Teacher Turnover in the United States

Who Moves, Who Leaves, and Why

Technical Supplement

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Introduction

This technical supplement describes the data and analyses used in the report *Teacher Turnover in the United States: Who Moves, Who Leaves, and Why*. The report studies patterns in teacher turnover (teachers moving to another school or leaving the profession between one school year and the next) and teacher retention (teachers staying at the same school) in the United States, by:

- describing the most recent turnover and retention rates for all teachers;
- breaking down where teachers who moved schools or left the profession went; how teacher turnover varies by teachers' background characteristics, instructional factors, schools' student body composition, school location, and type of school; what shares of teachers leave or move schools voluntarily for reasons other than retirement; and which reasons teachers identify as the most important for their decisions to move schools or leave the profession; and
- examining the relationships between teacher turnover and various individual- and school-level factors, including compensation, working conditions, teacher characteristics, school characteristics, and states.

This technical supplement includes detailed information on the data sources, variables, and approaches used to address the research themes above. It also includes details about the quantitative analyses and offers tables and figures that support and/or complement the evidence presented in the full report.

Data Sources and Sample

This research builds on data from the 2020–21 National Teacher and Principal Survey (NTPS) and the 2021–22 Teacher Follow-Up Survey (TFS). These surveys (and the NTPS's previous version, the School and Staffing Survey (SASS)) have served as the main sources for analyses of teachers and teacher labor markets since the 1987–88 school year.[1]

Both the 2020–21 NTPS and the 2021–22 TFS are nationally representative surveys of public and private K–12 teachers in the 50 states and the District of Columbia.[2] They were developed by the National Center for Education Statistics (NCES) of the Institute of Education Sciences within the U.S. Department of Education, and data were collected by the U.S. Census Bureau on behalf of NCES.[3]

- The 2020–21 NTPS teacher data include responses from a nationally representative sample of teachers (public school teachers and private school teachers). The NTPS public school teacher data include responses from about 39,630 teachers in K–12 public schools (traditional and charter) in the 50 states and the District of Columbia. It includes information about teachers' background and multiple characteristics of their job and assignments. NCES administered the NTPS from October 2020 to August 2021.
- The 2021–22 TFS is a longitudinal component of NTPS that followed a sample of public and private school teachers into their assignments a year later to assess teachers' decisions regarding their teaching status (stayer, mover, or leaver). The 2021–22 TFS sampling frame consisted of teachers who completed a Teacher Questionnaire during the 2020–21 NTPS.[4] The survey is nationally representative of the target population. Data collection activities with current and former teachers were conducted from January to July 2022.

For our analyses, we used the responses from public school teachers who participated in the 2020–21 NTPS and were followed to participate in the 2021–22 TFS. Our primary analytic sample included respondents who identified as regular full-time teachers, regular part-time teachers, and itinerant teachers in 2020–21. We excluded long-term substitutes, administrators, librarians, support staff, and other professional staff. In our analytic sample, 96.6% of teachers were full-time, 2.2% were part-time, and 1.2% were itinerant. Public schools included traditional public schools and charter schools. The number of observations was approximately 5,900. These observations and the survey represented about 3.6 million teachers.

Variables Used in the Analyses

The report used the variables that asked teachers about their teaching status in 2021–22 (whether the teachers stayed at the same school they were at in 2020–21, moved to a different school, or left teaching), their demographic characteristics, their educational preparation, their teaching experience, compensation, and a wide range of working conditions they experienced the school year before their working status was observed (i.e., school year 2020–21). In addition, the report used characteristics of the school and the school principal (pertaining to the school the teacher was in during 2020–21).

The selection of variables was based on our review of the literature examining teacher retention and teacher turnover. Reflecting a significant interest around teacher labor markets and their dynamics over the last decades, seminal studies—including multiple syntheses—have concluded that several individual, school, and institutional factors are statistically significant predictors of teachers' working status.[5] Several meta-analyses that synthesized this knowledge and incorporated causal findings show that there is a large number of predictors linked with compensation and the conditions in which teachers teach (which we refer to as teaching conditions in some instances) that influence turnover decisions, and that these factors are often interconnected.[6] These variables—such as compensation, workload, and the working environment—make up the basis of our analyses.

In addition, we incorporated additional variables. Some were newly added survey items in the NTPS/TFS (for example, teachers holding student loans), whereas others were not included in frameworks studying teacher supply in the past (for example, whether teachers work multiple jobs). Although these variables might not have been tested as potential drivers of turnover in the existing literature, the correlation of these variables with other important predictors of teacher labor markets suggests that they could play a role in teachers' decisions to stay in the profession, move schools, or leave teaching; hence they were tested here. For example, student loans are linked with teacher compensation and with teachers' well-being.[7] The existing research is also used to validate our conceptual framework of teacher supply and to build our models and main specification. Figure 1 summarizes the final selection of predictors of teacher turnover (and/or teacher retention).

Figure 1. Teacher Supply Framework (Simplified)
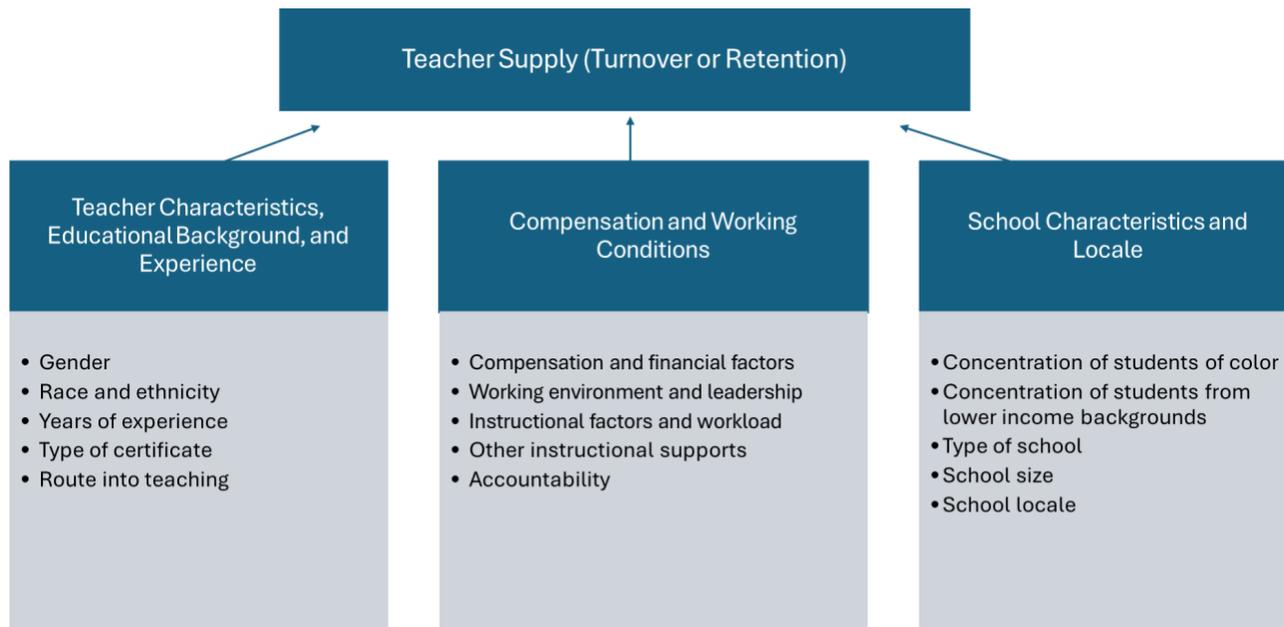
Source: Learning Policy Institute, based on the literature examining teacher retention and teacher turnover and on analyses of the National Teacher and Principal Survey, 2020–21, and the Teacher Follow-Up Survey, 2021–22. (2024).

The survey questions related to teacher retention and turnover, and all the variables used in the analyses, are described below. The full list of variables, alongside some descriptive statistics, is available in Table 1.

Teacher Working Status Variables (From the 2021–22 TFS)

- Teachers' working status:
  - **Stayer**: A teacher who remained at their 2020–21 NTPS school during the 2021–22 school year.
  - **Mover**: A teacher who moved to a different school than their 2020–21 NTPS school for the 2021–22 school year.
    - Both stayers and movers were administered the "stayers" TFS questionnaire.
  - **Leaver**: A former teacher (NTPS teachers who left the teaching profession within the year after the NTPS).
    - Teachers who left teaching were administered the "former" TFS questionnaire.
  - **Turnover (mover or leaver)**: Teachers who moved to a different school or who left teaching between 2020–21 and 2021–22. This variable constituted the

outcome variable of interest in our regression work in the main report. (The variable equals 0 for stayers.)

- **Preretirement turnover**: Mover or leaver, excluding retirees (all movers or leavers except retirees). This variable constituted the outcome variable of interest in our regression results explained in the box "Key Drivers of Preretirement Turnover." (The variable equals 0 for stayers.)

Questions Related to Changes in Working Status (From the 2021–22 TFS)

The 2021–22 TFS questionnaires ask teachers about details of their teaching status; we used responses to the following questions in our analyses.

- Detailed current teachers' status:
    - If the teacher was teaching in the same school or moved to another school; whether the teacher was teaching in the same state, in another state, or abroad.

- If the former teacher was employed, still working in the field of K–12 education, working in the field of PreK or postsecondary, working outside the education field, or others (i.e., student at a college/university, caring for family members, retired, disabled, unemployed, or other).

- Whether teachers who moved schools or left teaching did so voluntarily or involuntarily.

- The "most important" reason why the teacher moved to a different school or left teaching (including personal life factors, salary and other job benefits, assignment and classroom facilities, school factors, and student performance factors). We analyzed this variable by tabulating the frequency with which teachers chose each reason as the "most important."

Variables Used in the Analyses (2020–21 NTPS and 2021–22 TFS)

As shown above in Figure 1, the study analyzed various variables related to teacher demographics, educational background, experience, compensation, working conditions, and school characteristics. These variables all came from the 2020–21 NTPS, unless otherwise specified. (Note: An asterisk, *, indicates that the variable was used in descriptive and intermediate analyses, though not in the regression analyses.)

Teacher Characteristics and Background

- Teacher demographic characteristics:
    - Gender (binary)
    - Race and ethnicity (categorical)
    - Age* (categorical)

- Background and experience:

- o Educational attainment* (categorical)
- o Type of certificate (binary)
- o Route into teaching (binary)
- o Years of experience (categorical)

Compensation and Working Conditions

Figure 22 depicts the various factors related to teachers' compensation and working conditions that prior literature has shown to influence teachers' turnover decisions. These include:

- Compensation and financial factors:
  - o Salary, adjusted for cost-of-living differences across the districts using the American Community Survey Comparable Wage Index for Teachers (ACS-CWIFT) (in $1,000, continuous, linear, and quadratic)[8]
  - o Working at least one other job outside of the school system (binary)
  - o Whether teacher holds student loans (binary)

- Instructional factors and workload:
  - o Contract work hours (continuous)
  - o Class size (proxy, continuous):
    - ▪ For most observations, average class size for teachers of departmentalized classes.[9] Due to significant missingness, if this was not available, we used the total number of students enrolled in the class taught, or the average number of students in up to 10 subject matter class periods or sections, or the average number of students taught at any one time.
  - o Field of main assignment: 13 fields of main teaching assignment (categorical)
    - ▪ For regression analyses, we used the following derived variable (binary): special education, ESL, foreign languages, CTE (higher-than-average turnover subjects, defined as turnover >16%) versus all other subjects.
  - o Grade level: 4 different levels (categorical)
    - ▪ For regression analyses, we used the following variables: "primary" and "middle" versus all other levels (high or combined grade, derived).

- Working environment and leadership: We created five indices based on various teacher survey questions, as listed next to each index below. To produce one index based on a set of variables, we used the alpha approach. The Cronbach's alpha coefficients for each index are well above the rule of thumb of 0.7, indicating that the items have high internal consistency. Importantly, we coded all indices in a way such that greater values indicate a more positive index: Higher index values mean increased classroom autonomy, increased influence over school policies, lack of barriers to teaching and learning, improved job and workplace satisfaction (reduced burnout and dissatisfaction), and increased leadership effectiveness and supports. To this end, we reverse-coded any underlying factors that were negatively correlated with an index that captures a positive aspect.

o Classroom autonomy: Teachers' assessments of how much actual control they have in their classroom at this school over several planning and teaching areas. This index used responses of teachers on:

- How much actual control do you have in your classroom at this school over the following areas of your planning and teaching? (Responses range from no control to a great deal of control.)
  - Selecting textbooks and other instructional materials
  - Selecting content, topics, and skills to be taught
  - Selecting teaching techniques
  - Evaluating and grading students
  - Disciplining students
  - Determining the amount of homework to be assigned

o Influence over school policy: Teachers' assessment of how much influence they think teachers have over different areas of school policy at this school. This index used responses of teachers on:

- How much influence do you think teachers have over school policy at this school in the following areas? (Responses range from no influence to a great deal of influence.)
  - Setting performance standards for students at this school
  - Establishing curriculum
  - Determining the content of in-service professional development programs
  - Evaluating teachers
  - Hiring new full-time teachers
  - Setting discipline policy
  - Deciding how the school budget will be spent[10]

o Lack of barriers to teaching and learning: Teachers' assessment of the extent to which various barriers that can hinder teaching and learning are absent in the school (e.g., student tardiness, absenteeism, apathy, lack of parental involvement, poverty, poor health, lack of safety). This index used responses to the following questions:[11]

- To what extent is each of the following a problem in THIS school? (Responses range from not a problem to serious problem.)
  - Student tardiness
  - Student absenteeism
  - Student class cutting
  - Teacher absenteeism
  - Students dropping out
  - Student apathy

- Lack of parental involvement
- Poverty
- Students come to school unprepared to learn
- Poor student health
  - Has a student physically attacked you in the past 12 months?
  - Has a student physically threatened you in the past 12 months?
- Job and workplace satisfaction: Teachers' opinions on their levels of satisfaction with the job, the school environment, lack of burnout, and willingness to stay in teaching. This index used responses on:
  - To what extent do you agree or disagree with each of the following statements? (Responses range from strongly disagree to strongly agree.)
    - The stress and disappointments involved in teaching at this school aren't really worth it.
    - I don't seem to have as much enthusiasm now as I did when I began teaching.
    - I think about staying home from school because I'm just too tired to go.
    - The teachers at this school like being here; I would describe us as a satisfied group.
    - I like the way things are run at this school.
    - If I could get a higher paying job I'd leave teaching as soon as possible.
    - I think about transferring to another school.
    - I am generally satisfied with being a teacher at this school.
- Leadership effectiveness and supports: Teachers' perceptions of school administration and leadership (including whether the administration is supportive, communicates a clear vision, recognizes staff efforts, and fosters collaboration), and whether the principal performs leadership tasks effectively (including supporting teachers, encouraging collaboration, helping meet curriculum standards, promoting professional development, and using student assessments to improve instruction).[12] This index used responses on:
  - To what extent do you agree or disagree with each of the following statements? (Responses range from strongly disagree to strongly agree.)
    - The school administration's behavior toward the staff is supportive and encouraging.
    - The principal knows what kind of school he or she wants and has communicated it to the staff.
    - In this school, staff members are recognized for a job well done.

- There is a great deal of cooperative effort among the staff members.
- I make a conscious effort to coordinate the content of my courses with that of other teachers.
    - (From 2021–22 TFS) Principal's work was effective: Stayers, movers, and leavers answered questions about how effectively the principal or school head performed different activities during the prior school year. (Responses range from not at all effectively to extremely effectively.)
        - Communicated respect for and value of teachers
        - Encouraged teachers to change teaching methods if students were not doing well
        - Worked with staff to meet curriculum standards
        - Encouraged professional collaboration among teachers
        - Worked with teaching staff to solve school or department problems
        - Encouraged the teaching staff to use student assessment results in planning curriculum and instruction
        - Worked to develop broad agreement among the teaching staff about the school's mission
        - Facilitated and encouraged professional development activities of teachers

- Accountability: To what extent do you agree or disagree with each of the following statements? (Responses range from strongly disagree to strongly agree.)
    - Test-related job insecurity: I worry about the security of my job because of the performance of my students (In regressions, this is a binary variable—somewhat agree/strongly agree versus somewhat disagree/strongly disasagree).

- Other instructional supports: To what extent do you agree or disagree with each of the following statements? (Responses range from strongly disagree to strongly agree; In regressions, this is a binary variable—somewhat agree/strongly agree versus somewhat disagree/strongly disagree).
    - Paperwork: Routine duties and paperwork interfere with my job of teaching.
    - Resources: Necessary materials such as textbooks, supplies, and copy machines are available as needed by the staff.
    - Parent support: I receive a great deal of support from parents for the work I do.

Figure 22. Classification of Compensation and Working Conditions from the National Teacher and Principal Survey

Compensation and Financial Factors	Instructional Factors and Workload	Working Environment and Leadership	Accountability	Other Instructional Supports
• Base salary • Worked multiple jobs • Repaying student loans	• Class size • Contracted hours • Grade level • Field of teaching	• Classroom autonomy • Influence over school policies • Lack of barriers to teaching and learning • Job and workplace satisfaction • Leadership effectiveness and support	• Test-related job insecurity (I worry about the security of my job because of the performance of my students)	• Necessary materials are available as needed by staff • Routine duties and paperwork interfere with teaching • Parental support (Receive a great deal of support from parents for the work I do.)

Source: Learning Policy Institute analysis of the National Teacher and Principal Survey, 2020–21, and the Teacher Follow-Up Survey, 2021–22. (2024).

School Characteristics

- School minority: (categorical) identifies the concentration of students of color in the school, classifying schools into those with 0%–25% students of color; >25%–50% students of color; >50%–75% students of color; and >75%–100% students of color. The variable includes a control for missing information on the underlying variable (1.9% of the observations).

- School poverty: (categorical) identifies the concentration of students eligible for free or reduced-price lunch under the National School Lunch Program (NSLP) in the school, classifying schools into those with 0%–25%, >25%–50%, >50%–75%, >75%–<100%, and 100% of students eligible for NSLP. The variable includes a control for missing information on the underlying variable (3.9% of the observations). Throughout this technical supplement and in the report, we also refer to students who participate in the NSLP as students who are eligible for free or reduced-price lunch (FRPL). (See Other Analytic Aspects for a discussion of the coding of this variable.)

