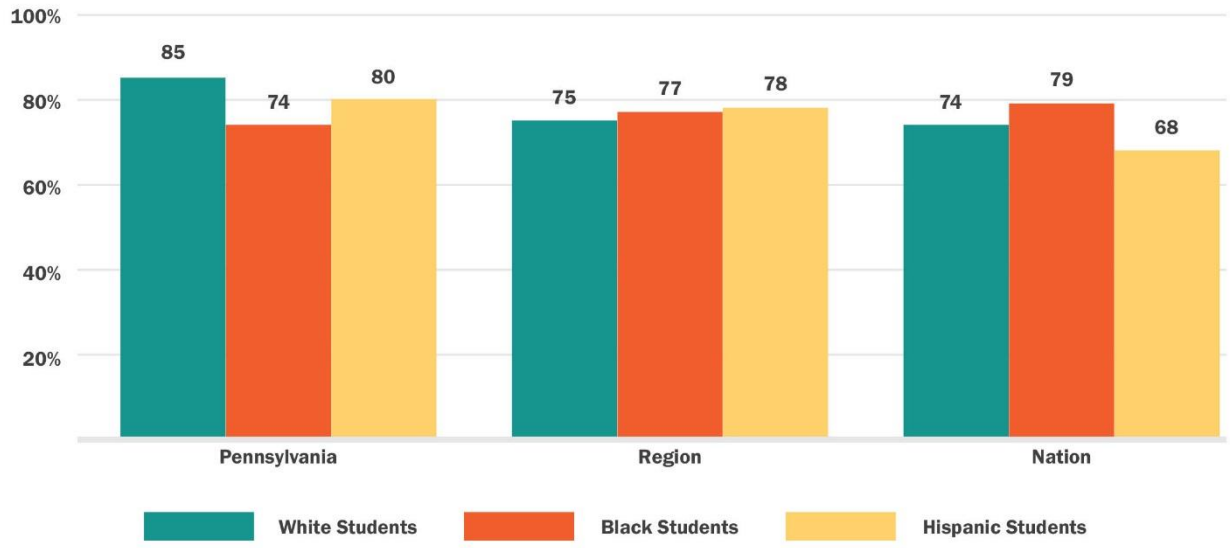
Counselors and Experienced Teachers

Below we examine gaps with regard to whether students have access to counselors and experienced teachers. We further differentiate between access to a full-time counselor and access to a better-than-average student-to-counselor ratio.

Access to a Full-Time Counselor

School counselors provide students with academic, career, college, and personal support. Research has found that increased access to a school counselor is associated with fewer disciplinary issues, higher graduation rates, and increased four-year college enrollment.[24]

Figure 12. Proportion of students that attend a school that has a full-time counselor



Findings:

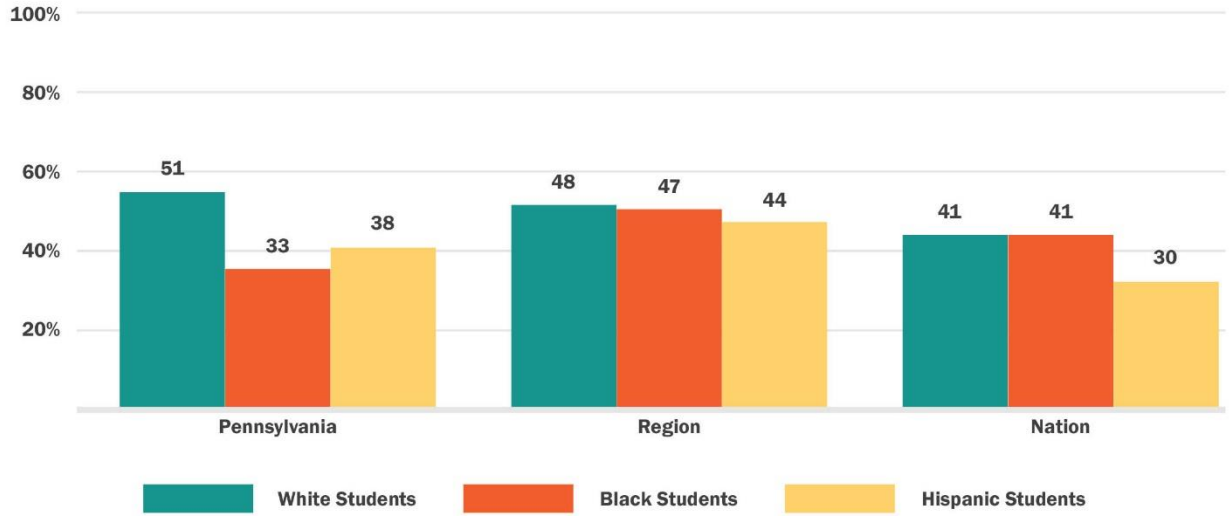
- Pennsylvania provides white and Hispanic students with access to full-time school counselors at a higher rate than is seen in the region and the nation.
- Black students in Pennsylvania fare worse compared to black students in the region and the nation.
- The black-white gap in access to counselors in Pennsylvania is larger than the corresponding gaps observed in the region and nation.
- The Hispanic-white gap in access to counselors is larger in Pennsylvania than in the region, but smaller than the nation.

