

Virginia Is for Teachers?

An Analysis of the State's Teacher Demand and Supply

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Introduction

States and school districts across the United States have reported grappling with teacher shortages.¹ Teacher preparation program enrollments and graduates have dropped at the national level, while the number of public school students has steadily risen.² Teacher labor markets, however, differ greatly from state to state as well as between communities.³ Even within localities, certain subject areas or types of schools face starker challenges in training, hiring, and retaining teachers.⁴

For these reasons, the Rockefeller Institute of Government, the public policy research think tank for the State University of New York, is examining trends and patterns in teacher supply and demand in a series of state reports to inform state as well as national policies aimed at ensuring an adequate supply of qualified teachers for all communities and Pre-K-12 students. This report, which focuses on Virginia, is the third in the series; the first two examined teacher labor markets in New York and South Dakota.⁵

Virginia's teacher workforce faces real challenges. Prekindergarten through twelfth grade student enrollment has increased at twice the national rate of enrollment growth since 2000. The proportion of students requiring supplemental services and instruction, especially economically disadvantaged students and English language learners, has grown even faster. Also, different regions of the state have experienced very different changes in enrollment, a dynamic that could require large and rapid shifts in the geographical distribution of teachers.

Running counter to the national trend, in which the number of graduates from teacher education programs in the US fell by 28 percent between 2009 and 2016, the number of graduates from the Commonwealth's teacher preparation programs increased by 11.0 percent over the same seven years.

At the same time, Virginia’s teacher pipeline has grown. Running counter to the national trend, in which the number of graduates from teacher education programs in the US fell by 28 percent between 2009 and 2016, the number of graduates from the Commonwealth’s teacher preparation programs increased by 11.0 percent over the same seven years. Student-to-teacher ratios actually declined in recent years, from nearly 12.6 students per teacher in 2002 to about 12.0 in 2016.⁶ This decline reflects the fact that growth in the number of teachers statewide outpaced the growth in Virginia students since 2002.

However, despite the increase in teacher candidates, the state has reported a high proportion of vacancies in teacher positions; and although the number of students with special education needs has not grown appreciably in recent years, Virginia has repeatedly reported to the federal government that its schools are experiencing shortages in teachers with appropriate preparation in special education.

However, despite the increase in teacher candidates, the state has reported a high proportion of vacancies in teacher positions.

In addition, Virginia exhibits large differences *within* the state regarding access to well-qualified teachers. Teacher vacancies, turnover in teaching positions, and teacher qualifications vary substantially across regions and school districts (called “divisions” in the state) within Virginia, resulting in pockets of shortage, particularly in regions of the state with higher rates of poverty. As we found in our prior analyses of New York and South Dakota, the local-level distribution of qualified teachers appears to be a less tractable problem than the overall, statewide balance between teachers and enrollments.

To address these issues, the Virginia Department of Education has implemented several policies to encourage more people to pursue teaching careers, to ease the transition to certification for in-state and out-of-state educators, and to reward those who are willing to teach in subjects with serious shortages.

Demand

The demand for K-12 teachers is comparatively strong in Virginia, especially for teachers prepared for and willing to teach high school, English Language Learners (ELLs), and economically disadvantaged students (EDSs). Four factors may affect the demand for K-12 teachers in Virginia:

1. Student enrollment;
2. High-need student subgroup populations;
3. Age distribution of teachers; and
4. Teacher turnover and attrition.

Analyses of these factors suggest that the demand for public school teachers in Virginia will continue to grow in coming years.

Student Enrollment

The number of K-12 students in Virginia’s schools has increased steadily over the past two decades, and at a rate greater than that for the entire US. Between 2000 and 2015, Virginia’s total public elementary and secondary school enrollment grew by 12.1 percent, compared to 6.9 percent growth nationwide, with forecasted regular growth projected through 2027.⁷

Virginia’s expansion in student enrollment was most striking in its high schools. As [Figure 1A](#) shows, enrollment in grades 9 through 12 increased by 20 percent between 2000 and 2018 (estimated), much greater than the nationwide growth rate of 12 percent. Virginia’s enrollment also increased faster than the nation’s for younger students — from prekindergarten through eighth grade — but the growth rates were substantially lower. The Commonwealth’s increase in pre-K through eighth grade enrollment was about 11 percent between 2000 and 2018 (again, estimated), while for the US the increase was slightly over 5 percent ([Figure 1B](#)). The strong growth in high school enrollment may reflect not only population changes but also improvements in Virginia’s high school retention and completion rates. The four-year cohort graduation rate in the state grew from 82.1 percent in 2008 to 91.2 percent in 2017.⁸

The state’s public elementary and secondary school enrollment is expected to continue to increase, though at a slower rate. The National Center for Education Statistics projects that enrollment in Virginia will grow 3.3 percent between the fall of 2016 and the fall of 2027, similar to the US growth rate of 3.2 percent over the same period.⁹

FIGURE 1A. Public School Student Enrollment Trends Grades Nine through Twelve: Percent Compared to Enrollment in 2000

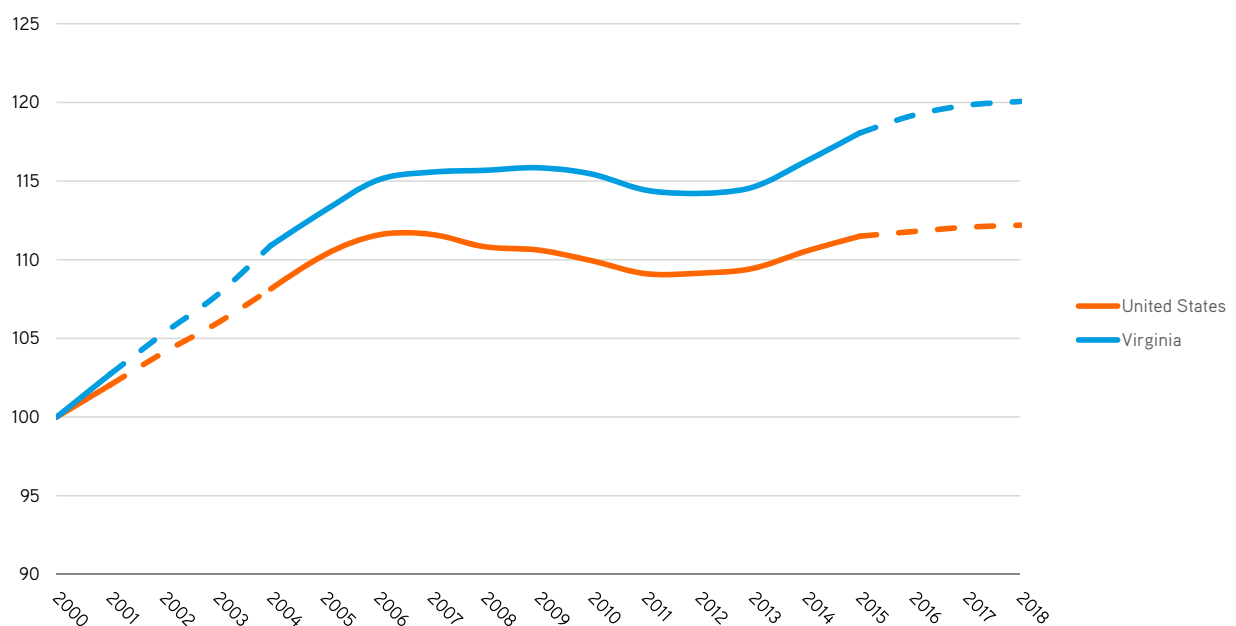
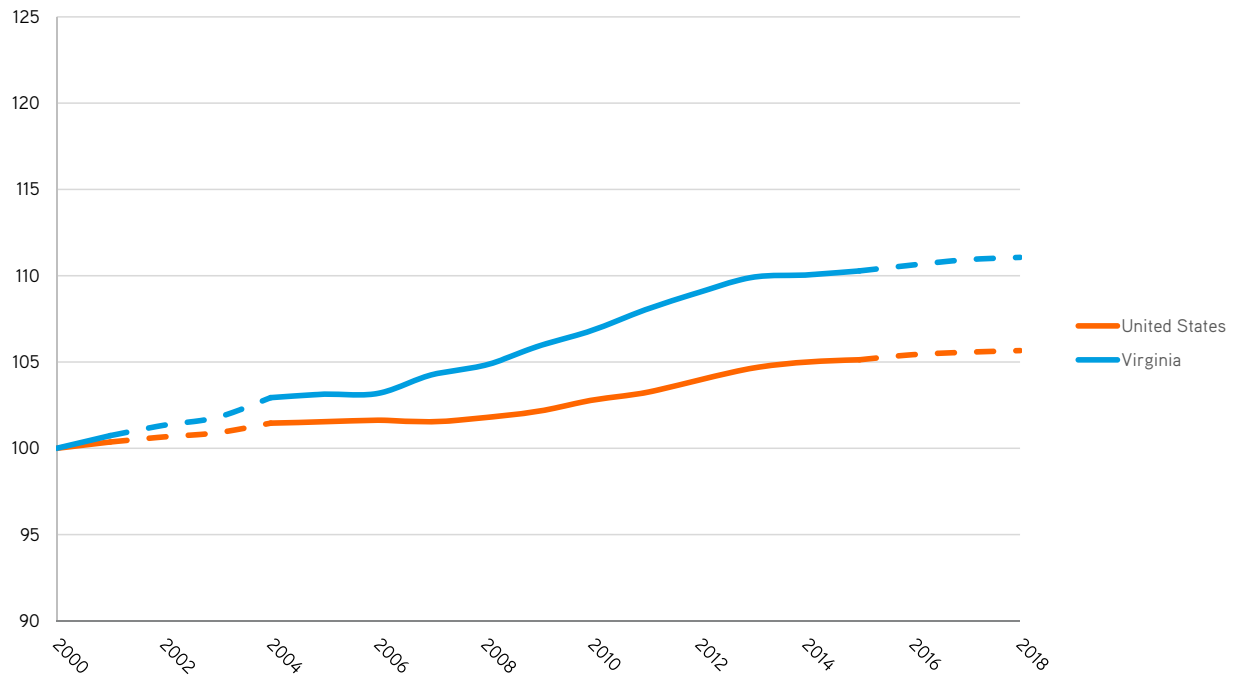


FIGURE 1B. Public School Student Enrollment Trends Pre-K through Eighth Grade: Percent Compared to Enrollment in 2000



DATA SOURCE: Digest of Education Statistics, National Center for Education Statistics, 2016.

