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# Teachers' Perceptions of Their Working Conditions: How Predictive of Planned and Actual Teacher Movement?

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*This quantitative study examines the relationship between teachers' perceptions of their working conditions and their intended and actual departures from schools. Based on rich administrative data for North Carolina combined with a 2006 statewide survey administered to all teachers in the state, the study documents that working conditions are highly predictive of teachers' intended movement away from their schools, independent of other school characteristics such as the racial mix of students. Moreover, school leadership, broadly defined, emerges as the most salient dimension of working conditions. Although teachers' perceptions of their working conditions are less predictive of one-year actual departure rates than of intended rates, their predictive power is still on a par with that of other school characteristics. The models are estimated separately for elementary, middle and high school teachers and generate some policy-relevant differences among the three levels.*

Keywords: *teacher working conditions, teacher retention, school leadership, teacher policy, teacher mobility*

Like most other workers, teachers make their decisions about whether to remain in their current jobs based both on the level of compensation and on the quality of the work environment. For the purposes of this study, I divide a teacher's work environment into two parts. One part consists largely of the demographic characteristics of the school's students and can be readily measured using administrative data, albeit in a relatively crude way. The other part, which I refer to as *working conditions* throughout this article, includes a variety of harder to measure components such as the quality of school leadership, opportunities for development, and quality of facilities. Until recently, little statewide data have been available on these latter components. That situation is now changing as several states have begun to invest in large statewide surveys of all teachers that generate rich data on teachers' perceptions of their working conditions. One of the leaders in this movement is the state of North Carolina.

The primary purpose of this study is to combine the North Carolina survey responses with detailed administrative data to examine the extent to which teachers' perceptions of their working conditions are predictive of their intended departures from schools, independent of other factors that may also predict departure, including the racial or socioeconomic mix of the school's students. Although it might be possible to measure some of the relevant working conditions in more objective ways, of interest here are teachers' perceptions of those conditions, as captured by teacher surveys.

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A secondary goal is to examine the relationship between working conditions and teachers' 1-year actual departure rates, which reflect not only teacher preferences but also the supply of available positions. In addition, as by-products of the basic research question, this article elucidates the concept of school leadership and sheds light on some limitations of the North Carolina working conditions survey that is now being used as a model for other states.

This quantitative study contributes to two often quite separate bodies of literature. One is the recent quantitative work based on large administrative data sets in which teacher mobility is modeled as a function of the demographic characteristics of the school's students with little or no attention to teacher working conditions (Clotfelter, Ladd, & Vigdor, in press; Boyd, Lankford, Loeb, & Wyckoff , 2005; Dolton & van der Klaauw, 1995, 1999; Hanushek, Kain, & Rivkin, 2004; Jackson, 2009; Scafidi, Sjoquist, & Stinebrickner, 2007). The second is qualitative research linking teacher working conditions to student outcomes and to teacher mobility (see overview in Johnson, Berg, & Donaldson, 2005), but in which it is often difficult to separate the effects of the working conditions from the demographic characteristics of the students.

Much of the present analysis is in the spirit of two recent quantitative studies of teacher turnover. The first uses teacher survey data from California to examine how teaching conditions predict teacher turnover at the school level (Loeb, Darling-Hammond, & Luczak, 2005). Differentiating the present study from that one is my focus on the departure decisions of individual teachers, the use of a far larger and richer survey of teachers, and the separate attention to the three levels of schooling. A more recent study (Grissom, 2008) addresses similar issues with data from the national Schools and Staffing Survey. Offsetting the benefits of a national sample are the limited number of respondents per school and the difficulty of examining the different forms of departures.

The following sections briefly summarize previous research on teacher work environments, with attention to their implications for a teacher's commitment to her current school; describe the model and the North Carolina data; and report the results, first for teachers' intentions about leaving their current schools as reported on the survey and then for actual departure rates constructed from administrative data. The article concludes with a discussion of implications for policy and the literature.

## The Work Environment of Teachers

The existing literature suggests that both components of the work environment may affect a teachers' commitment to their current school. Less clear is whether the effects can be separately identified and how the magnitudes compare.

### *Demographic Characteristics of the School's Students*

The demographic characteristics of a school's students may affect a teacher's plans to leave her current school through at least two mechanisms. The first relates to her sense of efficacy as a teacher. If a large proportion of the students come from economically and educationally disadvantaged backgrounds, and the teacher does not have the skills or training needed to meet their needs or feels she has inadequate support to do so, she is likely to become discouraged and to consider leaving the school and/or the teaching profession (Johnson & Birkeland, 2003; Johnson et al., 2005). The second is that teachers may feel uncomfortable in such schools because of lack of student respect, bullying, harassment, absence of discipline, and possibly safety risks (Public Agenda, 2006). Part of this discomfort could reflect a mismatch between the race or social background of the teacher and the students, but it is difficult to sort out such concerns from those of the first two types because of high correlations among the relevant variables.

Previous quantitative research on the relationship between teacher working conditions and teacher mobility based on large administrative data sets—much of which has been done by economists—has drawn attention to easily measured school characteristics such as the racial and economic mix of the school's students or their achievement levels (Clotfelter et al., in press;

TABLE 1
*Components of Working Conditions Categories on North Carolina Survey Compared to Categories in the Literature*

| Categories in North Carolina survey instrument (number of questions on survey ) | Categories in Susan Moore Johnson (2006), with indicators of best practice |
|---|---|
| Leadership (24) | Principal's leadership—active broker of workplace conditions |
| Teacher empowerment (17) | Working relationships with colleagues—working collaboratively with colleagues |
| Time (11) | Professional development—coherent, job-embedded assistance |
| Professional development (65) | Professional influence and career growth—opportunities for expanding influence and career growth |
| Mentoring (41) | Support for new teachers—interactions with experienced colleagues |
| Facilities and resources (12) | Facilities—safe, well-maintained, well-equipped facilities for all schools |
| | Resources and materials—sufficient resources with teacher stipends for extras |
| | Teaching assignments—in field better than out of field; manageable workload |
| | Support of students—comprehensive student support services, school-family-community partnerships |
| | Curricular support—complete, aligned curriculum that can be used flexibly |
| | Student assessment—standardized tests as one part of a comprehensive assessment strategy |

Boyd et al., 2005; Dolton & van der Klaauw, 1995, 1999; Hanushek et al., 2004; Jackson, 2009; Scafidi et al., 2007). Emerging from such studies is the clear conclusion that the presence of high proportions of racial minorities or low-income students makes it difficult for schools to retain teachers.

### *Working Conditions*

At the most general level, working conditions for teachers include the physical features of the workplace, the organizational structure, and the sociological, political, psychological, and educational features of the work environment (Johnson, 2006; Johnson et al., 2005). The entries in the right-hand column of Table 1 represent the 11 categories identified by one of the preeminent qualitative researchers in the field of working conditions, Susan Moore Johnson, in her overview of the literature on teacher working conditions completed in 2006 for the National Education Association (much of which is based on Johnson et al., 2005). For each of the listed categories, she reviewed the literature and identified best practices. The categories are listed in a way that highlights the similarities to and differences from the categories on the North Carolina survey to which I return in the data section. Not included is any reference to salary or benefits levels, which is standard practice in the working conditions literature.[1] Here I briefly describe some of the relevant concepts as they have been discussed in the literature, starting with factors related to the collegiality of the workplace.

### *Leadership, Teacher Empowerment, and Collaboration*

Central to any discussion of teacher working conditions is a set of factors describing the collegiality of the workplace that, broadly defined, includes the relationship between school leaders and teachers and interactions among teachers. Much of the research suggests that schools will be more attractive to teachers when they are "organized for productive collegial work under a principal's effective leadership" (Johnson et al., 2005, p. 67), although there is little research documenting the empirical relationship between such an environment and teacher retention. The elements most frequently discussed under this

rubric include the quality of school leadership, collaboration among teachers, and, although not explicitly listed by Johnson (2006), teacher empowerment. But sorting out these overlapping concepts and determining what they mean for the purposes of empirical analysis of teacher mobility is not always straightforward.

Drawing on the effective schools literature, much of the early research on school leadership highlighted the role of instructional leadership (Elmore, 2000; Hallinger & Heck, 1998) and the ability of the principal to develop a clear school mission (Hallinger, Bickman, & Davis, 1996). Starting in the early 1990s, researchers shifted their attention to transformational leadership, and in particular the ability of leaders to build organizational capacity for change and innovation (Jantzi & Leithwood, 1993; Leithwood, 1994). Included under this rubric are terms such as *teacher empowerment* and *shared* or *distributed leadership* (Spillane, Halverson, & Diamond, 2001). Within such models, principals operate through helping the school community itself to develop a shared vision and a commitment to that vision. In this latter approach, leaders do not merely impose goals on others; instead, they work through and with others to establish the conditions to help them to be effective.

Along with the research focus on transformational leadership came attention to teacher empowerment, which according to one definition is "a process whereby school participants develop the competence to take charge of their own growth and resolve their own problems" (Bogler & Somech, 2004, p. 278). Among the dimensions of teacher empowerment are teachers' participation in decision making in areas that affect their work, perceptions that they have opportunities for learning and professional growth, and a feeling of mastery in both knowledge and practice. In studies reviewed by Firestone and Pennell (1993), teachers' autonomy in making classroom decisions and participating in schoolwide decision making both emerged as predictive of commitment to their schools, and hence of the likelihood of staying in them.

The focus on the school community also draws attention to the importance of collaboration among teachers. Historically, teachers have worked quite independently, but research starting in the early 1980s has documented positive effects on student performance of collaborative work among teachers. In addition, research has documented positive effects on both achievement and commitment to the school of "relational trust" among teachers, administrators, and students (Bryk & Schnieder, 2002). The degree of collaboration and trust among teachers is closely linked to the nature of the school leadership; transformative leaders are far more likely to promote high levels of teacher collaboration, trust, and commitment to the school than are more controlling principals (Johnson et al., 2005, p. 72).

### *Other Components of Working Conditions*

The next three categories on Johnson's (2006) list in Table 1 refer to professional development and career growth. For a variety of well-documented reasons, novice teachers often start their careers in schools with students who are the most challenging to educate (Clotfelter, Ladd, Vigdor, & Wheeler, 2007). Without extra support for such teachers, many of them are likely to leave not only their current school but also the profession. A number of studies (see e.g., Smith & Ingersoll, 2004) show that induction programs can, assuming they are sufficiently comprehensive, reduce the turnover of new teachers. One might hypothesize that ongoing professional development programs would help to retain teachers by promoting a sense of teacher efficacy. Such programs, however, have often not been well designed and have typically not succeeded in that goal (Hill, 2007).

Inadequate facilities and resources are also likely to reduce a teacher's willingness to stay in a school. When facilities are unsafe or are badly configured for teaching and learning, or when teachers have access to insufficient supplies, teachers are likely to feel unsupported and to be less successful than they otherwise would be. Although disparities in these dimensions across schools are large and well understood, only a few studies have documented the adverse effect of poor facilities or access to material on teacher retention. Using survey data, for example, Buckley, Schneider, and Shang (2005) found a positive, but relatively small, relationship between teachers' plans to leave the school and their rating (A to F) of the school's facilities.

