How context matters in high-need schools: The effects of teachers' working conditions on their professional satisfaction and their students' achievement

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Abstract

Background/Context:
Educational policymakers have begun to recognize the challenges posed by teacher turnover. Schools and students pay a price when new teachers leave the profession after only two or three years, just when they have acquired valuable teaching experience. Persistent turnover also disrupts efforts to build a strong organizational culture and to sustain coordinated instructional programs throughout the school. Retaining effective teachers is a particular challenge for schools that serve high proportions of low-income and minority students. Although some interpret these turnover patterns as evidence of teachers' discontent with their students, recent large-scale quantitative studies provide evidence that teachers choose to leave schools with poor work environments, and that these conditions are most common in schools that minority and low-income students typically attend (Boyd et al., 2011; Ladd, 2009 & 2011; Borman & Dowling, 2008; Loeb, Darling-Hammond & Luczak, 2005). Thus, mounting evidence suggests that the seeming relationship between student demographics and teacher turnover is driven, not by teachers' responses to their students, but by the conditions in which they must teach and their students are obliged to learn.

Purpose/Objective/Research Question/Focus of Study:
We build on this body of work by further examining how working conditions predict both teachers' job satisfaction and their career plans. We use a broad conception of the context of teachers' work, paying attention not only to narrowly defined working conditions, but also to the interpersonal and organizational contexts in which teachers work. We also extend Ladd's (2009) analysis describing the relationship between the work context and student achievement. Advancing our understanding of this relationship is particularly important, given the increasing emphasis legislators place on evidence of student achievement when evaluating education policy. Specifically, we ask three research questions: (i) Do the conditions of work in Massachusetts public schools affect teachers' satisfaction with their jobs and their career plans? (ii) Are schools with better conditions of work more successful in raising student performance than schools with less supportive working conditions? (iii) If the conditions of work are important, what elements of the work environment matter the most?

Research Design:
In this paper, we combine a statewide survey of school working conditions (Mass TeLLS) with demographic and student achievement data from Massachusetts. We examine three primary outcomes: teacher satisfaction, teacher career intentions, and student achievement growth. From different items on the Mass TeLLS, we construct a set of nine key elements that reflect the broad-based conditions in which teachers work. We fit standard regression models that describe the relationship between each outcome and both overall conditions of work and each element separately, modeling this relationship according to the properties of our outcome variables.

Findings/Results:
We find that measures of the school environment explain away much of the apparent relationship between teacher satisfaction and student demographic characteristics. The conditions in which teachers work matter a great deal to them and, ultimately, to their students. Teachers are more satisfied and plan to stay longer in schools that have a positive work context, independent of the

school's student demographic characteristics. Furthermore, although a wide range of working conditions matter to teachers, the specific elements of the work environment that matter the most to teachers are not narrowly conceived working conditions such as clean and well-maintained facilities or access to modern instructional technology. Instead, it is the social conditions—the school's culture, the principal's leadership, and relationships among colleagues—that predominate in predicting teachers' job satisfaction and career plans. More importantly, providing a supportive context in which teachers can work appears to contribute to improved student achievement. We find that favorable conditions of work predict higher rates of student academic growth, even when we compare schools serving demographically similar groups of students.

Conclusions/Recommendations:
In short, we find that the conditions of teachers' work matter a great deal. These results align with a growing body of work examining the organizational characteristics of the schools in which teachers work (Boyd et al., 2011; Ladd, 2011). Together, these studies suggest strongly that the high turnover rates of teachers in schools with substantial populations of low-income and minority students are driven largely by teachers fleeing the dysfunctional and unsupportive work environments in the schools to which low-income and minority students are most likely to be assigned. If public education is to provide effective teachers for all students, then the schools those students attend must become places that support effective teaching and learning across all classrooms.

Executive Summary

Throughout the past decade of school reform—from the No Child Left Behind Act of 2001 to the Race to the Top competition of 2010—policymakers focused attention on teachers, especially those in low-performing schools. Many state and district officials sought to recruit only the most promising teachers and to retain only the most effective ones, thereby building instructional capacity and eliminating the disparity in teachers' effectiveness in schools serving students with the greatest need. However, district and school administrators quickly discovered that there was no guarantee that promising teachers would stay once they were hired. In particularly, teachers steadily left schools in high-minority, high-poverty communities to work in schools in whiter, higher-income communities. Thus, the very schools that most needed effective teachers had the greatest difficulty attracting and retaining them.

Schools and students pay a price when early-career teachers leave their high-need schools after two or three years, just when they have acquired valuable teaching experience. It becomes impossible for schools with ongoing turnover to build instructional capacity and to ensure that students in all classrooms have effective teachers. Also, persistent turnover in a school's teaching staff disrupts efforts to build a strong organizational culture, making it difficult to develop and sustain coordinated instructional programs throughout the school.

Researchers differ in how they explain the transfer and exit patterns that create hard-to-staff schools. Some who analyze large data sets interpret these turnover patterns as evidence of teachers' discontent with their low-income or minority students; in other words, teachers are choosing to leave their students rather than their schools. An alternative explanation is that teachers who leave high-poverty, high-minority schools reject the dysfunctional contexts in which they work, rather than the students they teach.

Using a 2008 working conditions survey given to all Massachusetts teachers, we construct measures of nine different elements of the school working environment. We estimate the relationship between our working conditions measures and several outcomes, including teachers' satisfaction, their career intentions, and school-wide achievement growth reported by the state Department of Elementary and Secondary Education.

We confirm recent findings that teachers choose to leave schools with poor work environments, and that these conditions are most common in schools that minority and low-income students typically attend. In short, we find that the conditions of teachers' work matter a great deal. Teachers who teach in favorable work environments report that they are more satisfied and less likely to plan to transfer or leave the profession than their peers in schools with less favorable conditions, even after controlling for student demographics and other school and teacher characteristics. In fact, differences in the work context account for much of the apparent relationship between student demographics and teacher turnover.

These results align with a growing body of work examining the organizational characteristics of the schools in which teachers work. Together, these studies suggest strongly that the high turnover rates of teachers in schools with substantial populations of low-income and minority students are driven largely by teachers fleeing the dysfunctional and unsupportive work environments in the schools to which low-income and minority students are most likely to be assigned.

Importantly, the context of work appears to matter not only for the adults, but also for their students. When comparing schools with similar student demographics and past test performance, those with better work environments for teachers show greater student achievement growth. Thus, policymakers who want to retain effective teachers and improve student

performance, particularly in schools that are traditionally hard to staff, should pay close attention to the school context as teachers experience it.

We conclude that a range of working conditions matter to teachers, but the most important—those that both help retain teachers in low-income, high-minority schools and make it possible for their students to achieve—are the ones that shape the social context of teaching and learning. These are not conventional working conditions such as facilities, school resources, or planning time, but elements like the school culture, the principal's leadership, and the relationships with their colleagues. It is surely important to have safe facilities, adequate resources, and sufficient time for preparation, but if teachers are to achieve success with their students—particularly low-income and high-minority students who rely most on the school for their learning—they also must be able to count on their colleagues, their principal, and the organizational culture of the school to make success possible.

What we know about school practice suggests these three elements interact and are interdependent, a conclusion that is supported by the strong correlations among these measures. School culture is developed, enacted, and supported by both the principal and teachers. The principal can expect the school to be an orderly place for teaching and learning, but without teachers doing their part, it will be one that is run by rules, rather than shaped and sustained by norms. Teachers' collegial interactions are made possible by a principal who encourages them to work together, ensures that they have time to do so, and brokers their relationships. Yet, unless the school culture encourages everyone to share what they know, the best practices of expert teachers may never reach beyond their individual classrooms. A principal may hold the most formal authority in a school, but without the day-to-day support of teachers, that authority will fall far short of what it takes to truly turn a school around.

How context matters in high-need schools: The effects of teachers' working conditions on their professional satisfaction and their students' achievement

Introduction

Throughout the past decade of school reform—from the No Child Left Behind Act of 2001 to the Race to the Top competition of 2010—policymakers focused attention on teachers, especially those in low-performing schools. Did schools serving high-poverty, high-minority communities get their fair share of highly-qualified teachers? What knowledge, experience, and skills did these teachers bring to their students? What success did they have in raising students' test scores?

This attention to teachers and what they might contribute to students' learning grew out of several convincing studies that identified the teacher as the most important school-level factor in students' achievement. The contribution of teachers was shown to be especially important for low-income students, who tend to have fewer learning supports outside of school. Also, researchers found that the effectiveness of teachers varies widely, even within the same school (Rivkin, Hanushek, & Kain, 2005; McCaffrey, Lockwood, Koretz, & Hamilton, 2004; Rockoff, 2004). In response to these widely discussed findings, many state and district officials sought to recruit only the most promising teachers and to retain only the most effective ones, thereby building instructional capacity and eliminating the disparity in teachers' effectiveness in schools serving students with the greatest need.

However, district and school administrators quickly discovered that there was no guarantee that promising teachers would stay once they were hired. Moving through what Richard Ingersoll (2001) dubbed the "revolving door," early-career teachers steadily left schools in high-minority, high-poverty communities to work in schools in whiter, higher-income communities, or to take jobs outside of education. This pattern of teachers' exodus from low-

income to high-income schools is documented in both large quantitative and small qualitative studies (Boyd et al., 2007; Boyd et al., 2005; Hanushek, Kain, & Rivkin, 2004; Johnson et al., 2004; Leukens et al., 2004). Thus, the very schools that most needed effective teachers had the greatest difficulty attracting and retaining them.

Schools and students pay a price when early-career teachers leave their high-need schools after two or three years, just when they have acquired valuable teaching experience (Ingersoll & Smith, 2003; Neild et al., 2003). Researchers agree that first-year teachers are, on average, less effective than their more experienced colleagues (Clotfelter, Ladd, & Vigdor, 2006; Rivkin, Hanushek, & Kain, 2005; Rockoff, 2004). When an experienced teacher leaves a school, particularly a school serving low-income, high-minority student populations, she will likely be replaced by a first-year teacher who is substantially less effective. Thus it becomes impossible for schools with ongoing turnover to build instructional capacity and to ensure that students in all classrooms have effective teachers. Also, persistent turnover in a school's teaching staff disrupts efforts to build a strong organizational culture, making it difficult to develop and sustain coordinated instructional programs throughout the school.

