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Access to Well-Credentialed, Effective, and Same Race Teachers: What has Changed in the Post-COVID Period in North Carolina?

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Summary

In the aftermath of the COVID-19 pandemic, it is important to assess the extent to which teachers are equitably distributed to students from historically marginalized groups. Low-income and low-performing students need highly effective teachers to promote academic recovery and re-engagement with school. In this brief, we examine the distribution of well-credentialed, effective, and same race teachers in North Carolina public schools in the 2022–23 school year and compare these data to values from the pre-pandemic period. There are three primary takeaways from these analyses. First, we find that gaps in access to high-quality teachers are still large and that changes in the post-pandemic period are largely negative for historically marginalized and low-performing students. Second, we find that chronically absent students—a significant concern nationally and in North Carolina—are less likely to have well-credentialed and effective teachers. Finally, we find that the largest source of variation in access to effective teachers is between schools. Certain schools have more effective teachers and these schools tend to educate fewer historically marginalized and low-performing students. This finding suggests a need for state and local officials to prioritize solutions that attract and retain effective teachers in high-priority schools.

Introduction

Over the last twenty years, research has consistently shown that (1) teachers are the most important school-based resource contributing to students' academic development and (2) students from historically marginalized populations do not have equitable access to high-quality teachers. Teachers *matter* and the distribution of teachers in the United States *compounds* societal and educational inequalities. Into this system of inequality came the COVID-19 pandemic. COVID-19 drastically impacted K–12

schooling and in recent years there have been decreases in public school enrollments, increases in teacher stress and attrition, and a significant influx of funding to promote student academic recovery and re-engagement with school.

While COVID-19 had widespread effects on K–12 education, we do not yet know the extent to which the pandemic influenced the distribution of teachers. Similar to many other outcomes,

it is possible that the pandemic exacerbated inequalities in marginalized students' access to high-quality teachers. However, research has shown that gaps in teacher attrition rates between high and low-poverty schools narrowed (modestly) in recent years. As such, it is possible that the pandemic did not impact existing inequalities in the distribution of teachers. With this brief, we address this gap in knowledge by assessing the distribution of teachers to students in North Carolina public schools (NCPS) in the 2022–23 school year. Specifically, we assess the extent to which students from marginalized

Background

In these analyses, we focus on students and their core content area teachers (i.e., English/reading, math, science, and social studies) in the 2018–19 and 2022–23 school years.¹ In particular, we use classroom roster files from the North Carolina Department of Public Instruction to identify the core content classes that students take and the teachers of those classes. We link student and teacher-level characteristics to these roster data to assess the distribution of well-credentialed, effective, and same-race teachers in the pre- and post-pandemic period.

We are interested in access to teachers based on students' race/ethnicity, economic status, and measures of prior-year test performance.² The top panel of Table 1 presents descriptive data on these measures for NCPS students in 2018–19 and 2022–23. In 2022–23, 28 percent of NCPS K–12 students are White and non-economically disadvantaged. The next highest percentages are for students who are Black and economically disadvantaged (18.0%), White and economically disadvantaged (15.2%), and Hispanic and economically disadvantaged (14.3%). Relative to 2018–19, these data indicate that there has been a modest increase in the percentage of economically disadvantaged students—overall and for students of color. For students with prior test score data, we classify approximately 15 percent as high-performing, 68 percent as middle performing, and 17 percent as low-performing.³

At the teacher level, we want to assess the distribution of well-credentialed, effective, and diverse teachers. The bottom panel

backgrounds have access to well-credentialed, effective, and same race teachers and compare these data to values from the pre-pandemic period.

Ensuring that students have access to highly-effective teachers is an evidence-based approach to boost student learning and recovery. We urge North Carolina officials at the state, district, and school levels to be cognizant of our findings, especially with pandemic recovery funds expiring and marginalized students still scoring below pre-pandemic levels on state assessments.

of Table 1 displays these characteristics for core content area teachers in 2018–19 and 2022–23. In 2022–23, 83 percent of core content area teachers are female and 77 percent are White. The percentage of White teachers has decreased modestly since 2018–19. Nearly 11 percent of core content area teachers are first-year teachers (up three percentage points since 2018–19) and nine percent are Nationally Board Certified (down one percentage point since 2018–19).⁴ We track students' exposure to first-year teachers since prior work shows that, on average, these teachers are less effective (in terms of student achievement and ratings of instruction) than peers with more experience. Likewise, we assess students' opportunities to take classes with NBC teachers, as prior work shows that they are more effective than peers without the credential.

Lastly, we use two measures of teacher performance to assess students' access to effective teachers—ratings from the North Carolina Educator Evaluation System (NCEES) and teachers' contributions to student achievement, as captured by Education Value-Added Assessment System (EVAAS) estimates.⁵ With NCEES, school administrators rate teachers on up to five professional teaching standards. These ratings are from 1–5 (not demonstrated, developing, proficient, accomplished, and distinguished). Descriptive data indicate that teachers' average prior-year NCEES ratings are 3.76 and that teachers' average prior-year EVAAS estimates are slightly above the standardized mean.⁶

¹ This sample is limited to students and teachers in traditional (non-charter) public schools in North Carolina. We exclude charter schools since many teacher credential and prior effectiveness measures are not available for charter school teachers.