- Type of school: (binary) traditional public school versus charter school

- School size: (categorical) indicates the number of students enrolled in the school, classifying schools into small schools (size 1–199), medium (200–499), medium large (500–749), and large (750 and more). Our reference is medium, to allow a comparison of whether turnover changes with respect to the most common school size. The variable also

includes a control for missing information on the underlying variable (0.2% of the observations).

- Locale: (categorical) city, town, suburb, or rural
  - For regression analyses, we used "city" and "rural" versus the following derived variable: "suburb or town."

State Characteristics

- State: While taking into account the state each teacher was in does not fully account for the localized nature of teacher labor markets, these controls help account for specific state characteristics and their variation across the nation. In our framework, this information is accounted for by using state controls (state fixed effects).

Methodology

This study used descriptive and regression analyses.

Descriptive Analyses

In all cases, we adhered to NCES's survey design recommendations and reporting requirements that teacher observations are weighted by both the teacher and the replicate weights to represent population statistics.[13] In general, descriptive findings represent full-time, part-time, and itinerant public school teachers in 2020–21 who were followed the year after. We reported information about variables' means, standard error, and confidence intervals for all variables used in the analyses and for the breakdown by working status (see Table 1 and Table 2).

For the variables' descriptive statistics, we present the values for two samples: (1) all full-time, part-time, and itinerant public school teachers in 2020–21 who were followed the year after (see Table 1) and (2) full-time, part-time, and itinerant public school teachers in 2020–21 who were followed the year after excluding teachers who retired between the 2 years (see Table 2).

In the descriptive analyses by working status, we focused on two sets of results:

- Aggregate statistics for rates of teachers staying, moving across schools, and leaving the profession between school years 2020–21 and 2021–22.

- Analyses of the shares of teachers staying, moving schools, and leaving the profession broken down by selected characteristics:
    - Teacher demographic characteristics:
        - Race and ethnicity
    - Teacher educational background and experience:
        - Experience
        - Type of teaching certificate
        - Route into teaching
    - Instructional factors and workload:
        - Field of main teaching assignment
        - Grade level
    - School characteristics:
        - School concentration of students eligible for FRPL
        - School concentration of students of color
        - School size
        - School locale
        - Type of school

Additional breakdowns, such as by gender, age, and educational background, are also shown in Table 3.

Following NCES's reporting standards for all our variables, values not reported or flagged with a caveat are because of NCES's reporting requirements. According to NCES guidelines, indicators with coefficient of variation (CVs, or the ratio of the standard error to the mean, an indication of the variability relative to the mean in the population, multiplied by 100%) between 30% and 50% should be interpreted with caution and those with CVs above 50% should be suppressed. A higher CV indicates higher variation among the different values that make up the mean, which could suggest that the mean is less representative of the actual data. Estimates marked with † should be interpreted with caution. The coefficient of variation of the estimates is between 30% and 50%. Estimates marked with †† are not reported because reporting standards are not met. The coefficient of variation of the estimates is higher than 50%.

Regression Analyses

Regression analyses' results also apply to full-time, part-time, and itinerant public school teachers in 2020–21 who were followed the year after. In addition, to examine whether the compensation and working conditions influenced teachers' turnover decisions differently if they were retiring versus if they were moving or leaving for other reasons, we produced the full set of regression results using a subsample that focused on teachers who moved schools or left the profession for reasons other than retirement (preretirement turnover).

We estimated the relationship between teachers' working status in 2021–22, relative to 2020–21, and multiple individual- and school-level characteristics. These included teachers' demographic characteristics (gender, race and ethnicity), educational background and experience (years of experience, preparation route, certification status), compensation (salary and financial factors), working conditions (working environment, leadership, instructional factors and workload, additional instructional supports, and accountability), and school characteristics (share of students of color, share of students participating in the NSLP, type of school, locale, and school size). Our preferred models also included a control for state-specific characteristics. The findings represent population statistics, and we adhered to the recommendations of the survey design to estimate our models. In the regression analyses, the standard reporting for statistical significance was used. The characteristics of our regression analyses were as follows.

Dependent Variable

Our main dependent variables were:

- Turnover (movers or leavers) [in the report and in the technical supplement]
- Retention (stayers) [only in the technical supplement]
- Preretirement turnover (movers or leavers excluding retirees) [in the report and in the technical supplement][14]

Models

Our preferred model was the fully specified model with state fixed effects, through which we modeled the relationship between teacher retention (turnover) and the predictors listed above simultaneously (and in **Error! Reference source not found.**). As the name indicates, this model includes state fixed effects, which accounted for variation in policies and contexts affecting teacher status across the country, as well as fixed state-level characteristics. In particular, we estimated:

$$Y_{is} = \beta_0 + \beta_1 \text{ x Compensation and Working\_conditions}_{is} + \beta_2 \text{ x Demographic\_characteristics}_{is} + \beta_3 \text{ x Educational\_background and Experience}_{is} + \beta_4 \text{ x School\_characteristics}_{is} + \beta_5 \text{ x Locale}_{is} + \lambda_s + e_{is}$$

Where Y is the dependent variable—turnover, retention—subindices i and s represent the teacher and the state, respectively, and λ_s represents a state fixed effect. The independent variables in the equation represent groups of variables. The independent variables of main interest are those included in the group "Compensation and Working Conditions" (see **Error! Reference source not found.**), and the coefficients of main interest are represented by β_1.

We reached our preferred model sequentially, as follows: First, we estimated models where each dependent variable was explained by one independent variable only (see **Model bivariate**). That is, for each independent variable in the fully specified model, bivariate regression analyses (or unadjusted regression analyses) between them and the dependent variables were estimated. This allowed us to detect unadjusted statistically significant relationships between retention/turnover and each independent variable, regardless of whether the statistical significance might disappear when controlling for other variables. This also assisted with reference group selection. For example, "urbanicity" detected a significant relationship between teaching in a city and higher turnover. City and rural teachers were included as control variables, while teachers in suburbs and towns were omitted. These results are presented in columns **Model bivariate** for selected variables in the tables below.

Model bivariate: $Y_{is} = \beta_0 + \beta_{\text{Bivariate}} \text{ x Each\_independent\_variable}_{is} + e_{is}$

Second, we estimated five additional models in which we entered additional sets of predictors sequentially (see **Model 1**, **Model 2**, **Model 3**, **Model 4** and **Model 4s**, and **Model 5** and **Model 5s**), using multivariate regression analyses. This allowed us to see how sensitive compensation and working conditions may be to including additional sets of controls, such as school characteristics. For brevity, only results for **Models bivariate**, **Model 5**, **and Model 5s** are presented in the tables. Results for other models not shown are available upon request.

- **Model 1:** $Y_{is} = \beta_0 + \beta_1 \text{ x Compensation and Working\_conditions}_{is} + e_{is}$
- **Model 2:** $Y_{is} = \beta_0 + \beta_1 \text{ x Compensation and Working\_conditions}_{is} + \beta_2 \text{ x Demographic\_characteristics}_{is} + \beta_3 \text{ x Educational\_background and Experience}_{is} + e_{is}$

- **Model 3:** $Y_{is} = \beta_0 + \beta_1$ x Compensation and Working_conditions$_{is}$ + β_4 x School_characteristics$_{is}$ + β_5 x Locale$_{is}$ + e$_{is}$
- **Model 4:** $Y_{is} = \beta_0 + \beta_1$ x Compensation and Working_conditions [Excludes Accoudntability and Other Instructional Supports]$_{is}$ + β_2 x Demographic_characteristics$_{is}$ + β_3 x Educational_background and Experience$_{is}$ + β_4 x School_characteristics$_{is}$ + β_5 x Locale$_{is}$ + e$_{is}$
  - **Model 4s (M4 with state FE):** $Y_{is} = \beta_0 + \beta_1$ x Compensation and Working_conditions [Excludes Accountability and Other Instructional Supports]$_{is}$ + β_2 x Demographic_characteristics$_{is}$ + β_3 x Educational_background and Experience $_{is}$ + β_4 x School_characteristics$_{is}$ + β_5 x Locale$_{is}$ + λ_s + e$_{is}$
- **Fully Specified Model: Model 5:** $Y_{is} = \beta_0 + \beta_1$ x Compensation and Working_conditions$_{is}$ + β_2 x Demographic_characteristics$_{is}$ + β_3 x Educational_background and Experience$_{is}$ + β_4 x School_characteristics$_{is}$ + β_5 x Locale$_{is}$ + e$_{is}$
  - **Model 5s (fully specified model with state FE):** $Y_{is} = \beta_0 + \beta_1$ x Compensation and Working_conditions$_{is}$ + β_2 x Demographic_characteristics$_{is}$ + β_3 x Educational_background and Experience$_{is}$ + β_4 x School_characteristics$_{is}$ + β_5 x Locale$_{is}$ + λ_s + e$_{is}$

Estimation was conducted using Ordinary Least Squares, Linear Probability Models.[15] We tested for multicollinearity by performing the VIF (variance inflation factors) test after estimating our fully specified model. Mean VIF and individual VIF in all models were below the typical threshold of potential multicollinearity. We report results obtained using OLS, as these are preferred for interpretation. Results are shown in Table 4 and Table 6 for turnover of all teachers and of preretirement teachers, respectively, and in Table 5 and Table 7 for retention of all teachers and of preretirement teachers, respectively. Additional results using logistic regressions, with estimates defined in odds ratio, are also shown in the right panels of these tables.

Other Analytic Aspects

Notes on Variables

- The race and ethnicity variables follow the categories used in the original source, although teachers who identify as Black or African American in the survey are referred to as Black teachers for brevity and clarity to the readers in the report.
- For continuous variables, we tested specifications and possible nonlinearities using multiple approaches (levels, standardized, log, adding quadratic, in quartiles, at mean or above versus below, and rescaling). Variables affected were salaries, class size, and work hours.
- For variables including missing data, see notes above for the following variables: class size, school concentration of students eligible for FRPL (participating in the NSLP), school concentration of students of color, and school size.

- The concentration of students eligible for FRPL (school poverty) variable was recoded to include one additional indicator for schools with 100% FRPL students, since descriptive findings did not show a consistent behavior of variables for this value of school poverty and since community eligibility can mask the true percentage of FRPL-eligible students.
- In exploratory stages, we tested other variables available in the survey that were not included in the final models. The main reasons for their exclusion included: (a) we were using controls that could account for some of the variable's variation (e.g., full-time status can be assessed based on the number of hours worked, and preservice preparation can be assessed through the type of credential the teacher holds); (b) variables were not associated with the outcomes in the bivariate models (e.g., formally evaluated, pandemic supports, or preservice preparation); and/or (c) variables had some missingness that further restricted the sample size (e.g., pandemic supports). Some of these variables were used in some subgroup descriptive analyses, and hence their descriptive statistics are included in Table 1 (see "Other variables used in sensitivity analyses, subgroup analyses, etc." section of the table). These variables included:
    - Worked in summer: whether the teacher received any earnings from teaching during the summer (of 2020)
    - Hours: hours of teaching (hours delivering instruction), total hours (all hours spent on teaching and other school-related activities)
    - Status: full-time versus part-time or itinerant (binary, based on NTPS status)
    - Evaluation: whether "you were formally evaluated for your work as a teacher last school year"
    - Support during the pandemic: "To what extent do you agree or disagree that you had the support and resources needed to be effective as a teacher at this school during the coronavirus pandemic in the 2019–20 school year?" (responses range from strongly disagree to strongly agree on a 4-point Likert scale)
    - Home ownership: whether the teacher owns their home, versus others (rent or other)
    - Teacher preparation: These variables followed the classification suggested by Ingersoll, Merrill & May (2014)[16]
        - Teaching methods courses: whether the teacher has had from 0 to 10 or more courses on teaching methods (in descriptives, categorical): no preservice courses, preservice courses 1–2, preservice courses 3–4, preservice courses 5–6, or preservice courses 7; in regressions, comparing highest preparation (10 or more versus fewer or none, binary)
        - Student teaching: whether student teaching lasted for 0 to 12 weeks or more (categorical variable: no student teaching, student teaching 1–4 weeks, student teaching 5–7 weeks, student teaching 8–11 weeks, student teaching 12 weeks or more)

- Preservice classroom management courses (out of seven options): whether, before first year of teaching, the teacher took any graduate or undergraduate courses that taught them classroom management, lesson planning, assess learning, performance data, economic background, special needs, LEP (categorical variable: no teaching methods courses, teaching methods courses 1–2, teaching methods courses 3–4, teaching methods courses 5–9, teaching methods courses 10 or more)
  - Teacher union status: whether the teacher is a member of a teachers' union or an employee association similar to a union (binary)

Source for Working Conditions in NTPS and TFS

Working conditions for teachers were asked of all NTPS teachers in 2020–21 and of current teachers (i.e., stayers and movers) in the TFS in 2021–22. For example, both surveys asked their respective survey respondents the extent to which they agreed or disagreed with statements like "The school administration's behavior toward the staff is supportive and encouraging" (T1713 in NTPS and F1100 in TFS), but for different years. However, teachers who left the profession were not asked questions on their current working conditions in the TFS, though they were asked some retrospective questions about their former school in the prior year.

Our models assumed that changes in working status between 2020–21 and 2021–22 could have been influenced only by working conditions experienced in 2020–21 (i.e., they are predetermined by the time the decision about staying in teaching, moving schools, or leaving the workforce was made). Hence, we relied on the NTPS working conditions information for our analysis.[17]

School Concentration of Students from Low-Income Backgrounds and Students of Color

We grouped schools in 25 percentage point-increments for the share of students of color (SOC) or students eligible for FRPL. We selected this method because it allowed us to control and interpret findings across defined cutoffs and to model nonlinear relationships between the share of FRPL and the outcomes of interest. We also coded schools with 100% FRPL students as their own category for various reasons. First, a significant number of schools in this category represents schools participating in Community Eligibility Provisions (CEP), where schools with at least 40% of students eligible for FRPL are allowed to enroll their entire school for FRPL (these schools do not report the true percentage of students eligible for FRPL). In addition, the 100% FRPL schools in 2020–21 may also be an artifact of the fact that many schools, with state and federal support, were able to offer free lunch to all of their students during the pandemic, even if the school was not previously participating in CEP. In the data, we saw a large proportion of schools in this 100% category, and their turnover rate was not higher than for schools with ~80%–90% FRPL-eligible children.

We opted for this approach based on 25 percentage point-increments rather than grouping schools by quartile of SOC/FRPL eligibility. This alternative method is slightly preferred statistically, in that it creates proportional groups, but it masks the breakdowns that lead to the quartile composition (in this particular case, it would also be sensitive to the large proportion of schools that reported 100% NSLP, as this would skew the underlying distribution). Additional challenges were that the quartiles are both time-sensitive (i.e., schools can change quartiles over years) and region-sensitive (i.e., different states may have different approaches for assigning FRPL eligibility, based on Community Eligibility Provisions or others).

Indices

The literature on teacher retention and attrition has often relied on classifications of working conditions and the grouping of multiple variables into "buckets" or "factors/strands" of characteristics that are highly correlated among themselves.

Statistically, this is performed through the application of factor analysis techniques that capture the common underlying variation of the variables in each bucket. Factors also play a significant role in reducing the threat of multicollinearity—a challenge that can lead to unreliable and unstable coefficient estimates with large standard errors, which can hinder the interpretation of the model results, when controls that are highly correlated are introduced as separate independent variables in a regression model. Relying on indices with relatively high internal consistency also makes the models more manageable and easier to interpret. For this study in particular, indices allowed us to test sets of questions that are conceptually related to a broader factor, rather than responses to a specific survey question that contribute to that factor. For example, we considered that teachers have a high level of job and workplace satisfaction when most of their responses to the components of the index were positive, rather than distinguishing teachers who provided a positive response to just one item and comparing them to those who provided a negative response to the same item—i.e., teachers who are generally satisfied with their job and workplace relatively to those who aren't, rather than teachers who may be differently satisfied with their salary, exclusively.

Factor analysis for this research was performed in three ways:

1. Factor analysis using alpha (coefficient of reliability, or consistency): This approach allowed us to capture the underlying variation among variables that are highly correlated and represent a common construct. This is the method used in our preferred models, as it provides a reliable way to summarize multiple related items into a single index that "reflects the internal consistency, or how closely related a set of items as a group."[18] Its use helps ensure internal consistency and reduces measurement error in regression analyses.

   Alpha values for the working environment and leadership indices were:
   - Classroom autonomy: Alpha 0.8174
   - Influence over school policy: Alpha 0.8472

- Lack of barriers to teaching and learning: Alpha 0.8415
- Job and workplace satisfaction: Alpha 0.8705
- Leadership effectiveness and support: Alpha 0.9299

2. Factor analysis using a polychoric correlation matrix: This approach is more accurate when the model includes dichotomous or ordinal variables, and a standard method of performing factor analysis (i.e., those based on a matrix of Pearson's correlations, which assume that the variables are continuous and follow a multivariate normal distribution) cannot be performed.[19] However, this approach only retains one factor. Empirically, this approach also required us to alter the components included in one index when applying the polychoric method due to lack of convergence.

3. Principal component analysis as an alternative method to determine the optimal number of underlying factors: For all factors, 1, 2, 3, 4, and 5 components explained 26%, 36%, 45%, 50%, and 54% of the variation in the data, respectively (a significant amount, but not too high). The multiple factors loaded on the main components in a complex manner, with multiple variables loading across several components, which would make the interpretation of the indices more complex as well.

We performed sensitivity analyses using the different sets of indices, separately, and findings were consistent across methods of creating indices.

Predicting Probabilities of Turnover

For interpretation purposes, we calculated the predicted probabilities of turnover at various values of salary, leadership, and satisfaction. They used the estimates for Model 5s, both from Table 4 (LPM and Logistic, columns M5s), shown below. The results in the main report built on the predicted probabilities using Stata's prchange commands for various values of one variable, and at the means for the remaining variables in the specification, which are shown in Table 1.

What Drives the Working Conditions' Indices

We also used regression analyses to examine the relationships between each working condition in the category "Working environment and leadership" (i.e., each index) and the rest of the variables used in the analyses. This allowed us to examine what influenced the key drivers of turnover—salaries, school leadership, and job satisfaction—and the two other indices, classroom autonomy and influence over school policy. To do that, the indices became the dependent variables in an equation equivalent to the equation in Model 5, as follows.