NOTE: Enrollment values imputed for 2001-03, forecasted for 2015-18; enrollment numbers scaled as comparisons to baseline state/national enrollment in 2000.

FIGURE 2. Virginia's Uneven Population Growth

Falls Church and Arlington Counties

GREW BY OVER

15 percent

between 2010 and 2017

Loudoun County

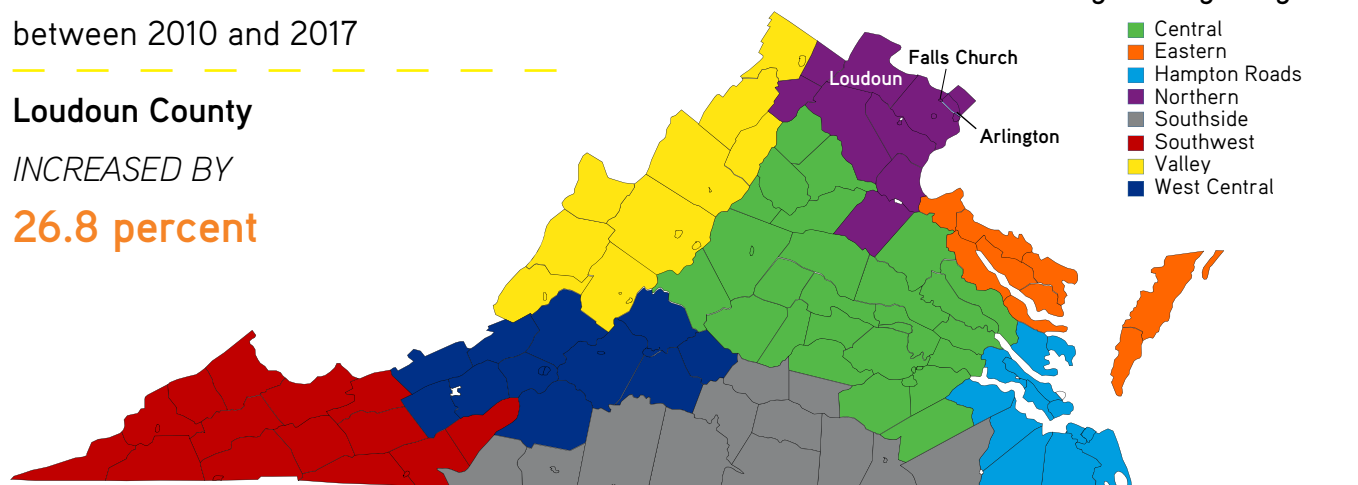
INCREASED BY

26.8 percent

61 out of 133 counties

saw population

DECLINE



DATA SOURCE: University of Virginia, Weldon Cooper Center for Public Service, Demographic Research Group, "Virginia's Demographic Regions," accessed November 16, 2018, <https://demographics.coopercenter.org/virginia-regions>.

Population growth, however, has been quite uneven across the Commonwealth. It has been vigorous in the Northern Virginia and Hampton Roads regions — where the population counts of Falls Church and Arlington counties all grew by over 15 percent between 2010 and 2017 — and Loudoun County, which increased its population by 26.8 percent.¹⁰ In contrast, most Virginia counties experienced population changes of a much smaller magnitude, and many (61 counties out of 133) saw population declines.

Special Education and ELL Students

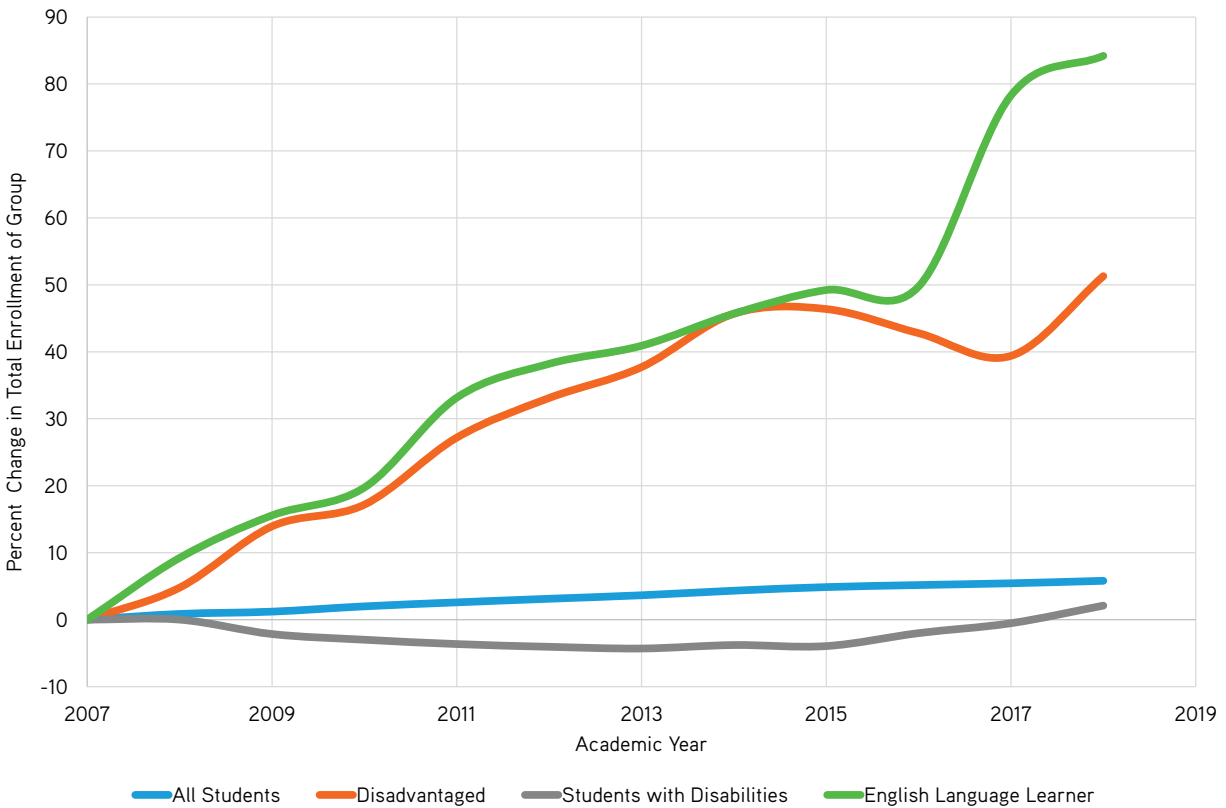
The demand for teachers is also affected by the characteristics of students. Of particular interest are the changing numbers of special education, English Language Learner (ELL), and economically disadvantaged students. These pupils may require supplemental educational resources and, in the case of special education and ELL students, also require specially trained instructors.

By comparison to the moderately strong upward trend in total student enrollment increases in Virginia, the number of students who are economically disadvantaged or English Language Learners have increased astronomically. As [Figure 3](#) shows, economically disadvantaged students increased in enrollment from 350,095 to 529,684 between 2007 and 2018 — or from 28.7 to 40.0 percent of the total student population. The number of ELL students increased from 86,390 to 159,126 — or from 7.1 percent to 12.3 percent of the total student population. This rapid growth in student populations requiring specialized instruction or greater resources may place additional demands on the teacher workforce in the state.

For the last thirteen years, the Virginia Department of Education has identified special education as the subject area with the most critical shortage for teachers.¹¹ However, as [Figure 3](#) indicates, the number of students with disabilities decreased over the period 2007 to 2015 and only rose modestly after 2015. The shortage of special education teachers becomes even more puzzling as we note below (in [Table 1](#)) that there has been an increase in recent years in the number of graduates from Virginia teacher education programs with preparation in special education. We return to this puzzle later in this report.

