



**A Background on Potential  
Teacher Shortages in the  
United States**

**July 2017**

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## **Acknowledgments**

Special thanks to Hamp Lankford, senior fellow at the Rockefeller Institute of Government, for his insight and expertise that led to the formulation of the ideas contained herein. Without Hamp's insight, this paper would not have been possible.

Also a note of thanks to Jessica Todtman, deputy chief of staff for policy at SUNY System Administration for her help molding the document.



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## A Background on Potential Teacher Shortages in the United States

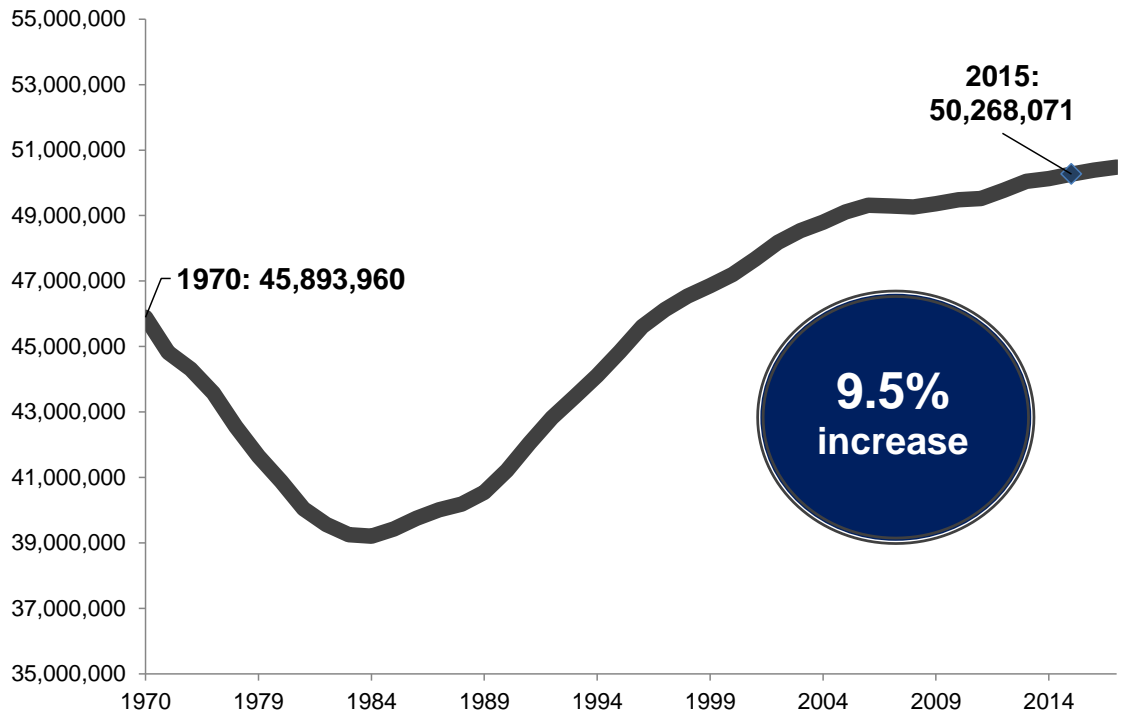
Several years ago, because of the Great Recession, teachers faced a weak job market — where even hard-to-fill spots, like special education, were getting hundreds of applications to fill a couple of openings.<sup>1</sup> There were reports that nearly every graduate from certain education programs found themselves jobless upon graduation. However, due to economic growth, retirements, and other factors, recent studies suggest that there is a pending large-scale teacher shortage nationally.<sup>2</sup> More detailed data collection and analysis must be done to determine whether there will be a large impending teacher shortage on the nation’s horizon. The current data show historic shortages in areas such as special education and math, and in certain geographic locations, like rural and inner city urban communities.<sup>3</sup> Notwithstanding long-standing difficulties in recruiting in many school districts, an understanding of the problem remains elusive on a more micro school-by-school level. As teacher labor markets are often “local,” shortages in some regions co-occur with surpluses in others.

### As Teacher Labor Markets Are Often “Local,” Shortages in Some Regions Co-occur With Sufficient Supply in Others

Nationally, since 1970 the number of teachers has increased 51.9 percent, while the number of students has increased 9.5 percent. In 1970, the student/teacher ratio was 22.3 and it is significantly lower at 16.1 today. New York shows somewhat different trends, as the number of teachers has grown nearly 12 percent, while the number of students in the classroom has declined nearly 27 percent. Together, these trends resulted in a dramatic decrease of the student/teacher ratio, from 18.57 in 1970 to 12.05 in 2015.

