Teacher Effectiveness in North Carolina:
A Preliminary Analysis of the Distribution of Effective Teachers within and Across LEAs

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RESEARCH QUESTIONS: Across the State, do certain LEAs have a larger proportion of effective teachers than others? How are effective teachers distributed across schools within each LEA?

EXECUTIVE SUMMARY

This report examines the distribution of effective teachers in North Carolina. We conducted two types of analysis to examine teacher-distribution patterns in the State: 1) a descriptive geographic analysis of the proportion of effective teachers across all of North Carolina's 115 local education agencies (LEAS), and 2) an analysis of the variability of the proportion of effective teachers in schools within each LEA.

For this research, we used evaluation data on 92,399 public school teachers (grades Kindergarten through 12th) in North Carolina during one school year (2012-2013). Since the State's policy requires that a teacher's status is calculated with three years of data, this report serves only as a preliminary snapshot of teacher distribution patterns across the State. These initial findings suggest that there is not an equal distribution of effective teachers across LEAs and effective teachers are distributed evenly across schools in some, but not all, districts.

INTRODUCTION

Research suggests that the most important school-level factor affecting student achievement is effective teaching (Rivkin, Hanushek, & Kain, 2005). However, historically, there has been significant variation in teacher characteristics traditionally considered to be indicators of teacher quality. Schools with large populations of minority students, low-income students, and academically struggling students are most likely to have teachers with the weakest qualifications (Beteille & Loeb, 2009). The No Child Left Behind Act of 2001 (NCLB), the most recent reauthorization of the Elementary and Secondary Education Act (ESEA), sought to remedy this problem by requiring that all children be taught by a "highly qualified" teacher by 2006. Specifically, NCLB sought to "improve the academic achievement of the disadvantaged" by ensuring that "inexperienced, unqualified, or out-of-field teachers do not teach poor and minority students at disproportionately higher rates than their peers" (No Child Left Behind [NCLB], 2002).

Criteria for a "highly qualified" teacher included a bachelor's degree, state certification, and demonstrated subject-matter knowledge. In the decade and a half since the passage of NCLB, we have learned that teacher degree level, certification, and even years of teaching experience are only weakly related to student achievement (Rice, 2003). In 2011, the Obama administration offered flexibility waivers from certain provisions of NCLB to states to develop more comprehensive teacher evaluation systems that reflect this new understanding of educator effectiveness.

HISTORY OF TEACHER EVALUATION IN NORTH CAROLINA

In 2007, the North Carolina State Board of Education adopted the North Carolina Professional Teaching Standards (Department of Public Instruction, 2012). According to these standards, teachers in North Carolina should:

1. demonstrate leadership
2. establish a respectful environment for a divers population of students
3. know the content they teach
4. facilitate learning for their students, and
5. reflect on their practices.

Principals assign teachers an evaluation rating, between one and five, for each of these five standards (Department of Public Instruction, 2012). The ratings indicate the teacher's level of proficiency:

1. competency not demonstrated
2. developing
3. proficient
4. accomplished
5. distinguished

In 2011, as part of the State's No Child Left Behind waiver and in compliance with its commitment to the federal Race to the Top grant, the State Board of Education adopted the SAS Institute's Education Value-Added Assessment System (EVAAS) as a measure of student growth. These student growth data would be used to measure the extent to which teachers contribute to the academic success of students.

The EVAAS model produces an effectiveness score for each teacher. This score describes the extent to which a teacher's impact on his or her students' academic growth has met, not met, or exceeded the average impact of a teacher in the State. To make comparisons between teachers (some teachers may have smaller classes or a smaller number of tested classes than others), this report uses "index" estimates of value-added. The index is calculated by dividing the value-added score by the individual teacher's standard error. According to the EVAAS model, an index value below -2 is associated with less student growth than what would normally be expected, and an index value above 2 is associated with more student growth than expected. Index scores between -2 and 2 indicate that the teacher has achieved the amount of student growth expected in a year. All value-added scores used in this report were calculated by the SAS Institute.

An overall status for a teacher is determined once the teacher has a three-year rolling average of student growth to populate Standard 6 (see Figure 1).

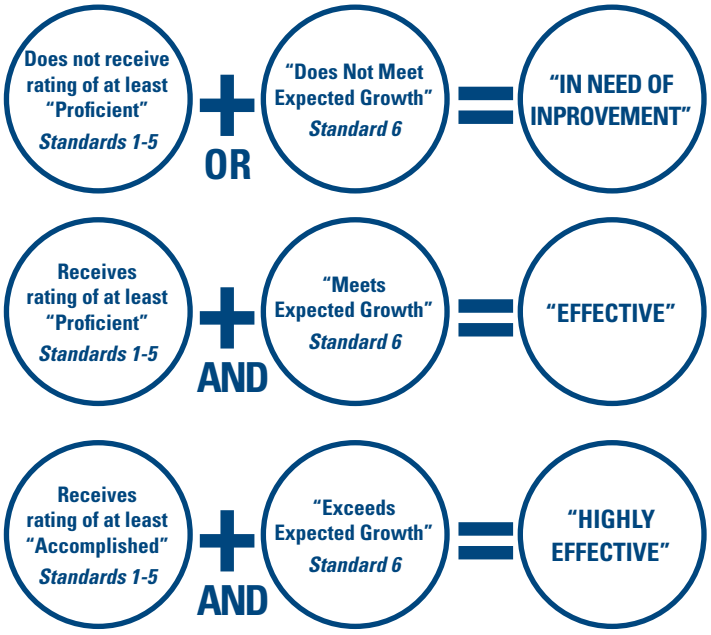
Figure 1. Definition of Teacher Effectiveness Status in North Carolina

There are three categories for status:

- "in need of improvement,"
- "effective," and
- "highly effective."

A teacher who receives a rating of at least "proficient" on each of the Professional Teaching Standards 1-5 and receives a rating of at least "meets expected growth" on Standard 6 is considered "effective." A teacher who receives a rating of at least "accomplished" on each of the Professional Teaching Standards and receives a rating of "exceeds expected growth" in Standard 6 is considered a "highly effective" teacher (see Figure 2).

Figure 2. Definition of Teacher Effectiveness Status in North Carolina, by Category



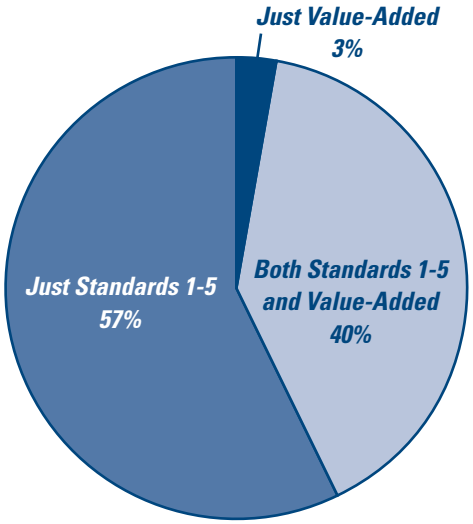
METHODOLOGY

DATA

For this research, we used evaluation data on 92,399 public school teachers (grades Kindergarten through 12th) in North Carolina during the 2012-2013 school year. We merged a dataset containing teachers' performance ratings on the five Professional Teaching Standards with a dataset containing teachers' value-added index scores, as determined by the SAS Institute's EVAAS model.

