



Teacher and Principal Attrition During the COVID-19 Pandemic in North Carolina: Updated Analyses for the 2021–22 School Year

In this research brief, we present up-to-date data on teacher and principal attrition from North Carolina public schools (NCPS) from the 2020–21 and 2021–22 school years. In particular, we track attrition rates over time, compare attrition rates before and after the onset of the pandemic, assess how educator and school characteristics are related to changes in attrition rates, and examine how changes in attrition may influence teacher and principal hiring. We find that: (1) After decreases in attrition during the first year of the pandemic, teacher and principal attrition increased in the second year. This result is consistent with studies in other states and districts showing increases in teacher attrition in the most recent school year. (2) Increases in attrition were generally larger for novice teachers, teachers of color, and educators with higher levels of prior performance. (3) Gaps in teacher attrition have narrowed between schools educating many versus few low-income students and students of color. (4) North Carolina had more newly hired and first-time teachers and principals at the start of the 2021–22 school year than at almost any point over the last five years. This brief can inform practitioners and policymakers making decisions about school staffing and motivate on-going analyses to more fully assess resources and practices for supporting educator retention.

Introduction

In the summer of 2021, the Education Policy Initiative at Carolina (EPIC) released a research brief focused on the initial impacts of the COVID-19 pandemic on teacher and principal attrition in North Carolina.¹ That work was motivated by a concern for educators, given the stress they experienced during spring 2020 and the 2020–21 school year, and by a concern for K–12 students, given the adverse effects of educator attrition on student achievement. Like analyses of educator attrition from other states/districts,² our analyses indicated that teacher and principal attrition was down during the first-year of the pandemic. Furthermore, we found that reductions in teacher attri-

tion were larger in schools serving more low-income students and students of color and in schools opening the 2020–21 school year remotely.

This research brief extends our educator attrition analyses into the 2021–22 school year. While most North Carolina schools operated fully in-person in 2021–22, there were on-going challenges for educators that may have impacted their retention. These challenges include meeting the academic and social-emotional needs of students (many of whom had relatively little in-person schooling over the past year), continuing to

¹ Please see epic.unc.edu/wp-content/uploads/sites/1268/2021/09/Teacher-and-Principal-Attrition-During-the-COVID-19-Pandemic-in-North-Carolina-June-2021.pdf for access to this initial brief.

² For example, please see files.eric.ed.gov/fulltext/ED612299.pdf for findings from Washington State.

implement public health measures in schools, and taking on additional health risks for themselves and their families. Quite simply, after more than a year of teaching and leading in a pandemic, there are concerns about educators' levels of stress and what that means for their retention. To further investigate educator attrition, we answer the following questions in this research brief: (1) How does teacher and principal attrition between February 2021 and February 2022 compare to prior years? (2) How is attrition related to the characteristics of teachers and principals? (3) How is attrition related to the characteristics of the schools in which teachers and principals work? and (4) How do changes in attrition influence teacher and principal hiring? We view these analyses as an opportunity to understand the current state of North Carolina's educator workforce, as motivation for continued research to assess what resources and practices supported educator retention during the pandemic, and as data to inform the decisions of policymakers and practitioners.

Background

For our attrition analyses, we leverage statewide data on all teachers and principals in traditional (non-charter) North Carolina public schools (NCPS) in the 2016–17 through 2021–22 school years. These data contain a rich set of teacher and principal characteristics, including demographics, credentials, and measures of performance (NCEES and EVAAS). These data also include district and school-level characteristics. In each year, these data include approximately 95,000 teachers and 2,500 principals.

We use employment data³ to calculate attrition from NCPS between February of a given year and February of the following year.⁴ Specifically, we code teachers as returning to the teaching profession in NCPS if they are teaching in NCPS in February of a given year and are still teaching in NCPS in February of the following year. We code teachers as exiting the teaching profession in NCPS if they are teaching in NCPS in February of a given

year and are not teaching in NCPS in February of the following year.⁵ Likewise, we code principals as returning if they remain in a principal position in NCPS in February of the following year and as leaving if they are no longer in a principal position in NCPS in February of the following year. With these data we assess trends in teacher and principal attrition rates over the last five years.

To extend our analyses, we test whether attrition rates are significantly different, pre- and post-COVID, by characteristics of educators and schools. The educator characteristics we consider include retirement eligibility (eligible, near eligible),⁶ demographics (race/ethnicity, gender, age), experience, credentials (NBC, graduate degree), and measures of prior-year performance (NCEES, EVAAS). For example, we test whether the average exit rates for female teachers in the three years prior to the COVID-19 pandemic significantly differ from the exit rates for female teachers between February 2020 and February 2021 and between February 2021 and February 2022. The school characteristics we consider include school level, urbanicity, the economic health of the county,⁷ and the percentage of low-income students and students of color. For instance, we test whether the average exit rates for principals in rural schools in the three years prior to the COVID-19 pandemic significantly differ from the exit rates for principals in rural schools between February 2020 and February 2021 and between February 2021 and February 2022.

Lastly, we are interested in how changes in educator attrition may influence the hiring of teachers and principals in NCPS. For this work we use employment data from the start (September) of the 2014–15 through 2021–22 school years to identify the number of teachers and principals that are new to NCPS in a given year—i.e. they have not served in a teaching or principal position in NCPS in the previous three years. With these data we also calculate the percentage of new hires, relative to all teachers and principals in NCPS in each year, and the percentage of these new hires that have zero years of experience as a teacher or principal.

