Addressing Teacher Vacancies in North Carolina

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Executive Summary

Policy Question
How might North Carolina policymakers better address teacher shortages in the state?

Background
When it comes to student learning, high-quality teachers are the most important in-school factor.\(^1\) Having a highly effective teacher in every classroom is a crucial component of creating a strong and equitable public education system. As such, teacher shortages have significant negative consequences for school systems and students.\(^2\)

Contemporary teacher shortages often refer not to a lack in the number of teachers, but rather to a lack of teachers certified to teach subject areas. Research indicates that the factors believed to be driving the current national teacher shortage include a decline in teacher preparation program enrollment, lowered student-teacher ratios, increases in student enrollment, and high teacher attrition rates.\(^3\) Within North Carolina, decreased teacher preparation program enrollment and teacher attrition rates appear to be the most important factors driving teacher vacancies.

Data Collection
This project analyzed both quantitative and qualitative data to gain a deeper understanding of teacher vacancy issues within the state. Quantitative data regarding LEA teacher vacancy, mobility, and attrition rates were combined with LEA demographic data and analyzed to better understand trends over time as well as the characteristics of LEAs most affected by teacher vacancy issues. In addition, 13 interviews were conducted with superintendents, central office administrators, principals, and teachers in two North Carolina LEAs to gain a deeper understanding of how educators are responded to teacher vacancy and turnover issues within LEAs.

Findings
Quantitative analysis of LEA data found that across all three indicators of teacher turnover and shortages – teacher vacancy rates, teacher mobility rates, and teacher attrition rates - the percentage of nonwhite students in an LEA is associated with each indicator of teacher turnover. Additionally, rural LEAs have significantly higher teacher vacancy and mobility rates than their more urban peer LEAs.

Qualitative interviews with case study districts found that addressing deficiencies in the teacher pipeline and increasing the flow of highly trained teachers are viewed as crucial to address shortages. Other common themes from these interviews included the importance of increasing teacher pay and understanding how the Leandro case decision will play out in the coming years. Geographic proximity to teacher preparation programs also emerged as a strong factor in teacher recruitment and vacancy issues.
Discussion
Based on the findings of these analyses, this project suggests several key areas of consideration for state policymakers.

- **Increase teacher pay and provide targeted supplements.**
  Teachers are paid significantly less compared to their similarly educated peers in other industries. Quantitative analysis found that the amount of teacher’s average salary supplement within an LEA was associated with vacancy and mobility rates. In order to both attract new entrants to the profession and retain current teachers, state policymakers need to increase teacher pay. Additionally, policymakers should consider the use of targeted supplements for historically hard-to-staff areas such as math, science, and Exceptional Children teaching roles.

- **Strengthen the teacher preparation pipeline.**
  Additionally, state policymakers need to focus on re-building a strong teacher preparation pipeline. The dramatic decrease in traditional educator preparation program enrollment has led to recruitment and retention challenges for LEAs. State policymakers should strongly consider expanding current teacher preparation initiatives such as NC Teaching Fellows, as well as expanding grow-your-own teacher preparation models such as teacher cadet programs and teacher assistant-to-teacher programs.

- **Focus on equity when targeting interventions.**
  The quantitative analysis here finds that rural LEAs, LEAs with higher percentages of non-white students and FRPL-eligible students, and LEAs with lower average teacher salary supplements are more likely to have higher teacher vacancy rates. These findings indicate a clear equity gap based on geographic, demographic, and socioeconomic factors. As the Leandro case continues to play out, policymakers should strongly focus on targeting interventions towards those LEAs that are currently most underserved.

- **Improve the data collection process used to calculate teacher vacancy rates.**
  Without improved data collection practices regarding teacher vacancy data, the state will continue to have an unclear picture of what teacher shortages in the state actually look like. Understanding where and to what intensity shortages are happening is crucial for identifying the highest-need LEAs and targeting solutions appropriately.
Research Question

The policy question for this project is: How might North Carolina policymakers better address teacher shortages in the state?

Background

Defining Teacher Shortages

Teacher shortages are not a new issue. A 2017 study from the Brookings Institution found that concerns about teacher shortages tend to follow a cyclical pattern. Concerns spike during times of relative economic prosperity and decrease during economic downturns, when the teacher labor market has lower demand. According to national research, the most commonly cited factors believed to be driving the post-Great Recession national teacher shortage are: 1) a decline in teacher preparation program enrollment, 2) lower student-teacher ratios, 3) increased student enrollment, and 4) high teacher attrition rates.

Contemporary teacher shortages typically refer not to a lack of overall volume of teachers, but rather a lack of teachers certified to teach specific subject areas. Teacher shortages are commonly defined as the inability of districts to staff vacant positions at the current salary rate with individuals qualified to teach in the fields needed. It should be noted that in many states at the aggregate level there are an excess number of teachers being trained compared to overall demand. However, new entry teacher candidates do not necessarily focus in the subject areas or the geographic locations with the highest vacancy rates. In the 2015-16 school year, almost every state in the country reported a teacher shortage.

The North Carolina Department of Public Instruction (NC DPI) defines a teacher vacancy, which is typically used to estimate the extent of teacher shortages, as “an instructional position for which there is not an appropriately licensed teacher who is eligible for permanent employment”. Positions that are filled with long-term substitutes, retired teachers, or provisionally licensed teachers are considered vacant because these employees serve as stop-gap measures and are not a permanent and sustainable solution. Prior to the 2016-17 school year, local education agencies (LEAs) were only required to report the teacher license areas they felt were most difficult for them to fill.

Impact of Teacher Shortages

Teacher shortages have serious negative consequences for school systems. A lack of stability in the teaching workforce due to a high number of vacancies requires schools and districts to expend more resources on the hiring process and can lead to institutional memory loss as school teaching staff change year-to-year. This instability and loss of knowledge can hinder efforts to build a collective vision and mission for the school, which is a key factor for school functioning. Some studies estimate that teacher turnover costs North Carolina nearly $63 million per year.
Teacher shortages also have considerable negative consequences for students. Research has shown that a lack of qualified teachers can threaten students’ ability to learn and that teacher turnover is associated with a significant negative effect on student achievement in math and English Language Arts (ELA).

Studies consistently show that teachers are the in-school factor with the largest influence on student achievement. When students have high quality teachers, they are more likely to succeed academically. Having a high-quality teacher in every classroom is a crucial foundational requirement for preparing students for educational success. In the longer term, studies show that students with high-quality teachers are more likely to attend college and earn a higher salary. When there are teacher vacancies, students suffer the consequences of not having high-quality teachers in their classroom.

When a teaching position is vacant, the role is typically filled in the interim by a long-term substitute, a teacher with a provisional license, or by an “out-of-field” teacher who has a credential in a different subject. One study of national data found that approximately 18 percent of all core middle and high school classes across the country are taught by teachers with neither an academic major or certification in the subject. The common use of out-of-field teachers is concerning given that research indicates that student achievement improves when a teacher is certified in the subject they are teaching.

From an equity perspective, low-income students and students of color have historically been the most likely to experience the effects of teacher shortages. Schools with the least resources and the least desirable working conditions are most often the ones with the highest vacancy rates. When vacancies arise at low-income schools, administrators often have a difficult time finding qualified candidates to fill the role and ultimately hire teachers who have lower amounts of experience and preparation.

Teacher Shortages in North Carolina

During the 2017-18 school year in North Carolina, 1,550 (1.49 percent) of the 103,631 total teaching positions were vacant on the 40th day of school. While this number may seem low, it is important to remember that each vacant teacher position represents a classroom of students that does not have a permanent, certified teacher by the 40th day of school – nearly a quarter of the way through the school year – and that this will likely negatively affect the academic achievement of those students. The subject areas with the highest number of teacher vacancies are elementary Core (Math, ELA, Science, Social Studies) and Exceptional Children positions, followed by high school career and technical education (CTE) positions and middle school Math positions.

National comparison of teacher shortages is difficult because not all states report their teacher vacancy rates. However, North Carolina’s vacancy rate is slightly higher than the vacancy rates reported in neighboring Virginia (1.1 percent) and South Carolina (1.2 percent).
Teaching positions typically become vacant due to a combination of teacher attrition and mobility, the combination of which is commonly referred to as turnover. Attrition is defined as the reduction in employees that occurs when a teacher leaves teaching in public schools entirely, while mobility refers to the relocation of a teacher who remains teaching in North Carolina but moves to a different school district.

However, it should be noted that NC DPI no longer uses the term “turnover” to discuss variations in the teaching workforce year-over-year at the state level. Beginning in 2017 with their report on the teaching profession in the 2015-16 school year, NC DPI now discusses attrition and mobility at the state level separately and does not use the term “turnover.” Instead, NC DPI refers to the combined impact of teachers leaving LEAs through attrition or mobility as the “LEA attrition rate”.

