

Economic Approaches to Teacher Recruitment and Retention

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Introduction

The quality of teaching in a school results from a range of factors, including available resources, curriculum, and instructional leadership, but it is also driven by the individuals who teach in each classroom. The staffing of teachers in schools, in turn, is a product of both recruitment and retention practices. This article describes how the choices of teachers and the actions of schools and districts influence who enters the profession and who stays. It then identifies common policy approaches for advancing recruitment and retention goals and summarizes the current research, discussing the effectiveness of these policies. The article focuses on teacher labor markets in the United States (for information on teacher labor markets outside of the US, see [Ladd \(2007\)](#) and [Vegas \(2007\)](#)).

The supply and demand model provides a simple framework for considering recruitment and retention. Wages and nonpecuniary job attributes combine to determine the supply of individuals interested in teaching in a given school, district, or state. A large body of research suggests that, like other workers, potential and current teachers respond to wage changes, although research on the degree of this response is not conclusive. Nonpecuniary components of teaching that influence the supply of teachers include working conditions, school location, and ease of entry into the occupation and the school. Feelings of success in the classroom also appear to be important for the retention of teachers already in the workforce.

The demand for teachers and the institutional constraints within which these demands are expressed also affect the teacher workforce. The number and characteristics of teachers demanded constitute a function of many factors, including student enrolment, teacher turnover, and the ability and willingness to pay for teachers. Institutional constraints, such as the skill and efficiency of hiring authorities, available information on the quality of individual teachers, budget timing, certification and licensure policies, tenure policies, and teacher contract provisions, can all affect the ability of districts to recruit and retain teachers.

In what follows, we address supply- and demand-side factors affecting this workforce in more detail, and conclude with a discussion of policies aimed at improving recruitment and retention.

The Supply of Teachers

The decisions of eligible individuals willing to teach aggregate to determine the teacher labor supply. Multiple factors affect the choices individual teachers make. Research has enumerated a few of these factors, including relative wages, working conditions, job location, and ease of entry into the occupation and into each job. Teacher self-efficacy also factors into teachers' decision of whether to remain in teaching.

Wages

A large body of literature suggests that individuals are more likely to choose to teach when starting teacher wages are high relative to wages in other occupations. Drawing upon multiple data sources, [Bacolod \(2007\)](#) found that highly qualified teachers are especially sensitive to changes in relative wages. Over the long run, trends in relative teacher pay have correlated with trends in teacher quality ([Corcoran et al., 2004](#)). Wages may also affect retention. [Murnane and Olsen \(1990\)](#) found that teachers who are paid more stay longer in teaching, but that wages influence retention less for teachers with high test scores than for teachers with lower scores. Approximately 15% of public school teachers who decided to move to another school in 2004–2005 reported having done so for better wage or benefits ([Marvel et al., 2007](#)). Wages are clearly associated with the retention decisions of teachers, although the causal analysis of this is less clear since high teacher wages in schools are often associated with a variety of other reasons for which teachers may choose to stay, such as better working conditions or higher student achievement.

While teachers respond to wages, much of the variation in teacher wages is between districts, reflecting differences in alternative wages, not within labor markets. Thus, the differences that we see across schools in the supply of teachers are likely driven by nonpecuniary characteristics of the jobs ([Loeb and Page, 2000](#)).

Working Conditions

Nonpecuniary job characteristics strongly affect the dynamics of the teacher labor market. While in some occupations additional wages compensate for adverse working conditions, in teaching, the single wage schedule

at the district level in the United States, and in many countries at the national level, can lead to great variation in the appeal of teaching in different schools, driven by variation in nonwage characteristics of the job.

Multiple studies have documented a relationship between teachers' career choices and the school's student population: teachers, on average, prefer schools with high-achieving, high-income, and white students. Whether these preferences are driven by direct preferences for particular types of students or by differences in working conditions in the schools these students attend is less clear. As an example, Georgia elementary teachers move from schools with higher proportions of minority students and from low-performing schools, but the latter appears to be explained by teacher preferences for fewer minority students (Scafidi *et al.*, 2003). Texas and New York data, on the other hand, found that teachers prefer higher achieving students even after controlling for student racial composition. Teachers, especially highly qualified teachers, are more likely to transfer or quit when teaching lower achieving students (Boyd *et al.*, 2005b; Hanushek *et al.*, 2004). As further evidence of the weight some teachers put on student-body characteristics, when class size reduction in California increased the demand for teachers across the state, many teachers in schools with low-achieving students switched to schools with higher achieving students (Betts *et al.*, 2000).