² We use students' test scores from 2017–18 when examining the distribution of teachers in 2018–19; likewise, we use students' test scores from 2021–22 when assessing the distribution of teachers in 2022–23.

³ High-performing students have prior year standardized test scores more than one standard deviation above the mean; low-performing students have prior year standardized test scores more than one standard deviation below the mean.

⁴ For more on National Board Certification see here: <https://www.nbpts.org/>.

⁵ EVAAS estimates are generated by the SAS Institute and are the official measure of teacher value-added in North Carolina.

⁶ We limited our sample to teachers' EVAAS estimates from End-of-Grade exams in math, reading, and science and from End-of-Course exams in biology, English II, and math I. This allows us to examine EVAAS estimates from the same subject-areas/tests in the pre- and post-pandemic periods.

Table 1: Characteristics of Students and Teachers in Core Content Classes in 2018–19 and 2022–23

Student Characteristics	2018–19	2022–23
Unique Student Count	1,424,112	1,383,267
% White/Non-EDS	32.89	28.09
% White/EDS	14.02	15.20
% Black/Non-EDS	7.50	6.49
% Black/EDS	17.44	18.01
% Hispanic/Non-EDS	6.64	7.15
% Hispanic/EDS	12.16	14.33
% Asian/Non-EDS	2.70	3.09
% Asian/EDS	0.95	1.11
% American Indian/Non-EDS	0.32	0.33
% American Indian/EDS	0.85	0.71
% Multiracial/Non-EDS	2.06	2.21
% Multiracial/EDS	2.47	3.28
% High-Performing Students	14.69	15.30
% Middle-Performing Students	68.97	67.55
% Low-Performing Students	16.34	17.16
Teacher Characteristics		
Unique Teacher Count	65,552	64,634
% Female	83.77	83.13
% White	80.52	77.36
% Black	14.65	16.49
% Hispanic	2.54	3.80
% Asian	0.92	1.21
% American Indian	1.09	1.09
% First-Year Teacher	7.86	10.75
% Nationally Board Certified	10.09	9.02
Avg. Prior-Year NCEES Rating	3.72	3.76
Avg. Prior-Year EVAAS Estimates (Std)	0.046	0.045

Note: This table displays characteristics of the students and teachers in our analytical sample—i.e., students in core content classes and the teachers of those classes in 2018–19 and 2022–23. Student characteristics are at the student-by-year level; teacher characteristics are at the teacher-by-year level. EDS=economically disadvantaged students.

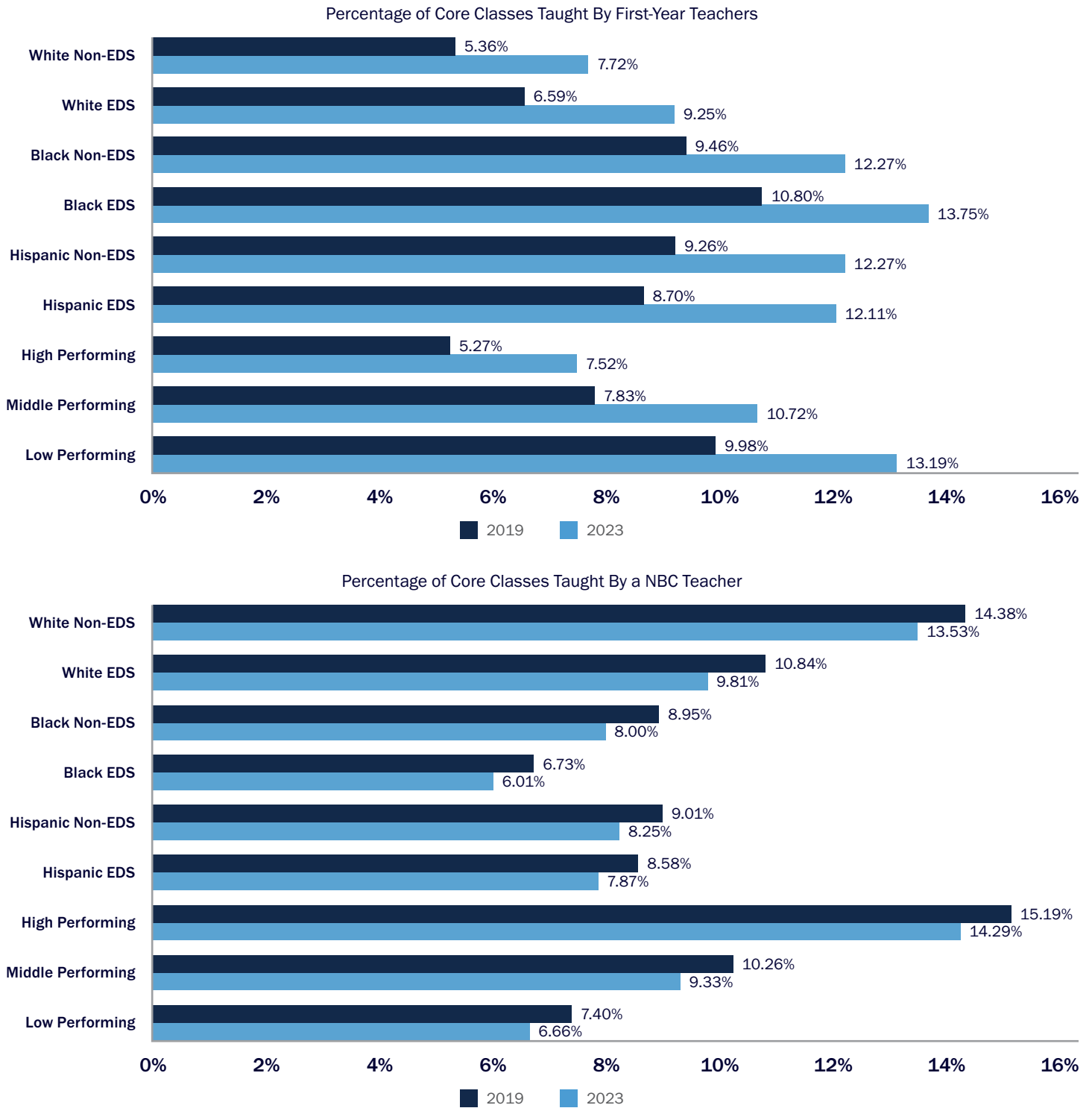
Access to Well-Credentialed Teachers in NCPS