The State's policy clearly requires that a teacher's status is calculated with a three-year rolling average of student growth values (Department of Public Instruction, 2012). For the purposes of this research, however, we conducted analyses using data from the 2012-2013 school year only. For teachers with evaluation data for Standards 1-5 and value-added, we determined statuses of "in need of improvement," "effective," or "highly effective," based on the state's definition of teacher effectiveness (see above). However, ratings for Professional Teaching Standards 1-5 and value-added estimates are not available for all teachers (see Figure 3).

Figure 3. Available Teacher Evaluation Data (2012-2013)



When performance ratings from the principal (Standards 1-5) or value-added data (Standard 6) were not available, we assigned the teacher's status based only on the available data, although this is not congruent with the official policy of the State. For teachers without value-added data, our calculations are as follows:

- A teacher who fails to receive a rating of at least "proficient" on each of the Professional Teaching Standards 1-5 is considered "in need of improvement."
- A teacher who receives a rating of at least "proficient" on each of the Professional Teaching Standards is considered "effective."
- A teacher who receives a rating of at least "accomplished" on each of the Teacher Evaluation Standards is considered "highly effective."

When performance ratings from the principal were not available, we translated the State's performance ratings for value-added index scores into the three categories for status:

- An index below two standard deviations is considered "in need of improvement."
- An index between -2 and +2 standard deviations is considered "effective."
- An index above two standard deviations is considered "highly effective."

For these reasons, the statuses used in this study are purely hypothetical, and this report serves only as a preliminary snapshot of teacher distribution patterns in North Carolina.

ANALYTIC TECHNIQUES

We conducted two types of analysis to examine teacher-distribution patterns within and across LEAs in North Carolina: 1) a descriptive geographic analysis of the proportion of teachers with "highly effective," "effective," and "in need of improvement" statuses across all of North Carolina's 115 LEAS, and 2) an analysis of the variability of the proportion of teachers with "highly effective," "effective," and "in need of improvement" statuses across schools within each LEA.

GEOGRAPHIC ANALYSIS

1. Across the State, do certain LEAs have a larger proportion of "highly effective" teachers than others?

For this portion of the analyses, we calculated the proportion of teachers with "highly effective," "effective," and "in need of improvement" statuses in each LEA. This report displays a chart and several maps of the proportion of teachers with "highly effective," "effective," and "in need of improvement" statuses to show the geographic teacher-distribution trends. Answering this first question is essential for identifying teacher-distribution patterns across the state; however, it does little to illuminate how teachers are distributed within each LEA. It is possible, for example, for an LEA to have a relatively large proportion of "highly effective" teachers, but for those teachers to be concentrated in just a few, or even just one, schools in the district. Therefore, the second question in this study is:

2. How are "highly effective" teachers distributed across schools within each LEA?

To answer this question, we first determined the proportion of "highly effective" teachers within each school in a given LEA. Then, we calculated the standard deviation of these proportions, as a measure of the variability of teacher effectiveness within each district. A higher standard deviation indicates greater variability in the effectiveness of teachers within the district. We placed each LEA in one of five equal-sized groups based on its standard deviations, from highest (top quintile, or top 20%) to lowest (bottom quintile, or bottom 20%). LEAs with fewer than six schools were eliminated from this analysis.

FINDINGS

1. Across the state, do certain LEAs have a larger proportion of "highly effective" teachers than others?

Figures 4 and 5 (below) display the LEA proportions of "highly effective" teachers and teachers "in need of improvement," respectively. In Figure 4, the shading on the map ranges from the largest proportion (greater than 50%) of "highly effective" teachers in dark green to the lowest proportion (less than 20%) of "highly effective" teachers in white. In Figure 5, the shading on the map ranges from the largest proportion of teachers "in need of improvement" (greater than 20%) in dark blue to the smallest proportion (less than 5%) of teachers "in need of improvement" in white.

Complete tables of the proportions of teachers with "highly effective," "effective," and "in need of improvement" statuses within each LEA can be found in the Appendix. Additionally, Figure B1 (in Appendix B) displays the proportion of teachers in each LEA with "highly effective," "effective," and "in need of improvement" statuses as a bar graph. For each district, the green bar represents the proportion of "highly effective" teachers. The red bar represents the proportion of "effective" teachers, and the blue bar represents the proportion of teachers who are "in need of improvement." The averages for the state of North Carolina are included in this graph. Across the state, 33% of teachers are "highly effective," 55% are "effective," and 12% are "in need of improvement." The districts are arranged according to their proportion of teachers "in need of improvement," that is, the proportion of teachers in each LEA who are not "effective" or "highly effective." Sixty-four LEAs have smaller proportions of teachers "in need of improvement" than the state average and 51 have larger proportions of teachers "in need of improvement" than the state average. Elkin City Schools has the smallest proportions of teachers "in need of improvement" (2%) and Alexander County Schools has the largest proportion (33%).

Some geographic patterns emerge in Figure 4, which displays the proportion of "highly effective" teachers in each LEA (with the largest proportions shaded dark green and the smallest proportions shaded white). Region 8 had the greatest number and greatest percentage of LEAs where more than half of teachers are "highly effective" (4 out of 17, 24%). In Region 4, no LEAs have a proportion of "highly effective" teachers greater than 50%. Although there are some geographic patterns, it is also clear that geographic location does not fully explain the distribution of "highly effective" teachers across LEAs. LEAs with a large proportion of "highly effective" teachers sometimes bordered LEAs with a small proportion of "highly effective" teachers. In Region 7, for example, Wilkes County Schools, where only 16% of teachers are "highly effective," borders Watauga County Schools, where 53% of teachers are "highly effective." Out of the largest five LEAs, Wake County Schools had the largest proportion of "highly effective" teachers (49%). In Guilford, 31% of teachers are "highly effective." In Cumberland, Charlotte-Mecklenburg, and Winston-Salem/Forsyth, between 20-30% of teachers are "highly effective."

