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The Influence of Working Conditions on Principal Turnover in K-12 Public Schools

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Abstract

Purpose: During the past two decades, principal turnover issues have raised nationwide concerns about leadership stability and student performance. With national data from National Center for Education Statistics, this study examines how principal working conditions influence the probability of different types of principal turnover (mover, promoted, demoted, leaver, and retired). **Research Method:** This study utilizes data from 2011 to 2012 Schools and Staffing Survey and 2012-2013 Principal Follow-up Survey, and performs multinomial logistic regressions with region fixed effects to examine how principal working conditions are associated with principal turnover, while controlling for principal characteristics and school context. **Findings:** This study finds that principals with beneficial job contracts, tenure system, and higher salary were less likely to transition. Additionally, positive disciplinary environment lowered the odds of principals moving to another school, especially in schools with high concentrations of students of color. Moreover, more influences on determining teacher professional development and budgeting were associated with lower odds of principals leaving education, but more influence on setting performance standards showed the opposite direction. **Implications:** This study could assist policy makers in providing positive working conditions to support and retain

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principals for long-term school improvement. Moreover, school districts could facilitate building positive school disciplinary environment to lower principal turnover in underserved schools.

Keywords
principal turnover, working conditions, multinomial logistic regressions, principal labor market, policy makers

Introduction

Principal leadership is believed to be the second most influential school-based factor that influences student performance after classroom instruction, accounting for one quarter of all school effects on student achievement (Leithwood, Louis, Anderson, & Wahlstrom, 2004; Marzano, Waters, & McNulty, 2005; Robinson, Lloyd, & Rowe, 2008). Given the importance of principal leadership to school success, leadership stability is also a critical concern in well-run schools (Béteille, Kalogrides, & Loeb, 2012). However, during recent years principal turnover rates have been on the rise across U.S. public schools. According to the National Center for Education Statistics (NCES), 22.6% of public principals during 2011-2012 school year left in the following school year (including 7.0% moving to a different school, 11.5% leaving the principalship to pursue another career or change position, and 4.1% showing other statuses[1]), which was about 7% higher than teacher turnover rates (Grissom & Bartanen, 2018). Moreover, annual principal turnover rates in school districts in the United States range from 15% to 30%, with especially high principal turnover rates in schools serving high concentrations of low-income, low-performing students, and students of color (e.g., Béteille et al., 2012; Branch, Hanushek, & Rivkin, 2008.

With the influences from the federal and state accountability policies and the aging and retirement of the baby boom generations, principal turnover issues have been exacerbated and have raised nationwide concerns about school stability and student success (Fink & Brayman, 2006). Most empirical studies found that principal turnover oftentimes disrupts school policies and improvement efforts, increases teacher turnover, and decreases student performance (e.g., Béteille et al., 2012; Mascall & Leithwood, 2010). The negative effects are especially detrimental to schools with large concentrations of low-income, low-performing students, and students of color, given these schools' existing struggles to attract and retain experienced and effective principals for school improvement (e.g., Béteille et al., 2012; DeAngelis & White, 2011; Gates et al., 2006).

Given the importance of principal turnover issues to school performance and student success, research on factors that influence principal turnover is gaining momentum during recent years. However, most studies focus on principal characteristics (e.g., age, gender, race, and experiences) and school context (e.g., school size, school level, school type, urbanicity, and student characteristics; e.g., Akiba & Reichardt, 2004; Baker, Punswick, & Belt, 2010; DeAngelis & White, 2011; Gates et al., 2006; Loeb, Kalogrides, & Horng, 2010; Ni, Sun, & Rorrer, 2015; Papa, 2007), and there has been a lack of research on how principal working conditions are associated with principal turnover. Compared with principal characteristics and school contextual factors, working conditions are more amenable to policy influences. Policy makers especially at the district level have the power and responsibilities to improve school performance by hiring effective principals and meanwhile providing beneficial working conditions for them. Furthermore, given the expanding roles and challenges nowadays principals assume in school leadership and management, many working conditions such as salary and job benefits, workload, school disciplinary environment, and principal influences in school are becoming important concerns for many principals when considering the entry, mobility, and exit of the principalship (e.g., Farley-Ripple, Raffel, & Christine Welch, 2012; Fuller, Hollingworth, & Young, 2015; Loeb et al., 2010; Pijanowski, Hewitt, & Brady, 2009; Tekleselassie & Villarreal, 2011). Therefore, it is critical to for policy makers to understand how working conditions can influence principal turnover in order to retain principals for long-term school development and student success.

