



The Retention of UNC System Prepared Teachers in North Carolina Public Schools

In this research brief, the Education Policy Initiative at Carolina (EPIC) examines the retention outcomes of early-career teachers prepared by UNC System institutions. Through descriptive analyses, we report one-year and three-year retention rates for teachers in North Carolina public schools (NCPS). We find that early-career teachers traditionally prepared at in-state universities (public or private) have substantially higher retention rates than those prepared out-of-state or through alternative routes. For a more rigorous assessment of teacher retention, we also estimate a series of regression models that include a rich set of covariates and a school fixed effect. We find that four UNC System institutions—FSU, NCCU, UNCP, and WSSU—have particularly high retention rates, especially in schools serving the highest proportions of low-income students and students of color. These findings highlight the important role played by UNC System institutions that have historically served teacher candidates of color.

Introduction

Retaining teachers has many benefits, both for individual schools and for school systems as a whole. With higher teacher retention, schools have the continuity to develop collaborative, trusting school cultures, students learn more, and districts can allocate fewer funds to teacher recruitment and development. The consequences of teacher attrition are particularly harmful in high-poverty and low-performing schools, where teacher turnover is higher and vacant positions are more likely to be filled by novice, out-of-field, and alternative entry teachers.

While school working conditions and leadership are the strongest predictors of retention, teacher preparation also influences whether teachers remain in teaching and stay at their current school. Prior research shows that those

prepared through traditional, university-based programs are more likely to stay in teaching than their alternative entry peers and that graduates of certain preparation programs are more likely to persist than peers from other programs. In this research brief, the Education Policy Initiative at Carolina (EPIC) builds upon this work by assessing the retention of teachers from each UNC System institution. We begin with descriptive charts that show the retention, mobility, and attrition patterns of early-career teachers from each UNC System institution. We further these descriptive results with rigorous analyses that focus on retention in high-poverty and rural schools. Focusing on these school environments is particularly relevant given statewide efforts to reduce inequities and diversify the teacher workforce. This research brief is a complement to other EPIC studies examining the effectiveness of UNC

System-prepared teachers.¹ Together, these effectiveness and retention analyses provide a more complete perspective on the contributions of UNC System institutions to North Carolina’s K–12 public schools.²

Background

In our retention analyses, we focus on early-career teachers—those with less than five years of experience—in the 2009–10 through the 2017–18 school years. We focus on early-career teachers because they are more likely to exit the teaching profession than veteran teachers and because their retention outcomes are more relevant for the accountability and improvement of teacher preparation programs. Our descriptive charts and regression models explore the retention outcomes of those traditionally prepared to teach at a UNC System institution. This includes those earning an undergraduate education degree, those earning a teaching certification concurrent with a non-education undergraduate degree, those earning a graduate level education degree resulting in an initial license (e.g. Master of Arts in Teaching), and those completing a licensure/certificate program prior to beginning teaching.

For our descriptive charts and analyses we report the following: (1) the percentage of early-career teachers that return to the same school in the following year, move to a different school in the following year, or exit teaching in North Carolina public schools³ (NCPS); (2) the percentage of first-year teachers who will return for three consecutive years of teaching in the school that initially hired them; and (3) the percentage of first-year teachers who will return for three consecutive years of teaching in any NCPS. We report these percentages for each UNC System institution and for those entering teaching through the following routes: in-state private institutions, out-of-state institutions, Teach For America (TFA), and alternative entry.

For a more rigorous assessment of teacher retention, we estimate a series of regression models. In these models we focus on the following outcomes: (1) returning to teach in the same school in the following year and (2) for first-year teachers, returning to the school that initially hired them for three consecutive years. We estimate these models across all NCPS and estimate separate models for high-poverty schools⁴ and for rural schools.⁵ We focus on these specific school environments because they often have the most difficulty attracting and keeping teachers. Our preferred regression models, whose results are included in this brief, compare retention outcomes for teachers working in the same schools. We also estimated models that make statewide teacher retention comparisons. In all of our regression models, we control for a rich set of teacher, classroom, school, and principal characteristics.