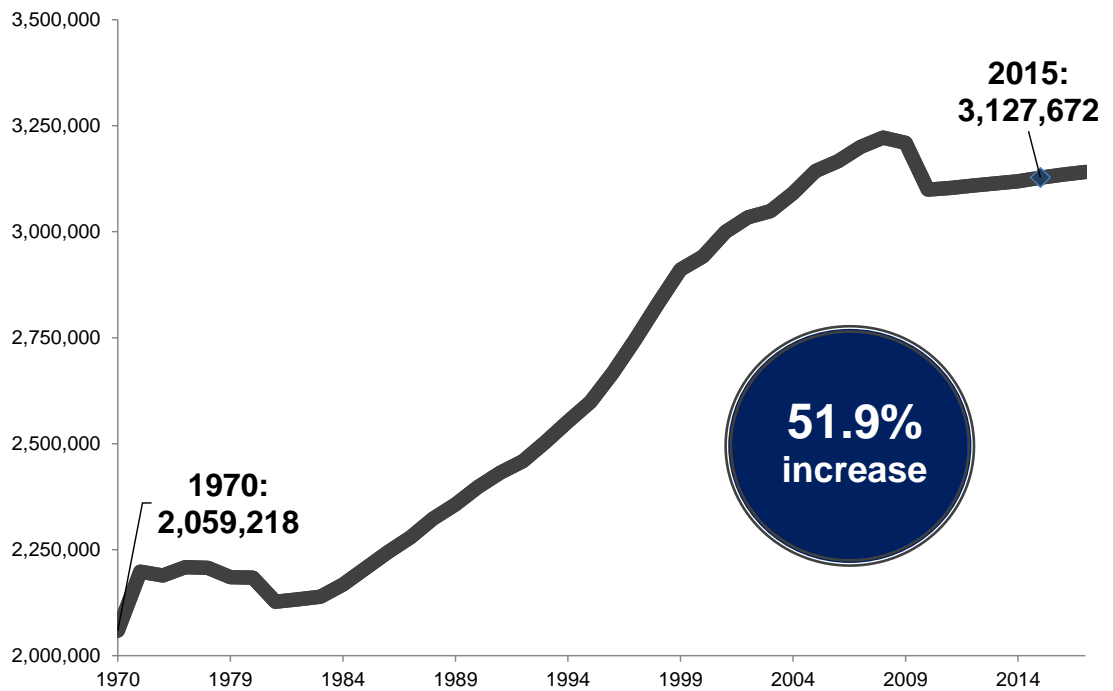
Yet, this only tells part of the story. Although there are projections indicating an increased demand for teachers going forward, the overall projections don’t necessarily create a supply issue across the board. The Bureau of Labor Statistics (BLS) has projected that elementary school and high school teacher employment will grow 6 percent, which is just under the average of 7 percent for all occupations. Even though the BLS expects a significant number of teachers to retire, “many areas of the country already have a surplus of teachers who are trained to teach kindergarten and elementary school, making it difficult for new teachers to find jobs.” The BLS does note that there are regional opportunities, like in urban and rural schools, as well as subject matter needs like math, science, and special education. Further illustrating the local nature of teacher labor markets, 65 percent of first-year teachers entering the New York public school system worked in schools less than fifteen miles from where they attended high school. Eighty-five percent of new teachers were employed in schools less than forty miles from where they attended high school.

**Figure 1.**  
Number  
of  
Students  
in Public  
Schools,  
1970-  
2015



Source:  
National  
Center for  
Education  
Statistics

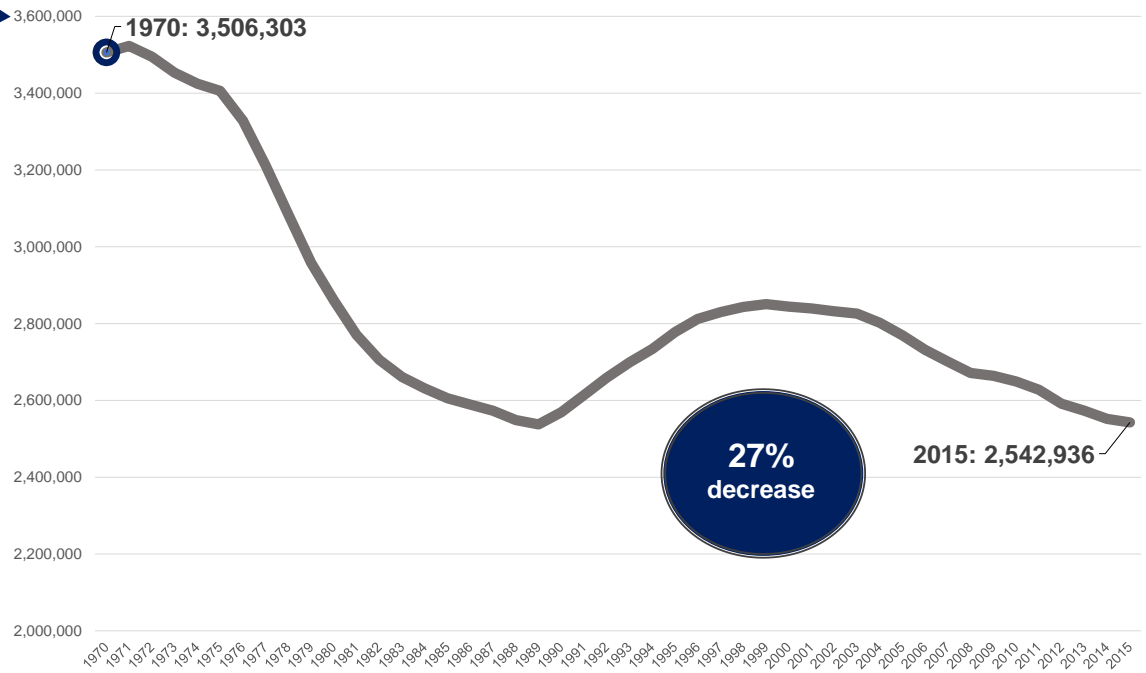
**Figure 2.**  
Number  
of  
Teachers  
in Public  
Schools,  
1970-  
2015