The final four categories on Johnson's (2006) list refer to aspects of the teaching environment

within the classroom. Comprehensive support services for students, teaching assignments that are appropriate given the teacher's training and overall workload, a well-aligned curriculum with flexibility for the teacher, and assessment systems that avoid excessive testing and incentives for teaching test-taking skills all contribute to a positive work environment. As part of accountability systems, testing requirements can add to the stress of teachers. Several studies, including one of teachers in England, which has high rates of teacher attrition, indicate that teachers, especially those at the elementary level, cite accountability and administrative pressures as a significant explanation for their departure from the profession (Ladd, 2007; also see Tye & O'Brien, 2002).

### *Implications for My Research Strategy*

Many of these components of working conditions are overlapping and are difficult to specify with precision. Rather than using the existing literature to define specific constructs, my strategy in the empirical work presented below is inductive. Specifically, I use exploratory factor analysis to sort teachers' responses to questions relating to the broad range of working conditions included in the North Carolina teacher survey into separate factors, allowing the factors to differ by level of school. A benefit of this approach is that it provides some evidence about how teachers think about their working conditions, and in particular about school leadership. I then use the factors to determine whether working conditions, taken as a group, are predictive of teachers' mobility intentions and actual 1-year departure decisions and to determine the relative predictive power of the individual factors.

## Empirical Model

To address the main research question, I estimate a model of the following form for individual teacher i in school j:

$$\text{Planned probability of leaving}_{ij} = f(WC_j, S_j, W_j, X_i), \quad (1)$$

where $WC_j$ is a vector of working conditions as perceived by all teachers in the school based on survey data; $S_j$ is a vector of the objective characteristics of the school, including the demographic characteristics of the students; $W_j$ is a measure of the salary level in the school (or district); and $X_i$ is a vector of characteristics of the individual teacher. My goal is to determine the predictive power of the WC variables.

Although the qualitative literature strongly implicates working conditions as a determinant of a teacher's decision to leave a school (Johnson et al., 2005), survey-based responses about working conditions could potentially add little additional explanatory power to the model. Working conditions could potentially be so highly correlated with the demographic mix of a school's students, for example, that their separate effects would not be distinguishable (Clotfelter et al. 2007). Or similarly, the behavior of school leaders may be so determined by the mix of students in the school that it would be impossible to distinguish the contribution of the principal from that of the mix of students.

Moreover, complicating the interpretation of the empirical results is the nonrandom distribution of "working conditions" to the various schools. If policy makers compensate schools that have high teacher turnover by efforts to improve their working conditions, such as by upgrading facilities or providing more professional development opportunities, better working conditions might well appear to generate higher, rather than lower, teacher departure rates. Within the context of a cross-sectional study of this type, not much can be done to address this issue. At best, the reader should remain alert to the issue and cautious about attributing causation to the reported results.

In summary, whether survey-based measures of working conditions emerge as predictors of teacher mobility is an empirical question. If they do not, then policy makers need to be careful about attributing teacher mobility to poor working conditions rather than to the more easily measured demographic characteristics of the school's students. If teachers' perceptions of their working conditions do emerge as important, then it would be useful to design and evaluate policy interventions specifically intended to improve working conditions within schools and to compare their efficacy with strategies, such as higher salaries, designed to offset the reluctance

TABLE 2
*Response Rates (%) by Poverty Quartile, by Level of School, 2006*

| | 1 (High poverty) | 2 | 3 | 4 (Lowest poverty) | Total |
|---|---|---|---|---|---|
| Response rates of teachers | | | | | |
| Elementary | 77 | 74 | 77 | 74 | 75 |
| Middle | 66 | 68 | 64 | 68 | 67 |
| High school | 71 | 65 | 62 | 59 | 63 |
| Schools with response rates greater than 40% | | | | | |
| Elementary | 89 | 87 | 91 | 91 | 89 |
| Middle | 81 | 87 | 82 | 87 | 84 |
| High school | 89 | 84 | 87 | 88 | 87 |

*Note.* Calculated by the author.

of teachers to teach in schools with poor working environments. Ideally such policy interventions would be based on random assignment of schools to treatment and control groups so as to isolate the causal impacts of specific interventions, something that is not possible with the observational data used in this article.

## North Carolina Context and Data

North Carolina represents an excellent state for this study of the predictive power of working conditions. Not only is it a large and diverse state, but it also has made available to researchers extensive administrative data on student, teacher, school, and district characteristics. In addition, it is the first state to have administered a statewide survey of working conditions to all teachers and administrators. The survey was first initiated by the governor in 2002 and has been administered to all teachers and administrators by the Center for Teaching Quality every second year since then. Though the response rates were below 50% for the first 2 years of the survey, they exceeded 70% in both 2006 and 2008. I focus here on the survey results for 2006, the most recent year for which data on teacher departures are also available.[2]

The surveys are administered electronically, with teachers receiving their access codes not from the school or state officials, but from teacher representatives within each school. All surveys are anonymous. To encourage participation in 2006, the North Carolina business community provided financial incentives in the form of weekly drawings for prizes from among the schools with high response rates and helped the state explain to teachers the importance of responding. Provided that the response rate of teachers in a school is at least 40%, the findings from the survey are posted on the school's webpage. In addition, schools are encouraged to use the survey results for internal discussions about how to improve working conditions.

Overall response rates and the patterns across schools grouped into poverty quartiles by level of school are reported in the first panel of Table 2. The poverty quartiles are based on the percentages of students eligible for free or reduced price lunch, calculated separately by level of school. The average ranges from 63% in high school to 75% in elementary school. The differences across quartiles are largest at the high school level, where they range from 71% in the poorest schools to 59% in the more affluent schools. The bottom panel reports the percentages of schools with teacher response rates greater than 40%.

### *Working Conditions Categories on the Survey*

Questions about working conditions on the 2006 survey were divided into the six categories listed in the left column of Table 1, with the number of questions in each category in parentheses. As suggested by the fact that the survey includes 65 questions related to professional development and 41 having to do with mentoring, state policy makers were particularly interested in using the survey to identify the details of teachers' experiences with specific programs in those areas. Given the specificity of many of those questions, I include only a subset of the professional development questions and none of the mentorship questions in the current analysis.

Furthermore, as discussed further in the following, I use factor analysis, separately at the elementary, middle, and high school levels, to reclassify a number of questions among the categories into more coherent domains.

A number of differences emerge between the North Carolina list and the list generated by Susan Moore Johnson (2006). First, the North Carolina survey specifically uses the term *teacher empowerment* to refer to a number of questions about the extent to which teachers have input into educational, planning, spending, and hiring decisions at the school level. Although the North Carolina survey does not refer specifically to teacher collaboration, many questions related to collaboration appear in the time category or in related more specific questions about the amount of time that is available for working with other teachers. Also included in the time category are questions about whether teachers have reasonable class sizes and time to plan and teach. The survey includes no questions, however, about the nature of their teaching assignments and in particular whether teachers are teaching in the fields for which they were trained. Nor does the survey include questions about the adequacy of support services for students, either those provided specifically by the school or those provided through school-family-community partnerships.

Finally, there are no questions about curriculum and testing. Although North Carolina has long had a statewide curriculum and state tests that are aligned with the curriculum, the pressures on teachers resulting from those systems undoubtedly differ across schools. In the absence of survey data on teachers' perceptions of the state's system of testing and accountability, I control for accountability pressures directly by including binary indicator variables for schools that failed to meet the state's growth standard or the federal government's performance standard in the prior year.

The specific variables used in the model are described by category in the following sections. Descriptive statistics are reported in Table 3.

### *Working Conditions Factors and Additional Time Variables*

To make operational the components of working conditions, I applied exploratory factor analysis to the 54 potentially relevant questions that are measured on a 5-point Likert scale. For some questions the scale is (1) *strongly disagree*, (2) *somewhat disagree*, (3) *neither disagree or agree*, (4) *somewhat agree*, or (5) *strongly agree*. For others, the scale is (1) *no role at all*, (2) *small role*, (3) *moderate role*, (4) *large role*, and (5) *the primary role*. I implemented the factor analysis separately for elementary, middle, and secondary schools, using a varimax (orthogonal) rotation.[3]

I determined the number of factors based on the criterion that the eigenvalue for a factor be greater than 1. This approach generated five separate factors for each level of schooling that have reasonable counterparts in the extensive literature on working conditions.[4] The factors are quite similar for elementary and middle schools but differ somewhat at the high school level. Included in each factor are survey questions that have a factor loading of 0.3 or above, and each survey question is included in only one factor. The resulting factors are as follows. (See the appendix for the specific elements of each factor by level of school and the factor loadings.)

*Leadership (all three levels)*. This factor is by far the largest and includes all the questions on the survey categorized as leadership as well as several categorized on the survey in the teacher empowerment category. The elements in the factor suggest that North Carolina teachers have a broad view of leadership that starts with the general support of the school leadership for teachers, especially with respect to their effort to maintain discipline in the classroom. Consistent with the transformational view of leadership discussed earlier, however, it also includes trusting teachers and involving them in decision making and problem solving. At the elementary and middle school levels, the Leadership factor that emerges from the factor analysis also includes questions related to the consistency and appropriateness of teacher evaluations. At the high school level those emerge as part of a separate factor.

*Expanded Roles (all three levels)*. Although the literature on teacher empowerment and transformational leadership often does not distinguish between greater involvement of teachers in shared decision making and expanded roles or responsibilities, questions in the North Carolina survey related to additional roles for teachers in

TABLE 3
*Descriptive Statistics for the Planned Departure Models, by Level of School*