³ We use certified salary files to identify individuals paid as teachers and principals in NCPS. To qualify as a teacher or principal, individuals need to be paid at least 50% FTE in that role. To qualify as teacher or principal in a particular unit (i.e. district or school), individuals need to be paid at least 50% FTE in that role in that unit.

⁴ We chose the February to February timeline to measure annual attrition because February is the final full month before COVID-19 related school closings (which occurred in March 2020).

⁵ Our teacher attrition coding differs in two important ways from how NCDPI calculates teacher attrition as part of its *State of the Teaching Profession in North Carolina* report. First, NCDPI identifies a teacher as leaving only if they are not in any other certified position. If teachers move to another position (e.g. assistant principal, instructional coach), NCDPI identifies them as retained. Second, NCDPI uses data from March to March to calculate teacher retention. However, if a teacher is absent from the salary data in March but back again in September then they are considered retained. Given these differences, the teacher attrition rates reported in this brief will be higher than those reported by NCDPI.

⁶ We classify educators as being near eligible for retirement if they are within two years of the retirement eligibility criteria for full benefits.

⁷ Each year the NC Department of Commerce ranks the state's 100 counties based on economic well-being and assigns each county to one of three tiers. Please see [nccommerce.com/grants-incentives/county-distress-rankings-tiers](https://www.nccommerce.com/grants-incentives/county-distress-rankings-tiers) for more information.

How does teacher and principal attrition between February 2021 and February 2022 compare to prior years?

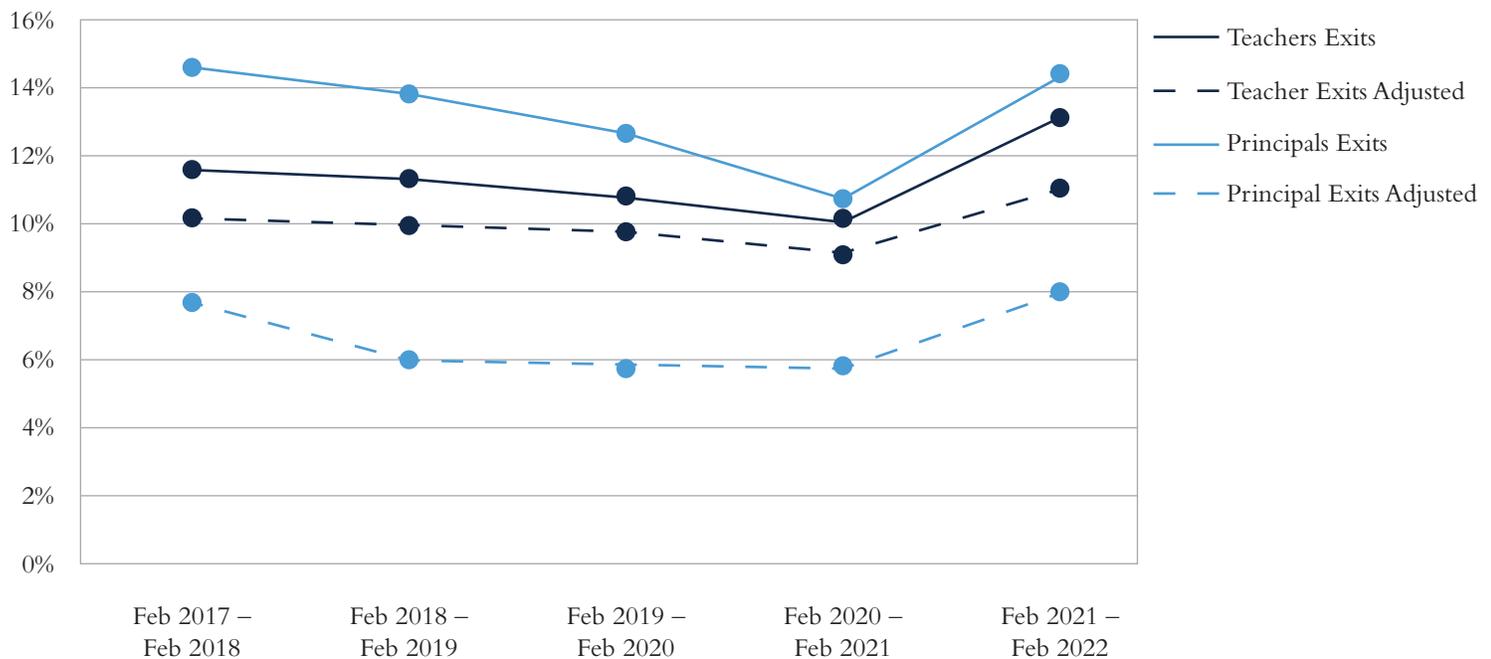
Figure 1 displays two calculations of teacher and principal attrition from NCPS over the last five years. The solid lines show our preferred attrition calculation for teachers and principals. That is, an individual is identified as leaving teaching or the principalship in NCPS, respectively, if they are no longer in that position in the following February. The dashed lines represent adjusted attrition rates that only count an individual as leaving if they are no longer in any certified position in NCPS in the following February.⁸

Focusing on teachers, we find—with either approach for calculating attrition—modest reductions in teacher attrition

between February 2020 and February 2021 and increases in teacher attrition between February 2021 and February 2022. In particular, our preferred calculation shows that teacher attrition from NCPS increased from 10.3 percent between 2020 to 2021 to 13.2 percent between 2021 to 2022. This increase in attrition of three percentage points in the most recent year is equivalent to approximately 2,800 more teacher departures from NCPS (relative to the prior year).⁹

Among principals, our preferred calculation shows that across the last three years attrition has gone from 12.6 percent, down to 10.6 percent, and back up to 14.5 percent in the most recent year (February 2021 to 2022). It is notable how different principal attrition looks between our preferred and adjusted calculations. For instance, in our adjusted approach, principal attrition is at eight percent in the most recent year (relative to 14.5 percent in our preferred approach). This indicates that many individuals leaving the principalship in NCPS transition to another certified position rather than exiting NCPS entirely.

