



State policymakers looking to increase recruitment and retention should keep an eye on these long-term trends.

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Five Trends Shaping the Teaching Force

The U.S. elementary and secondary teaching force in recent decades has changed significantly and in important, sometimes surprising ways. It has become far larger, far less experienced, less diverse by gender, and more diverse by race-ethnicity. And it remains unstable. Yet researchers, policymakers, and the public appear not to have much marked these trends, even the most dramatic ones.

When we embarked on exploratory research on the teaching force several years ago, we were surprised to discover these transformations.¹ Our data source was the U.S. Department of Education's nationally representative Schools and Staffing Survey and its successor, the National Teacher Principal Survey, which collected extensive information from large samples of teachers from public, private, and charter schools in all states over the three-decade period from 1987 to 2018.² It is the largest, most

comprehensive source of data on teachers in the U.S.

While our intent was simply to provide a bird's-eye view of key developments, these trends raise significant questions. Why are they occurring, what are their sources, and what are the implications for education reform and policy? I will summarize five of the key trends we identified, along with some takeaways and questions for state boards of education and others involved in state education policymaking to consider.

1. Ballooning

The K-12 teaching force is one of the largest occupational groups in the United States. Moreover, over the past three decades, it has grown dramatically—and far faster than the student population. Although elementary and secondary student enrollment has risen 22 percent

since the late 1980s, the number of teachers has grown 54 percent (figure 1).

One source of this dramatic growth in the teaching force has been class-size reduction, particularly at the elementary level, which has been a popular reform in some states. But a far larger factor has been the growth in particular fields and subjects. For instance, the numbers of math and science teachers grew by over 75 percent during this period—at least partly due to increases in the number of math and science courses required for secondary school graduation. Two other growth fields have been special education and foreign language teachers, which increased by 84 and over 100 percent, respectively. Another growth field has been elementary enrichment/elementary subject specialists, who teach only one subject such as art, music, physical education, computer science, or mathematics to different classes of elementary school students. These specialists increased by 146 percent. But the most dramatic growth field has been in English as a second language (ESL)/bilingual education, which jumped by a whopping 201 percent.

We have not yet uncovered all the factors responsible for the rapid increase in the number

of teachers. But further investigation of the sources of this growth is warranted, given the broad implications. It is important to recognize that schools have been hiring more math, science, special education, ESL/bilingual, foreign language, and elementary enrichment/specialist teachers in response to what the public wants. These are high-demand fields. And while entirely beneficial for many students, this expansion has been costly, given that teacher salaries are a large portion of school budgets.

How much extra has the ballooning cost beyond what would have been necessary to simply keep pace with student enrollment increases? My colleagues and I made an approximate and conservative estimate that, from 1987 to 2018, the additional aggregate cost of salaries due to hiring teachers at a rate more than twice that of students was well over \$45 billion. Our point is not that these increases were unnecessary, excessive, or ill spent. Our point is simply that the ballooning leaves us with sobering questions: How have school systems coped with such costs, how has this been paid for, and what will it mean for future increases in teachers' salaries that reformers have proposed?

Since the late 1980s, the number of teachers has grown 54 percent.

Figure 1. Number of Elementary and Secondary School Teachers and Students, 1987-88 to 2017-18