Researchers differ in how they explain the transfers and exits that create hard-to-staff schools. Some who analyze large data sets interpret these turnover patterns as evidence of teachers' discontent with their low-income or minority students (see Borman & Dowling, 2008). For example, Hanushek, Kain, and Rivkin (2004) show that student demographics are more important to teachers' transfer decisions than salary differences across districts. They interpret this to mean that teachers choose to leave their students rather than their schools.

An alternative explanation is that teachers who leave high-poverty, high-minority schools reject the dysfunctional contexts in which they work, rather than the students they teach. (Boyd

et al., 2011; Allensworth et al., 2009; Buckley et al., 2004; Johnson & Birkeland, 2003). Recent case studies and media reports portray high-poverty, high-minority schools that are not hard to staff, but actually attract and retain good teachers, suggesting that those schools provide the conditions and supports that teachers need to succeed with their students—whoever those students may be (Dillon, 2010; Chenowith, 2009; Ferguson et al., 2009; Chenowith, 2007; Johnson & Birkeland, 2003).

Recent large-scale quantitative studies provide further evidence that teachers choose to leave schools with poor work environments, and that these conditions are most common in schools that minority and low-income students typically attend (Boyd et al., 2011; Ladd, 2009 & 2011; Borman & Dowling, 2008; Loeb, Darling-Hammond & Luczak, 2005). Thus, mounting evidence suggests that the seeming relationship between student demographics and teacher turnover is driven, not by teachers' responses to their students, but by the conditions in which they must teach and their students are obliged to learn.

Using data on teachers' job satisfaction, career intentions, and the conditions of work in Massachusetts schools, we confirm these recent findings. We find that measures of the school environment explain away much of the apparent relationship between teacher satisfaction and student demographic characteristics. The conditions in which teachers work matter a great deal to them and, ultimately, to their students. Teachers are more satisfied and plan to stay longer in schools that have a positive work context, independent of the school's student demographic characteristics. Furthermore, although a wide range of working conditions matter to teachers, the specific elements of the work environment that matter the most to teachers are not narrowly conceived "working conditions" such as clean and well-maintained facilities or access to modern instructional technology. Instead, it is the social conditions—the school's culture, the principal's

leadership, and relationships among colleagues—that predominate in predicting teachers' job satisfaction and career plans. As Bryk and his colleagues have documented, improving these social conditions involves building relational trust between teachers and school leaders and engaging teachers in co-constructing the social context of their work (Bryk & Schneider, 2002; Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010).

More importantly, providing a supportive context in which teachers can work appears to contribute to improved student achievement. Like Ladd (2009), we find that favorable conditions of work predict students' academic growth, even when we compare schools serving demographically similar groups of students. Thus, policymakers who want to retain effective teachers and improve student performance, particularly in schools that are traditionally hard to staff, should pay close attention to the school context as teachers experience it.

In the next section, we explore the concept of the teacher's workplace, which informs our study, and then highlight several key studies that have broadened the conversation about the importance of the work context for teachers. We go on to describe the Massachusetts datasets that we use, our key measures of the conditions of work, and our analytic strategy. Finally, we present our results and conclude with a discussion of our findings.

The Teacher's Workplace

Despite growing recognition about the importance of working conditions, researchers have only begun to understand how different elements of the workplace affect teachers' ability to teach well, their sense of self-efficacy, their satisfaction with their role and assignment, and their willingness to stay in their school and in the profession. In 1990, Johnson proposed a comprehensive framework for analyzing the teacher's workplace. Its components ranged from the physical teaching environment (e.g. safety and comfort) to economic factors (e.g., pay and

job security), to assignment structures (e.g. workload and supervision) to cultural and social elements (e.g., strength of the organizational culture and characteristics of colleagues and students). Interviews with 115 teachers revealed how interdependent these many factors are in determining individuals' success and satisfaction.

Not surprisingly, those who would increase students' learning by reforming the teacher's workplace typically focus on factors that can be readily manipulated, such as pay, class size, or job security. However, many features of the teachers' workplace remain beyond the reach of collective bargaining, legislation, and administrative rule-making. These are the components of the social context of schooling, which significantly affect efforts to improve schools and school outcomes for children (Bryk & Schneider, 2002; Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010). During a decade of work in the Chicago Public Schools (CPS), Bryk et al. have examined various role relationships within the school — "teachers with students, teachers with other teachers, teachers with parents and with their school principal" (2010, p. 20). They conclude that the degree of "relational trust" in these day-to-day relationships is crucial, and they document "the powerful impact that the quality of social exchanges can have on a school's capacity to improve" (2010, p. 133).

Clearly, any meaningful analysis of teachers' working conditions must recognize the full range and interdependence of the factors that define a teacher's workplace, from the concrete and transactional (e.g., pay, workload, contractual responsibilities) to the social and transformative (e.g., interactions with colleagues and administrators, organizational culture). There is convincing evidence, not only that teachers' ability to deliver effective instruction is deeply affected by the context in which they work, but also that this context may vary greatly from school to school and district to district.

The Role of Work Context in Teacher Turnover

Recent findings about working conditions in schools have begun to reshape our understanding of the causes of teacher turnover. In a comprehensive review of the literature, Borman and Dowling (2008) find that teacher demographic characteristics, teacher qualifications, school organizational characteristics, school resources, and school student body characteristics are all related to teacher attrition. They argue that "the characteristics of teachers' work conditions are more salient for predicting attrition than previously noted in the literature" (p. 398). However, disentangling the relative contributions of student and school characteristics is challenging. Horng (2009) explicitly attempts to distinguish among these possible determinants of turnover by using a survey that asks teachers their preferences for different types of hypothetical schools with different sets of demographic characteristics, working conditions, and salaries. She finds that working conditions – particularly administrative support, school facilities, and class size – are more important to teachers than salary and much more important than student demographics. The advantage of this study is that Horng can examine the trade-offs that teachers report among these different factors. However, she can only measure the preferences that teachers express on a survey, not the working conditions that they actually experience or the decisions they eventually make.

In two recent studies, Boyd and his colleagues (2011) and Ladd (2011) combine information from surveys about teachers' working conditions with data about their career plans. The researchers find that, in addition to salaries and benefits, working conditions substantially influence teachers' career plans. According to Boyd et al., working conditions are important predictors of New York City teachers' decisions to change schools or leave the profession, even after accounting for differences in student demographic characteristics across schools. In

particular, they suggest that school administration is the most important determinant of teachers' career decisions. Similarly, using state-wide data from North Carolina, Ladd (2011) finds strong evidence that working conditions, particularly the quality of a school's leadership, are related to teachers' stated career intentions.

These studies guide our work in two ways. First, Boyd et al. (2011) recognize the potential challenge that arises when teachers report on their own working conditions: dissatisfied teachers who intend to leave a school may be more likely to report worse working conditions than teachers who plan to stay. To account for this potential bias, Boyd et al. use the survey responses of one group of teachers to predict the outcomes of another group within the same school. We use a similar approach. Second, Ladd finds that teachers' stated intentions are very good measures of actual turnover patterns in schools. Because data from Massachusetts do not allow us to link teachers' survey responses to their actual career decisions, we rely on their stated intentions, assured by Ladd's work that self-reported intentions are, in fact, strong indicators of teachers' actual decisions.

This growing body of literature suggests that the work context matters to teachers; however, we know of only one study that has explored how the conditions of work in American public schools are related to the academic performance of students who attend those schools. Ladd (2009) examines the relationship between working conditions and student achievement in elementary schools, as evidenced by school-level value-added scores. She finds that working conditions predict school-level value-added scores in mathematics, and to a lesser degree in reading, above and beyond the variation explained by school-level student and teacher demographic characteristics. Of the five working conditions that Ladd examines, school

leadership again emerges as the most important predictor of achievement in mathematics, while teachers' ratings of school facilities have the strongest relationship with reading achievement.

We build on this body of work by further examining how working conditions predict both teachers' job satisfaction and their career plans. We use a broad conception of the context of teachers' work, paying attention not only to narrowly defined working conditions, but also to the interpersonal and organizational contexts in which teachers work. We also extend Ladd's analysis describing the relationship between the work context and student achievement. Advancing our understanding of this relationship is particularly important, given the increasing emphasis legislators place on evidence of student achievement when evaluating education policy.

We use data from Massachusetts, a state very different from North Carolina (which Ladd studies) and New York City (where Boyd et al. conduct their research). Massachusetts has a high-performing school system that ranks at the very top of the nation in educational outcomes. In 2009, Massachusetts students ranked first nationally in the National Assessment of Educational Progress tests in grades 4, 8, and 12 in both reading and mathematics. Students in North Carolina and New York City do not perform nearly as well. Also, of course, New York City is a single urban district, while our data come from the 291 urban, suburban, and rural districts across the state. Finally, the context of teachers' work statewide is substantially different because Massachusetts teachers, like those in New York City, are highly unionized and bargain collectively about their wages, hours, and working conditions, while state law prohibits collective bargaining in North Carolina. Specifically, we ask three research questions:

i) *Do the conditions of work in Massachusetts public schools affect teachers' satisfaction with their jobs and their career plans?*

ii) *Are schools with better conditions of work more successful in raising student performance than schools with less supportive working conditions?*

iii) *If the conditions of work are important, what elements of the work environment matter the most?*

Data and Methodology

Data Sources

In this paper, we combine a statewide survey of school working conditions with demographic and student achievement data from the Massachusetts Department of Elementary and Secondary Education (DESE). In March 2008 a coalition of education organizations (the DESE, state-level teachers unions, administrators associations, and school boards association) partnered with Eric Hirsch of the New Teacher Center to administer the Massachusetts Teaching, Learning and Leading Survey (Mass TeLLS) to all K-12 public school teachers and administrators.[1] Mass TeLLS consists of 87 multiple choice or Likert-scale questions designed to capture detailed information about how Massachusetts educators view teaching and learning conditions in schools. The survey also includes questions about basic demographic information, teachers' satisfaction, and teachers' career intentions. Forty-six percent of all educators in the state completed the survey. Although teachers' individual responses are anonymous, we can link each response to the school where the teacher worked. Therefore, we can combine these data with a rich set of school-level information from the Massachusetts DESE.