Figure 1. Teacher and Principal Attrition from NCPS

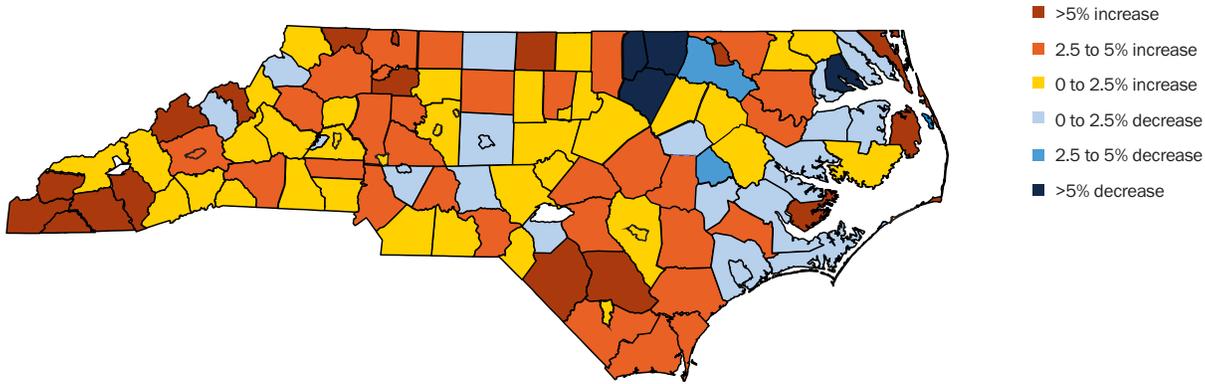


Note: This figure displays teacher and principal attrition from NCPS over the last five years. For the solid lines, attrition is defined as teaching/serving as a principal in NCPS in February of a given year and no longer teaching/serving as a principal in NCPS in February of the following year. For the dashed lines, attrition is defined as not serving in any certified position in NCPS in the following February.

⁸ We prefer our attrition calculations because they indicate that a teaching or school leadership position was vacated and likely needed to be filled.

⁹ In additional analyses, we calculate attrition rates for student support personnel (i.e. school counselors, psychologists, and social workers) in NCPS. These data show an uptick in attrition from NCPS from approximately 10 percent between February 2020 and February 2021 to 12 percent between February 2021 and February 2022.

Figure 2. Changes in Teacher Attrition Rates, by School District, Between February 2021–February 2022 Relative to the Three Years Prior to COVID



Note: This figure shows changes in teacher attrition, by school district, between February 2021 to February 2022 relative to the same months in the three years prior to the COVID-19 pandemic (February 2017 to February 2020). For this figure we define teacher attrition as teaching in a particular school district in February of a given year and no longer teaching in that district in February of the following year. Regions in white are not North Carolina public school districts and do not report employment data to NCDPI.

To better understand the geography of attrition, Figure 2 displays changes in teacher attrition rates, by school district, in the most recent year (February 2021 to February 2022) relative to the three years prior to the COVID-19 pandemic (February 2017 to February 2020). Here, because we are focused on districts, we define attrition as teaching in a particular district in February of a given year and no longer teaching in that district in February of the following year. This map shows that relative to pre-pandemic trends, teacher attrition is down in the most recent year for some districts in North Carolina, especially in the eastern portion of the state. However, most school districts have experienced an increase in teacher attrition rates, with the southeast and western portions of the state being particularly hard hit by attrition increases.

How is attrition related to the characteristics of teachers and principals?

For key characteristics of teachers and principals, Figures 3 and 4 display changes in attrition rates between (1) February 2020 to February 2021 and (2) February 2021 to February 2022 relative to the average attrition rates in the three years prior to the pandemic. Data in these figures come from our preferred attrition calculation—i.e. no longer serving as a teacher or principal in NCPS in February of the following year.

As previously reported, Figure 3 shows that attrition was down for most teacher groups between February 2020 and February

2021. Data for February 2021 to February 2022 show increases in attrition rates for all teacher groups.¹⁰ Several of these results are particularly large or noteworthy. For example, relative to novice teachers (< 3 years of experience) in pre-pandemic years, novice teachers in the most recent year were 4.4 percentage points more likely to leave teaching in NCPS. This equates to nearly 500 more novice teacher departures. Increases in teacher attrition for the most recent year are also larger for teachers of color relative to white teachers (increases in attrition rates of 2.9 versus 1.5 percentage points, respectively) and for female teachers relative to male teachers (increases in attrition rates of 2.1 versus 1.2 percentage points, respectively). Lastly, we note that in the most recent year attrition from NCPS increased by approximately two percentage points for teachers who met or exceeded expected student achievement growth; increases in attrition were near zero for teachers who did not meet expected growth.¹¹