Figure 1 displays the distribution of well-credentialed teachers in the 2018–19 and 2022–23 school years. In particular, the top panel displays the percentage of students’ core content classes taught by a first-year teacher, while the bottom panel displays the percentage of students’ core content classes taught by an NBC teacher.

The top panel of Figure 1 shows that between 2018–19 and 2022–23 *all* student groups experienced an increase in the percentage of their core content classes taught by a first-year teacher. For example, the percentage of low performing students’ core content classes taught by a first-year teacher increased from approximately 10 to 13 percent across these years. Compared to their more advantaged peers, students from historically

marginalized groups saw slightly larger increases in their rates of exposure to first-year teachers. White non-economically disadvantaged students experienced a 2.4 percentage point increase in the percentage of their core classes taught by a first-year teacher. By comparison, the increase was 3 percentage points for Black economically disadvantaged students and 3.4 percentage points for Hispanic economically disadvantaged students. Disparities in exposure to first-year teachers *widened* during the pandemic. Furthermore, it is important to highlight the sizable magnitude of these disparities. For instance, nearly 32 percent of Black economically disadvantaged students had at least one core class taught by a first-year teacher in 2022–23. The value was only 19 percent for their White non-economically disadvantaged peers.

Figure 1: Percentage of Core Classes Taught by First-Year Teachers and NBC Teachers



Note: This figure displays the percentage of core content classes in 2018–19 and 2022–23 that were taught by a first-year teacher (top panel) and a NBC teacher (bottom panel).

The bottom panel of Figure 1 shows that from 2018–19 to 2022–23 *all* student groups experienced a decrease in the percentage of their core content classes taught by an NBC teacher. For example, the percentage of Hispanic economically disadvantaged students’ core content classes taught by an NBC teacher decreased from 8.6 to 7.9 percent across these years. Current gaps (2022–23) in access to an NBC teacher between historically marginalized students