| | Elementary | | Middle | | High | |
|---|---|---|---|---|---|---|
| Variable name | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| Dependent variables | | | | | | |
| Probability of leaving | 0.107 | 0.310 | 0.145 | 0.352 | 0.138 | 0.344 |
| Remain in school | 0.893 | 0.310 | 0.855 | 0.352 | 0.862 | 0.344 |
| Change school (same district) | 0.040 | 0.195 | 0.055 | 0.228 | 0.041 | 0.199 |
| Change district | 0.026 | 0.159 | 0.032 | 0.177 | 0.034 | 0.180 |
| Leave profession | 0.042 | 0.200 | 0.057 | 0.233 | 0.063 | 0.242 |
| Working conditions | | | | | | |
| Leadership | 0 | 1 | 0 | 1 | 0 | 1 |
| Expanded roles | 0 | 1 | 0 | 1 | 0 | 1 |
| Time factor | 0 | 1 | 0 | 1 | n/a | n/a |
| Professional development | 0 | 1 | 0 | 1 | 0 | 1 |
| Facilities | 0 | 1 | 0 | 1 | 0 | 1 |
| Evaluation | n/a | n/a | n/a | n/a | 0 | 1 |
| Time—planning | 0.380 | 0.154 | 0.615 | 0.110 | 0.621 | 0.093 |
| Time—outside work day | 0.809 | 0.095 | 0.806 | 0.091 | 0.826 | 0.085 |
| School characteristics | | | | | | |
| Fraction of students | | | | | | |
| Black | 0.299 | 0.237 | 0.327 | 0.229 | 0.322 | 0.228 |
| Hispanic | 0.103 | 0.106 | 0.076 | 0.071 | 0.058 | 0.048 |
| "Other" | 0.037 | 0.083 | 0.032 | 0.060 | 0.036 | 0.077 |
| Free/reduced lunch | 0.417 | 0.204 | 0.385 | 0.180 | 0.298 | 0.147 |
| Limited English proficient | 0.060 | 0.070 | 0.036 | 0.037 | 0.027 | 0.027 |
| With non-college parent | 0.499 | 0.196 | 0.480 | 0.183 | 0.292 | 0.109 |
| Fraction of teachers with | | | | | | |
| Master's degree or higher | 0.391 | 0.091 | 0.386 | 0.090 | 0.422 | 0.085 |
| 0 to 3 years experience | 0.213 | 0.097 | 0.225 | 0.093 | 0.208 | 0.072 |
| > 10 years experience | 0.545 | 0.122 | 0.527 | 0.109 | 0.579 | 0.088 |
| Average teacher test score | 0.024 | 0.270 | -0.058 | 0.325 | 0.112 | 0.368 |
| Average aged school | 0.516 | 0.500 | 0.532 | 0.499 | 0.673 | 0.469 |
| Old school | 0.233 | 0.423 | 0.181 | 0.385 | 0.148 | 0.355 |
| Log of school membership | 6.260 | 0.414 | 6.514 | 0.486 | 7.002 | 0.685 |
| New administrator 2005 | 0.177 | 0.382 | 0.241 | 0.428 | 0.179 | 0.384 |
| New administrator 2006 | 0.206 | 0.405 | 0.257 | 0.437 | 0.265 | 0.441 |
| Did not meet adequate yearly progress (AYP) 2005 | 0.293 | 0.455 | 0.664 | 0.472 | 0.628 | 0.483 |
| Did not meet growth 2005 | 0.277 | 0.447 | 0.522 | 0.500 | 0.090 | 0.286 |
| Log of teacher salary | 10.589 | 0.036 | 10.588 | 0.035 | 10.589 | 0.036 |
| Unemployment rate | 4.939 | 1.179 | 4.986 | 1.209 | 4.977 | 1.131 |
| Log of district membership | 9.930 | 1.115 | 9.911 | 1.108 | 9.923 | 1.148 |
| Respondent characteristics | | | | | | |
| Black teacher | 0.089 | 0.284 | 0.142 | 0.349 | 0.110 | 0.313 |
| Hispanic teacher | 0.010 | 0.099 | 0.010 | 0.097 | 0.011 | 0.103 |
| Other teacher | 0.028 | 0.165 | 0.039 | 0.193 | 0.043 | 0.203 |
| Male teacher | 0.065 | 0.246 | 0.245 | 0.430 | 0.372 | 0.483 |
| Teacher experience | | | | | | |
| 2 to 3 years | 0.113 | 0.317 | 0.128 | 0.334 | 0.134 | 0.340 |
| 4 to 6 years | 0.149 | 0.356 | 0.174 | 0.379 | 0.156 | 0.362 |
| 7 to 10 years | 0.164 | 0.370 | 0.164 | 0.370 | 0.165 | 0.371 |
| 11 to 20 years | 0.260 | 0.439 | 0.236 | 0.425 | 0.242 | 0.428 |
| > 20 years | 0.245 | 0.430 | 0.223 | 0.416 | 0.223 | 0.416 |

*(continued)*

TABLE 3 (continued)

| Variable name | Elementary | | Middle | | High | |
|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| Has a graduate degree | 0.323 | 0.468 | 0.329 | 0.470 | 0.387 | 0.487 |
| National Board Certified teacher | 0.110 | 0.313 | 0.103 | 0.304 | 0.127 | 0.333 |
| Trained in master's program | 0.173 | 0.378 | 0.155 | 0.362 | 0.181 | 0.385 |
| Alternative training program | 0.043 | 0.203 | 0.135 | 0.341 | 0.182 | 0.386 |
| Geographic indicators | | | | | | |
| Urban coastal | 0.098 | 0.298 | 0.097 | 0.296 | 0.085 | 0.279 |
| Urban Piedmont | 0.090 | 0.286 | 0.094 | 0.293 | 0.103 | 0.303 |
| Urban mountain | 0.063 | 0.244 | 0.075 | 0.264 | 0.071 | 0.257 |
| Rural coastal | 0.065 | 0.247 | 0.072 | 0.258 | 0.081 | 0.272 |
| Rural Piedmont | 0.249 | 0.432 | 0.245 | 0.430 | 0.238 | 0.426 |
| Rural mountain | 0.147 | 0.354 | 0.135 | 0.342 | 0.137 | 0.344 |
| Wake County LEA | 0.095 | 0.294 | 0.095 | 0.293 | 0.082 | 0.275 |
| Guilford County LEA | 0.062 | 0.240 | 0.060 | 0.238 | 0.053 | 0.225 |
| Cumberland County LEA | 0.034 | 0.180 | 0.038 | 0.192 | 0.042 | 0.200 |
| Winston-Salem/Forsyth LEA | 0.051 | 0.219 | 0.054 | 0.225 | 0.038 | 0.191 |
| Number of observations | 22,941 | | 9,101 | | 10,829 | |

*Note:* LEA= Local Education Authority.

areas such as budgeting do not load onto the Leadership factor. Such items contribute instead to a separate factor that I have labeled Expanded Roles. This factor includes seven or eight questions about the role teachers have in selecting instructional materials, setting grading and assessment practices, hiring new teachers, and school improvement planning.

*Time factor (elementary and middle school only)*. At the elementary school level, this factor includes five statements about class sizes, time available to teachers to meet the needs of their students or to collaborate with colleagues, and the extent to which teachers are protected from administrative duties. At the middle school level, only three of the questions are included and the class size question does not appear in any factor at the middle school level. Time does not emerge as a separate factor at the high school level.

*Professional Development (all three levels, with some differentiation by level)*. At the elementary level and middle school levels, this factor is based on five questions about the sufficiency of funds, resources, and time for teachers to take advantage of professional development opportunities. At the high school level, this factor also includes two questions about the time available for teachers to collaborate with colleagues, suggesting that teachers at that level perceive that professional development also occurs through interactions with colleagues.

*Facilities and Resources (all three levels)*. This factor includes seven to nine questions, depending on the school level, that are all listed under facilities in the survey instrument. The questions refer to the sufficiency of teacher access to appropriate instructional materials, technology, office supplies, and professional space and to the cleanliness and safety of school environments.

*Teacher Evaluation (high school only)*. This factor embodies three statements related, respectively, to the consistency, usefulness, and appropriateness of the evaluation of teachers. As I noted earlier, these questions fit into the Leadership factor at the lower levels of schooling.

Each of these factors for individual teachers were averaged across respondents at the school level and then normalized so that across teachers in each of the regression samples, the means of each factor are equal to zero and the standard deviations are equal to one. Aggregating to the school level averages out the random elements across teachers and reduces the noise relative to the signal. In addition, it helps counter the problem of reverse causation that can occur when both the dependent and the independent variables are based on the survey. Regardless of the true reason a teacher may want to leave a school,

for example, she may rationalize her decision in part by giving the school a poor rating in terms of working conditions. In that case, any observed relationship between her perceptions of working conditions and her desire to leave the school would be spurious. Averaging responses about working conditions across all responding teachers within each school, as well as weighting the regressions by the number of responses, helps to mitigate this problem.[5]

In addition to these working condition domains, the models include two time-use questions for which teachers were asked to give more quantitative answers. The first question reads: "In an average week of teaching, how many hours do you have for noninstructional time during the regular school day?" Follow-up questions make it clear that this refers to time for individual or structured collaborative planning. The second question reads: "In any average week of teaching, how many hours do you spend on school-related activities outside the regular school work day?" Both questions provide five possible answers ranging from none to more than 10 hours. In each case, I have collapsed the responses into 0/1 variables, with 0 indicating less than 3 hours and 1 indicating more than 3 hours. As shown in Table 3, only 38% of the responding elementary school teachers said they had 3 or more hours of time for planning in an average work week, which is far below the 62% at the middle and high school levels. At all three levels, about 81% to 83% of the respondents said they spent more than 3 hours on school-related activities outside the regular work day.

### *School Characteristics*

Information on school characteristics comes primarily from state administrative data available through the North Carolina Education Research Data Center. The models include 15 variables intended to measure school characteristics.

These variables include six measures of the characteristics of the students in the school: the fractions of Black students, Hispanic students, or students of another race; the fractions of students eligible for free and reduced price lunch or with limited English proficiency; and the fraction of students whose parents do not have a college degree. No measure of the average achievement of the students in the school is included because the intent is to measure student characteristics that are outside the immediate control of the teachers in the school.

In addition, school characteristics include four measures of the qualifications of all teachers in the school: the fractions of teachers with graduate degrees, with 0 to 3 years of experience or with greater than 10 years of experience, and the average teacher licensure test score (averaged over multiple normalized scores for each teacher). Furthermore, I include two indicator variables for the age of the school (one denoting a school of average age and the other an old school) and measures of school size and district size.

Also included are two variables indicating how the school fared the previous year under the federal and state accountability programs to represent the stress that teachers may be under to improve test scores (Darling-Hammond & Sykes, 2003; Tye & O'Brien, 2002). The first variable—did not meet adequate yearly progress (AYP) (05)—indicates the school did not make the adequate yearly progress requirements under the federal No Child Left Behind Act (NCLB), and the second—did not meet expected growth (05)—that the school did not meet the achievement growth requirements under the state's accountability system.

### *Salary Data*

North Carolina has a statewide salary schedule but then allows its local districts to supplement salaries if they wish, which means the local supplements are the only source of variation across districts for a teacher with specified characteristics. I constructed a single salary for each district, based on the statewide salary for a teacher with a master's degree and 8 years of experience plus my best estimate of the salary supplement, in logarithmic form.[6] Importantly for this analysis, nominal salaries do not differ much across districts, with the full range being $36,830 to $42,910. Moreover, evidence suggests that this variation is attributable in part to variation in the cost-of-living and to salary supplements that are higher in districts with higher proportions of novice teachers, presumably used as a way to recruit more teachers.[7] Adjusting the salaries for cost-of-living differences would most

likely reduce the variation even further, rendering it minuscule compared to the three-to-one differential in adjusted salaries across districts in California reported in Loeb et al. (2005). Given this small variation, and the fact that teachers have already made their initial job decision with full knowledge of the salary, salary differentials are likely to have little or no predictive power in this cross-sectional analysis.

### *Characteristics of Individual Teachers and Geographic Indicators*

The data on individual teachers in the planned departure models are all self-reported on the survey. As shown in Table 3, the 13 variables in the equation denote whether the teacher is Black, Hispanic, or "other race;" whether the teacher is male; five experience categories; whether the teacher currently has a graduate degree or is National Board Certified; and whether the teacher's initial training was in a master's program and whether the teacher entered through an alternative entry program. These teacher characteristics control for the teacher-specific characteristics that may be associated with teacher movement. Finally, the model includes 10 geographic indicator variables. These indicator variables distinguish schools in each of the four largest districts, other than Charlotte-Mecklenburg, which serves as the base, as well as those in the urban and rural regions of three main regions in the state—mountain, Piedmont, and coastal. These indicator variables are included to control for the differing labor market conditions across the state, as well as policy differences among districts related to teachers.