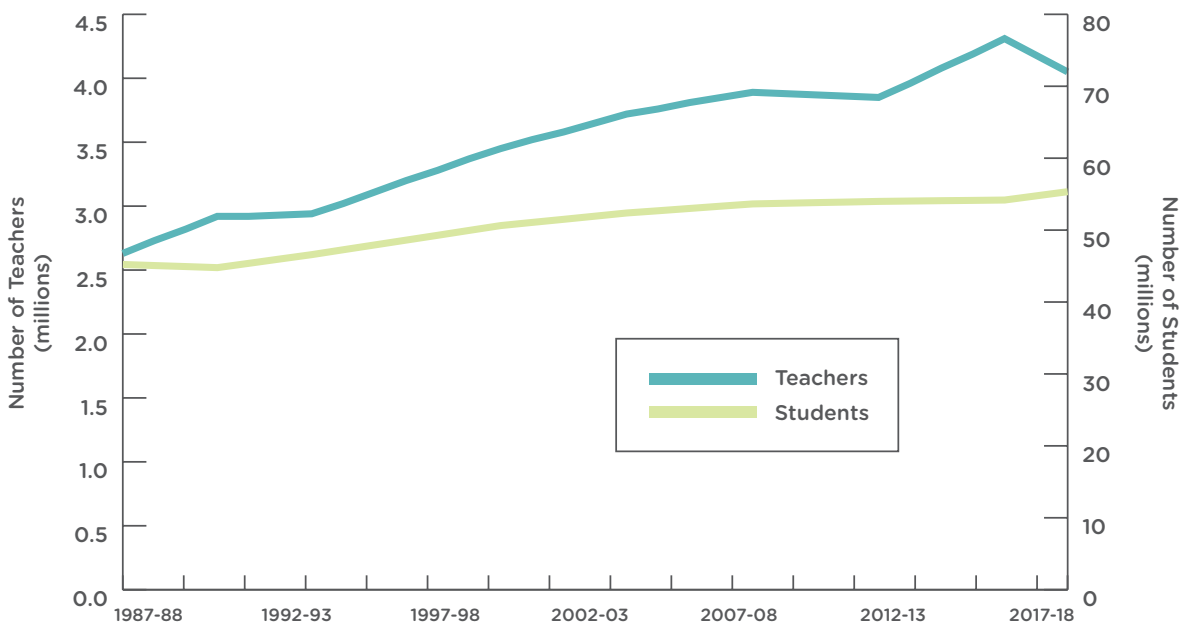
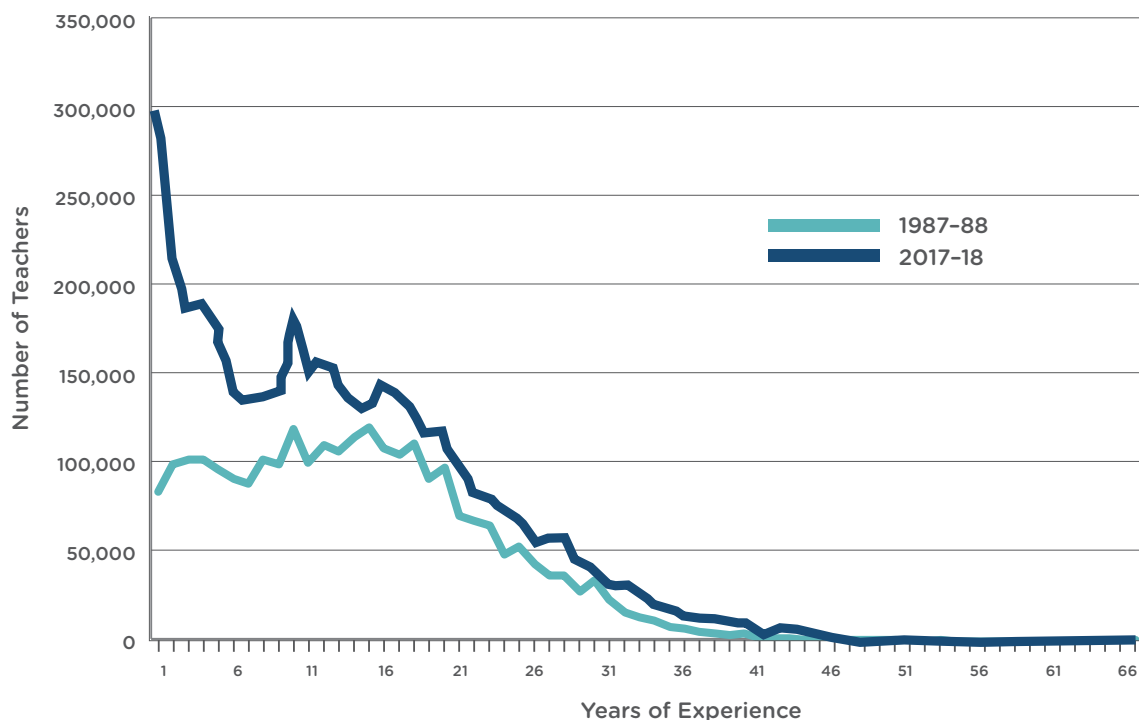


Figure 2. Teaching Experience of Teachers, 1987–88 and 2017–18 (Years)



Greening could offset some of the increased payroll costs from ballooning.