What are the retention patterns of early-career teachers in North Carolina?

For our first measure of retention, we considered early-career teachers’ one-year retention rates. In the transition from each school year to the next, a teacher might (1) return to the same school; (2) move to another NCPS; or (3) exit teaching in NCPS. Over our nine years of data, approximately 76–79 percent of the early-career teachers prepared by UNC System institutions returned to teach at the same school in the following year (Figure 1). Among UNC System institutions, ASU, UNCA, UNCP, WCU, and WSSU had graduates with the highest rates of returning to the same school (>78.5 percent), while ECSU and NCA&T had the lowest rates of return (~76 percent). In terms of exiting teaching in NCPS, rates varied modestly among UNC System institutions, from less than nine

¹ See the following for the latest UNC System program effectiveness analyses: https://publicpolicy.unc.edu/files/2019/02/Program-Effectiveness_Final.pdf

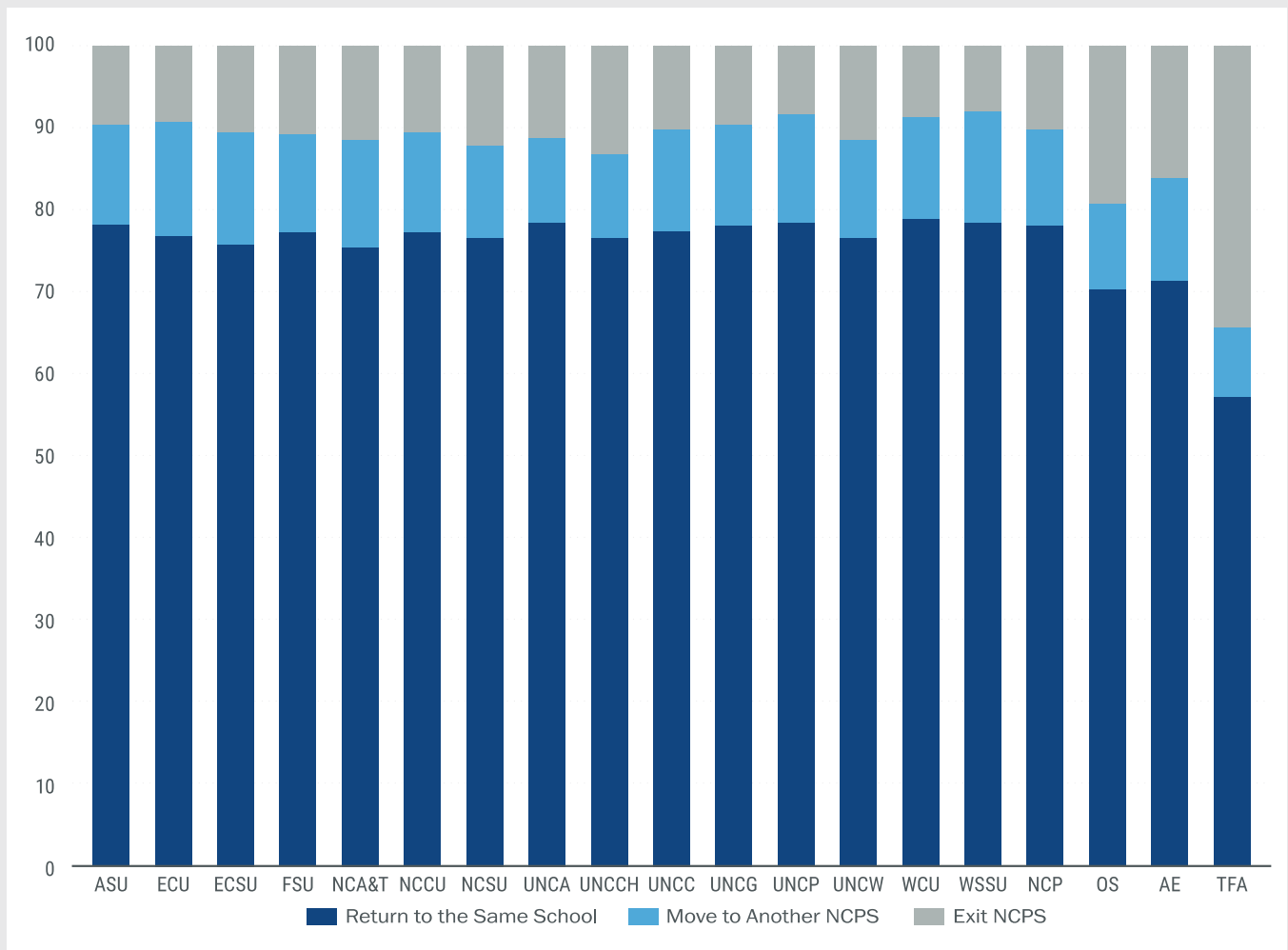
² Further research should consider the effectiveness of UNC System prepared teachers in high-priority schools and the effectiveness of teachers who stay in versus exit high-priority schools. We focus only on retention given its impact on district finances and connections to school culture, staffing, and achievement.