Source:  
National  
Center for  
Education  
Statistics

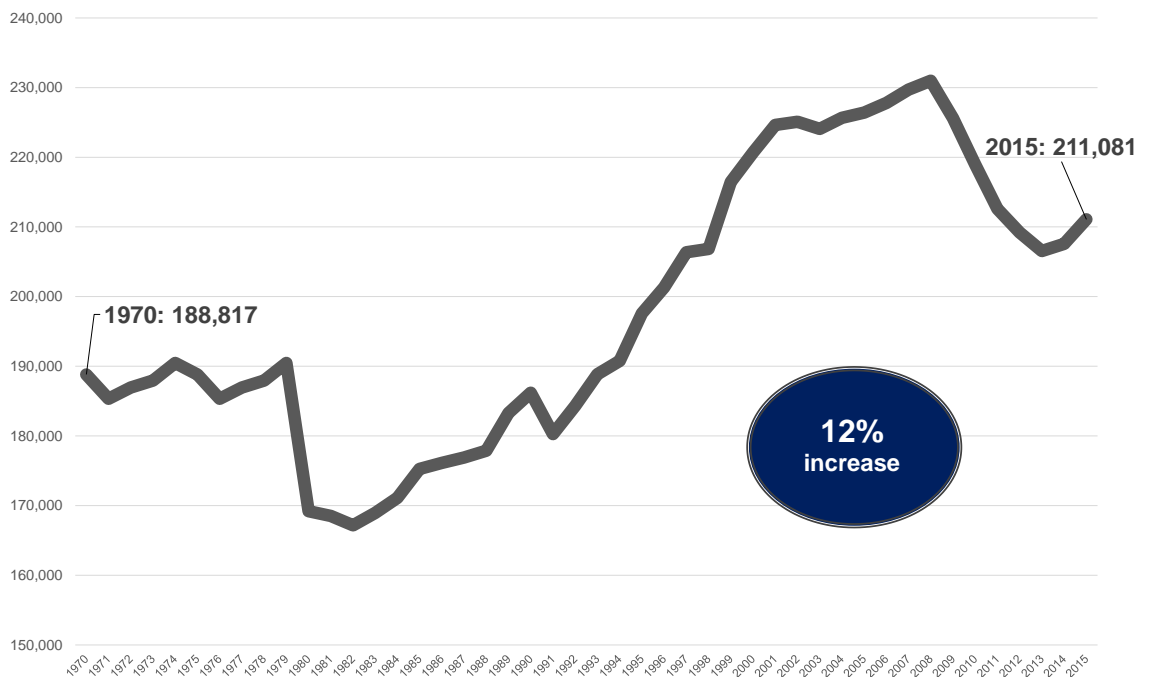
**Figure 3.**  
Students Enrolled in NYS Public Schools, 1970-2015

Source: New York State Department of Education Information and Reporting Services