Student characteristics are not the only working condition that affects teachers' choices, in particular, school leadership also affect teachers' decisions. Approximately 37% of teachers move from their school due to dissatisfaction with their administrators (Marvel *et al.*, 2007). Weiss (1999) found perceived school leadership to be among the strongest variables associated with first-year teachers' feeling that it is worthwhile to exert their best effort, commitment to career path, and intentions to stay in teaching. An effective principal may have the ability to create a positive working environment for teachers, in spite of attributes of schools typically associated with high turnover. Other school factors are also important. A study of California teachers found that among the strongest predictors of turnover in a school are teachers' ratings of their tangible school conditions, such as physical facilities and availability of textbooks and technology, as well as the quality of professional development, involvement of parents, and quality and appropriateness of tests teachers are required to administer (Loeb *et al.*, 2005). Buckley *et al.* (2005) also found that facility quality is an important predictor of the decision of teachers to leave their current position, even after controlling for other contributing factors.

Psychic Benefits and Costs

Tangible working conditions are part of a job's appeal but teachers also respond to less-concrete job attributes.

Johnson and Birkeland (2003) found that new teachers who find that they cannot achieve a sense of success with students are less likely to find teaching a rewarding work and to remain in the classroom. Teachers who feel successful with students and whose schools were organized to support them in their teaching – providing collegial interaction, opportunities for growth, appropriate assignments, adequate resources, and school-wide structures supporting student learning – were less likely to leave their school than teachers in schools who were not organized to support them.

Farkas *et al.* (2000) similarly found the primary source of satisfaction among new teachers who planned to continue teaching was their confidence that they were making a difference in the lives of their students. In teachers' decisions to stay, leave, or transfer schools after the first year of teaching, more than anything else, teachers weighed whether they could be effective with their students. Difficult working conditions can affect a teacher's opportunity to teach well which, thus, affects his/her ability to succeed with students; however, it is this success that may ultimately determine whether or not the teacher chooses to stay.

School Location

School location has a strong influence on the distribution of teachers. Of all public school teachers who chose to move from one school to another between 2003–2004 and 2004–2005, 26% cited proximity to home as a very or extremely important factor in their decision to move; and of those who left teaching, 11% cited changing residence as very or extremely important (Marvel *et al.*, 2007). Most teachers prefer to teach close to where they grew up or in districts that are similar to the districts they attended as high-school students. Sixty-one percent of teachers who entered public school teaching in New York State between 1999 and 2002 started teaching in a school district located within 15 miles of the district where they went to high school, and 85% of teachers started in teaching in schools within 40 miles of their high school (Boyd *et al.*, 2005). Reiningger (2006) found that these results are consistent nationwide in the US; in comparison to college graduates in nearly 40 other occupations, teachers were significantly more likely to reside in their hometown 8 years after high-school graduation.

Teachers' preferences to teach close to home or in similar settings pose serious concerns for urban districts, since urban areas produce a lower proportion of college graduates, and thus potential teachers, than do suburban areas. Rural areas also often have a smaller pool of college-educated workers from which to recruit teachers. Schools with large minority enrolments and large percentages of students receiving free and reduced-price lunch have significantly lower percentages of students earning bachelor's

degrees – a prerequisite for teaching. As a result, schools in these regions depend on hiring teachers from other regions. If they are unable to find qualified candidates, then they are forced to hire from a less-qualified pool of applicants or increase compensation.

Barriers to Entry

Traditionally, teaching in public schools in the United States required at least a bachelor's degree and certification, which in turn specifies coursework requirements, student teaching experiences, and a passing score on at least one standardized certification test. In theory, these requirements improve teaching by ensuring a minimum standard of quality on all teachers. However, these requirements also impose costs on qualified prospective teachers, which may deter them from entering the profession, effectively reducing the supply of teachers.