### *Dependent Variables*

I constructed planned departure variables from the following survey question: "Which best describes your future intentions for your professional career?" For the basic models, the responses are divided into two categories: remain in the school or leave the school. For the supplemental multinomial choice models, the outcomes are split into four categories: remain in the school, leave "this school," leave "this district," and leave the profession.[8] As shown in Table 3, the proportion of respondents intending to leave their schools for any reason is 11% in elementary schools and about 14% in middle and high schools. At each level, the proportion of teachers intending to change schools within the same district is somewhat smaller than the proportions planning to move to another district or to leave the profession.

## Intended Departures: Analysis and Results

Table 4 presents some initial simple descriptive linear probability regressions to illustrate the relationship between a respondent's plans to leave a school and the average working conditions in the school, as perceived by its teachers (Panel A) and school demographics (Panel B). I report basic results from linear probability models because of their ease of interpretation; the patterns are virtually identical for comparable logit models. All the regressions in this and subsequent tables are limited to the survey respondents in schools in which at least 40% of the teachers responded and are weighted by the number of responding teachers. In addition, the errors are clustered at the school level.

The equations in each panel of Table 4 include no variables other than those reported within the relevant panel. Emerging from Panel A is the descriptive finding that at all three levels of schooling, the probability of departure is negatively correlated with the perceived quality of school leadership. The coefficients indicate that a one standard deviation difference in the school leadership measure is associated with about a 5 percentage point difference in the other direction in the probability that a teacher intends to leave the school at both the elementary and middle school levels, and about half that at the high school level. At that level, expanded roles for teachers, which some scholars interpret as an element of distributive leadership, exhibits a larger coefficient than the Leadership factor. The Expanded Roles factor also emerges as statistically significant at the elementary level, but with a very small coefficient. Finally, more time for planning and collaboration is associated with lower departure rates at the middle school level.

Emerging from Panel B for the demographic characteristics of the schools is the typical finding that teacher departure rates are higher in schools with larger fractions of Black students

TABLE 4
*Planned Departures by Working Conditions and School Demographics, by Level of School, No Controls*

| | Elementary | | Middle | | High | |
|---|---|---|---|---|---|---|
| | Coefficient | *SE* | Coefficient | *SE* | Coefficient | *SE* |
| Panel A. Working conditions (survey) | | | | | | |
| Leadership | –0.048* | 0.005 | –0.049* | 0.008 | –0.023* | 0.012 |
| Expanded roles | –0.009* | 0.004 | –0.010 | 0.007 | –0.044* | 0.007 |
| Time factor | –0.000 | 0.004 | –0.018* | 0.006 | n/a | n/a |
| Professional development | 0.006 | 0.004 | –0.002 | 0.007 | 0.008 | 0.007 |
| Facilities | –0.003 | 0.004 | 0.006 | 0.006 | –0.000 | 0.006 |
| Evaluation | n/a | n/a | n/a | n/a | 0.001 | 0.008 |
| Constant | 0.105* | 0.003 | 0.143* | 0.004 | 0.135* | 0.004 |
| $R^2$ | 0.028 | | 0.037 | | 0.025 | |
| Observations | 22,941 | | 9,101 | | 10,829 | |
| Number of school clusters | 1,118 | | 378 | | 340 | |
| Panel B. School demographics | | | | | | |
| Fraction Black | 0.132* | 0.018 | 0.110* | 0.032 | 0.175* | 0.045 |
| Fraction Hispanic | –0.003 | 0.031 | 0.222* | 0.096 | 0.174 | 0.154 |
| Fraction "other" | 0.052 | 0.047 | 0.013 | 0.076 | –0.024 | 0.060 |
| Fraction free/reduced lunch | 0.017 | 0.022 | 0.044 | 0.049 | –0.022 | 0.068 |
| Constant | 0.058* | 0.007 | 0.075* | 0.013 | 0.080* | 0.016 |
| $R^2$ | 0.011 | | 0.011 | | 0.012 | |
| Observations | 22,941 | | 9,101 | | 10,829 | |
| Number of school clusters | 1,118 | | 378 | | 340 | |

*Note.* Estimates from separate linear probability models, one for each level of schooling within each panel. The dependent variable is a 0/1 variable that takes on the value 1 if the teacher plans to leave her current school and 0 if she plans to stay in the school. The equations are analytically weighted by the number of responses in each school. Standard errors are clustered at the school level. n/a signifies not applicable.
*indicates significance at the .05 level.

and, at the middle school level, also with the fraction of Hispanic students. The consistently large correlation between departure rates and the fraction of Black students justifies my attention to that specific demographic variable in much of the discussion that follows. I emphasize, however, that the fraction of Black students in a school may be serving as a proxy for a variety of student characteristics that are correlated with race, such as a high prevalence of single-parent families, and need not indicate race alone. Although the coefficients on some of the racial mix variables appear relatively large, they must be multiplied by their corresponding standard deviations to make them comparable to the coefficients for the working conditions variables. Based on the standard deviations in Table 3, the coefficients for the fraction of Black students translate into standardized coefficients of 0.031 at the elementary level, 0.025 at the middle school level, 0.040 at the high school level, and the Hispanic coefficient for middle schools translates into a standardized coefficient of 0.015. Thus, purely at this descriptive level of analysis it appears that variation across schools in the perceived quality of leadership is a potentially important predictor of teachers' planned departure rates and possibly more predictive than the racial demographics of the school.

### *Full Linear Probability Models*

To address the research question of whether the working conditions survey information generates useful predictive power over and above what is available from administrative data, the working conditions variables must be incorporated into the full models that include school, district, and respondent characteristics. The results for these models are reported in Table 5. Of most interest are the findings for the working conditions variables.

Even with the addition of an extensive set of control variables, some of the working conditions variables continue to be predictive of teacher departures. In particular, school leadership enters with

TABLE 5
*Planned Departures, Full Linear Probability Models, by Level of School*

| | Elementary | | Middle | | High | |
|---|---|---|---|---|---|---|
| | Coefficient | *SE* | Coefficient | *SE* | Coefficient | *SE* |
| Working conditions | | | | | | |
| Leadership | –0.040* | 0.005 | –0.056* | 0.008 | –0.039* | 0.010 |
| Expanded roles | –0.001 | 0.004 | 0.006 | 0.007 | –0.014‡ | 0.008 |
| Time factor | –0.007 | 0.004 | –0.019* | 0.006 | n/a | n/a |
| Professional development | 0.000 | 0.004 | –0.006 | 0.007 | 0.010 | 0.007 |
| Facilities | 0.003 | 0.004 | 0.008 | 0.007 | –0.004 | 0.006 |
| Evaluation | n/a | n/a | n/a | n/a | 0.000 | 0.007 |
| Time—planning | 0.007 | 0.018 | 0.040 | 0.041 | 0.005 | 0.052 |
| Time—outside workday | 0.082* | 0.031 | –0.046 | 0.052 | –0.094 | 0.062 |
| School characteristics | | | | | | |
| Fraction of students | | | | | | |
| Black | 0.051* | 0.020 | 0.041 | 0.036 | 0.124* | 0.044 |
| Hispanic | 0.015 | 0.061 | 0.083 | 0.121 | 0.116 | 0.154 |
| "Other" | 0.011 | 0.045 | –0.066 | 0.066 | 0.013 | 0.046 |
| Free/reduced lunch | 0.016 | 0.027 | 0.053 | 0.052 | –0.092 | 0.082 |
| Limited English proficient | –0.077 | 0.086 | –0.035 | 0.231 | 0.070 | 0.296 |
| Non-college parent | 0.013 | 0.023 | 0.014 | 0.042 | 0.015 | 0.073 |
| Fraction of teachers with | | | | | | |
| Master's degree or higher | –0.034 | 0.029 | –0.047 | 0.061 | –0.003 | 0.068 |
| 0 to 3 years experience | 0.082‡ | 0.044 | –0.012 | 0.084 | 0.027 | 0.085 |
| 4 to 10 years experience (base) | — | — | — | — | — | — |
| > 10 years experience | –0.033 | 0.035 | –0.010 | 0.066 | –0.032 | 0.077 |
| Average teacher test score | –0.014 | 0.012 | –0.029‡ | 0.017 | 0.006 | 0.010 |
| Age of school (base is new school) | | | | | | |
| Average aged school | 0.004 | 0.006 | –0.011 | 0.010 | 0.015 | 0.011 |
| Old school | 0.001 | 0.007 | –0.021‡ | 0.012 | –0.001 | 0.013 |
| School membership (log ) | –0.008 | 0.007 | –0.026* | 0.012 | –0.031* | 0.010 |
| New administrator 2005 | 0.002 | 0.007 | –0.007 | 0.010 | 0.036* | 0.013 |
| New administrator 2006 | 0.013* | 0.006 | –0.005 | 0.010 | 0.012 | 0.009 |
| Did not meet adequate yearly progress 2005 | 0.000 | 0.005 | 0.006 | 0.009 | –0.009 | 0.009 |
| Did not meet expected growth 2005 | 0.011‡ | 0.006 | 0.012 | 0.010 | –0.015 | 0.015 |
| Teacher salary (log) | 0.217 | 0.145 | 0.318 | 0.237 | 0.295 | 0.263 |
| Unemployment rate | 0.000 | 0.003 | 0.003 | 0.004 | 0.005 | 0.006 |
| District membership (log) | –0.003 | 0.005 | 0.010 | 0.008 | 0.005 | 0.008 |
| Respondent characteristics | | | | | | |
| Black teacher | –0.015‡ | 0.009 | –0.059* | 0.012 | –0.031* | 0.013 |
| Hispanic teacher | –0.019 | 0.019 | –0.052‡ | 0.029 | –0.070* | 0.024 |
| Other teacher | 0.057* | 0.018 | 0.072* | 0.028 | –0.010 | 0.019 |
| Male teacher | 0.036* | 0.010 | –0.004 | 0.009 | –0.000 | 0.009 |
| Teacher experience | | | | | | |
| 0 to 1 year (base) | — | — | — | — | — | — |
| 2 to 3 years | 0.020‡ | 0.010 | –0.009 | 0.020 | 0.037* | 0.016 |
| 4 to 6 years | 0.016 | 0.010 | –0.022 | 0.019 | 0.031‡ | 0.018 |
| 7 to 10 years | –0.004 | 0.009 | –0.061* | 0.019 | –0.022 | 0.015 |
| 11 to 20 years | –0.015 | 0.009 | –0.077* | 0.019 | –0.030* | 0.014 |
| > 20 years | –0.008 | 0.009 | –0.062* | 0.019 | –0.003 | 0.014 |
| Has a graduate degree | –0.004 | 0.006 | 0.019* | 0.010 | 0.009 | 0.012 |
| Nationally Board Certified teacher | –0.003 | 0.007 | –0.008 | 0.012 | –0.013 | 0.009 |
| Trained in master's program | 0.015* | 0.007 | –0.005 | 0.013 | 0.018 | 0.014 |
| Alternative training program | –0.018‡ | 0.010 | –0.002 | 0.012 | –0.008 | 0.010 |