In 2017-18, the average LEA attrition rate for the state was 12.45 percent, comprised of a combination of the 8.09 percent average attrition rate and the 4.37 percent average mobility rate. This average LEA attrition rate provides context for the average percentage of instructional capacity LEAs have lost during the given year. The vacancy rate can then be understood as the felt impact in the following school year of these losses in combination with the gains of new teachers into the profession.

Teaching Turnover Rates vs. Other Industries

When comparing teacher LEA attrition rates to turnover rates in other industry sectors across the state, we see that teachers tend to have slightly higher rates of turnover than many other industries, with only three industry sectors having higher rates: Arts, Entertainment and Recreation; Accommodation and Food Services; and Administrative and Support and Waste Management and Remediation Services (See Figure 1).

When contextualizing our understanding of teacher turnover rates in comparison to other industries, it is important to consider that there is a real human cost to turnover and vacancies within the teaching profession that may be more far-reaching as those in other professions and industries.

When a teacher leaves the profession, or even just leaves their current school, they are often replaced with less experienced teacher. Research has shown that teacher inexperience and rates of turnover in schools have a negative impact on student learning – which means that students in schools with high rates of turnover and less experienced teachers have an educational disadvantage.
Literature Review

Factors Influencing Teacher Shortages in North Carolina

Teacher shortages occur due to a mismatch between teacher demand and supply. According to a strong body of national research, the three largest factors behind the demand for teachers are increased student enrollment, legally mandated lower student-teacher ratios, and high teacher attrition rates. On the supply side, the most important factors that influence teacher supply are the number of re-entrants and new entrants to the teaching profession.

Demand for Teachers

Student Enrollment

Between the 2014-15 and 2017-18 school years North Carolina saw a 1.2 percent decrease in K-12 student enrollment, falling from a high of 1,498,654 students in 2014-15 to 1,480,016 students in 2017-18. A rise in student enrollment seems to be the least significant factor influencing teacher shortage issues in the state.

Lower Student-Teacher Ratios

Elementary-level student-teacher ratios seem to be a more relevant contributing factor to the teacher shortage. In the 2016 budget bill, the General Assembly introduced new reduced class size restrictions for grades K-3. The new class size requirements are already being phased in and will be fully in place by the 2020-21 school year. Considerable concern has been voiced about implementation issues. These issues focus around the lack of physical space for an
increased number of smaller-sized classes and the ability of districts to find qualified teachers. These class size requirements have increased the specific need for elementary-level teachers and exacerbated the ongoing teacher shortage.\textsuperscript{35} While 234 vacant elementary teacher positions were reported by NC DPI in 2016-17, that number swelled 158 percent to 603.7 by the 2017-18 school year.\textsuperscript{36}

\textbf{North Carolina Teacher Attrition Rates}

North Carolina has long had higher teacher attrition rates than the national average, according to the most recently available data (See Figure 2). It should be noted that prior to 2015, the methodology of NC DPI teacher turnover reports is less clear and seems to vary. These numbers should be viewed as ballpark comparisons.

Figure 2: Teacher Attrition Rates Over Time

![Teacher Attrition Rates Over Time](image)


Additionally, over the past three years beginning and lateral entry teachers in North Carolina have had particularly high rates of attrition compared to non-beginning and traditionally prepared teachers there (see Table 1). Beginning teachers are defined as teachers with less than three years of teaching experience. Lateral entry teachers are those who enter through an “alternate” route to licensure that allows individuals with a bachelor’s degree or higher in a subject area of need to begin teaching in a classroom while simultaneously earning a professional educator’s license.\textsuperscript{38}

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|}
\hline
Year & Overall Teacher Attrition Rate & Beginning Teacher Attrition Rate & Non-Beginning Teacher Attrition Rate & Lateral Entry Teacher Attrition Rate & Non-Lateral Entry Teacher Attrition Rate \\
\hline
2015-16 & 9.0\% & 12.8\% & 8.2\% & 15.6\% & 8.7\% \\
2016-17 & 8.7\% & 12.3\% & 7.7\% & 15.6\% & 8.3\% \\
2017-18 & 8.1\% & 12.3\% & 7.3\% & 15.5\% & 7.6\% \\
\hline
\end{tabular}
\caption{North Carolina Attrition Rates by Teacher Type}
\end{table}

\textsuperscript{Sources: North Carolina Department of Public Instruction, “State of the Teaching Profession 2015-16.”; North Carolina Department of Public Instruction, “State of the Teaching Profession 2016-17.”; North Carolina Department of Public Instruction, “State of the Teaching Profession 2017-18.”}\textsuperscript{39}

The high rates of attrition among lateral entry teachers are of particular interest due to the 21.4 percent increase in the number of lateral entry teachers in the past school year for
which data are available, increasing from 4,643 teachers in 2016-17 to 5,636 teachers in 2017-18. NC DPI has noted that as the number of lateral entry teachers entering the profession increases, it would be helpful to investigate the driving factors behind these higher than average attrition rates.40

Stat**ed Reasons for Attrition**

The most common reason given for teacher attrition in North Carolina is personal reasons. In the 2017-18 school year, only 21.5 percent of teacher attrition was due to retirement with full benefits. Over half of all teacher attrition - 53.9 percent - was due to personal reasons.41

The majority of teachers leaving the profession in North Carolina are choosing to do so. Of those who said they left due to personal reasons, 12.3 percent of teachers reported that they left due to family relocation and 11.5 percent of teachers left due to a career change. An additional 9.2 percent of teachers said they left to teach in another state.42 This is not particularly surprising, given that North Carolina’s teacher salaries do not stack up well compared to some neighboring states. The average North Carolina teacher’s salary is just $51,231, while teachers in nearby states Georgia and Virginia make $59,194 and $54,122 on average, respectively.43

**Teacher Supply**

*Decrease in North Carolina Teacher Preparation Pipeline*

A considerable decrease has occurred in state teacher preparation program enrollment over the last eight years. Enrollment in North Carolina teacher preparation programs has decreased 40% since 2011, from a high of 18,248 students in 2011 to just 13,161 in 2018.44 Interestingly, there was a large drop – 14 percent – between 2013 and 2014, when a wave of policies removing advanced teacher pay and career status were passed by the state General Assembly (See Figure 3).

**Figure 3: North Carolina Education Program Enrollment Over Time**

![UNC System Education Program Enrollment Over Time](source: UNC Educator Quality Dashboard: Education Preparation Enrollment Trends)

Overall, the number of credentials that the state has issued – both to those who were trained in-state and those who were trained out-of-state – has decreased by about 30%. While 6,881 credentials were awarded in 2010-11, that number fell to just 4,820 in 2015-16 (See Figure 4).45
Diving even further into the preparation paths of new teachers, it is clear that fewer of the teachers in the state are being prepared through traditional in-state programs and an increasing percentage of teacher are trained out-of-state or through alternative routes. The percentage of teachers prepared through traditional in-state programs has dropped in the last decade from nearly 60% in 2001 to just 35% in 2016-17.46 Over that same time period, the percentage of teachers prepared out-of-state also grew slightly, from 28% to 30%.47 In line with these trends, the proportion of lateral-entry teachers jumped significantly in just the last decade, from 14% in 2009-10 to 25% in 2016-17 (See Figure 5).48

Figure 5: Preparation pathways of new teachers, 2009-10 and 2016-17

Source: Darling-Hammond et. al; Educator Supply, Demand, and Quality in North Carolina: Current Status and Recommendations
Potential North Carolina Policy Factors for Attrition and Shortage

The North Carolina General Assembly has introduced a number of policies that have eroded the stability and professionalism of the teaching profession in the state. These include the elimination of advanced degree pay and the removal of career status in 2013, as well as the elimination of retiree health benefits for new teachers in 2017. Career status is similar to tenure, and provided for continuous rather than year-to-year employment for teachers as well as a basic set of due process protections before teachers were dismissed or demoted. While the direct impact of these policies may be difficult to quantify, they have likely played some role in discouraging students from entering the teaching field and influencing teacher’s decisions to leave the profession or state.

North Carolina Programs Currently Addressing the Teacher Shortage

Although the current state teacher shortage in North Carolina is concerning, there are some promising programs that have been implemented at the state-wide level in the past three years. These programs have primarily been aimed at increasing the number of new entrants to the teaching field.