³ We only track teacher retention in the state’s traditional (non-charter) public schools. Teachers who move to a charter or private school in North Carolina are no longer part of our administrative data.

⁴ We define high-poverty schools as those that are in the top quartile for the percentage of economically-disadvantaged students enrolled. Retention estimates are comparable in models focused on other high-need schools (i.e. low-performing schools).

⁵ When considering whether early-career teachers will return to a high-poverty or rural school, it is important to consider the characteristics of teacher labor markets. Specifically, many graduates of UNC System institutions secure teaching positions in close proximity to their preparation program and/or where they are from.

Figure 1: The Retention Patterns of Early-Career Teachers (2009-10 Through 2017-18)



Note: For early-career teachers in the 2009-10 through 2017-18 school years, this figure displays the percentage of teachers who will return to the same school, move to another NCPS, or exit teaching in NCPS. Data is presented for each UNC System EPP and for in-state private (NCP), out-of-state (OS), alternative entry (AE), and Teach For America (TFA) teachers.

percent for ECU, UNCP, and WSSU to greater than 11 percent for NCA&T, NCSU, and UNCCH.

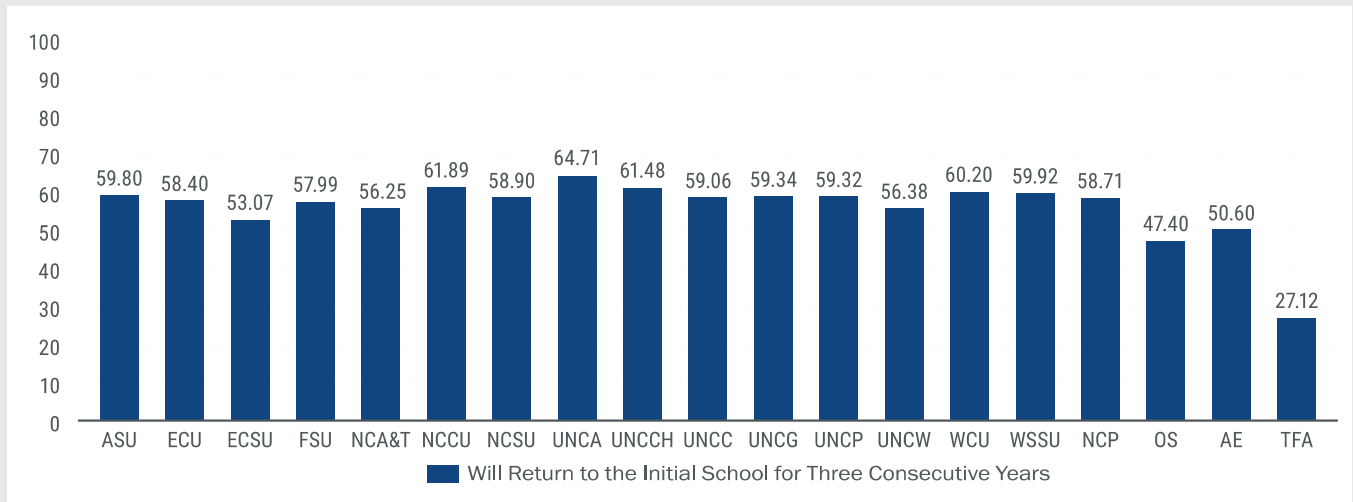
Figure 1 shows that the retention rates of early-career teachers prepared at in-state private institutions were similar to those for peers prepared at UNC System institutions. Among early-career teachers from in-state private institutions, 78.5 percent returned to the same school in the following year and 9.6 percent exited teaching in NCPS. The largest differences in the rates of return and exit were between traditionally prepared teachers from in-state programs (public or private) versus those prepared out-of-state or through alternative entry routes.