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FIGURE 3. Percent Change in Enrollment since 2007 for Student Population Subgroups



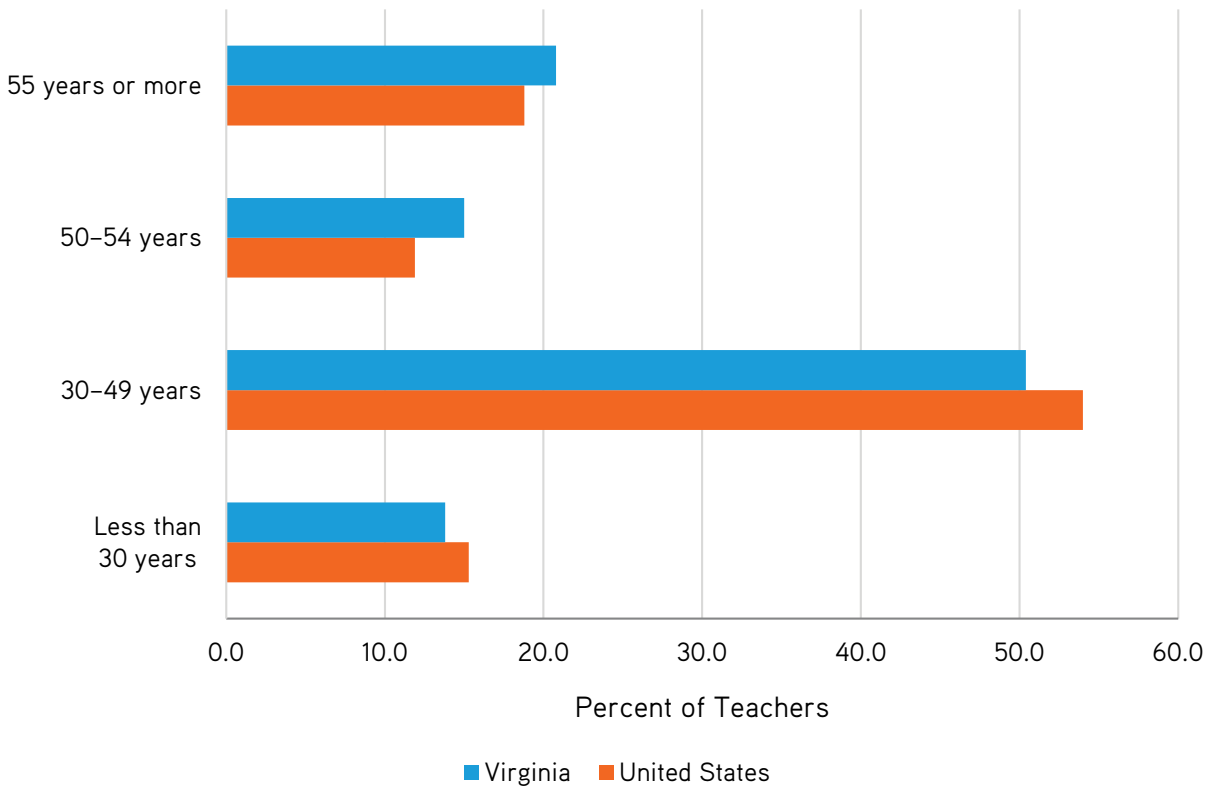
DATA SOURCE: Virginia Department of Education (VDOE), “Fall Membership Reports, 2007-2018” and “VDOE Special Education Child Count Reports 2007-2018.”

Teacher Turnover and Attrition

Heightened rates of teacher turnover or attrition can also boost demand for new teachers and generate shortages. A 2017 report by Virginia’s Advisory Committee on Teacher Shortages found that average teacher turnover among the state’s public schools was 10.2 percent between the 2015-16 and 2016-17 school years — a rate significantly higher than the national average of 8 percent.¹²

The gap between Virginia and US turnover rates suggests the possibility of state-specific factors pushing up attrition. If that is the case, one contributing factor may be Virginia’s currently older teaching workforce. The 2011-12 Schools and Staffing Survey determined the median age of Virginia’s teachers as 43.2 years, compared to 41.0 years in the US.¹³ Figure 4, based on the survey data, shows that the percentage of teachers over fifty years of age is relatively high in Virginia, suggesting that a larger proportion of Virginia teachers are nearing retirement. Nonetheless, the magnitude of the “graying” of the workforce as part of overall attrition is unclear. Retirement is one of the three most frequently cited reasons for teacher attrition, comprising about 31 percent, but it is no greater than changing careers (31 percent) and less common than “personal or life” reasons (43 percent).¹⁴ School staffing problems, which, as we note below, may be concentrated in certain parts of the state, are much more likely to be related to turnover than to teacher retirements.¹⁵

FIGURE 4. Percent of Teacher Workforce by Age Group, Virginia Compared to US



DATA SOURCE: Public School Teacher File, 2012, from the Schools and Staffing Survey, NCES.

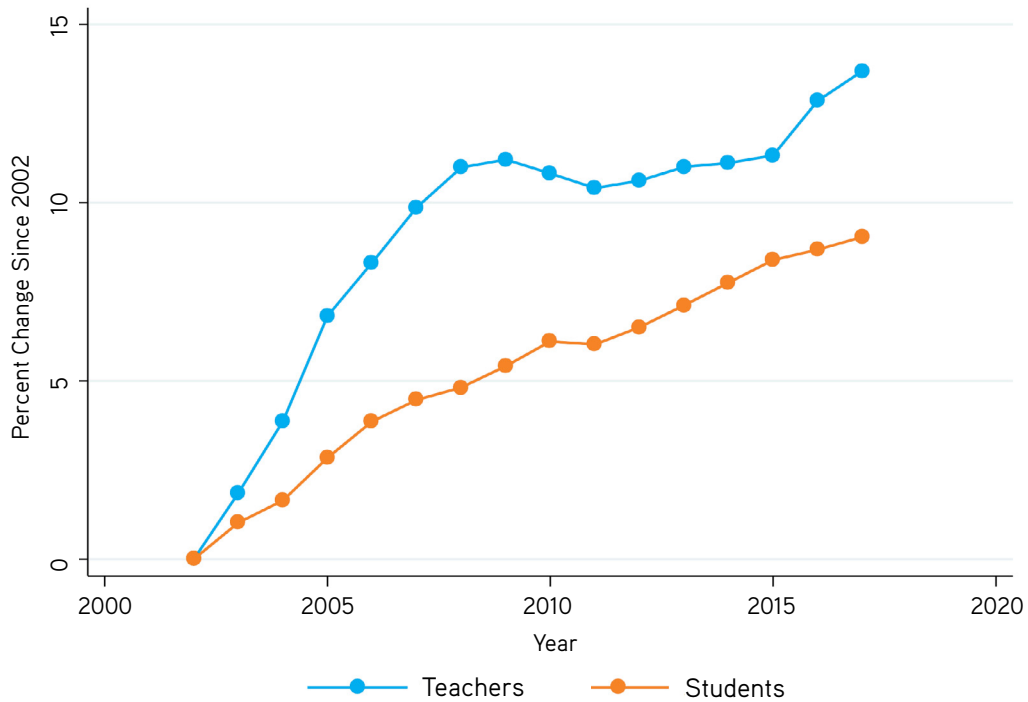
Supply

Some evidence suggests that Virginia has an ample supply of teachers, at least in comparison to other states. We consider three factors related to the supply of Pre-K-12 teachers in Virginia public schools: (1) the number of full-time teachers; (2) teacher preparation program graduates; and (3) out-of-state teachers.

Number of Teachers

The number of teachers has grown statewide in recent years. [Figure 5](#) shows that while the number of teachers stalled between 2008 and 2015, the aggregate workforce grew before the recession as well as after 2015. Following the economic recession, Virginia lawmakers changed the state's Standard of Quality (SOQ) state aid formula in a way that made it difficult for local districts to maintain prerecession-level education funding.¹⁶ Despite the seven-year pause in growth, however, the statewide increase in the number of teachers since 2002 has been greater than the increase in student enrollment.

FIGURE 5. Growth in Teacher Counts and Student Enrollment from 2002 to 2016



DATA SOURCE: “Superintendent’s Annual Reports: 2002-17,” Virginia Department of Education (VDOE), Tables 2 and 17.

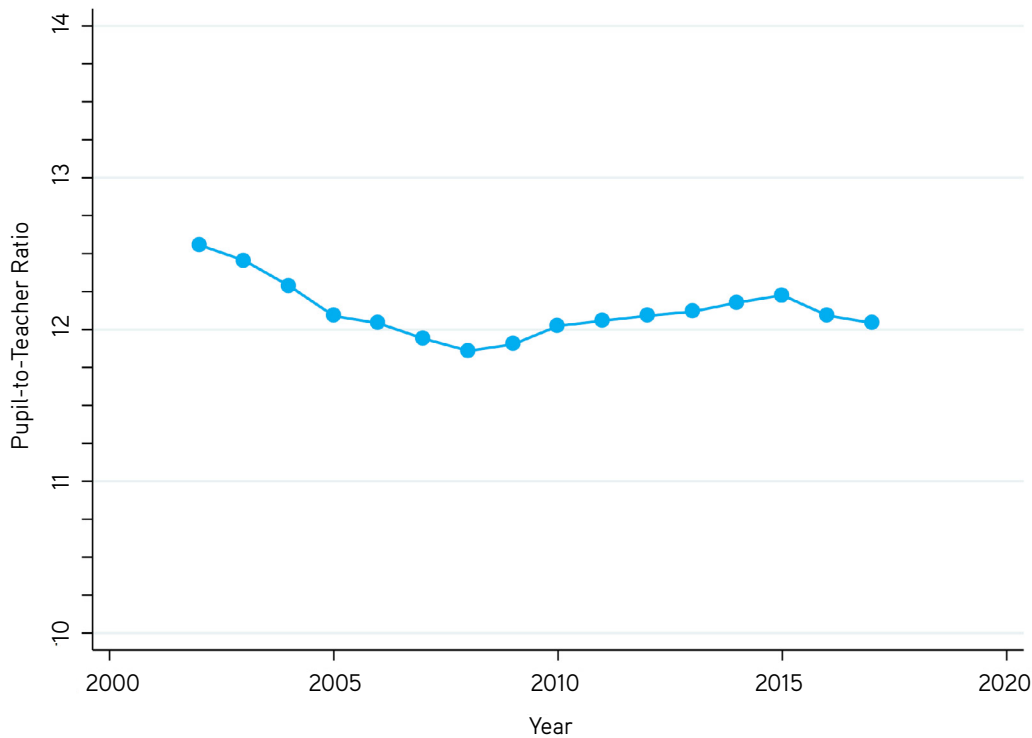
NOTE: For the values in this figure, the number of teachers is calculated as the sum of elementary teachers, secondary teachers, guidance counselors, and librarians in order to be consistent across the entire time period.