- **Model for Indices' Regressions:** $\text{Index}_{is} = \beta_0 + \beta_1 \text{ x Compensation and Working\_conditions}_{is} + \beta_2 \text{ x Demographic\_characteristics}_{is} + \beta_3 \text{ x Educational\_background and Experience}_{is} + \beta_4 \text{ x School\_characteristics}_{is} + \beta_5 \text{ x Locale}_{is} + e_{is}$

Where Index refers to each of the working environment and leadership indices (one separate model for each index). The rest of the independent variables followed the ones used in Model 5 above, with one exception: the bucket "Compensation and Working Conditions" excluded the index that waes used as the dependent variable in each model.[20]

These results are shown in Table 8 for all teachers and in Table 9 for teachers excluding those who retired between 2020–21 and 2021–22.

Descriptive Results

Table 1. Descriptive Statistics for Each Variable Used in the Descriptive and Regression Analyses (All Teachers)

Variable category	Variable name/definition	Unit	Mean	SE	CI lower	CI upper	SD
Teaching status							
Working status	Stayer (retention)	%	84.9	0.5	84	85.9	
	Mover	%	8	0.4	7.3	8.7	
	Leaver (attrition)	%	7.1	0.3	6.4	7.7	
	Turnover (mover or leaver)	%	15.1	0.5	14.1	16	
	Preretirement turnover (mover or leaver—excluding retirees)	%	12.9	0.5	11.9	13.8	
Information about decisions to move or leave							
Turnover by destination							
Movers	Moved to another school in same district	%	3.6	0.2	3.2	4	
	Moved to another district or in private schools (same state)	%	2.9	0.3	2.4	3.4	
	Moved to another state	%	1.4	0.2	1	1.7	
	Moved abroad††	%					
Leavers	Left teaching, retired	%	2.2	0.2	1.9	2.5	
	Left teaching, in education sector (not teaching)	%	2.7	0.3	2.2	3.2	
	Left teaching, working outside of education	%	0.9	0.1	0.7	1.2	
	Left teaching, unemployed	%	0.4	0.1	0.3	0.5	
	Left teaching, in college†	%	0.1	0	0	0.2	
	Left teaching, caring for family	%	0.5	0.1	0.2	0.7	
	Left teaching, other†	%	0.2	0.1	0.1	0.4	

Turnover by intention to move or leave (voluntary vs. involuntary)						
By intention to move	Moved or left voluntarily	%	88.3	1.3	85.7	90.9
	Moved or left involuntarily	%	11.7	1.3	9.1	14.3
By intention to move (detailed)	Moved involuntarily	%	10	1.3	7.5	12.5
	Left involuntarily	%	1.7	0.4	1	2.4
	Moved voluntarily	%	43.1	1.8	39.6	46.7
	Left voluntarily (reasons other than retirement)	%	30.9	1.6	27.7	34.1
	Left voluntarily (retirement)	%	14.3	1.1	12.2	16.4
Reasons for move or leave (5 most important)[a]						
Reasons for movers (6 most important)	More convenient location or moved	%	20.6	1.7	17.1	24
	Wanted the opportunity to teach at my current school	%	11.2	2.6	6	16.4
	Dissatisfied with the administration	%	8.2	1.3	5.6	10.8
	Dissatisfied with job description or assignment	%	7	0.9	5.3	8.8
	Wanted or needed higher salary†	%	7.3	2.3	2.7	11.9
	Other reasons	%	19.7	2.5	14.5	24.8
Reasons for leavers (5 most important)	Retirement	%	16.2	1.3	13.5	18.9
	Other personal life reasons	%	14.5	1.9	10.6	18.3
	Pursue a position other than K–12 teacher	%	13.1	2.1	8.9	17.4
	Wanted or needed higher salary	%	8.9	1.6	5.7	12.1
	Dissatisfied with teaching as a career	%	7.4	1.7	3.9	10.9

Teacher demographic characteristics							
Gender	Female	%	76.4	0.3	75.9	76.9	
	Male	%	23.6	0.3	23.1	24.1	
Race and ethnicity[b]	White	%	80.8	0.6	79.7	81.9	
	Hispanic, regardless of race	%	9	0.2	8.6	9.5	
	Black or African American	%	5.9	0.2	5.5	6.3	
	Asian American	%	2.1	0.3	1.4	2.8	
	Native Hawaiian or Other Pacific Islander†	%	0.2	0.1	0	0.3	
	American Indian or Alaska Native	%	0.4	0.1	0.2	0.7	
	Multiracial	%	1.6	0.2	1.1	2.1	
	(Derived) Teachers of color	%	19.2	0.6	18.1	20.3	
	Underserved teachers of color (all Teachers of color except for Asian American and Multiracial)	%	15.5	0.3	14.8	16.1	
Age	18–35	%	29.5	0.5	28.6	30.5	
	36–45	%	29	0.6	27.9	30.1	
	46–60	%	35	0.6	33.8	36.2	
	61+	%	6.5	0.3	5.9	7.1	

Teacher educational background and experience							
Years of experience	1–3	%	11.8	0.6	10.6	13	
	4–5	%	9.2	0.5	8.2	10.3	
	6–10	%	19.8	0.8	18.2	21.5	
	11–15	%	16.6	0.7	15.2	18	
	16–20	%	17.9	0.8	16.2	19.5	
	21–25	%	12.7	0.6	11.4	14	
	26–30	%	6.7	0.5	5.7	7.7	
	31+	%	5.3	0.4	4.5	6	
	Derived 1–5 years	%	21	0.5	20	22.1	
	6–25 years	%	67	0.7	65.6	68.4	
	26 and over	%	12	0.6	10.9	13.1	
Educational attainment (highest degree)	Associate's degree	%	1	0.2	0.6	1.4	
	Bachelor's degree	%	38.5	0.9	36.7	40.4	
	Master's degree	%	50.2	1	48.1	52.3	
	Education specialist or certificate of advanced graduate studies	%	8.7	0.5	7.7	9.8	
	Doctorate or professional degree	%	1.5	0.3	1	2	
	(Derived) Master's degree or higher	%	60.5	1	58.5	62.4	
Teaching certificate	Regular	%	90.3	0.5	89.3	91.3	
	Probationary	%	3.1	0.4	2.4	3.8	
	Temporary	%	3.8	0.3	3.2	4.5	
	Waiver or emergency	%	1.2	0.2	0.8	1.6	
	Do not hold any of the above certifications	%	1.6	0.3	1	2.1	
	(Derived) Temporary, waiver or emergency, no certificate	%	6.6	0.4	5.7	7.5	
	Regular or probationary	%	93.4	0.4	92.5	94.3	
Route into teaching	Alternative certification program	%	18.8	0.8	17.1	20.4	
	Traditionally certified	%	81.2	0.8	79.6	82.9	

Teacher working conditions							
Compensation and financial factors							
Base salary[c]	What is your base teaching salary for the entire school year?	1,000$ (school year)	$60.90	$0.50	$59.90	$61.80	$36.60
Base salary (COLA)[d]	What is your base teaching salary for the entire school year?	1,000$ (school year)	$63.80	$0.40	$63.10	$64.60	$28.80
(Derived) Salary in quartiles	1st quartile	%	21.6	0.8	20	23.2	
	2nd quartile	%	27.4	0.9	25.6	29.2	
	3rd quartile	%	22.2	0.9	20.5	23.9	
	4th quartile	%	28.8	1.1	26.6	31	
Worked multiple jobs	Additional compensation from work outside of the school system	%	17.4	0.8	15.8	18.9	
Student loans	Holding student loans	%	36.5	1.1	34.3	38.7	

Instructional factors and workload							
Level of students taught by teacher	Primary	%	37.9	0.6	36.7	39.1	
	Middle	%	26	0.5	24.9	27	
	High	%	28	0.6	26.8	29.3	
	Combined grade	%	8.1	0.6	7	9.2	
	(Derived) High or combined	%	36.2	0.7	34.8	37.6	
Class size	Average number of students enrolled/you taught	#	20.2	0.3	19.6	20.8	22.6
Hours	Contracted hours	#	37.9	0.1	37.8	38.1	6.6
Field of main teaching assignment	Early childhood or general elementary	%	35.2	0.2	34.9	35.6	
	Special education	%	13.7	0.2	13.4	14.1	
	Arts or music	%	7	0	6.9	7	
	English and language arts	%	9.6	0.3	9	10.1	
	ESL or bilingual education	%	2	0.1	1.9	2.1	
	Foreign languages	%	2.6	0	2.5	2.6	
	Health education	%	3.8	0.1	3.6	4.1	
	Mathematics	%	7.7	0.3	7.2	8.3	
	Natural sciences	%	6.8	0	6.7	6.9	
	Social sciences	%	6.4	0.1	6.2	6.5	
	Career or technical education	%	4.3	0.1	4.1	4.5	
	All other	%	0.8	0.1	0.6	1	
	(Derived) Special ed, ESL, foreign languages, CTE (lower-retention subject)	%	22.7	0.2	22.3	23	
	(Derived) All other subjects (higher-retention subject)	%	77.3	0.2	77	77.7	

Accountability							
Job security (I worry about the security of my job because of the performance of my students.)	Strongly disagree	%	41.3	1.1	39.1	43.4	
	Somewhat disagree	%	32.2	0.8	30.6	33.8	
	Somewhat agree	%	19.7	0.8	18	21.3	
	Strongly agree	%	6.9	0.5	5.9	7.9	
Other instructional supports							
Necessary materials such as textbooks, supplies, and copy machines are available as needed by the staff.	Strongly disagree	%	2.8	0.3	2.1	3.4	
	Somewhat disagree	%	11.5	0.7	10.2	12.9	
	Somewhat agree	%	43.8	0.9	42	45.6	
	Strongly agree	%	41.9	1	39.9	43.9	
Routine duties and paperwork interfere with my job of teaching.	Strongly disagree	%	10.8	0.7	9.5	12.1	
	Somewhat disagree	%	27.9	0.9	26	29.7	
	Somewhat agree	%	40.8	0.9	39	42.5	
	Strongly agree	%	20.6	0.9	18.9	22.3	
Parental support (Receive a great deal of support from parents for the work I do.)	Strongly disagree	%	11.2	0.6	10	12.4	
	Somewhat disagree	%	27.5	1.1	25.3	29.7	
	Somewhat agree	%	46.6	1	44.7	48.6	
	Strongly agree	%	14.6	0.6	13.3	15.9	

Working environment and leadership							
Classroom autonomy	Teachers' assessments of how much actual control they have in your classroom at this school over several planning and teaching areas	Index, SD	0.027	0.015	-0.003	0.057	1.151
Influence over school policy	Teachers' assessments of how much influence they think teachers have over different areas of school policy at this school	Index, SD	0.019	0.015	-0.011	0.048	1.136
Job and workplace satisfaction	Teachers' opinions on their levels of satisfaction with the job, the school environment, lack of burnout, and willingness to stay in teaching	Index, SD	0.122	0.014	0.093	0.151	1.099
Lack of barriers to teaching and learning	The extent to which various issues (e.g., student tardiness, absenteeism, apathy, lack of parental involvement, poverty, poor health) are absent in the school	Index, SD	0.03	0.012	0.006	0.054	0.926
Leadership effectiveness and supports	Teachers' perceptions of school administration and leadership (including whether the administration is supportive, communicates a clear vision, recognizes staff efforts, and fosters collaboration), and whether the principal performs leadership tasks effectively (including supporting teachers, encouraging collaboration, helping meet curriculum standards, promoting professional development, and using student assessments to improve instruction)	Index, SD	0.079	0.014	0.051	0.106	1.045

School characteristics							
School concentration of students eligible for FRPL	0%–25%	%	19.1	0.6	17.9	20.3	
	>25%–50%	%	25.2	0.9	23.3	27.1	
	>50%–75%	%	19.5	0.8	17.9	21.2	
	>75%–<100%	%	12.8	0.7	11.3	14.3	
	100%	%	19.8	0.7	18.4	21.2	
	Missing	%	3.5	0.4	2.7	4.4	
School concentration of students of color	0%–25%	%	27.5	0.8	25.8	29.1	
	>25%–50%	%	24.4	0.9	22.6	26.2	
	>50%–75%	%	19.9	0.8	18.2	21.6	
	>75%–100%	%	26.7	0.8	25.1	28.2	
	Missing	%	1.6	0.2	1.1	2.1	
School size	1–49	%	0.7	0.2	0.3	1	
	50–99	%	1.1	0.3	0.6	1.7	
	100–149	%	1.1	0.2	0.7	1.5	
	150–199	%	2.2	0.3	1.5	2.9	
	200–349	%	13	0.8	11.5	14.5	
	350–499	%	19.9	0.9	18	21.8	
	500–749	%	24.2	1	22.2	26.2	
	750–999	%	13.7	0.7	12.3	15.1	
	1,000–1,199	%	5.8	0.5	4.8	6.7	
	1,200–1,499	%	5.5	0.5	4.4	6.6	
	1,500–1,999	%	4.9	0.3	4.2	5.6	
	2,000 or more	%	7.7	0.6	6.5	9	
	Missing†	%	0.2	0.1	0.1	0.4	
	Derived Small 0–199	%	5.1	0.5	4	6.1	
	Medium 200–499	%	32.9	1	30.8	35	
	Medium large 500–749	%	24.2	1	22.2	26.2	
	Large 750 and more	%	37.6	1	35.7	39.6	
Type of school	Public	%	93.6	0.6	92.4	94.7	
	Charter	%	6.6	0.4	5.9	7.4	
Urbanicity/ locale	City	%	27.7	1	25.7	29.7	
	Suburb	%	39	1	37	41.1	
	Town	%	11.4	0.7	10.1	12.8	
	Rural	%	21.8	0.7	20.3	23.3	
	(Derived) Suburb or town	%	50.5	1	48.4	52.5	

Other variables used in sensitivity analyses, subgroup analyses, etc.							
Compensation, additional							
Worked in the summer	Worked in the summer	%	27.1	0.8	25.5	28.6	
Instructional factors, additional							
Hours	Hours teaching	#	24.7	0.2	24.3	25.2	17
	Total hours	#	51.9	0.2	51.4	52.4	18.3
Status	Full-time	%	96.6	0.5	95.7	97.6	
	Part-time or itinerant	%	3.4	0.5	2.4	4.3	
Evaluation							
Evaluated	Was formally evaluated in 2020–21	%	74.5	1	72.4	76.6	
Pandemic resources							
Pandemic resources—had the resources and support during the coronavirus pandemic in the 2019–20 school year	Strongly disagree	%	14.8	0.7	13.5	16.1	
	Somewhat disagree	%	20	0.9	18.2	21.8	
	Somewhat agree	%	44.1	1.1	41.8	46.3	
	Strongly agree	%	16.8	0.8	15.2	18.5	
	Missing	%	4.3	0.3	3.6	4.9	

Teacher preservice preparation							
Teaching methods courses	No teaching methods courses	%	28.8	1.3	26.3	31.4	
	1–2 courses	%	14	0.6	12.7	15.3	
	3–4	%	22.9	0.9	21.1	24.8	
	5–9	%	18.1	0.8	16.5	19.7	
	10 or more	%	16.1	0.9	14.2	18	
Preservice teaching courses (out of 7 options)	No preservice courses	%	11.3	0.7	9.9	12.6	
	1–2 courses	%	7.8	0.5	6.7	8.8	
	3–4	%	18.8	0.8	17.1	20.5	
	5–6	%	30.2	0.9	28.5	32	
	7	%	32	0.8	30.4	33.5	
Student teaching	No student teaching	%	14.5	0.8	12.9	16	
	1–4 weeks	%	2.4	0.4	1.6	3.1	
	5–7 weeks	%	5.9	0.6	4.8	7	
	8–11 weeks	%	18.6	0.6	17.3	19.8	
	12 weeks or more	%	58.7	1	56.7	60.7	
Home ownership							
Home ownership	Own	%	80.1	0.8	78.5	81.7	
	Rent	%	16.5	0.8	15	18.1	
	Other living arrangement	%	3.4	0.4	2.5	4.2	
Union							
Union membership	Union member	%	70	0.9	68.2	71.8	

Notes: CI stands for confidence interval; COLA stands for cost-of-living adjusted; SE stands for standard error; SD stands for standard deviation; ESL stands for English as a Second Language; CTE stands for Career and Technical Education; FRPL stands for free or reduced-price lunch. Results are based on full-time, part-time, and itinerant teachers in public schools in the United States in 2020–21 who were followed into the 2021–22 school year; public schools include traditional public schools and charter schools.

Estimates marked with † should be interpreted with caution (the coefficient of variation of the estimates is between 30% and 50%). Estimates marked with †† are not reported because reporting standards are not met (the coefficient of variation of the estimates is higher than 50%).

[a] The "most important" reasons why the teacher moved to a different school or left teaching selects the five options with the highest frequency among all the alternatives possible. For movers, 6 most important reasons are retained because one of the reasons is "other reasons." The cumulative percentages of the reported five (or six) "most important" reasons do not add to 100%.

[b] All races and ethnicities outside the category "Hispanic, regardless of race" only include non-Hispanic-identifying individuals of that race and ethnicity. Racial and ethnic categories reflect those used in the original source.

[c] Amounts in this line are expressed in $1,000, and are not adjusted for cost-of-living differences across the country.

[d] Amounts in this line are expressed in $1,000 and adjusted for cost-of-living differences across the country.

Source: Learning Policy Institute analysis of the National Teacher and Principal Survey, 2020–21, and the Teacher Follow-Up Survey, 2021–22. (2024).