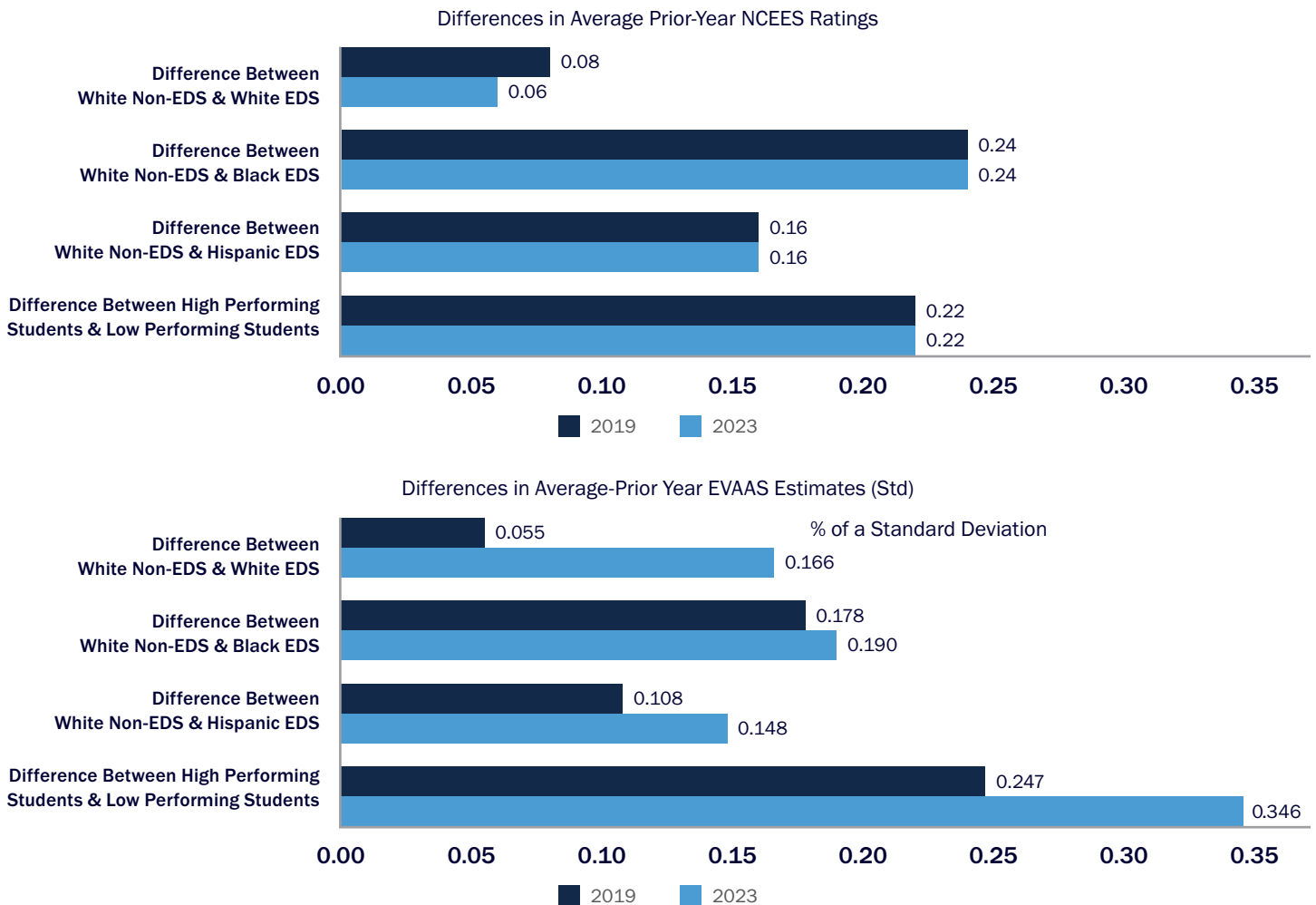
and their more advantaged peers are large—5.6 to 7.6 percentage points—and approximately the same magnitude as prior to the pandemic. To put these differences into further perspective, we note that 34 percent of high-performing students had a least one core class taught by an NBC teacher in 2022–23. By comparison, only 18 percent of low-performing students had an NBC teacher in at least one of their core content classes.

Access to Effective Teachers in NCPS

Figure 2 displays differences in teachers' average NCEES ratings (top panel) and standardized EVAAS estimates (bottom panel) across student groups. Considering teacher evaluation ratings, we find that the gaps between historically marginalized students and their more advantaged peers are *just as large* in 2022–23 as they were prior to the pandemic. For example, in both 2018–19 and 2022–23, White non-economically disadvantaged students had core content area teachers with prior-year NCEES ratings

0.24 points higher (on average) than the prior-year ratings of the core content area teachers for Black economically disadvantaged students. To make these differences more meaningful, we benchmark them against teachers' gains in evaluation ratings as they become more experienced. In doing so, we note that these NCEES gaps are approximately equivalent in size to the average difference in NCEES ratings between first and second-year teachers.

Figure 2: Comparing Teacher NCEES Ratings and EVAAS Estimates Across Student Subgroups



Note: This figure displays differences in teachers' average prior-year NCEES ratings (top panel) and teachers' average prior-year EVAAS estimates (bottom panel) between student subgroups. We display these data for 2018–19 and 2022–23.

The bottom panel of Figure 2 shows that gaps in teachers' prior-year EVAAS estimates *widened* for some student groups in recent years. In particular, the gap in teachers' EVAAS estimates for White non-economically disadvantaged students versus White economically disadvantaged students is 11 percent of a standard deviation larger in 2022–23 than it was in 2018–19. Likewise, during this time period, the gap in teachers' prior-year EVAAS estimates between high and low-performing students grew from 25 to 35 percent of a standard deviation. In benchmarking these gaps, we note that the average difference in EVAAS estimates between first and second-year teachers is 10 percent of a standard