Resurrection of the North Carolina Teaching Fellows

The North Carolina Teaching Fellows Program was resurrected in 2017 in a slightly different form after being eliminated in 2011. The current incarnation of the program is specifically focused on recruiting and retaining highly qualified teachers in special education and STEM fields, with a focus on placing high-qualified teachers at low-performing schools. Participants receive four years of forgivable loans with the condition that they commit to teaching special education or a STEM subject in a North Carolina public school upon graduation. While this program has a strong historical record of success, it does not produce a large number of teachers per year: the 2018-19 cohort consisted of just 74 participants.

Pathways to Practice NC

Also in 2017, UNC Chapel Hill and NC State College of Education launched a collaborative online teacher licensure program aimed at lateral entry teachers. The goal of the program is to help lateral entry teachers become fully licensed and ultimately stay in the classroom. The program is competency-based and self-paced. While promising, this program also serves a limited number and currently has 70 lateral entry licensed teachers from across the state participating.

Gaps in the Literature

Within the North Carolina context, there has not been any publicly released analysis of the distribution and variation in demographics of students impacted by teacher vacancies. Understanding the demographics of the students and communities who are most impacted by the teacher shortage in the state can allow for a more complete understanding of educational quality and access. Additionally, given that national research indicates that teacher attrition is the single largest factor in creating teacher vacancies, further analysis on this variable and recommendations on how to best increase teacher retention are crucial.
Data & Methods

This project takes a mixed methods approach, utilizing both quantitative and qualitative analysis to better understand the distribution of teacher shortages in the state and identify policy recommendations for how the issue can be better addressed.

Quantitative Data

The quantitative analysis portion provides a data-driven foundation for understanding the demographic context of teacher shortages in the state by identifying the characteristics of districts that are experiencing particularly high rates of shortages. Teacher vacancy, mobility, and attrition rates are collected and reported by the North Carolina Department of Public Instruction (NC DPI). Although NC DPI has released some analysis looking at teacher attrition by region and teacher attrition and mobility at low-performing LEAs, there has been no publicly released analysis examining teacher vacancy rates, attrition, and mobility and other characteristics of LEAs. This project aims to expand the range of analysis by including analysis of teacher vacancy, mobility, and attrition rates in conjunction with student race/ethnicity, socioeconomic status, academic performance, and school culture indicators.

Data Sources

The NC DPI State of the Teaching Profession reports provide data on teacher vacancy rates, defined as the number of vacant teaching positions on the 40th day of the school year over the total number of teaching positions in the district. These vacancy rates are given for the LEA as a whole as well as disaggregated out by grade level (K-5, 6-8, 9-12) and subject area (Elementary Core, English Language Arts (ELA), Social Studies, Math, Science, Career and Technical Education (CTE), Exceptional Children (EC), and Enhancements). The NC DPI State of the Teaching Profession reports also provide LEA-level data on teacher mobility and attrition rates.

Geographic locales of LEAs were determined based on NCES definitions of rural, suburban, town, and city LEA classifications. Information about LEA characteristics were pulled from publicly available NC DPI data. The NC DPI Statistical Profile Online provides information on student race/ethnicity (American Indian/Alaska Native, Asian or Asian Pacific Islander, Hispanic, Black, White, Hawaiian Native/Pacific Islander, two or more races). NC District Report Cards include data on student performance on standardized tests, student attendance, suspensions, and expulsions. NC DPI data on free and reduced-price meal applications also provides additional socioeconomic context of LEAs. See Appendix 1 for maps of SY 2107-18 vacancy, mobility, and attrition rates.

Data Limitations

Due to significant changes in how NC DPI collects, analyzes, and presents teacher attrition and mobility data, these rates could only be compared for the 2015-16 school year and onward. Teacher vacancy data is only available for the 2016-17 and 2017-18 school years.
Analysis

The data listed above was collected from the various sources and combined using the school district’s LEA ID number. The data was analyzed using linear regression models in order to understand relationships between the LEA characteristic variables and their impact on teacher vacancy, mobility, and attrition rates.

A regression analysis of the 2017-18 school year teacher vacancy, attrition, and mobility rates with the above predictors provides a snapshot of the status of teacher shortages in the most recently available school year. An additional regression analysis examined teacher mobility and attrition rates over the time period of 2015-16 to 2017-18, using a school year variable and standard errors clustered by LEA. A final regression analysis examined teacher vacancy rates over the time period of 2016-17 and 2017-18, again using a school year variable and clustering standard errors by LEA.

Case Studies

The qualitative case study component helps to place the quantitative data analyzed above in real world experiences and provide an on-the-ground understanding of the challenges facing districts as they work to recruit and retain teachers, as well as highlight successful practices in districts with relatively low vacancy rates. Case study LEAs were selected based on their urbanicity, teacher vacancy rate, driving proximity to Durham, and willingness to participate. The urbanicity of LEAs was based on overlapping definitions of rural, suburban and city, and urban counties by the NC Rural Center and by definitions of rural and non-rural by NCES.

The case study LEAs examined for this project were Greene County Schools and Franklin County Schools. Within each LEA, key leaders were interviewed in order to better understand the reality of the LEA. These leaders included the Superintendent, the Assistant Superintendent for Administration and Operations, the Superintendent of Curriculum and Instruction, and the Director of Human Resources. When possible, principals and teachers within the case study districts were also interviewed. A standard open-ended interview instrument was be used for all subjects. Questions were focused on teacher vacancy rates, teacher recruitment and retention efforts, perceived causes of attrition and mobility, and community context. See Appendix 2 for interview protocols.

In preparation for the key leader interviews, this project also examined data from the North Carolina Teacher Working Conditions Survey for the selected case study LEAs. This survey includes information on teacher’s perceptions of their school leaders, professional development opportunities, and instructional practice and support. This data helped to provide an anonymized perceptual understanding of teachers experiences within each LEA.
Regression Analysis – Teacher Vacancy in NC

2017-18: Teacher Vacancy, Attrition, and Mobility Rates

Vacancy Rate

Table 3 presents results for the regression examining LEA vacancy rates in SY 2017-18. As can be seen in Column 1 of Table 3, the LEA characteristics with a statistically significant association with LEA vacancy rates include whether the LEA is classified as a city or town geographic locale, the percentage of nonwhite students in the LEA, and the rate of long-term suspensions. Also statistically significant, but at a lower threshold, are the percentage of students qualifying for free and reduced price lunch and the average teacher salary supplement.

Compared to rural districts, those with a city or town geographic locale designation had teacher vacancy rates that were lower than rural LEAs, by 2.2 percentage points and 1.2 percentage points respectively. The percentage of nonwhite students is associated with an increase in teacher vacancy rates, with a 1 percentage point increase in nonwhite students associated with a .06 percentage point increase in teacher vacancy rates. At a lower significance threshold, a 1 percentage point increase in the percentage of students qualifying for free and reduced-price lunch is associated with a .03 percentage point increase in vacancy rates.

Long-term suspension rates are also associated with an increase in teacher vacancy rates, with a 1 percentage point increase in long-term suspensions for students in the district being associated with a .06 percentage point increase in vacancy rates. At a lower significance threshold, the amount of the average teacher salary supplement is also negatively related to teacher vacancy rates, with every additional $1000 dollars in supplement associated with a .04 percentage point decrease in vacancy rates.

Mobility Rate

As can be seen in Column 2 of Table 3 below, the LEA characteristics with a statistically significant association with LEA mobility rates include a city or town geographic locale designation and the percentage of non-white students in the LEA.

Compared to rural districts, those with a city or town geographic locale designation had lower teacher mobility rates, by 1.4 percentage points and 1.3 percentage points respectively. The percentage of nonwhite students is associated with an increase in teacher mobility rates, with a 1 percentage point increase in nonwhite students associated with a .06 percentage point increase in teacher mobility rates.

Attrition Rate

As can be seen in Column 3 of Table 3 below, the only LEA characteristic with a statistically significant association with attrition is the percentage of nonwhite students in the LEA. The percentage of nonwhite students is related to higher teacher attrition rates, with a 1 percent increase in nonwhite students associated with a .08 percentage point increase in attrition rate.
Table 3: SY 2017-18 Teacher Vacancy, Mobility, and Attrition

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Standard errors are in parenthesis

*** p<0.01, ** p<0.05, * p<0.1

2015-16 to 2017-18: Teacher Mobility and Attrition Rates Over Time Mobility Rate

Table 4 presents the results of the regression analysis examining the relationship between LEA mobility rate and LEA characteristics between SY 2015-16 and SY 2017-18. As can be seen in Column 1 of Table 4 above, the LEA characteristics with a statistically significant association with the mobility rate are the designation of a city or town geographic locale and the percentage of nonwhite students. Also statistically significant, but at a lower threshold, are the percentage of students testing as grade level proficient and the amount of the average teacher salary supplement. Additionally, when examining teacher mobility rate by year we see that SY 2016-2017 had slightly higher mobility rates than SY 2015-16.