[24] American School Counselor Association (2013). Empirical research studies supporting the value of school counseling. Retrieved from https://www.schoolcounselor.org/asca/media/asca/Careers-Roles/Effectiveness.pdf; Hurwitz, M., & Howell, J. (2013). Measuring the Impact of High School Counselors on College Enrollment. Research Brief. *College Board*. Retrieved from http://media.collegeboard.com/digitalServices/pdf/advocacy/policycenter/research-brief-measuring-impact-high-school-counselors-college-enrollment.pdf.

Student to Counselor Ratios

An even more meaningful metric for student access to counselor support may be the proportion of students who have access to a full-time counselor who is not overloaded with too many students. The American Counseling Association recommends a student-to-counselor ratio of 250:1.[25] Unfortunately, very few schools nationally approach that ratio. In the state of Pennsylvania, the median student-to-counselor ratio is 400:1.

Figure 13. Proportion of students that attend a school that has a full-time counselor with a student-counselor ratio below 400:1



Findings:

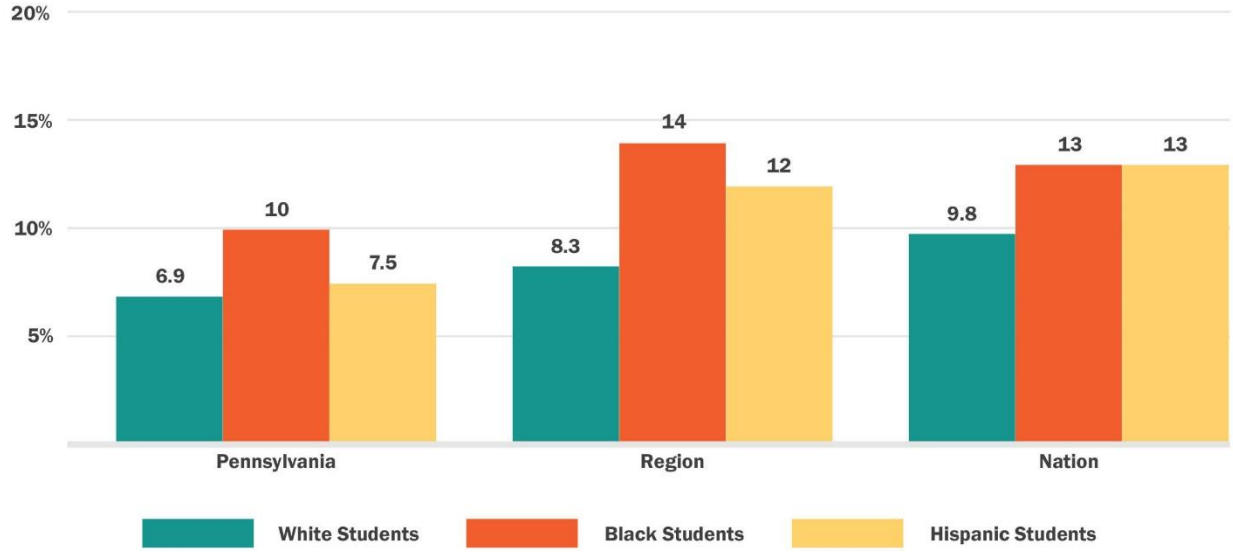
- While over half of white students in Pennsylvania attend a school with a student-to-counselor ratio below 400:1, the same is true for only about a third of black and Hispanic students in the state.
- In the nation and the region, there is little disparity between black and white students' access to counselors with acceptable student-to-counselor ratios; and while gaps do exist between white and Hispanic students, they are smaller than those in Pennsylvania.