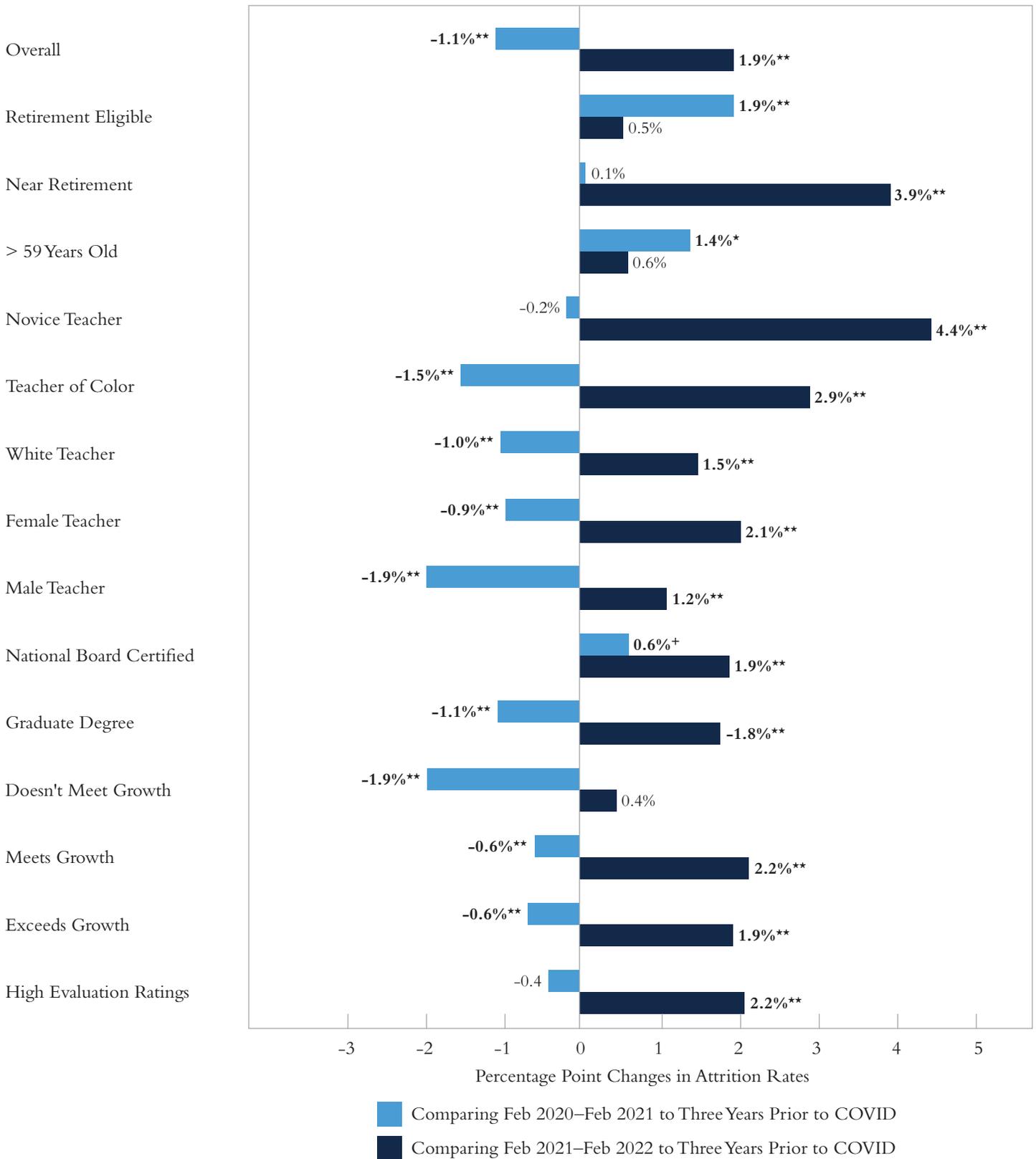
Relative to pre-pandemic years, Figure 4 shows that attrition from NCPS was down for most principal groups in the first year of the pandemic. Data from the most recent year (February 2021 to February 2022) show that principal attrition rates were back up and generally comparable to pre-pandemic rates, overall, and across most principal groups. Within this overall trend, there are noteworthy results for several principal groups. For instance, attrition rates for novice principals (< 3 years of experience) dropped during the first year of the pandemic and did not increase in the most recent year. Conversely, relative to pre-pandemic averages, attrition from NCPS increased by 4.5 percentage points in the most recent year for principals earning high evaluation ratings.¹²

¹⁰ Overall, teacher attrition in the most recent year is up 1.9 percentage points relative to the three years prior to the COVID-19 pandemic. This equates to nearly 1650 more teacher departures.

¹¹ The most recently available teacher EVAAS data are from the 2018-19 school year.

¹² We identify teachers and principals with high evaluation ratings as those with average prior-year NCEES ratings greater than 4 (where 1=not demonstrated, 2=developing, 3=proficient, 4=accomplished, and 5=distinguished).

Figure 3. Changes in Rates of Teacher Attrition from NC Public Schools



Note: This figure shows (1) the change in the rate of teacher attrition from NCPS between February 2020 and February 2021 compared to the rate over the same months in the three years prior to COVID and (2) the change in the rate of teacher attrition from NCPS between February 2021 and February 2022 compared to the rate over the same months in the three years prior to COVID. Data in this figure come from our preferred attrition calculation—i.e. serving as a teacher in NCPS in February of a given year and no longer teaching in NCPS in February of the following year. +, *, and ** indicate statistically significant differences in the change of attrition rates (pre- and post-COVID) at the 0.10, 0.05, and 0.01 levels, respectively.