Table 2. Descriptive Statistics for Each Variable Used in the Descriptive and Regression Analyses (Excludes Retirees)

Variable category	Variable name/definition	Unit	Mean	SE	CI lower	CI upper	SD
Teaching status							
Working status	Stayer (retention)	%	86.8	0.5	85.9	87.8	
	Mover	%	8.2	0.4	7.4	8.9	
	Leaver (attrition)	%	5.0	0.3	4.4	5.6	
	Turnover (mover or leaver)	%	13.2	0.5	12.2	14.1	
	Preretirement turnover (mover or leaver—excluding retirees)	%	13.2	0.5	12.2	14.1	
Information about decisions to move or leave							
Turnover by destination							
Movers	Moved to another school in same district	%	3.7	0.2	3.3	4.1	
	Moved to another district or in private schools (same state)	%	3.0	0.3	2.5	3.5	
	Moved to another state	%	1.4	0.2	1.1	1.8	
	Moved abroad††	%					
Leavers	Left teaching, retired	%	-	-	-	-	
	Left teaching, in education sector (not teaching)	%	2.8	0.3	2.3	3.3	
	Left teaching, working outside of education	%	0.9	0.1	0.7	1.2	
	Left teaching, unemployed	%	0.4	0.1	0.3	0.5	
	Left teaching, in college†	%	0.1	0.1	0.0	0.2	
	Left teaching, caring for family	%	0.5	0.1	0.2	0.7	
	Left teaching, other†	%	0.2	0.1	0.1	0.4	

Turnover by intention to move or leave (voluntary vs. involuntary)							
By intention to move	Moved or left voluntarily	%	86.7	1.5	83.8	89.7	
	Moved or left involuntarily	%	13.3	1.5	10.3	16.2	
By intention to move (detailed)	Moved involuntarily	%	11.7	1.5	8.8	14.6	
	Left involuntarily	%	1.6	0.4	0.8	2.3	
	Moved voluntarily	%	50.5	2.0	46.5	54.6	
	Left voluntarily (reasons other than retirement)	%	36.2	1.8	32.6	39.8	
	Left voluntarily (retirement)	%	NA	NA	NA	NA	
Reasons for move or leave (5 most important)[a]							
Reasons for movers (6 most important)	More convenient location or moved	%	20.6	1.7	17.1	24.0	
	Wanted the opportunity to teach at my current school	%	11.2	2.6	6.0	16.4	
	Dissatisfied with the administration	%	8.2	1.3	5.6	10.8	
	Dissatisfied with job description or assignment	%	7.0	0.9	5.3	8.8	
	Wanted or needed higher salary[†]	%	7.3	2.3	2.7	11.9	
	Other reasons	%	19.7	2.5	14.5	24.8	
Reasons for leavers (5 most important)	Retirement[†]	%	1.2	0.4	0.4	2.1	
	Other personal life reasons	%	14.5	2.7	9.0	19.9	
	Pursue a position other than K–12 teacher	%	18.9	2.9	13.0	24.8	
	Wanted or needed higher salary	%	12.8	2.3	8.3	17.4	
	Dissatisfied with teaching as a career[†]	%	7.8	2.4	2.9	12.7	

Teacher demographic characteristics							
Gender	Female	%	76.4	0.3	75.9	76.9	
	Male	%	23.6	0.3	23.1	24.1	
Race and ethnicity[b]	White	%	80.7	0.6	79.6	81.8	
	Hispanic, regardless of race	%	9.1	0.2	8.7	9.6	
	Black or African American	%	5.9	0.2	5.5	6.3	
	Asian American	%	2.1	0.3	1.4	2.7	
	Native Hawaiian or Other Pacific Islander†	%	0.2	0.1	0.0	0.3	
	American Indian or Alaska Native	%	0.4	0.1	0.2	0.7	
	Multiracial	%	1.6	0.2	1.1	2.1	
	(Derived) Teachers of color	%	19.3	0.6	18.2	20.4	
	Underserved teachers of color (all Teachers of color except for Asian American and Multiracial)	%	15.6	0.3	15.0	16.3	
Age	18–35	%	30.2	0.5	29.2	31.2	
	36–45	%	29.6	0.6	28.5	30.8	
	46–60	%	34.9	0.6	33.6	36.1	
	61+	%	5.4	0.3	4.8	5.9	

Teacher educational background and experience							
Years of experience	1–3	%	12.0	0.6	10.8	13.3	
	4–5	%	9.4	0.5	8.4	10.5	
	6–10	%	20.3	0.8	18.6	21.9	
	11–15	%	16.9	0.7	15.5	18.2	
	16–20	%	18.0	0.8	16.3	19.7	
	21–25	%	12.5	0.6	11.2	13.8	
	26–30	%	6.5	0.5	5.4	7.5	
	31+	%	4.5	0.4	3.7	5.3	
	Derived 1–5 years	%	21.5	0.5	20.4	22.6	
	6–25 years	%	67.6	0.7	66.2	69.0	
	26 and over	%	10.9	0.6	9.7	12.1	
Educational attainment (highest degree)	Associate's degree	%	1.0	0.2	0.6	1.4	
	Bachelor's degree	%	38.7	1.0	36.8	40.6	
	Master's degree	%	50.2	1.1	48.1	52.4	
	Education specialist or certificate of advanced graduate studies	%	8.5	0.5	7.5	9.5	
	Doctorate or professional degree	%	1.5	0.3	1.0	2.1	
	(Derived) Master's degree or higher	%	60.3	1.0	58.3	62.2	
Teaching certificate	Regular	%	90.3	0.5	89.2	91.3	
	Probationary	%	3.1	0.4	2.4	3.9	
	Temporary	%	3.8	0.3	3.1	4.5	
	Waiver or emergency	%	1.2	0.2	0.8	1.6	
	Do not hold any of the above certifications	%	1.6	0.3	1.1	2.2	
	(Derived) Temporary, waiver or emergency, no certificate	%	6.6	0.4	5.7	7.5	
	Regular or probationary	%	93.4	0.4	92.5	94.3	
Route into teaching	Alternative certification program	%	18.9	0.8	17.2	20.6	
	Traditionally certified	%	81.1	0.8	79.4	82.8	

Teaching conditions							
Compensation and financial factors							
Base salary[c]	What is your base teaching salary for the entire school year?	1,000$ (school year)	$61	$0	$60	$62	$36
Base salary (COLA)[d]	What is your base teaching salary for the entire school year?	1,000$ (school year)	$63.6	$0.4	$62.8	$64.4	$28.0
(Derived) Salary in quartiles	1st quartile	%	21.9	0.8	20.2	23.5	
	2nd quartile	%	27.7	0.9	25.8	29.6	
	3rd quartile	%	22.1	0.9	20.3	23.8	
	4th quartile	%	28.4	1.1	26.1	30.6	
Worked multiple jobs	Additional compensation from work outside of the school system	%	17.5	0.8	15.9	19.1	
Student loans	Holding student loans	%	37.2	1.1	34.9	39.4	

Instructional factors and workload							
Level of students taught by teacher	Primary	%	38.0	0.6	36.7	39.2	
	Middle	%	26.0	0.6	24.9	27.1	
	High	%	28.0	0.6	26.7	29.3	
	Combined grade	%	8.1	0.6	6.9	9.2	
	(Derived) High or combined	%	36.1	0.7	34.6	37.5	
Class size	Average number of students enrolled/you taught	#	20.2	0.3	19.6	20.8	
Hours	Contracted hours	#	38.0	0.1	37.8	38.1	
Field of main teaching assignment	Early childhood or general elementary	%	35.3	0.2	35.0	35.7	
	Special education	%	13.8	0.2	13.4	14.1	
	Arts or music	%	7.0	0.0	6.9	7.1	
	English and language arts	%	9.6	0.3	9.0	10.2	
	ESL or bilingual education	%	2.0	0.1	1.8	2.1	
	Foreign languages	%	2.5	0.0	2.4	2.6	
	Health education	%	3.7	0.1	3.5	4.0	
	Mathematics	%	7.8	0.3	7.3	8.3	
	Natural sciences	%	6.9	0.1	6.7	7.0	
	Social sciences	%	6.4	0.1	6.2	6.5	
	Career or technical education	%	4.3	0.1	4.1	4.4	
	All other	%	0.8	0.1	0.6	1.0	
	(Derived) Special ed, ESL, foreign languages, CTE (lower-retention subject)	%	22.5	0.2	22.1	23.0	
	All other subjects (higher-retention subject)	%	77.5	0.2	77.0	77.9	
Accountability							
Job security (I worry about the security of my job because of the performance of my students.)	Strongly disagree	%	41.1	1.1	38.9	43.3	
	Somewhat disagree	%	32.3	0.8	30.7	34.0	
	Somewhat agree	%	19.7	0.8	18.0	21.4	
	Strongly agree	%	6.8	0.5	5.8	7.9	

Other instructional supports							
Necessary materials such as textbooks, supplies, and copy machines are available as needed by the staff.	Strongly disagree	%	2.8	0.3	2.1	3.4	
	Somewhat disagree	%	11.5	0.7	10.1	12.8	
	Somewhat agree	%	43.9	0.9	42.1	45.8	
	Strongly agree	%	41.8	1.0	39.8	43.9	
Routine duties and paperwork interfere with my job of teaching.	Strongly disagree	%	10.7	0.7	9.4	12.1	
	Somewhat disagree	%	28.0	0.9	26.1	29.9	
	Somewhat agree	%	40.6	0.9	38.9	42.3	
	Strongly agree	%	20.6	0.9	18.9	22.4	
Parental support (Receive a great deal of support from parents for the work I do.)	Strongly disagree	%	11.1	0.6	9.9	12.4	
	Somewhat disagree	%	27.7	1.1	25.4	29.9	
	Somewhat agree	%	46.6	1.0	44.6	48.6	
	Strongly agree	%	14.6	0.7	13.3	15.9	

Working environment and leadership							
Classroom autonomy	Teachers' assessments of how much actual control they have in your classroom at this school over several planning and teaching areas	Index, SD	0.029	0.015	-0.001	0.060	1.123
Influence over school policy	Teachers' assessments of how much influence they think teachers have over different areas of school policy at this school	Index, SD	0.020	0.015	-0.011	0.051	1.118
Job and workplace satisfaction	Teachers' opinions on their levels of satisfaction with the job, the school environment, lack of burnout, and willingness to stay in teaching	Index, SD	0.122	0.015	0.093	0.151	1.067
Lack of barriers to teaching and learning	The extent to which various issues (e.g., student tardiness, absenteeism, apathy, lack of parental involvement, poverty, poor health) are absent in the school	Index, SD	0.029	0.012	0.005	0.054	0.892
Leadership effectiveness and supports	Teachers' perceptions of school administration and leadership (including whether the administration is supportive, communicates a clear vision, recognizes staff efforts, and fosters collaboration), and whether the principal performs leadership tasks effectively (including supporting teachers, encouraging collaboration, helping meet curriculum standards, promoting professional development, and using student assessments to improve instruction)	Index, SD	0.081	0.014	0.054	0.109	1.002

School characteristics							
School concentration of students eligible for NSLP	0%–25%	%	19.1	0.6	17.9	20.3	
	>25%–50%	%	25.1	1.0	23.2	27.1	
	>50%–75%	%	19.6	0.8	18.0	21.3	
	>75%–<100%	%	12.8	0.8	11.2	14.3	
	100%	%	19.8	0.7	18.5	21.2	
	Missing	%	3.5	0.4	2.7	4.4	
School concentration of students of color	0%–25%	%	27.4	0.8	25.7	29.1	
	>25%–50%	%	24.4	0.9	22.6	26.3	
	>50%–75%	%	20.0	0.8	18.3	21.7	
	>75%–100%	%	26.5	0.8	25.0	28.1	
	Missing	%	1.6	0.2	1.1	2.1	
Urbanicity/locale	City	%	27.7	1.0	25.7	29.8	
	Suburb	%	39.0	1.0	36.9	41.1	
	Town	%	11.4	0.7	10.0	12.8	
	Rural	%	21.9	0.8	20.3	23.4	
	(Derived) Suburb or town	%	50.4	1.0	48.4	52.5	
Type of school	Public	%	93.6	0.6	92.4	94.7	
	Charter	%	6.7	0.4	5.9	7.5	
School size	1–49	%	0.6	0.2	0.3	1.0	
	50–99	%	1.0	0.3	0.5	1.6	
	100–149	%	1.1	0.2	0.7	1.5	
	150–199	%	2.1	0.3	1.4	2.8	
	200–349	%	13.0	0.8	11.4	14.6	
	350–499	%	19.9	0.9	18.0	21.8	
	500–749	%	24.3	1.0	22.3	26.2	
	750–999	%	13.7	0.7	12.3	15.2	
	1,000–1,199	%	5.8	0.5	4.9	6.8	
	1,200–1,499	%	5.5	0.5	4.4	6.6	
	1,500–1,999	%	4.9	0.4	4.2	5.6	
	2,000 or more	%	7.8	0.6	6.5	9.1	
	Missing†	%	0.2	0.1	0.1	0.4	
	(Derived) Small 0–199	%	4.9	0.5	3.9	6.0	
	Medium 200–499	%	32.9	1.1	30.8	35.1	
	Medium large 500–749	%	24.3	1.0	22.3	26.2	
	Large 750 and more	%	37.7	1.0	35.7	39.7	

Other variables used in sensitivity analyses, subgroup analyses, etc.							
Compensation, additional							
Worked in the summer	Worked in the summer	%	27.4	0.8	25.8	29.0	
Instructional factors, additional							
Hours	Hours teaching	#	24.7	0.2	24.3	25.2	16.4
	Total hours	#	51.9	0.2	51.4	52.4	17.8
Status	Full-time	%	96.7	0.5	95.7	97.6	
	Part-time or itinerant	%	3.3	0.5	2.4	4.3	
Evaluation, additional							
Evaluated	Was formally evaluated in 2020–21	%	74.6	1.1	72.5	76.8	
Pandemic resources							
Pandemic resources—had the resources and support during the coronavirus pandemic in the 2019–20 school year	Strongly disagree	%	14.7	0.7	13.4	16.0	
	Somewhat disagree	%	20.0	0.9	18.2	21.9	
	Somewhat agree	%	44.2	1.1	41.9	46.4	
	Strongly agree	%	16.8	0.9	15.1	18.5	
	Missing	%	4.3	0.3	3.6	4.9	
Teacher preservice preparation							
Teaching methods courses	No teaching methods courses	%	28.9	1.3	26.3	31.4	
	1–2 courses	%	14.0	0.7	12.7	15.3	
	3–4	%	23.0	0.9	21.1	24.9	
	5–9	%	18.1	0.8	16.4	19.7	
	10 or more	%	16.0	1.0	14.1	18.0	
Preservice teaching courses (out of 7 options)	No preservice courses	%	11.3	0.7	9.9	12.7	
	1–2 courses	%	7.6	0.5	6.6	8.6	
	3–4	%	18.6	0.8	16.9	20.3	
	5–6	%	30.3	0.9	28.6	32.1	
	7	%	32.2	0.8	30.6	33.8	
Student teaching	No student teaching	%	14.6	0.8	13.0	16.1	
	1–4 weeks	%	2.4	0.4	1.6	3.2	
	5–7 weeks	%	5.9	0.6	4.7	7.0	
	8–11 weeks	%	18.5	0.7	17.1	19.8	
	12 weeks or more	%	58.7	1.0	56.7	60.8	

Home ownership							
Home ownership	Own	%	79.9	0.8	78.3	81.6	
	Rent	%	16.7	0.8	15.1	18.3	
	Other living arrangement	%	3.4	0.4	2.5	4.2	
Union							
Union membership	Union member	%	69.9	0.9	68.0	71.7	

Notes: CI stands for confidence interval; COLA stands for cost-of-living adjusted; SE stands for standard error; SD stands for standard deviation; ESL stands for English as a Second Language; CTE stands for Career and Technical Education; FRPL stands for free or reduced-price lunch. Results are based on full-time, part-time, and itinerant teachers in public schools in the United States in 2020–21 who were followed into the 2021–22 school year, excluding teachers who retired between the 2 years; public schools include traditional public schools and charter schools.

Estimates marked with † should be interpreted with caution (the coefficient of variation of the estimates is between 30% and 50%). Estimates marked with †† are not reported because reporting standards are not met (the coefficient of variation of the estimates is higher than 50%).

[a] The "most important" reasons why the teacher moved to a different school or left teaching selects the five options with the highest frequency among all the alternatives possible. For movers, 6 most important reasons are retained because one of the reasons is "other reasons." The cumulative percentages of the reported five (or six) "most important" reasons do not add to 100%.

[b] All races and ethnicities outside the category "Hispanic, regardless of race" only include non-Hispanic-identifying individuals of that race and ethnicity. Racial and ethnic categories reflect those used in the original source.

[c] Amounts in this line are expressed in $1,000, and are not adjusted for cost-of-living differences across the country.

[d] Amounts in this line are expressed in $1,000 and adjusted for cost-of-living differences across the country.

Source: Learning Policy Institute analysis of the National Teacher and Principal Survey, 2020–21, and the Teacher Follow-Up Survey, 2021–22. (2024).