2. Greening

Simultaneously, the number of beginning teachers has increased dramatically—a workforce “greening” made starker by retirements of veteran teachers. Most of these beginners are young, recent college graduates. However, a significant number are older, but inexperienced, beginning teachers who have made mid-career switches. For instance, in 2018 about 36 percent of new teachers in schools were over age 29, and about 15 percent were over 40.

The distribution of teachers by years of teaching experience is illustrated in figure 2. In 1987–88, the modal, or most common, teacher had 15 years of teaching experience under their belt. By 2017–18, the modal teacher was a beginner in their first year. In raw numbers, there are far more beginners than before. For example, in 1987–88, there were about 84,000 first-year teachers. By 2017–18, there were about 300,000.

On the one hand, it can be beneficial for schools to bring in new faculty. They can be a source of fresh ideas and energy. On the other hand, an increasing number of beginners coupled with a decreasing number of veterans

can hamper students’ academic achievement by depriving them of the quality of instruction that experienced teachers can provide.

Greening also has large financial implications. An increasingly inexperienced teaching force is cheaper, as they tend to earn lower salaries. Thus greening could offset some of the increased payroll costs from ballooning. For instance, in 2016, the average starting salary for public school teachers with a college degree and no teaching experience was about \$38,800; that same year, the average salary for veteran public school teachers with over 15 years of experience and a master’s degree was about \$66,500.

3. More Female

Teaching has traditionally been female dominated, and despite the growth in other career options available to women, teaching has become surprisingly even more female. The proportion of female teachers increased from 66 percent in 1980 to over 76 percent in 2018 (figure 3). This change in the female-to-male ratio has not been caused by a decline in the number of males entering teaching—that

number has grown by 29 percent since the late 1980s. But the number of female teachers grew over twice as fast during the same period, with the growth concentrated at the secondary level.

The reasons are unclear. Perhaps the increase has to do with the challenge of negotiating dual roles of homemaker and breadwinner—the fit between work and family life. Given that teachers have regular seasonal breaks and at least ostensibly early-ending work days, caring for family is sometimes thought to be more manageable for teachers than for those in many other jobs and careers. In turn, given the continuing disproportionate responsibility women are bearing for household labor and child rearing, this perceived workday structure may still be attracting women to teaching at disproportionate rates.

If the trend continues, 8 of 10 U.S. teachers may soon be female. A large percentage of elementary schools will have few, if any, male teachers. An increasing number of students may encounter few male teachers in either elementary or secondary school. Given the importance of teachers as role models and even as surrogate parents for some students, some will see this trend as a problem and a policy concern.