*(continued)*

TABLE 5 (continued)

| | Elementary | | Middle | | High | |
|---|---|---|---|---|---|---|
| | Coefficient | *SE* | Coefficient | *SE* | Coefficient | *SE* |
| Geographic indicators | | | | | | |
| Urban coastal | –0.023 | 0.018 | –0.014 | 0.036 | –0.051 | 0.031 |
| Urban Piedmont | –0.053* | 0.017 | –0.000 | 0.037 | –0.039 | 0.032 |
| Urban mountain | –0.030 | 0.019 | –0.025 | 0.036 | –0.065* | 0.032 |
| Rural coastal | –0.064* | 0.021 | –0.018 | 0.041 | –0.006 | 0.036 |
| Rural Piedmont | –0.051* | 0.017 | –0.047 | 0.036 | –0.037 | 0.029 |
| Rural mountain | –0.030 | 0.021 | –0.025 | 0.041 | –0.048 | 0.033 |
| Charlotte-Mecklenburg LEA | — | — | — | — | — | — |
| Wake County LEA | –0.044* | 0.014 | –0.026 | 0.032 | –0.062* | 0.019 |
| Guilford County LEA | –0.032‡ | 0.016 | –0.015 | 0.030 | 0.005 | 0.028 |
| Cumberland County LEA | 0.011 | 0.022 | –0.042 | 0.034 | –0.043‡ | 0.024 |
| Winston-Salem/Forsyth LEA | –0.059* | 0.015 | –0.039 | 0.034 | –0.069* | 0.023 |
| Constant | –2.161 | 1.531 | –3.098 | 2.522 | –2.747 | 2.806 |
| $R^2$ | 0.044 | | 0.056 | | 0.042 | |
| Observations | 22,941 | | 9,101 | | 10,829 | |
| Number of school clusters | 1,118 | | 378 | | 340 | |

*Note.* Dependent variable takes on the value 1 if the respondent plans to leave the school. Equation estimated by ordinary least squares, analytically weighted by teacher responses at the school level, with errors clustered at the school level. n/a signifies not applicable.

*indicates statistical significance at .05 level; ‡at the .10 level.

large and statistically coefficients at all three levels. The coefficients are about 40% of the mean intended departure rates at the two lower levels and about 30% at the high school level. In addition, Expanded Roles for teachers appear to protect against teacher departures, but only at the high school level. As indicated by the negative coefficient on the Time factor at the middle school level, more time for collaboration and planning at that level is associated with lower departure rates. Although the Time factor itself is not predictive at the elementary level, the positive coefficient on the indicator variable representing more than 3 hours a week spent working outside the school day suggests that time pressures are predictive of teacher departures at that level as well.

Of interest is that the coefficients on the fraction of Black students are now substantially lower than they were in Table 4, which reflects, as I discuss further below, not only their correlation with the working conditions variables but also with many of the other control variables included in the full models. Although only a few of the other school-level variables are statistically significant, most enter with expected signs. One result is worth highlighting. At the elementary level, the positive coefficient on the state-specific accountability variable is fully consistent with previous work on how accountability affects teachers in low-performing schools (Clotfelter, Ladd, Vigdor, & Diaz, 2004). For teachers to earn bonuses under the state's program, their school must achieve its expected growth in student achievement. Hence, the positive coefficient on that variable, but not on the comparable variable for the federal NCLB program, which includes sanctions but no bonuses, suggests that teachers leave, at least in part, to increase the chances of getting a bonus. Several of the coefficients related to the respondent characteristics are statistically significant, with most having reasonable signs.

Table 6 provides additional insight into the role of perceived working conditions by comparing estimated coefficients for selected variables, as well as the explanatory power of the regressions, across four model specifications, by level of school. In all cases, the results are based on the full model with only the indicated variables deleted. For purposes of comparison, the entries in the first column replicate those for the selected variables from the previous table. I draw attention here to the patterns for elementary schools, starting with the explanatory power of the equation. Though the $R^2$ is very low for each specification—reflecting the fact that I am using individual data with a linear specification—the working conditions variables appear to

TABLE 6
*Alternative Specifications, Selected Coefficients, by Level of School.*

| | Full | | No school characteristics | | No leadership | | No working conditions | |
|---|---|---|---|---|---|---|---|---|
| | Coefficient | *SE* | Coefficient | *SE* | Coefficient | *SE* | Coefficient | *SE* |
| Elementary school | | | | | | | | |
| Leadership | –0.040* | 0.005 | –0.046* | 0.005 | n/a | n/a | n/a | n/a |
| Expanded roles | –0.001 | 0.004 | –0.004 | 0.004 | –0.022* | 0.004 | n/a | n/a |
| Time factor | –0.007 | 0.004 | –0.001 | 0.004 | –0.013* | 0.004 | n/a | n/a |
| Professional development | 0.000 | 0.004 | 0.004 | 0.004 | –0.008‡ | 0.004 | n/a | n/a |
| Facilities | 0.003 | 0.004 | –0.003 | 0.004 | –0.002 | 0.004 | n/a | n/a |
| Black students (fraction) | 0.051* | 0.020 | n/a | n/a | 0.057* | 0.020 | 0.061* | 0.023 |
| $R^2$ | 0.044 | | 0.040 | | 0.040 | | 0.027 | |
| Middle school | | | | | | | | |
| Leadership | –0.056* | 0.008 | –0.053* | 0.008 | n/a | n/a | n/a | n/a |
| Expanded roles | 0.006 | 0.007 | –0.005 | 0.007 | –0.018* | 0.007 | n/a | n/a |
| Time factor | –0.019* | 0.006 | –0.014* | 0.007 | –0.027* | 0.007 | n/a | n/a |
| Professional development | –0.006 | 0.007 | –0.002 | 0.007 | –0.023* | 0.008 | n/a | n/a |
| Facilities | 0.008 | 0.007 | 0.003 | 0.006 | 0.002 | 0.007 | n/a | n/a |
| Black students (fraction) | 0.041 | 0.036 | n/a | n/a | 0.025 | 0.040 | 0.039 | 0.047 |
| $R^2$ | 0.056 | | 0.050 | | 0.050 | | 0.031 | |
| High school | | | | | | | | |
| Leadership | –0.039* | 0.010 | –0.034* | 0.010 | n/a | n/a | n/a | n/a |
| Expanded roles | –0.014‡ | 0.008 | –0.026* | 0.008 | –0.034* | 0.007 | n/a | n/a |
| Professional development | 0.010 | 0.007 | 0.015* | 0.007 | 0.007 | 0.008 | n/a | n/a |
| Facilities | –0.004 | 0.006 | –0.003 | 0.006 | –0.011‡ | 0.006 | n/a | n/a |
| Evaluation | 0.000 | 0.007 | –0.005 | 0.007 | –0.016* | 0.006 | n/a | n/a |
| Black students (fraction) | 0.124* | 0.044 | n/a | n/a | 0.124* | 0.049 | 0.163* | 0.062 |
| $R^2$ | 0.042 | | 0.037 | | 0.040 | | 0.030 | |

*Note.* Dependent variable takes on the value 1 if the respondent plans to leave the school. Equation estimated by ordinary least squares, analytically weighted by teacher responses at the school level, with errors clustered at the school level. Equations also include 10 location indicators, 4 for specific large districts and 6 for districts grouped by urban, Piedmont, or mountain location and by urban or rural; the left out location is Charlotte/Mecklenburg. n/a signifies not applicable.
*indicates statistical significance at .05 level; ‡at the .10 level.

contribute substantial policy significant explanatory power. In particular, the $R^2$ rises from 0.027 in the model with no working conditions (last column) to 0.044 in the full model (first column). Interestingly, the contribution of the working conditions to the explanatory power of the model exceeds that of the school characteristics.

Moreover, the observation that the absolute value of the coefficient of the leadership variable is larger in the model that excludes all the school characteristics (column 2) suggests that perceptions of leadership quality are negatively correlated with the percentage of the students who are Black and other related school demographics. The newly statistically significant entries in column 3 in which the Leadership factor is excluded suggests that good leadership in elementary schools is positively correlated with the other working conditions measures, or stated differently, that good leadership manifests itself in part through those other factors.

Finally, I note that the coefficient on the fraction of Black students falls about 16%—from (0.061) to (0.051)—in moving from the model with no working conditions to the full model. Most of the reduction from the coefficient of 0.132 reported in Table 4 to the 0.051 in the full model is attributable to the more easily measured school characteristics, not to the working conditions variables. Thus, I conclude that models with controls for working conditions attenuate, but

TABLE 7

*Planned Departures by Type of Move, Multinomial Logit Models, by Level of School (Relative Risk Ratios)*

| | Move to another school in same district | Move to another district | Leave the profession |
|---|---|---|---|
| Elementary | | | |
| Leadership | 0.483* | 0.711* | 1.010 |
| Expanded roles | 0.939 | 1.032 | 0.956 |
| Time factor | 1.059 | 0.867‡ | 0.790* |
| Professional development | 1.059 | 1.080 | 0.910 |
| Facilities | 1.120‡ | 0.979 | 0.960 |
| Time—planning | 0.843 | 1.659 | 1.394 |
| Time—outside work day | 3.126* | 3.428‡ | 1.658 |
| Black students (fraction) | 1.086 | 5.124* | 1.363 |
| Middle | | | |
| Leadership | 0.487* | 0.653* | 0.867 |
| Expanded roles | 1.043 | 1.229‡ | 0.971 |
| Time factor | 0.815* | 0.836‡ | 0.854‡ |
| Professional development | 0.929 | 0.788* | 1.049 |
| Facilities | 1.175‡ | 1.110 | 0.925 |
| Time—planning | 2.438 | 1.355 | 0.740 |
| Time—outside work day | 0.529 | 0.433 | 1.113 |
| Black students (fraction) | 1.428 | 1.756 | 0.932 |
| High | | | |
| Leadership | 0.578* | 0.966 | 0.743* |
| Expanded roles | 0.869 | 0.771‡ | 0.918 |
| Professional development | 1.294‡ | 1.015 | 1.077 |
| Facilities | 0.901 | 0.847 | 0.988 |
| Evaluation | 0.901 | 1.008 | 1.110 |
| Time—planning | 0.726 | 1.712 | 1.592 |
| Time—outside workday | 0.106* | 2.686 | 0.718 |
| Black students (fraction) | 1.456 | 8.108* | 2.008‡ |

*Note.* Selected coefficients from multinomial logistic models, estimated separately by level of school. The relative risk ratios refer to the chances of the specified option relative to the case in which the teacher plans to remain in the same school. Sample sizes and numbers of school clusters are identical to those in Table 4, by level of school. All estimates are weighted by the number of responses in each school and errors are clustered at the school level.

*indicates statistical significance at .05 level; ‡at the .10 level.

only somewhat, the effect of the racial mix variable on teachers' plans to leave an elementary school. With some qualifications, the conclusions for the middle and high school levels are quite comparable to these for elementary schools.