Table 3. Teacher Retention, Turnover, Mover, and Leaver Rates by Selected Individual- and School-Level Characteristics (All Teachers)

Variable category	Variable name/definition	Unit	Stayer		Mover		Leaver		Turnover (mover or leaver)	
			Mean	SE	Mean	SE	Mean	SE	Mean	SE
All teachers										
All	Full-time, part-time, itinerant	%	84.9	0.5	8	0.4	7.1	0.3	15.1	0.5
Teacher demographic characteristics										
Gender	Female	%	84.4	0.6	8.2	0.4	7.4	0.4	15.6	0.6
	Male	%	86.7	1.1	7.3	0.8	6	0.6	13.3	1.1
Race and ethnicity[a]	Hispanic, regardless of race	%	84.5	2.6	9.4	1.8	6	1.3	15.5	2.6
	Black or African American	%	81.9	1.7	9	1.1	9.1	1.4	18.1	1.7
	Asian American	%	81.3	5.4	6.9†	2.1	11.9†	5.1	18.7	5.4
	Native Hawaiian or Other Pacific Islander	%	90.5	7.1	3.8††	3.9	5.7††	4.7	9.5††	7.1
	American Indian or Alaska Native	%	78.5	10.5	6.8††	4.2	14.7††	9	21.5†	10.5
	Multiracial	%	85.4	3.3	8.5	2.5	6.1	1.7	14.6	3.3
	White	%	85.3	0.5	7.8	0.4	6.9	0.3	14.7	0.5
	(Derived) Teachers of color	%	83.4	1.4	8.8	0.9	7.8	1	16.6	1.4
	Underserved teachers of color (all Teachers of color except for Asian American and Multiracial)	%	83.4	1.7	9.1	1.2	7.4	1	16.6	1.7
Age	18–35	%	82.2	1.1	11.4	0.8	6.3	0.6	17.8	1.1
	36–45	%	88.4	0.8	7.2	0.6	4.4	0.5	11.6	0.8
	46–60	%	86.2	1	6.5	0.6	7.3	0.7	13.8	1
	61+	%	74.8	2.2	4.2	1	21	1.8	25.2	2.2

Teacher educational background and experience											
Years of experience	1–3	%	80.9	2	12.8	1.5	6.3	1.4	19.1	2
	4–5	%	83.3	1.6	10.4	1.4	6.3	1.1	16.7	1.6
	6–10	%	83.1	1.3	9.7	0.9	7.2	0.8	16.9	1.3
	11–15	%	86.7	0.9	7.9	0.8	5.4	0.6	13.3	0.9
	16–20	%	88.4	1	6.1	0.7	5.5	0.8	11.6	1
	21–25	%	88	1.3	5.8	0.8	6.2	1.1	12	1.3
	26–30	%	87.6	1.6	4.2	0.9	8.1	1.1	12.4	1.6
	31+	%	75.6	2.4	3.6	0.8	20.8	2.2	24.4	2.4
	Derived 1–5 years	%	82	1.4	11.7	0.9	6.3	0.9	18	1.4
	6–25 years	%	86.3	0.6	7.6	0.5	6.1	0.4	13.7	0.6
	26 and over	%	82.3	1.4	4	0.6	13.7	1.1	17.7	1.4
Educational attainment (highest degree)	Associate's degree	%	81.9	9.4	5.3†	2.6	12.7††	9.1	18.1††	9.4
	Bachelor's degree	%	85.1	0.8	9.3	0.7	5.6	0.4	14.9	0.8
	Master's degree	%	85.4	0.7	7.3	0.5	7.4	0.5	14.6	0.7
	Education specialist or certificate of advanced graduate studies	%	81.3	2	7.5	1	11.2	1.7	18.7	2
	Doctorate or professional degree	%	89.4	2.8	4.3†	1.3	6.4†	2	10.6	2.8
	(Derived) Master's degree or higher	%	84.9	0.6	7.2	0.4	7.9	0.5	15.1	0.6
Teaching certificate	Regular	%	85.3	0.4	7.8	0.4	6.9	0.4	14.7	0.4
	Probationary	%	84.3	3	9.6	1.9	6.2†	2	15.7	3
	Temporary	%	80.4	4.3	9.8	1.9	9.8	2.9	19.6	4.3
	Waiver or emergency	%	79.4	5.7	12.4	3.7	8.2†	3.4	20.6	5.7
	Do not hold any of the above certifications	%	78.9	6.5	8.1†	3.2	13.0†	5.8	21.1†	6.5
	(Derived) Temporary, waiver or emergency, no certificate	%	79.9	2.7	9.8	1.3	10.3	2.1	20.1	2.7
	Regular or probationary	%	85.3	0.4	7.9	0.4	6.8	0.3	14.7	0.4
Route into teaching	Alternative certification program	%	83.7	1.2	9	0.8	7.3	0.8	16.3	1.2
	Traditionally certified	%	85.2	0.5	7.8	0.4	7	0.3	14.8	0.5

Instructional factors and workload										
Level of students taught by teacher	Primary	%	84.1	0.9	8.8	0.6	7	0.6	15.9	0.9
	Middle	%	84.3	0.9	8.5	0.6	7.2	0.6	15.7	0.9
	High	%	85.9	1	7	0.9	7.1	0.7	14.1	1
	Combined grade	%	87.4	1.4	6.1	0.8	6.5	0.9	12.6	1.4
	(Derived) High or combined	%	86.2	0.9	6.8	0.7	7	0.6	13.8	0.9
Field of main teaching assignment	Early childhood or general elementary	%	84.9	0.8	8.3	0.6	6.8	0.5	15.1	0.8
	Special education	%	83.6	1.2	9.6	1	6.7	0.8	16.4	1.2
	Arts or music	%	85.5	2.2	9.4	1.8	5.1	1	14.5	2.2
	English and language arts	%	84.3	1.4	8.5	1.2	7.2	0.9	15.7	1.4
	ESL or bilingual education	%	81	4.4	7.4†	2.3	11.6	3.4	19	4.4
	Foreign languages	%	81.7	4.4	11.1†	4.4	7.2	1.9	18.3	4.4
	Health education	%	88.3	2.2	6.6	1.6	5.1	1.5	11.7	2.2
	Mathematics	%	86.5	1.8	6.1	1.2	7.4	1.4	13.5	1.8
	Natural sciences	%	87.6	1.6	5.8	0.8	6.6	1.4	12.4	1.6
	Social sciences	%	85.2	2.3	7	1.4	7.8	1.8	14.8	2.3
	Career or technical education	%	82.5	2.6	5.8†	1.8	11.6	2.4	17.5	2.6
	All other	%	88.3	3.2	4.6†	1.8	7.1†	2.2	11.7	3.2
	(Derived) Special ed, ESL, foreign languages, CTE (lower-retention subject)	%	83	1.1	8.9	0.8	8.2	0.8	17	1.1
	(Derived) All other subjects (higher-retention subject)	%	85.5	0.5	7.8	0.4	6.7	0.3	14.5	0.5

School characteristics										
School concentration of students eligible for FRPL	0%–25%	%	86.4	1.1	6.1	0.7	7.5	0.9	13.6	1.1
	>25%–50%	%	86.5	0.8	7.5	0.6	6	0.5	13.5	0.8
	>50%–75%	%	84.9	1.1	9	0.8	6	0.6	15.1	1.1
	>75%–<100%	%	81.7	1.9	9.6	1.2	8.7	1.4	18.3	1.9
	100%	%	84.3	1.2	8.5	0.9	7.1	0.9	15.7	1.2
	Missing	%	80.9	4	7.6	2.1	11.5	3.2	19.1	4
School concentration of students of color	0%–25%	%	87.6	0.7	6	0.5	6.4	0.5	12.4	0.7
	>25%–50%	%	85.8	1	7.4	0.7	6.8	0.7	14.2	1
	>50%–75%	%	82.7	1.3	10.3	1	7	0.7	17.3	1.3
	>75%–100%	%	83	1.1	9	0.9	7.9	0.7	17	1.1
	Missing	%	86.3	4.4	5.6	1.6	8.1†	4	13.7†	4.4
Urbanicity/locale	City	%	82.3	1.2	9.6	0.8	8.1	0.8	17.7	1.2
	Suburb	%	86.1	0.8	7.3	0.5	6.6	0.6	13.9	0.8
	Town	%	86.3	1	7.2	0.7	6.6	0.8	13.7	1
	Rural	%	85.5	0.9	7.8	0.7	6.8	0.7	14.5	0.9
	Derived (suburb or town)	%	86.2	0.7	7.3	0.4	6.6	0.5	13.8	0.7
Type of school	Public	%	85.1	0.5	8	0.4	6.9	0.3	14.9	0.5
	Charter	%	82.2	1.6	10.3	1.4	7.4	0.9	17.8	1.6
School size	*Derived Small 0–199*	%	77.2	2.5	11	1.6	11.8	2.1	22.8	2.5
	Medium 200–499	%	84.1	0.8	8.1	0.6	7.8	0.7	15.9	0.8
	Medium large 500–749	%	85.5	0.9	7.8	0.8	6.7	0.6	14.5	0.9
	Large 750 and more	%	86.4	0.8	7.6	0.7	6	0.5	13.6	0.8
	Missing	%	82.4	9.9	9.5††	6.2	8.2††	5.3	17.6††	9.9

Notes: SE stands for standard error; ESL stands for English as a Second Language; CTE stands for Career and Technical Education; FRPL stands for free or reduced-price lunch. Results are based on full-time, part-time, and itinerant teachers in public schools in the United States in 2020–21 who were followed into the 2021–22 school year; public schools include traditional public schools and charter schools. Percentages may not sum to 100% due to rounding.

Estimates marked with † should be interpreted with caution (the coefficient of variation of the estimates is between 30% and 50%). Estimates marked with †† are not reported because reporting standards are not met (the coefficient of variation of the estimates is higher than 50%).

[a] All races and ethnicities outside the category "Hispanic, regardless of race" only include non-Hispanic-identifying individuals of that race and ethnicity. Racial and ethnic categories reflect those used in the original source. Differences between rates reported in this study and others are due to rounding.

Source: Learning Policy Institute analysis of the National Teacher and Principal Survey, 2020–21, and the Teacher Follow-Up Survey, 2021–22. (2024).

Regression Results

Table 4. Compensation, Working Conditions, and Other Individual- and School-Level Factors and Teacher Turnover: Linear Probability Model and Logistic Regression Results (All Teachers)

Variables	LPM				Logistic		
	Turnover				Turnover		
	Model bivariate	Model fully specified	Model fully specified with state FE		Model bivariate	Model fully specified	Model fully specified with state FE
Compensation and financial factors							
Base salary (COLA, in $1,000)	-0.004**	-0.003**	-0.003*		0.970**	0.977*	0.972**
	(0.002)	(0.002)	(0.002)		(0.013)	(0.012)	(0.013)
Base salary (COLA, in $1,000, squared)	0.000	0.000	0.000		1.000	1.000	1.000
	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
Additional compensation from work outside of the school system	0.027*	0.020	0.021		1.225*	1.160	1.170
	(0.015)	(0.016)	(0.015)		(0.131)	(0.142)	(0.142)
Holding student loans	0.027**	0.015	0.013		1.230**	1.123	1.104
	(0.012)	(0.012)	(0.013)		(0.111)	(0.111)	(0.116)
Working environment and leadership							
Classroom autonomy (SD)	-0.037***	-0.011	-0.012		0.756***	0.933	0.920
	(0.010)	(0.010)	(0.011)		(0.053)	(0.071)	(0.081)
Influence over school policy (SD)	-0.029***	0.010	0.010		0.792**	1.075	1.083
	(0.011)	(0.011)	(0.012)		(0.071)	(0.104)	(0.112)
Lack of barriers to teaching and learning (SD)	-0.034***	0.004	0.007		0.769***	1.026	1.058
	(0.010)	(0.010)	(0.010)		(0.058)	(0.084)	(0.089)
Job and workplace satisfaction (SD)	-0.090***	-0.075***	-0.076***		0.512***	0.569***	0.554***
	(0.010)	(0.012)	(0.013)		(0.038)	(0.056)	(0.057)
Leadership effectiveness and supports (SD)	-0.072***	-0.048***	-0.053***		0.578***	0.690***	0.657***
	(0.009)	(0.011)	(0.012)		(0.038)	(0.058)	(0.059)
Instructional factors and workload							
Contract hours	-0.001	-0.001	-0.002		0.995	0.993	0.985
	(0.002)	(0.002)	(0.002)		(0.012)	(0.012)	(0.012)
Class size (proxy)	0.001	0.001	0.001		1.006	1.007	1.006
	(0.001)	(0.001)	(0.001)		(0.006)	(0.005)	(0.005)
Special education, ESL, foreign languages, CTE	0.025**	0.043***	0.043***		1.211**	1.394***	1.428***
	(0.012)	(0.015)	(0.015)		(0.109)	(0.162)	(0.173)
Primary	0.021*	0.023	0.015		1.180*	1.228	1.159

	(0.012)	(0.016)	(0.017)	(0.111)	(0.158)	(0.161)
Middle	0.019	0.025	0.024	1.165	1.264*	1.260*
	(0.013)	(0.015)	(0.016)	(0.123)	(0.162)	(0.172)
Other instructional supports						
Necessary materials are available as needed by the staff (agree)	-0.042**	0.008	0.010	0.736**	1.081	1.097
	(0.018)	(0.018)	(0.018)	(0.088)	(0.149)	(0.152)
Receive a great deal of support from parents for the work I do (agree)	-0.021	0.020	0.023*	0.851**	1.157	1.201*
	(0.012)	(0.013)	(0.013)	(0.080)	(0.120)	(0.127)
Paperwork and admin duties interfere with my job of teaching (agree)	0.014	-0.023**	-0.024**	1.115	0.828**	0.817**
	(0.009)	(0.011)	(0.011)	(0.082)	(0.077)	(0.078)
Accountability						
Test-related job insecurity (agree)	0.023*	-0.006	-0.007	1.189*	0.953	0.939
	(0.014)	(0.014)	(0.014)	(0.119)	(0.106)	(0.109)
School characteristics						
Share of SOC >25%–50%	0.018	0.018	0.008	1.167	1.194	1.111
	(0.013)	(0.015)	(0.015)	(0.127)	(0.159)	(0.149)
Share of SOC >50%–75%	0.049***	0.048***	0.040**	1.474***	1.513***	1.435**
	(0.016)	(0.017)	(0.020)	(0.183)	(0.221)	(0.244)
Share of SOC >75%–100%	0.045***	0.028*	0.029	1.439***	1.275*	1.306
	(0.013)	(0.016)	(0.019)	(0.147)	(0.174)	(0.217)
Share of SOC missing	0.013	-0.044	-0.038	1.121	0.766	0.809
	(0.045)	(0.062)	(0.062)	(0.452)	(0.451)	(0.484)
Share of FRPL >25%–50%	-0.001	-0.007	-0.006	0.993	0.954	0.954
	(0.015)	(0.016)	(0.016)	(0.130)	(0.134)	(0.133)
Share of FRPL >50%–75%	0.015	-0.014	-0.013	1.129	0.902	0.906
	(0.018)	(0.020)	(0.019)	(0.164)	(0.150)	(0.149)
Share of FRPL >75%–<100%	0.047**	0.005	0.002	1.425**	1.048	1.023
	(0.022)	(0.026)	(0.025)	(0.225)	(0.212)	(0.203)
Share of FRPL 100%	0.021	-0.010	-0.009	1.184	0.942	0.956
	(0.016)	(0.019)	(0.018)	(0.152)	(0.156)	(0.148)
Share of FRPL missing	0.055	0.057	0.066	1.505	1.539	1.679*
	(0.042)	(0.044)	(0.042)	(0.435)	(0.480)	(0.519)
Charter school	0.029	-0.006	-0.007	1.237*	0.929	0.913
	(0.018)	(0.021)	(0.022)	(0.155)	(0.150)	(0.162)
City	0.039***	0.027*	0.022	1.340***	1.227*	1.170
	(0.014)	(0.015)	(0.016)	(0.139)	(0.140)	(0.145)
Rural	0.007	0.001	-0.004	1.058	0.998	0.968
	(0.011)	(0.013)	(0.013)	(0.092)	(0.112)	(0.104)
Small 0–199	0.069**	0.077**	0.071**	1.558***	1.718***	1.665**
	(0.027)	(0.029)	(0.028)	(0.249)	(0.324)	(0.319)

Medium large 500–749	-0.014	-0.012	-0.015		0.899	0.905	0.881
	(0.012)	(0.013)	(0.014)		(0.084)	(0.098)	(0.099)
Large 750 and more	-0.023*	-0.033*	-0.036*		0.831*	0.780*	0.764*
	(0.012)	(0.018)	(0.018)		(0.083)	(0.113)	(0.118)
School size missing	0.017	0.035	0.007		1.130	1.384	1.045
	(0.100)	(0.110)	(0.110)		(0.750)	(1.187)	(0.926)
Demographic characteristics							
Female	0.023*	0.009	0.008		1.206*	1.066	1.053
	(0.012)	(0.011)	(0.011)		(0.127)	(0.106)	(0.107)
Teachers of color	0.019	-0.005	-0.011		1.159	0.976	0.930
	(0.014)	(0.015)	(0.015)		(0.121)	(0.115)	(0.115)
Educational background and experience							
Experience 1–5 years	0.044***	0.016	0.018		1.390***	1.138	1.155
	(0.015)	(0.015)	(0.016)		(0.150)	(0.131)	(0.149)
Experience 26 years and over	0.040**	0.082***	0.079***		1.354**	1.967***	1.936***
	(0.016)	(0.017)	(0.018)		(0.162)	(0.278)	(0.285)
Regular or probationary	-0.054**	-0.021	-0.020		0.684**	0.871	0.878
	(0.026)	(0.024)	(0.023)		(0.109)	(0.153)	(0.149)
Traditionally certified	-0.015	-0.009	0.004		0.889	0.936	1.043
	(0.012)	(0.012)	(0.013)		(0.079)	(0.088)	(0.105)
Constant	NA	0.276**	0.297**		NA	0.384	0.489
	NA	(0.111)	(0.112)		NA	(0.319)	(0.396)
Observations	5,900	5,900	5,900		5,900	5,900	5,900
R-squared ^	NA	0.057	0.076		NA	0.069	0.105

Specification includes:							
Teacher characteristics: demographic, background and experience	NA	Yes	Yes		NA	Yes	Yes
School characteristics: school type, composition, size, and locale	NA	Yes	Yes		NA	Yes	Yes
State FE	NA	No	Yes		NA	No	Yes

Notes: COLA stands for cost-of-living adjusted; SD stands for standard deviation; ESL stands for English as a Second Language; CTE stands for Career and Technical Education; SOC stands for students of color; FRPL stands for free or reduced-price lunch; FE stands for fixed effects. Results are based on full-time, part-time, and itinerant teachers in public schools in the United States in 2020–21 who were followed into the 2021–22 school year; public schools include traditional public schools and charter schools. Standard errors in parentheses. ***p <0.01. **p < 0.05. *p < 0.1. Number of observations is rounded to the nearest 10. ^McFadden Pseudo R2 for Logistic. Salary amounts are adjusted for cost-of-living differences across the country and are expressed in 1,000 (quadratic term included).. In the Model bivariate, each variable is entered independently (i.e., one variable at a time). Reference categories: Financial factors: not receiving compensation for work done outside of the school system; teacher not repaying student loans; workload and instructional factors: field of main teaching assignment other than special education, ESL, foreign languages, or CTE; grade level: high or combined; other instructional supports and accountability: somewhat disagree or strongly disagree; share of SOC: schools with up to 25% of students of color; share of students eligible for FRPL: schools with up to 25% of students from low-income backgrounds (as proxied

by FRPL eligibility); locale: town or suburb; type of school: traditional noncharter public school; demographic characteristics: male; White teachers; background and experience: middle-experience; certification: temporary, waiver or emergency, or no certificate; route into teaching: alternative certification program.

Source: Learning Policy Institute analysis of the National Teacher and Principal Survey, 2020–21, and the Teacher Follow-Up Survey, 2021–22. (2024).