Sample

Our sample consists of classroom teachers and other school-based education professionals, such as guidance counselors and school psychologists, working in Massachusetts public schools. For simplicity, we refer to all of these professional, non-administrative school

employees as "teachers." We exclude school administrators and all individuals working in early learning centers and juvenile detention facilities. We further restrict the sample to teachers working in schools where at least 40% of the faculty responded to the survey and for which there are data from at least five teachers. Finally, we exclude those teachers who did not complete all of the Mass TeLLS questions that we used to create our key working conditions measures. These restrictions yield a sample of 25,135 teachers, compared to just over 70,000 teachers state-wide, teaching in 1,142 schools, or 61% of all Massachusetts K-12 public schools. In Table 1, we compare selected characteristics of the teachers and schools included in our sample with other Massachusetts teachers and schools. On nearly every observable characteristic, teachers and schools in our sample look very similar to those who are not included. These data suggest that our final sample is broadly representative of teachers and schools across Massachusetts.

INSERT TABLE 1 ABOUT HERE

Outcomes: Teacher Satisfaction, Career Intentions, and Student Achievement

We examine three primary outcomes: teacher satisfaction, teacher career intentions, and student achievement growth. We construct the first two teacher-level outcomes using self-reported data from the Mass TeLLS. Teachers responded to the question, "Overall, my school is a good place to work and learn" (Q9.5a), using a five-point Likert scale that ranged from strongly disagree to strongly agree. We standardize the responses so that a one-point difference reflects a one standard deviation difference in teacher satisfaction ($SATISFACTION_i$).

Second, we develop a polychotomous outcome that captures teachers' stated career intentions ($INTENTION_i$). On the survey, teachers selected from six possible responses to the question, "Which BEST DESCRIBES your future intentions for your professional career?" (Q9.6a). We group these responses into three separate categories: we code teachers who planned

to continue teaching at their school as "stayers" ($INTENTION_i$=0), teachers who planned to remain in teaching but leave their school as "movers" ($INTENTION_i$=1), and teachers who planned to leave classroom teaching as "leavers" ($INTENTION_i$=2) regardless of whether or not they intended to stay in the field of education.

We are also interested in understanding how conditions of work affect students' learning. Our third outcome addresses this question directly, using the state's preferred measure of growth in student achievement, the Student Growth Percentile (SGP), which measures the degree to which students made gains on the Massachusetts Comprehensive Assessment System (MCAS) tests relative to peers with similar test score histories. We construct our measure by standardizing the two-year average SGP for each school over the 2008-2009 and 2009-2010 school years ($\overline{SGP_j}$).[2]

In the top panel of Table 2, we present descriptive statistics for our three outcomes. We include averages of our standardized satisfaction measure, teachers' stated career intentions, and standardized school-wide SGP. To help interpret the satisfaction measure, we also include the percentage of teachers who strongly agree that their school is a good place to work and learn. In this table, we highlight the differences in schools' average characteristics between those with the lowest proportion of low-income or minority students (bottom quintile in statewide distribution) and those with the highest proportion (top quintile). We find that, in general, Massachusetts teachers are satisfied with their schools: 77% agree that their schools are good places to work and learn (41% strongly agree) and 83% plan to remain in their school. However, teachers are less satisfied working at, and more likely to report that they plan to leave, schools with higher percentages of low-income and minority students. For example, 53% of teachers in the lowest poverty schools strongly agree that their school is a good place to work, compared to just 32% of

teachers in the highest poverty schools. On average, students also experience lower academic growth in schools serving higher proportions of low-income and minority students.

INSERT TABLE 2 ABOUT HERE

Predictors: Student Demographics, Teacher Characteristics, and School Type

In many of our analyses, we account for differences across schools using a rich set of measures for student, teacher, and school characteristics. In our discussion, we focus our attention on two important measures of a school's demographic composition: the percentage of students in the school who qualify for federal free and reduced-price lunch (low-income) and the percentage of African-American and Hispanic students (minority). We also account for many other student characteristics, including past levels of student achievement[3] and the percentage of students who are non-native English speakers, who have limited proficiency with English, who have individualized education programs, and who joined the school midway through the year. Individual teacher characteristics include indicators for classroom teachers, teacher experience level (both overall and at the current school), gender, race, and highest degree obtained. School-level characteristics include the number of full-time equivalent positions, the percentage of teachers across various age ranges, and the percentage of teachers of a given race, as well as indicators for school-type (elementary, middle, high or mixed grade), urbanicity, and charter school status. In some models, we also control for district fixed effects, which limits our comparisons to teachers in the same district and thus accounts for any differences in working conditions due to district-specific policies such as teacher salaries or the length of the school day/year.

Predictors: Key Elements Reflecting the Conditions of Work

We develop a set of nine measures that reflect the broad-based conditions in which teachers work. We construct these predictors from different items on the Mass TeLLS. In developing these measures, we take as our starting point a body of qualitative and quantitative research that examines the conditions of work in public schools and the relationship between these working conditions and teacher turnover (for a review of the literature, see Johnson, Berg, & Donaldson, 2005). We identify key theory-based categories that capture the overall quality of the work environment and select individual items from the Mass TeLLS that closely correspond to each element. We then conduct traditional item analysis and principal components analysis to examine the statistical properties of these composites. Using these data, we systematically remove items that do not fit well statistically with the other items in the same category. Iterating between the statistical properties of the items and the theoretical concepts they represent, we arrive at nine key elements:

- COLLEAGUES: the extent to which teachers have productive working relationships with their colleagues and work together to solve problems in the school;
- COMMUNITY SUPPORT: the extent to which families and the broader community support teachers and students in the school;
- FACILITIES: the extent to which teachers work in a safe, clean, and well-maintained school environment that enables them to be productive;
- GOVERNANCE: the extent to which teachers are involved in decision-making about matters of school governance;
- PRINCIPAL: the extent to which school leaders provide feedback on instruction, create an orderly and safe instructional environment, and address teachers' concerns about issues in the school;

- PROFESSIONAL EXPERTISE: the extent to which teachers are recognized as educational experts and are given the flexibility to make professional decisions about instruction;
- RESOURCES: the extent to which teachers have access to sufficient instructional materials, instructional technology, and support personnel in the school;
- SCHOOL CULTURE: the extent to which the school environment is characterized by mutual trust, respect, openness, and commitment to student achievement;
- TIME: the extent to which teachers have sufficient time to meet their instructional and non-instructional responsibilities in the school.

In Appendix A, we describe these elements in more detail and present the Mass TeLLS items on which each is based. For each element, the internal-consistency reliability exceeds 0.7 and principal components analysis suggests that the composite captures only one underlying construct.

For each teacher, we create each measure by standardizing the relevant items and then computing their weighted sum using weights from the first principal component. When we present our analytic strategy, we refer to a generic condition of work measure as *CW_ELEMENT*, but we complete an identical analysis for each of the nine measures. In addition, we construct a measure of the overall conditions of work at a school (C*W_TOTAL*). This composite is the standardized mean of our conditions of work elements, with each element weighted equally. Thus, each measure has a mean of zero and standard deviation of one to allow for a more meaningful comparison of the magnitudes of our point estimates across elements.

We create three different versions of each element to use as question predictors. First, we are interested in understanding the relationship between a teacher's own ratings and her self-

reported satisfaction and career intentions. This relationship is substantively interesting because teachers inevitably respond to their own perceptions of their work environment. However, as we discussed above, this measure may not best represent the aggregate context across the school because of reporting bias or individual differences (Boyd et al., 2011). As a result, we also construct school-level averages for each element based on the ratings of all other teachers in the school, excluding the teacher's own rating. This peer-average rating allows us to examine measures of the work context that are not influenced by the rating of the teacher in question. The correlation between individual ratings and peer-average ratings of the overall work environment is 0.52. This suggests that, while teachers' ratings generally reflect those of their peers, there is substantial variation in ratings across teachers in the same school. Finally, because our measure of student achievement growth is only available at the school level, we create a school-level average measure that includes all teachers in a given school.

In the bottom panel of Table 2, we present descriptive statistics for average conditions of work by school-level demographics. Because we have standardized these measures across all teachers who completed the survey, the average across the analytic sample is close to zero. However, we see a systematic relationship between the quality of the conditions of work in schools and the student populations they serve. Notably, teachers consistently rate every condition of work element as lower, on average, in schools with more low-income and minority students. For example, teachers rate the overall conditions of work more than two-thirds of a standard deviation lower in schools with the most low-income and minority students (top quintile) than in schools with the fewest (bottom quintile). Thus, Table 2 reveals two related trends: teachers are less satisfied and less likely to remain in schools serving higher proportions

of low-income and minority students. At the same time, these schools are also the ones where teachers report having a less supportive working environment.

Empirical Framework

The correlation between student demographics and the conditions of work highlights an important challenge for us – teachers usually choose where they teach and students (or their parents) often choose or influence choices about which schools they attend. If students and teachers were randomly assigned to schools and classrooms across the state, we could isolate the causal effect of the conditions of work on our outcomes. In other words, we could interpret any differences in teacher satisfaction or transfer behavior as the effect of the school context, rather than student demographics. However, teachers, parents and students all have some role in choosing schools, based on both observable characteristics that we can examine and unobservable characteristics that we cannot, such as whether students who attend the school are thought to be highly-motivated, whether the students' sports teams do well, whether the commute is manageable, or whether parking space is sufficient and safe. As a result, we cannot fully separate the role that working conditions, student demographics, and other (unobservable) characteristics play in teachers' satisfaction, their career intentions, and school-level student achievement because we are unable to observe and measure all the factors that may influence individuals' choices.