In additional specifications (not reported), I interacted the working conditions variables with the fraction of Black students in the school. Consistent with Grissom's (2008) finding that leadership is more important in hard-to-staff schools, I find a statistically significant interaction effect between leadership and the fraction Black. In particular, teachers in schools with higher fractions of Black students are even more responsive to the quality of school leadership than in other schools with respect to their intended departure decisions.[9]

### *Multinomial Choice Models*

So far, all the models focus on the probability of leaving a school regardless of the destination or reason. Table 7 reports results for the key working conditions and school demographic variables of a disaggregated competing risks model of the four planned outcomes: remain in the same school, move to another school in the district, move to another district, and leave the profession. (See Table 3 for the distributions of these outcomes.) For each level of schooling, I ran a single multinomial logit model with the same set of variables as in Table 5. Sample sizes and school clusters are identical to those in that table. To facilitate the interpretation of the results, they are all reported as relative risk ratios. Entries less

than 1 indicate that the variable is associated with lower chances of the specific outcome relative to the base option of remaining in the same school and coefficients greater than 1 are associated with higher chances of the specified outcome.

Consistent with the simpler models, school leadership emerges as the most consistently relevant measure of working conditions. The table shows that the relative risk ratio is, as expected, less than 1 (but not always statistically significant) in all but one case and is smallest for moving to another school in the same district at each level of schooling. Stated differently, teachers in schools with high-quality leadership are not only less likely to leave their current school than are comparable teachers in schools with weaker leadership, but they are also relatively less likely to move to another school within the same district than to choose either of the other two options. Furthermore, there is little evidence that the quality of school leadership is directly implicated in the departure of teachers from the profession at the elementary and middle school levels, although that is not true at the high school level. Also noteworthy is the role of the Time factor (and for elementary school teachers the outside work day time indicator variable) at the elementary and middle school levels.

At the same time, some unexpected results also emerge. These include the positive risk ratios for switching schools for the Facilities factor at the elementary and middle school levels and the Professional Development factor at the high school level. They also include the results for Expanded Roles at the middle school district for moving to another district. In each case, one can provide possible explanations for the unexpected ratios—such as the reverse causation that would arise if districts provide compensatory materials and technology or more extensive professional development in some difficult-to-staff schools or that the exercise of authority in schools that empower teachers better prepare those teachers to seek alternative situations—but such explanations would be speculative at best at this point.

Most striking are the patterns of risk ratios based on the racial composition of the students (final row for each level). Although most of the ratios exceed 1, in no case is a higher proportion of Black students associated with a statistically significantly higher relative risk that a teacher will switch schools within the district. Instead, the very high risk ratios of 5.13 at the elementary level and 8.108 and 2.008 at the high school level are associated with intentions to leave the district, or in the case of high school teachers, to leave the profession entirely. Thus, while low-quality leadership in a specific school may influence teacher movements within a district, the presence of racially segregated schools appears to be more predictive of cross-district moves than within-district moves, all else held constant.

Not reported in the summary table but also of interest is the finding that the state accountability variable enters with a coefficient greater than 1 for all three options but is largest and only statistically significant for the option of moving to another school within the same district.

### Analysis of Actual 1-Year Departure Rates

The results to this point are clear: Teachers' perceptions of working conditions at the school level are highly predictive of an individual teacher's intentions to leave a school, with the perceived quality of school leadership the most salient factor. It is useful, however, to extend the analysis to a measure based on actual rather than survey data for several reasons. First, some observers may be concerned that stated intentions are either not believable or not useful unless they ultimately translate into actions of interest to policy makers. A second is that measuring working conditions at the school rather than the individual level may not completely eliminate the reverse causation mentioned earlier that arises when the dependent variable is generated by the survey. Third, the intended departure rates are based only on the respondents to the survey, which could, under certain conditions, generate an overestimate of the role of working conditions.

Hence, I look briefly at actual 1-year departure rates at all school levels. Using administrative data, I calculated 1-year actual departure rates for teachers by comparing the schools that the teachers were teaching in as of 2005-06 to the schools they were teaching in the following year. One shortcoming of this approach is that teachers who leave the profession cannot be distinguished from those who leave the administrative data set. For example, teachers who remain in teaching but

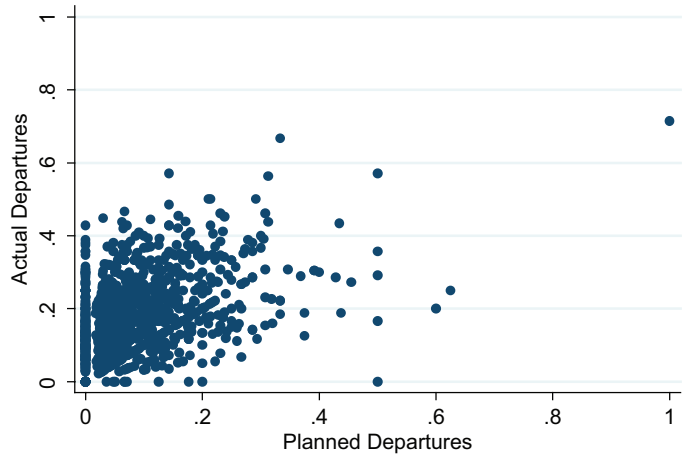


FIGURE 1A. *Actual versus planned departures, elementary school.*

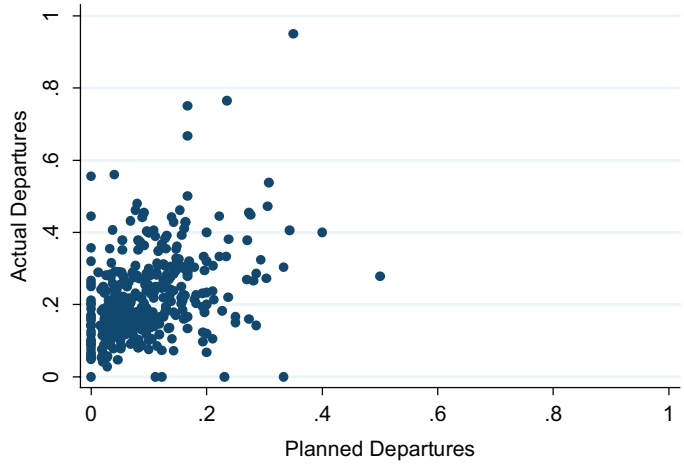


FIGURE 1B. *Actual versus planned departures, middle school.*

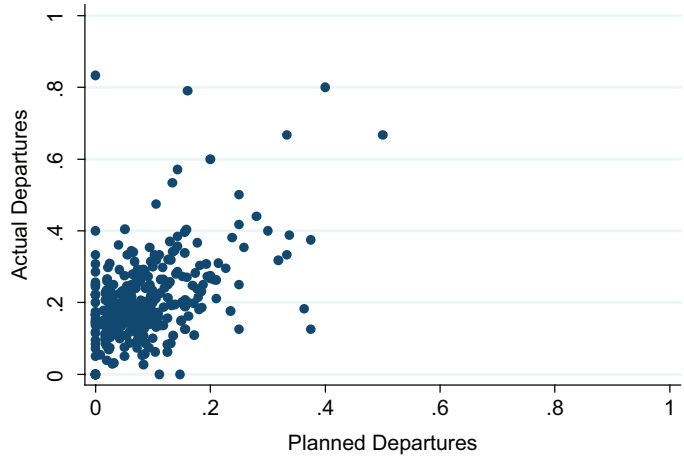


FIGURE 1C. *Actual versus planned departures, high school.*

move to a private school or another state or teachers who leave for short periods, perhaps to have children, are all treated as leavers of the profession. As a result, the proportions of teachers categorized as actual leavers are higher than the comparable proportions of intended departures for survey respondents (18% vs. 11% in elementary school, 21% vs.15% in middle school, and 20% vs.14% in high school), with the differential in each case almost entirely attributable to the larger proportion in the category of leaving the data set.[10]

Figures 1A, 1B, and 1C depict the relationships between planned and actual departure rates aggregated to the school level for all schools with at least a 40% response rate. The two departure measures are positively correlated at each level of schooling, but far from perfectly so. The data concerns just mentioned account for part of the variation. Another explanation is that actual departure rates represent the outcome not only of teacher preferences but also of the availability of open positions in any one year. Finally, the measures differ because the survey asks about career intentions, not intentions for the following year.[11]

The full linear probability models for the actual departure rates are reported in Table 8. The sample sizes in this table are larger for those in Table 5 because all teachers in each school are now included, but the number of school clusters is somewhat smaller because data problems forced me to delete some schools.[12]

As was the case for the planned departures, the most consistent findings for the working conditions variables emerge for the Leadership factor. The negative coefficients indicate once again that teachers are more likely to leave schools with poor leadership than those with strong leadership, all else held constant, but the magnitudes are far smaller than in the planned departure equations in Table 5. At the same time, however, the coefficients on the fraction of Black students in the elementary and middle school equations are as large or larger than those in the planned departure equations. This pattern of coefficients indicates that both absolutely and relative to the school demographic variables, the working conditions variables are less important for actual departures than for intended departures.[13]

Nonetheless, at the elementary level, the association of the Leadership factor with actual departure rates still remains comparable or slightly higher than the comparable association for the fraction Black variable. More specifically, the 0.018 predicted effect of a one standard deviation difference in the standardized leadership factor is slightly higher than 0.016 (= 0.068 × 0.236), which is the predicted effect of a one standard deviation difference in the fraction of Black students. Consistent with this parity of coefficient magnitudes, the addition of the whole set of working conditions controlling for school characteristics or the addition of all school characteristics controlling for working conditions both increase the explanatory power of the regression by about 15%. In contrast, at the middle school level, the racial mix of the students has more predictive power than the quality of leadership. Thus, working conditions are predictive of actual 1-year departure rates but less so than for intended departures.

## Conclusions and Discussion

Emerging from this study are conclusions about the overall importance of teacher working conditions for teacher movement and the dominant role of school leadership. In addition, the study sheds light on some shortcomings of the North Carolina survey on which the analysis is based.

### *Teacher Working Conditions Matter*

Many qualitative researchers have long emphasized the importance of teacher working conditions for a range of policy-relevant outcomes. Of specific interest in this study is the predictive power of working conditions for planned and actual teacher movement within the context of a large-scale quantitative model based on statewide data for North Carolina. The advantage of the North Carolina data—and hence of this study—is that it permits one to examine the role of working conditions, as perceived by teachers, within an empirical model with extensive statistical controls for other school characteristics, including the mix of the school's students.