Until recently, while in theory teachers were required to be certified, in practice, many large urban areas employed a substantial number of uncertified teachers. Potentially, as a response to the Highly Qualified Teacher provision of the No Child Left Behind Act of 2001, schools and particularly schools serving a high proportion of students in poverty hire far fewer uncertified teachers. This tightened adherence to certification was accompanied by the creation of a number of alternative certification programs that reduced the entry requirements for teaching. Many states rely heavily on alternative routes for teachers. New Jersey, Texas, and California, for instance, obtain more than one-third of their new teachers from alternative routes. The reduced entry requirements in combination with substantial recruitment effort have substantially expanded the pool of individuals interested in becoming teachers. Furthermore, these new candidates often have stronger academic backgrounds than teachers entering from more traditional routes (Boyd *et al.*, 2006).

The Demand for Teachers

The supply of teachers determines the number of individuals willing to enter the profession and to teach in a given school, but the number of teachers actually hired and the characteristics of those teachers also depend on the demand. Important among demand factors are student enrolments, teacher retirement rates, class sizes, district hiring practices, and institutional constraints, which are described below.

Student Enrolment and Teacher Retirement

Due to the post-World War II baby boom, student enrolment increased in the United States in the 1950s and 1960s. Student enrolments declined by approximately

5 million between 1970 and 1990, but have since been steadily increasing. The baby boom era triggered a dramatic increase in the demand for teachers. Since the baby-boom generation moved through school, student enrolment changes have not driven as substantial an increased demand for teachers. However, currently, the teachers hired in the baby-boom era are reaching retirement age. Approximately 31% of public school teachers were aged 50 years or more in 2004–2005 (Marvel *et al.*, 2007). This segment of the teaching force is likely to retire over the next 10–15 years, which increases the demand for new teachers.

Reduction in Student-to-Teacher Ratios

Student-to-teacher ratios, which also affect the demand for teachers, have declined substantially during the past half century. In 1955, the ratio was 26.9; by the fall of 1985, it was 17.9, and in 2005, the average student/teacher ratio was 16.2 across all regular public schools (Marvel *et al.*, 2007). Federal policy has contributed to the decline of student–teacher ratios and the related increased demand in teachers since the 1970s. The Individuals with Disabilities Education Act (IDEA), implemented in 1975 and reauthorized in 2004, requires schools to provide accommodations for students with learning disabilities. Many schools have hired additional teachers to support students to comply with the act.

In a review of the research on class size effects, Hanushek (1998) attributed approximately a third of the decline in student–teacher ratios to special education accommodation. More recently, state policies such as the California Class Size Reduction Initiative of 1996, which paid schools to cap class sizes at 20 in grades K–3, have contributed to an increasing demand for teachers.

Hiring Processes

School and district hiring processes also affect demand and the resulting teacher workforce. In a study documenting district hiring practices across New York State, Balter and Duncombe (2008) found that most districts advertise openings in local newspapers and on the Internet; work with local colleges by supervising student teachers, posting job notices on campus, and contacting college faculty; attend at least one job fair; and use compensation for extracurricular activities and for outside teaching experience as recruitment incentives. Almost 90% of districts also use strategies to increase the local supply of teachers, such as recruiting substitute, alternatively certified, or retired teachers; or by providing assistance for paraprofessionals to become teachers. In spite of the efforts of districts in recruitment and hiring, however, it is difficult to tell who will be a good teacher. Jacob and Lefgren (2006) show that while principals are able to identify the

best and the worst teachers in their schools, they are not able to identify where the rest fall in the ability distribution. It is clearly even more difficult to tell who will be a good teacher during the hiring process. In a study of teacher hiring practices in New York State School Districts, districts most often chose candidates for interview on the basis of certification in the subject to be taught, major in the subject to be taught, and references or recommendations. A much smaller proportion of schools considered measures of a candidate's academic success such as his/her certification exam score, caliber of certifying institution, grade point average (GPA), and quality of teacher portfolio (Balter and Duncombe, 2008).

Institutional Constraints

The problem of suboptimal staffing is also driven by institutional constraints, outside the immediate control of schools and the district human resources department. In a study of district hiring patterns, the New Teacher Project uncovered three district-level policies contributing to the delays leading to suboptimal staffing patterns: lenient vacancy notification requirements, teachers' union transfer requirements, and late budget timetables (Levin *et al.*, 2005).