**Figure 4.**  
Number of Teachers in NYS Public Schools, 1970-2015

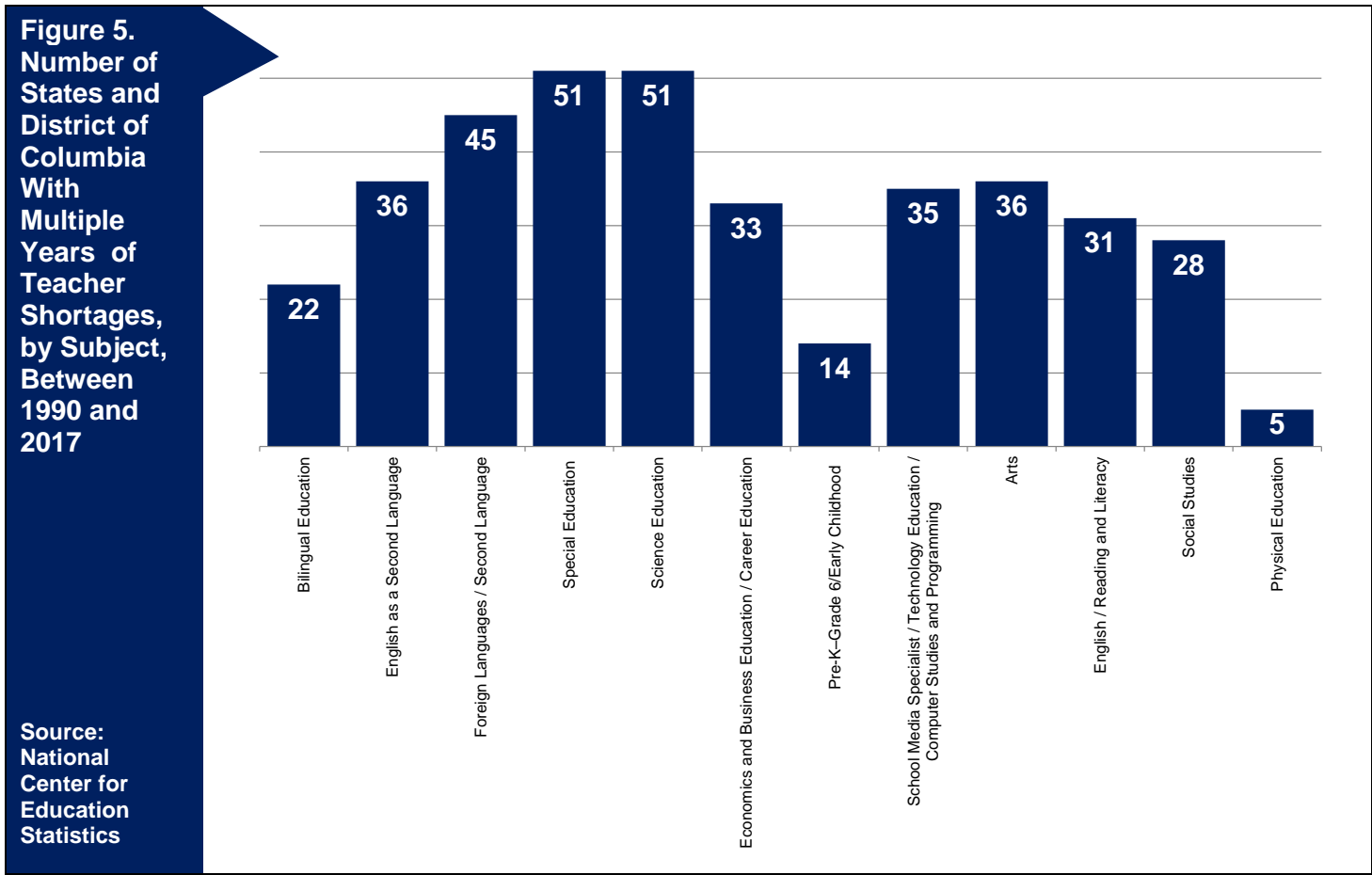
Source: New York State Department of Education Information and Reporting Services



**Persistent Teacher Shortages Exist in Hard-to-Staff Subjects, While an Excess Supply of Candidates Compete for Teaching Positions in Other Subject Areas**

Examining National Center for Education Statistics (NCES) data from 1990 shows there are annual shortages in certain subject matter areas such as special education,

science, and English as a second language. As [Figure 5](#) illustrates, virtually every state has districts with shortages in those areas.



### Chronic Staffing Problems Persist in Schools With Many Poor, Minority, and Low-Performing Students, Even When There Are Surpluses of Willing and Able Candidates Seeking Employment in Other Schools

Although overall employment growth in education is nearly the average for all industries, there remain areas of persistent shortages in schools. In New York, for instance, persistent staffing problems have been in low-income and minority communities, like the city of Yonkers and in New York City. Low pay and job difficulty have been issues raised as reasons why educators shy away from certain jobs in these geographic and subject matter areas.

This, however, needs more analysis. Average pay, for instance, may not be the driving factor. In fact, in looking at median salaries in some New York counties, the median pay is higher in the districts with persistent shortages as opposed to those without teaching shortages. For example, the Southern Tier region in New York State has been identified by the NCEs as have persistent teacher shortages. Yet, the median salary in this region is higher than other regions of the state.<sup>4</sup> Rather than average pay, entry-level salaries may carry greater weight in attracting more (and perhaps better) recruits into teaching positions.<sup>5</sup> But analyzing that impact requires deeper analysis and more data on teacher careers.