[25] American Counseling Association (2014). United States student-to-counselor ratio for elementary and secondary schools–2011-2012 data years. Retrieved from https://www.counseling.org/docs/default-source/public-policy-faqs-and-documents/2013-counselor-to-student-ratio-chart.pdf?sfvrsn=2.

Teacher Experience

Teacher quality is difficult to measure accurately, but most parents, educators, and researchers agree that experience matters. Studies suggest the average teacher's ability to boost student achievement increases for at least the first three years in the classroom, with some studies demonstrating steady gains continuing over the first decade of experience.[26] Below, we compare Pennsylvania to the region and nation with regard to the proportion of teachers in their first two years of teaching.[27]

Figure 14. Average percent of teachers that are in their first or second year for each student subgroup



Findings:

- Black and Hispanic students in Pennsylvania are more likely than white students to be taught by inexperienced teachers.
- Yet, overall, Pennsylvania has fewer inexperienced teachers than the region and the nation and the gaps are smaller.

[26] Papay, J. P., & Kraft, M. A. (2015). Productivity returns to experience in the teacher labor market: Methodological challenges and new evidence on long-term career improvement. *Journal of Public Economics*, *130*, 105-119. Retrieved from http://scholar.harvard.edu/files/mkraft/files/jpubec_-_returns_to_experience_manuscript_-_r2.pdf.

[27] CRDC also provides data on teacher certification and chronic teacher absenteeism. For both measures, we found little to no racial disparity in Pennsylvania or across the nation.

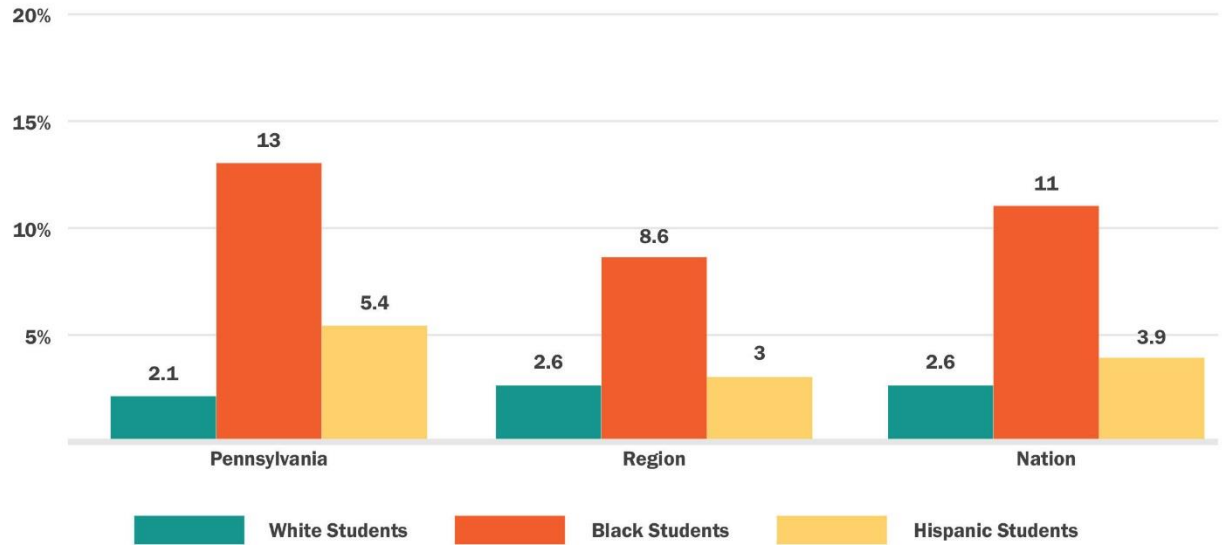
Access to a Positive School Climate

Below we examine gaps with regard to CRDC indicators of a positive school climate and student experience. We examine three indicators—out-of-school suspensions, grade retention, and chronic absenteeism—which have demonstrated impacts on student success.[28]