Compared to rural districts, those with a city or town geographic locale designation had lower teacher mobility rates, by approximately 1.2 percentage points each. The percentage of
nonwhite students is correlated with an increase in teacher mobility rates, by about .07 percentage points per 1 percent increase in nonwhite students in an LEA.

The percentage of students testing as grade level proficient is associated with a .01 percentage point decrease in mobility rates, per 1 percent increase in students who test as proficient. At a lower significance threshold, the amount of the average teacher supplement is also negatively related to teacher vacancy rates, with every additional $1000 dollars in supplement associated with a .02 percentage point decrease in vacancy rates.

Attrition Rate

As can be seen in Column 2 of Table 4 below, the only LEA characteristic with a statistically significant association with the attrition rate was the percentage of nonwhite students in the LEA. The percentage of nonwhite students is correlated with an increase in teacher attrition rates, by about .08 percentage points per 1 percent increase in nonwhite students in an LEA. Additionally, when examining teacher mobility rate by year we see that SY 2017-2018 had slightly lower attrition rates than SY 2015-16.

Table 4: SY 2015-16 to SY 2017-17, Teacher Mobility and Attrition Rates

<table>
<thead>
<tr>
<th></th>
<th>(1) Mobility Rate</th>
<th>(2) Attrition Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>City geographic designation</td>
<td>-0.012**</td>
<td>0.008</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.007)</td>
</tr>
<tr>
<td>Town geographic designation</td>
<td>-0.012**</td>
<td>-0.001</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.007)</td>
</tr>
<tr>
<td>Suburb geographic designation</td>
<td>0.009</td>
<td>0.005</td>
</tr>
<tr>
<td></td>
<td>(0.006)</td>
<td>(0.006)</td>
</tr>
<tr>
<td>Percentage of nonwhite students</td>
<td>0.076***</td>
<td>0.081***</td>
</tr>
<tr>
<td></td>
<td>(0.015)</td>
<td>(0.021)</td>
</tr>
<tr>
<td>Percentage of students qualifying for FRPL</td>
<td>-0.005</td>
<td>-0.011</td>
</tr>
<tr>
<td></td>
<td>(0.011)</td>
<td>(0.015)</td>
</tr>
<tr>
<td>Average teacher salary supplement in LEA</td>
<td>-0.002*</td>
<td>-0.002</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.002)</td>
</tr>
<tr>
<td>Percentage of students testing as grade level proficient</td>
<td>-0.001*</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Short term suspensions</td>
<td>-0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Long term suspensions</td>
<td>0.030</td>
<td>0.016</td>
</tr>
<tr>
<td></td>
<td>(0.020)</td>
<td>(0.021)</td>
</tr>
<tr>
<td>SY 2016-2017</td>
<td>0.008***</td>
<td>-0.004</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.003)</td>
</tr>
<tr>
<td>SY 2017-2018</td>
<td>0.002</td>
<td>-0.008***</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.003)</td>
</tr>
<tr>
<td>_cons</td>
<td>0.055***</td>
<td>0.039</td>
</tr>
<tr>
<td></td>
<td>(0.020)</td>
<td>(0.029)</td>
</tr>
<tr>
<td>Obs.</td>
<td>345</td>
<td>345</td>
</tr>
</tbody>
</table>
2016-17 & 2017-18: Teacher Vacancy Rates Over Time

Table 5 presents the results of a regression analysis examining the relationship between LEA vacancy rate and LEA characteristics between SY 2016-17 and SY 2017-18. As can be seen in Column 1 of Table 5 above, the LEA characteristics with a statistically significant association with vacancy rates included the designation of city geographic locale, the percentage of nonwhite students in the LEA, and the rate of long-term suspensions. Also statistically significant but at a lower threshold are a town geographic designation and the rate of short term suspensions. Additionally, we see that there was a statistically significant, if small, increase in vacancy rates between SY 2016-17 and SY 2017-18.

Compared to rural districts, those with a city geographic locale designation had lower teacher vacancy rates, by approximately 1.8 percentage points. The percentage of nonwhite students is correlated with an increase in teacher vacancy rates, by about .05 percentage points per 1 percentage point increase in nonwhite students in an LEA. Long-term suspension rates are also associated with an increase in teacher vacancy rates, by about .05 percentage points per 1 percentage point increase in long term suspension rate as.

Compared to rural districts, those with a town geographic locale designation had lower teacher vacancy rates by approximately 1 percentage point. An LEA’s short-term suspension rate was associated with a higher teacher vacancy rate, with about a .01 increase per 1 percentage point increase in short term suspension rate.

Table 5: SY 2016-17 to SY 2017-18, Teacher Vacancy Rates

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vacancy Rate</td>
<td></td>
</tr>
<tr>
<td>City geographic designation</td>
<td>-0.018***</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
</tr>
<tr>
<td>Town geographic designation</td>
<td>-0.010*</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
</tr>
<tr>
<td>Suburb geographic designation</td>
<td>-0.006</td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
</tr>
<tr>
<td>Percentage of nonwhite students</td>
<td>0.052***</td>
</tr>
<tr>
<td></td>
<td>(0.014)</td>
</tr>
<tr>
<td>Percentage of students qualifying for FRPL</td>
<td>-0.018</td>
</tr>
<tr>
<td></td>
<td>(0.015)</td>
</tr>
<tr>
<td>Average teacher salary supplement in LEA</td>
<td>-0.002</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
</tr>
<tr>
<td>Percentage of students testing as grade level proficient</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
</tr>
<tr>
<td>Short term suspensions</td>
<td>0.001*</td>
</tr>
</tbody>
</table>
Long term suspensions  
0.052***  
(0.018)

SY 2017-18  
0.007***  
(0.002)

_cons  
-0.002  
(0.023)

Obs.  
220

R-squared  
0.438

Standard errors are in parenthesis  
*** p<0.01, ** p<0.05, * p<0.1

Common Findings

Across all three indicators of teacher turnovers and shortages, we see that within North Carolina LEAs during SY 2017-18, the percentage of nonwhite students in an LEA is associated with higher teacher vacancy, mobility, and attrition rates. Additionally, we see that rural LEAs have higher teacher vacancy and mobility rates than their more urban peer LEAs.

When analyzing these indicators across school years, these results continue to hold true. In both SY 2016-17 and SY 2017-18 we see that a city or town geographic locale, the percentage of nonwhite students in an LEA, and the long-term suspension rate all have statistically significant associations with teacher vacancy rates. Additionally, we see that from SY 2015-16 through SY 2017-18 city and town geographic locales, and the percentage of nonwhite students in an LEA are significantly associated with teacher mobility rates. Interestingly, the only variable included in this analysis that had a statistically significant association with attrition rates was the percentage of nonwhite students in an LEA.
Case Study: Greene County Schools

LEA Overview
Greene County is an example of a rural county that is beating the expected odds when it comes to teacher shortages. Located in central Eastern North Carolina, the county is considered rural by NCES and the LEA is relatively small and low-wealth compared to other LEAs across the state (See Table 6). However, Greene County falls in the lowest quartile of teacher vacancy rates in the state, with just a 0.5% reported vacancy rate in SY 2017-18.

Table 6: Greene County vs. North Carolina Characteristics

<table>
<thead>
<tr>
<th>LEA Characteristics</th>
<th>Greene County Schools</th>
<th>North Carolina</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Certified Positions</td>
<td>210</td>
<td>920</td>
</tr>
<tr>
<td>Student Enrollment</td>
<td>3067</td>
<td>5902</td>
</tr>
<tr>
<td>Teacher Vacancy Rate</td>
<td>0.5%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Teacher Attrition Rate</td>
<td>7.9%</td>
<td>8.09%</td>
</tr>
<tr>
<td>Teacher Mobility Rate</td>
<td>9.8%</td>
<td>5.2%</td>
</tr>
<tr>
<td>LEA Attrition Rate</td>
<td>17.8%</td>
<td>13.3%</td>
</tr>
<tr>
<td>Recoupment Rate</td>
<td>23.3%</td>
<td>33.7%</td>
</tr>
<tr>
<td>Percentage of non-white students</td>
<td>69.8%</td>
<td>46.7%</td>
</tr>
<tr>
<td>Percentage of students qualifying for Free or Reduced Price Lunch</td>
<td>100%*</td>
<td>68.7%</td>
</tr>
<tr>
<td>Short Term Suspensions</td>
<td>508</td>
<td>1783</td>
</tr>
<tr>
<td>Long Term Suspensions</td>
<td>0</td>
<td>5.3</td>
</tr>
<tr>
<td>Percent of Students Grade Level Proficient on EOG/EOG Tests</td>
<td>42.4%</td>
<td>56.3%</td>
</tr>
<tr>
<td>Average Teacher Supplements</td>
<td>$1000</td>
<td>$2629</td>
</tr>
<tr>
<td>County Characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median Household Income</td>
<td>$36,839</td>
<td>$50,320</td>
</tr>
<tr>
<td>Percentage of people below the poverty level, past 12 months</td>
<td>25.8%</td>
<td>16.1%</td>
</tr>
<tr>
<td>Median Age (years)</td>
<td>43.8</td>
<td>40.4</td>
</tr>
<tr>
<td>Percent high school graduate or higher</td>
<td>75.2%</td>
<td>86.9%</td>
</tr>
<tr>
<td>Percent bachelors degree or higher</td>
<td>9.8%</td>
<td>29.9%</td>
</tr>
</tbody>
</table>