Another way to understand retention patterns is to assess the career moves of early-career teachers over a longer period. As such, we measured (1) the percentage of first-year teachers who returned to teach in their initial school

for three consecutive years and (2) the percentage of first-year teachers who returned to teach in any NCPS for three consecutive years. Relative to the one-year retention outcomes, Figures 2 and 3 show that there is greater variation in the three-year retention outcomes for UNC System institutions.

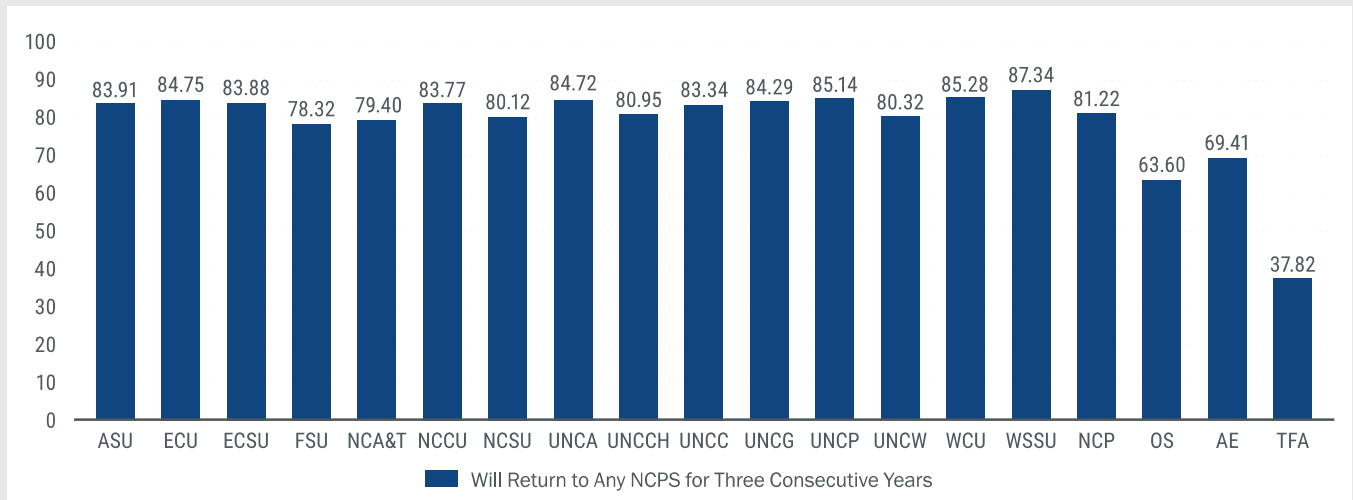
Among teachers prepared at UNC System institutions, the percentage of first-year teachers who remained at their initial school for at least three years varied from 53 to 65 percent (Figure 2). At the higher end of that range were NCCU, UNCA, and UNCCH: over 61 percent of first-year teachers prepared at each of these institutions returned to their initial school for at least three years. UNC System institutions at the lower end of that range were ECSU, NCA&T, and UNCW, with rates less than 57 percent. As with the one-year retention outcomes, the greatest difference in three-year retention rates in the same

Figure 2: The Percentage of New Teachers Returning to Their Initial School for Three Consecutive Years



Note: This figure displays the percentage of first-year teachers in the 2009-10 through 2016-17 school years that will return to teach for a third consecutive year in their initial school. Data is presented for each UNC System EPP and for in-state private (NCP), out-of-state (OS), alternative entry (AE), and Teach For America (TFA) teachers.