Table 5. Compensation, Working Conditions, and Other Individual- and School-Level Factors and Teacher Retention: Linear Probability Model and Logistic Regression Results (All Teachers)

Variables	LPM				Logistic		
	Retention				Retention		
	Model bivariate	Model fully specified	Model fully specified with state FE		Model bivariate	Model fully specified	Model fully specified with state FE
Compensation and financial factors							
Base salary (COLA, in $1,000)	0.004**	0.003**	0.003*		1.031**	1.024*	1.028**
	(0.002)	(0.002)	(0.002)		(0.014)	(0.013)	(0.013)
Base salary (COLA, in $1,000, squared)	-0.000	-0.000	-0.000		1.000	1.000	1.000
	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
Additional compensation from work outside of the school system	-0.027*	-0.020	-0.021		0.817*	0.862	0.855
	(0.015)	(0.016)	(0.015)		(0.088)	(0.105)	(0.104)
Holding student loans	-0.027**	-0.015	-0.013		0.813**	0.890	0.905
	(0.012)	(0.012)	(0.013)		(0.073)	(0.088)	(0.095)
Working environment and leadership							
Classroom autonomy (SD)	0.037***	0.011	0.012		1.323***	1.072	1.087
	(0.010)	(0.010)	(0.011)		(0.093)	(0.082)	(0.096)
Influence over school policy (SD)	0.029***	-0.010	-0.010		1.263**	0.930	0.923
	(0.011)	(0.011)	(0.012)		(0.114)	(0.090)	(0.095)
Lack of barriers to teaching and learning (SD)	0.034***	-0.004	-0.007		1.301***	0.974	0.945
	(0.010)	(0.010)	(0.010)		(0.098)	(0.079)	(0.080)
Job and workplace satisfaction (SD)	0.090***	0.075***	0.076***		1.953***	1.756***	1.804***
	(0.010)	(0.012)	(0.013)		(0.145)	(0.171)	(0.185)
Leadership effectiveness and supports (SD)	0.072***	0.048***	0.053***		1.729***	1.449***	1.521***
	(0.009)	(0.011)	(0.012)		(0.115)	(0.123)	(0.136)
Instructional factors and workload							
Contract hours	0.001	0.001	0.002		1.005	1.007	1.015
	(0.002)	(0.002)	(0.002)		(0.012)	(0.012)	(0.013)
Class size (proxy)	-0.001	-0.001	-0.001		0.994	0.993	0.994

	(0.001)	(0.001)	(0.001)	(0.006)	(0.005)	(0.005)
Special education, ESL, foreign languages, CTE	-0.025**	-0.043***	-0.043***	0.826**	0.718***	0.700***
	(0.012)	(0.015)	(0.015)	(0.074)	(0.083)	(0.085)
Primary	-0.021*	-0.023	-0.015	0.848*	0.814	0.863
	(0.012)	(0.016)	(0.017)	(0.080)	(0.105)	(0.120)
Middle	-0.019	-0.025	-0.024	0.859	0.791*	0.793*
	(0.013)	(0.015)	(0.016)	(0.090)	(0.101)	(0.108)
Other instructional supports						
Necessary materials are available as needed by the staff (agree)	0.042**	-0.008	-0.010	1.359**	0.925	0.912
	(0.018)	(0.018)	(0.018)	(0.162)	(0.128)	(0.126)
Receive a great deal of support from parents for the work I do (agree)	0.021	-0.020	-0.023*	1.175*	0.865	0.832*
	(0.012)	(0.013)	(0.013)	(0.111)	(0.090)	(0.088)
Paperwork and admin duties interfere with my job of teaching (agree)	-0.014	0.023**	0.024**	0.897	1.208**	1.224**
	(0.009)	(0.011)	(0.011)	(0.006)	(0.112)	(0.117)
Accountability						
Test-related job insecurity (agree)	-0.023*	0.006	0.007	0.841**	1.050	1.065
	(0.014)	(0.014)	(0.014)	(0.085)	(0.117)	(0.123)
School characteristics						
Share of SOC >25%–50%	-0.018	-0.018	-0.008	0.857	0.838	0.900
	(0.013)	(0.015)	(0.015)	(0.094)	(0.111)	(0.121)
Share of SOC >50%–75%	-0.049***	-0.048***	-0.040**	0.679***	0.661***	0.697**
	(0.016)	(0.017)	(0.020)	(0.084)	(0.096)	(0.119)
Share of SOC >75%–100%	-0.045***	-0.028*	-0.029	0.695***	0.784*	0.766
	(0.013)	(0.016)	(0.019)	(0.071)	(0.107)	(0.127)
Share of SOC missing	-0.013	0.044	0.038	0.892	1.305	1.237
	(0.045)	(0.062)	(0.062)	(0.359)	(0.769)	(0.741)
Share of FRPL >25%–50%	0.001	0.007	0.006	1.007	1.048	1.049
	(0.015)	(0.016)	(0.016)	(0.132)	(0.148)	(0.146)
Share of FRPL >50%–75%	-0.015	0.014	0.013	0.886	1.109	1.104
	(0.018)	(0.020)	(0.019)	(0.129)	(0.184)	(0.182)
Share of FRPL >75%–<100%	-0.047**	-0.005	-0.002	0.702**	0.955	0.978
	(0.022)	(0.026)	(0.025)	(0.111)	(0.193)	(0.194)
Share of FRPL 100%	-0.021	0.010	0.009	0.845	1.062	1.046
	(0.016)	(0.019)	(0.018)	(0.109)	(0.176)	(0.162)
Share of FRPL missing	-0.055	-0.057	-0.066	0.665	0.650	0.596*
	(0.042)	(0.044)	(0.042)	(0.192)	(0.203)	(0.184)
Charter school	-0.029	0.006	0.007	0.808*	1.076	1.095
	(0.018)	(0.021)	(0.022)	(0.101)	(0.173)	(0.194)
City	-0.039***	-0.027*	-0.022	0.747***	0.815*	0.855
	(0.014)	(0.015)	(0.016)	(0.078)	(0.093)	(0.106)

Rural	-0.007	-0.001	0.004		0.945	1.002	1.033
	(0.011)	(0.013)	(0.013)		(0.082)	(0.113)	(0.111)
Small 0–199	-0.069**	-0.077**	-0.071**		0.642***	0.582***	0.601**
	(0.027)	(0.029)	(0.028)		(0.103)	(0.110)	(0.115)
Medium large 500–749	0.014	0.012	0.015		1.113	1.105	1.136
	(0.012)	(0.013)	(0.014)		(0.104)	(0.120)	(0.128)
Large 750 and more	0.023*	0.033*	0.036*		1.204*	1.281*	1.309*
	(0.012)	(0.018)	(0.018)		(0.121)	(0.186)	(0.201)
School size missing	-0.017	-0.035	-0.007		0.885	0.722	0.957
	(0.100)	(0.110)	(0.110)		(0.588)	(0.620)	(0.848)
Demographic characteristics							
Female	-0.023*	-0.009	-0.008		0.829*	0.938	0.950
	(0.012)	(0.011)	(0.011)		(0.087)	(0.093)	(0.096)
Teachers of color	-0.019	0.005	0.011		0.863	1.025	1.075
	(0.014)	(0.015)	(0.015)		(0.090)	(0.121)	(0.132)
Educational background and experience							
Experience 1–5 years	-0.044***	-0.016	-0.018		0.719***	0.879	0.866
	(0.015)	(0.015)	(0.016)		(0.078)	(0.102)	(0.112)
Experience 26 years and over	-0.040**	-0.082***	-0.079***		0.738**	0.509***	0.517***
	(0.016)	(0.017)	(0.018)		(0.088)	(0.072)	(0.076)
Regular or probationary	0.054**	0.021	0.020		1.462**	1.149	1.140
	(0.026)	(0.024)	(0.023)		(0.233)	(0.202)	(0.194)
Traditionally certified	0.015	0.009	-0.004		1.124	1.069	0.959
	(0.012)	(0.012)	(0.013)		(0.100)	(0.100)	(0.096)
Constant	NA	0.725***	0.703***		NA	2.607	2.044
	NA	(0.111)	(0.112)		NA	(2.169)	(1.654)
Observations	5,900	5,900	5,900		5,900	5,900	5,900
R-squared ^	NA	0.057	0.076		NA	0.069	0.105

Specification includes:							
Teacher characteristics: demographic, background	NA	Yes	Yes		NA	Yes	Yes
School characteristics: school type, composition, size, and locale	NA	Yes	Yes		NA	Yes	Yes
State FE	NA	No	Yes		NA	No	Yes

Notes: COLA stands for cost-of-living adjusted; SD stands for standard deviation; ESL stands for English as a Second Language; CTE stands for Career and Technical Education; SOC stands for students of color; FRPL stands for free or reduced-price lunch; FE stands for fixed effects. Results are based on full-time, part-time, and itinerant teachers in public schools in the United States in 2020–21 who were followed into the 2021–22 school year; public schools include traditional public schools and charter schools. Standard errors in parentheses. ***$p < 0.01$. **$p < 0.05$. *$p < 0.1$. Number of observations is rounded to the nearest 10. ^McFadden Pseudo R2 for Logistic. Salary amounts are adjusted for cost-of-living differences across the country and are expressed in 1,000 (quadratic term included). In the Model bivariate, each variable is entered independently (i.e., one variable at a time). Reference

categories: Financial factors: not receiving compensation for work done outside of the school system; teacher not repaying student loans; workload and instructional factors: field of main teaching assignment other than special education, ESL, foreign languages, or CTE; grade level: high or combined; other instructional supports and accountability: somewhat disagree or strongly disagree; share of SOC: schools with up to 25% of students of color; share of students eligible for FRPL: schools with up to 25% of students from low-income backgrounds (as proxied by FRPL eligibility); locale: town or suburb; type of school: traditional noncharter public school; demographic characteristics: male; White teachers; background and experience: middle-experience; certification: temporary, waiver or emergency, or no certificate; route into teaching: alternative certification program.

Table 6. Compensation, Working Conditions, and Other Individual- and School-Level Factors and Preretirement Teacher Turnover: Linear Probability Model and Logistic Regression Results (Excludes Retirees)

Variables	LPM				Logistic		
	Turnover				Turnover		
	Model bivariate	Model fully specified	Model fully specified with state FE		Model bivariate	Model fully specified	Model fully specified with state FE
Compensation and financial factors							
Base salary (COLA, in $1,000)	-0.005***	-0.004**	-0.004**		0.969**	0.976	0.972*
	(0.002)	(0.002)	(0.002)		(0.014)	(0.017)	(0.015)
Base salary (COLA, in $1,000, squared)	0.000*	0.000	0.000		1.000	1.000	1.000
	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
Additional compensation from work outside of the school system	0.037**	0.030*	0.031*		1.357**	1.282*	1.307*
	(0.015)	(0.016)	(0.016)		(0.164)	(0.178)	(0.179)
Holding student loans	0.052***	0.025**	0.023*		1.556***	1.232**	1.210*
	(0.012)	(0.012)	(0.013)		(0.146)	(0.126)	(0.133)
Working environment and leadership							
Classroom autonomy (SD)	-0.035***	-0.008	-0.009		0.748***	0.951	0.934
	(0.010)	(0.009)	(0.010)		(0.055)	(0.073)	(0.084)
Influence over school policy (SD)	-0.028**	0.010	0.010		0.777**	1.090	1.094
	(0.010)	(0.011)	(0.012)		(0.077)	(0.120)	(0.128)
Lack of barriers to teaching and learning (SD)	-0.036***	-0.001	0.002		0.732***	0.984	1.022
	(0.009)	(0.010)	(0.011)		(0.058)	(0.091)	(0.099)
Job and workplace satisfaction (SD)	-0.093***	-0.074***	-0.075***		0.466***	0.537***	0.523***
	(0.010)	(0.012)	(0.012)		(0.037)	(0.058)	(0.059)
Leadership effectiveness and supports (SD)	-0.070***	-0.042***	-0.047***		0.553***	0.692***	0.658***
	(0.009)	(0.011)	(0.012)		(0.041)	(0.067)	(0.066)
Instructional factors and workload							

Contract hours	0.001	0.000	-0.001	1.008	1.001	0.991
	(0.002)	(0.002)	(0.002)	(0.014)	(0.014)	(0.014)
Class size (proxy)	0.001	0.001	0.001	1.007	1.006	1.006
	(0.001)	(0.001)	(0.001)	(0.007)	(0.005)	(0.006)
Special education, ESL, foreign languages, CTE	0.019	0.033**	0.033**	1.179*	1.326**	1.351**
	(0.012)	(0.014)	(0.014)	(0.113)	(0.168)	(0.173)
Primary	0.025**	0.028*	0.020	1.252**	1.315*	1.225
	(0.011)	(0.015)	(0.017)	(0.122)	(0.181)	(0.186)
Middle	0.022*	0.026*	0.024	1.221*	1.312*	1.293*
	(0.013)	(0.015)	(0.016)	(0.141)	(0.180)	(0.190)
Additional instructional supports						
Necessary materials are available as needed by the staff (agree)	-0.039**	-0.024**	-0.025**	0.727**	0.794**	0.781**
	(0.016)	(0.011)	(0.011)	(0.088)	(0.083)	(0.085)
Receive a great deal of support from parents for the work I do (agree)	-0.024**	0.007	0.008	0.813**	1.081	1.085
	(0.012)	(0.017)	(0.017)	(0.079)	(0.159)	(0.161)
Paperwork and admin duties interfere with my job of teaching (agree)	0.011	0.020	0.023*	1.098	1.182	1.231*
	(0.009)	(0.012)	(0.012)	(0.088)	(0.133)	(0.143)
Accountability						
Test-related job insecurity (agree)	0.023*	-0.010	-0.010	1.218*	0.922	0.907
	(0.013)	(0.013)	(0.013)	(0.132)	(0.109)	(0.113)
School characteristics						
Share of SOC >25%–50%	0.020	0.017	0.009	1.222	1.223	1.164
	(0.012)	(0.015)	(0.015)	(0.146)	(0.186)	(0.175)
Share of SOC >50%–75%	0.055***	0.050***	0.045**	1.625***	1.608***	1.584**
	(0.016)	(0.017)	(0.018)	(0.213)	(0.250)	(0.274)
Share of SOC >75%–100%	0.043***	0.016	0.022	1.483***	1.181	1.259
	(0.013)	(0.015)	(0.018)	(0.165)	(0.173)	(0.213)
Share of SOC missing	0.016	-0.035	-0.022	1.176	0.832	0.964
	(0.045)	(0.059)	(0.059)	(0.547)	(0.536)	(0.630)
Share of FRPL >25%–50%	-0.001	-0.012	-0.012	0.990	0.913	0.899
	(0.015)	(0.016)	(0.015)	(0.142)	(0.144)	(0.141)
Share of FRPL >50%–75%	0.019	-0.016	-0.015	1.195	0.888	0.894
	(0.017)	(0.019)	(0.018)	(0.188)	(0.156)	(0.157)
Share of FRPL >75%–<100%	0.045**	0.002	-0.001	1.469**	1.032	1.000
	(0.021)	(0.025)	(0.024)	(0.250)	(0.231)	(0.217)
Share of FRPL 100%	0.024	-0.008	-0.007	1.245	0.967	0.983
	(0.016)	(0.019)	(0.018)	(0.176)	(0.175)	(0.167)
Share of FRPL missing	0.061	0.056	0.063	1.647	1.607	1.714
	(0.043)	(0.045)	(0.043)	(0.525)	(0.562)	(0.598)
Charter school	0.041**	-0.003	-0.003	1.383**	0.940	0.947

	(0.018)	(0.022)	(0.022)	(0.179)	(0.165)	(0.178)
City	0.040***	0.030**	0.023	1.406***	1.301**	1.209
	(0.013)	(0.014)	(0.015)	(0.150)	(0.154)	(0.156)
Rural	0.010	0.004	0.001	1.094	1.040	1.015
	(0.010)	(0.013)	(0.013)	(0.104)	(0.131)	(0.121)
Small 0–199	0.049*	0.058**	0.051*	1.425*	1.578**	1.527**
	(0.028)	(0.028)	(0.028)	(0.265)	(0.328)	(0.316)
Medium large 500–749	-0.013	-0.011	-0.013	0.899	0.908	0.888
	(0.012)	(0.012)	(0.012)	(0.090)	(0.101)	(0.102)
Large 750 and more	-0.024*	-0.029	-0.031*	0.811*	0.790	0.777
	(0.012)	(0.017)	(0.018)	(0.089)	(0.126)	(0.131)
School size missing	-0.005	0.001	-0.024	0.962	1.083	0.814
	(0.085)	(0.100)	(0.100)	(0.674)	(1.012)	(0.781)
Demographic characteristics						
Female	0.023**	0.010	0.008	1.239*	1.077	1.058
	(0.012)	(0.011)	(0.011)	(0.139)	(0.120)	(0.124)
Teachers of color	0.027*	0.005	-0.001	1.251**	1.057	1.020
	(0.014)	(0.015)	(0.015)	(0.139)	(0.135)	(0.135)
Educational background and experience						
Experience 1–5 years	0.054***	0.022	0.024	1.528***	1.176	1.197
	(0.015)	(0.016)	(0.017)	(0.170)	(0.144)	(0.166)
Experience 26 years and over	-0.051***	-0.003	-0.005	0.563***	0.871	0.851
	(0.012)	(0.014)	(0.015)	(0.088)	(0.159)	(0.164)
Regular or probationary	-0.055**	-0.015	-0.013	0.656**	0.911	0.931
	(0.025)	(0.025)	(0.023)	(0.112)	(0.182)	(0.180)
Traditionally certified	-0.024**	-0.010	0.001	0.815**	0.923	1.021
	(0.012)	(0.012)	(0.013)	(0.075)	(0.091)	(0.110)
Constant	NA	0.235**	0.249**	NA	0.268	0.325
	NA	(0.108)	(0.106)	NA	(0.270)	(0.294)
Observations	5,360	5,360	5,360	5,360	5,360	5,360
R-squared*	NA	0.066	0.085	NA	0.089	0.123

Specification includes:						
Teacher characteristics: demographic, background	NA	Yes	Yes	NA	Yes	Yes
School characteristics: school type, composition, size, and locale	NA	Yes	Yes	NA	Yes	Yes
State FE	NA	No	Yes	NA	No	Yes

Notes: COLA stands for cost-of-living adjusted; SD stands for standard deviation; ESL stands for English as a Second Language; CTE stands for Career and Technical Education; SOC stands for students of color; FRPL stands for free or reduced-price lunch; FE stands for fixed effects. Results are based on full-time, part-time, and itinerant teachers in public schools in the United States in 2020–21 who were followed into the 2021–22 school year,

excluding teachers who retired between the 2 years; public schools include traditional public schools and charter schools. Standard errors in parentheses. ***$p < 0.01$. **$p < 0.05$. *$p < 0.1$. Number of observations is rounded to the nearest 10. ^McFadden Pseudo R2 for Logistic. Salary amounts are adjusted for cost-of-living differences across the country and are expressed in 1,000(quadratic term included). In the Model bivariate, each variable is entered independently (i.e., one variable at a time).