Teacher Vacancy Solutions in Greene County
While Greene County has a relatively low teacher vacancy rate compared to other LEAs in the state, vacancies still occasionally occur. When vacancies do arise, the primary focus of LEA administrators is on ensuring that there is a high-quality teacher to place in the classroom to serve in the interim while the LEA recruits and hires someone for the role. The most common solution is to place a long-term substitute teacher in the classroom, and this has typically been
possible for administrators to do. Some interviewees also mentioned leveraging their personal connections with retired teachers in the county to fill positions on a short-to-long-term basis while looking for permanent candidates for the role.

In addition to the use of long-term substitutes the district has, in some unique cases, installed a long-term substitute and simultaneously co-enrolled students in online learning courses. These online courses have been conducted both through the North Carolina Virtual Public School (NC VPS) and through other online education providers. In these instances, students were then equipped with both an in-class teacher resource in addition to the coursework, resources, and teacher through the online provider. Enrolling students in NC VPS is viewed as filling that teaching role with a qualified, permanent instructor, and thus not viewed by NC DPI as a vacancy.

Teacher Recruitment Strategies in Greene County

Eastern Carolina University – Educator Preparation Program

Greene County is optimally located near Eastern Carolina University (ECU), and this proximity has provided the LEA with a relatively strong and consistent pipeline of teachers. District administrators estimated that approximately 20-35 clinical interns from ECU complete their student teaching in the district each year, and many teachers are hired directly into the LEA from this pipeline.

Figure 6: Educator Enrollment Trends at Eastern Carolina University, 2011-2018
Source: UNC Educator Quality Dashboard – Educator Preparation, Enrollment Trends

Similar to other UNC system campuses throughout the state, ECU has seen a large decrease in educator preparation program enrollment, with an almost 25 percent decrease between 2011 and 2018 (see Figure 6). When asked about the impact of the overall decrease in educator preparation program enrollment throughout the state, district representatives and principals noted that they could sense that enrollment was decreasing at ECU specifically. However, they still felt there was still a sufficient pipeline of candidates coming through ECU to the LEA to generally meet their staffing needs. However, one interviewee noted that while the number of the available candidates remained relatively stable, the depth of the talent pool and quality of these candidates had decreased, in their opinion.

Online Job Postings, Virtual Career Fairs, and In-Person Career Fairs

In addition to the partnership with clinical interns from ECU, teacher recruitment methods also include online job postings, virtual career fairs, and in-person career fairs. The
district utilizes the NCTeacherMatch forum as a primary venue for posting open roles to domestic applicants. The district also posts roles with Educational Partners International (EPI), an international teacher recruitment tool. However, district administrators did note that international teacher recruitment had not been a strong source of teachers, particularly in recent years. Also in the online realm, virtual career fairs are a relatively new recruitment venue for the LEA. While district human resources leaders reported that they had not had considerable success with them as a pipeline for new teacher recruitment, they were still in the early stages of using those venues as a recruitment source.

In addition to utilizing these digital resources, district administrators also attend career fairs throughout the state. The LEA has traditionally gotten the largest number of applicants from career fairs at neighboring ECU and University of North Carolina Wilmington (UNCW). District administrators and principals also noted that a considerable portion of teacher recruitment occurs through word-of-mouth references. Many principals in the district started their career in neighboring LEAs and utilize those previous relationships and connections to entice teachers in other LEAs to come to Greene County.

Teacher Retainment Strategies in Greene County
Beginning Teacher Supports

LEA leaders felt that their strong supports for beginning teachers were an important component of their efforts to retain teachers. The LEA has a part-time employee who serves as a Beginning Teacher Coordinator (BT Coordinator) and helps organize new teacher orientation, mentorship pairing and facilitation, and provides general support to beginning teachers. The Coordinator also works with clinical interns from ECU. This Coordinator ensures that new teachers have a primary contact at the central office for support.

In addition to support from the BT Coordinator, the Chief Academic Officer in the district leads beginning teachers through a blended learning course that the LEA modeled after a school-turnaround strategy known as “Research for Better Teaching” by John Sfeton. This curriculum helps model effective teaching strategies in order to better prepare beginning teachers for the rigors of the classroom, through both monthly face-to-face sessions and additional online blended learning modules. The course begins in the summer and runs until the beginning of the second semester. All beginning teachers and teachers who are new to the district participate.

Professional Development & Teacher Leadership Opportunities

All interviewees referenced the district’s strong emphasis on and flexibility with teacher professional development as another key teacher retention mechanism. Notably, the LEA hosts an annual Lit-Tech Conference and Innovation Academy convening that gather teachers from across the LEA and the state. These convenings provide professional development opportunities for teachers across the state and leadership opportunities for Greene County teachers.
Both convenings put Greene County teachers in the presenter role, where they provide interactive, hands-on sessions for other teachers highlighting innovative literacy and technology strategies that teachers can take back to their classrooms and immediately implement. Teachers noted that they appreciate the opportunity to step into a leadership role while also having flexibility in professional development options – rather than a “one-size-fits-all” solution, teachers were encouraged to customize their professional development towards their own personal preferences. These opportunities were funded in large part by grants from NC DPI.

Technology

District administrators, principals, and teachers all felt that the technology and resources supporting the use of technology in the district were a unique and enticing factor that helped retain teachers. The LEA was an early adopter of a 1:1 initiative, ensuring that all students were paired with their own electronic device beginning in 2003 and regularly updating their devices on a three-year cycle. Additionally, each teacher in the district receives a MacBook and classrooms are equipped with Smart Boards. Teachers noted that access to this level of technology was unique in the region and provided them with additional flexibility to be more innovative in their teaching strategies. By being able to incorporate technology that their students were already familiar with and help equip them with digital learning skills, teachers were able to better meet students in a 21st century learning environment.

Working Environment

All interviewees also noted that the small size of the LEA enabled a level of community-building and familiarity that they felt helped breed a positive work environment and helped reduce teacher attrition. Due to the small size of the LEA, there is a much greater degree of interaction between teachers, school-level administrators, and district-level administrators. Multiple interviewees at both the district and school levels noted the value of transparency in communication and relational trust within the district. They noted that this allowed for easier issue resolution and helped foster an environment in which teacher voices are not only listened to but explicitly uplifted.

Teachers and Administrators Perspectives: Challenges & Advantages

LEA Challenges

The primary challenge that all interviewees felt the district faced in addressing teacher vacancy, recruitment, and retainment issues was teacher pay. Interviewees noted that the starting salary for a beginning teacher is significantly lower than the starting salary for other occupations in the area, including those that do not require a bachelors degree. Additionally,
both administrators and teachers were cognizant of the fact that Greene County has a comparatively low signing bonus ($1,500 for high-needs subjects or Greene County alum, $1,000 for all others) and low teacher supplement compared to other LEAs, both throughout the state and in neighboring counties. Greene County’s average teacher supplement is $1,000, compared to a statewide average of approximately $2,631. Interviewees noted that the lack of financial incentive – both with the low signing bonus and with low average supplement– were issues that could lead teachers to seek employment in other LEAs.

**LEA Advantages**

Interviewees noted that many of the retainment strategies discussed above were primary advantages that the district held when competing with other districts for teachers and keeping teachers within the district. In addition to the leadership-focused professional development opportunities and small family-like community feel, interviewees noted that the emphasis on innovation that permeates through the LEA culture as a positive factor influencing teacher’s decisions to come to and stay within the LEA.

Interviewees also noted the importance of having responsive and improvement-focused leadership at the school level, and the extremely important role that principals played in teacher’s decisions to stay within or leave the district. District leaders noted that staffing at the principal level has been intentionally focused on building culture of continuous improvement and opportunity for teacher leadership.

**Perceptions of Policy Levers to Best Address Teacher Vacancies**

When asked about what policy levers they think state policymakers could or should lean upon to address issues of teacher shortages as well as teacher recruitment and retention, interviewees responses fell into three main categories: money, the teacher preparation pipeline, and the response to the Leandro case decision.