One result of the growth in the total number of teachers in Virginia is a decline in the average student-teacher ratio in the state. As [Figure 6](#) shows, the student-teacher ratio has varied little in recent years — from a high of 12.6 in 2002 to just over 11.8 in 2008. Except for the postrecession increases between 2008 and 2015, the overall trend has been a reduction, down to just over 12.0 in 2016.

One noteworthy countervailing trend over this time period has been the large reduction in the number of support positions in schools. Since the budgetary cuts associated with the economic recession (between the 2008-09 and 2016-17 school years), the state has lost a total of 2,524 support staff in schools.¹⁷ This loss stems primarily from a change in the Virginia Standards of Quality (SOQ) funding formula in 2009, which capped the number of state-funded support positions to one for each 4.03 instructional positions (where instructional positions included guidance counselors and librarians, as described in [Figure 6](#)).¹⁸ Support positions are defined broadly to include positions in areas such as technology; pupil transportation; operation and maintenance; professional development; attendance and health; administration; and superintendent, school board, and school nurse positions.¹⁹

One noteworthy countervailing trend over this time period has been the large reduction in the number of support positions in schools.

FIGURE 6. Adjusted Pupil-Teacher Ratio from 2002 to 2016



DATA SOURCE: "Superintendent's Annual Reports: 2002-17," Virginia Department of Education (VDOE), Tables 2 and 17.

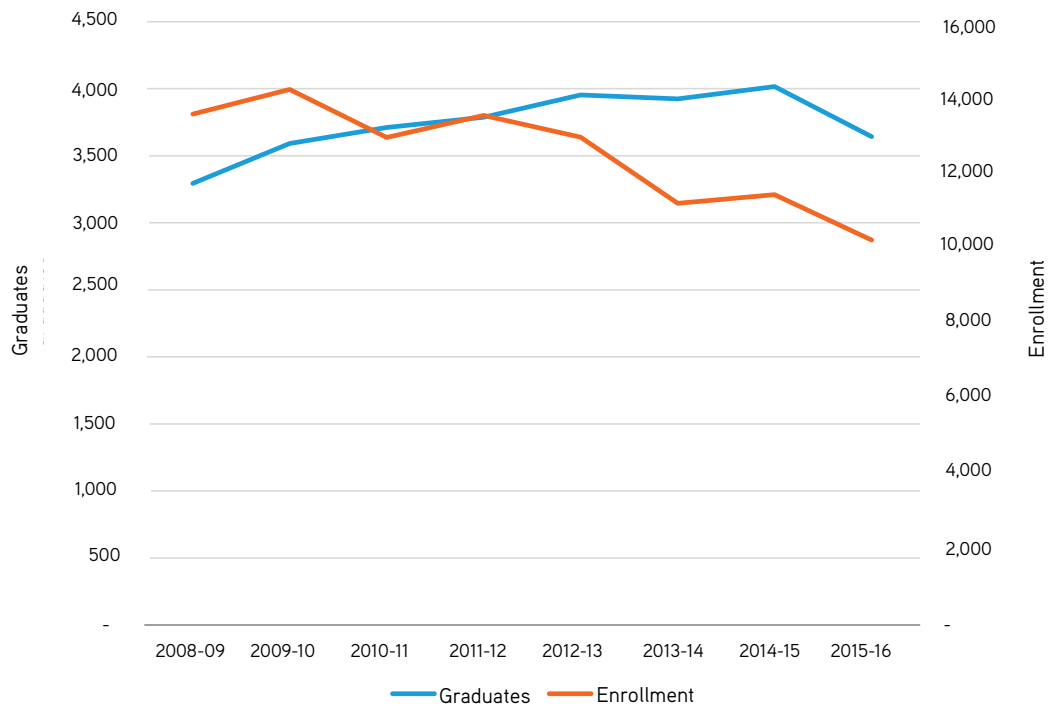
NOTE: In this figure, the number of teachers underlying the ratio is calculated as the sum of elementary teachers, secondary teachers, guidance counselors, and librarians to be consistent across the entire time period. This pupil-to-teacher ratio is therefore lower in each year than it would be if guidance counselors and librarians were not included.

Teacher Preparation Pipeline

Another indicator of the supply of teachers to schools in Virginia is the number of graduates from the state's teacher education programs. The state has forty providers, including thirty-six traditional programs in higher education institutions, plus four alternative programs.²⁰ Unlike forty-five other states, which have experienced declines in the number of graduates from teacher education programs, Virginia has seen growth between 2009 and 2016 (Figure 7). The growth has not been consistent; most of the increase occurred before 2013, and a significant decline occurred between the 2015 and 2016 school years. Also, enrollment in teacher preparation programs in Virginia declined over the same period, perhaps auguring future declines in graduates. Nonetheless, Virginia's teacher education programs have, for the most part, provided a steady supply of potential teachers — a distinctive strength in comparison to other states in recent years.

Unlike forty-five other states, which have experienced declines in the number of graduates from teacher education programs, Virginia has seen growth between 2009 and 2016

FIGURE 7. Trends in the Numbers of Graduates and Enrollment in Teacher Preparation Programs in Virginia, 2008 to 2016



DATA SOURCE: U.S. Department of Education, Title II Reports, <https://title2.ed.gov/Public/Home.aspx>.

Although growth in the number of graduates has been widespread among different subject area specializations, there are some large differences among specialization areas. As [Table 1](#) demonstrates, the greatest increases in the subject areas of graduates between 2011 and 2015 occurred in the areas of special education, social studies/history/social science, physical education/health, and secondary education. The number of graduates prepared to teach ELL, Bilingual, and Multilingual subjects, as well as middle school or junior high grades, also grew vigorously during this period. In contrast, graduates prepared to teach science, elementary education, music and the arts, and career and technical education increased only slightly between 2011 and 2015, and the number ready to teach foreign languages, mathematics, and English saw declines.

Out-of-State Teachers

Virginia’s supply of teachers may benefit from the fact that the Commonwealth offers an open system for teachers and graduates of teacher education programs from other states. An individual coming into Virginia from any state may qualify for a Virginia teaching license with comparable endorsement areas if the individual has completed a teacher preparation program through a regionally accredited four-year college or university approved by the sending state. Based on data collected by the U.S. Department of Education, 60 percent of persons receiving an initial teaching credential in Virginia in 2012-13 were prepared by an out-of-state teacher education program.²¹

Also, licensure “by reciprocity” is provided for individuals who have obtained a valid out-of-state license. Individuals who hold a valid out-of-state licenses, and who have completed a minimum of three years of full-time, successful teaching experience in a state other than Virginia, are exempted from the professional teacher’s assessment requirements.²²

TABLE 1. Subject of Graduates of Teacher Education Programs in Virginia, 2011-15

	2012	2013	2014	2015	2016	% Change
Elementary Education	1,474	1,481	1,445	1,572	1,505	2.1%
Special Education	465	537	621	587	669	43.9%
English, Language Arts, Reading, Speech	448	370	444	412	412	-8.0%
Other	367	188	159	380	477	30.0%
Social Studies, Social Sciences, History	305	378	477	495	480	57.4%
Music, Art, Drama, Dance	244	229	237	230	257	5.3%
Physical Education, Coaching, Health	222	292	280	288	345	55.4%
Mathematics	179	200	216	213	166	-7.3%
Junior High, Middle School Education	163	153	147	136	215	31.9%
Secondary Education	155	352	450	330	437	181.9%
Science	135	147	174	179	160	18.5%
ESL, Bilingual, Multilingual	105	64	127	111	137	30.5%
Foreign Languages	91	88	96	107	79	-13.2%
Technical, Occupational, Business	91	75	61	90	97	6.6%
Early Childhood Education	75	91	179	84	199	165.3%
General	59	0	17	0	201	240.7%
Total	4,578	4,645	5,130	5,214	5,836	27.5%

DATA SOURCE: “Title II Teacher Preparation Reports, 2012-16, U.S. Department of Education.

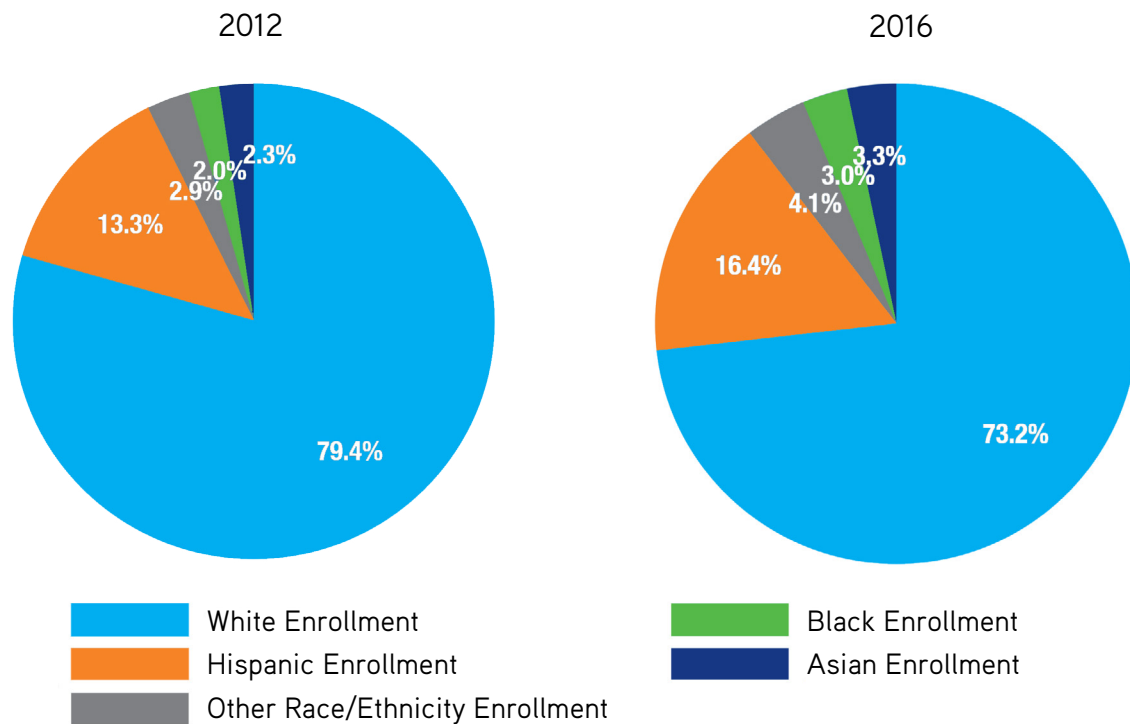
NOTE: Each cell refers to the number of graduates prepared in each of the listed subjects. However, a graduate may be prepared to teach in more than one subject. Therefore, the total row may be larger than the total number of teacher graduates. The “other” category is reported when teacher preparation program subject areas do not fit neatly into any other subject categories. Some frequently reported “other” programs include: library, media, marketing, journalism, and gifted education.