Lenient vacancy notification requirements do not require resigning or retiring teachers to provide notification of their intention to leave until late in the summer before the next school year. Such late notification deadlines make it very difficult for administrators to know which posts will be available when the school year starts, typically in September. By the time some districts extend offers, many of the applicants have already accepted other offers and have withdrawn their outstanding applications. Applicants who withdraw from the process early to accept other positions tend to be significantly better qualified than new hires in terms of undergraduate GPAs, a degree in their teaching field and completion of educational coursework.

Union contract provisions leave room for experienced teachers to request last-minute transfers, which excesses less senior incumbent teachers. In response, many principals delay advertising vacancies for fear of being required to hire a transferring teacher they do not want. Finally, as a result of late state budget deadlines, administrators are unaware of which positions will be funded in their schools. In 46 states, the fiscal deadline is not until 30th June, and even then, states can get extensions. Although stringent union contracts can decrease hiring effectiveness, in a study of the legal and policy structures designed to place high-quality teachers in high-minority schools, Koski and Horng (2007) did not find persuasive evidence that the seniority preference rules associated with union contracts independently affect the distribution of teachers across schools or exacerbate the negative relationship

between higher minority schools and noncredentialed and low-experience teachers.

Recruitment and Retention Policies to Date

Districts that face difficulty in hiring or retaining the teachers that they want aim to increase the supply of teachers and/or to remove institutional constraints to facilitate more effective hiring. This section looks at the following policies addressing recruitment and retention of teachers in the United States: partnerships between districts and local colleges, monetary incentives, changes in entry requirements, teacher induction and mentoring, performance-based pay, career differentiation, improving hiring practices, and modifying teacher due-process procedures. A review of extant literature reveals a lack of research that convincingly identifies the effects of most of these policy approaches.

Partnerships Between Districts and Local Colleges

To recruit potential teachers into the teaching pipeline, some districts have created partnerships with local colleges to encourage students to enter teaching. In New York State, for example, the most common college recruitment strategies used by districts are supervision of student teachers, posting of job notices at the colleges, and contacting college faculty in local colleges (Balter and Duncombe, 2008).

As a second example, the Urban Teacher Academy Program (UTAP) in Broward County Public Schools in Florida prepares high-school students for careers in urban education. This grow-your-own model provides successful program graduates with a scholarship at one of the district's higher education partners. While in college, these students major in education with opportunities for field experience in local schools. After finishing college, graduates are guaranteed a teaching job in the district. As of yet, no rigorous analyses of the effectiveness of such programs on teacher recruitment and retention have been conducted.

Monetary Incentives

In recent years, a number of states have experimented with various ways to offer higher compensation to prospective teachers to aid in recruitment and retention. Signing bonuses or crediting teachers for their years of experience teaching in other districts are examples of monetary incentive bonuses for recruitment. Some bonuses are paid in increments over time to promote retention.

Research on the effectiveness of monetary incentive programs for recruitment and retention is not conclusive. One such program, the Signing Bonus Program, implemented in Massachusetts in 1998 combined heavy recruiting, and a 7-week fast-track certification program, and a \$20,000 bonus paid in increments to all participants who continued to teach for 4 years in the state. The program did not succeed in retaining its participants – 20% of the first cohort of bonus recipients left teaching after 1 year, and attrition was particularly high in state-designated, high-need districts. Furthermore, over 50% of its second cohort ended up teaching in schools outside of the state-designated, high-need school districts for which the program was intended (Fowler, 2003).

Conversely, Clotfelter *et al.* (2006) found positive effects of North Carolina's program that provided yearly \$1,800 bonuses to teachers of math, science, and special education in middle and high schools serving low-income or low-performing students. The authors estimate that this program reduced teacher attrition by approximately 14%, though, perhaps because school eligibility for the bonus for a given academic year was not usually announced until the year had started, the program was not an effective recruitment tool.

Changes in Entry Requirements

Many states, in an attempt to increase the supply of teachers without the high cost of monetary incentives, are expanding the pool of potential teachers by reducing the cost of entry for academically competent individuals. Forty-seven states and the District of Columbia have some form of alternative-route program to recruit, train, and certify teachers. Many of these states rely heavily on alternative routes for teachers. Although alternative certification programs vary in size, scope, and competitiveness, the offer of alternative certification appears to be an effective recruitment strategy. Nearly 50% of those entering teaching through alternate routes say they would not have become a teacher if an alternate route to certification had not been available. Approximately one-third of entrants into teaching through alternate routes are nonwhite compared to 11% of the current teaching force. In terms of retention, nearly two-thirds of the survey respondents entering teaching through alternate routes expect to be teaching K-12 about 5 years from now. States with the highest percentage of alternatively certified teachers report that 87% of them are still teaching after 5 years. (Feistritzer, 2005).