Patterns also emerge in Figure 5, which displays the proportion of teachers "in need of improvement" in each LEA (with the largest proportions shaded dark blue and the smallest proportions shaded light blue). Generally, there were more LEAs in the Northeast region of the State with a large proportion of teachers "in need of improvement." Region 3 had the greatest number and greatest percentage of LEAs where more than one-fifth of teachers are "in need of improvement (5 out of 14, 36%). Regions 2, 6, and 8 had no LEAs where more than one-fifth of teachers are "in need of improvement." Again, geographic location does not fully explain the distribution of teachers "in need of improvement." In Region 3, for example, Halifax, Northampton, Vance, Warren, and Weldon have more than 20% of teachers "in need of improvement." Wake County, also in Region 3, has the third smallest proportion of teachers "in need of improvement" (4%). Out of the largest five LEAs, Charlotte-Mecklenburg had the largest proportion of teachers "in need of improvement" (17%). In Cumberland, Guilford, and Winston-Salem/Forsyth, between 10-15% of teachers are "in need of improvement."

2. How are "highly effective" teachers distributed across schools within each LEA?

The proportion of teachers with a status of "highly effective" or "in need of improvement" does not provide information about the spread of more or less effective teachers within a given LEA. To address this issue, we calculated the standard deviation of the proportion of "highly effective" teachers across schools, as a measure of the variability of teacher effectiveness within each district. (A lower standard deviation indicates smaller variability in the effectiveness of teachers across schools within a given district.) Figure 6 displays the variability of teacher effectiveness in each LEA. The shading on the map ranges from the lowest variability in white to the highest variability in dark blue. Although we used all available data from every teacher in every LEA, standard deviations for small LEAs with few schools will be less reliable than standard deviations for large LEAs, leading to some overrepresentation of smaller LEAs in the top and bottom quintiles of standard deviation. For this reason, LEAs with fewer than six schools were not represented in this analysis.

Ideally, an LEA has a large proportion of "highly effective" teachers (dark green in Figure 4) and low variability (light blue in Figure 5), meaning that there are many "highly effective" educators in that district and they are equally distributed across schools. There are several LEAs that fit this description. For example, Union County Public Schools has a relatively large proportion of "highly effective" teachers (46%) and relatively low variability (second quintile from the top). The next best scenario is for an LEA to have a large proportion of "highly effective" teachers and high variability, meaning that there are many "highly effective"

Figure 4. Proportion of Highly Effective Teachers in North Carolina, by LEA

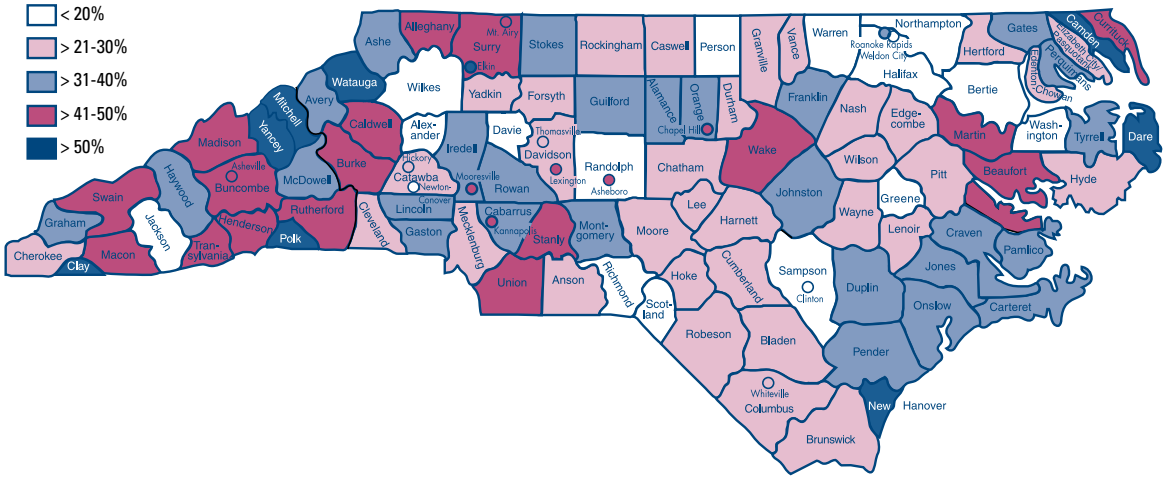


Figure 5. Proportion of Teachers In Need of Improvement in North Carolina, by LEA

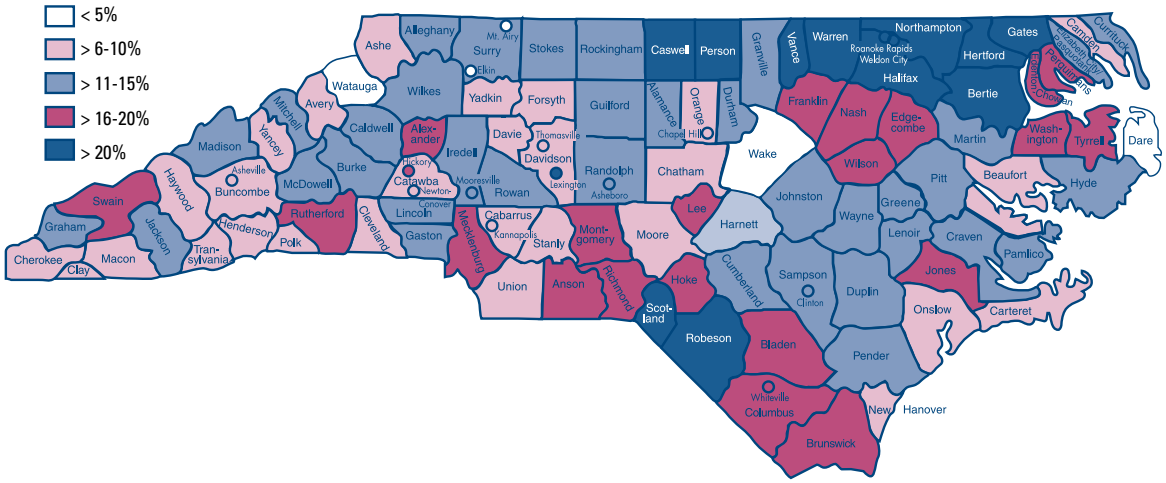
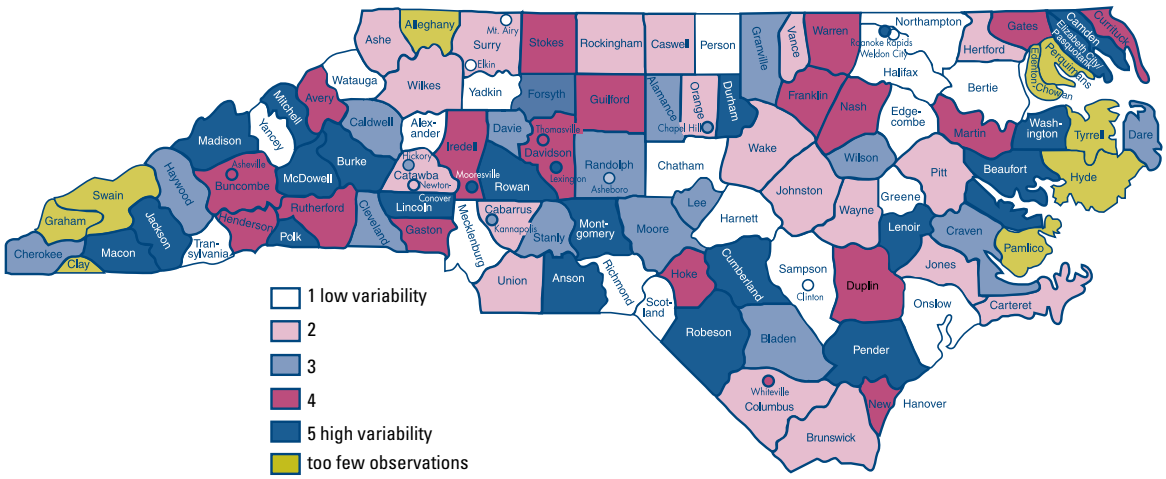