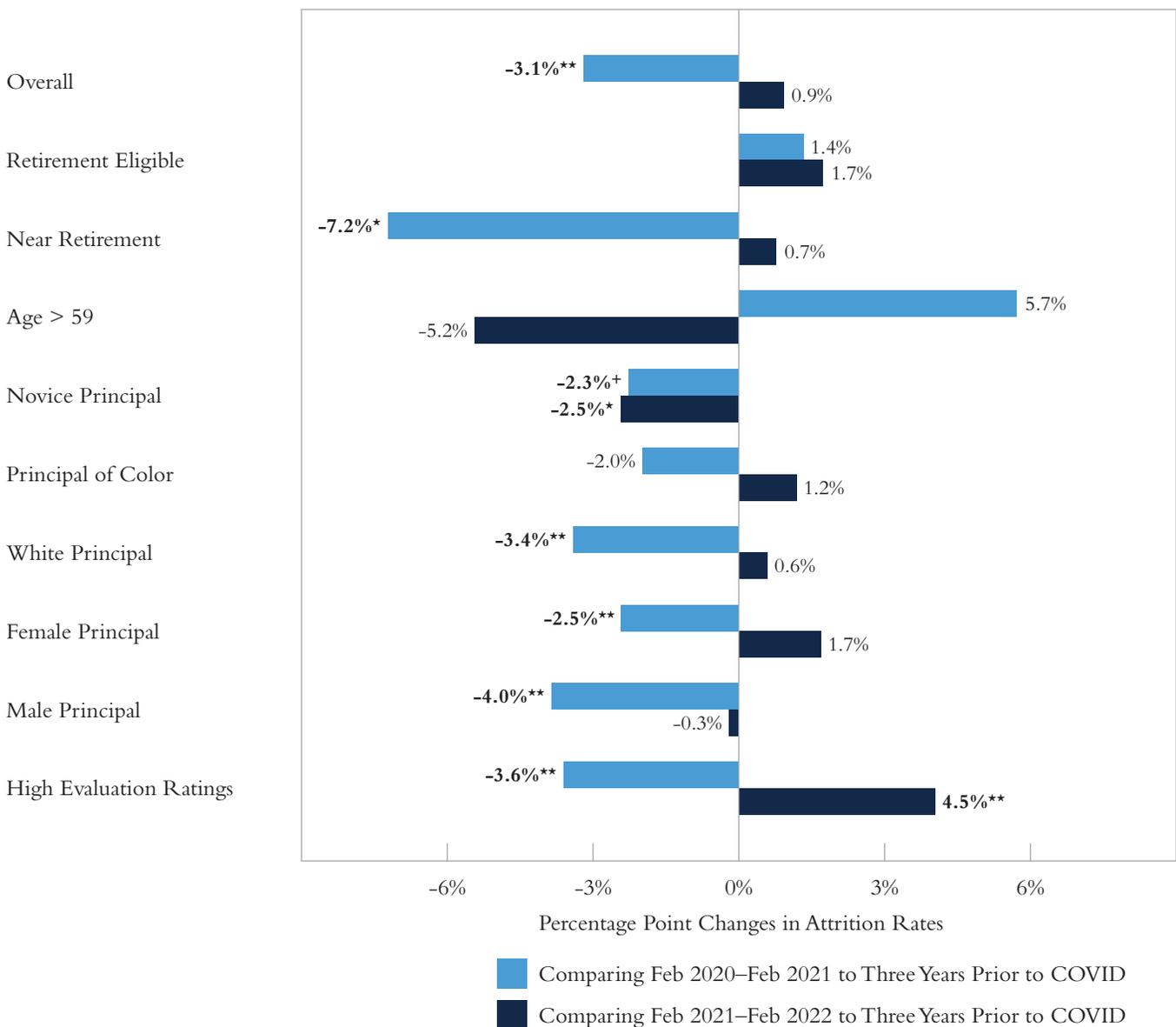
How is attrition related to the characteristics of the schools in which teachers and principals work?

In this section we consider how attrition is related to characteristics of the schools in which teachers and principals work. For these analyses we define attrition as teaching (or serving as a principal) at a school in February of a given year and not serving in that role at the same school in February of the following year. We define attrition in this way because a

particular school is impacted by an educator leaving the school regardless of whether that educator moves to a different NCPS.