We attempt to address this challenge in several ways. First, we ask whether accounting for differences in the conditions of work across schools affects the observed relationship between student demographics and our outcomes (teacher satisfaction, career intentions, and student achievement). In other words, when we compare schools with similar work contexts, do we still see that teachers are less satisfied and intend to leave schools with poor and minority students?

Second, we can examine whether the relationship we observe between conditions of work and our outcomes changes when we attempt to account for the non-random sorting of teachers and students by controlling for a rich set of student, teacher and school characteristics. In other words, if we compare teachers with similar characteristics, in schools serving similar students, does the school's work context still matter? Although we cannot fully account for all of the ways in which teachers and schools differ, we can examine how our estimates of the relationships between working conditions and our outcomes change as we control for these observable characteristics.

To address our research questions, we fit standard regression models that describe the relationship between each outcome and both overall conditions of work (*CW_TOTAL)* and each element separately (*CW_ELEMENT*). We model this relationship differently depending on the properties of our outcome variables. For example, we model teacher satisfaction as a linear function of conditions of work using OLS regression:

(1) $$SATISFACTION_{ij} = \alpha * CW\_TOTAL_{ij} + \tau' X_{ij} + \varepsilon_{ij}$$

for teacher *i* in school *j*. Here, our coefficient of interest is α, which represents the relationship between teacher satisfaction and overall working conditions. In some models we include a rich set of controls for student and teacher demographic characteristics, school type, and district fixed effects (X_{ij}).

We fit an analogous multinomial logistic regression model to examine the relationship between teacher career intentions and working conditions:

(2) $$\log\left[\frac{p(INTENTION_{ij} = n)}{p(INTENTION_{ij} = 0)}\right] = \beta * CW\_TOTAL_{ij} + \phi' X_{ij} + \mu_{ij}$$

for n=1 and n=2. Here, β is our parameter of interest; it represents the relationship between working conditions and the relative risk of transferring from the school (n=1) or leaving teaching (n=2) compared to staying at the school. In our tables, we present the relative risk ratio, a ratio of the odds of expressing either intention to the odds of staying. Estimates less than 1 reflect a negative relationship between working conditions and the probability that a teacher transfers or leaves, while estimates greater than 1 indicate a positive relationship. We fit models (1) and (2) using both individual teachers' own ratings of their working conditions and the peer-average ratings of the conditions of work at their school. In all models we account for the correlation of teachers' responses within a school by clustering our standard errors at the school level.

For our third outcome, growth in academic achievement, we focus our analysis at the school level. We use an approach similar to Ladd's (2009) in which she regresses school value-added estimates on average measures of working conditions and school-level demographics. Instead of generating value-added measures, we use the Massachusetts DESE's preferred measure of school-level growth—Student Growth Percentiles (SGP). Both value-added measures and the SGP estimate the extent of student achievement growth experienced by students in a given school. We fit the following model at the school level:

$$(3) \qquad \overline{SGP}_j = \gamma * \overline{CW\_TOTAL}_j + \delta' X_j + v_j$$

Our parameter of interest is γ, which represents the relationship between student achievement growth and average school-level working conditions, conditional on school-level observable characteristics.

With our third research question, we seek to understand which elements of the teachers' work environment are the most important determinants of teacher satisfaction, career plans, and

student achievement growth. To assess this, we fit separate regressions, replacing *CW_TOTAL* with each individual element (*CW_ELEMENT*) in equations (1), (2), and (3) above.

Findings

1) *Do the conditions of work in Massachusetts public schools affect teachers' satisfaction with their jobs and their career plans?*

We find strong evidence that the conditions of work matter to teachers. They are important predictors of teachers' satisfaction and their career intentions, even when holding constant the demographic make-up of schools. In fact, conditions of work explain a substantially greater proportion of the variance in teachers' satisfaction and career plans than student demographic characteristics. Furthermore, accounting for differences in conditions of work across schools substantially reduces the apparent relationship between student demographic characteristics and these outcomes. This finding suggests that much of the apparent effect of student demographics really derives from differences in the schools' work environments.

Individual measures of work context

Not surprisingly, individual teachers' perceptions of working conditions are strongly related to their satisfaction and career plans. In the top panel of Table 3, we present selected parameter estimates from equation (1), with different sets of predictors. In column (I), we present the uncontrolled relationship between satisfaction and our context of work measure: each one standard deviation improvement in work environment is associated with a 0.53 standard deviation improvement in teacher satisfaction. This estimate remains practically unchanged when we add controls for a wide range of teacher, student, and school characteristics (column III) and when we restrict our comparisons to teachers in the same school district (column IV). In other words, even when we compare teachers who teach in schools of the same size and type

(elementary, middle, or high school) that serve the same types of students and are subject to the same district policies and salary scale, the context of work remains an important predictor of teachers' job satisfaction.

INSERT TABLE 3 ABOUT HERE

In fact, the context of work is a much stronger predictor of job satisfaction than all other characteristics combined. We find that the work environment measure alone explains nearly 29% of the variation in satisfaction. By contrast, our rich set of student, teacher, and school characteristics explain only 6% of the variation (column II). Furthermore, we find that accounting for the conditions of work meaningfully reduces the observed relationships between student demographic characteristics and teacher satisfaction. In columns (V) and (VII), we present the simple relationship between teacher satisfaction and two student demographic measures, the proportion of low-income students and minority students in a school. In both cases, we see large and negative relationships, suggesting that on average teachers are less satisfied in schools with more low-income and minority students. However, once we account for our overall measure of the work context (columns VI and VIII), these estimated effects are reduced substantially, by more than 70%. Thus, the apparent relationship between student demographics and our outcomes reflects, in large part, the poor work environments in which low-income and minority students are taught.

We see very similar patterns between individual teachers' ratings of their work environment and their stated career plans. Teachers are far more likely to plan to stay in schools with better overall conditions of work. In Table 4, we present results similar to those above. We focus on teachers' intentions to stay in their schools or to transfer, rather than their plans to leave the profession, because we find that decisions to transfer are more sensitive to the school

environment than are decisions to leave teaching. We present analogous results for teachers' intentions to leave teaching in Appendix Table A-1. Here, we report relative risk ratios, which represent the odds that a teacher plans to change schools relative to the odds that he plans to remain at the same school, for each unit change in our predictors.

INSERT TABLE 4 ABOUT HERE

The fact that these estimated ratios are substantially less than one demonstrates that teachers are far less likely to plan to transfer from schools with better work contexts. Again, these estimates remain essentially the same when we control for a wide variety of student, teacher, and school characteristics, suggesting that observable differences in the students that teachers serve, the districts in which they work, or the teachers themselves are not driving these results. As with teacher satisfaction, we again see that the apparent importance of student demographic characteristics is substantially diminished when we account for differences in working conditions across schools. The relative risk ratios associated with student demographics become much closer to one after working conditions measures are included in columns (VI) and (VIII). This suggests that the apparent relationship between teacher turnover and student characteristics may largely reflect differences in the work context.

We can see the importance of the work context in transfer decisions clearly by comparing two hypothetical teachers. Both have the same characteristics and teach in schools of the same type and size with similar students, but those schools have very different work environments. The first context is not particularly supportive, at the 25^{th} percentile of the distribution statewide, while the second is more supportive, at the 75^{th} percentile statewide. The first teacher has a 5.9% chance of intending to transfer, compared to just 1.1% for the second teacher. In other words, teachers are far more likely to transfer from schools with less supportive work environments.

Peer-average measures of work context

That teachers' own perceptions of their working conditions are related to their satisfaction with the school and their career intentions is not surprising: teachers who are happy at their school for whatever reason may be more likely to report a supportive work environment, be satisfied in their job, and plan to stay. In the bottom panels of Tables 3 and 4, we present results using peer-average measures of the conditions of work instead of individual reports. Notably, replacing individual perceptions of working conditions with peer-averages produces very similar results, suggesting that the relationship between teacher satisfaction, career intentions, and working conditions in schools is not simply a product of self-reporting bias or individual teacher differences.

Comparing schools with similar student and teacher characteristics within the same district, we find that a one standard deviation improvement in the peer-average work context rating is associated with a 0.55 standard deviation increase in teacher satisfaction (Column IV). This is nearly identical to the effect found using individual teachers' ratings. Returning to our hypothetical teachers above, the chances a teacher intends to transfer drops from 5.5% to 2.6% when we compare schools at the 25^{th} and the 75^{th} percentile of our peer-average work context measure. In other words, in schools where peers rate the conditions of work more favorably, a teacher tends to be more satisfied and less likely to transfer.

We illustrate these relationships in Figure 1, where we plot the probability that a teacher plans to transfer against peer-average conditions of work. We present the results from our fitted model, which controls for student, teacher, and school characteristics but allows for comparisons across districts (model III), overlaid on a histogram of the raw probabilities that a teacher intends to transfer at different levels of overall working conditions. The fitted relationship represents an

extension of our previous example of two hypothetical teachers by depicting how teachers' probability of intending to transfer would differ if we were to only change the quality of the work context at their school. Several important patterns emerge. First, as working conditions improve (moving to the right), the probability that teachers intend to transfer decreases. Second, teachers appear to be particularly sensitive to very bad conditions of work, as demonstrated by the rapid increase in the probability that a teacher plans to transfer when working conditions fall below the 25th percentile.

INSERT FIGURE 1 ABOUT HERE

Overall, our estimates of the effects of teachers' work context – both individual and peer-average – are large and very robust to the inclusion of a rich set of controls. However, accounting for differences in the quality of teachers' work context greatly diminishes the perceived importance of student demographic characteristics. Our observational data do not allow us to fully disentangle the effects of student demographics from those of working conditions. But, the large and consistent reduction of the estimated effect of student demographics across outcomes provides compelling evidence that, if researchers do not account for difference in working conditions, they will overstate the importance of student characteristics. In fact, teachers' satisfaction with their school and the probability that they intend to transfer from their school appear to be far more sensitive to the conditions of work at that school than to the demographic makeup of the student body.