Figure 6. Variation in Placement of Highly Effective Teachers in North Carolina, by LEA



educators in that district but those teachers may be concentrated in a few schools. This describes several districts, such as Beaufort County Schools, which has a relatively large proportion of "highly effective" teachers (45%) but high variability (bottom quintile), and New Hanover County Schools, where 53% of teachers are "highly effective," but the district is characterized by high variability (second quintile from bottom).

There are also LEAs in the State with a relatively low proportion of "highly effective" teachers and high variability, such as Warren County Schools, and those with a relatively low proportion of "highly effective" teachers and low variability, such as Person County Schools. Although Wake County Schools has the largest proportion of "highly effective" teachers out of the largest five LEAs, Charlotte-Mecklenburg Schools has the lowest variability in teacher effectiveness (top quintile). Wake County is in the second quintile of variability (from the top), Winston-Salem/Forsyth is in the third, and Guilford is in the fourth. Cumberland County Schools has the highest variability in teacher effectiveness out of the five largest LEAs (bottom quintile).

Durham County Schools provide an interesting example of the relationship between our statewide geographic analysis and our district-level analysis of variability. Looking at the proportions of "highly effective," "effective," and "needs improvement," Durham has very similar proportions to those of North Carolina as a whole. In Durham, 26% of teachers are "highly effective," 62% are "effective," and 13% are "in need of improvement." However, Durham has high variability in the proportion of "highly effective" teachers across schools, placing it in the bottom quintile. In one high school in Durham, only 6% of teachers are "highly effective;" whereas, in another high school in the district, 42% of teachers are "highly effective."

POLICY LEVERS

States and districts across the nation have attempted to leverage many strategies for recruiting, developing, and retaining highly effective teachers. The following is a non-exhaustive review of some of these policy levers.

STATE POLICY LEVERS

Monetary Incentives

At the State level, one of the most common strategies has been to offer pay increases or signing bonuses. However, many such attempts to use incentives to more equitably distribute effective teachers have not been successful or have been difficult to sustain (California Department of Education, 2007). For example, Massachusetts offered $20,000 signing bonuses to recruit high quality teachers. However, the inducements had almost no impact on teachers' decisions about whether and for how long to teach in public schools. Instead, working conditions played the biggest role in recruiting and retaining teachers. The program in Massachusetts relied too heavily on inducements and not enough on capacity building (Liu, Johnson, & Peske, 2004). Several states have provided other monetary incentives that go beyond pay increases. For example, California and Texas assumed student loan costs for teachers who agreed to teach in traditionally low-performing schools and Tennessee offered tuition incentives for courses taken by teachers in hard-to-staff schools and high-need subjects (Baumgardner, 2010).

Capacity Building, Data Analysis, & Resource Sharing

Other states have attempted to leverage a very different set of policies to increase the equitable distribution of effective educators. Florida, for example, prioritizes professional development in low-performing schools to build the capacity of the existing teacher force. Nevada, Tennessee, and Texas continually monitor teacher distribution patterns. Georgia uses a data system called Project EQ, an online resource for districts to share and collaborate on the development and implementation of initiatives to ensure access to equitable educational opportunities. Similarly, Ohio piloted a District Teacher Equity Project, which provided urban districts with data that could be used to analyze inequities in the distribution of effective teachers (Baumgardner, 2010).

Other possible state policy levers include establishing higher standards for admission into and graduation from teacher preparation programs; expanding the pool of effective teachers through alternative-route preparation and certification; increasing pay scales and improving working conditions to retain effective teachers; and providing high-quality professional development and mentoring to teachers most in need of support (Partee, 2014).

District Policy Levers

Districts have tried a similar set of strategies to increase students' access to high-quality teachers, including establishing and piloting model programs, such as teacher-residency programs, master-teacher corps, and strategic staffing policies (Partee, 2014). Some of the promising district-level models for creating a more equitable distribution of highly effective teachers are in North Carolina. One example is Charlotte-Mecklenburg Schools' Strategic Staffing Initiative, which launched in 2008-2009. The district's leadership recruited principals with track records of success to teach in traditionally low-performing schools with large numbers of low-income students. The district gave the principals signing bonuses and pay increases, access to additional resources, the ability to select teams of motivated and highly effective educators, and the ability to remove staff members who are ineffective or not supportive of reform (Travers & Christiansen, 2010).

DISCUSSION

LIMITATIONS AND AREAS FOR FUTURE RESEARCH

In this research, we used all available teacher evaluation data for 92,399 teachers. Nearly two-thirds of the teachers in this dataset did not have ratings for Standard 6 (value-added data). We calculated their statuses using only performance ratings for Standards 1-5. Given the weak relationship between

student growth data and teacher evaluation ratings (Batten, Britt, DeNeal, & Hales, 2012), the findings from our research should be interpreted with caution. If principal observations tend to overestimate or underestimate teacher effectiveness, our analyses would over or underestimate the proportion of effective teachers in a given district. Despite this, it is the best information available and information sanctioned specifically by the State. Additionally, we used only one year of value-added data; whereas, the State's law requires that a teacher's status be calculated using a three-year rolling average of student growth data. Future research should explore the distribution of teacher effectiveness using three-year averages of value-added estimates, when that data becomes available.

Another limitation is that it is not possible to discern from this research whether the variability in teacher effectiveness in a given LEA is intentional or unintentional. One approach to increasing student achievement could be to redistribute the district's most effective teachers to its lowest performing schools. A strategic staffing initiative like this could lead to an intentionally higher variability of teacher effectiveness in the district, although this would not be apparent from our analyses.