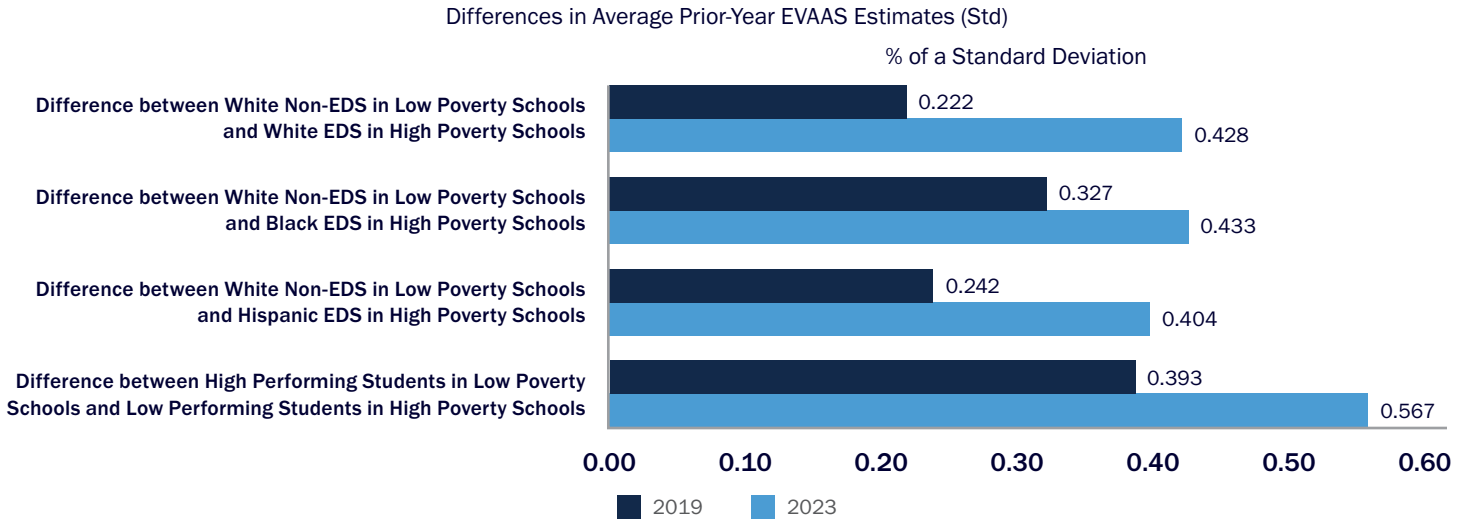
deviation. The average difference in EVAAS estimates between first and fifth-year teachers is 35 percent of a standard deviation. It is as if historically marginalized and low-performing students are consistently assigned to first-year teachers, while their advantaged peers are consistently assigned to those with one or more years of experience.

The EVAAS data in the bottom panel of Figure 2 may mask differences in access to effective teachers based on characteristics of the school. That is, gaps in teacher effectiveness may be even larger between historically marginalized students in high-poverty

schools versus advantaged students in low-poverty schools. Figure 3 confirms that gaps in teacher EVAAS estimates are larger based on school poverty and that these gaps *have widened substantially* between 2018–19 and 2022–23. For example, in 2018–19 the gap in teachers’ prior-year EVAAS estimates between White non-economically disadvantaged students in low-poverty schools and Hispanic economically disadvantaged students in high-poverty

schools was 24 percent of a standard deviation. In 2022–23, that gap was 40 percent of a standard deviation. Overall, the gaps between historically marginalized students in high-poverty schools and advantaged students in low-poverty schools are all at least 40 percent of a standard deviation and have widened by 10–20 percent of a standard deviation between the pre- and post-pandemic period.

Figure 3: Comparing Teacher EVAAS Estimates (Std) Across Student Subgroups and School Poverty Levels