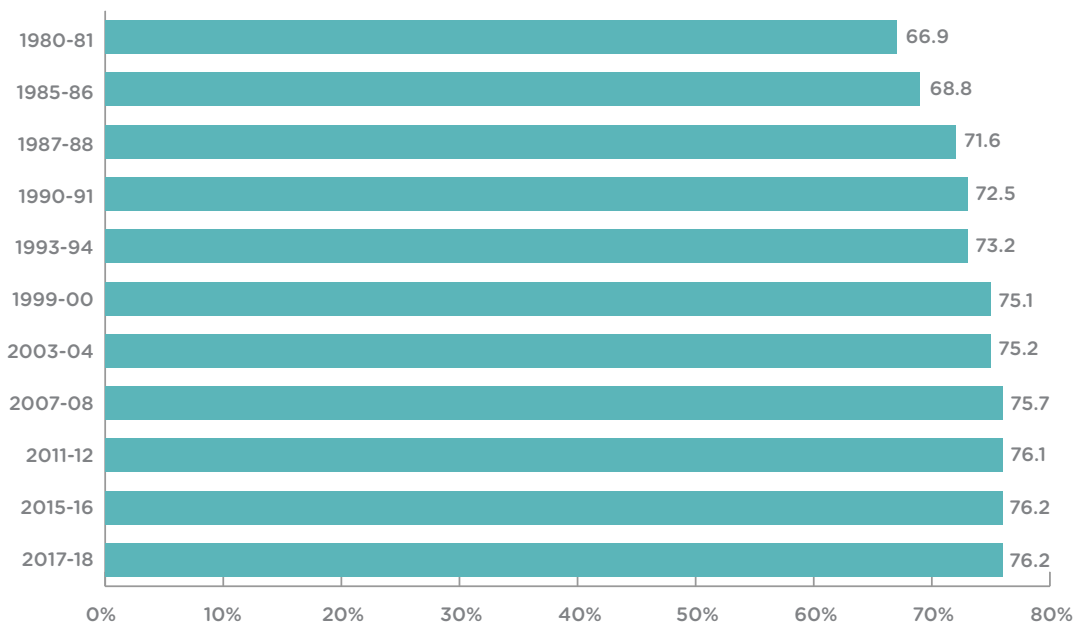
4. More Diverse by Race-Ethnicity

While the teaching force is becoming more homogenous gender-wise, the opposite is true for racial and ethnic diversity. At first, this finding may also seem surprising. There has been a great deal of concern in recent decades that the teaching force looks less and less like America and, in particular, less and less like the students. As the nation's population and students have grown more diverse, it is widely held, the teaching force has not kept pace. In response, numerous government and nongovernment organizations have instituted and funded programs and initiatives to recruit teacher candidates from underrepresented racial-ethnic groups. By 2010, over half of the states had such teacher recruitment policies or programs in place.

A hidden success story emerged. While the proportion of students of color in schools is still far greater than that of teachers of color, between 1988 and 2018, the number of minority and teachers of color increased faster than that of White, non-Hispanic teachers and also than that of students of color (figure 4). Since the late 1980s, the number of teachers of color has increased by 148 percent, to 810,000. However,

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Figure 3. Percent Female Teachers, from 1980-81 to 2017-18



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About 45 percent of all public-school teacher turnover takes place in just one-fourth of public schools.

the data also show large differences in the pace of these teacher increases by group. For instance, the number of Asian teachers increased by 263 percent, and the number of Hispanic teachers increased by 373 percent, but the number of Black teachers increased by only 29 percent.

Thus the data suggest that efforts to recruit teachers from underrepresented racial-ethnic groups have made real progress—something of an unheralded success. Yet that success is threatened by turnover rates among minority teachers, which are much higher than those of White, non-Hispanic teachers and have also increased.³

5. Less Stable

Elementary and secondary teaching has long been marked by relatively high rates of turnover, both from teachers switching between schools and from leaving teaching altogether. Attrition rates by those leaving the occupation entirely are higher than those in a number of other occupations, including police officers, nurses, pharmacists, lawyers, engineers, and physical therapists (figure 5).

Turnover in the teaching occupation overall has increased over the past three decades. Moreover, the increase in the annual percentage

does not tell the whole story. Since the teaching force has grown much larger, numerically there are far more teachers departing schools now than in the past.

Teacher turnover rates vary across states, regions, and school districts, but the largest variations are between schools, even within the same school district. Annually, about 45 percent of all public-school teacher turnover takes place in just one-fourth of public schools, with high-poverty schools and both urban and rural schools experiencing higher rates of turnover.

There are also large differences in turnover among types of teachers. As mentioned already, minority teachers and teachers of color have higher than average rates of turnover. But beginning teachers have among the highest departure rates. Our analyses of national longitudinal data document that between 40 to 50 percent of those who enter teaching leave teaching altogether within five years. Coupled with the ballooning trend, this trend indicates a growing flux and instability in the teaching force, as both the large numbers of those entering teaching and the large numbers of those exiting have been increasing in recent years. In short, those in the largest group, beginners, in one of the largest occupations—teachers—have been leaving at

Figure 4. Number of Students and Teachers, by Race/Ethnicity, from 1987-88 to 2017-18 (percentage change)