Finally, this study does not explore teacher distribution patterns within schools. From our analysis, it is not possible to determine the extent to which each child has access to an effective teacher, only the extent to which there are effective educators in each school. Even in districts with large proportions of "effective" or "highly effective" teachers and low variability, staffing decisions at the school site may result in certain students being matched to more or less effective teachers. A study using administrative data on fifth grade students in North Carolina shows this may be the case; more highly qualified teachers tend to be matched with more advantaged students within a given school (Clotfelter, Ladd, & Vigdor, 2006). The literature suggests that this may be due to several factors, including unequal pressure from parents with more time and information, and teacher preferences for certain subjects or classes (Johnson & Donaldson, 2006; Smrekar & Cohen-Vogel, 2001). A future study could conduct similar analyses using student-level data. Additional research should be conducted to examine the extent to which schools with certain characteristics (e.g., rural/urban, minority population, and Title I status) or groups of students (e.g., children of color or children living in poverty) have equitable access to "effective" or "highly effective" teachers.

RECOMMENDATIONS

Exploring teacher distribution patterns within and across LEAs is just the first step to ensuring that all students in North Carolina have equitable access to effective teachers. The State must continually monitor teacher distribution patterns across the State. Additionally, we recommend the following actions based on our findings and a review of the literature:

- Engage stakeholders (e.g. superintendents, human resources directors, principals, teachers, and parents) and analyze data to determine the root causes of inequalities within and across districts.
- Develop a strategic plan to ensure that all students have equitable access to effective teachers.
  - Implement policies that focus on capacity building, rather than incentives.
  - Support programs that provide high-quality professional development to LEAs and schools with large proportions of teachers "in need of improvement."
- Assist LEAs in developing and implementing their own equity plans that address inequities, because it is ultimately the local system that hires and assigns teachers to schools and classes.

Many of the above recommendations will be requirements of the New State Educator Equity Plans that the U.S. Department of Education will ask each State education agency (SEA) to submit in April 2015 (Duncan, 2014). In its plan, the North Carolina Department of Public Instruction must, among other things, describe the steps it will take to ensure that poor and minority children are not taught at higher rates than other children by inexperienced or ineffective teachers (Duncan, 2014).

APPENDIX A. DEFINITION OF EDUCATION REGIONS

Figure A1. Education Regions Map

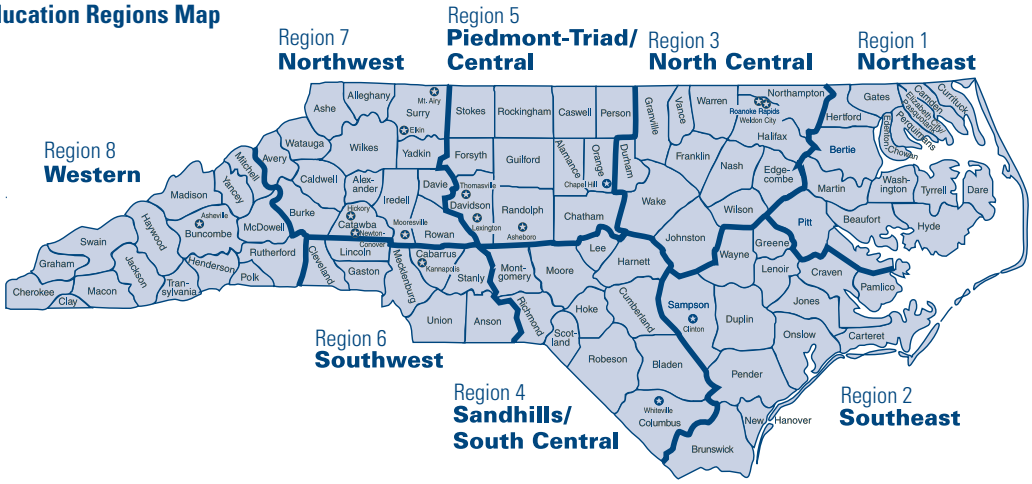


Table A1. LEAs by Region

REGION 1: Beaufort, Bertie, Camden, Chowan, Currituck, Dare, Gates, Hertford, Hyde, Martin, Pasquotank, Perquimans, Pitt, Tyrrell, Washington

REGION 2: Brunswick, Carteret, Craven, Duplin, Greene, Jones, Lenoir, New Hanover, Onslow, Pamlico, Pender, Sampson, Wayne

REGION 3: Durham, Edgecombe, Franklin, Granville, Halifax, Johnston, Nash, Northampton, Vance, Wake, Warren, Wilson

REGION 4: Bladen, Columbus, Cumberland, Harnett, Hoke, Lee, Montgomery, Moore, Richmond, Robeson, Scotland

REGION 5: Alamance, Caswell, Chatham, Davidson, Forsyth, Guilford, Orange, Person, Randolph, Rockingham, Stokes

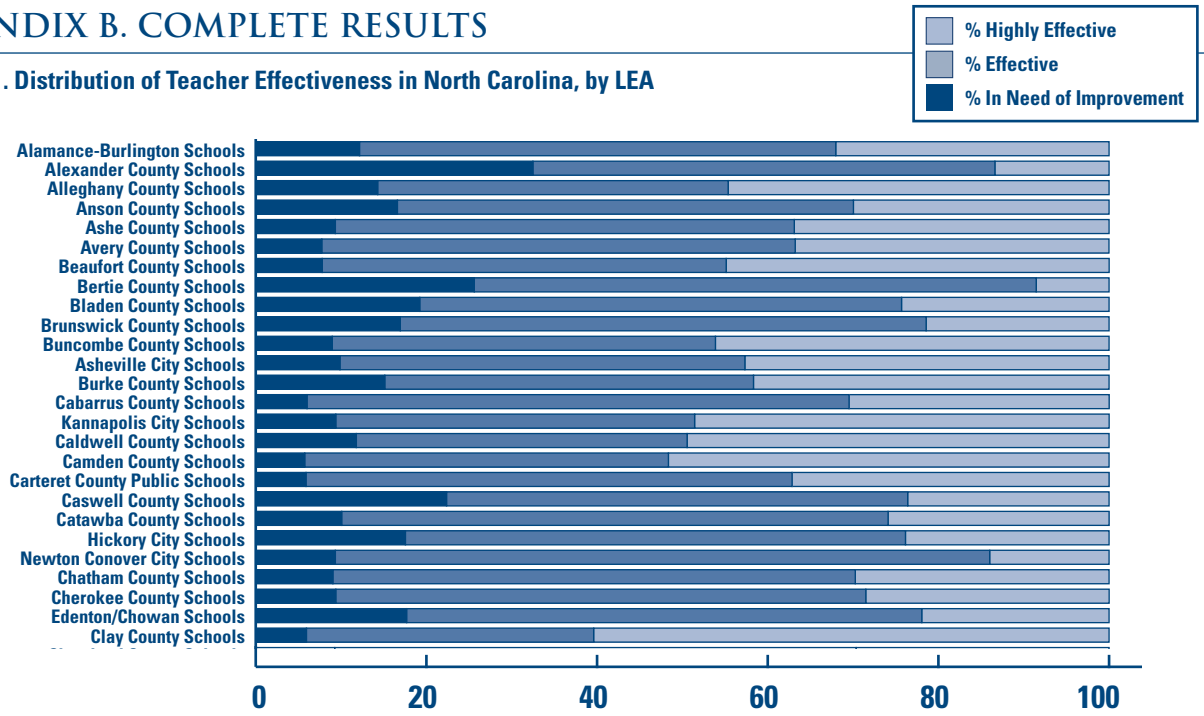
REGION 6: Anson, Cabarrus, Cleveland, Gaston, Lincoln, Mecklenburg, Stanly, Union