Out of School Suspensions

Out of school suspensions rates have been dropping nationwide, as more and more school administrators and policymakers have heeded the warnings of researchers and advocates concerned with the negative impacts of harsh disciplinary policies on student success. Research shows that students who are suspended miss important instructional time and are at greater risk of becoming disengaged and eventually dropping out of school. [29]

Figure 15. Proportion of students that received an out-of-school suspension



Findings:

- Striking disparities in suspension rates by race exist in Pennsylvania. Disparities also exist in the region and the nation, but they are smaller.
- Black students in Pennsylvania are more than six times as likely to be suspended as their white peers. Black students are three times as likely to be suspended as white students in the region and four times as likely in the nation overall.
- Hispanic students are 2.5 times as likely to be suspended as their white peers in Pennsylvania, while they are suspended at largely the same rate as their white peers in the

[28] CRDC also provides data on other school discipline practices, such as expulsion, seclusion, and restraint, but these are rare events, making them heavily sensitive to outliers in the districts who utilize these disciplinary approaches. Nationally, across all racial and ethnic groups, 1 in every 278 students (0.36%) are expelled each year. Pennsylvania schools expel even fewer students than the region or the nation. However, across Pennsylvania and the nation, black students are almost 3 times more likely to be expelled than their white counterparts, while Hispanic students are more than twice as likely. In Pennsylvania, black students are also five times more likely to be restrained in school, while white students are two times more likely to be secluded. However, even more so than expulsion, seclusion and restraint in schools are extremely rare.

[29] Lamont, J. H., Devore, C. D., Allison, M., Ancona, R., Barnett, S. E., Gunther, R. & Young, T. (2013). Out-of-school suspension and expulsion. Pediatrics, 131(3), e1000-e1007; Petras, H., Masyn, K. E., Buckley, J. A., Ialongo, N. S., & Kellam, S. (2011). Who is most at risk for school removal? A multilevel discrete time survival analysis of individual- and context-level influences. Journal of Educational Psychology, 103, 223; American Psychological Association, Zero Tolerance Task Force Report (2008). An evidentiary review and recommendations.

region. Hispanic students are 1.5 times as likely to be suspended as white students in the nation.

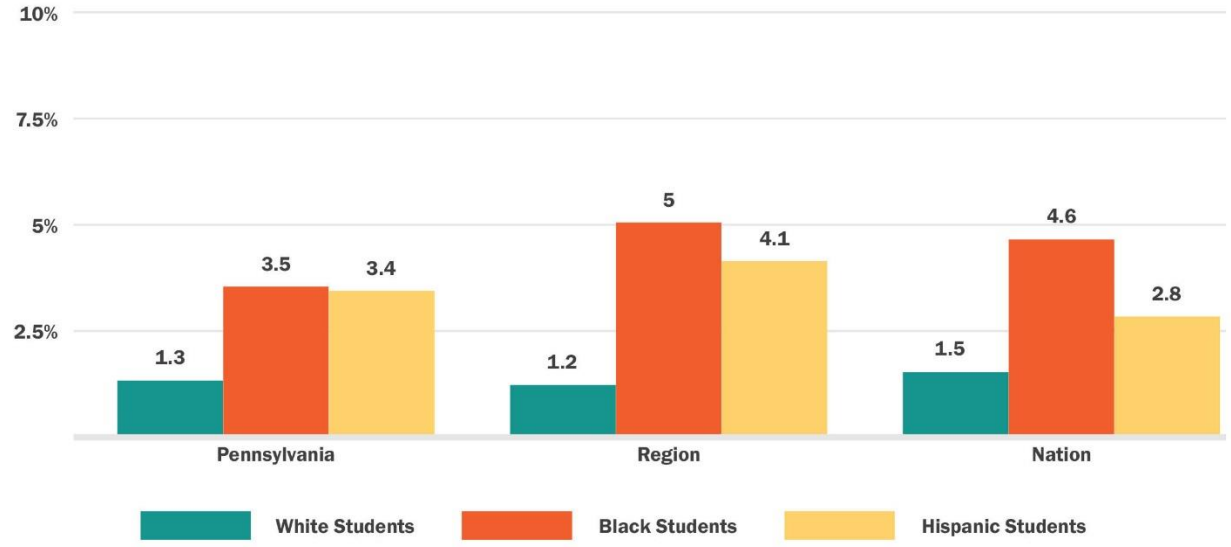
- White students in Pennsylvania schools are less likely to be suspended than white students in schools across the region or nation, but black and Hispanic students are more likely to be suspended in Pennsylvania schools than students of the same race in the region's and nation's schools.