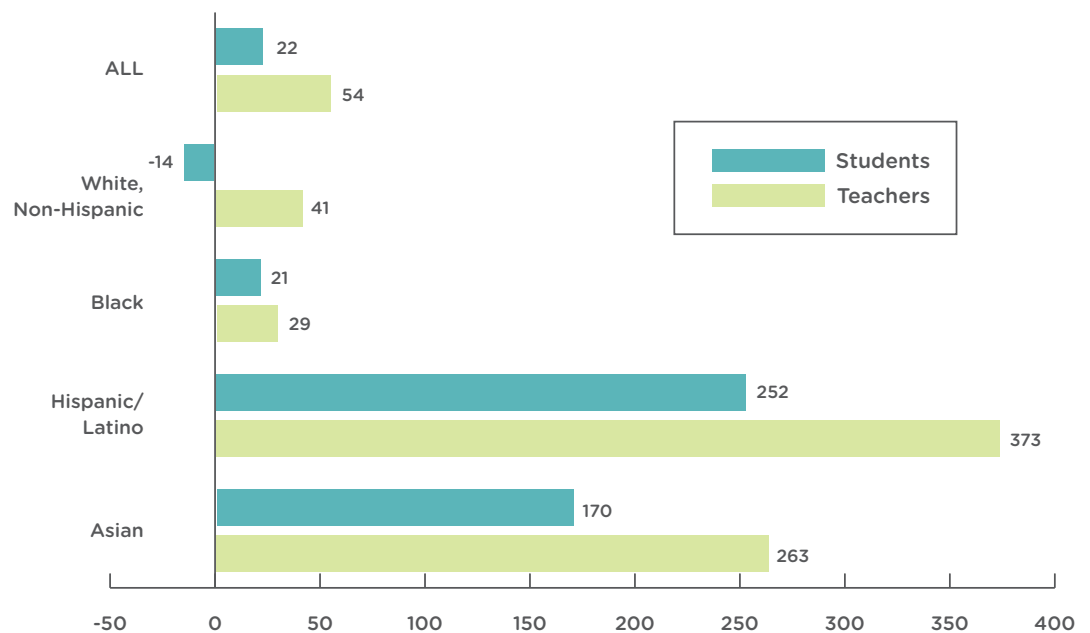
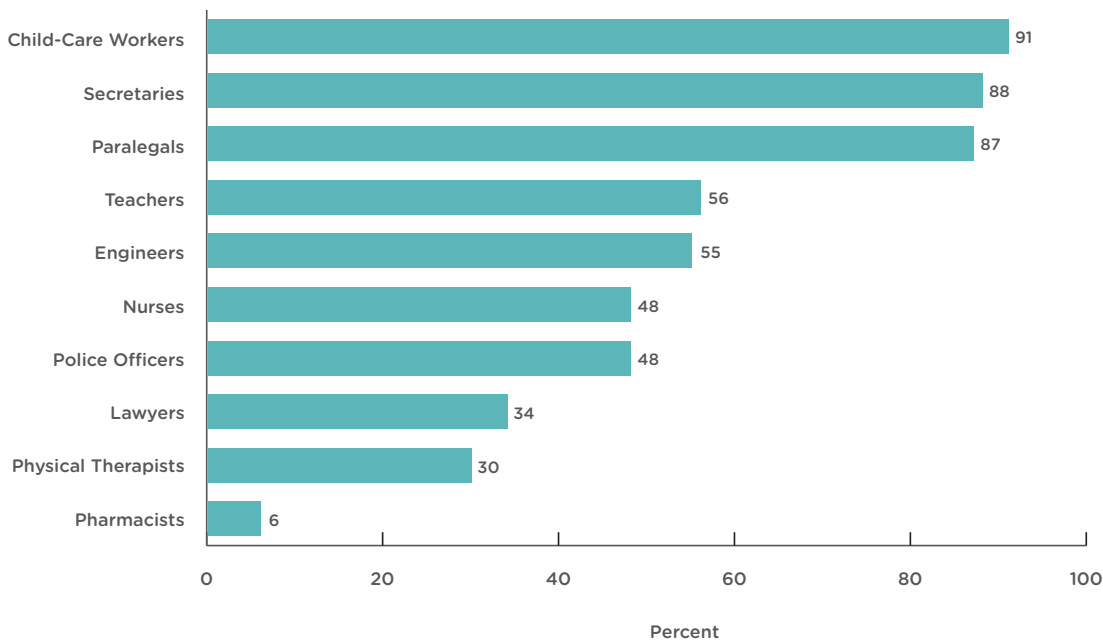


Figure 5. Among 2007–08 College Grads Who Entered Selected Occupations by 2012, Percent Gone from Occupation by 2018



relatively high rates, and these rates have held steady or even increased in recent decades.