REGION 7: Alexander, Alleghany, Ashe, Avery, Burke, Caldwell, Catawba, Davie, Iredell, Rowan, Surry, Watauga, Wilkes, Yadkin

REGION 8: Buncombe, Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Madison, McDowell, Mitchell, Polk, Rutherford, Swain, Transylvania, Yancey

APPENDIX B. COMPLETE RESULTS

Figure B1. Distribution of Teacher Effectiveness in North Carolina, by LEA



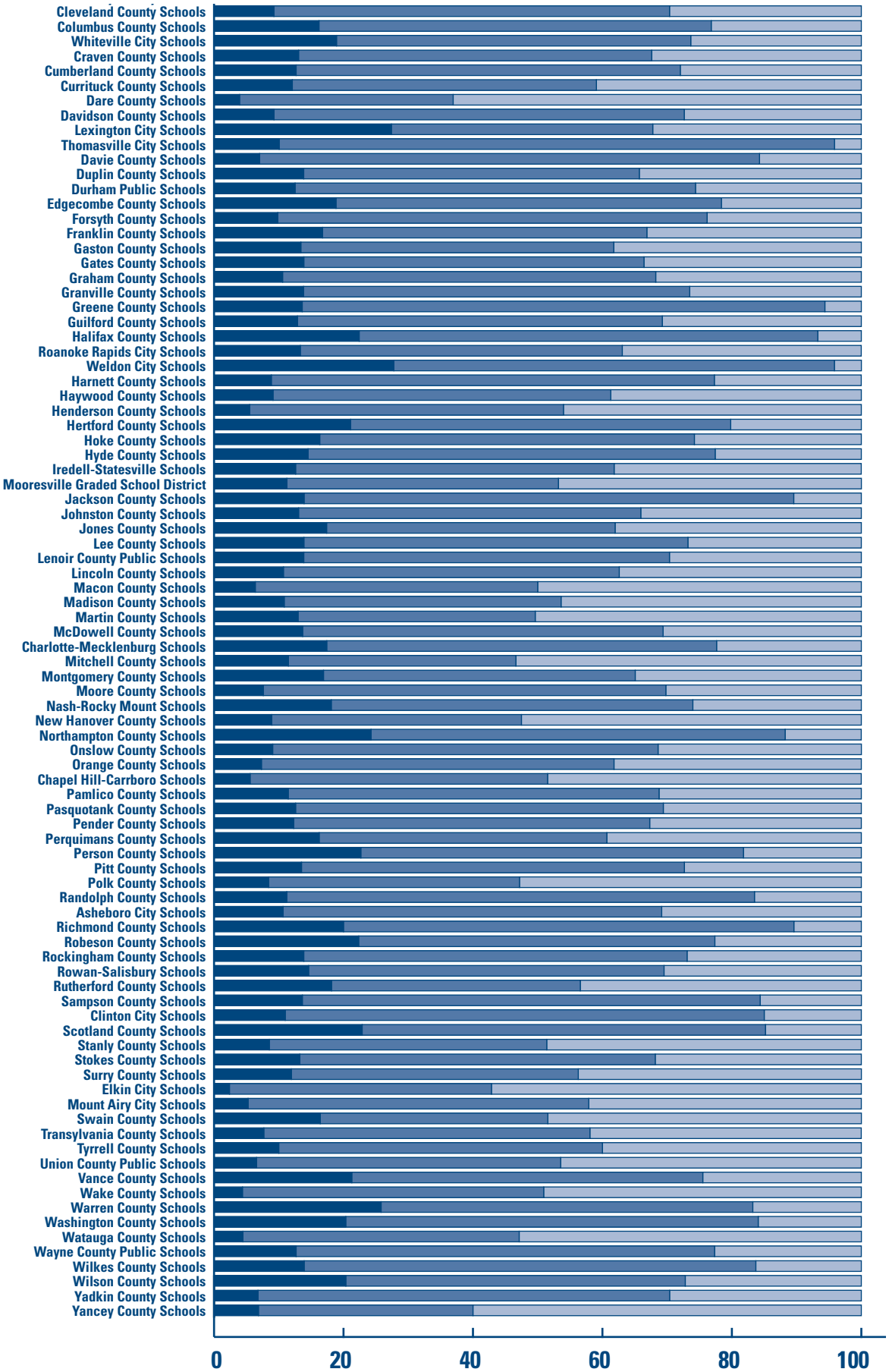

Cleveland County Schools
Columbus County Schools
Whiteville City Schools
Craven County Schools
Cumberland County Schools
Currituck County Schools
Dare County Schools
Davidson County Schools
Lexington City Schools
Thomasville City Schools
Davie County Schools
Duplin County Schools
Durham Public Schools
Edgecombe County Schools
Forsyth County Schools
Franklin County Schools
Gaston County Schools
Gates County Schools
Graham County Schools
Granville County Schools
Greene County Schools
Guilford County Schools
Halifax County Schools
Roanoke Rapids City Schools
Weldon City Schools
Harnett County Schools
Haywood County Schools
Henderson County Schools
Hertford County Schools
Hoke County Schools
Hyde County Schools
Iredell-Statesville Schools
Mooresville Graded School District
Jackson County Schools
Johnston County Schools
Jones County Schools
Lee County Schools
Lenoir County Public Schools
Lincoln County Schools
Macon County Schools
Madison County Schools
Martin County Schools
McDowell County Schools
Charlotte-Mecklenburg Schools
Mitchell County Schools
Montgomery County Schools
Moore County Schools
Nash-Rocky Mount Schools
New Hanover County Schools
Northampton County Schools
Onslow County Schools
Orange County Schools
Chapel Hill-Carrboro Schools
Pamlico County Schools
Pasquotank County Schools
Pender County Schools
Perquimans County Schools
Person County Schools
Pitt County Schools
Polk County Schools
Randolph County Schools
Asheboro City Schools
Richmond County Schools
Robeson County Schools
Rockingham County Schools
Rowan-Salisbury Schools
Rutherford County Schools
Sampson County Schools
Clinton City Schools
Scotland County Schools
Stanly County Schools
Stokes County Schools
Surry County Schools
Elkin City Schools
Mount Airy City Schools
Swain County Schools
Transylvania County Schools
Tyrrell County Schools
Union County Public Schools
Vance County Schools
Wake County Schools
Warren County Schools
Washington County Schools
Watauga County Schools
Wayne County Public Schools
Wilkes County Schools
Wilson County Schools
Yadkin County Schools
Yancey County Schools
0
20
40
60
80
100