## **Those Seeking Teaching Positions Differ Greatly in Knowledge, Skills, Enthusiasm, and Potential. Accurate Judgments of Whether the State Is Building a Highly Effective Teacher Workforce Require Assessments of the Quality of Teachers and Teacher Applicants and Changes in Their Academic and Other Qualifications**

Though recent employment trends are beginning to shift, with the onset of the Great Recession in 2009, the demand for teachers in many traditional areas — elementary education and nonscience/math secondary subjects — was less robust, a trend that was especially apparent in the Northeast and Midwest, regions with little growth in the school-age population. At the time, with pervasive sharp declines in state revenues, one of the sectors to feel the greatest impact was education, since the loss of state revenue could only be partially recovered at local levels by increasing property taxes. Consequently, roughly 300,000 teachers and other school employees lost their jobs, and tens of thousands of others graduated from colleges and universities to face one of the worst job markets in recent history. This situation, in turn, had an impact on educator-preparation enrollments, with the largest declines seen in key provider states, including California, New York, and Texas. Most educator-preparation programs in New York State and across the country experienced unprecedented levels of declining enrollment over the past decade, a trend some believe partly owe to a shifting economy, which opened up opportunities in other sectors to accompany a general stagnation in the numbers of students entering higher education (particularly in the Northeast), recent reductions in hiring at the P-12 level due to budget constraints, and a decline in the attractiveness of the teaching profession. In the near term, these lower enrollments could result in decreased funding for programs at the campus level, along with reductions in faculty, instructional materials, and facilities, which could have a long-term impact on institutions' ability to meet future demand.

In addition, a number of studies have argued that students enrolled in educator preparation programs, especially those seeking certification as elementary teachers, are less academically skilled when compared to other groups of students; that on average they score lower than other students on standardized tests.<sup>6</sup> This issue also received more public attention when the National Council on Teacher Quality issued its latest in a series of controversial reports critical of teacher-educator programs, charging that too many programs fail to recruit the best students. By comparison, nations such as Finland and Singapore have made recruiting teachers from the top ranks of their classes a matter of national policy, and in the past two decades they have achieved remarkable outcomes in student learning. In response to calls to raise the bar for entry into educator preparation programs, the 2015 expectations of the Council for Accreditation of Educator Preparation specify an overall 3.0 GPA for entering cohorts, and states like New York have created policies to do the same.

Some alternative teacher preparation programs — such as Teach for America, New York City Teaching Fellows, and Urban Teaching Residency — may offer useful ideas for recruiting promising teachers in hard-to-serve communities. Such programs actively recruit candidates, sometimes with a focus on finding people with ties to the target community; they appeal to the potential teachers' idealism; they offer short-run benefits, such as rapid employment, tuition support, and stipends; and they offer prestige and a supportive peer group.<sup>7</sup> Testing the effects of these and other approaches to recruitment into hard-to-serve schools and districts should be a priority.



## **Declining Wages and Additional Out-of-Pocket Expenses May Drive Highly Qualified People From the Profession or Particular Geographic or Subject Matter Areas With Significant Numbers of Vacancies**

Since 1999, average annual salaries have decreased 1.3 percent nationwide. As [Figure 6](#) illustrates, there is great variation among states, suggesting there are other issues at play depending on the region. The effect of wage differentials must be examined more closely, yet suggests there could be issues with staffing in *certain* parts of the country.

## **There May be Perception Issues of the Teaching Profession That Drive Away Potential Teachers**

What also needs further analysis is whether public perception of the profession is driving some of the problems recruiting and retaining educators. As was found in the comprehensive report on the teaching profession in New York, under the TeachNY program, “Educators face ever-increasing scrutiny from a range of stakeholders, perhaps most notably politicians, who make essential funding decisions and who have loudly held public school teachers solely responsible for the documented ‘failures’ of U.S. schools.”<sup>8</sup> Though recent public opinion polls show strong public support for educators, the perceived public “demonization” of the teaching profession could be hurting recruitment and retention efforts in the field.

Any examination of the teacher pipeline, as well as solutions to the persistent shortage and subject matter areas, should examine the role educator and public perception play in altering the education workforce.