Teachers depart for many reasons, but the most frequently cited is job dissatisfaction—especially with school management, accountability and testing, and lack of input into school decision making.

Employee turnover in any occupation has pros and cons, costs and benefits. On the one hand, some degree of employee turnover, with the accompanying job and career changes, is normal, inevitable, and can be efficacious for individuals, organizations, and the economic system as a whole. Too little turnover is tied to organizational stagnancy; effective organizations usually both promote and benefit from a limited degree of turnover by eliminating low-caliber performers and bringing in “new blood” to promote innovation.

On the other hand, high levels of departures are worrisome. Not only can they be a symptom of underlying problems in how well organizations function, they can also entail costs and other downsides for organizations and systems. Turnover plays a significant, often underappreciated role in teacher shortages.⁴ The data suggest that greater attention to retaining beginning

teachers, minority and teachers of color, and teachers in disadvantaged schools should be a key priority of school leaders and policymakers.

Implications

There are good reasons to investigate the sources of these trends and to continue tracking them. If they do indeed continue, serious financial, structural, and educational consequences will follow for America’s educational system. For instance, will the teaching force continue to grow at a faster rate than the student population it serves and, if so, why? If the teaching force does continue to balloon, the expense to local school districts could become unsustainable.

Will the teaching force continue to become more female and, if so, why? If the teaching force does continue to become even more female-dominated, with the presence of male role models a rarity for an increasing number of K-12 students, there could be negative implications for students, both male and female.

Will an increasing number of new hires decide not to stay in teaching, making it increasingly an occupation practiced by the young and inexperienced, and, if so, why? If this trend continues, the expense to local school districts could become more sustainable because of lower

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overall average salary costs per employee. In other words, there may effectively be a financial trade-off between the growing numbers of teachers and their decreasing experience. But as the older segment of the teaching force retires, will the newcomers stay long enough to become the next generation of veterans?

The national data we analyzed ends with spring 2018, raising questions about whether the pandemic that began in spring 2020 will alter the trajectory of these trends. The answers will not be revealed until the next cycle of national data is released—probably by 2023. I would guess these long-term trends will continue. Moreover, it appears that trend number 5—instability—has already increased. All indications are that teacher turnover is rising and will continue to do so. With the pent-up stress teachers accumulated during the pandemic and as the economy improves, teachers will be able and willing to increasingly seek other employment options. It will be most tempting for teachers in low-income schools, with their added stresses, to explore those options. Hence, state education leaders' efforts to address teacher turnover will be more important than ever. ■

¹Richard Ingersoll et al., "The Demographic Transformation of the Teaching Force in the United States," *Education Sciences* 11 (2021): 234.

²Information about the Schools and Staffing Survey/National Teacher Principal Survey, including methodology and results, is available at <https://nces.ed.gov/surveys/sass/> and <https://nces.ed.gov/surveys/ntps/>.

³Richard Ingersoll, Henry May, and Gregory Collins, "Recruitment, Employment, Retention and the Minority Teacher Shortage," *Education Policy Analysis Archives* 27, no. 37 (2019), <http://dx.doi.org/10.14507/epaa.27.3714>; Richard Ingersoll et al., "Trends in the Recruitment, Employment, and Retention of Teachers from Under-Represented Racial-Ethnic Groups," chapter 61 in Travis Bristol and Conra Gist, eds., *Handbook of Research on Teachers of Color and Indigenous Teachers* (Washington, DC: American Educational Research Association, 2022).

⁴Richard Ingersoll and David A. Perda, "Is the Supply of Mathematics and Science Teachers Sufficient?" *American Educational Research Journal* 47, no. 3 (2010): 563–94; Richard Ingersoll and Henry May, "The Magnitude, Destinations, and Determinants of Mathematics and Science Teacher Turnover," *Educational Evaluation and Policy Analysis* 34, no. 4 (2012): 435–64.