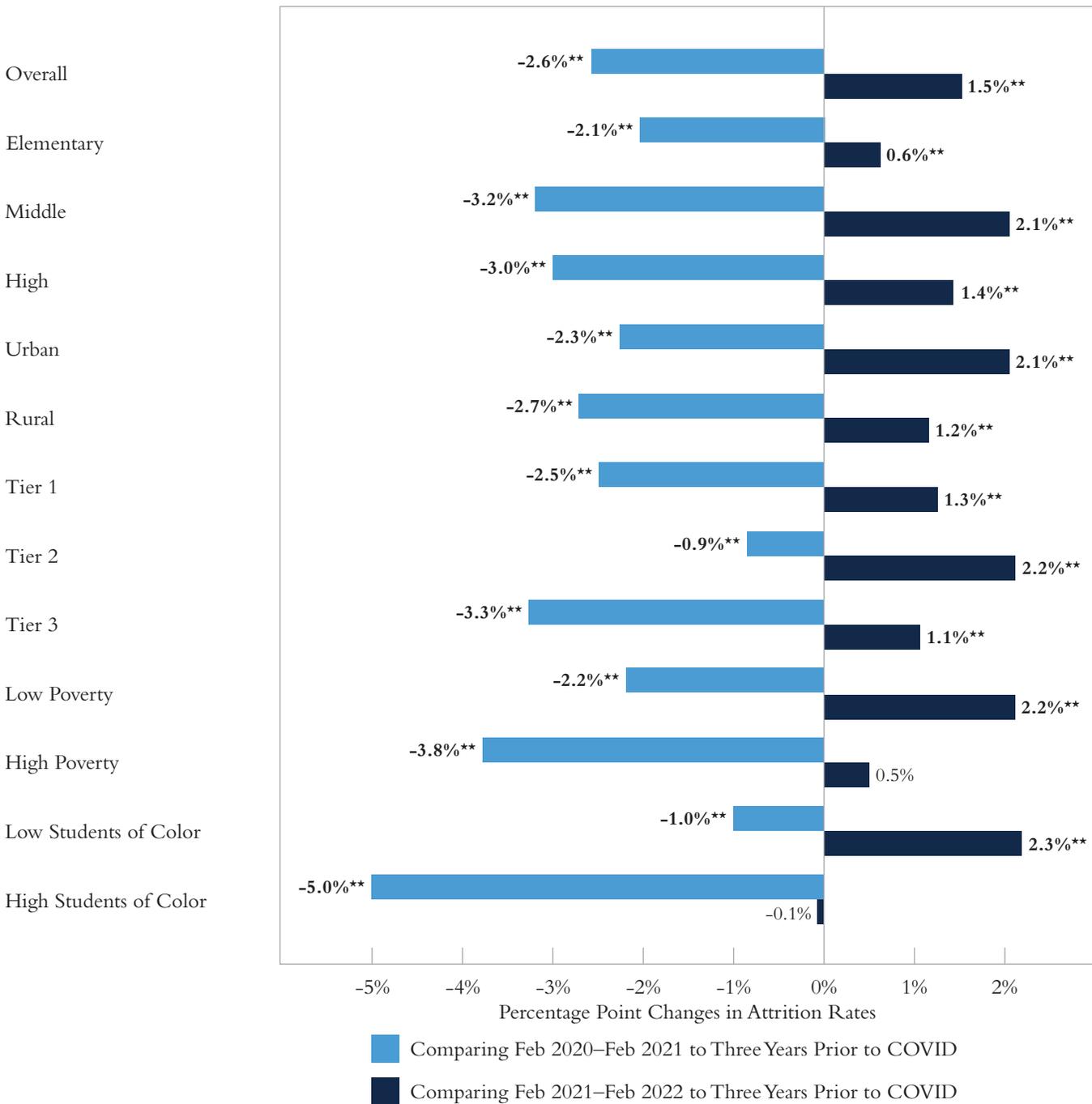
Figure 5 presents changes in the rates of teacher attrition by school characteristics. Relative to the three-year average prior to the pandemic, teacher attrition was down across all school characteristics between February 2020 and February 2021 and up across nearly all school characteristics in the most recent year. Specifically, teacher attrition from their schools was up 1.5 percentage points—relative to pre-COVID averages—in the most recent year. This translates to nearly 1,250 more teacher exits

Figure 4. Changes in Rates of Principal Attrition from NC Public Schools



Note: This figure shows (1) the change in the rate of principal attrition from NCPS between February 2020 and February 2021 compared to the rate over the same months in the three years prior to COVID and (2) the change in the rate of principal attrition from NCPS between February 2021 and February 2022 compared to the rate over the same months in the three years prior to COVID. Data in this figure come from our preferred attrition calculation—i.e. serving as a principal in NCPS in February of a given year and no longer serving as a principal in NCPS in February of the following year. +, *, and ** indicate statistically significant differences in the change of attrition rates (pre- and post-COVID) at the 0.10, 0.05, and 0.01 levels, respectively.

Figure 5. Changes in Rates of Teacher Departures from a Particular NC Public School