Figure 3: The Percentage of New Teachers Returning to Any NCPS for Three Consecutive Years



Note: This figure displays the percentage of first-year teachers in the 2009-10 through 2016-17 school years that will return to teach for a third consecutive year in any NCPS. Data is presented for each UNC System EPP and for in-state private (NCP), out-of-state (OS), alternative entry (AE), and Teach For America (TFA) teachers.

schools was between teachers traditionally prepared at in-state universities (public or private) versus those prepared out-of-state or through alternative routes.

We also examined the rate at which first-year teachers returned to teach in *any* NCPS for three consecutive years. As shown in Figure 3, this rate varied from approximately 78 to 87 percent among UNC System institutions. Those prepared at UNCP, WCU, and WSSU had the highest rates, with over 85 percent staying in NCPS for at least three years. FSU, NCA&T, and NCSU had the lowest

three-year retention rates in NCPS (78–80 percent). Again, the largest difference in retention rates was between teachers prepared through in-state university-based programs versus those prepared out-of-state or through alternative routes. However, there was also a modest difference in rates between teachers prepared at in-state public versus private institutions. The average three-year retention rate in NCPS for first-year teachers from UNC System institutions was 83.2 percent, compared to a three-year retention rate of 81.2 percent for first-year teachers from in-state private institutions.

Table 1: The Effects of Teacher Preparation on Teacher Retention—Among All NCPS

UNC System Institution	Model 1: The Likelihood that an Early-Career Teacher Will Return to the Same School in the Following Year			Model 2: The Likelihood that a New Teacher Will Return to their Initial School for at Least 3 Consecutive Years		
	Percentage Points More/Less Likely to Return	95% Confidence Interval		Percentage Points More/Less Likely to Return	95% Confidence Interval	
ASU	-1.0%	-2.0%	0.0%	-0.7%	-2.9%	1.6%
ECU	0.9%	-0.2%	2.0%	2.9%	0.4%	5.3%
ECSU	2.1%	-1.3%	5.4%	2.3%	-4.0%	8.7%
FSU	5.0%	2.6%	7.3%	6.7%	1.2%	12.1%
NCA&T	-0.3%	-2.8%	2.2%	1.8%	-3.5%	7.1%
NCCU	3.5%	1.0%	6.0%	6.2%	0.7%	11.7%
NCSU	-1.9%	-3.2%	-0.6%	-3.2%	-6.0%	-0.4%
UNCA	-2.1%	-4.6%	0.3%	1.0%	-4.6%	6.7%
UNCCH	-2.5%	-4.2%	-0.7%	0.0%	-3.7%	3.7%
UNCC	-0.6%	-1.8%	0.6%	0.6%	-2.1%	3.3%
UNCG	0.7%	-0.4%	1.8%	1.8%	-0.7%	4.4%
UNCP	4.1%	2.0%	6.1%	6.4%	1.9%	10.9%
UNCW	-1.9%	-3.3%	-0.5%	-5.0%	-8.1%	-1.9%
WCU	-0.8%	-2.3%	0.7%	0.7%	-2.7%	4.2%
WSSU	5.7%	2.8%	8.6%	10.0%	3.8%	16.2%

Note: This table presents estimates from regression models assessing whether early-career teachers will return to the same school in the following year or whether first-year teachers will return to their initial school for three consecutive years of employment. Estimates are for graduates of UNC system institutions relative to early-career teachers from in-state private institutions. All models control for teacher, classroom, school, and principal characteristics and include a school fixed effect. Results in **BLUE** are positive and statistically significant; results in **RED** are negative and statistically significant.

How do retention outcomes compare for UNC System versus in-state private institutions?