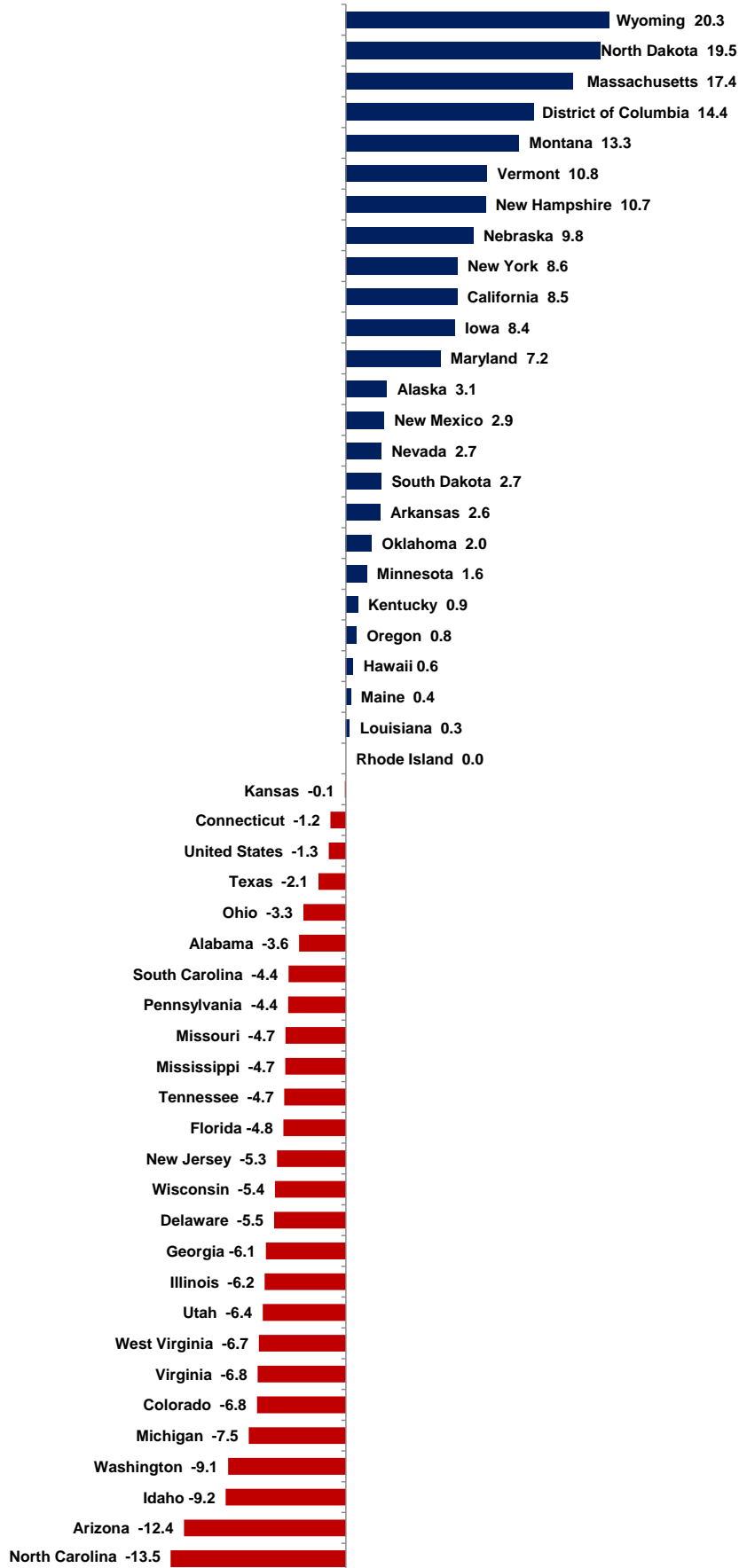
## **Although Job Retention Remains Strong Overall in Education, It Is More Difficult to Retain Teachers in Certain Districts or Subject Matter Areas**

Overall, data show that turnover in the education profession is less than in other industries. A recent Aspen Institute study, using data from the Bureau of Labor Statistics, found that 24 percent of educators left their job, compared to 41 percent in all professions.<sup>9</sup>

In addition, per NCEs data, 84 percent of educators remain at the same school, 8 percent move to a different school, and 8 percent left the profession during the following year. Of the teachers that left the profession, more than 50 percent stated their workload in their current position was more favorable than teaching.

However, certain districts, specifically those less affluent, had more difficulty retaining teachers. We would more fully explore this and tailor solutions to this more nuanced problem.

**Figure 6.**  
**Percent**  
**Change in**  
**Average**  
**Annual**  
**Salary of**  
**Teachers in**  
**Public**  
**Elementary**  
**and**  
**Secondary**  
**Schools,**  
**1999-2000**  
**to 2015-16**



Source:  
 National  
 Education  
 Association,  
 Estimates of  
 School  
 Statistics,  
 selected  
 years, 1969-  
 70 through  
 2015-16.  
 (This figure  
 was prepared  
 in September  
 2016.)

## **The Lack of Robust Professional Development May Play a Role in Retaining and Improving Teacher Performance in the Classroom**

Novice teachers benefit from support, especially in the early years of their careers. They frequently report feeling isolated, without supportive partners, at times working within a school environment that is more competitive than cooperative. The literature reveals that novice teachers often decide to leave the profession because of some key school-level factors: low pay, lack of support from school leaders, problems with student discipline and motivation, and lack of professional autonomy. Studies indicate that roughly 40 percent of novice teachers leave the classroom within the first five years. The statistics are even more troubling in high-poverty schools, where attrition rates are roughly 50 percent higher compared to wealthier schools.<sup>10</sup>

State and local school leaders can address many of these factors through thoughtful reforms in school leadership, school culture, teaching and learning conditions, and mentoring and induction programs. Continuing professional support and development not only keeps teachers in the classroom, it has a positive impact on student success. In a comprehensive meta-analysis of over 50,000 studies, researchers concluded that professional development for teachers ranked among the top twenty most influential factors in determining student success.<sup>11</sup>

## Appendix

### Annotated Bibliography

This body of research, briefly summarized in the following annotated bibliography, provides the analytical underpinning for the proposed project to describe and forecast teacher demand and supply. The studies reveal the value of collecting, aggregating, and analyzing data and how insights drawn from the data can inform education policy and practice.