Diversity of Teachers

Virginia, like most other states (including the Rockefeller Institute’s analysis in South Dakota and New York), faces the challenge of lacking a teacher workforce that fully represents the racial diversity of students enrolled in public schools. In fact, as of the 2015-16 school year, only 50.5 percent of students are non-Hispanic white; 22.9 percent are non-Hispanic black; 14.4 percent are of Hispanic origin; and the remaining 12.2 percent are of other race or multiple races.²³

Although Virginia does not provide publicly available data on the racial, ethnic, or gender composition of its teachers, data from federal Title II reports on the enrollment in teacher preparation programs offers a clue to such information. The breakdown is presented in [Figure 8](#). Hispanic enrollees increased from 13.3 percent of all enrollees in 2012 to 16.4 percent in 2016; black students increased their share in teacher preparation programs from 2.9 to 4.1 percent; and white, non-Hispanic students declined over this four-year period from 79.4 percent of all enrollees to 73.2 percent. These are hardly large changes, though they do show that teacher preparation programs in Virginia are serving a somewhat more diverse population — a change that, if sustained, may eventually lead to a more diverse teacher workforce in the state.

FIGURE 8. Racial Diversity of Teacher Preparation Program Enrolled Students in 2012 and 2016



DATA SOURCE: U.S. Department of Education, Title II Reports, <https://title2.ed.gov/Public/DataTools/Tables.aspx>.

Intrastate Differences: Poverty and Rural Communities

Despite Virginia's growth in its statewide teacher workforce and the increase in graduates from the state's teacher education programs, there are signs of teacher shortages in parts of the state. Challenges in balancing teacher demand and supply may be revealed in several ways: by vacancies in teaching positions, rates of teacher turnover, indicators of teacher quality or fit with their positions, and student-teacher ratios. All of these measures show considerable variation across different communities.

One indicator of shortage is the percentage of schools with unfilled teaching positions. Vacancies are relatively uncommon; only 1.1 percent of positions were unfilled one month into the 2016-17 school year in Virginia. But a report by the Virginia Department of Education revealed enormous differences across divisions, with the highest rates of unfilled positions found among divisions with high concentrations of poverty.²⁴ The most recent federal survey data, conducted for the 2011-12 school year, measured vacancies in another way — the percentage of schools with any vacancies — and also found large local differences. The highest proportion of schools with vacancies occurred among rural schools: 85.6 percent of Virginia's rural schools reported vacancies, compared to 72.4 in urban schools and 64.7 percent in suburban areas.

Teacher turnover rates, which can affect demand, also varied enormously across localities. Ten of Virginia's divisions had turnover rates between 23.7 and 31.1 percent, between two and three times the average statewide rate of 10.2 percent in 2016-17.²⁵ Like vacancies, the high rates were typically found in rural divisions, largely in the Southside, Central, and Eastern regions of the state. However, turnover was also high in Falls Church City, a wealthy and fast-growing division in the Northern region.

An imbalance between the supply and demand for teachers may also be revealed by indicators of teacher quality. One such indicator is whether a teacher has a provisional license. Provisional licenses generally indicate less experienced and educationally qualified teachers.²⁶ A high rate of teachers with provisional licenses may indicate challenges for a school or district in recruiting and retaining strong teachers. [Figure 9](#) shows differences in the percentage of teachers with provisional licenses in the 2015-16 school year, averaged across divisions, by characteristics of the communities served. The divisions are classified into nine categories, distinguished by student poverty rates and community type (urban, rural, and suburban/town).²⁷

The highest proportion of schools with vacancies occurred among rural schools: 85.6 percent of Virginia's rural schools reported vacancies, compared to 72.4 in urban schools and 64.7 percent in suburban areas.

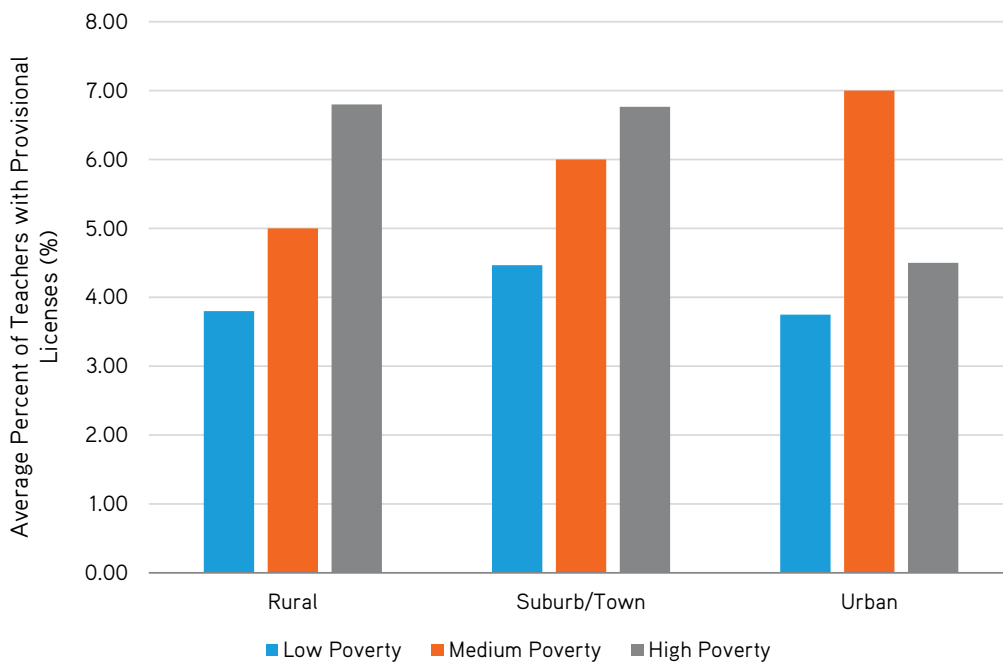
Ten of Virginia's divisions had turnover rates between 23.7 and 31.1 percent, between two and three times the average statewide rate of 10.2 percent in 2016-17.

The highest average percentages of teachers without full licenses are found among high-poverty divisions in Virginia’s rural and suburban/town areas; nearly 7 percent of teachers, on average, had provisional licenses. Teachers with provisional licenses were also relatively common among divisions with medium-poverty rates, while low-poverty divisions had the fewest teachers with such licenses. Poverty rates among students thus showed the strongest and most consistent association with high rates of teachers with provisional licenses.

The highest average percentages of teachers without full licenses are found among high-poverty divisions in Virginia’s rural and suburban/town areas ...

Another signal of difficulties in hiring and retaining strong teachers is the percentage of core academic courses taught by teachers who are not “highly qualified.” Highly qualified teachers must have a bachelor’s degree and full state certification or licensure, and they must demonstrate that they know each subject they teach.²⁸ Figure 10 shows the percent of core academic classes (English, math, science, and social studies) taught by teachers who were *not* highly qualified, compared again across districts in different communities and with different student poverty rates.

FIGURE 9. Percent of Teachers with Provisional Licenses by Division Type, 2015-16

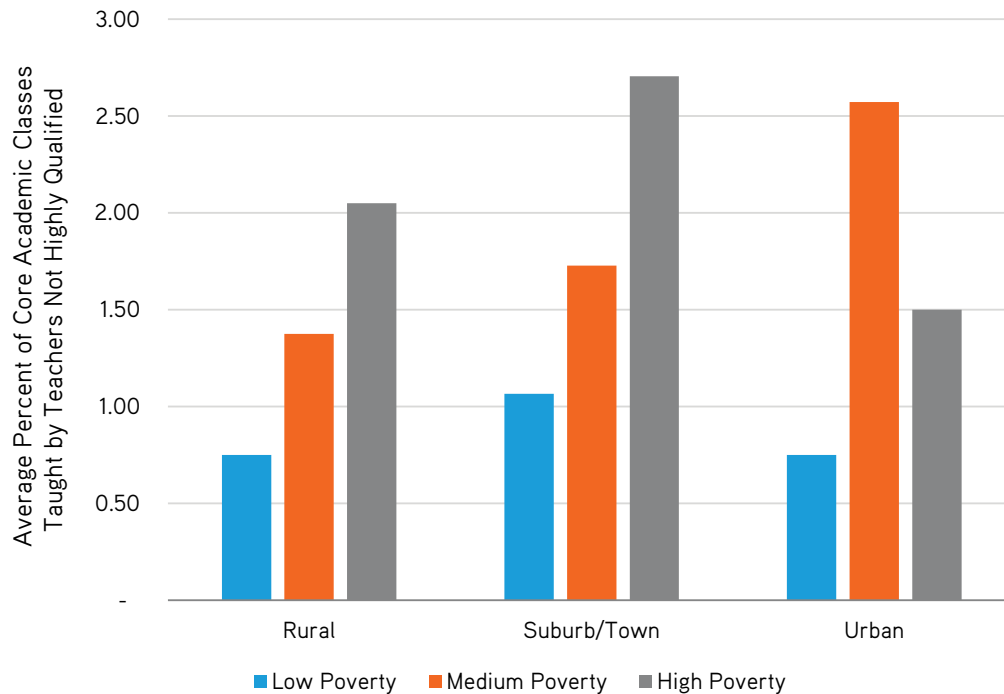


DATA SOURCE: Virginia Department of Education (VDOE), “School Quality Profile data, 2015-16”; National Center of Education Statistics (NCES) “2016 Common Core of Data (CCD) district survey.”