The one-year and three-year retention outcomes presented above are valuable because they show the actual career movements of early-career teachers. However, these retention rates do not provide a complete understanding of teacher retention because they do not adjust for important differences in the characteristics of teachers and the schools in which they work. Prior research shows that many individual and contextual factors affect teachers’ decisions to stay at or leave their schools. Regression analyses allow us to assess retention outcomes while controlling for teacher, classroom, school, and principal characteristics. Furthermore, with a school fixed effect, we compare the retention outcomes of those prepared through different routes who are teaching at the same school.⁶ With these

rigorous approaches, we more accurately identify the effect of preparation on teacher retention.

Given the stark differences in retention patterns between early-career teachers prepared at in-state traditional programs (public or private) and their peers prepared out-of-state or through alternative routes, we focus our regression analyses on teachers prepared at in-state institutions. In particular, we compare the retention outcomes of early-career teachers from each UNC System institution against those of early-career teachers prepared at in-state private institutions.

We estimate models for two different retention outcomes—the likelihood that early-career teachers will return to the same school in the following year and the likelihood that first-year teachers will return to their initial school for three consecutive years. Table 1 displays results from these models across all NCPS. Results in the left panel of Table 1 show that, after adjusting for individual and contextual factors,

⁶ A school fixed effect allows us to adjust for other school characteristics/programs for which we do not have data—e.g. supportive relationships between the school and families, beginning teacher support programs.

Table 2: The Effects of Teacher Preparation on Teacher Retention—Among High-Poverty NCPS

UNC System Institution	Model 3: Among High-poverty Schools, the Likelihood that an Early-Career Teacher Will Return to the Same School in the Following Year			Model 4: Among High-poverty Schools, the Likelihood that a New Teacher Will Return to their Initial School for at Least 3 Consecutive Years		
	Percentage Points More/Less Likely to Return	95% Confidence Interval		Percentage Points More/Less Likely to Return	95% Confidence Interval	
ASU	-1.3%	-3.9%	1.3%	-2.2%	-7.4%	3.1%
ECU	-0.2%	-2.7%	2.4%	0.7%	-4.4%	5.8%
ECSU	4.8%	-0.9%	10.5%	9.4%	-0.8%	19.6%
FSU	7.1%	2.8%	11.3%	13.1%	3.5%	22.8%
NCA&T	1.1%	-3.3%	5.5%	8.1%	-0.4%	16.7%
NCCU	3.7%	-0.7%	8.1%	12.5%	3.1%	21.9%
NCSU	-4.2%	-8.1%	-0.3%	-7.2%	-14.6%	0.1%
UNCA	-0.7%	-8.0%	6.6%	-1.9%	-16.4%	12.6%
UNCCH	-4.8%	-9.9%	0.3%	-3.3%	-12.8%	6.2%
UNCC	0.8%	-1.9%	3.6%	4.8%	-0.5%	10.2%
UNCG	1.1%	-1.2%	3.4%	4.3%	-0.6%	9.2%
UNCP	6.9%	3.3%	10.5%	12.4%	5.0%	19.8%
UNCW	-2.8%	-6.0%	0.4%	-7.1%	-13.5%	-0.7%
WCU	-0.4%	-4.1%	3.4%	6.7%	-1.2%	14.5%
WSSU	6.9%	2.6%	11.3%	11.8%	3.6%	20.1%

Note: This table presents estimates from regression models assessing whether early-career teachers will return to their high-poverty school—either in the following year or for three consecutive years of employment. Estimates are for graduates of UNC system institutions relative to early-career teachers from in-state private institutions. All models control for teacher, classroom, school, and principal characteristics and include a school fixed effect. Results in **BLUE** are positive and statistically significant; results in **RED** are negative and statistically significant.

early-career teachers from four UNC system institutions—FSU, NCCU, UNCP, and WSSU—are more likely to return to the same school in the following year compared to early-career teachers prepared at in-state private institutions. For example, early-career teachers prepared at WSSU are 5.7 percentage points more likely to return to the same school in the following year. Conversely, early-career teachers prepared at NCSU, UNCCH, and UNCW are less likely to return to the same school in the following year, as compared to their peers from in-state private institutions.