Teacher Induction and Mentoring

Beginning teacher induction and mentoring have grown in prominence in school districts as methods to support new teachers' transition into the profession and to increase teacher retention. Induction programs typically involve

meetings, informal classes for new teachers, and the formation of new-teacher peer-support groups. The duration, intensity, and content of mentoring interactions can greatly vary across programs. Mentoring programs typically pair new teachers with experienced ones.

Studies of mentoring programs to date suggest that this may be a promising approach for increasing the retention of early career teachers. However, they are based on nonexperimental data and it is possible that districts or schools that implement high-quality mentoring differ from other districts, perhaps by being well run in other dimensions, and it is the other differences that drive the relationships that we see. In a synthesis of 10 empirical studies, Ingersoll and Kralik (2004) found empirical support for the claim that mentoring programs have a positive impact on teachers and their retention. Similarly, Smith and Ingersoll (2004) found that the turnover rates among new teachers decrease as the number of induction components in addition to mentoring increased – such as planning time with other teachers in the same subject, regularly scheduled collaboration with other teachers, and being part of an external network of teachers. In addition, schools that provided teachers with more autonomy and administrative support had lower levels of teacher attrition and migration. These studies suggest that mentoring may be a useful tool for retaining early career teachers. In one of the more convincing studies, Reed *et al.* (2006) found that in California, Beginning Teacher Support and Assessment (BTSA) programs in the early 1990s reduced the probability of transfer and exit among new teachers.

Performance-Based Pay

Some policymakers believe that the traditional single-wage schedule based on teacher's years of experience and number of university units provides no incentive for teachers to increase academic performance of students, and thus discourages particularly effective teachers from entering the classroom. Performance-based pay is a form of flexible compensation in which a portion of teachers' compensation is based on estimates of their effectiveness at raising student achievement. The unit of analysis can be individual teachers, groups of teachers, or schools, and payment can be based on student test performance or principal or peer evaluation.

Proponents of performance-based pay structures posit that rewarding teachers on the basis of an established set of goals would improve the motivation of teachers and assist in the recruitment and retention of high-quality staff. Critics of performance-based pay structures believe that teachers' output is too varied and difficult to observe. In addition, they worry that performance-based pay could distort incentives which could lead to suboptimal practices for long-term learning, such as teaching to the test. In addition, competition for merit awards could

result in competitive behavior among faculty at the same school and even reduce the appeal of teaching, particularly for individuals who are averse to risk.

There is little research on the effect of performance-pay on recruitment and retention, although the empirical research on the programs implemented to date has not found consistently positive effects from these reforms on student learning. Kelley (1999) examined the ways in which school-based performance award programs motivated teachers to modify or improve teaching practice in Kentucky, North Carolina, Colorado, and Maryland and concluded that such programs motivated teachers largely by creating conditions that increased intrinsic rewards and focused teacher efforts. Ballou and Podgursky (1993) found that teachers in districts that used performance-based pay did not seem demoralized by the system or hostile toward it, and that teachers of disadvantaged and low-achieving students were generally supportive of the system.

Career Differentiation Through Ladders

While the retention patterns of teachers are similar to that of other professions, such as nursing, social work, and accounting (Harris and Adams, 2007), some posit that teacher retention could be reduced by differentiating the profession, allowing paths for teacher promotion. Such promotions could provide the psychic benefits needed to improve retention. As an example, some career ladders divide the teaching career into stages by increasing responsibility and leadership, or by rewarding outstanding teaching practice. Career ladders have the potential to increase the job satisfaction of experienced teachers by diversifying their workday and skill set, thus increasing their likelihood of staying at the school, particularly because 20% of teachers leaving high-poverty urban schools report that more opportunities for advancement might induce them to stay (Ingersoll, 2004). Career ladders also have the built-in potential to increase retention among less-experienced teachers by presenting a challenging and rewarding future career prospect attainable without leaving the school. Brewer (1996) found evidence which suggests that later career opportunities affect quit decisions among teachers by examining the relationship between teaching and school administration. A study by Booker and Glazerman (2009) found that teachers in schools participating in the Missouri Career Ladder Program were less likely to leave the district as well as to leave teaching, as compared to those teachers in districts without career ladder programs, all else equal. However, the Missouri Career Ladder Program included bonuses with advancement, thus it is difficult to disentangle the impact of the monetary incentives on teacher retention from the impact of career differentiation itself.