Additional analysis revealed that Pennsylvania's black-white disparity in disciplinary practices is even worse at the elementary level, where black students are ten times more likely to be suspended than their white peers—10% of black elementary students compared to 1% of white elementary students.

Retention

Grade retention is the practice of keeping students at the same grade level for an additional year rather than promoting them to the next grade. Retention is often seen as a way to give struggling students time to catch up rather than falling further behind their peers. However, the literature on grade retention is mixed, and the preponderance of research finds that grade retention does not benefit retained students academically and increases the likelihood that the retained students will drop out before completing high school.[30] Regardless of whether or not grade retention should be seen as a negative *input*, it is generally considered a negative *outcome* and an indicator of difficulty or disengagement with school.

Figure 16. Proportion of students retained a grade



[30] Xia, N., Kirby, S.N. (2009). Retaining students in grade: a literature review of the effects of retention on students' academics and nonacademic outcomes. *RAND Education*. Retrieved from http://www.rand.org/content/dam/rand/pubs/technical_reports/2009/RAND_TR678.pdf.

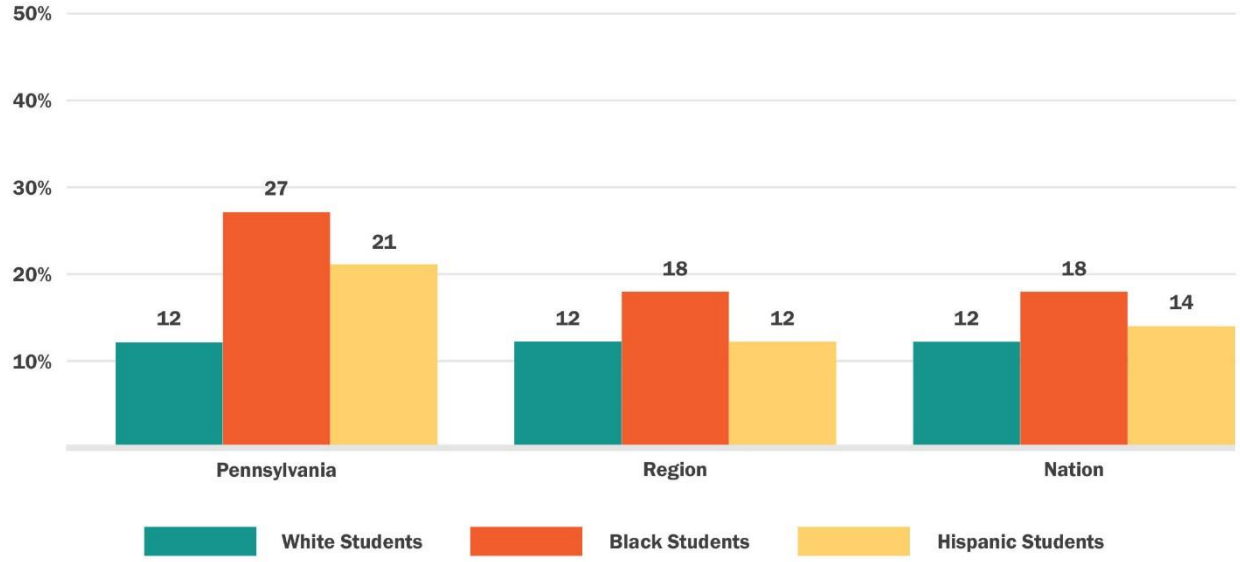
Findings:

- Pennsylvania retains fewer students overall than the regional and national averages (1.9% in Pennsylvania versus 2.5% regionally and 2.3% nationally).
- Racial disparities in Pennsylvania's retention rates are not as pronounced as those in either the region or nationally. Black students are 2.7 times as likely to be retained as their white peers in Pennsylvania, while they are about 4 times as likely in the region and 3 times as likely in the nation.
- Hispanic students are 2.6 times as likely to be retained as their white peers in Pennsylvania, while they are 3.4 times as likely in the region and about twice as likely in the nation.