New York State Education Department (NYSED) Personnel Master File (PMF), certification, and certification-exam-score data, along with College Board SAT data, have been used to characterize the teacher workforce in New York, a key finding being the extent to which poor, minority, and the lowest-performing students are often taught by teachers having very weak qualifications.

Boyd, D., P. Grossman, K. Hammerness, H. Lankford, S. Loeb, M. McDonald, M. Ronfeldt, and J. Wyckoff. "Surveying the Landscape of Teacher Education in New York City: Constrained Variation and the Challenge of Innovation." *Educational Evaluation and Policy Analysis* 30, 4 (2008): 319-43.

Boyd, D., P. Grossman, M. Ing, H. Lankford, S. Loeb, and J. Wyckoff. "The Influence of School Administrators on Teacher Retention Decisions." *American Educational Research Journal* 48, 2 (2011): 303-33.

Boyd, D., P. Grossman, H. Lankford, S. Loeb, and J. Wyckoff. "How Changes in Entry Requirements Alter the Teacher Workforce and Affect Student Achievement." *Education Finance and Policy* 1, 2 (2006): 176-216.

PMF data have been used to study the structure of teacher compensation in New York, as well as how that structure has changed over time.

Boyd, D., P. Grossman, H. Lankford, S. Loeb, and J. Wyckoff. "Teacher Preparation and Student Achievement." *Educational Evaluation and Policy Analysis* 31, 4 (2009): 416-40.

Boyd, D., H. Lankford, and S. Loeb. "Improving Student Outcomes: The Role of Teacher Workforce Policies." In *School Finance and Organizational Structure in New York State: Symposium Proceedings*, edited by David Monk and James Wyckoff. Albany: Education Finance Research Consortium, 2004.

PMF data linked across school years have been used in a number of studies of teacher attrition and how retention varies with the attributes of teachers, as well as the environments in which they teach.

Boyd, D., H. Lankford, S. Loeb, J. Rockoff, and J. Wyckoff. "The Narrowing Gap in New York City Teacher Qualifications and its Implications for Student Achievement in High-Poverty Schools." *Journal of Policy Analysis and Management* 27, 4 (2008): 793-818.

PMF and College Board data were used to analyze the geography of teacher labor markets in New York. Illustrating the local nature of teacher labor markets, a striking finding is that 65 percent of first-year teachers entering the New York public school system worked in schools less than fifteen miles from where they attended high

school. Eighty-five percent of new teachers were employed in schools less than forty miles from where they attended high school.

Boyd, D., H. Lankford, S. Loeb, and J. Wyckoff. "The Draw of Home: How Teachers' Preferences for Proximity Disadvantage Urban Schools." *Journal of Policy Analysis and Management* 24, 1 (2005): 113-32.

Boyd, D., H. Lankford, S. Loeb, and J. Wyckoff. "Explaining the Short Careers of High-Achieving Teachers in Schools with Low-Performing Students." *American Economic Review* 95, 2 (2005): 166-71.

PMF data have been employed to study the career paths of school leaders and to analyze leadership workforce needs.

Boyd, D., H. Lankford, S. Loeb, and J. Wyckoff. "The Impact of Assessment and Accountability on Teacher Recruitment and Retention: Are There Unintended Consequences?" *Public Finance Review* 36, 1 (2008): 88-111.

Lankford, H. "A Descriptive Analysis of the New York State and New York City Teaching Force." Report prepared for the New York Supreme Court case *Campaign for Fiscal Equity v. New York State*, 1999.

The above data, along with data from New York City Department of Education (NYCDOE), have been used to document the significant improvements in the qualifications of teachers in New York and how these changes are linked to NYS and NYC policy changes.

Lankford, H., S. Loeb, A. McEachin, L. Miller, and J. Wyckoff. "Who Enters Teaching? Encouraging Evidence that the Status of Teaching is Improving." *Educational Researcher* 43, 9 (2014): 444-53.

Lankford, H., S. Loeb and J. Wyckoff. "Teacher Sorting and the Plight of Urban Schools: A Descriptive Analysis." *Educational Evaluation and Policy Analysis* 24, 1 (2002): 38-62.

Lankford, H., R. O'Connell, and J. Wyckoff. *Our Next Generation: School Leadership in New York*. Albany: NYS Education Department, 2003.

Lankford, H., P. Ochshorn, and J. Wyckoff. "The Dynamics of Teacher Salary Expense" (1998) In *Selected Papers in School Finance*, edited by W.J. Fowler, Jr., 98-217. Washington, DC: National Center for Education Statistics, 1998.