Findings are similar when assessing the likelihood that first-year teachers will return to their initial school for three consecutive years. The right panel of Table 1 shows that, after adjusting for a rich set of covariates, teachers prepared at ECU, FSU, NCCU, UNCP, and WSSU are more likely to stay at their initial school for three years, compared with first-year teachers prepared at in-state private institutions. For example, first-year teachers prepared at FSU are 6.7 percentage points more likely to stay at their

initial school for at least three years. Conversely, first-year teachers prepared at NCSU and UNCW are less likely than graduates of in-state private institutions to return to their initial school for three years.

What are the retention outcomes for schools serving the highest percentages of low-income students?

It is important to analyze teacher retention within high-poverty environments because these schools tend to have more challenging working conditions and higher turnover rates. As such, we estimate whether early-career teachers will return to the same high-poverty school in the following year and whether first-year teachers will return to their initial high-poverty school for at least three years.⁷ Relative to early-career teachers from in-state private institutions, Table 2 shows that graduates

⁷ Across our nine years of data, 87.9 percent of the students enrolled in high poverty schools (i.e. in the top quartile of school poverty) were identified as low-income.

Table 3: The Effects of Teacher Preparation on Teacher Retention—Among Rural NCPS

UNC System Institution	Model 5: Among Rural Schools, the Likelihood that an Early-Career Teacher Will Return to the Same School in the Following Year			Model 6: Among Rural Schools, the Likelihood that a New Teacher Will Return to their Initial School for at Least 3 Consecutive Years		
	Percentage Points More/Less Likely to Return	95% Confidence Interval		Percentage Points More/Less Likely to Return	95% Confidence Interval	
ASU	-1.7%	-3.2%	-0.3%	-2.1%	-5.5%	1.2%
ECU	1.0%	-0.5%	2.6%	1.9%	-1.5%	5.3%
ECSU	1.9%	-2.3%	6.1%	1.3%	-6.4%	8.9%
FSU	3.5%	-0.6%	7.6%	7.9%	-1.8%	17.7%
NCA&T	-1.4%	-6.1%	3.3%	-1.5%	-12.4%	9.4%
NCCU	2.3%	-3.0%	7.6%	4.0%	-7.4%	15.4%
NCSU	-1.0%	-3.0%	1.1%	-4.2%	-8.6%	0.2%
UNCA	-3.8%	-8.3%	0.6%	-4.1%	-14.0%	5.7%
UNCCH	-3.5%	-6.4%	-0.5%	-0.5%	-7.0%	5.9%
UNCC	-0.5%	-2.2%	1.2%	1.1%	-3.1%	5.2%
UNCG	-0.1%	-1.9%	1.6%	2.0%	-2.2%	6.2%
UNCP	5.4%	2.4%	8.4%	7.9%	1.1%	14.6%
UNCW	-1.1%	-3.2%	1.0%	-5.5%	-10.0%	-0.9%
WCU	-0.3%	-2.4%	1.8%	0.4%	-4.6%	5.5%
WSSU	5.9%	0.5%	11.3%	8.8%	-4.0%	21.6%

Note: This table presents estimates from regression models assessing whether early-career teachers will return to their rural school—either in the following year or for three consecutive years of employment. Estimates are for graduates of UNC system institutions relative to early-career teachers from in-state private institutions. All models control for teacher, classroom, school, and principal characteristics and include a school fixed effect. Results in **BLUE** are positive and statistically significant; results in **RED** are negative and statistically significant.

of FSU, UNCP, and WSSU are more likely to return to their high-poverty school in the following year. First-year teachers trained at these same institutions, plus those trained at NCCU, are more likely to serve at their initial high-poverty school for at least three years. Conversely, early-career teachers from NCSU are less likely to return to the same high-poverty school in the following year and first-year teachers from UNCW are less likely to return to their initial high-poverty school for three years.