Figure 10 shows a pattern similar to that displayed in Figure 9. Again, divisions with higher rates of lower-income students had relatively high percentages of core academic courses taught by teachers who were not “highly qualified.” Divisions with

the lowest poverty rates — whether in rural, suburban, or urban areas — all had low percentages of courses taught by less qualified teachers, typically less than 1 percent. The one exception to the pattern is found among the urban divisions. Medium-poverty divisions showed higher rates of courses taught by less qualified teachers than high-poverty divisions, but both indicated workforce difficulties greater than low-poverty divisions.

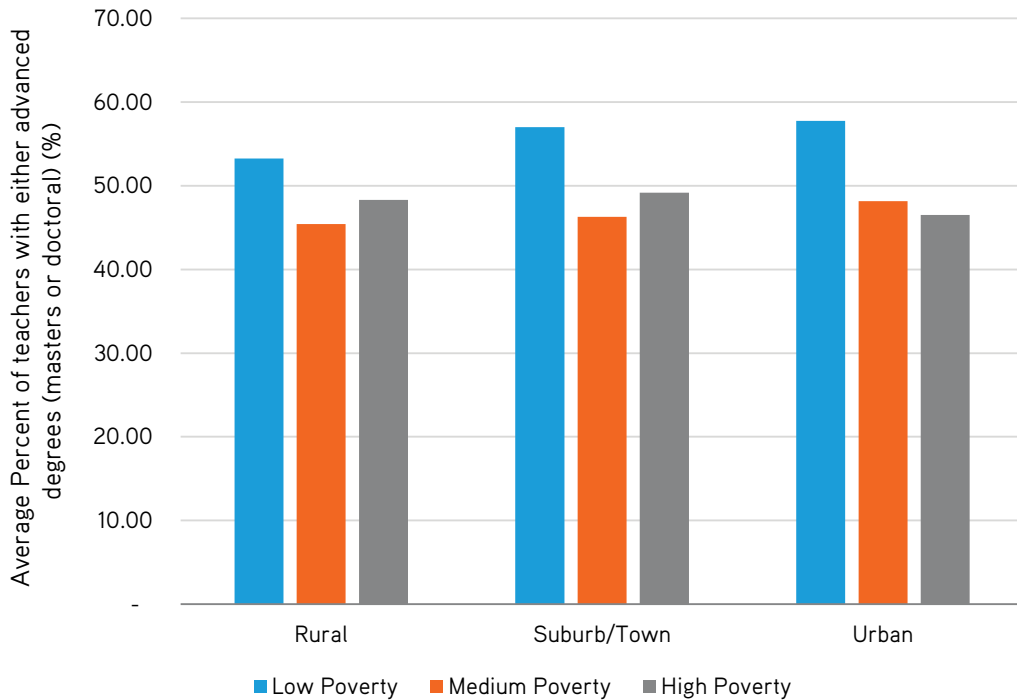
FIGURE 10. Percent of Core Academic Classes Taught by Teachers Not Highly Qualified by Division Type, 2015-16



DATA SOURCE: Virginia Department of Education (VDOE), “School Quality Profile data, 2015-2016”; National Center of Education Statistics (NCES), “2016 Common Core of Data (CCD) district survey.”

[Figure 11](#) shows one more possible indicator of teacher quality across different communities — the average percentage of teachers with masters or doctoral degrees. Although the research does not consistently indicate that teachers that have masters or doctoral degrees are more likely to be effective in terms of student learning, high rates of advanced degrees may indicate that a district or school can select teachers from a stronger pool of candidates. The averages across districts serving different types of communities in [Figure 11](#) show that, in Virginia, the differences across types of divisions are, on average, small. Nonetheless, the low-poverty divisions consistently report slightly higher percentages of teachers with advanced degrees, while there are no consistent differences across rural, suburban, and urban divisions.

FIGURE 11. Average Percent of Teachers with Masters or Doctoral Degrees by Division Type, 2015-16

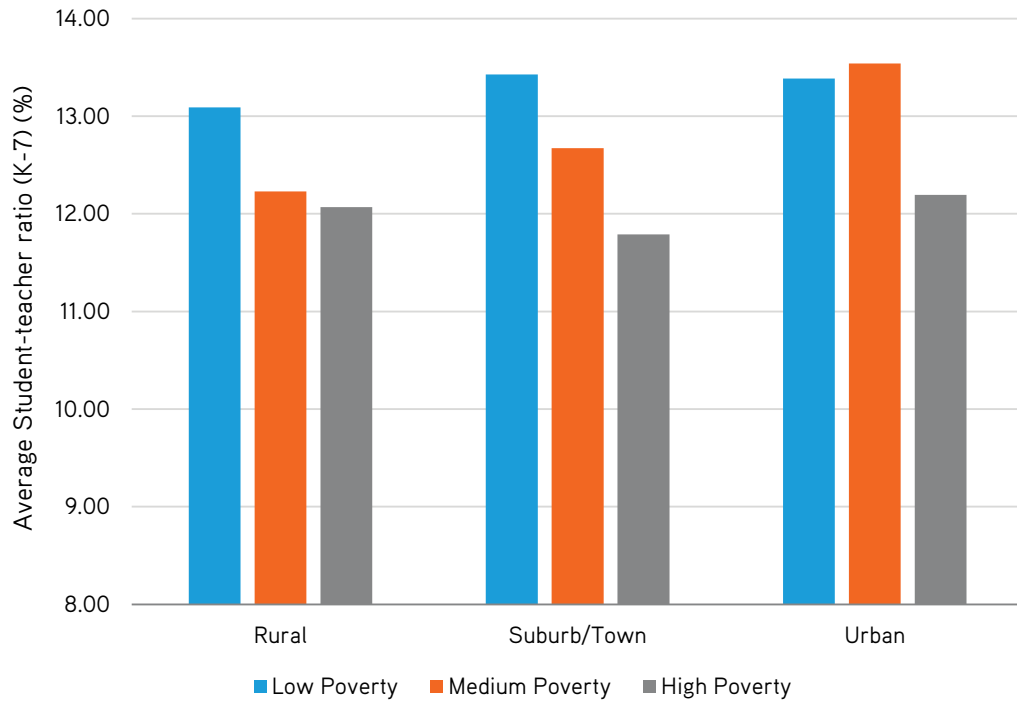


DATA SOURCE: Virginia Department of Education (VDOE), "School Quality Profile data, 2015-2016"; National Center of Education Statistics (NCES), "2016 Common Core of Data (CCD) district survey."

In one respect, poverty and ruralness are not negatively associated with a measure of the local-level adequacy of the teacher workforce. [Figure 12](#) shows the relationships between the types of communities that districts serve and the average student-teacher ratios for grades K-7. Urban divisions have somewhat higher student-teacher ratios, as do low-poverty divisions in rural, suburban, and urban areas. However, the differences are not great, generally about one student per teacher or less. The weaknesses in high-poverty divisions in recruiting teachers are thus found not in the numbers of teachers on staff, but rather in their qualifications.

The differences across these categories of divisions are also associated with other student characteristics, including race and ethnicity. As [Table 2](#) shows, rural divisions have the highest proportions of white and the fewest Hispanic students. Urban divisions generally have greater percentages of black and Hispanic students, while suburban/town divisions have a racial and ethnic composition that lies between urban and rural areas. Student poverty rates in Virginia are not consistently correlated with race or ethnicity. In urban areas, greater percentages of black and Hispanic students are found in the low-poverty divisions, while the opposite pattern for minority students is evident in rural areas. The proportion of students who are English Language Learners tends to follow the distribution of Hispanic students, while the percentage of students with Individualized Education Plans (IEPs) is somewhat lower in low-poverty districts.

FIGURE 12. Average Student-to-Teacher Ratio (Grade K-7) by Division Type



DATA SOURCE: Virginia Department of Education (VDOE), “School Quality Profile data, 2015-2016”; National Center of Education Statistics (NCES), “2016 Common Core of Data (CCD) district survey.”

TABLE 2. Average Student Characteristics by Division Type

Student Characteristic	Rural			Suburban/Town			Urban		
	Low Poverty	Medium Poverty	High Poverty	Low Poverty	Medium Poverty	High Poverty	Low Poverty	Medium Poverty	High Poverty
% White	76.5	74.2	72.5	64.8	62.0	72.0	42.5	47.7	64.6
% Black	17.8	20.4	23.1	27.5	19.4	19.3	44.1	33.8	25.4
% Hispanic	5.7	5.4	4.4	7.6	18.6	8.7	13.4	18.5	10.0
% ELL	2.3	2.2	1.6	3.9	9.5	4.2	8.9	13.8	4.8
% With IEP	13.3	13.4	13.9	12.4	14.1	13.1	13.8	13.2	12.3
Enrollment, thousands (2015)	70.1	96.8	93.7	359.8	145.5	230.3	91.8	150.3	45.2
% Change in enrollment, 2010-15	-2.8	-2.1	-2.3	3.6	6.9	5.8	2.1	1.4	0.9

DATA SOURCE: National Center of Education Statistics (NCES), “2016 Common Core of Data (CCD) district-level survey data.”