Lankford, H., F. Papa, and J. Wyckoff. "The Attributes and Career Paths of Principals: Implications for Improving Policy." Project funded by NYSED and the RAND Corporation through their Wallace Fund grants on leadership, March 2002.

Lankford, H. and J. Wyckoff. "Where Has the Money Gone? An Analysis of School District Spending in New York State: 1979-80 to 1991-92." *Educational Evaluation and Policy Analysis* 17, 2 (1995): 195-218.

Lankford, H. and J. Wyckoff. "Which Teachers Received Real Salary Increases in New York, 1970-94?" In *Putting It All Together: Proceedings of the Summer Data Conference*. Washington, DC: National Center for Education Statistics, 1995.

PMF and NYSED district-level financial data (ST-3) have been used to document “where does the money go,” including the analysis of how the levels and distributions of teacher resources have changed over time.

Lankford, H., and J. Wyckoff. “The Allocation of Resources to Special Education and Regular Instruction.” In *Holding Schools Accountable: Performance-Based Reform in Education*, edited by Helen Ladd, 371-84. Washington, DC: Brookings Institution Press, 1996.

Lankford, H., and J. Wyckoff. “The Allocation of Resources in New York State School Districts: 1979-80 to 1993-94.” In *Cost- Effectiveness in Education*, edited by Robert Berne, 45-62. Albany: New York State Board of Regents, 1996.

Lankford, H., and J. Wyckoff. “The Changing Structure of Teacher Compensation, 1970-94.” *Economics of Education Review* 16, 4 (1997): 371-84.

Lankford, H., J. Wyckoff, and F. Papa. “The Labor Market for Public School Teachers: A Descriptive Analysis of New York State’s Teacher Workforce.” Condition Report prepared for the NYS Educational Finance Research Consortium and funded by NYSED.

## Endnotes

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- 1 Winnie Hu, "Teachers Facing Weakest Market in Years," *New York Times*, May 19, 2010, [http://www.nytimes.com/2010/05/20/nyregion/20teachers.html?\\_r=1&mcubz=0&pagewanted=all&](http://www.nytimes.com/2010/05/20/nyregion/20teachers.html?_r=1&mcubz=0&pagewanted=all&).
- 2 Leib Sutcher, Linda Darling-Hammond, and Desiree Carver-Thomas, *A Coming Crisis in Teaching? Teacher Supply, Demand, and Shortages in the U.S.* (Palo Alto: Learning Policy Institute, September 2016), <https://learningpolicyinstitute.org/product/coming-crisis-teaching>.
- 3 Ibid.
- 4 See Alexander Colvin et al., *New York State Teacher Salary Report* (Ithaca: Cornell University ILR School, December 2013), <http://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=1005&context=icrpubs>.
- 5 Hamilton Lankford and James Wyckoff, "The Changing Structure of Teacher Compensation," *Economics of Education Review* 16, 4 (1997): 371-84, <http://www.albany.edu/~wyckoff/The%20Changing%20Structure%20of%20Teacher%20Compensation,%201970-94.pdf>; Jacob Vigdor, "Scrap the Sacrosanct Salary Schedule," *Education Next* 8, 4 (2008): 36-42, <http://educationnext.org/scrap-the-sacrosanct-salary-schedule/>.
- 6 Byron Auguste, Paul Kihn, and Matt Miller, *Closing the talent gap: Attracting and retaining top-third graduates to careers in teaching* ((New York: McKinsey & Company, 2010), <http://mckinseysociety.com/closing-the-talent-gap/>.
- 7 Thomas L. Gais et al., *Policies, Practices, and Systems for the Improvement of Teaching and Learning: A Policy Paper for the TeachNY Advisory Council*, State University of New York (Albany: Rockefeller Institute of Government, September 2015).
- 8 TeachNY Advisory Council, *Report of Findings and Recommendations* (Albany, TeachNY Advisory Council, State University of New York, May 2016): 16, [https://www.suny.edu/media/suny/content-assets/documents/teachny/TeachNY-Report\\_20160518\\_Final.pdf](https://www.suny.edu/media/suny/content-assets/documents/teachny/TeachNY-Report_20160518_Final.pdf).
- 9 "Aspen Institute Datasheet: The Teaching Workforce," n.d., [https://assets.aspeninstitute.org/content/uploads/files/content/docs/education/Ed\\_AspenTeacherWorkforceDatasheet.pdf](https://assets.aspeninstitute.org/content/uploads/files/content/docs/education/Ed_AspenTeacherWorkforceDatasheet.pdf).
- 10 Richard Ingersoll and Henry May, *Recruitment, Retention and the Minority Teacher Shortage*, CPRE Research Report No. RR-6 (Philadelphia: Consortium for Policy Research in Education, 2011), [http://repository.upenn.edu/qse\\_pubs/226/](http://repository.upenn.edu/qse_pubs/226/).
- 11 John Hattie, *Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement* (New York: Routledge, 2009).