These findings suggest that FSU, NCCU, UNCP, and WSSU attract individuals with strong preferences for serving in high-poverty schools and/or that these institutions prepare teachers who are more resilient in the face of challenging work environments. Interestingly, when we conduct the same regression analyses among schools serving the highest proportions of students of color we return similar results: first-year teachers prepared by FSU, NCCU, UNCG, UNCP, and WSSU

are more likely to stay at their initial school for at least three years. Notably, FSU, NCCU, UNCP, and WSSU are among the UNC System institutions that have historically served teacher candidates of color. It is worth considering what these institutions might be doing differently that leads to higher retention rates in schools serving the highest proportions of low-income students and students of color.⁸

What are the retention outcomes for schools located in rural areas?

Like schools serving high proportions of low-income students, schools in rural areas also tend to have greater difficulty attracting and retaining teachers. Results in Table 3 show whether teachers prepared at UNC System institutions are more likely to continue teaching in a rural NCPS, as compared to teachers prepared at in-state private

⁸ In our regression analyses we control for teacher demographics, including whether a teacher is an individual of color. This helps us isolate the independent relationship between preparation and retention (i.e. our estimates are not confounded by teachers' race/ethnicity).

institutions. Teachers prepared by two institutions—UNCP and WSSU—are more likely to return to the same rural school in the following year. For example, adjusting for individual and contextual factors, early-career teachers from UNCP are 5.4 percentage points more likely to return to the same rural school in the following year. Only first-year teachers from UNCP are more likely to remain at their initial rural school for at least three years. Conversely, early-career teachers from ASU and UNCCH are less likely to return to the same rural school in the following year and first-year teachers from UNCW are less likely to stay at their initial rural school for three years.

Discussion

For an individual school, especially a rural or high-poverty school, retaining teachers can have a significant effect on teaching and learning. It can foster a positive, trusting school culture, result in a more experienced faculty, and directly increase student achievement. For North Carolina, retaining teachers is essential to ensuring that we have a sustainable teaching workforce for all our public schools. This brief explored the role that UNC System institutions play in preparing teachers who stay, especially in schools that tend to have challenging working conditions.

Our descriptive charts (Figures 1–3) show that early-career teachers traditionally prepared at in-state university-based programs (public or private) have substantially higher retention rates than those prepared out-of-state or through alternative routes. Early-career teachers prepared at in-state public and private universities had higher rates of returning to the same school in the following year and lower rates of exiting NCPS. Furthermore, the percentage of first-year teachers who stayed at their initial school for at least three consecutive years was much higher if they were

traditionally prepared at one of North Carolina’s public or private universities. These results demonstrate the pivotal role that in-state universities have in sustaining North Carolina’s teaching workforce.

Our regression analyses (Tables 1–3) highlight differences in retention outcomes among the state’s university-based teacher preparation programs. In particular, two UNC System institutions—UNCP and WSSU—stand out. Teachers prepared at UNCP and WSSU are significantly more likely to return to NCPS, overall, and to high-poverty schools and rural schools. In fact, teachers prepared at UNCP had higher retention outcomes across all six of our regression analyses; teachers trained at WSSU had higher retention outcomes in five of our regression analyses. Two other UNC System institutions, FSU and NCCU, also prepared teachers with strong retention outcomes, including at schools with the highest proportions of low-income students and students of color. Notably, all four of these institutions are among those in the UNC System that have historically served teacher candidates of color.

These findings highlight the need for further research that identifies the characteristics of teacher preparation programs that are related to desired retention outcomes. Schools in rural communities and schools serving high proportions of low-income students and students of color tend to have more challenging working conditions and, in turn, higher rates of teacher turnover. Therefore, it is especially important to understand how preparation programs can develop teachers who are resilient and have the ability to succeed and stay in high-priority schools. Identifying and promoting such preparation program characteristics may be one way to advance North Carolina’s educational equity goals.

For More Research on this Topic

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EPIC is an interdisciplinary team that conducts rigorous research and evaluation to inform education policy and practice. We produce evidence to guide data-driven decision-making using qualitative and quantitative methodologies tailored to the target audience. By serving multiple stakeholders, including policy-makers, administrators in districts and institutions of higher education, and program implementers we strengthen the growing body of research on what works and in which context. Our work is ultimately driven by a vision of high quality and equitable education experiences for all students, and particularly students in North Carolina.

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