Chronic Absenteeism

Research indicates that students with better attendance in school score higher on achievement tests on average. This is hardly surprising, given that students who are absent experience less classroom time and are likely to miss course content. Chronic absenteeism (being absent for 15 or more school days during the school year) is also an indicator of disengagement often seen in students who later dropout,[31] and is a strong early predictor of alcohol, tobacco, and substance use in adolescents.[32]

Figure 17. Proportion of students that are chronically absent (missed 15+ school days in a year)



Findings:

- In Pennsylvania, the region, and the nation, 12% of white students are chronically absent.
- Black and Hispanic students in Pennsylvania are far more likely to be chronically absent than their peers in the region and the nation.
- The disparity in chronic absenteeism in Pennsylvania is greater than the disparities that exist in either the region or the nation.

[31] Alexander, K. L., Entwisle, D. R., & Horsey, C. S. (1997). From first grade forward: Early foundations of high school dropout. *Sociology of Education*, *70*, 87-107.

[32] Hallfors, D., Vevea, J. L., Iritani, B., Cho, H., Khatapoush, S., & Saxe, L. (2002). Truancy, grade point average, and sexual activity: A meta-analysis of risk indicator for youth substance use. *Journal of Social Health, 72*, 205-211.

A Note about Philadelphia

Some may review the results of these analyses and speculate that Pennsylvania's poor performance is merely driven by Philadelphia, its largest city. It is true that Philadelphia is considered an underfunded school district and its student body is more racially diverse than the state average, with 52 percent African American and 19 percent Hispanic students. It is also true that racial disparities generally in Pennsylvania decline when Philadelphia is removed from our calculations. However, we believe this argument is a red herring for a number of reasons. First, even without Philadelphia, racial disparities still exist in Pennsylvania schools. Second, other states have large, racially diverse, urban areas as well — e.g. Maryland has Baltimore; New Jersey has Newark; and Ohio has Cleveland — yet those states do not experience the same level of racial disparities as Pennsylvania. Finally, and most importantly, even if the impact of Philadelphia or other underfunded school districts with high numbers of black and Hispanic students does drive the statewide disparities, it does not change the analysis. Those students, regardless of which school district they attend, are still residents of Pennsylvania and should have an equal opportunity to receive an adequate education as their peers across the state.

Conclusion: The Importance of Equity

Our analysis of the 2013-2014 data from the U.S. Department of Education's Office of Civil Rights mirrors, and adds to, what we already know from other educational indicators in Pennsylvania. Overall, we spend generously on public education[33] and our students, on average, achieve above-average test scores.[34] However, there is deep inequity in how we distribute those resources and in our student outcomes. The findings in this analysis further document that, while Pennsylvania appears to provide high levels of access to rigorous coursework, school counselors, and experienced educators compared to the nation, white students are disproportionately the beneficiaries of that access. Black and Hispanic students in Pennsylvania are less likely than white students in Pennsylvania—and less likely than black and Hispanic students across the country and region—to have access to these essential resources and learning opportunities, and more likely to encounter adverse experiences that decrease their chances of academic success.

In this kind of comparative analysis there is a risk of losing sight of the fact that disparities in educational opportunities and experiences are alarming all across the region and nation. Yet, in most cases, the disparities are more pronounced in Pennsylvania than in our neighboring states, or across the country.

The racial disparities detailed in this brief are occurring in the face of increasing evidence about the importance of educational equity. What constitutes an adequate education is always relative, because schools, teachers, and students compete against their closest neighbors.[35] The data documented in this report should provide educational stakeholders across the state with the information needed to take action to reduce this inequity and ensure that all students receive a quality public education.