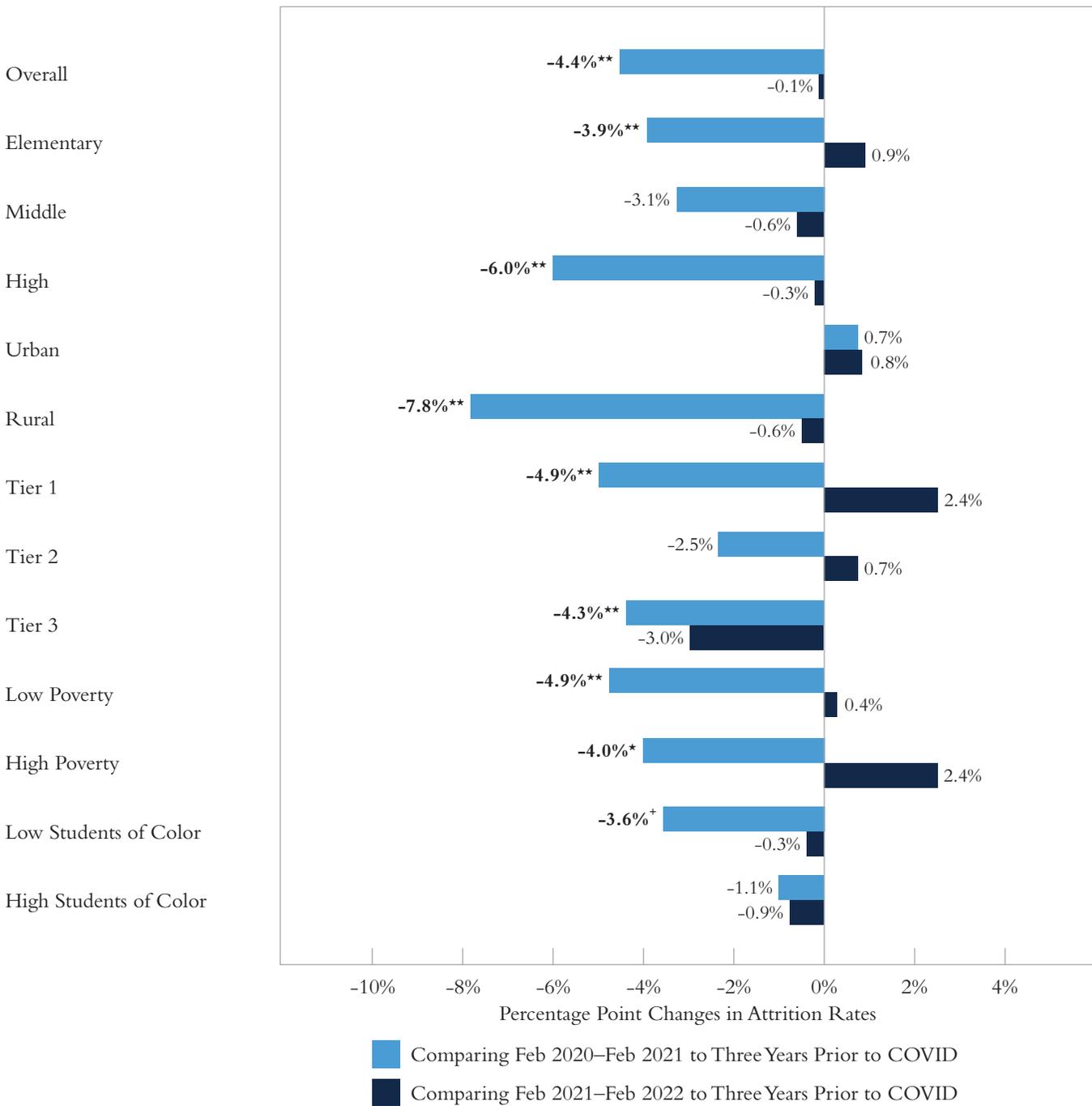
Note: This figure shows (1) the change in the rate of teacher departures from a particular NCPS between February 2020 and February 2021 compared to the rate over the same months in the three years prior to COVID and (2) the change in the rate of teacher departures from a particular NCPS between February 2021 and February 2022 compared to the rate over the same months in the three years prior to COVID. +, *, and ** indicate statistically significant differences in the change of exit rates at the 0.10, 0.05, and 0.01 levels.

from schools between February 2021 and February 2022. Beyond these overall values, several school attrition results warrant further attention. For instance, in the most recent year, we see that increases in teacher attrition from schools were larger in middle

and high schools and larger in urban areas. Most significant are the changes in teacher attrition rates related to the percentage of low-income students and students of color at the school.¹³ Between February 2020 and February 2021, reductions in teacher

¹³ We classify schools as serving high percentages of students of color if they are in the top quartile for the percentage of students of color enrolled; high-poverty schools are the in the top quartile for the percentage of low-income students enrolled. Low students of color schools and low-poverty schools are in the bottom quartiles for those measures, respectively.

Figure 6: Changes in Rates of Principal Departures from a Particular NC Public School



Note: This figure shows (1) the change in the rate of principal departures from a particular NCPS between February 2020 and February 2021 compared to the rate over the same months in the three years prior to COVID and (2) the change in the rate of principal departures from a particular NCPS between February 2021 and February 2022 compared to the rate over the same months in the three years prior to COVID. +, *, and ** indicate statistically significant differences in the change of exit rates at the 0.10, 0.05, and 0.01 levels.

attrition were larger in schools serving more low-income students and more students of color. Furthermore, in the most recent year, we note that teacher attrition increases were smaller in schools serving more low-income students and students of color. Taken together, this means that gaps in teacher attrition rates have narrowed during the pandemic. For example, prior to the start of the pandemic, teacher attrition rates were 26.6 percent in schools with high percentages of students of color and 15.0 percent in

schools with low percentages of students of color. Currently, those attrition rates are 26.5 percent and 17.3 percent, respectively.

Figure 6 displays changes in the rates of principal attrition by school characteristics. Relative to the three years prior to the start of the pandemic, principal attrition was down across nearly all school characteristics between February 2020 and February 2021. In the most recent year, principal attrition from

their schools returned to pre-pandemic levels, with several noteworthy findings. In particular (although not statistically significant), principal attrition between February 2021 and February 2022 increased more in schools located in Tier 1 economic counties (most economically-distressed) and more in high-poverty schools. This indicates that gaps in principal attrition between higher and lower-priority schools widened by the end of the 2021–22 school year.

How do changes in attrition influence teacher and principal hiring?

Given the changes in educator attrition during the pandemic—down during the first year of the pandemic and up in the most recent year—we examined trends in teacher and principal hiring in NCPS. Table 1 displays counts of the number of newly hired teachers and principals in NCPS, the share of those new hires relative to the full teacher and principal workforce, and the percentage of those new hires who are first-year teachers or principals (i.e. no prior teacher or principal experience).