Table 2 also shows the distribution of students across these nine categories and recent changes in enrollment. These patterns have implications for where teachers may be most needed in Virginia. It is clear that rural enrollment is declining, while most of the current students (as well as recent enrollment growth) are found in suburban/

town divisions. In particular, suburban/town school divisions with medium- and high-poverty rates have seen the largest increases in K-12 enrollment. Assuming these trends continue, and holding everything else constant, it is possible that a disproportionate number of teachers will be needed in economically struggling suburban/town regions within the state.

In sum, divisions with greater poverty rates, indicated by the proportion of students eligible for free lunch within a division, are more likely to have teachers with provisional licenses, are more likely to have core academic classes taught by teachers not highly qualified for those subjects, and are somewhat less likely to have teachers with masters or doctoral degrees. The student-teacher ratios in high-poverty divisions tend to be lower, though there is not much variation among divisions on this measure within Virginia. Unlike the patterns in many other states, these differences are not clearly associated with the distribution of black and Hispanic students. In Virginia, gaps in teacher quality thus seem most consistently associated with economic disadvantage rather than race or ethnicity.

Divisions with greater poverty rates, indicated by the proportion of students eligible for free lunch within a division, are more likely to have teachers with provisional licenses, are more likely to have core academic classes taught by teachers not highly qualified for those subjects, and are somewhat less likely to have teachers with masters or doctoral degrees.

Subject Area Differences

In addition to differences across localities in teacher demand and supply patterns, differences also exist in the labor market for teachers in their areas of specialization. Based on school data from 2015, the Virginia Department of Education identified the top ten critical shortage teaching endorsement areas in the state.²⁹ These areas were identified based on: (a) total number of teaching positions that were unfilled; (b) teaching positions that were filled by provisionally licensed teachers; and (c) teaching positions that were filled by teachers who are licensed, but who are teaching in academic subject areas other than their area of preparation.

The ten top subject areas of teacher shortage in 2015, ranked from the most to the less severe areas, were:

1. Special education;
2. Childhood and elementary education, Pre-K-6;
3. Middle education, grades 6-8;
4. Career and technical education;
5. Mathematics, grades 6-12 (including Algebra 1);
6. School counselor, Pre-K-12;
7. English (secondary);



8. Foreign languages, Pre-K-12;
9. Health and physical education, Pre-K-12
10. History and social science (secondary)³⁰

When these rankings are compared to the teacher preparation pipeline ([Table 1](#)) and changes in student characteristics ([Figure 3](#)), some puzzles arise. One involves special education. There has been a large increase in the number of graduates from teacher preparation programs with endorsements in special education; the total number of special educators in Virginia has remained relatively steady since 2011; and the percentage of “qualified” special educators has increased. At the same time, there has been little growth in the number of students with disabilities. Why then has it been so difficult to fill special education positions?

Although we do not have the data to fully explain these discrepancies, one hypothesis is that the shortage is due to a lack of teachers with specializations appropriate to the specific needs of disabled students. For example, at the national level, the student-teacher ratio of special education teachers has swelled, while the number of students with learning disabilities, one of the milder forms of disability, has declined.³¹ It is possible that special education teachers are now expected to serve not only more students but also those with comparatively severe disabilities, such as autism spectrum disorder. Whether the graduates with some special education preparation are in fact ready to teach a changing profile of students is a critical question, perhaps partly answered by the fact that fully one-third of the teachers with provisional licenses in Virginia are teaching special education.³²

Most of the other comparisons between trends in teacher preparation programs and the state’s estimates of shortages by subject area are less puzzling. Elementary education teachers are in short supply according to the state’s measures, and it is true that graduates with such certifications have barely increased in recent years ([Figure 7](#)). Also, mathematics positions are not easy to fill — findings consistent with the 7.3 percent decline in graduates with that specialization between 2011 and 2015. Some comparisons, however, are not readily reconciled. Middle education, grades 6 to 8, is an area where shortages exist, yet graduates from teacher education programs with that preparation have grown by nearly a third between 2011 and 2015. Of course, it can be a slow process for yearly increases in teacher preparation program graduates to translate into increases in teacher supply in a particular subject.

Combinations of Local and Subject Area Shortages

Evidence of other local-level differences in the teacher labor market and how they may correlate with specific subject areas comes from Virginia Department of Education's 2015 *Plan to Ensure Excellent Educators for All Students*, which identified five major teacher equity gaps of concern:³³

1. School divisions with a large proportion of minority students have more first-year teachers than low-minority school divisions.
2. School divisions with a large proportion of minority students have a greater proportion of out-of-field mathematics teachers than low-minority school divisions.
3. School divisions with a large proportion of low-income students have a greater proportion of out-of-field foreign language teachers than high-income school divisions.
4. School divisions with a large proportion of low-income students have a greater proportion of out-of-field ELL teachers than high-income school divisions.
5. School divisions with a large proportion of low-income or minority students have a greater proportion of out-of-field special education teachers than low-minority, high-income school divisions.

The 2015 report suggested several possible root causes of these teacher equity gaps: teacher preparation programs, recruitment challenges, working conditions, and professional development.

Salaries

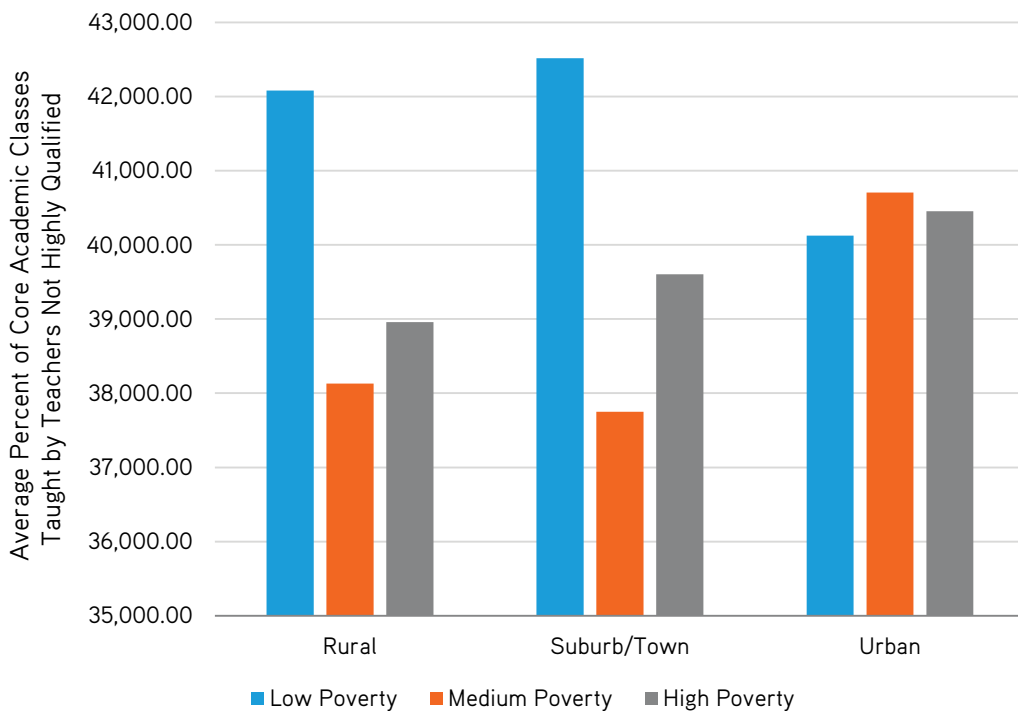
Teacher salaries may also contribute to teacher shortages and teacher equity gaps. In general, Virginia's teacher salaries are neither high nor growing, a challenge for a state that seeks to recruit and retain teachers for a growing population of students across a very diverse set of communities. Some facts:

- Twenty-four out of ninety-four counties experienced declines in teacher salary, and five out of thirty-six cities experienced teacher salary declines between 2015 and 2017.³⁴
- Virginia is currently ranked thirtieth out of fifty states in average teacher salary (\$50,620, compared to the national average of \$57,420).
- In real dollar terms, teachers in Virginia have had their pay cut by 9 percent since 2009 and 10 percent since 2003 (compared to a 3 percent decline nationally).³⁵
- Virginia is a Right to Work state, and teachers are prohibited from collective bargaining.
- Virginia only earned 63 percent of what similarly educated professionals earned in nonteaching occupations.³⁶

- Compared to the six states that border Virginia, its statewide average salary is middling: higher than the average salaries in West Virginia, Tennessee, and North Carolina; similar to Kentucky's; and substantially lower than those offered in Maryland and the District of Columbia.³⁷

Teacher salaries are not equally distributed across divisions, though the pattern is complex. As [Figure 13](#) demonstrates, the average starting salaries of Virginia's teachers are higher in low-poverty divisions, at least in rural and suburban/town areas. In urban areas, poverty rates of divisions are not associated with significant differences in student poverty rates. Virginia schools receive 51 percent of their funding from local revenues, a high percentage that limit the state's ability to ensure equitable funding between poor and wealthy divisions; it appears that equity is particularly challenging outside Virginia's cities.³⁸

FIGURE 13. Average Starting Salary for Teacher with Bachelor's Degree by Division Type, 2015-16



DATA SOURCE: Virginia Department of Education (VDOE), "2015-2016 Teacher Salary Report"; National Center of Education Statistics (NCES), "2016 Common Core of Data (CCD) district survey."



Policies/Responses to Teacher Shortages

Virginia has been working to address teacher shortage problems for nearly two decades. In 2000, the state legislature asked the Virginia Board of Education to create a Career Switcher program to help end the teacher shortage.³⁹ In this program, career switchers can earn a one-year provisional license after completing coursework while working full-time in their other career, and then receive ongoing support during their first year of teaching.