(2) Is the context of teachers' work related to students' performance?

We find evidence to suggest that the conditions of work are important predictors of student achievement growth in Massachusetts. Notably, our results are quite similar to those of Ladd (2009) from North Carolina. In Table 5, we see that a better work environment is

associated with higher levels of student academic growth in both mathematics (top panel) and English language arts (bottom panel). Controlling for a wide range of student, teacher, and school characteristics, as well as district fixed effects, we find that a one standard deviation improvement in the context of teachers' work is associated with improvements in student achievement growth of 0.15 standard deviations in mathematics (p=0.053) and 0.20 standard deviations in English language arts (p=0.004) in a single year. These effects sizes are equivalent to 1.7 and 2.1 Student Growth Percentile units respectively and represent the difference between an average school and a school at the 57th percentile of the distribution of student growth in both subjects.

INSERT TABLE 5 ABOUT HERE

However, unlike our analyses of teacher satisfaction and career plans, the coefficient on our conditions of work predictor falls substantially when we include our full set of controls. This suggests that our estimates may be biased because of unobserved differences across schools. However, even if our estimates may somewhat overstate the relationship between the conditions of work and student achievement, our analysis suggests strongly that an important relationship does exist. The effects of any unobserved differences would have to be nearly as large as those of the rich set of observable characteristics that we do measure in order to make these relationships disappear.

(3) If the conditions of work are important, what elements of the work environment matter the most?

We find that each of our nine work context elements has a strong, positive relationship with teachers' satisfaction and their plans to stay in the school. We fit a separate regression using each condition of work element as the primary predictor, controlling for the full set of

student and teacher demographics, school characteristics, and district fixed effects, and we present the coefficients from these regressions in Table 6. Here, we focus on peer-average conditions of work, but we see nearly identical patterns with the individual measures. According to their survey responses, teachers attend to a wide range of working conditions, such as having sufficient time to meet their responsibilities, having the support of families and the broader community for their work with students, and being involved in making decisions about school governance. Table 6 shows that each element we measure is meaningful to teachers, and many also appear to have important consequences for student academic growth.

INSERT TABLE 6 ABOUT HERE

However, certain elements of the teachers' work environment matter more to teachers than others, across all of our outcomes. While the elements commonly thought of as working conditions – such as planning time, school facilities, or instructional resources – are important, the elements that are social in nature tend to matter the most. These include (1) collegial relationships, or the extent to which teachers report having productive working relationships with their colleagues; (2) the principal's leadership, or the extent to which teachers report that their school leaders are supportive and create school environments conducive to learning; and (3) school culture, or the extent to which school environments are characterized by mutual trust, respect, openness, and commitment to student achievement. The magnitudes of their effects are almost twice as large as those of school resources and facilities.

We find somewhat different patterns in our analysis of student achievement growth. Here, teachers' ratings of community support emerge as the most important predictor. This finding makes sense, because positive relationships between teachers and parents may well improve students' attendance and effort in school. Importantly, though, after community support,

we again find that collegial relationships, the principal's leadership, and school culture are the strongest determinants of student achievement growth. For example, a one standard deviation difference in teachers' ratings of the principal's leadership in the school is associated with a 0.15 standard deviation difference in mathematics student growth and a 0.18 standard deviation difference in English language arts, even after controlling for a range of student and teacher characteristics. These are substantial relationships between specific elements of the work environment and student achievement growth. Thus, colleagues, principals, and culture matter, not just for teachers, but for their students as well.

These consistent findings suggest that collegial relationships, principal leadership and school culture are interrelated components of the social context of teachers' work. Examining simple pairwise correlations among all our elements of the work context reveal that positive collegial relationships, principal leadership, and school culture are frequently found together at the same school. Table 7 shows that these three elements of the work context are the most strongly related elements of working conditions, with each of the three pairwise combinations having a correlation coefficient of 0.83 or greater. In comparison, school facilities and resources, two elements often thought to be highly related, only have a correlation of 0.69.

INSERT TABLE 7 ABOUT HERE

Discussion

In short, we find that the conditions of teachers' work matter a great deal. Teachers who teach in favorable work environments report that they are more satisfied and less likely to plan to transfer or leave the profession than their peers in schools with less favorable conditions, even after controlling for student demographics and other school and teacher characteristics. In fact, differences in the work context account for much of the apparent relationship between student

demographics and teacher turnover. These results align with a growing body of work examining the organizational characteristics of the schools in which teachers work (Boyd et al., 2011; Ladd, 2011). Together, these studies suggest strongly that the high turnover rates of teachers in schools with substantial populations of low-income and minority students are driven largely by teachers fleeing the dysfunctional and unsupportive work environments in the schools to which low-income and minority students are most likely to be assigned. Importantly, these studies find similar patterns in very different locations: Massachusetts, New York City, and North Carolina.

We conclude that a range of working conditions matter to teachers, but the most important—those that both retain teachers in low-income, high-minority schools and make it possible for students there to achieve—are the ones that shape the social context of teaching and learning. These are not conventional working conditions such as facilities, school resources, or planning time, but elements like the school culture, the principal's leadership, and the relationships with their colleagues. This makes sense. Teachers, have chosen a career in which social relationships are central, and they find that their work with students is influenced heavily by the relationships they form with other adults—their principal and their colleagues—in the school. Effective principals create an orderly school environment, are responsive to teachers' concerns, and provide instructional leadership by ensuring that teachers receive regular and meaningful feedback about their teaching practice. Supportive collegial relationships allow teachers to learn from peers, solve problems together, and hold one another accountable. Together, principals and teachers create a school climate that ensures order, engages parents, and supports student learning. It is surely important to have safe facilities, adequate resources, and sufficient time for preparation, but if teachers are to achieve success with their students—particularly low-income and high-minority students who rely most on the school for their

learning—they also must be able to count on their colleagues, their principal, and the organizational culture of the school to make success possible.

However, it would be a mistake to suggest that teachers have no views or preferences about the students they teach, that they simply move from school to school in search of a supportive working environment. As Mary Kennedy (2010) explains in her recent analysis of factors that affect teachers' working conditions, researchers have long understood that "Teachers' sense of efficacy depends on the particular students they teach" (p. 595). Many teachers choose to work with groups of high-poverty, high-minority students because they are committed to social justice or because they believe that by teaching these students, they can contribute to the public good. At the same time, other teachers may avoid working with the same groups of students, either because of personal discomfort or doubts that they can be successful in teaching them. Also, as teachers decide whether to stay in their school or transfer to another, it may be difficult for them to distinguish between problems caused by students and problems resulting from a dysfunctional work environment. For example, they may blame students for chaotic or dangerous conditions in the corridors, when the underlying problem is a negative school culture or teachers who feel responsible only for what happens in their classroom. Students clearly play a role in shaping teachers' daily experiences in school, but they are far from being the only factor that affects their preferences.

Importantly, the context of work appears to matter not only for the adults, but also for their students. When comparing schools with similar student demographics and past test performance, those with better work environments for teachers show greater student achievement growth. Again, these findings are consistent with those of Ladd (2009) in North Carolina. The school work environment could affect student outcomes in several ways. First, as we explained,

teachers are more likely to stay in schools with more supportive principals and colleagues. It seems probable that such schools do better than others in attracting *effective* teachers and encouraging them to stay. A prospective teacher who is intent on becoming a successful teacher—especially one who is personally motivated to serve low-income, minority students—will likely want to work with others who share her purposes and expectations. Having a strong professional culture in the school will sustain that teacher over time. Therefore, students would be well-served to attend a school that is known to be a good place to teach, since that school is likely to attract and retain like-minded teachers.

Second, the teachers' survey responses suggest that these supportive work environments are ones where teachers collaborate regularly and learn from one another. They are organizations that seem to have replaced the isolation of the traditional egg-crate school with more complex and interdependent working relationships among teachers. Recent research by Jackson and Bruegmann (2009) shows that elementary school teachers improve in their ability to raise student test scores when they work in the presence of more effective colleagues. Although this study does not explain how this peer learning occurs, it does suggest strongly that collegial relationships can improve teachers' practice. Therefore, work environments that promote positive collegial interaction are likely to support student learning.

Finally, schools with better work environments also appear to be conducive to teachers' and students' joint success. Our measure of school culture captures the extent to which teachers trust and respect each other, feel comfortable raising concerns, and are committed to helping students learn. Moving a teacher from a school with a strong, positive school culture to another with a weak or negative school culture may reduce her effectiveness, not because she becomes a less skilled instructor, but because she can no longer count on a coherent code of behavior or

high expectations among fellow teachers and students. A strong, positive school culture, consistently promoted by teachers and the principal, can enhance the learning that occurs in each classroom throughout the school.

In their studies, Boyd et al. and Ladd identified the principal's leadership as being the most important factor in the teachers' work environment. By contrast, our study suggests that the principal is but one of three key elements that contribute to the quality of the social context of work. What we know about school practice suggests these three elements interact and are interdependent, a conclusion that is supported by the strong correlations among these measures. School culture is developed, enacted, and supported by both the principal and teachers. The principal can expect the school to be an orderly place for teaching and learning, but unless the teachers do their part, it will be one that is run by rules, rather than shaped and sustained by norms. Teachers' collegial interactions are made possible by a principal who encourages them to work together, ensures that they have time to do so, and brokers their relationships. Yet, unless the school culture encourages everyone to share what they know, the best practices of expert teachers may never reach beyond their individual classrooms. A principal may hold the most formal authority in a school, but without the day-to-day support of teachers, that authority will fall far short of what it takes to truly turn a school around.

Implications

These findings have implications for both policy and practice. In recent years, the intense focus on student achievement in low-income, high-minority schools has led many analysts and policymakers to ignore or dismiss the concerns of teachers and attend exclusively to the needs of students—as if addressing teachers' needs might shortchange students. Some may conceive of "good" working conditions as those that make a job comfortable or easy—short hours, light

responsibilities, or little supervision. However, that is not what these teachers reported. The working conditions that mattered most to them were not features that made the job of teaching easy, but those that made effective teaching possible.