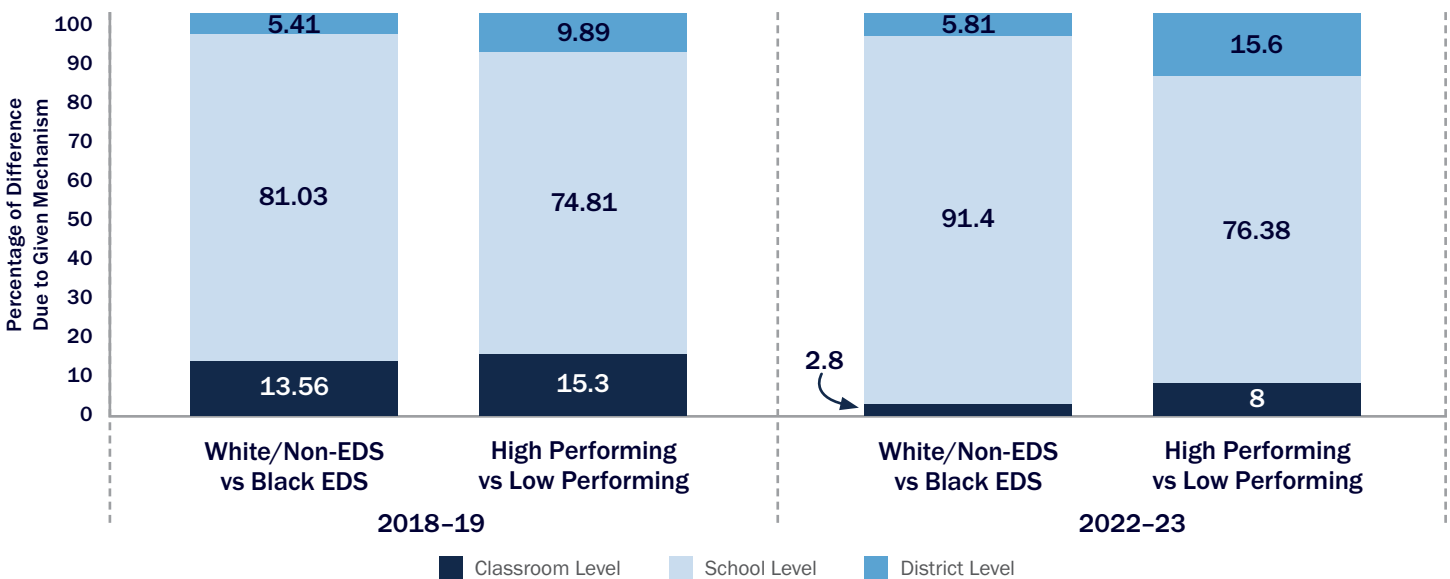


Note: This figure displays differences in teachers’ average prior-year EVAAS estimates between student subgroups in high and low-poverty schools. We display these data for 2018–19 and 2022–23.

The inequitable distribution of teachers can occur through three mechanisms: (1) when teachers are inequitably distributed between school districts, such that certain districts have more effective teachers; (2) when teachers are inequitably distributed between schools within districts, such that certain schools in a district have more effective teachers; and (3) when teachers are inequitably

distributed within schools, such that certain classes have more effective teachers. To better understand the impact of each of these potential mechanisms, Figure 4 displays the percent of the total difference in teachers’ prior-year EVAAS estimates between historically marginalized and advantaged students that is due to variation across districts, within districts, and within schools.

Figure 4: Decomposing Differences in Access to Effective Teachers (EVAAS Estimates)



Note: Students may have inequitable access to high-quality teachers due to variation in access across districts (District Level), variation in access between schools within districts (School Level), and variation in access within schools (Classroom Level). This figure displays the decomposition of these district, school, and classroom level effects for White/Non-EDS vs Black/EDS and high-performing vs low-performing students. We display these data for 2018–19 and 2022–23.

There are two key takeaways from Figure 4. First, most of the difference in access to effective teachers—as measured by teachers’ prior-year EVAAS estimates—is due to variation between schools. This is true both in 2018–19 and 2022–23. That is, certain schools have more effective teachers and those schools tend to educate more advantaged students. Between district and within school

mechanisms explain relatively modest amounts of the differences in access to teachers with higher EVAAS estimates. Second, classroom level mechanisms explain less of the gap in access to effective teachers in 2022–23 than in 2018–19. In the post-pandemic period, the within-school sorting of teachers to students is not meaningfully contributing to inequalities in access to effective teachers.

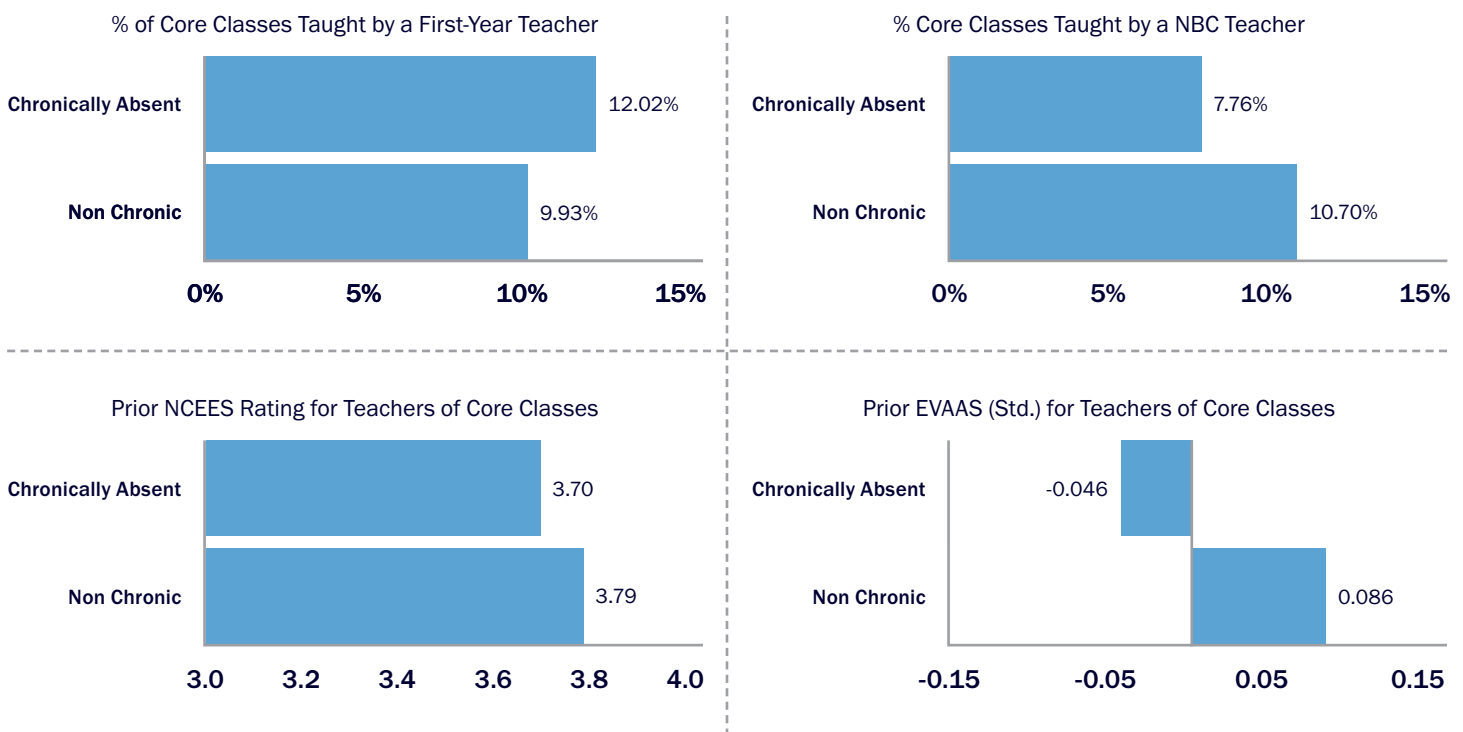
Chronic Absences and Access to Well-Credentialed and Effective Teachers