The 2011-12 Schools and Staffing Survey by NCES reported that Virginia used a variety of recruitment incentives for teachers.⁴⁰ The state was notable in comparison to other states in its use of free training for district staff to prepare them to teach in current or anticipated shortages, and for its pay incentives to recruit or retain teachers to teach in less desirable locations and teach in fields where teacher shortages exist. For example:

- 4.9 percent of Virginia districts used relocation assistance to recruit new teachers (compared to 2.5 percent in the US).
- 38.2 percent of the state's districts offered free training for district staff to prepare them to teach in current or anticipated shortages (compared 27.1 percent in the US).
- 13.0 percent of districts used pay incentives to recruit or retain teachers to teach in a less desirable location (compared to 5.6 percent in the US).
- 38.1 percent of districts relied on pay incentives to recruit or retain teachers to teach in fields of shortage (compared to 13.5 percent in the US).

In addition, Virginia has allowed teachers who have retired to return to teaching full-time while earning their retirement benefits if the teacher teaches in a critical shortage area.⁴¹

While these efforts may help address immediate shortage issues, several programs in Virginia are designed to support the teacher pipeline. To incentivize students to enter the teaching workforce, or to seek endorsement in a critical need area, the state offers the Virginia Teaching Scholarship Loan Program (VTSLP), which provides a scholarship of up to \$10,000 for education students at a public or private school who are seeking endorsement in a critical shortage area or career and technical education. The scholarship is also available to students seeking endorsement in any subject but qualify as members of underrepresented minorities, including males seeking endorsement in elementary or middle subjects.⁴² The appropriation for this award in 2017-18 was \$708,000.⁴³ In December 2017, Governor Terry McAuliffe introduced his proposal to amend the VTSLP to better target critical shortage areas by increasing the maximum award to \$20,000 if the graduates teach for two years in a top five critical shortage area, or in a district where more than half of the students participate in a free and reduced price lunch program.⁴⁴

Virginia also operates a Virginia Teachers for Tomorrow program (VTfT), which offers high school students an introduction to teaching as a career, where they earn college credit and have an internship as a teacher.⁴⁵ VTfT is taken as a high school course for credit; an estimated 2,000 students are currently enrolled in the program in fifty-two different districts.⁴⁶ These “Grow Your Own” programs have been recognized in other states.

Former Governor Terry McAuliffe proposed an additional \$500 to be added to the Tuition Assistance Grant (TAG) to seniors pursuing degrees in education.⁴⁷ He also proposed \$50,000 a year to help cover the cost of teaching exams and exam materials for underrepresented students in the teaching profession in order to increase teacher diversity across the state.⁴⁸

Finally, in December 2017, Governor McAuliffe signed Executive Order 14, which authorized Virginia’s public colleges to offer an undergraduate program with a major in education.⁴⁹ Currently in Virginia, teachers must complete a five-year program. According to information provided by the Governor’s Office, this emergency regulation will help expedite students’ entry into the workforce.⁵⁰

Still, many policy challenges remain. In addition to the local-level inequities and subject area shortages described in this report, a 2017 report from the Virginia Board of Education indicated that:⁵¹

- Throughout the recession, the Standards of Quality (SOQ) formula underwent changes that resulted in a reduction of support for public schools — around \$800 million per year.
- Nearly 40 percent of Virginia’s public school students are free or reduced price lunch eligible, and the number is growing every year.⁵²
- According to survey results, Virginia has some of the lowest reports of classroom autonomy, the highest percent of teachers saying they plan to leave teaching immediately or when a better job comes along, and the lowest percent of teachers who plan to remain in teaching as long as they are able to do so, or until they are eligible for retirement benefits.⁵³

Virginia’s policymakers have taken several steps to address problems of teacher recruitment, including well-targeted preservice efforts to address underserved localities and endorsements as well as to recruit a more diverse teacher workforce. Less emphasis to date has been placed on the in-service experience of teachers, on retaining highly qualified teachers, for example, through changes in salaries and professional autonomy sufficient to maintain a strong teacher workforce across all divisions. Whether this focus on recruitment suffices by itself to alleviate the problems of equity and subject area shortages is a question worth further investigation.

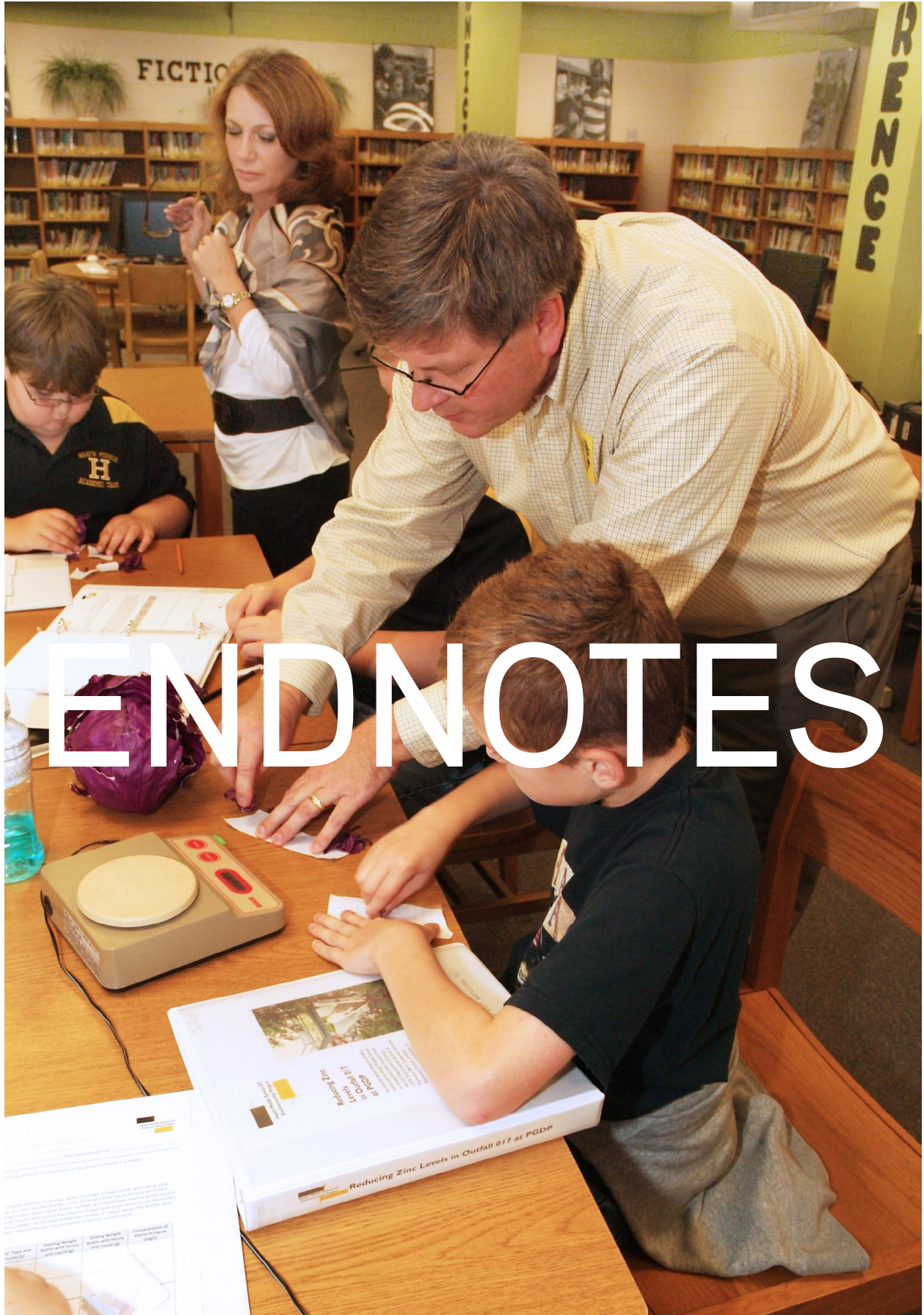
Conclusion

Virginia is a growing state, with increasing student enrollment. The number of teachers in the state, though fluctuating, has grown even faster than enrollment; student-teacher ratios have changed little over time; and the pipeline for teacher candidates has been one of the strongest in the nation, a pipeline augmented by the relative ease with which teachers from other states can qualify for Virginia positions.

There are, nonetheless, indications of imbalances between demand and supply. Vacancies in teaching positions and teacher turnover are high in Virginia, compared to other states. Also, even though there has been little overall growth in special education pupils in the state, and despite the fact that special-education-prepared graduates have increased in numbers in recent years, Virginia has indicated repeatedly that schools have struggled to hire qualified special education teachers.

Similar to our findings in New York and South Dakota, our analyses found significant gaps between school districts serving different communities and students with different backgrounds. High-poverty districts in Virginia were less likely to have teachers with full (rather than provisional) certification, they were less likely to have “highly qualified” teachers responsible for core academic subjects, and they were somewhat less likely to have teachers with advanced degrees. Although we do not analyze the reasons behind these differences, we note that starting salaries for teachers in low-poverty divisions are higher than in divisions with higher rates of student poverty, at least within rural and suburban/town communities.

These equity gaps have been recognized by Virginia’s state government, and the state has been addressing teacher recruitment issues in several ways, including scholarships and other financial assistance for students in teacher education programs, and special incentives to students preparing to teach in specialized areas with shortages or to students who are members of underrepresented minorities in the teaching profession. Although the range of Virginia’s efforts to address both overall and specific teacher shortages is impressive, whether these and other policies and initiatives are making a dent in the significant gaps in the teacher workforce between the state’s high- and low-poverty areas, however, is a question still to be answered.



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