In 1904, union organizer Maggie Haley contended that students' and teachers' interests are consistent: "The atmosphere in which it is easiest to teach is the atmosphere in which it is easiest to learn. The same things that are a burden to the teacher are a burden also to the student" (Reid, 1982, p. 280). Recent proponents of this view point out that teachers' working conditions *are* students' learning conditions. Critics of that stance often cite instances when an individual teacher's interest (for example, to keep a job despite poor performance) is at odds with her students' interest in having an effective teacher. Clearly, all teachers' interests are not always aligned with what is in the best interest of their students. However, our findings suggest that Haley's assertion continues to have merit today; good working conditions within a school do predict growth in students' academic achievement.

If schools are to attract and retain the best possible teachers to work with the students who need them most, those schools cannot be workplaces of deprivation, disorder, and isolation, for neither teachers nor students will succeed there. Teachers become acutely sensitive to their work environment when schools cannot provide minimally acceptable conditions in which to work. As our results demonstrate, teachers are three times more likely to plan to transfer from schools with particularly poor conditions of work than are teachers whose work environment is of average quality. These high turnover rates erode efforts to foster meaningful collegial relationships, develop instructional capacity and establish a strong organizational culture. If public education is to provide effective teachers for all students, then the schools those students attend must become places that support effective teaching and learning across all classrooms.

The Race to the Top competition features strategies for reforming chronically failing schools that focus primarily on replacing some or all of the teaching staff and/or the principal in a school, but not necessarily reforming the organization or workplace of the school, itself. In fact, many so-called turnaround schools downplay the importance of the social context in which teachers work and place heightened attention on individual teachers' effectiveness by offering financial incentives to teach at the school or insisting that successful teachers should be reassigned there. Our findings suggest that this narrow attention to the individual in isolation from the organization is misguided. Unless those schools become places where the principals and teachers can work together to build a school culture that supports good instruction, the much-sought-after gains in student learning will not be realized.

Our findings do not provide simple answers for policymakers. Not surprisingly, those who would increase students' learning by reforming the teacher's workplace typically focus on factors that can be readily manipulated. Indeed, if school facilities had emerged as the most important element of the workplace, our recommendation for renovating school buildings would be clear. However, there are at least two important challenges to such approaches. First, the policy that is adopted may not reflect the reality as it is implemented. For example, a local teachers contract may limit class size to 30 students, but there is no assurance that those students will attend class regularly. Alternatively, a state policy may specify that teachers must be evaluated annually, but that is no guarantee that classroom observations actually will occur or that an evaluator will provide meaningful feedback for the teacher's improvement. Researchers at the New Teacher Project (Weisberg, Sexton, et al., 2009) who surveyed teachers in 12 districts across 4 states found that 73% "said their most recent evaluation did not identify any

development areas, and only 45 percent of teachers who did have development areas identified said they received useful support to improve" (p. 5).

Furthermore, the fact that teachers seek good principals, collaborative colleagues, and a positive school culture does not translate easily into legislation or administrative regulation. What is clear, however, is that guaranteeing an effective teacher for all students—especially minority students who live in poverty—cannot be accomplished simply by offering financial bonuses or mandating the reassignment of effective teachers. Rather, if the school is known to be a supportive and productive workplace, good teachers will come, they will stay, and their students will learn. Therefore, policymakers would do well to avoid mandates that limit schools' flexibility and, instead, promote changes that encourage innovation, adaptability, and collaboration among those at the school site.

Our results have several important implications for local administrators at both the central office and school levels. In seeking to improve failing schools, the most important decision a superintendent makes is to select and assign principals who know how to build a school organization collaboratively with teachers. These are individuals who understand the difference between what they can accomplish through decisive leadership and what they can develop only by promoting positive working relationships. Such principals realize that it is the social context of teachers' work that allows them to achieve their greatest success with students. The fact that colleagues play an important role in teachers' development means that care also should be taken to assemble a staff of teachers who share core values and are intent on improving their practice, individually and collectively. This suggests that students are well served when their principal and teachers play an active role in recruiting and selecting new teachers. Together, they must ensure that prospective colleagues understand the demands of the work, know the supports they can

count on, and realize the expectations that others will hold for them.

Schools can improve their instructional capacity by coaching individual teachers and relying on systematic and meaningful evaluations to provide feedback and recommendations for improvement. Taylor and Tyler (2011) found that mid-career teachers in Cincinnati who participated in the Teacher Evaluation System, which relies on peer evaluators, improved their students' performance, as measured by student test score gains, in both the year of the evaluation and in the years following. However, even when a school actively engages teachers in collaborative learning and development, there still may be individuals who cannot improve or who decide not to try. Because teachers' work is so important, their performance should be reviewed regularly; those who lack the skills or attitudes needed to succeed with students should be encouraged to leave or be dismissed.

Future Directions for Research

Evidence continues to mount that working conditions play an important role in both teachers' career choices and their students' learning. However, we still have much to learn about the working conditions that matter most to teachers and how they influence school organization and instructional practice. To date, those studying the issue have relied primarily on large data sets that allow them to track teachers' career paths and student achievement over time, or they have analyzed survey data, such as the MassTeLLS, that report on teachers' views. Future work would particularly benefit from additional measures of the social conditions of work, which teacher surveys or audits of schooling infrastructure do not fully capture. We need to combine such sources with closer analyses of school-level practices – including observations and interviews – in order to examine why some working conditions are especially important, how they interact day to day, and what can be done to ensure that all schools serving low-income,

high-minority students become places where teachers do their best work.

For example, many schools and districts have introduced policies and practices that are meant to promote more collaboration among teachers. Yet, we know little about how and how well these initiatives work and, therefore, whether they are a worthwhile investment of scarce resources. What, for example, is the impact of introducing common planning time for grade-level or subject-based groups of teachers? What do teachers do with that time and what role do school leaders play in its use? Does site-based hiring improve the match between new teachers and their schools and, thus, ensure more rapid induction and greater collaboration? If so, who participates in an effective selection process? Does assigning expert teachers to serve in differentiated roles as instructional coaches or peer evaluators promote more coherence across classrooms within schools? The more that we can learn about these approaches—how they are structured, whether they seem to make a difference in teaching and learning, what particular design features appear to be important, and how they are implemented—the more policymakers and school officials can choose appropriate levers for change that will increase teachers' commitment to a school and enhance the experiences of students enrolled there.

Researchers repeatedly find that principals are central to school improvement and to teachers' satisfaction. However, we have yet to explain adequately what role an effective principal plays. This work would go well beyond reporting on how principals spend their time; it would explain how they conceive of and do their work. In our study, we found that schools with stronger principal leadership, collegial relationships, and school culture were the schools where teachers were more satisfied and students experienced greater academic growth. Although these elements of the work context were distinct, they were also related; schools with high scores on one element often had high scores on the others. Still, we do not yet understand exactly why

the principal is so important and how he or she uses the informal and formal authority of the position to promote teachers' collaborative work and a productive school culture.

States' and districts' continue to gather and maintain rich, longitudinal data about many factors that are relevant to this issue—student enrollment and achievement, teacher transfer patterns, principal hiring and assignment, teacher evaluation, school climate, and parental satisfaction. These data, considered individually and in combination, enable us to examine increasingly complex interactions among principals, teachers, students, and the school context. They also hold great promise for allowing us to identify individual schools serving low-income, high-minority populations that warrant close examination, either because of their success or their failure. Through such work, researchers can explain more fully and practically what policymakers, school leaders, and teachers can do to improve schooling for all students.

Notes

The MassTeLLS is based on the same basic survey that Ladd (2009) uses in North Carolina. More information about the MassTeLLS, including a copy of the survey, is available at http://www.masstells.org/.

[2] We use school-wide average SGP from two future years, 2008-09 and 2009-10, to avoid the challenge that teachers may report better conditions of work in schools where students are experiencing greater academic success. For more information about the SGP, see http://www.doe.mass.edu/mcas/growth/.

[3] Average student achievement is captured by the Composite Performance Index (CPI), a 100-point index that is the average of individual students' performance on the state standardized tests in mathematics and English language arts.

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Figure 1. Histogram showing the sample probability that teachers intend to transfer, by the peer-average conditions of work rating, with the fitted relationship between the probability of transfer and the conditions of work from equation (2) overlaid.