The main conclusion to emerge from this study is clear and unambiguous: Variation across schools in working conditions as perceived by teachers is highly predictive of individual teachers'

TABLE 8

*Actual Departures, Full Linear Probability Models, Selected Coefficients, by Level of School*

| | Elementary school | | Middle school | | High school | |
|---|---|---|---|---|---|---|
| | Coefficient | *SE* | Coefficient | *SE* | Coefficient | *SE* |
| Working conditions | | | | | | |
| Leadership | –0.018* | 0.006 | –0.018‡ | 0.010 | –0.028* | 0.012 |
| Expanded roles | –0.004 | 0.005 | –0.008 | 0.008 | –0.008 | 0.008 |
| Time factor | 0.005 | 0.005 | 0.001 | 0.007 | n/a | n/a |
| Professional development | –0.006 | 0.005 | –0.003 | 0.009 | 0.002 | 0.007 |
| Facilities | 0.010* | 0.005 | 0.012 | 0.007 | 0.003 | 0.007 |
| Evaluation | n/a | n/a | n/a | n/a | 0.008 | 0.009 |
| Time—planning | –0.001 | 0.026 | 0.019 | 0.052 | –0.016 | 0.047 |
| Time—outside work-day | 0.048 | 0.035 | –0.002 | 0.061 | –0.100‡ | 0.060 |
| School characteristics | | | | | | |
| Fraction of students | | | | | | |
| Black | 0.068* | 0.023 | 0.128* | 0.042 | –0.036 | 0.075 |
| Hispanic | 0.108 | 0.069 | 0.363* | 0.143 | 0.175 | 0.157 |
| "Other" | 0.025 | 0.040 | 0.021 | 0.068 | 0.034 | 0.047 |
| Free/reduced lunch | –0.004 | 0.031 | –0.017 | 0.055 | 0.254 | 0.211 |
| Limited English proficient | –0.146 | 0.105 | –0.501‡ | 0.263 | –0.221 | 0.282 |
| Non-college parent | –0.011 | 0.026 | 0.016 | 0.047 | –0.271‡ | 0.145 |
| Fraction of teachers with | | | | | | |
| Master's degree or higher | –0.051 | 0.042 | 0.095 | 0.067 | –0.041 | 0.076 |
| 0 to 3 years experience | 0.034 | 0.053 | 0.177‡ | 0.093 | 0.180‡ | 0.100 |
| 4 to 10 years experience (base | – | – | – | – | – | – |
| >10 years experience | –0.073‡ | 0.041 | –0.048 | 0.065 | –0.077 | 0.076 |
| Average teacher test score | –0.031* | 0.014 | 0.014 | 0.020 | –0.012 | 0.018 |
| School age (base is new school) | | | | | | |
| Average age | 0.011 | 0.007 | –0.005 | 0.011 | 0.019 | 0.012 |
| Old school | 0.014 | 0.010 | –0.003 | 0.015 | –0.003 | 0.014 |
| Log of school membership | –0.006 | 0.013 | –0.026 | 0.017 | –0.016 | 0.015 |
| New administrator 2005 | 0.013‡ | 0.007 | 0.017 | 0.011 | –0.008 | 0.011 |
| New administrator 2006 | 0.023* | 0.009 | 0.042* | 0.012 | –0.007 | 0.008 |
| Did not meet adequate yearly progress 2005 | 0.010 | 0.007 | 0.009 | 0.011 | –0.005 | 0.009 |
| Did not meet growth 2005 | 0.011 | 0.007 | –0.000 | 0.011 | –0.039‡ | 0.020 |
| Teacher salary (log) | 0.525* | 0.174 | 0.221 | 0.293 | 0.558 | 0.458 |
| Unemployment rate | 0.004 | 0.004 | –0.002 | 0.005 | 0.022‡ | 0.011 |
| District membership (log) | 0.008 | 0.006 | 0.005 | 0.009 | –0.004 | 0.009 |
| Teacher characteristics | | | | | | |
| Black | –0.008 | 0.008 | 0.008 | 0.012 | 0.008 | 0.012 |
| Hispanic | 0.065* | 0.032 | 0.110* | 0.048 | –0.023 | 0.026 |
| "Other" | 0.029* | 0.010 | –0.006 | 0.008 | 0.003 | 0.007 |
| Male | –0.009 | 0.010 | –0.016 | 0.016 | –0.012 | 0.014 |
| Teacher experience | | | | | | |
| 0 to 3 years (base | — | — | — | — | — | — |
| 4 to 6 years | –0.020* | 0.010 | –0.071* | 0.013 | –0.075* | 0.012 |
| 7 to 10 years | –0.066* | 0.009 | –0.124* | 0.014 | –0.125* | 0.010 |
| 11 to 20 years | –0.106* | 0.008 | –0.133* | 0.010 | –0.149* | 0.009 |
| > 20 years | –0.056* | 0.008 | –0.111* | 0.012 | –0.119* | 0.010 |
| Has a graduate degree | 0.018* | 0.007 | 0.020* | 0.010 | 0.030* | 0.010 |
| Geographic indicators | | | | | | |
| Urban coastal | 0.040 | 0.029 | 0.020 | 0.051 | –0.032 | 0.033 |
| Urban Piedmont | 0.006 | 0.028 | –0.028 | 0.049 | 0.002 | 0.034 |
| Urban mountain | 0.038 | 0.031 | 0.013 | 0.052 | –0.009 | 0.037 |

*(continued)*

TABLE 8 (continued)

| | Elementary school | | Middle school | | High school | |
|---|---|---|---|---|---|---|
| | Coefficient | *SE* | Coefficient | *SE* | Coefficient | *SE* |
| Rural coastal | 0.030 | 0.033 | –0.013 | 0.055 | 0.025 | 0.038 |
| Rural Piedmont | 0.050 | 0.031 | –0.002 | 0.052 | 0.026 | 0.035 |
| Rural mountain | 0.056 | 0.035 | 0.005 | 0.057 | –0.012 | 0.035 |
| Charlotte-Mecklenburg LEA (base) | — | — | — | — | — | — |
| Wake County LEA | –0.003 | 0.023 | –0.024 | 0.040 | –0.006 | 0.024 |
| Guilford County LEA | –0.003 | 0.024 | –0.007 | 0.043 | 0.007 | 0.021 |
| Cumberland County LEA | 0.042 | 0.028 | –0.043 | 0.046 | –0.018 | 0.030 |
| Winston–Salem/Forsyth LEA | –0.025 | 0.027 | –0.051 | 0.045 | 0.005 | 0.035 |
| Constant | –5.448* | 1.860 | –2.031 | 3.092 | –5.451 | 4.913 |
| $R^2$ | 0.029 | | 0.041 | | 0.044 | |
| Observations | 30,618 | | 14,130 | | 18,240 | |
| Number of school clusters | 1,116 | | 378 | | 340 | |

*Note.* Dependent variable takes on the value 1 if the teacher left the school after the 2005-06 school year. Equation estimated by ordinary least squares, analytically weighted by teacher responses at the school level, with errors clustered at the school level. n/a signifies not applicable.

*indicates statistical significance at .05 level; ‡at the .10 level.

intentions to leave their current schools. As shown in Table 6, the inclusion of working conditions in the model for elementary school teachers raises the explanatory power of the model by about 60%. Moreover, this contribution far exceeds the contribution of the other school-level variables, once the working conditions are controlled for. Thus, working conditions matter.

This finding needs to be interpreted carefully. It does not mean that the mix of students in a school is unimportant. Indeed, the patterns in Table 4 indicate the relatively strong predictive power of the student demographic characteristics of a school's students in the absence of other control variables. Instead, the finding implies that for any given set of school characteristics, the variation in working conditions is substantial and that this variation is predictive of intended departure rates. From a policy perspective, this study justifies further efforts to understand teachers' perceptions of their working conditions and policy initiatives to improve them.

Because of the correlation between working conditions and the demographic mix of a school's students, another implication of this study is that models that try to capture the quality of a teacher's work environment solely by easy-to-measure variables such as the proportion of students who are Black are likely to overstate the importance of student race as a repelling factor for teachers. As shown in Table 6, however, the addition of the working conditions factors reduces the coefficient on the proportion of Black students only by about 16%. Thus, only a portion of the apparent reluctance of teachers to remain in schools with large proportions of minority students can be attributed to the correlation between the racial mix of the students and poor working conditions.

Although working conditions are also predictive of the 1-year actual departure rates of teachers, their contribution to the explanatory power of the models is far lower than for intended departures. Nonetheless, variation in working conditions still accounts for about 15% of the variation in actual departure rates, which is about the same as the contribution of the other school characteristics.

It is not surprising that the results for the actual and intended departures differ. Intended departures are not limited to a 1-year period and, unlike the actual departure rates, are not confounded by the availability of openings for teachers during that period.[14] Additional research that examines actual departure rates for longer periods of time would clearly be useful. Despite the fact that some scholars—and especially economists—typically prefer findings based on actual rather than intended behavior, one should not discount the findings for intended departures. Even if teachers who say they intend to leave do not actually do so, there could be potential costs to the school to the extent that such teachers translate their lack of satisfaction with the school into lower work effort and lower quality performance.

### *Leadership Is the Dominant Factor*

Among the working conditions factors, the dominant factor, by far, is the quality of school leadership. The models show that for all three levels of schooling, the higher the perceived quality of school leadership, the less likely teachers are either to plan to leave or actually to leave the school. Among the other working conditions, only insufficient time for planning and collaboration appear to be predictive of higher planned departure rates at the elementary and middle school levels, while the factor denoting expanded roles for teachers is associated with lower departure rates, but only at the high school level.

These findings are fully consistent with a transformational model of school leadership. For one thing, the concept of leadership itself that emerges from the factor analysis is a broad one. It includes not only support for teachers, but also a shared vision, a trusting environment, and effective processes for making group decisions and solving problems. For another, the correlations between the factors are such that when the Leadership factor is eliminated from the planned departure models, many of the other factors emerge more clearly as predictors of departure (see Table 6). This pattern provides evidence that leadership works in part through providing opportunities for professional development, giving teachers more roles and providing time for collaboration and planning. At the high school level, it also appears to work through the Facilities and Resources factor as well as through the quality of teacher evaluation. Thus, one should not conclude from this study that certain of the nonleadership factors are irrelevant but rather that they are all closely intertwined through the broad concept of transformational leadership.

Emerging from the competing hazard models of exit routes is the additional conclusion that leadership affects teacher mobility somewhat differently at the three levels of schooling. At the elementary and middle school levels, weak school leadership is predictive of teachers' desire to move to another school or district but not to leave the profession. Only at the high school level does high-quality leadership protect against leaving the profession. These findings imply that while policy makers have reason to be optimistic that improvements in the quality of school leadership at the elementary and middle school levels will reduce teacher turnover, they should not expect them to reduce the rate at which such teachers leave the profession.

### *The North Carolina Survey Instrument Is a Good Start but Has Some Shortcomings*

North Carolina implemented its first statewide teacher working conditions survey in the early 1980s in the face of a significant fiscal deficit with the goal trying to improve teacher well-being and improving outcomes for children without having to increase funding for teacher salaries. The hope was that publishing the survey results on school websites, encouraging school communities to discuss the results, and evaluating school principals on their efforts to respond to them would produce better working conditions for teachers, with salutatory effects in the form of lower teacher turnover and higher student achievement. This article can shed no light on the success of that effort, but there are good opportunities for research on that topic going forward now that several years of survey information with high response rates are available.

The research presented here should be viewed as a first step toward that more policy-oriented analysis and a broader research agenda that focuses not only on teacher mobility but also on student achievement. By demonstrating that working conditions as measured by the survey are indeed predictive of outcomes of policy interest, this article provides new statewide quantitative evidence for the potential for improvements in school working conditions to have positive outcomes.

This study, however, necessarily focuses only on the working conditions that were measured on the North Carolina survey. The comparison between the categories included in the survey and those that emerge from the working conditions literature (as shown in Table 1) highlights some gaps in the survey. Most noticeable are the absence of questions relating to community and school supports for students and questions related to accountability systems. Questions of the first type would allow future researchers to explore the extent to which comprehensive supports, perhaps including health clinics or afterschool programs, in schools with large proportions of disadvantaged students help to counter the educational challenges that teachers face in such schools.