Table B1. Proportion of Teachers with "In Need of Improvement," "Effective," and "Highly Effective" Statuses in North Carolina, by LEA

LEA #	LEA Name	% "In Need of Improvement"	% "Effective"	% "Highly Effective"
10	Alamance-Burlington Schools	12.16	55.81	32.03
20	Alexander County Schools	32.48	54.14	13.38
30	Alleghany County Schools	14.29	41.07	44.64
40	Anson County Schools	16.60	53.44	29.96
50	Ashe County Schools	9.33	53.78	36.89
60	Avery County Schools	7.74	55.48	36.77
70	Beaufort County Schools	7.79	47.34	44.88
80	Bertie County Schools	25.61	65.85	8.54
90	Bladen County Schools	19.22	56.46	24.32
100	Brunswick County Schools	16.94	61.62	21.44
110	Buncombe County Schools	8.97	44.90	46.13
111	Asheville City Schools	9.87	47.45	42.68
120	Burke County Schools	15.12	43.21	41.67
130	Cabarrus County Schools	6.01	63.52	30.48
132	Kannapolis City Schools	9.38	42.05	48.58
140	Caldwell County Schools	11.79	38.76	49.45
150	Camden County Schools	5.74	42.62	51.64
160	Carteret County Public Schools	5.89	56.96	37.15
170	Caswell County Schools	22.36	54.04	23.60
180	Catawba County Schools	10.07	64.03	25.90
181	Hickory City Schools	17.54	58.60	23.86
182	Newton Conover City Schools	9.33	76.68	13.99
190	Chatham County Schools	9.04	61.22	29.74
200	Cherokee County Schools	9.38	62.11	28.52
210	Edenton/Chowan Schools	17.68	60.37	21.95
220	Clay County Schools	5.94	33.66	60.40
230	Cleveland County Schools	9.25	61.12	29.63
240	Columbus County Schools	16.21	60.60	23.19
241	Whiteville City Schools	18.92	54.73	26.35
250	Craven County Schools	13.06	54.55	32.39
260	Cumberland County Schools	12.68	59.35	27.97
270	Currituck County Schools	12.09	46.98	40.93
280	Dare County Schools	3.94	33.00	63.05
290	Davidson County Schools	9.26	63.38	27.36
291	Lexington City Schools	27.40	40.38	32.21
292	Thomasville City Schools	10.06	85.80	4.14
300	Davie County Schools	7.04	77.23	15.73
310	Duplin County Schools	13.85	51.85	34.30
320	Durham Public Schools	12.52	61.86	25.63
330	Edgecombe County Schools	18.84	59.55	21.61
340	Forsyth County Schools	9.85	66.32	23.83
350	Franklin County Schools	16.77	50.10	33.13
360	Gaston County Schools	13.41	48.34	38.25
370	Gates County Schools	13.87	52.55	33.58
380	Graham County Schools	10.59	57.65	31.76
390	Granville County Schools	13.84	59.65	26.51
400	Greene County Schools	13.62	80.75	5.63
410	Guilford County Schools	12.89	56.36	30.75
420	Halifax County Schools	22.42	70.85	6.73
421	Roanoke Rapids City Schools	13.33	49.74	36.92
422	Weldon City Schools	27.78	68.06	4.17
430	Harnett County Schools	8.85	68.44	22.70
440	Haywood County Schools	9.11	52.18	38.71
450	Henderson County Schools	5.49	48.49	46.02
460	Hertford County Schools	21.10	58.72	20.18
470	Hoke County Schools	16.33	57.88	25.79
480	Hyde County Schools	14.52	62.90	22.58
490	Iredell-Statesville Schools	12.60	49.21	38.18
491	Mooresville Graded School District	11.25	41.95	46.81
500	Jackson County Schools	13.91	75.65	10.44
510	Johnston County Schools	13.06	52.87	34.07
520	Jones County Schools	17.39	44.57	38.04
530	Lee County Schools	13.88	59.33	26.79
540	Lenoir County Public Schools	13.86	56.50	29.64
550	Lincoln County Schools	10.72	51.88	37.40
560	Macon County Schools	6.37	43.63	50.00
570	Madison County Schools	10.84	42.77	46.39
580	Martin County Schools	12.98	36.64	50.38
590	McDowell County Schools	13.69	55.68	30.63
600	Charlotte-Mecklenburg Schools	17.41	60.23	22.36
610	Mitchell County Schools	11.49	35.14	53.38
620	Montgomery County Schools	16.91	48.16	34.93
630	Moore County Schools	7.61	62.19	30.20
640	Nash-Rocky Mount Schools	18.11	55.86	26.03
650	New Hanover County Schools	8.92	38.57	52.51
660	Northampton County Schools	24.26	63.97	11.76
670	Onslow County Schools	9.06	59.54	31.41
680	Orange County Schools	7.32	54.47	38.21
681	Chapel Hill-Carrboro Schools	5.57	45.96	48.46
690	Pamlico County Schools	11.46	57.29	31.25
700	Pasquotank County Schools	12.60	56.81	30.59
710	Pender County Schools	12.31	55.00	32.69
720	Perquimans County Schools	16.24	44.44	39.32
730	Person County Schools	22.68	59.11	18.21
740	Pitt County Schools	13.51	59.15	27.34
750	Polk County Schools	8.43	38.76	52.81
760	Randolph County Schools	11.23	72.26	16.51
761	Asheboro City Schools	10.66	58.50	30.84
770	Richmond County Schools	20.00	69.58	10.42
780	Robeson County Schools	22.34	55.03	22.63
790	Rockingham County Schools	13.86	59.22	26.92
800	Rowan-Salisbury Schools	14.61	54.91	30.48
810	Rutherford County Schools	18.15	38.43	43.42
820	Sampson County Schools	13.64	70.73	15.64
821	Clinton City Schools	11.00	74.00	15.00
830	Scotland County Schools	22.88	62.31	14.81
840	Stanly County Schools	8.54	42.86	48.60
850	Stokes County Schools	13.25	54.91	31.84
860	Surry County Schools	11.95	44.32	43.74
861	Elkin City Schools	2.38	40.48	57.14
862	Mount Airy City Schools	5.26	52.63	42.11
870	Swain County Schools	16.41	35.16	48.44
880	Transylvania County Schools	7.69	50.38	41.92
890	Tyrrell County Schools	10.00	50.00	40.00
900	Union County Public Schools	6.57	46.98	46.45
910	Vance County Schools	21.28	54.23	24.49
920	Wake County Schools	4.39	46.54	49.07
930	Warren County Schools	25.81	57.42	16.77
940	Washington County Schools	20.35	63.72	15.93
950	Watauga County Schools	4.46	42.68	52.87
960	Wayne County Public Schools	12.68	64.65	22.67
970	Wilkes County Schools	13.92	69.78	16.30
980	Wilson County Schools	20.36	52.44	27.20
990	Yadkin County Schools	6.79	63.59	29.62
995	Yancey County Schools	6.86	33.14	60.00