**Teacher Pay**

Unsurprisingly, all interviewees felt that increased pay for teachers would help to attract and keep teachers in the profession and in the state. Some interviewees recommended an overall increase to the salary schedule at every level. Other interviewees specifically mentioned the need for the reinstatement of mentor pay and masters pay and emphasized the message that paying teachers more for going beyond the basic requirements would say in regard to the valuable role that teachers play. One principal spoke directly to how the low salaries provided to teachers and the repeal of mentor and masters pay reflected a larger culture of lack of respect for the professionalism of teachers and the value of having highly-trained teachers in the classroom.

**Addressing Teacher Pipeline Issues**

Interviewees also acknowledged across the board that the large decrease in the teacher pipeline, although not something that was significantly impacting their own district, needed to be addressed at the state level. Multiple interviewees praised the reinstatement of the NC
Teaching Fellows and recommended a significant expansion of the program, with a movement to align it more closely with the previous iteration of the program.

One interviewee also suggested widening the use of the Teacher Cadet program model, in which high school students are able to be placed in classrooms and get a first-hand understanding of the teaching profession. Another interviewee provided a strong recommendation that the current 2+2 transfer program agreement between the community college and UNC system include a loan forgiveness program for the 2 years at the UNC system for those who become teachers and teach in North Carolina for a specified amount of time – similar to the NC Teaching Fellows program model.

The Leandro Decision

Finally, interviewees also noted considerable focus on understanding what the response to the Leandro case decision and recently released report will be. While some interviewees expressed a certain level of optimism that the requirements under the decision would lead to more positive outcomes for low-wealth districts across the state, other interviewees felt that it was likely that even if there was leveling of funding, higher-wealth districts would continue to have a strong advantage in attracting and retaining high-quality teachers.
Case Study: Franklin County Schools

LEA Overview

Franklin County is a rural county with a relatively high teacher vacancy rate when compared to other LEAs across the state. Located in the Piedmont region, the LEA is about an hour from the urban centers of Raleigh and Durham and faces steep competition from more affluent neighboring counties, particularly Wake County. When looking at the North Carolina Department of Commerce’s economic well-being Tier designation, Franklin County falls into the middle 40 counties in the state and is considered a Tier 2 county – less distressed than the lowest 40 counties, but not within the top 20 counties within the state.61 However, Franklin County falls into the third highest quartile of teacher vacancy rates in the state, with a vacancy rate of 4.1% reported in SY 2017-18 (See Table 7).

<table>
<thead>
<tr>
<th>LEA Characteristics</th>
<th>Franklin County Schools</th>
<th>North Carolina</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Certified Positions</td>
<td>566</td>
<td>920</td>
</tr>
<tr>
<td>Student Enrollment</td>
<td>8392</td>
<td>5902</td>
</tr>
<tr>
<td>Teacher Vacancy Rate</td>
<td>4.1%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Teacher Attrition Rate</td>
<td>9.0%</td>
<td>8.09%</td>
</tr>
<tr>
<td>Teacher Mobility Rate</td>
<td>10.3%</td>
<td>5.2%</td>
</tr>
<tr>
<td>LEA Attrition Rate</td>
<td>19.3%</td>
<td>13.3%</td>
</tr>
<tr>
<td>Recoupment Rate</td>
<td>40.6%</td>
<td>33.7%</td>
</tr>
<tr>
<td>Percentage of non-white students</td>
<td>55%</td>
<td>46.7%</td>
</tr>
<tr>
<td>Percentage of students qualifying for Free or Reduced Price Lunch</td>
<td>70.96%</td>
<td>68.7%</td>
</tr>
<tr>
<td>Short Term Suspensions</td>
<td>1485</td>
<td>1783</td>
</tr>
<tr>
<td>Long Term Suspensions</td>
<td>41</td>
<td>5.3</td>
</tr>
<tr>
<td>Percent of Students Grade Level Proficient on EOG/EOG Tests</td>
<td>57.4%</td>
<td>56.3%</td>
</tr>
<tr>
<td>Average Teacher Supplements</td>
<td>$3117</td>
<td>$2629</td>
</tr>
</tbody>
</table>

| County Characteristics                          |                         |                |
| Median Household Income                         | $48,344                 | $50,320        |
| Percentage of people below the poverty level, past 12 months | 16.4% | 16.1% |
| Median Age (years)                              | 40.9                    | 40.4           |
| Percent high school graduate or higher          | 84.2%                   | 86.9%          |
| Percent bachelors degree or higher              | 21.0%                   | 29.9%          |


Teacher Vacancy Solutions in Franklin County

When vacancies arise in Franklin County the LEA uses a number of solutions to try to place a highly qualified interim teacher in the classroom. The county has a strong pool of retired
teachers within the community that they pull from, and often have these teachers return as long-term substitutes for classrooms with vacant positions. However, due to state policies that restrict the number of hours a retired teacher can work and continue to receive retiree health benefits, these retired teachers are limited to less than 30 hours per week. In practice, this means that two retired teachers may serve as long-term substitutes for a class, with one teaching three days per week and another teaching the other two days of the week.

In addition to the use of retired teachers as long-term substitutes, the LEA has also enrolled students in the North Carolina Virtual Public School (NCVPS) as a solution to vacancies. This is most commonly used in the case of Exceptional Children (EC) teacher vacancies. These roles can be particularly difficult for the LEA to fill at the secondary level, as EC students in an occupational course of study require teachers that are dual-certified in both special education and their subject matter area and dual-certified teachers have been difficult to find. In response, the LEA has in some cases had an in-person teacher who has a special education certification and co-enrolled the student in a NCVPS course. One challenge with this model is that LEAs are only allotted a certain amount of funding for NCVPS courses for students, and the majority of this funding – approximately 70 percent - is then taken up by EC students, limiting the opportunities for non-EC students to take NCVPS classes.

In more rare circumstances, the LEA has engaged in creative scheduling to address vacancies that have arisen. This most commonly occurs in the form of moving a teacher’s designated preparation period time to after school. This is the least common and least desirable solution for the LEA.

Teacher Recruitment Strategies in Franklin County

Online Job Postings, Career Fairs, and Personalized Outreach

When recruiting teachers into the LEA, district administrators utilize online job postings through both the state sponsored job board and through the use of a corporate LinkedIn account. District administrators also travel to career and recruitment fairs, with a broad geographic range including the Southeast, Midwest, and broader East Coast regions. The higher education institution that the LEA has the closest relationship is ECU, and the LEA has even put together personalized career fairs for ECU graduates.

When recruiting teachers they meet at fairs or connect with via online job posting, the LEA works to have a consistent and personalized approach. The LEA will invite potential teachers to the district and take them on a personalized tour of the county and the schools.

Signing & Retention Bonus

In addition, the district offers a $1000 signing bonus and a $1000 retention bonus for beginning teachers. The retention bonus was recently increased from $500 to $1000 in order to make the LEA more competitive. When these bonuses are combined with the teacher salary supplement, beginning teachers in the LEA have a total supplement of approximately 10 percent.
Innovative Pilot Pay Model

A unique approach that Franklin County is taken can be found in a pilot program at Franklinton Middle School. This school had been historically low-performing and had higher rates of teacher vacancies and turnover than other schools in the county. In an effort to attract and retain high-quality teachers at the school, the LEA is currently piloting an incentivized pay schedule during SY 2019-20 where teachers in core academic subjects at that school receive an approximately 14 percent supplement. Additionally, teachers have performance incentive pay: if their students meet academic growth expectations, as measured via the state Education Value Added Assessment System (EVAAS), they receive a $1,500 bonus and if their students exceed expected academic growth they receive a $3,000 bonus. This pilot program is funded through local general funds and approved by the school board. The total cost is relatively low - given the small size of the school, the program only affects seven teachers. However, it does present an interesting approach to financially incentivizing teachers to come to and stay at high-needs schools.

Teacher Retainment Strategies in Franklin County

Beginning Teacher Supports

Franklin County district leaders felt that their supports for beginning teachers were an area of strength. The district central office has a dedicated staff member whose focus is on professional learning, and this person serves as a strong support for all teachers but in particular for beginning teachers. All new teachers are invited to a New Teacher Institute prior to the start of the school year, which helps provide intensive training and information on how to navigate the LEA and access supports. Beginning teachers are also placed with a mentor at their school and have regular check-ins. The district also holds monthly meetings for beginning teachers where they address any questions or concerns and provide ongoing professional development.