For teachers, these data show that the number of new hires fell from approximately 9,400, per year, prior to the pandemic to 7,571 at the start of the 2020–21 school year. This fits with lower levels of teacher attrition in the first-year of the pandemic. However, to begin the 2021–22 school year, there were 10,328 newly hired teachers in NCPS. These new hires comprised nearly 11 percent of the teacher workforce and over 67 percent of these new hires had zero years of teacher experience.¹⁴

For principals, the number of new hires also increased at the start of the 2021–22 school year. In particular, there were 315 newly hired principals in September 2021. These new hires comprised nearly 13 percent of the state’s principal workforce and more than 77 percent of these newly hired principals had zero years of principal experience.¹⁵

Discussion

To better understand how the COVID-19 pandemic continues to impact North Carolina educators, we extended our teacher and principal attrition analyses into the 2021–22 school year. These analyses make several potential contributions—providing

Table 1: Newly Hired Teachers and Principals in NCPS

	COUNT OF NEWLY HIRED TEACHERS	% NEW HIRES RELATIVE TO ALL TEACHERS	% NEW HIRES WHO ARE FIRST YEAR TEACHERS
SEPTEMBER 2017	9,299	9.88	59.43
SEPTEMBER 2018	9,583	10.18	59.40
SEPTEMBER 2019	9,266	9.83	60.92
SEPTEMBER 2020	7,571	8.06	55.30
SEPTEMBER 2021	10,328	10.98	67.09
	COUNT OF NEWLY HIRED PRINCIPALS	% NEW HIRES RELATIVE TO ALL PRINCIPALS	% NEW HIRES WHO ARE FIRST YEAR PRINCIPALS
SEPTEMBER 2017	321	13.08	78.50
SEPTEMBER 2018	295	12.09	74.92
SEPTEMBER 2019	247	10.13	71.66
SEPTEMBER 2020	247	10.07	68.42
SEPTEMBER 2021	315	12.70	77.14

Note: This table displays counts of newly hired teachers and principals in NCPS, the percentage of new hires relative to all teachers and principals, and the percentage of new hires who are first-year teachers or principals.

¹⁴ Of the 10,328 newly hired teachers in September 2021, 9.1 percent of them were no longer teachers in NCPS in February 2022.

¹⁵ Nearly 82 percent of the newly-hired principals in September 2021, served as assistant principals in NCPS in the 2020–21 school year.

evidence to inform the work of practitioners and policymakers and motivating on-going studies to more fully assess the resources and practices that support educator retention. From our analyses there are four primary findings.

First, after drops in attrition between February 2020 and February 2021, educator attrition increased in the most recent year. Attrition from teaching positions in NCPS—between February 2021 and February 2022—was nearly two percentage points higher than pre-pandemic levels. When examining the geography of these results, we found that increases in teacher attrition were larger in the southeast and western portions of the state. Attrition from principal positions in NCPS was also up in the most recent year and back to pre-pandemic levels. North Carolina is not alone in these findings. Rather, these findings are consistent with studies from other states and districts showing increases in educator attrition in the most recent year and with broader scholarship on the Great Resignation. The key question is how North Carolina can further support its educators—during these challenging times—and lessen attrition in the coming years.

Second, while most educator groups experienced increases in attrition from NCPS between February 2021 and February 2022, several results warrant additional attention. In particular, we found that the attrition rates for novice teachers and teachers of color were particularly elevated in the most recent year. Pre-pandemic, novice teachers and teachers of color already had higher attrition rates than their more experienced and white peers. These gaps are now wider. This may be especially concerning given the state's efforts to diversify its teacher workforce. Results also show that educators with higher levels of prior performance—higher EVAAS estimates and NCEES ratings—experienced larger attrition increases in the most recent year. Keeping effective teachers and principals is essential for student learning recovery and acceleration.

Third, there are mixed results regarding educator attrition in high-priority schools. Comparing data from the most recent year

(February 2021 to February 2022) to pre-pandemic averages, gaps in teacher attrition narrowed between schools educating many versus few low-income students and students of color. While encouraging, this outcome is generally due to attrition rates remaining constant in high-priority schools and increasing in schools educating fewer low-income students and students of color. Longer-term, North Carolina needs to increase teacher retention rates in schools educating many low-income students and students of color. Unlike teachers, data from 2021–22—relative to pre-pandemic averages—show that gaps in principal attrition widened in high-poverty versus low-poverty schools.

Finally, North Carolina had more newly-hired and first-time teachers and principals at the start of the 2021–22 school year than at almost any point over the last five years. These increases are likely a result of increased educator attrition and signal a need for North Carolina districts and schools to provide the supports and resources—e.g. coaching and mentoring, professional development, high-quality instructional materials, sufficient time for planning/collaboration, and compensation—that will help these educators succeed and stay.

For More On This Topic

Bacher-Hicks, A., Chi, O.L., & Orellana, A. (2022). Two years later: How COVID-19 has shaped the teacher workforce. EdWorkingPaper No. 22-572. Retrieved from: <https://www.edworkingpapers.com/sites/default/files/ai22-572.pdf>

Camp, A., Zamarro, G., & McGee, J.B. (2022). Changes in teachers' mobility and attrition in Arkansas during the first two years of the COVID-19 pandemic. *Education Reform Faculty and Graduate Students Publications*. Retrieved from: <https://scholarworks.uark.edu/edrepub/138>

Goldhaber, D. & Theobald, R. (2022). Teacher attrition and mobility over time. *Educational Researcher*, 51(3), 235–237.

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