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[33] Baker, B. D., Sciarra, D. G., & Farrie, D. (2010). Is school funding fair? A national report card. *Education Law Center*. Retrieved from http://www.schoolfundingfairness.org/National_Report_Card_2016.pdf

[34] Education Week (2016). Quality counts marks 20 years report explores new directions in accountability. *Research Center*. Retrieved from http://www.edweek.org/media/qualitycounts2016_release.pdf.

[35] Baker, B. D. (2014). American's most financially disadvantaged school districts and how they got that way. *Center for American Progress*. Retrieved from https://cdn.americanprogress.org/wp-content/uploads/2014/07/BakerSchoolDistricts.pdf.

Technical Appendix

Methodology

For this analysis, we isolated three groups of schools from the data: (1) schools in Pennsylvania, (2) schools in states that border Pennsylvania (New York, New Jersey, Delaware, Maryland, West Virginia, and Ohio), and (3) schools in all states in the U.S.[36] Groups 2 and 3 served as our regional and national comparison groups.

We analyzed CRDC data that reflect the following three categories:

(1) access to courses or resources at the school level,
(2) individual experiences (e.g. student enrollment in a course), and
(3) teacher characteristics.

In analyzing school-wide access to courses or other resources, e.g. access to gifted and talented education, we first identified all schools that offer the program or course in question. We then summed the number of white, black, and Hispanic students in Pennsylvania, the region, and the nation who attend those schools to create our nine numerators. The total numbers of white, black, and Hispanic students in Pennsylvania, the region, and the nation were also summed to create our nine denominators.

Similarly, in analyzing individual student participation in courses or other offerings, e.g. enrollment in gifted and talented education, we first sum the number of students reported to be enrolled in the program or course to create nine numerators and then divided by the nine respective denominators, or total populations of white, black, and Hispanic students in Pennsylvania, the region, and the nation.

For teacher characteristic analyses, e.g. teachers with more than two years of experience, the proportion of teachers in the school who exhibit the characteristic was calculated. That proportion was then multiplied, separately, by the number of white, black, and Hispanic students in the school and summed by geographic area to create the nine respective numerators. Those numbers were then divided by the total number of white, black, and Hispanic students in that geographic area to create our final calculation: the weighted average share of teachers who exhibit the characteristic of interest.

When analyzing characteristics that traditionally only exist in high schools, e.g. AP enrollment, the analysis was limited to schools that *exclusively* serve 9-12. If we were to include schools that, for example, serve 7th and 8th grade, they would almost certainly "water down" the proportions, as 7th and 8th graders typically do not take AP courses. For example, if white students are more likely to attend a 7-12 school than black students, including such schools could have potentially biased our findings.

[36] Florida was excluded from the analysis due to reported issues with the accuracy of their data.
U.S. Department of Education (2016). Persistent disparities found through comprehensive civil rights survey underscore need for continued focus on equity, King say. See http://www.ed.gov/news/press-releases/persistent-disparities-found-through-comprehensive-civil-rights-survey-underscore-need-continued-focus-equity-king-says,

Limitations

One limitation of the CRDC is that enrollment data is not reported by grade. For a data element such as Physics enrollment, it may be more accurate to focus on only 11th and 12th grade students, as they are the students most likely to take Physics. By including 9th and 10th graders, the data is susceptible to bias resulting from school attrition. If, for example, black students are more likely to drop out in 9th and 10th grade, their lower rates of Physics enrollment may be at least in part explained by the fact that they are less likely be enrolled in the grade in which students usually take Physics.

Our analysis is also limited by the fact that students and teachers are not linked in the data. That is to say, within schools, we do not know which teachers are teaching which students. This means that while we may know that black students are more likely to attend schools that have less experienced teachers, we cannot say for certain that black students are more likely, or less likely, to *take a class* with a less experienced teacher.

Some might argue that the fact that this analysis makes no attempt to control for poverty or geography is a limitation. We would disagree. If racial housing segregation influences where families live and racial discrimination in the labor market influences their financial wellbeing, controlling for poverty or geography would underestimate the true relationship between race and our outcomes of interest.