Since the pandemic, chronic absenteeism⁷ has been a significant concern in public schools—nationally and in North Carolina.⁸ In the 2021–22 school year, approximately 30 percent of NCPS students were chronically absent. This is double the rate of chronic absences relative to the pre-pandemic period and is a serious concern across elementary, middle, and high school grades. Given these data, we assessed the distribution of well-credentialed and effective teachers to chronically absent students in the 2022–23 school year.⁹

For chronically absent and non-chronically absent students, Figure 5 presents data on the percentage of students’ core classes taught by a first-year teacher (top left) and an NBC teacher (top right), the average prior-year NCEES ratings for students’ core content teachers (bottom left), and the average prior-year EVAAS estimates

for students’ core content teachers. These data demonstrate that chronically absent students are more likely to be taught by a first-year teacher and less likely to be taught by an NBC teacher. For example, 7.8 percent of the core content classes for chronically absent students were taught by an NBC teacher. The comparable value for non-chronically absent students was 10.7 percent. Regarding teacher performance, we find that chronically absent students have core content teachers with prior-year NCEES ratings that are 0.09 points lower and prior-year EVAAS estimates that are 13 percent of a standard deviation lower than their non-chronically absent peers. This difference in EVAAS estimates is reasonably large in magnitude—approximately the difference in effectiveness between a first- and second-year teacher.

Figure 5: Chronic Absentee Students and Access to Well-Credentialed and Effective Teachers (2022–23)



Note: This figure displays differences in access to well-credentialed and effective teachers in 2022–23 based on students’ prior-year chronic absence status (yes/no).

⁷ Chronically absent is defined as students missing 10 percent or more of school days.

⁸ Please see <https://epic.unc.edu/wp-content/uploads/sites/1268/2024/03/Post-pandemic-Changes-in-Absences-and-Chronic-Absence-Rates-in-NC-2022-2023.pdf> and <https://www.pnas.org/doi/abs/10.1073/pnas.2312249121> for further information on chronic absences.

⁹ For these analyses, data on whether the student was chronically absent come from 2021–22—i.e. the year prior to our analysis year (2022–23).