## Appendix
## Working Conditions Factors by Level of School

| | Load | | |
|---|---|---|---|
| | E | M | H |
| Leadership | | | |
| The faculty and staff have a shared vision. | 0.726 | 0.707 | 0.689 |
| Teachers are held to high professional standards for delivering instruction. | 0.604 | 0.557 | 0.491 |
| Teacher performance evaluations are handled in an appropriate manner. | 0.746 | 0.681 | n/a |
| The procedures for teacher performance evaluations are consistent. | 0.737 | 0.671 | n/a |
| Teachers receive feedback that can help them improve teaching. | 0.739 | 0.677 | n/a |
| There is an atmosphere of trust and mutual respect within the school. | 0.722 | 0.714 | 0.709 |
| The faculty are committed to helping every student learn. | 0.510 | 0.449 | 0.401 |
| The school leadership communicates clear expectations to students and parents. | 0.778 | 0.768 | 0.742 |
| The school leadership shields teachers from disruptions, allowing teachers to focus on educating students. | 0.677 | 0.712 | 0.725 |
| The school leadership consistently enforces rules for student conduct. | 0.736 | 0.766 | 0.759 |
| The school leadership support teachers' efforts to maintain discipline in the classroom. | 0.758 | 0.785 | 0.782 |
| Facilities and resources* | 0.597 | 0.592 | 0.569 |
| The use of time in my school* | 0.629 | 0.662 | 0.669 |
| Professional development* | 0.569 | 0.573 | 0.531 |
| Empowering teachers* | 0.715 | 0.752 | 0.743 |
| Leadership issues* | 0.737 | 0.761 | 0.751 |
| New teacher support* | 0.634 | 0.613 | 0.561 |
| Overall, the school leadership in my school is effective. | 0.637 | 0.701 | 0.715 |
| Opportunities are available for members of the community to actively contribute to this school's success. | 0.516 | 0.509 | 0.463 |
| The school leadership consistently supports teachers. | 0.811 | 0.814 | 0.809 |
| The school improvement team provides effective leadership at this school. | 0.695 | 0.685 | 0.664 |
| At this school, we utilize results from the Teacher Working Conditions survey as a tool for improvement. | 0.485 | 0.538 | 0.515 |
| Teachers are protected from duties that interfere with their essential role of educating students. | n/a | n/a | 0.454 |
| School leadership tries to minimize the amount of routine administrative paperwork required of teachers. | n/a | 0.492 | 0.552 |
| Teachers are centrally involved in decision making about educational issues. | 0.534 | 0.604 | 0.614 |
| Teachers are trusted to make sound professional decisions about instruction. | 0.521 | 0.560 | 0.567 |
| The faculty has an effective process for making group decisions and solving problems. | 0.660 | 0.685 | 0.686 |
| In this school we take steps to solve problems. | 0.709 | 0.745 | 0.733 |
| Opportunities for advancement within the teaching profession (other than administration) are available to me. | 0.321 | 0.364 | 0.343 |
| Establishing and implementing policies about student discipline.** | n/a | 0.487 | 0.461 |
| Teachers and staff work in a school environment that is safe. | n/a | 0.470 | 0.488 |
| *Indicates the question reads: "The school leadership makes a sustained effort to address teacher concerns about . . . " | | | |
| **Indicates the question reads: "Please indicate how large a role teachers at your school have in each of the following . . . " | | | |
| Expanded Roles | | | |
| Selecting instructional materials and resources.** | 0.586 | 0.546 | 0.568 |
| Devising teaching techniques.** | 0.554 | 0.537 | 0.566 |
| Setting grading and student assessment practices.** | 0.490 | 0.464 | 0.511 |
| Determining the content of in-service professional development programs.** | 0.574 | 0.490 | 0.444 |
| Hiring new teachers.** | 0.462 | 0.427 | 0.450 |

*(continued)*

**Appendix (continued)**

| | Load | | |
|---|---|---|---|
| | E | M | H |
| Establishing and implementing policies about student discipline.** | 0.486 | N/A | N/A |
| Deciding how the school budget will be spent.** | 0.543 | 0.492 | 0.477 |
| School improvement planning.** | 0.517 | 0.495 | 0.491 |
| **Indicates the question reads: "Please indicate how large a role teachers at your school have in each of the following . . . " | | | |
| Time | | | |
| Teachers have reasonable class sizes, affording them time to meet the educational needs of all students. | –0.395 | n/a | n/a |
| Teachers have time available to collaborate with their colleagues. | –0.580 | –0.460 | n/a |
| Teachers are protected from duties that interfere with their essential role of educating students. | –0.524 | –0.450 | n/a |
| School leadership tries to minimize the amount of routine administrative paperwork required of teachers. | –0.441 | n/a | n/a |
| The non-instructional time provided for teachers in my school is sufficient. | –0.587 | –0.504 | n/a |
| Professional Development | | | |
| Sufficient funds and resources are available to allow teachers to take advantage of professional development activities. | 0.508 | 0.484 | –0.468 |
| Teachers are provided opportunities to learn from one another. | 0.493 | 0.503 | –0.559 |
| Adequate time is provided for professional development. | 0.633 | 0.625 | –0.629 |
| Teachers have sufficient training to fully utilize instructional technology. | 0.511 | 0.500 | –0.478 |
| Professional development provides teachers with the knowledge and skills most needed to teach effectively. | 0.512 | 0.527 | –0.512 |
| Teachers have time available to collaborate with their colleagues. | n/a | n/a | –0.430 |
| The non-instructional time provided for teachers in my school is sufficient. | n/a | n/a | –0.309 |
| Facilities and Resources | | | |
| Teachers have sufficient access to appropriate instructional materials and resources. | 0.507 | 0.543 | 0.547 |
| Teachers have sufficient access to instructional technology, including computers, printers, software, and internet access. | 0.652 | 0.615 | 0.626 |
| Teachers have sufficient access to communications technology, including phones, faxes, email, and network drives. | 0.629 | 0.610 | 0.589 |
| Teachers have sufficient access to office equipment and supplies such as copy machines, paper, pens, etc. | 0.486 | 0.513 | 0.500 |
| The reliability and speed of Internet connections in this school are sufficient to support instructional practices. | 0.527 | 0.505 | 0.479 |
| Teachers have adequate professional space to work productively. | 0.491 | 0.517 | 0.493 |
| Teachers and staff work in a school environment that is clean and well maintained. | 0.420 | 0.438 | 0.410 |
| Teachers and staff work in a school environment that is safe. | 0.437 | n/a | n/a |
| Teachers have reasonable class sizes, affording them time to meet the educational needs of all students. | n/a | n/a | 0.351 |
| Teacher Evaluation | | | |
| Teacher performance evaluations are handled in an appropriate manner. | n/a | n/a | 0.642 |
| The procedures for teacher performance evaluations are consistent. | n/a | n/a | 0.626 |
| Teachers receive feedback that can help them improve teaching. | n/a | n/a | 0.559 |

*Note.* n/a signifies not applicable.

When combined with statewide administrative data on school performance, questions related to teachers' perceptions of testing and accountability could generate new insights on a timely and important policy issue. Finally, in the tradition of the working conditions literature, the North Carolina survey includes no questions about teacher salaries. The addition of such information

on the survey would allow researchers to examine the relationship between actual salaries and teachers' attitudes toward them and the implications for outcomes of policy interest. These points are relevant not only for the North Carolina survey but also for the development of comparable surveys in other states, some of which are now based on the North Carolina model.

## Notes

1. That is not always the case, however. Loeb, Darling-Hammond, and Luczak (2005), for example, include salaries as a component of working conditions.

2. For a description and analysis of the 2006 survey, see Hirsch and Emerick, 2007.

3. For this analysis I used only the survey responses of teachers and only those that were complete (that is, those that had responses to all of the relevant questions with the 5-point scale). In addition, the sample was restricted to teachers in traditional public schools. Thus, survey responses of administrators and those of teachers in charter schools were excluded.

4. Had I used as the criterion for determining the number of separate factors in the factor analysis of working conditions a large dropoff in eigenvalues, the responses to the 54 questions on the survey would have collapsed into a single factor, which logically would have been labeled Leadership, for each of the three levels of schooling. Thus, in the context of the North Carolina data, leadership and working conditions might be viewed as one and the same construct. Such an interpretation would be fully consistent with a transformational model of school leadership, that is, one in which school leaders operate by providing social and structural supports for teachers.

5. In earlier regressions, I also omitted the respondent's own response before calculating the average responses at the school level, a procedure that generates teacher-specific measures of working conditions within each school. I present results for the simpler specifications in this article so that the working conditions variables are identical at the school level in the planned and actual departure models.

6. In general, information is available only on the total supplemental payments and the number of recipients. For some districts, more detail is available on the web about how the supplements are distributed among teachers. In other cases, reasonable assumptions had to be made about its distribution. For more detail, see Clotfelter et al. (in press).

7. This statement is based on Walden and Sogutlu (2001) and my own unpublished estimates for a more recent year.

8. The five response categories are (1) continue teaching at my current school, (2) continue teaching at my current school until a better opportunity comes along, (3) continue teaching but leave this school as soon as I can, (4) continue teaching but leave this district as soon as I can, and (5) leave the profession altogether. I coded responses 1 and 2 as remaining in the current school.

9. I also interacted the working conditions separately with variables for inexperienced teachers (those with 3 or fewer years of experience) and Black teachers. A few statistically significant differences emerge. At both the elementary and the middle school levels, in making their departure decisions, inexperienced teachers appear to be more somewhat more responsive to the quality of school leadership than are more experienced teachers. In contrast, Black teachers at the elementary school level emerge as somewhat less responsive to the quality of school leadership than their White counterparts.

10. At the elementary level, the proportions in each of the four categories (remain in school, stay in district, move to another district, or leave the profession) are 82.0, 4.4, 2.7, and 10.9. At the middle school level, the proportions are 78.6, 5.4, 3.9, and 12.1 and at the high school level, 80.1, 3.50, 3.60, and 12.79

11. Because the question about planned departure rates was not asked on previous waves of the working condition survey, it was not possible to use those earlier surveys to look at longer movement patterns.

12. In particular, I deleted some schools because of calculated departure rates of 100%. Had these rates reflected school closures, I would have deleted them from the planned regressions as well, but I was not able to confirm that that was the case, so I have just deleted them from the actual regressions.

13. At least two other considerations could account for the fact of the smaller coefficients on the working conditions variables but not on the demographic variables. One is the potential upward bias that could emerge for the working conditions variables in the planned regression because of the confounding referring to the aforementioned—namely, that teachers who plan to leave may rationalize their decisions by badmouthing the school—and the other is the possibility that grumpy teachers may say they want to leave even if they in fact do not actually intend to do so. There is no clear evidence of either possibility. In the first case, the estimates of the working conditions variables in the actual departure rates would most likely be similarly biased upward. For the second case, the departure rates are no higher in the planned departure samples than in the actual departure samples.

14. I cannot rule out, however, the possibility that the findings for intended departures are upward biased. Despite my best efforts to minimize any reverse

causation, it could be that in schools from which many teachers plan to leave, the teachers as a group justify their plans by criticizing the school's working conditions.

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