The district also has a Master Teacher Mentorship program through which retired teachers are placed at a school and help to support all beginning teachers there. While this Master Teacher program previously focused more heavily on classroom observations and formative feedback, it has evolved to engage Master Teachers more broadly as a support system for beginning teachers in creating lessons plans, navigating teacher management, and general classroom support.

Lateral Entry Support

The district places particular support focus on their lateral entry teachers specifically. In addition to the regular professional development and support programming that is provided to all beginning teachers, new lateral entry teachers also receive five days of orientation in which they work with their mentor, observe other teachers, review student data, and complete a district orientation session with the LEA’s Director of Professional Learning. Once the school year begins, lateral entry teachers complete an additional five days of professional development using a self-paced study of Dr. Harry Wong’s *The First Days of School* in order to ground their practice.
District leaders noted that while all LEAs are required by law to provide support to lateral entry teachers, the small size of the LEA allows Franklin County administrators to be very purposeful and intentional in providing additional support. Mentors, master teachers, curriculum specialists, human resources leaders, and teacher leaders serve as a team to “wrap around” and support all beginning teachers, but they do place a special emphasis on lateral entry teachers.

Internal Culture

In addition, district administrators spoke to the strong internal culture of teacher appreciation within the LEA. District leaders have made intentional efforts to highlight teachers who are doing well and to encourage all staff members to feel engaged, inspired, and connected to the larger district as a whole. Each month, the superintendent sends out a “60 Seconds with Dr. Schuhler” video which provides a snippet of motivation and encouragement for teachers. Additionally, the LEA kicks off the school year with a “Sizzlin’ Summer” event, which provides teachers with professional development opportunities as well as teacher appreciation activities.

Teachers and Administrators Perspectives: Challenges & Advantages

LEA Challenges

Understandably, one of the major challenges identified by LEA leaders was the role of financial incentives. Franklin County directly borders Wake County, one of the wealthiest counties in the state. While Franklin County offers an average teacher supplement of approximately $3,117, Wake County is able to offer over double that with an average supplement of $8,649. This is an issue for both recruitment and retainment – teachers are more likely to go to Wake County overall, but also can be enticed to leave Franklin County for a sizable pay raise in Wake County.

LEA leaders also noted that they have distinctly felt the impacts of the decreased pipeline of teachers through traditional educator preparation programs. The perception is that this pool of highly qualified teachers coming from strong preparation is dwindling and that competition is steep throughout the state to attract them. This has led to an increase in the hiring of lateral entry teachers, who may have strong content knowledge and real-world experience but do not come with classroom management or pedagogical knowledge. This is especially true in subjects that are continually hard to staff, including math, science, and EC teaching positions.
**LEA Advantages**

When asked about the advantages that the LEA had when recruiting and retaining teachers, LEA leaders identified specific aspects of the community that served to attract teachers. The location of the LEA – technically rural, but adjacent to more urban city centers – was something that was viewed as a compelling factor for potential hires. Additionally, the relatively smaller size of the district was seen as an advantage, allowing for more personal relationship building and an emphasis on the growth of each and every staff member within the LEA.

LEA leaders also noted that there was broad community support for education. In particular, the current Board of Education and Board of County Commissioners have been supportive. The LEA’s budget has been fully funded for the past three school years and Board members have allowed for the creation of innovative programs, such as the pilot pay program at Franklinton Middle School. This lack of dysfunction was seen as a positive selling point, highlighting the ability for community members ad educators to work together to improve education outcomes for students.

**Perceptions of Policy Levers to Best Address Teacher Vacancies**

*Teacher Pay*

All interviewees noted a need for increased teacher pay as a major factor in addressing teacher vacancies, recruitment, and retention. Some interviewees felt that an increase to the base salary schedule was a reasonable starting point. Other interviewee noted that reviving masters pay would be a useful step for addressing negative public perceptions of education in the state. Another interviewee suggested that weighted pay scale based on subject and need would be one way to address these issues and recruit talent that would otherwise not choose to go into teaching.

*Increasing Traditional Preparation Pipeline*

Interviewees also felt strongly that stronger state-level policies were needed to address the decrease in the traditional education preparation program pipeline. Proposed solutions included an expansion of the NC Teaching Fellows Program, as well as decreasing the reliance on lateral entry and emergency permits. While allowing for alternative certifications allows more people into the classroom, some interviewees felt that these individuals were not always as prepared, required significantly more support, and had much higher rates of turnover that were ultimately costly to the district.

**Perceptions of Value of Teaching Profession**

More broadly, interviewees noted that the way in which state policymakers discuss and implement policies regarding K-12 education in the state have served as a manner of “death by a thousand cuts” and eroded the respect for educators in the state. Some interviewees directly connected that policies at the state level that communicate devaluing of teachers – such as the perceived low salary and elimination of masters pay – communicate to young people that
teaching is not a viable or valuable profession, and that this has directly contributed to the decrease in the teacher pipeline.

*The Leandro Decision*

Last but not least, interviewees were very aware of the looming presence of the Leandro case decision and recently released report. Some interviewees were cautiously optimistic that the Leandro situation was bringing to the forefront conversations of equity – and inequity – that need to be addressed but had potential reservations about what would actually be done coming out of the report. Other interviewees felt a bit more cynically that the legislature would not work to actually enact any equity-focused reforms unless compelled to do so by the courts. No interviewees thought that the impact of Leandro would occur within the near future and acknowledge that any impacts will likely occur on a longer timeline.
Lessons Learned
Similarities & Differences Between Case Study LEAs

Although teacher vacancy rates differed in the two case study LEAs examined here, it is interesting to note that both LEAs used many of the same recruitment strategies, including posting open positions online, attending career fairs, and attempting to build pipelines with in-state university teacher preparation programs. Both LEAs also emphasized the importance of their beginning teacher support programs and utilize similar solutions for addressing vacancies that do arise.

The LEAs varied most strongly in their descriptions of teacher retainment efforts. Interviewees at Franklin County spoke primarily of the general internal culture of support and accessibility as well as specific supports for lateral entry teachers, while interviewees at Greene County highlighted the variety of teacher professional development and leadership opportunities as well as technology resources that were available to teachers. Based on the interviews conducted here, it seems that the more heavily emphasized focus on providing and cultivating opportunities for teacher leadership and professional development may help both attract and retain teachers to an LEA. It should also be noted that Franklin County has very recently shifted towards using some innovative strategies – such as the pilot pay program at their middle school – and the impact of these remain to be seen.

Importance of Geographic Proximity to Teacher Prep Programs & Competitive LEAs

The largest differences between the LEAs seemed to stem from issues related to geographic proximity to teacher preparation programs and LEAs with competitive teacher salaries. For Greene County, the extremely close proximity to ECU was a positive factor that allowed for a stronger pipeline of teachers into the LEA. The close geographic proximity of Greene County allows for a large number of students in the teacher preparation program at ECU to fulfill their student teaching requirements in Greene County. This allows these prospective teachers to establish relationships within in the LEA prior to official employment, and this may help them feel more easily feel integrated into that community.

Conversely, Franklin County faces geographic proximity challenges due to the fact that it neighbors the much more affluent Wake County and is not as close to a teacher preparation program. Because there is not a similarly local program, it can be more difficult to find such a strong pipeline of student teachers into the LEA. Additionally, the significantly higher salaries in a directly neighboring LEA serve as a pulling factor that can lead teachers to either choose Wake County over Franklin County entirely, or draw current Franklin County teachers away from the LEA.

District Demographics

Interestingly, the findings from Franklin County contradict some of the findings of the quantitative analysis conducted for this project. The data would predict that because Greene
County has a higher percentage of nonwhite students and students who qualify for free and reduced-price lunch and a lower average teacher salary supplement, the district would correspondingly have higher teacher vacancy, mobility, and attrition rates than Franklin County – however, that is not the case. This may indicate that other factors – such as proximity to a traditional teacher preparation program – may also be playing a role in teacher vacancy rates. As such, LEAs that are further geographically removed from institutions with teacher preparation programs will likely need increased resources and interventions in order to address teacher vacancies.
Discussion

Addressing teacher shortages in North Carolina is an issue that inherently intersects with a wide variety of other issues more broadly related to education in North Carolina including teacher licensure processes, teacher pay scales, and data collection practices. The quantitative data analyzed and interviews conducted for this project reinforced findings from the broader body of research regarding the impacts of declining teacher preparation program enrollment, teacher turnover rates, and less-than-ideal solutions utilized to address vacancies.

Based upon this analysis of teacher vacancy, mobility, and attrition rates and LEA characteristics as well as my interviews with educators and administrators in Greene County and Franklin County some key areas of consideration moving forward have arisen. State policymakers should consider re-configuring the process for collecting teacher vacancy data, expanding efforts to increase the traditional teacher preparation pipeline, and increasing teacher pay.