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⁶See, e.g., Tim Sass et al., "Value Added of Teachers in High-Poverty Schools and Lower Poverty Schools,"

Journal of Urban Economics 72, no. 2 (2012), 104–22; Dan Goldhaber, Vanessa Quince, and Roddy Theobald, "Has It Always Been This Way? Tracing the Evolution of Teacher Quality Gaps in US Public Schools," *American Educational Research Journal* 55, no. 1 (2018): 171–20; Dan Goldhaber, Lesley Lavery, and Roddy Theobald, "Uneven Playing Field? Assessing the Teacher Quality Gap between Advantaged and Disadvantaged Students," *Educational Researcher* 44, no. 5 (2015), 293–307; Steven Glazerman and Jeffrey Max, "Do Low Income Students Have Equal Access to the Highest Performing Teachers?" (Washington, DC: Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, 2011); Charles Clotfelter et al., "High-Poverty Schools and the Distribution of Teachers and Principals," CALDER Working Paper (2007); Demetra Kalogrides, Susanna Loeb, and Tara Beteille, "Systematic Sorting: Teacher Characteristics and Class Assignments," *Sociology of Education* 86, no. 2 (2013): 103–23.

⁷Benenson Strategy Group, "National Online Survey of College Students: Education Attitudes" (Third Way, 2014), <https://www.thirdway.org/polling/national-online-survey-of-college-students-education-attitudes>.

⁸Christopher Redding and Gary T. Henry, "New Evidence on the Frequency of Teacher Turnover: Accounting for Within-Year Turnover," *Educational Researcher* 47, no. 9 (2018): 577–93; Donald Boyd et al., "The Role of Teacher Quality in Retention and Hiring: Using Applications to Transfer to Uncover Preferences of Teachers and Schools," *Journal of Policy Analysis and Management* 30, no. 1 (2011): 88–110; Dan Goldhaber, Betheny Gross, and Daniel Player, "Teacher Career Paths, Teacher Quality, and Persistence in the Classroom: Are Public Schools Keeping Their Best?" *Journal of Policy Analysis and Management* 30, no. 1 (2011): 57–87.

⁹See, e.g., Jennifer L. Steele, et al., "The Distribution and Mobility of Effective Teachers: Evidence from a Large, Urban School District," *Economics of Education Review* 48 (2015): 86–101; Goldhaber, Quince, and Theobald, "Has It Always Been This Way?"

¹⁰Hannah Putman, "Digging Deeper: Which Types of Institutions Achieve Excellence and Equity for Aspiring Teachers of Color?" report (Washington, DC: National Council on Teacher Quality, July 2022).

¹¹Dan Goldhaber et al., "Lost to the System? A Descriptive Exploration of Teacher Candidates' Career Paths," *Educational Researcher* (2022).

¹²Dan Goldhaber et al., "Out of the Gate, but Not Necessarily Teaching: A Descriptive Portrait of Early-Career Earnings for Those Who Are Credentialed to Teach," CALDER Working Paper No. 263-0422 (Arlington VA: CALDER, 2022).

¹³Dan Goldhaber et al., "Student Teaching and the Geography of Teacher Shortages," *Educational Researcher* 50, no. 3 (2021): 165–75.

¹⁴James Cowan et al., "Missing Elements in the Discussion of Teacher Shortages," *Educational Researcher* 45, no. 8 (2016): 460–62.

¹⁵Kaitlin Pennington McVey and Justin Trinidad, "Nuance in the Noise: The Complex Reality of Teacher Shortages" (Bellwether Education Partners, January 2019).

¹⁶Dan Goldhaber et al., "Teacher Staffing Challenges in California: Examining the Uniqueness of Rural School Districts," *AERA Open* 6, no. 3 (2020).

¹⁷Patricia Saenz-Armstrong, "State of the States 2021: Teacher Supply and Demand" (Washington, DC: NCTQ, 2021).

¹⁸For example, Texas has a centralized application to institutions of higher education that asks students about their interest in teaching. Researchers have used this data to determine what proportion of those students interested in teaching enroll in preparation programs. Brendan Bartanen and Andrew Kwok, "From Interest to Entry: The Teacher Pipeline from College Application to Initial Employment," EdWorking Paper No. 21-397 (Annenberg Brown University, 2022).

¹⁹The nine are Arkansas, California, Colorado, Connecticut, Delaware, Georgia, Kentucky, Massachusetts, and Nebraska.

²⁰NCTQ, "Teacher Licensure Pass Rates: State Dashboards," website, <https://passrates.nctq.org/>.

²¹NCTQ interviewed leaders of several preparation

All indications are that teacher turnover is rising and will continue to do so.