Table B2. Standard Deviation of Proportion of "Highly Effective" Teachers Across Schools, by LEA

LEA #	LEA Name	Standard Deviation	Quintile
10	Alamance-Burlington Schools	20.58	3
20	Alexander County Schools	10.99	1
30	Alleghany County Schools	*	
40	Anson County Schools	29.48	5
50	Ashe County Schools	17.04	2
60	Avery County Schools	22.58	4
70	Beaufort County Schools	24.96	5
80	Bertie County Schools	7.74	1
90	Bladen County Schools	21.58	3
100	Brunswick County Schools	19.28	2
110	Buncombe County Schools	23.41	4
111	Asheville City Schools	19.30	3
120	Burke County Schools	26.05	5
130	Cabarrus County Schools	17.99	2
132	Kannapolis City Schools	20.48	3
140	Caldwell County Schools	20.68	3
150	Camden County Schools	29.06	5
160	Carteret County Public Schools	18.40	2
170	Caswell County Schools	17.12	2
180	Catawba County Schools	20.52	3
181	Hickory City Schools	16.60	2
182	Newton Conover City Schools	24.12	5
190	Chatham County Schools	15.04	1
200	Cherokee County Schools	20.62	3
210	Edenton/Chowan Schools	*	
220	Clay County Schools	*	
230	Cleveland County Schools	21.02	3
240	Columbus County Schools	16.90	2
241	Whiteville City Schools	23.85	4
250	Craven County Schools	20.36	3
260	Cumberland County Schools	24.61	5
270	Currituck County Schools	23.32	4
280	Dare County Schools	21.49	3
290	Davidson County Schools	22.15	4
291	Lexington City Schools	29.02	5
292	Thomasville City Schools	*	
300	Davie County Schools	21.73	3
310	Duplin County Schools	21.81	4
320	Durham Public Schools	25.08	5
330	Edgecombe County Schools	15.28	1
340	Forsyth County Schools	20.89	3
350	Franklin County Schools	22.48	4
360	Gaston County Schools	23.76	4
370	Gates County Schools	22.21	4
380	Graham County Schools	*	
390	Granville County Schools	21.50	3
400	Greene County Schools	8.74	1
410	Guilford County Schools	23.58	4
420	Halifax County Schools	7.99	1
421	Roanoke Rapids City Schools	28.45	5
422	Weldon City Schools	*	
430	Harnett County Schools	14.96	1
440	Haywood County Schools	20.03	3
450	Henderson County Schools	22.50	4
460	Hertford County Schools	18.95	2
470	Hoke County Schools	22.30	4
480	Hyde County Schools	*	
490	Iredell-Statesville Schools	22.23	4
491	Mooresville Graded School District	36.46	5
500	Jackson County Schools	30.90	5
510	Johnston County Schools	17.89	2
520	Jones County Schools	16.63	2
530	Lee County Schools	19.89	3
540	Lenoir County Public Schools	22.12	4
550	Lincoln County Schools	27.08	5
560	Macon County Schools	30.00	5
570	Madison County Schools	29.47	5
580	Martin County Schools	23.56	4
590	McDowell County Schools	23.92	5
600	Charlotte-Mecklenburg Schools	16.51	1
610	Mitchell County Schools	33.16	5
620	Montgomery County Schools	28.57	5
630	Moore County Schools	19.37	3
640	Nash-Rocky Mount Schools	21.79	4
650	New Hanover County Schools	23.74	4
660	Northampton County Schools	9.52	1
670	Onslow County Schools	15.71	1
680	Orange County Schools	18.61	2
681	Chapel Hill-Carrboro Schools	21.60	3
690	Pamlico County Schools	*	
700	Pasquotank County Schools	26.34	5
710	Pender County Schools	28.20	5
720	Perquimans County Schools	*	
730	Person County Schools	9.39	1
740	Pitt County Schools	17.65	2
750	Polk County Schools	29.39	5
760	Randolph County Schools	19.93	3
761	Asheboro City Schools	17.63	2
770	Richmond County Schools	7.41	1
780	Robeson County Schools	24.00	5
790	Rockingham County Schools	18.35	2
800	Rowan-Salisbury Schools	24.17	5
810	Rutherford County Schools	22.86	4
820	Sampson County Schools	10.48	1
821	Clinton City Schools	13.46	1
830	Scotland County Schools	16.04	1
840	Stanly County Schools	20.68	3
850	Stokes County Schools	22.08	4
860	Surry County Schools	17.36	2
861	Elkin City Schools	*	
862	Mount Airy City Schools	*	
870	Swain County Schools	*	
880	Transylvania County Schools	11.91	1
890	Tyrrell County Schools	*	
900	Union County Public Schools	19.13	2
910	Vance County Schools	18.53	2
920	Wake County Schools	18.32	2
930	Warren County Schools	21.98	4
940	Washington County Schools	30.46	5
950	Watauga County Schools	7.85	1
960	Wayne County Public Schools	17.59	2
970	Wilkes County Schools	19.27	2
980	Wilson County Schools	19.69	3
990	Yadkin County Schools	15.89	1
995	Yancey County Schools	14.58	1

**fewer than six observations*

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The Financial and Business Services Area is in its eighth year of the Research Intern Program. The Program is designed to help build a quality research program within NCDPI to supplement and supply data for discussions related to procedural, process, and policy changes. This year's program included students from Duke University's Master of Public Policy program, North Carolina State University's Master of Public Administration program, and The University of North Carolina at Chapel Hill's Master of Public Administration and Doctorate in Education programs. The intern program is managed by Eric Moore (919-807-3731) and Kayla Siler (919-807-3824) | intern_research@dpi.nc.gov.

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