Teacher Pay

Understandably, teacher pay was a key issue that came up repeatedly throughout this project both in qualitative interviews and in the quantitative analysis. Many interviewees felt that the large discrepancy in pay between teachers and their similarly educated counterparts in other professions serve as a disincentive to enter the teaching field and is likely a large contributing factor to the decrease in enrollment in traditional education preparation programs. The majority of interviewees for this project consistently cited teacher pay as an issue with regards to both the teacher pipeline as well as teacher recruitment and retention within LEAs. Quantitative analysis of state LEA data also found that average teacher salary supplement was associated with teacher vacancy rates.

It is understood that given the current political climate teacher pay raises are a contentious issue. However, it is clear that the current salary schedule requires at the minimum a base raise for all teachers. Additionally, state policymakers should consider the use of targeted supplements to incentivize teachers to enter high-needs subject areas that continue to be hard to staff, such as math, science, and Exceptional Children courses. Supplements could also be provided for teachers who agree to teach in more rural or higher vacancy districts.

Teacher Preparation Pipeline

The decline in traditional teacher preparation program enrollment should be deeply concerning to state policymakers. As traditional educator preparation program enrollment has declined, the percentage of lateral entry licensed teachers in the state has risen – however, lateral entry teachers have dramatically higher rates of attrition than their traditional prepared peers.\(^{62}\) While lateral entry teachers may have strong content knowledge, they often lack training in classroom management and pedagogy. This can lead to a much steeper learning curve in their initial years in the classroom and likely plays a large role in the higher rates of attrition amongst lateral-entry licensed teachers.
The most commonly recommended paths for increasing the teacher pipeline, based on the analysis done here, include expanding the NC Teaching Fellows program and promoting more grow-your-own programs. The category of grow-your-own programs includes both teacher cadet programs, which put high school students on the path to teaching in their home district, and teacher assistant-to-teacher programs, which allow individuals who are already working within the district but lacking the formal certification to gain additional education and elevate their role to a full teaching position while staying within the district.

Both of these program models currently exist in some counties across the state, but increased funding is necessary to expand them. The Teacher Assistant to Teacher program in Northampton County is a strong example of an effective program. The North Carolina Teacher Cadet Program is another model that could be expanded more broadly across the state. The applicability of these strategies will likely vary based on the demographics of an LEA – while a large district may have a sufficient number of students to create a strong pipeline via a teacher cadet program, the teacher aide-to-teacher program is likely a more realistic option for smaller or more rural districts. State policymakers could consider targeted incentives for districts to expand or undertake these initiatives.

Focus on Equity When Targeting Interventions

It is clear from the research literature as well as the quantitative and qualitative analysis here that there are significant equity issues at play when it comes to teacher vacancies. Based on the quantitative analysis and case study LEAs profiled here, it seems evident that LEAs with lower levels of resources and larger distances from institutions with traditional teacher preparation programs face particular struggles when it comes to teacher vacancies and interventions should be focused on these LEAs.

WestEd’s December 2019 report addressing the path forward towards a sound basic education for all students in North Carolina addressed the issue of access to effective educators. Their report underscored that disadvantaged students have less access to effective and experienced teachers. The most disadvantaged students are the most likely to have the least experienced and least prepared teachers, who in turn are the most likely to have high rates of mobility and attrition. Ensuring that economically disadvantaged students and students of color have effective and experienced teachers is crucial to closing equity gaps and ensuring student academic success. As such, pilot program interventions should be focused on these LEAs that have the highest need and should be customized to meet the unique needs of each LEA.

Teacher Vacancy Data Collection

NC DPI currently collects teacher vacancy data on a per-LEA basis regarding the number of positions that are vacant on the first and fortieth days of school. This data is self-reported by LEAs and only includes state-allotted positions. The vacancy rates that are calculated using this method may be deflated for a number of reasons. Districts may have additional teacher positions that are locally funded, and thus the vacancy rate calculated using
these state-allotted slots is underestimating the actual vacancy rate. Additionally, given the self-reported nature of the current data collection there are numerous concerns regarding the validity and consistency of the data. It seems unclear whether all LEAs are accurately and consistently applying the state definition of a vacant role. The self-reported nature of the data also provides the possibility that LEAs are underreporting vacancies in order to avoid negative attention.

One alternative way to calculate vacancy rates would be through a calculation of vacant positions in an LEA based on mandatory posting of open positions to NC DPI’s state job board. NC DPI could then gather teacher vacancy data based on which positions are being hired for at any point throughout the year, providing a clearer understanding of which roles LEAs have open and are looking to fill and if this varies throughout the school year. This could also potentially reduce some administrative burden on the LEAs, as it seems most LEAs are already posting their open positions on this board and this would reduce the additional data they need to report to NC DPI each year.

Directions for Future Study

There are a number of different directions for future policy research of this broad topic. It would behoove the state to more closely examine issues related to lateral entry teachers, in particular the reasons for their higher rates of turnover and attrition as well as a better assessment of how prepared these teachers are during the years they are in the classroom. Additionally, future research could potentially focus on more deeply understanding teacher perspectives on teacher recruitment and retention practices, as well as the utility of beginning teacher support programs.
Appendices

Appendix 1: SY 2017-18 Teacher Shortage Indicator Maps

SY 2017-18 Vacancy Rates

SY 2017-18 Mobility Rates
Appendix 2: Sample Interview Protocols

Interview Introduction
Thank you for taking the time to talk with me today. As I mentioned in my email, my name is Hannah Bartlebaugh and I am a Master of Public Policy student at Duke University. As part of my coursework I am completing a Masters Project, specifically focused on teacher vacancies in North Carolina and potential policy solutions.

In my interview with you, I would like to ask you about your experience with teacher recruitment and retention in the district, as well as your perspective on potential causes of and solutions for teacher shortages.

I want to assure you that interview data will be maintained in secure files and will be accessible only to members of the study team. However, to ensure the accuracy of your responses for my analysis, I would like to record the interview. Is that all right with you?

Superintendent Questions
1. How would you describe your district’s teacher recruitment efforts?
   a. Financial/non-financial incentives
   b. Geographic scope of recruitment
   c. Collaboration with local partners / higher education institutions
2. How would you describe the district’s teacher retention efforts?
   a. Financial
   b. School culture
   c. Working conditions
   d. Teacher mentoring programs
   e. Leadership development / professional development
3. What are the advantages your district has in recruiting and retaining teachers?
4. What are the disadvantages your district has in recruiting and retaining teachers?
   a. Tell me about how you address/overcome those disadvantages
5. How do you think state policymakers could help improve teacher recruitment and retention, both for your district and statewide?

District Office Questions
1. When there are teacher vacancies in your district at the beginning of the school year, how does the district or schools within the district address those vacancies?
   a. Hire substitute teachers
   b. Hire retired teachers
   c. Increase class sizes
   d. Reduce courses offered
e. Other methods?

2. How have you seen changes in your perception of teacher turnover and vacancies at your district?
   a. Pre- and post-recession differences?
   b. Changes with shifts in political leaders at the state level?
   c. If you haven’t seen changes – why do you think that is?

3. What methods do you use to recruit teachers?
   a. Networking in local area
   b. Online advertising
   c. Geographic range of recruitment
   d. Partnerships with higher education institutions
   e. Alternative certification programs

4. Can you describe the teacher retention strategies that your district uses?
   a. Financial
   b. School culture
   c. Working conditions
   d. Mentoring programs
   e. Leadership development / professional development

5. What additional supports or resources would be most helpful for you in recruiting and retaining teachers?

**Principal Questions**

1. What has your experience with teacher vacancies been?
   a. Have you experienced a high number of teacher vacancies?
   b. What do you think has been the cause of teacher vacancies at your school?

2. How would you describe your challenges when it comes to recruiting teachers?

3. How would you describe your challenges when it comes to retaining teachers?
   a. How do you address/overcome those challenges?

4. How do you think state policymakers could help improve teacher recruitment and retention, both for your district and statewide?

**Teacher Questions**

1. As part of my project, I’m trying to get a better understanding of how the district recruits and hires teachers, as well as how teachers are being prepared. I’d love to hear a bit more about your experience. Can you start at the beginning and walk me through your educator preparation process, the job search, and through the hiring process at this district?
a. Job search – did it feel competitive? Did you see lots of available positions?
b. Were you recruited into the district? What was that process like?
c. Hiring process – easy? Difficult? Were you offered any incentives? Was the process clear?

2. How would you describe your experience teaching in this school?
   a. School culture
   b. Workplace culture
   c. Administrative support
   d. Professional development opportunities

3. Why have you chosen to stay in this school/district?

4. Why do you think other teachers have chosen to leave this school/district?

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