Reference categories: Financial factors: not receiving compensation for work done outside of the school system; teacher not repaying student loans; workload and instructional factors: field of main teaching assignment other than special education, ESL, foreign languages, or CTE; grade level: high or combined; other instructional supports and accountability: somewhat disagree or strongly disagree; share of SOC: schools with up to 25% of students of color; share of students eligible for FRPL: schools with up to 25% of students from low-income backgrounds (as proxied by FRPL eligibility); locale: town or suburb; type of school: traditional noncharter public school; demographic characteristics: male; White teachers; background and experience: middle-experience; certification: temporary, waiver or emergency, or no certificate; route into teaching: alternative certification program.

Source: Learning Policy Institute analysis of the National Teacher and Principal Survey, 2020–21, and the Teacher Follow-Up Survey, 2021–22. (2024).

Table 7. Compensation, Working Conditions, and Other Individual- and School-Level Factors and Preretirement Teacher Retention: Linear Probability Model and Logistic Regression Results (Excludes Retirees)

Variables	LPM				Logistic		
	Retention				Retention		
	Model bivariate	Model fully specified	Model fully specified with state FE		Model bivariate	Model fully specified	Model fully specified with state FE
Compensation and financial factors							
Base salary (COLA, in $1,000)	0.005***	0.004**	0.004**		1.032**	1.025	1.029*
	(0.002)	(0.002)	(0.002)		(0.015)	(0.018)	(0.016)
Base salary (COLA, in $1,000, squared)	-0.000*	-0.000	-0.000		1.000	1.000	1.000
	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
Additional compensation from work outside of the school system	-0.037**	-0.030*	-0.031*		0.737**	0.780*	0.765*
	(0.015)	(0.016)	(0.016)		(0.089)	(0.108)	(0.105)
Holding student loans	-0.052***	-0.025**	-0.023*		0.642***	0.812**	0.826*
	(0.012)	(0.012)	(0.013)		(0.060)	(0.083)	(0.091)
Working environment and leadership							
Classroom autonomy (SD)	0.035***	0.008	0.009		1.336***	1.052	1.071
	(0.010)	(0.009)	(0.010)		(0.099)	(0.081)	(0.096)
Influence over school policy (SD)	0.028**	-0.010	-0.010		1.286**	0.917	0.914
	(0.010)	(0.011)	(0.012)		(0.128)	(0.101)	(0.107)
Lack of barriers to teaching and learning (SD)	0.036***	0.001	-0.002		1.366***	1.016	0.979
	(0.009)	(0.010)	(0.011)		(0.108)	(0.094)	(0.095)
Job and workplace satisfaction (SD)	0.093***	0.074***	0.075***		2.144***	1.864***	1.914***

	(0.010)	(0.012)	(0.012)		(0.170)	(0.200)	(0.217)
Leadership effectiveness and supports (SD)	0.070***	0.042***	0.047***		1.808***	1.444***	1.520***
	(0.009)	(0.011)	(0.012)		(0.134)	(0.140)	(0.152)
Instructional factors and workload							
Contract hours	-0.001	-0.000	0.001		0.992	0.999	1.009
	(0.002)	(0.002)	(0.002)		(0.014)	(0.014)	(0.014)
Class size (proxy)	-0.001	-0.001	-0.001		0.993	0.994	0.994
	(0.001)	(0.001)	(0.001)		(0.007)	(0.005)	(0.006)
Special education, ESL, foreign languages, CTE	-0.019	-0.033**	-0.033**		0.848*	0.754**	0.740**
	(0.012)	(0.014)	(0.014)		(0.082)	(0.095)	(0.095)
Primary	-0.025**	-0.028*	-0.020		0.799**	0.760*	0.816
	(0.011)	(0.015)	(0.017)		(0.078)	(0.104)	(0.124)
Middle	-0.022*	-0.026*	-0.024		0.819*	0.762*	0.773*
	(0.013)	(0.015)	(0.016)		(0.094)	(0.104)	(0.114)
Additional instructional supports							
Necessary materials are available as needed by the staff (agree)	0.039**	0.024**	0.025**		1.375**	1.260**	1.281**
	(0.016)	(0.011)	(0.011)		(0.167)	(0.132)	(0.139)
Receive a great deal of support from parents for the work I do (agree)	0.024**	-0.007	-0.008		1.230**	0.926	0.921
	(0.012)	(0.017)	(0.017)		(0.119)	(0.136)	(0.136)
Paperwork and admin duties interfere with my job of teaching (agree)	-0.011	-0.020	-0.023*		0.911	0.846	0.812*
	(0.009)	(0.012)	(0.012)		(0.073)	(0.095)	(0.094)
Accountability							
Test-related job insecurity (agree)	-0.023*	0.010	0.010		0.821*	1.085	1.103
	(0.013)	(0.013)	(0.013)		(0.089)	(0.128)	(0.137)
School characteristics							
Share of SOC >25%–50%	-0.020	-0.017	-0.009		0.818	0.818	0.859
	(0.012)	(0.015)	(0.015)		(0.098)	(0.124)	(0.129)
Share of SOC >50%–75%	-0.055***	-0.050***	-0.045**		0.615***	0.622***	0.631**
	(0.016)	(0.017)	(0.018)		(0.081)	(0.097)	(0.109)
Share of SOC >75%–100%	-0.043***	-0.016	-0.022		0.674***	0.847	0.795
	(0.013)	(0.015)	(0.018)		(0.075)	(0.124)	(0.134)
Share of SOC missing	-0.016	0.035	0.022		0.850	1.203	1.037
	(0.045)	(0.059)	(0.059)		(0.395)	(0.775)	(0.677)
Share of FRPL >25%–50%	0.001	0.012	0.012		1.010	1.095	1.113
	(0.015)	(0.016)	(0.015)		(0.145)	(0.173)	(0.174)
Share of FRPL >50%–75%	-0.019	0.016	0.015		0.837	1.126	1.118
	(0.017)	(0.019)	(0.018)		(0.132)	(0.198)	(0.196)
Share of FRPL >75%–<100%	-0.045**	-0.002	0.001		0.681**	0.969	1.000
	(0.021)	(0.025)	(0.024)		(0.116)	(0.217)	(0.217)

Share of FRPL 100%	-0.024	0.008	0.007	0.803	1.034	1.017
	(0.016)	(0.019)	(0.018)	(0.114)	(0.187)	(0.172)
Share of FRPL missing	-0.061	-0.056	-0.063	0.607	0.622	0.584
	(0.043)	(0.045)	(0.043)	(0.194)	(0.218)	(0.204)
Charter school	-0.041**	0.003	0.003	0.723**	1.064	1.057
	(0.018)	(0.022)	(0.022)	(0.093)	(0.187)	(0.198)
City	-0.040***	-0.030**	-0.023	0.711***	0.769**	0.827
	(0.013)	(0.014)	(0.015)	(0.076)	(0.091)	(0.107)
Rural	-0.010	-0.004	-0.001	0.914	0.962	0.985
	(0.010)	(0.013)	(0.013)	(0.087)	(0.121)	(0.117)
Small 0–199	-0.049*	-0.058**	-0.051*	0.702*	0.634**	0.655**
	(0.028)	(0.028)	(0.028)	(0.131)	(0.132)	(0.135)
Medium large 500–749	0.013	0.011	0.013	1.113	1.102	1.126
	(0.012)	(0.012)	(0.012)	(0.112)	(0.122)	(0.130)
Large 750 and more	0.024*	0.029	0.031*	1.233*	1.267	1.286
	(0.012)	(0.017)	(0.018)	(0.135)	(0.202)	(0.216)
School size missing	0.005	-0.001	0.024	1.039	0.923	1.228
	(0.085)	(0.100)	(0.100)	(0.728)	(0.863)	(1.178)
Demographic characteristics						
Female	-0.023**	-0.010	-0.008	0.807*	0.929	0.945
	(0.012)	(0.011)	(0.011)	(0.090)	(0.104)	(0.111)
Teachers of color	-0.027*	-0.005	0.001	0.799**	0.946	0.981
	(0.014)	(0.015)	(0.015)	(0.089)	(0.121)	(0.130)
Educational background and experience						
Experience 1–5 years	-0.054***	-0.022	-0.024	0.655***	0.850	0.836
	(0.015)	(0.016)	(0.017)	(0.073)	(0.104)	(0.116)
Experience 26 years and over	0.051***	0.003	0.005	1.776***	1.148	1.176
	(0.012)	(0.014)	(0.015)	(0.278)	(0.209)	(0.227)
Regular or probationary	0.055**	0.015	0.013	1.525**	1.098	1.074
	(0.025)	(0.025)	(0.023)	(0.260)	(0.219)	(0.207)
Traditionally certified	0.024**	0.010	-0.001	1.227**	1.083	0.979
	(0.012)	(0.012)	(0.013)	(0.113)	(0.107)	(0.105)
Constant	NA	0.765***	0.752***	NA	3.730	3.079
	NA	(0.108)	(0.106)	NA	(3.752)	(2.783)
Observations	5,360	5,360	5,360	5,360	5,360	5,360
R-squared*	NA	0.066	0.085	NA	0.089	0.123

Specification includes:						
Teacher characteristics: demographic, background	NA	Yes	Yes	NA	Yes	Yes

Variables					
School characteristics: school type, composition, size, and locale	NA	Yes	Yes	NA	Yes	Yes
State FE	NA	No	Yes	NA	No	Yes

Notes: COLA stands for cost-of-living adjusted; SD stands for standard deviation; ESL stands for English as a Second Language; CTE stands for Career and Technical Education; SOC stands for students of color; FRPL stands for free or reduced-price lunch; FE stands for fixed effects. Results are based on full-time, part-time, and itinerant teachers in public schools in the United States in 2020–21 who were followed into the 2021–22 school year, excluding teachers who retired between the 2 years; public schools include traditional public schools and charter schools. Standard errors in parentheses. ***$p <0.01$. **$p < 0.05$. *$p < 0.1$. Number of observations is rounded to the nearest 10. ^McFadden Pseudo R2 for Logistic. Salary amounts are adjusted for cost-of-living differences across the country and are expressed in 1,000 (quadratic term included). In the Model bivariate, each variable is entered independently (i.e., one variable at a time). Reference categories: Financial factors: not receiving compensation for work done outside of the school system; teacher not repaying student loans; workload and instructional factors: field of main teaching assignment other than special education, ESL, foreign languages, or CTE; grade level: high or combined; other instructional supports and accountability: somewhat disagree or strongly disagree; share of SOC: schools with up to 25% of students of color; share of students eligible for FRPL: schools with up to 25% of students from low-income backgrounds (as proxied by FRPL eligibility); locale: town or suburb; type of school: traditional noncharter public school; demographic characteristics: male; White teachers; background and experience: middle-experience; certification: temporary, waiver or emergency, or no certificate; route into teaching: alternative certification program.

Source: Learning Policy Institute analysis of the National Teacher and Principal Survey, 2020–21, and the Teacher Follow-Up Survey, 2021–22. (2024).

Table 8. Other Individual- and School-Level Factors and the Indices: Regression Results (All Teachers)

Variables	Job and workplace satisfaction	Leadership effectiveness and supports	Lack of barriers to teaching and learning	Classroom autonomy	Influence on school policy
Compensation and financial factors					
Base salary (COLA, in $1,000)	0.003	0.002	-0.004	-0.002	-0.001
	(0.002)	(0.005)	(0.005)	(0.005)	(0.004)
Base salary (COLA, in $1,000, squared)	0.000	-0.000	0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Additional compensation from work outside of the school system	-0.061**	0.013	-0.053*	0.018	0.001
	(0.025)	(0.033)	(0.030)	(0.032)	(0.034)
Holding student loans	-0.019	-0.019	-0.014	-0.004	-0.025
	(0.025)	(0.028)	(0.027)	(0.022)	(0.026)
Working environment and leadership					
Classroom autonomy (SD)	0.095***	-0.003	0.044*		0.293***
	(0.019)	(0.024)	(0.023)		(0.025)
Influence over school policy (SD)	0.129***	0.166***	-0.022	0.291***	
	(0.020)	(0.019)	(0.019)	(0.026)	
Lack of barriers to teaching and learning (SD)	0.158***	0.099***		0.070*	-0.035
	(0.022)	(0.022)		(0.037)	(0.031)

Job and workplace satisfaction (SD)		0.472***	0.142***	0.137***	0.187***
		(0.022)	(0.019)	(0.028)	(0.026)
Leadership effectiveness and supports (SD)	0.389***		0.073***	-0.004	0.197***
	(0.016)		(0.017)	(0.029)	(0.024)
Instructional factors and workload					
Contract hours	-0.005*	0.003	-0.000	0.001	-0.002
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)
Class size (proxy)	-0.003**	0.001	0.000	-0.002**	0.003*
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Special education, ESL, foreign languages, CTE	-0.001	0.036	-0.023	0.016	0.007
	(0.023)	(0.033)	(0.030)	(0.032)	(0.034)
Primary	-0.036	0.095***	0.361***	-0.319***	-0.045
	(0.031)	(0.029)	(0.029)	(0.040)	(0.042)
Middle	-0.025	0.021	0.218***	-0.167***	-0.019
	(0.025)	(0.035)	(0.029)	(0.038)	(0.039)
Additional instructional supports					
Paperwork and admin duties interfere with my job of teaching (agree)	-0.162***	-0.022	-0.044*	-0.057**	-0.034
	(0.016)	(0.028)	(0.023)	(0.027)	(0.025)
Necessary materials are available as needed by the staff (agree)	0.042	0.155***	0.087***	0.107**	0.071*
	(0.034)	(0.036)	(0.031)	(0.047)	(0.036)
Receive a great deal of support from parents for the work I do (agree)	0.107***	0.017	0.261***	0.057*	0.119***
	(0.025)	(0.031)	(0.026)	(0.031)	(0.032)
Accountability					
Test-related job insecurity (agree)	-0.163***	0.112***	-0.127***	-0.132***	0.030
	(0.020)	(0.027)	(0.027)	(0.030)	(0.022)
School characteristics					
Share of SOC >25%–50%	0.049*	0.010	-0.023	-0.109***	-0.019
	(0.029)	(0.037)	(0.022)	(0.033)	(0.037)
Share of SOC >50%–75%	0.027	0.086**	-0.085**	-0.097**	-0.045
	(0.033)	(0.042)	(0.032)	(0.041)	(0.034)
Share of SOC >75%–100%	0.048	0.040	-0.139***	-0.138***	0.008
	(0.040)	(0.045)	(0.029)	(0.048)	(0.052)
Share of SOC missing	0.011	0.004	0.078	-0.141	0.076
	(0.073)	(0.115)	(0.086)	(0.111)	(0.110)
Share of FRPL >25%–50%	0.033	0.063**	-0.270***	0.038	0.016
	(0.026)	(0.028)	(0.027)	(0.039)	(0.035)
Share of FRPL >50%–75%	0.011	0.052	-0.398***	0.099**	0.002
	(0.035)	(0.035)	(0.032)	(0.043)	(0.046)
Share of FRPL >75%–<100%	0.032	0.093*	-0.483***	0.076	0.017
	(0.041)	(0.049)	(0.041)	(0.066)	(0.067)
Share of FRPL 100%	0.083**	0.050	-0.441***	0.060	-0.015

	(0.034)	(0.033)	(0.028)	(0.044)	(0.040)
Share of FRPL missing	-0.037	0.123	-0.132**	0.177**	0.099
	(0.072)	(0.078)	(0.063)	(0.075)	(0.087)
Size 1–199	-0.007	0.072	-0.083*	-0.018	0.030
	(0.047)	(0.066)	(0.042)	(0.072)	(0.072)
Size 500–749	-0.007	0.088***	-0.001	0.019	-0.049
	(0.026)	(0.027)	(0.026)	(0.033)	(0.040)
Larger schools (750 or more)	0.022	0.035	-0.052**	0.004	-0.113***
	(0.028)	(0.030)	(0.024)	(0.038)	(0.039)
Missing school size	0.074	0.011	-0.504***	-0.105	-0.120
	(0.179)	(0.207)	(0.156)	(0.257)	(0.131)
Charter school	-0.046	0.035	0.046	-0.003	0.030
	(0.037)	(0.052)	(0.043)	(0.056)	(0.053)
City	-0.014	0.026	-0.048*	0.014	-0.001
	(0.028)	(0.032)	(0.025)	(0.034)	(0.039)
Rural	0.019	-0.024	-0.029	0.042	-0.017
	(0.028)	(0.028)	(0.028)	(0.033)	(0.034)
Demographic characteristics					
Female	-0.056*	0.032	-0.046	0.003	-0.050
	(0.028)	(0.033)	(0.031)	(0.029)	(0.034)
Teachers of color	-0.079**	0.027	0.067**	-0.005	0.113***
	(0.030)	(0.033)	(0.031)	(0.039)	(0.037)
Educational background and experience					
Experience 1–5 years	0.051	-0.032	-0.042	0.015	0.079**
	(0.031)	(0.036)	(0.026)	(0.036)	(0.038)
Experience 26 years and over	0.088***	0.085**	-0.024	-0.032	0.002
	(0.028)	(0.034)	(0.028)	(0.038)	(0.044)
Regular or probationary	-0.024	0.026	-0.024	0.042	0.004
	(0.043)	(0.060)	(0.050)	(0.058)	(0.071)
Traditionally certified	0.000	-0.018	-0.030	0.034	0.043
	(0.036)	(0.042)	(0.032)	(0.040)	(0.035)
Constant	0.241*	-0.459***	0.262	0.144	0.040
	(0.139)	(0.170)	(0.192)	(0.210)	(0.189)
Observations	5,900	5,900	5,900	5,900	5,900
R-squared	0.465	0.380	0.403	0.267	0.305

Notes: COLA stands for cost-of-living adjusted; SD stands for standard deviation; ESL stands for English as a Second Language; CTE stands for Career and Technical Education; SOC stands for students of color; FRPL stands for free or reduced-price lunch. Results are based on full-time, part-time, and itinerant teachers in public schools in the United States in 2020–21 who were followed into the 2021–22 school year; public schools include traditional public schools and charter schools. Standard errors in parentheses. ***p <0.01. **p < 0.05. *p < 0.1. Number of observations is rounded to the nearest 10. Salary amounts are adjusted for cost-of-living differences across the country and expressed in 1,000 (quadratic term included). Reference categories: Financial factors: not receiving compensation for work done outside of the school system; teacher not repaying student loans; workload and instructional factors: field of main teaching assignment other than special education, ESL, foreign languages, or

CTE; grade level: high or combined; other instructional supports and accountability: somewhat disagree or strongly disagree; share of SOC: schools with up to 25% of students of color; share of students eligible for FRPL: schools with up to 25% of students from low-income backgrounds (as proxied by FRPL eligibility); locale: town or suburb; type of school: traditional noncharter public school; demographic characteristics: male; White teachers; background and experience: middle-experience; certification: temporary, waiver or emergency, or no certificate; route into teaching: alternative certification program.