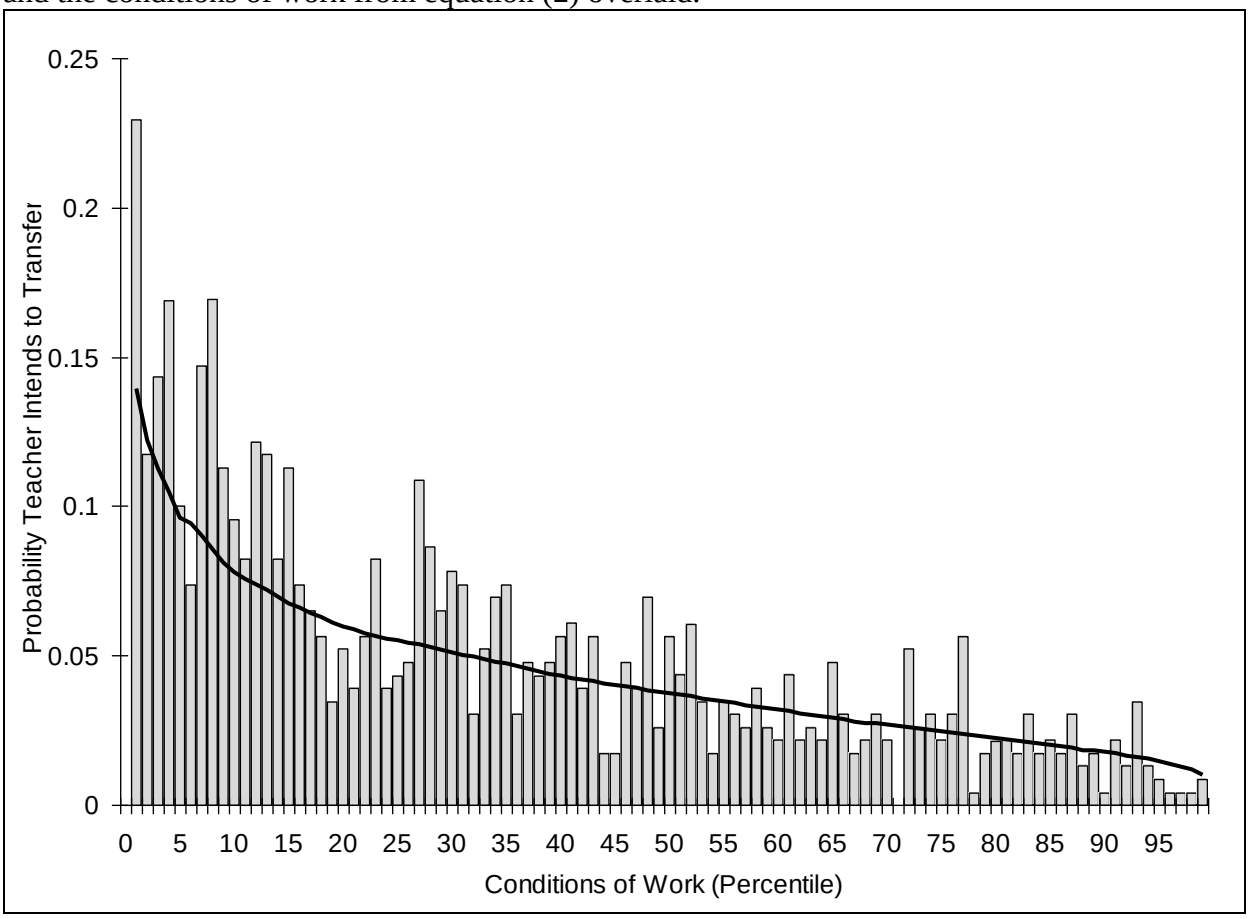

Table 1. Sample percentages of select teacher and school descriptive statistics in Massachusetts, comparing teachers in the analytic sample and not in the sample.

Mean Teacher Characteristics	State Total	Sample	Non-Sample
Male (%)	20.14	19.87	20.29
Race			
White (%)	91.91	92.01	91.19
African-American (%)	3.28	1.55	4.23
Hispanic (%)	3.14	1.59	3.99
Asian-American (%)	1.05	0.88	1.14
Number of teachers	70,717	25,135	45,582

Mean School Characteristics	State Total	Sample	Non-Sample
School Type			
Elementary (%)	54.33	59.81	45.74
Middle (%)	16.47	17.16	15.38
High (%)	15.19	14.36	16.48
Urban (%)	28.18	28.37	27.88
Total FTE	34.79	35.94	32.98
Student Demographics			
White (%)	70.00	71.21	68.11
African-American (%)	8.71	8.15	9.59
Hispanic (%)	14.23	13.36	15.59
Asian-American (%)	4.61	4.84	4.25
Non-native English speakers (%)	14.69	14.15	15.52
Special Education (%)	17.21	16.32	18.59
Limited English proficient (%)	6.18	6.38	5.86
Low-income (%)	31.39	31.04	31.92
Teacher Age			
Less than 26 (%)	6.25	6.04	6.57
Between 26 and 32 (%)	18.85	17.97	20.25
Between 33 and 40 (%)	19.28	19.14	19.49
Between 41 and 48 (%)	17.30	17.55	16.91
Between 49 and 56 (%)	24.85	25.33	24.10
Between 57 and 64 (%)	12.81	13.27	12.09
Over 64 (%)	0.70	0.73	0.66
Number of schools	1,870	1142	728

NOTE: Massachusetts AY2007-2008 statewide data used in these comparisons is available at www.doe.mass.edu.

Table 2. Descriptive statistics of outcomes and predictors from final analytic sample (n=25,135 teachers, 1,142 schools).

		Percent Low-Income		Percent Minority Students	
	Sample Average	Low Poverty (Bottom 20%)	High Poverty (Top 20%)	Low Minority (Bottom 20%)	High Minority (Top 20%)
PANEL I: OUTCOMES					
(1) Teacher Satisfaction					
SATISFACTION (SD)	0.008	0.250	-0.250	0.135	-0.251
Strongly Agree: My school is a good place to work and learn (%)	41.2%	53.3%	32.4%	46.7%	32.2%
(2) Career Intentions					
Stay (%)	83.2%	86.7%	77.5%	85.6%	76.8%
Transfer (%)	5.0%	2.3%	9.3%	3.3%	9.7%
Leave (%)	11.8%	11.0%	13.2%	11.1%	13.5%
(3) Student Growth Percentile - School-level (SD)					
Mathematics (SD)	0.003	0.581	-0.419	0.289	-0.439
English Language Arts (SD)	0.005	0.606	-0.495	0.334	-0.440
PANEL II: PREDICTORS (individual)					
CW_TOTAL (SD)	0.019	0.420	-0.343	0.215	-0.343
Colleagues (SD)	0.020	0.194	0.025	0.049	-0.012
Community Support (SD)	0.010	0.658	-0.613	0.346	-0.576
Facilities (SD)	0.014	0.257	-0.408	0.200	-0.402
Governance (SD)	0.018	0.313	-0.213	0.151	-0.202
Principal (SD)	0.018	0.183	-0.086	0.088	-0.109
Professional Expertise (SD)	0.002	0.350	-0.419	0.188	-0.395
Resources (SD)	0.024	0.371	-0.242	0.177	-0.228
School Culture (SD)	0.014	0.253	-0.185	0.129	-0.200
Time (SD)	0.003	0.130	-0.075	0.058	-0.090

Table 3. Parameter estimates showing the relationship between teacher satisfaction and both conditions of work and selected student demographic characteristics, with different sets of predictors, from equation (1) (cell entries include parameter estimates, standard errors, and asterisks to denote inference; n=25,091).

	Conditions of Work				Low-Income		Minority	
	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)
Panel I: Individual Ratings								
CW_TOTAL (individual)	0.535 ***		0.524 ***	0.526 ***		0.525 ***		0.526 ***
	(0.009)		(0.009)	(0.009)		(0.009)		(0.009)
Proportion of low-income students		Y	Y	Y	-0.681 ***	-0.156 ***		
					(0.061)	(0.038)		
Proportion of minority students		Y	Y	Y			-0.578 ***	-0.167 ***
							(0.060)	(0.038)
Student Demographics		Y	Y	Y				
Teacher Demographics		Y	Y	Y				
School Type		Y	Y	Y				
District Fixed Effects				Y				
R^2	0.285	0.060	0.299	0.317	0.028	0.287	0.023	0.287
Panel II: Peer-Average Ratings								
CW_TOTAL (peer-average)	0.577 ***		0.535 ***	0.550 ***		0.553 ***		0.553 ***
	(0.018)		(0.018)	(0.021)		(0.019)		(0.018)
Proportion of low-income students		Y	Y	Y	-0.681 ***	-0.128 **		
					(0.061)	(0.040)		
Proportion of minority students		Y	Y	Y			-0.578 ***	-0.146 ***
							(0.060)	(0.039)
Student Demographics		Y	Y	Y				
Teacher Demographics		Y	Y	Y				
School Type		Y	Y	Y				
District Fixed Effects				Y				
R^2	0.110	0.060	0.125	0.143	0.028	0.111	0.023	0.112

N
OTE: *, p<0.05; **, p<=0.01; ***, p<=0.001.

Table 4. Parameter estimates showing the relationship between teachers' reported intentions to transfer schools and both conditions of work and selected student demographic characteristics, with different sets of predictors, from equation (2) (cell entries include parameter estimates reported as odds ratios, t-statistics, and asterisks to denote inference; n=23,029).

		Conditions of Work			Low-Income		Minority	
	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)
Panel I: Individual Ratings								
CW_TOTAL (individual)	0.271 ***		0.269 ***	0.257 ***		0.290 ***		0.288 ***
	[33.987]		[31.527]	[31.385]		[31.005]		[31.291]
Proportion of low-income students		Y	Y	Y	7.025 ***	2.507 ***		
					[12.929]	[6.008]		
Proportion of minority students		Y	Y	Y			5.478 ***	2.034 ***
							[12.205]	[6.349]
Student Demographics		Y	Y	Y				
Teacher Demographics		Y	Y	Y				
School Type		Y	Y	Y				
District Fixed Effects				Y				
Pseudo R^2	0.074	0.030	0.093	0.124	0.013	0.076	0.012	0.077
-2 Log Likelihood	-11827	-12392	-11587	-11191	-12605	-11798	-12613	-11792
Panel II: Peer-Average Ratings								
CW_TOTAL (peer-average)	0.290 ***		0.361 ***	0.412 ***		0.363 ***		0.355 ***
	[16.957]		[12.140]	[10.361]		[12.555]		[13.292]
Proportion of low-income students		Y	Y	Y	7.025 ***	2.858 ***		
					[12.929]	[6.673]		
Proportion of minority students		Y	Y	Y			5.478 ***	2.659 ***
							[12.205]	[6.964]
Student Demographics		Y	Y	Y				
Teacher Demographics		Y	Y	Y				
School Type		Y	Y	Y				
District Fixed Effects				Y				
Pseudo R^2	0.022	0.030	0.040	0.070	0.013	0.025	0.012	0.026
-2 Log Likelihood	-12493	-12392	-12265	-11881	-12605	-12453	-12613	-12444

NOTE: *, p<0.05; **, p<=0.01; ***, p<=0.001.

Table 5. Parameter estimates showing the relationship between school-level student achievement growth (SGP) and both conditions of work and selected student demographic characteristics, with different sets of predictors, from equation (3) (cell entries include parameter estimates, standard errors, and asterisks to denote inference; mathematics, n=1,065; ELA, n=1,064).