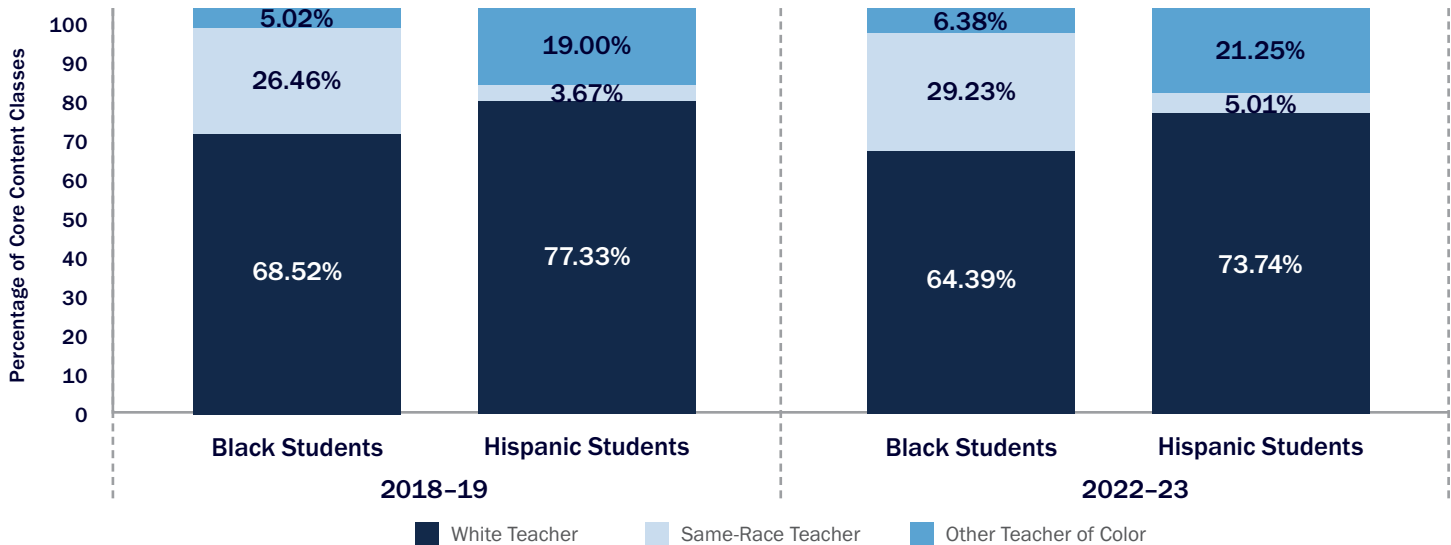
Access to Same Race and Other Teachers of Color in NCPS

As North Carolina’s student body becomes increasingly diverse, state and local officials are interested in recruiting and retaining more teachers of color. This is especially important given research showing that same race teachers improve a wide range of outcomes for students of color. As such, we assessed the percentage of students’ core content classes taught by a White teacher, a same race teacher, and another teacher of color.

Figure 6 shows that Black and Hispanic students in NCPS have experienced modest gains in the percentage of their core content

classes taught by a same race teacher and by another teacher of color. For example, in 2022–23, 29.2 percent of Black students’ core content classes were taught by a Black teacher and 6.4 percent were taught by another teacher of color. These values are up from 26.5 and 5 percent in 2018–19, respectively. For Hispanic students in 2022–23, 5 percent of their core content classes were taught by a Hispanic teacher and 21.3 percent were taught by another teacher of color. The percentage of White students’ core content classes taught by a teacher of color increased from 10.1 to 11.9 percent during this time period (not shown in Figure 6).

Figure 6: Access to Same-Race and Other Teachers of Color in Core Content Classes



Note: For Black and Hispanic students, this figure displays the percentage of core content classes in 2018–19 and 2022–23 that were taught by a White teacher, a same-race teacher, and another teacher of color.

Discussion

In the aftermath of the COVID-19 pandemic, it is important to assess the extent to which historically marginalized and low-performing students have access to well-credentialed, effective, and same race teachers. Highly-effective teachers are an essential component for student academic recovery and re-engagement with school. With this motivation, we assessed the distribution of NCPS teachers in 2022–23 and compared these results to data from the pre-pandemic period. From these analyses we identified three key takeaways.

First, we found that gaps in access to high-quality teachers are *still* large and that changes in the post-pandemic period are largely negative for the K–12 students of North Carolina. In particular, in the 2022–23 school year a higher percentage of core content classes were taught by first-year teachers and a lower percentage were taught by NBC teachers. Furthermore, the gaps in EVAAS estimates between those teaching students from historically marginalized groups and those teaching more advantaged peers widened in 2022–23. The one exception to these negative results is

that Black and Hispanic students had a slightly higher percentage of their core content classes taught by a same race teacher in 2022–23.

Second, chronic absence rates are a significant concern in North Carolina and we found that chronically absent students were less likely to have a well-credentialed and effective teacher in their core content classes. These students are missing significant amounts of instruction and may particularly benefit from effective teachers to help them re-engage with school.

Finally, we found that the largest (by far) source of variation in access to effective teachers is between schools. Within districts, effective teachers tend to work at schools with fewer historically marginalized and low-performing students. The amount of variation explained by school level mechanisms has increased since 2019, while variation at the classroom level now explains very little of the inequitable distribution of teachers.

Moving forward, it is vital for state and local officials to prioritize policies and practices that reduce teacher sorting. Given our

findings that differences across schools account for a large majority of this problem, education officials should explore solutions that attract and retain effective teachers in high-priority schools. Examples of such initiatives include targeted financial incentives to recruit and keep teachers in designated schools, high-quality induction and mentoring programs to support early-career and

struggling teachers, and efforts to improve school leadership and working conditions. Since the inequitable distribution of teachers is strongly related to residential segregation and neighborhood schools, districts could also explore assignment practices that reduce the concentration of students from historically marginalized populations in particular schools.

For More on This Topic

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