Table 9. Other Individual- and School-Level Factors and the Indices: Regression Results (Excludes Retirees)

Variables	Job and workplace satisfaction	Leadership effectiveness and supports	Lack of barriers to teaching and learning	Classroom autonomy	Influence on school policy
Compensation and financial factors					
Base salary (COLA, in $1,000)	0.003	0.002	-0.003	-0.002	-0.001
	(0.002)	(0.006)	(0.005)	(0.005)	(0.004)
Base salary (COLA, in $1,000, squared)	-0.000	-0.000	0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Additional compensation from work outside of the school system	-0.059**	0.010	-0.053*	0.016	0.003
	(0.025)	(0.034)	(0.030)	(0.032)	(0.034)
Holding student loans	-0.019	-0.021	-0.014	-0.004	-0.024
	(0.025)	(0.028)	(0.027)	(0.022)	(0.027)
Working environment and leadership					
Classroom autonomy (SD)	0.095***	-0.001	0.046**		0.289***
	(0.019)	(0.025)	(0.023)		(0.025)
Influence over school policy (SD)	0.131***	0.166***	-0.021	0.288***	
	(0.021)	(0.020)	(0.019)	(0.027)	
Lack of barriers to teaching and learning (SD)	0.156***	0.100***		0.074*	-0.033
	(0.022)	(0.023)		(0.037)	(0.031)
Job and workplace satisfaction (SD)		0.471***	0.140***	0.135***	0.188***
		(0.023)	(0.019)	(0.028)	(0.027)
Leadership effectiveness and supports (SD)	0.389***		0.074***	-0.002	0.197***
	(0.017)		(0.017)	(0.029)	(0.024)
Instructional factors and workload					
Contract hours	-0.006*	0.003	-0.000	0.001	-0.002
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)
Class size (proxy)	-0.003**	0.001	-0.000	-0.002**	0.002*
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Special education, ESL, foreign languages, CTE	-0.004	0.039	-0.027	0.018	0.008
	(0.024)	(0.034)	(0.030)	(0.032)	(0.034)

Primary	-0.033	0.096***	0.368***	-0.327***	-0.042
	(0.032)	(0.029)	(0.030)	(0.041)	(0.042)
Middle	-0.024	0.021	0.223***	-0.174***	-0.021
	(0.025)	(0.036)	(0.030)	(0.038)	(0.038)
Additional instructional supports					
Paperwork and admin duties interfere with my job of teaching (agree)	-0.160***	-0.025	-0.042*	-0.057**	-0.036
	(0.017)	(0.028)	(0.024)	(0.027)	(0.026)
Necessary materials are available as needed by the staff (agree)	0.041	0.148***	0.085***	0.109**	0.077**
	(0.035)	(0.038)	(0.032)	(0.048)	(0.035)
Receive a great deal of support from parents for the work I do (agree)	0.110***	0.014	0.261***	0.058*	0.118***
	(0.025)	(0.032)	(0.026)	(0.031)	(0.032)
Accountability					
Test-related job insecurity (agree)	-0.163***	0.116***	-0.130***	-0.132***	0.028
	(0.020)	(0.028)	(0.027)	(0.030)	(0.022)
School characteristics					
Share of SOC >25%–50%	0.050*	0.009	-0.021	-0.105***	-0.018
	(0.029)	(0.037)	(0.023)	(0.034)	(0.038)
Share of SOC >50%–75%	0.027	0.086*	-0.088***	-0.095**	-0.048
	(0.034)	(0.043)	(0.032)	(0.042)	(0.033)
Share of SOC >75%–100%	0.047	0.046	-0.143***	-0.134***	0.005
	(0.041)	(0.046)	(0.029)	(0.048)	(0.052)
Share of SOC missing	0.011	0.000	0.085	-0.141	0.077
	(0.075)	(0.117)	(0.088)	(0.113)	(0.113)
Share of FRPL >25%–50%	0.032	0.064**	-0.271***	0.038	0.014
	(0.027)	(0.029)	(0.028)	(0.041)	(0.035)
Share of FRPL >50%–75%	0.008	0.051	-0.398***	0.098**	0.004
	(0.035)	(0.036)	(0.032)	(0.043)	(0.047)
Share of FRPL >75%–<100%	0.028	0.099*	-0.486***	0.075	0.013
	(0.043)	(0.052)	(0.041)	(0.067)	(0.067)
Share of FRPL 100%	0.079**	0.050	-0.439***	0.059	-0.012
	(0.034)	(0.036)	(0.029)	(0.045)	(0.041)
Share of FRPL missing	-0.043	0.129	-0.134**	0.173**	0.104
	(0.073)	(0.079)	(0.064)	(0.076)	(0.088)
Small school size (0–199)	-0.012	0.080	-0.080*	-0.015	0.032
	(0.050)	(0.069)	(0.042)	(0.074)	(0.075)
Medium large 500–749	-0.007	0.086***	-0.001	0.020	-0.048
	(0.027)	(0.028)	(0.027)	(0.033)	(0.041)
Large 750 and more	0.021	0.039	-0.051**	0.002	-0.114***
	(0.028)	(0.030)	(0.025)	(0.039)	(0.040)
School size missing	0.068	0.042	-0.529***	-0.094	-0.123
	(0.188)	(0.212)	(0.158)	(0.268)	(0.135)
Charter school	-0.046	0.032	0.045	-0.006	0.036

	(0.037)	(0.052)	(0.043)	(0.056)	(0.054)
City	-0.012	0.023	-0.045*	0.011	-0.002
	(0.029)	(0.033)	(0.026)	(0.034)	(0.040)
Rural	0.020	-0.024	-0.028	0.039	-0.018
	(0.028)	(0.029)	(0.028)	(0.034)	(0.035)
Demographic characteristics					
Female	-0.058**	0.034	-0.049	0.003	-0.052
	(0.028)	(0.033)	(0.032)	(0.029)	(0.035)
Teachers of color	-0.079**	0.020	0.070**	-0.002	0.116***
	(0.031)	(0.034)	(0.031)	(0.039)	(0.038)
Educational background and experience					
Experience 1–5 years	0.050	-0.033	-0.043	0.015	0.082**
	(0.032)	(0.035)	(0.026)	(0.037)	(0.037)
Experience 26 years and over	0.091***	0.100**	-0.035	-0.020	0.010
	(0.030)	(0.037)	(0.030)	(0.043)	(0.048)
Regular or probationary	-0.031	0.018	-0.031	0.045	0.023
	(0.044)	(0.059)	(0.050)	(0.058)	(0.067)
Traditionally certified	-0.001	-0.015	-0.034	0.036	0.037
	(0.036)	(0.042)	(0.032)	(0.041)	(0.035)
Constant	0.258*	-0.457**	0.268	0.155	-0.013
	(0.144)	(0.175)	(0.197)	(0.215)	(0.196)
Observations	5,360	5,360	5,360	5,360	5,360
R-squared	0.465	0.380	0.404	0.267	0.306

Notes: COLA stands for cost-of-living adjusted; SD stands for standard deviation; ESL stands for English as a Second Language; CTE stands for Career and Technical Education; SOC stands for students of color; FRPL stands for free or reduced-price lunch. Results are based on full-time, part-time, and itinerant teachers in public schools in the United States in 2020–21 who were followed into the 2021–22 school year, excluding teachers who retired between the 2 years; public schools include traditional public schools and charter schools. Standard errors in parentheses. ***$p < 0.01$. **$p < 0.05$. *$p < 0.1$. Number of observations is rounded to the nearest 10. Salary amounts are adjusted for cost-of-living differences across the country and expressed in 1,000 (quadratic term included). Reference categories: Financial factors: not receiving compensation for work done outside of the school system; teacher not repaying student loans; workload and instructional factors: field of main teaching assignment other than special education, ESL, foreign languages, or CTE; grade level: high or combined; other instructional supports and accountability: somewhat disagree or strongly disagree; share of SOC: schools with up to 25% of students of color; share of students eligible for FRPL: schools with up to 25% of students from low-income backgrounds (as proxied by FRPL eligibility); locale: town or suburb; type of school: traditional noncharter public school; demographic characteristics: male; White teachers; background and experience: middle-experience; certification: temporary, waiver or emergency, or no certificate; route into teaching: alternative certification program.
Source: Learning Policy Institute analysis of the National Teacher and Principal Survey, 2020–21, and the Teacher Follow-Up Survey, 2021–22. (2024).

Endnotes

[1] National Center for Education Statistics. (n.d.). National Teacher and Principal Survey. https://nces.ed.gov/surveys/ntps/ (accessed 09/25/2024). To date, the NTPS has been administered four times (including the 2023–24 administration). Its predecessor, the Schools and Staffing Survey (SASS), was administered seven times from 1987 to 2011. The TFS has been conducted eight times after the SASS or NTPS administrations (excludes the ongoing 2024–25 administration as of the date of this publication, see https://www.census.gov/programs-surveys/tfs.html).

[2] The 2020–21 NTPS is also a nationally representative survey of public and private K–12 principals and schools.

[3] For more information on the survey, see Taie, S., & Lewis, L. (2023). *Teacher attrition and mobility. Results from the 2021–22 Teacher Follow-up Survey to the National Teacher and Principal Survey* (NCES 2024-039). U.S. Department of Education, National Center for Education Statistics. https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2024039. https://nces.ed.gov/pubs2024/2024039M.pdf

[4] Combining public and private school teachers, about 10,300 teachers participating in the 2020–21 NTPS were surveyed in the 2021–22 TFS. The 2021–22 TFS sample included a total of about 10,300 current and former teachers. The response rate for TFS was approximately 80%. Analyses use the "final TFS" weights to ensure the statistics provided are representative of the target population. See more information: Taie, S., & Lewis, L. (2023). *Teacher attrition and mobility. Results from the 2021–22 Teacher Follow-up Survey to the National Teacher and Principal Survey* (NCES 2024-039). U.S. Department of Education, National Center for Education Statistics. https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2024039; Petraglia, E., Green, J., Taie, S., Ferg, R., Hubbell, K., Salinas, V., Greene, A., & Lewis, L. (Forthcoming). *User's manual for the 2021–22 Teacher Follow-up Survey* (NCES 2024-033). U.S. Department of Education, National Center for Education Statistics.

[5] Borman, G. D., & Dowling, N. M. (2008). Teacher attrition and retention: A meta-analytic and narrative review of the research. *Review of Educational Research*, *78* (3), 367–409. https://doi.org/10.3102/0034654308321455; Guarino, C. M., Santibáñez, L., & Daley, G. A. (2006). Teacher recruitment and retention: A review of the recent empirical literature. *Review of Educational Research*, *76* (2), 173–208. https://doi.org/10.3102/00346543076002173; Nguyen, T. D., Pham, L., Crouch, M., & Springer, M. (2020). The correlates of teacher turnover: An updated and expanded meta-analysis of the literature. *Educational Research Review*, *31*, 100355. https://doi.org/10.1016/j.edurev.2020.100355

[6] See meta-analyses above. Studies reviewed included other publications on this topic, including (among others): Carver-Thomas, D., & Darling-Hammond, L. (2017). *Teacher turnover: Why it matters and what we can do about it*. Learning Policy Institute. https://doi.org/10.54300/454.278; García, E., Han, E., & Weiss, E. (2022). Determinants of teacher attrition: Evidence from district-teacher matched data. *Education Policy Analysis Archives*, *30* (25). https://doi.org/10.14507/epaa.30.6642; García, E., & Weiss, E. (2020). How teachers view their own professional status: A snapshot. *Phi Delta Kappan*, *101* (6), 14–18. https://doi.org/10.1177/0031721720909581; Ingersoll, R. M. (2001). Teacher turnover and teacher shortages: An organizational analysis. *American Educational Research Journal*, *38* (3), 499–534. https://journals.sagepub.com/doi/10.3102/00028312038003499; Ingersoll, R., Merrill, L., & May, H. (2014). *What are the effects of teacher education and preparation on beginning teacher attrition?* Research Report (#RR-82). Consortium for Policy Research in Education, University of Pennsylvania. https://cpre.org/sites/default/files/researchreport/2018_prepeffects2014.pdf; Loeb, S., Darling-Hammond, L. & Luczak, J. (2005). How teaching conditions predict teacher turnover in California schools. *Peabody Journal of Education*, *80* (3), 44–70. https://doi.org/10.1207/s15327930pje8003_4; Nguyen, T. D., Bettini, E., Redding, C., &

Gilmour, A. F. (2024). Comparing teacher turnover intentions to actual turnover: Cautions and lessons for the field. *Educational Evaluation and Policy Analysis*, *0* (0). https://doi.org/10.3102/01623737241249459; Redding, C., & Nguyen, T. D. (2020). Recent trends in the characteristics of new teachers, the schools in which they teach, and their turnover rates. *Teachers College Record*, *122* (7), 1–36. https://doi.org/10.1177/016146812012200711

[7] García, E., Wei, W., Patrick, S. K., Leung-Gagné, M., & DiNapoli, M. A., Jr. (2023). *In debt: Student loan burdens among teachers*. Learning Policy Institute. https://doi.org/10.54300/497.986

[8] Cornman, S. Q., Nixon, L. C., Spence, M. J., Taylor, L. L., & Geverdt, D. E. (2019). *Education Demographic and Geographic Estimates (EDGE) Program: American Community Survey Comparable Wage Index for Teachers (ACS-CWIFT)* (NCES 2018-130). U.S. Department of Education, National Center for Education Statistics. https://nces.ed.gov/programs/edge/docs/EDGE_ACS_CWIFT_FILEDOC.pdf. Using CWIFT indices to adjust teacher salaries implies applying a cost-of-living and labor market adjustment to make salary comparisons more equitable across geographic areas.

[9] Note that this is the variable we tend to use in other LPI analysis. We use alternative variables in the cases where this information is missing, while still favoring this variable for consistency across our studies.

[10] We also tested an index excluding the budget question, as it is unclear up to what extent teachers may have direct control over budgets. Alpha is larger for the index with the budget question.

[11] We note the items included in this index capture a wide variety of characteristics. Some underlying items could be driven by within-school factors, whereas others may be reflecting students' family characteristics. We use the fact that the questions ask the teacher about their perceptions of whether these are a problem in their school (rather than whether they may be present or what may drive them). We have performed several sensitivity analyses (including versus excluding selected underlying items when constructing each index) to confirm the results are consistent. For other research using the same indicators in a combined manner, see, for example: Fitchett, P. G., Dillard, J. B., McCarthy, C. J., Lambert, R. G., & Mosley, K. (2020). Examining the intersectionality among teacher race and ethnicity, school context, and risk for occupational stress. *Education Policy Analysis Archives*, *28* (87). https://doi.org/10.14507/epaa.28.4999; Leidner, C. M., & Roch, C. H. (2025). Examining U.S. teachers' working conditions in online schools. *Educational Policy*, *39* (2), 390–427. https://doi.org/10.1177/08959048231222642; Zaire, L. (2023). *School related criminal acts, interpersonal problems, and classroom behaviors as a function of the proportion of Black students and Black teachers*. Seattle Pacific University ProQuest Dissertations & Theses. https://www.proquest.com/docview/2763232228?pq-origsite=gscholar&fromopenview=true&sourcetype=Dissertations%20&%20Theses.

[12] We note the items included in this index capture a wide variety of characteristics. Some underlying items could reflect teacher trust or support (item "collegiality") or a focus on instructional content (item "coordination"). We follow the common approach in the literature of using the survey's submodules to create the indices. We have performed several sensitivity analyses (including versus excluding selected items) to confirm the results are consistent.

[13] For more details on the surveys, refer to the NCES NTPS website, *National Teacher and Principal Survey(NTPS): Methods and Procedures*, https://nces.ed.gov/surveys/ntps/methods-procedures2021.asp, and to the NCES TFS website, https://nces.ed.gov/surveys/ntps/overview.asp?OverviewType=3

[14] Other comparisons—leavers versus others, movers versus others—are available upon request.

[15] See Boardman, G. D., & Dowling, N. M. (2008) for a list of the methods used by the different analyzed papers: https://www.jstor.org/stable/40071133, pp. 374–377. Pp. 373: "As noted in Table 1, 19 of the 34 studies reported teacher attrition outcomes as logged odds ratios derived from multivariate models, and the remaining 15 studies

reported proportions and means." Also https://statisticalhorizons.com/when-can-you-fit/ for a discussion of the use of LPM for fitting these models.

[16] Ingersoll, R., Merrill, L., & May, H. (2014). *What are the effects of teacher education and preparation on beginning teacher attrition?* Research Report (#RR-82). Consortium for Policy Research in Education, University of Pennsylvania. https://cpre.org/sites/default/files/researchreport/2018_prepeffects2014.pdf

[17] As a sensitivity check, we ran summary statistics of the NTPS working conditions for the full NTPS sample ($N = 39,630$) and for the subset of NTPS teachers who were also surveyed for TFS ($N = 6,220$). This allowed us to ensure that the working conditions' values from the full NTPS and the TFS sample were comparable. In addition, we examined the TFS working condition variables for TFS current teachers ($N = 4,660$). These statistics are available upon request.

[18] UCLA's Advanced Research Computing Statistical Methods and Data Analytics (n.d.). *What does Cronbach's alpha mean?* https://stats.oarc.ucla.edu/spss/faq/what-does-cronbachs-alpha-mean/

[19] UCLA's Advanced Research Computing Statistical Methods and Data Analytics (n.d.). *How can I perform a factor analysis with categorical (or categorical and continuous) variables? | Stata FAQ.* https://stats.oarc.ucla.edu/stata/faq/how-can-i-perform-a-factor-analysis-with-categorical-or-categorical-and-continuous-variables/

[20] In these models, we do not include the state fixed effects as the aim is to explore the relationships among indices regardless of variation across the states. For data showing variation across states on several of the variables in our model, see Learning Policy Institute. (2024). *The state of the teacher workforce: A state-by-state analysis of the factors influencing teacher shortages, supply, demand, and equity* [Interactive map]. https://learningpolicyinstitute.org/product/state-of-teacher-workforce-interactive