		Conditions of Work			Low-Income		Minority	
	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)
Panel I: Mathematics								
CW_TOTAL (school-level)	0.456 ***		0.178 **	0.153		0.292 ***		0.358 ***
	(0.048)		(0.057)	(0.079)		(0.056)		(0.054)
Proportion of low-income students		Y	Y	Y	-1.185 ***	-0.896 ***		
					(0.125)	(0.145)		
Proportion of minority students		Y	Y	Y			-0.886 ***	-0.622 ***
							(0.126)	(0.136)
Student Demographics		Y	Y	Y				
Teacher Demographics		Y	Y	Y				
School Type		Y	Y	Y				
District Fixed Effects				Y				
R^2	0.073	0.223	0.230	0.491	0.091	0.115	0.059	0.098
Panel II: English Language Arts								
CW_TOTAL (school-level)	0.547 ***		0.350 ***	0.203 **		0.357 ***		0.443 ***
	(0.046)		(0.069)	(0.070)		(0.049)		(0.048)
Proportion of low-income students		Y	Y	Y	-1.395 ***	-1.042 ***		
					(0.116)	(0.125)		
Proportion of minority students		Y	Y	Y			-0.991 ***	-0.664 ***
							(0.108)	(0.110)
Student Demographics		Y	Y	Y				
Teacher Demographics		Y	Y	Y				
School Type		Y	Y	Y				
District Fixed Effects				Y				
R^2	0.106	0.275	0.473	0.529	0.127	0.164	0.074	0.135

NOTE: *, p<0.05; **, p<=0.01; ***, p<=0.001.

Table 6. Parameter estimates showing the relationship between nine elements of the work context and teacher satisfaction, career intentions, and school-level student achievement growth (SGP) from equations (1) (2) and (3) (cell entries include parameter estimates, standard errors, and asterisks to denote inference; parameter estimates in columns 2 and 3 are reported as odds ratios with t-statistics).

		Peer-Average	School Average	
	Satisfaction	Transfer	SGP Math	SGP ELA
Colleagues	0.521 ***	0.432 ***	0.136	0.161 *
	(0.022)	[9.890]	(0.076)	(0.068)
Community Support	0.382 ***	0.531 ***	0.411 ***	0.406 ***
	(0.039)	[4.889]	(0.121)	(0.110)
Facilities	0.278 ***	0.668 ***	0.046	0.078
	(0.020)	[5.626]	(0.061)	(0.058)
Governance	0.409 ***	0.507 ***	0.08	0.162 *
	(0.027)	[6.682]	(0.080)	(0.069)
Principal	0.511 ***	0.408 ***	0.152 *	0.180 **
	(0.021)	[11.999]	(0.069)	(0.068)
Professional Expertise	0.534 ***	0.428 ***	0.065	0.159
	(0.029)	[9.031]	(0.095)	(0.082)
Resources	0.303 ***	0.642 ***	0.116	0.139
	(0.027)	[4.343]	(0.083)	(0.072)
School Culture	0.543 ***	0.394 ***	0.113	0.169 **
	(0.019)	[13.209]	(0.067)	(0.063)
Time	0.262 ***	0.628 ***	0.076	0.048
	(0.038)	[3.970]	(0.105)	(0.094)
Sample Size	25,019	23,029	1,065	1,064

NOTE: *, p<0.05; **, p<=0.01; ***, p<=0.001. Each regression includes the full set of student demographic, teacher demographic and school type controls as well as fixed effects for districts.

Table 7. Pearson product moment correlations for peer-average ratings of nine elements of the work context and an overall composite measure of the conditions of work (n=25,135).

	CW_TOTAL	Colleagues	Community Support	Facilities	Governance	Principal	Professional Expertise	Resources	School Culture	Time
CW_TOTAL	1.000									
Colleagues	0.825	1.000								
Community Support	0.735	0.457	1.000							
Facilities	0.705	0.425	0.487	1.000						
Governance	0.811	0.699	0.577	0.392	1.000					
Principal	0.838	0.874	0.463	0.450	0.700	1.000				
Professional Expertise	0.813	0.562	0.586	0.459	0.743	0.617	1.000			
Resources	0.732	0.463	0.533	0.697	0.455	0.449	0.490	1.000		
School Culture	0.819	0.832	0.514	0.435	0.653	0.891	0.620	0.403	1.000	
Time	0.503	0.344	0.257	0.307	0.302	0.294	0.488	0.388	0.233	1.000

Appendix A. Context of Work Measures and Survey Questions

Colleagues (α=0.732)

Q2.1(b) Teachers have time available to collaborate with their colleagues.
Q4.1(c) In this school, we take steps to solve problems.
Q4.1(d) The faculty has an effective process for making group decisions to solve problems.
Q6.8 Teachers are provided opportunities to learn from one another.
Q7.1(d) Teachers are held to high professional standards for delivering instruction.

Time Use (α=0.737)

Q2.1(c) The non-instructional time* provided for teachers in my school is sufficient. **Non-instructional time includes any time during the day without student conduct, including collaboration planning, meetings/conferences with students and families, etc.*
Q2.1(d) Teachers have sufficient instructional time to meet the needs of all students.
Q2.1(e) Teachers have sufficient instructional time to complete the curriculum for their subject(s) and/or grade.

Resources (α=0.811)

Q3.1(a) Teachers have sufficient access to appropriate instructional materials* and resources. **Instructional materials include items such as textbooks, curriculum materials, content references, etc.*
Q3.1(b) Teachers have sufficient access to instructional technology, including computers, printers, software and internet access.
Q3.1(c) Teachers have access to reliable communication technology – including phones, faxes and email.
Q3.1(d) Teachers have sufficient training and support to fully utilize the available instructional technology.
Q3.1(i) Teachers have sufficient access to a broad range of professional support (professional) personnel*. **Support personnel includes positions such as school counselors, nurses, school psychologists and social workers, library media specialists.*

Facilities (α=0.731)

Q3.1(e) Teachers have adequate professional space to work productively.
Q3.1(f) Teachers and staff work in a school environment that is physically safe.
Q3.1(h) Teachers and staff work in a school environment that is clean and well maintained.

Governance (α=0.804)

Q4.1(a) Teachers are meaningfully involved in decision making about educational issues.
Q4.2 Please indicate how large a role teachers have at your school in each of the following areas:
- (b) Shaping the schedule of the school day
- (c) Deciding how the school budget will be spent
- (d) Establishing and implementing policies related to student discipline
- (e) Hiring of new teachers

(f) Determining the content of in-service professional development programs

Professional Expertise (α=0.824)

Q4.1(b) Teachers are trusted to make sound professional decisions about instruction.
Q4.1(e) Teachers are recognized as educational experts.
Q4.2 Please indicate how large a role teachers have at your school in each of the following areas:
(g) Setting grading and student assessment practices
(h) Devising teaching techniques
(i) Selecting instructional materials and resources

Principal (α=0.933)

Q5.2(a) School leadership* shields teachers from disruptions, allowing teachers to focus on educating students. **School leadership is an individual, group of individuals or team within the school that focuses on managing a complex operation. This may involve scheduling; ensuring a safe school environment; reporting on students' academic, social and behavioral performance; using resources to provide the textbooks and instructional materials necessary for teaching and learning; overseeing the care and maintenance of the physical plant; developing and implementing the school budget.*
Q5.2(c) The school leadership consistently enforces rules for student conduct.
Q5.2(e) Teachers receive feedback that can help them improve teaching.
Q5.3 The school leadership makes a sustained effort to address teacher concerns about:
(a) Teaching and learning issues
(b) Leadership issues
(c) Facilities and resources
(d) The use of time in my school
(e) Professional development
(f) Empowering teachers
(g) New teacher support

Community Support (α=0.749)

Q.4.1(h) Teachers are supported by the community in which they teach.
Q4.1(i) Families help students achieve educational goals in this school.

School Culture (α=0.766)

Q5.2(b) Teachers feel comfortable raising issues and concerns that are important to them.
Q7.1(a) There is an atmosphere of trust and mutual respect within the school.
Q7.1(b) Clear expectations are communicated to students and families.
Q7.1(c) The faculty are committed to helping every student learn.

Table A-1. Parameter estimates showing the relationship between teachers' reported intentions to leave teaching and both conditions of work and selected student demographic characteristics, with different sets of predictors, from equation (2) (cell entries include parameter estimates reported as odds ratios, t-statistics, and asterisks to denote inference; n=23,029).

		Conditions of Work			Low-Income		Minority	
	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)
Panel I: Individual Ratings								
CW_TOTAL (individual)	0.658 ***		0.657 ***	0.640 ***		0.662 ***		0.665 ***
	[17.895]		[17.620]	[17.522]		[17.271]		[17.020]
Proportion of low-income students		Y	Y	Y	1.594 ***	1.106		
					[5.587]	[1.155]		
Proportion of minority students		Y	Y	Y			1.623 ***	1.237 *
							[6.234]	[2.541]
Student Demographics		Y	Y	Y				
Teacher Demographics		Y	Y	Y				
School Type		Y	Y	Y				
District Fixed Effects				Y				
Pseudo R^2	0.074	0.030	0.093	0.124	0.013	0.076	0.012	0.077
-2 Log Likelihood	-11827	-12392	-11587	-11191	-12605	-11798	-12613	-11792
Panel II: Peer-Average Ratings								
CW_TOTAL (peer-average)	0.825 ***		0.862 ***	0.936		0.879 **		0.879 **
	[4.638]		[3.368]	[1.305]		[2.918]		[2.940]
Proportion of low-income students		Y	Y	Y	1.594 ***	1.410 ***		
					[5.587]	[3.910]		
Proportion of minority students		Y	Y	Y			1.623 ***	1.476 ***
							[6.234]	[4.730]
Student Demographics		Y	Y	Y				
Teacher Demographics		Y	Y	Y				
School Type		Y	Y	Y				
District Fixed Effects				Y				
Pseudo R^2	0.022	0.030	0.040	0.070	0.013	0.025	0.012	0.026
-2 Log Likelihood	-12493	-12392	-12265	-11881	-12605	-12453	-12613	-12444

NOTE: *, p<0.05; **, p<=0.01; ***, p<=0.001.