Evidence of the effects of differentiation on teacher retention is mixed. Variations in the design and

implementation of career ladders influence teacher experiences with career ladders. Rosenblatt (2001) found that conditional on holding leadership roles that are well matched to individuals' skills and offer skill variety, career ladder programs can decrease the likelihood of burnout and increase teachers' intention to stay in their schools. However, career ladder programs that do not successfully match teachers skills to the position or offer variety can induce additional anxiety and stress for some teachers due to extra responsibilities (Henson and Hall, 1993). Without reasonable teacher assignment or without quality administrator support, the implementation of a career ladder policy is unlikely to have any positive effect on teacher satisfaction or retention. As with most retention and recruitment policies, there is little convincing causal evidence on either the advantages or disadvantages of career differentiation.

Improving Hiring Practices

Hiring practices have received attention from researchers, but relatively little attention from school leaders and policymakers. Given the contractual constraints placed on principals during the hiring process, principals are often forced to hire teachers late, by which time many higher qualified teachers may have already taken positions. Consequently, many teachers are hired late – more than one-third of new teachers in California and Florida were hired after the school year has already started (Liu and Johnson, 2006). Loosening institutional constraints on administrators and district personnel may increase efficiency in the hiring process. Jacob (2007) recommends that urban districts should streamline the administrative procedures associated with hiring so that they can make job offers more quickly; improve their ability to identify effective teachers from the pool of candidates; and implement a more decentralized process would likely result in better matches between teachers and schools. Furthermore, in their study of teacher hiring processes, the New Teacher Project formulated the following recommendations to facilitate more effective teacher hiring: ensure that transfer and excess placements are based on the mutual consent of teacher and receiving school, permit the timely hiring of new teachers, and better protect novice teachers who are contributing to their school.

Reform of Due Process

Teacher tenure policies were initially implemented to protect teachers who have successfully completed a probationary period from arbitrary dismissal. The job security tenure offers may attract prospective teachers in the teaching force and keep teachers already in the classroom. While little research has been conducted on the effect of teacher tenure on recruitment and retention, a study by

Brunner and Imazeki (2007) explored variation in probationary periods across districts and its relationship to variation in wage. The authors found evidence that districts compensate for longer probationary periods by offering higher wages. Wages for both beginning and experienced teachers are measurably higher in districts in states with longer probationary periods, which suggest that the offer of tenure may serve as a recruitment device, as teachers appear to value the prospect of an early tenure in their decision of where to teach. Clearly, tenure is a factor in a teacher's decision to remain teaching. After the probationary period, tenure creates a high level of job security and stability in the teaching profession, which could serve as an incentive for teachers to stay in the field, although no empirical work has been done to study the relationship between tenure with teacher recruitment or retention to date. Of course, tenure has the potentially negative effect of making it more difficult to dismiss less effective teachers and serves as a reminder that all teacher attrition may not be detrimental.

Conclusion

A growing body of research confirms the importance of teacher quality on student learning gains. These findings emerge at a time when policymakers and school leaders face growing concern about their ability to keep teachers currently in classrooms and how to replace teachers who leave. The teacher labor market is not all that different than other labor markets on average but the pool of available teachers is strikingly different across schools. Some schools, usually those with high proportions on non-white and low-achieving students, face a far more difficulty recruiting and retaining high-quality teachers. This article described how teachers' choices and their related preferences affect the supply of teachers and how the actions of schools and districts affect the demand for teachers and how supply and demand come together to create the workforce that we see. The article also summarized policy approaches to advancing recruitment and retention and the current research estimating the effectiveness of these policies. What stands out, as stands out in much of education policy research, is how little we know about the effectiveness of different policy approaches. Teachers respond to wage incentives, but nonwage aspects of jobs are at least as important in their decision to stay. Leadership plays a critical role both in working conditions and in the hiring process but, the market for school leadership faces similar issues of recruitment and retention and is an area in which we know even less.

See also: An Overview of Teacher Labor Markets; Teacher Incentives; Teacher Supply.

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