This study utilizes data from Schools and Staffing Survey (SASS) in 2011-2012 and the Principal Follow-up Survey (PFS) in 2012-2013 from NCES, and examines how principal working conditions are associated with the probability of different types of principal turnover, while statistically controlling for principal characteristics and school context. This study contributes to principal turnover research in two major ways. First, in addition to examining principal characteristics and school contextual factors, this study focuses on the relationships between a wide range of factors of working conditions and principal turnover, which have been rarely examined before. By further separating school disciplinary environments from student demographics regarding the effects on principal turnover, this study indicates that improving school disciplinary environment has a stronger impact in lowering principal turnover in schools with high concentrations of students of color than other schools. The findings of this study could assist policy makers in enhancing principal retention and promoting social equity.

Second, this study moves beyond dichotomous measures of principal turnover, and investigates how various factors predict multiple principal turnover

Table 1. Principal Career Transitions in Role and Place Dimensions.

	Role Dimension	
Location Dimension	No Change	Change
No change	Stay at the same school as a principal	Change roles in the same school
Change	Move to another school, as a principal	Change location, no longer as a principal

pathways. With the frameworks proposed by Farley-Ripple, Solano, and McDuffie (2012) that principal turnover includes changes in role and location dimensions[2] (shown in Table 1), and Yan (2016), as well as the availability of the data sets of this study, this study categorizes principal turnover to the following categories: (a) moving to another school but remains a principal (mover), (b) changing roles to a nonprincipal position in the same or a different school (demoted), (c) getting promoted to the district central office (promoted), (d) leaving the education system (leaver), and (e) retiring. This categorization of principal turnover has been one of the most comprehensive ways to distinguish principal turnover until now, which not only distinguishes principals who move to another school and those who leave the education system but also identifies principals who move "upward" to district central office and those who move "downward" to assistant principal and teacher positions. Since principals who make different types of career transitions may have various reasons and characteristics associated with their turnover behaviors, it is necessary to categorize different types of principal turnover to improve the accuracy and implication of research outcomes.

Conceptual Framework

To facilitate the understanding of the influencing factors of principal turnover, this study conceptualizes a framework from microeconomic labor market theory (e.g., Borjas, 2005; Frank, 2014). The principal labor market can be composed of two major actors: principals (the supply side) and schools/school districts (the demand side). Principals, as the supply side of the principal labor market, have their own preferences regarding their entry into, mobility in, and exit from the principalship. When principals make their career choices and transitions, they seek to maximize their economic status that is most economically competitive for them and to meet their psychological needs and emotional expectations, and then evaluated the relative

importance of each factor (Young, Rinehart, & Place, 1989). Schools and school districts, as the demand side of the labor market, require principals to lead and manage school day-to-day operations, provide necessary benefits and working environments for principals, and determine whether to hire and continue principals' employment with the consideration of principals' qualifications and performances. Both supply and demand sides of the principal labor market are influenced by the overall policy environment and meanwhile interacted with one another. Although as the demand side of the labor market, district policy makers may directly transfer and appoint principals without a formal selection process under emergencies or reassignments within district offices, more often interested principals apply for and are then chosen for the open positions (Loeb et al., 2010).

Literature Review

Based on the labor market framework and the limited literature in this field, the influencing factors of principal turnover can be categorized into the supply side (principal characteristics) and the demand side (school context and working conditions). Most studies in this field have focused on principal characteristics and school contextual factors. These studies have shown few consistent results. For instance, Gates et al. (2006) found that female principals were more likely to leave the education system and change positions than male principals. In contrast to their findings, Baker et al. (2010) constructed a "stability ratio" to identify the amount of time a principal spent in any given school, and found that male principals were more likely to leave their positions. But for principals' years of experience, both studies indicated that very experienced were less likely to turn over. For school contextual factors, a number of studies found that principals in schools with large concentrations of students of color, low-income students, and/or low-performing students often have higher principal turnover rates (Baker et al., 2010; DeAngelis & White, 2011; Gates et al., 2006; Loeb et al., 2010; Mitani, 2017; Partlow, 2007).

Compared with principal characteristics and school context, working conditions are more subject to policy influences. However, as an important set of factors from the demand side of the principal labor market, research on the relationship between working conditions and principal turnover is rather limited. Working conditions serve as the core of work and employment relationships, covering a broad range of topics from working time, remuneration, to physical conditions and mental demands that exist in the workplace (International Labor Organization, 2015). On the one hand, principals, as the supply side of the principal labor market, respond to a range of working conditions that school districts

provide by making their choices of staying or changing to a different school or position. On the other hand, school districts determine whether to retain or discharge a principal based on whether the leadership practices and school performance meet schools districts' requirements and expectations. The following paragraphs review literature to obtain an in-depth understanding on the relationships between working conditions and principal turnover.

The Conflation of Working Conditions and School Context

When researchers first began to explore the relationships between working conditions and principal turnover, they often conflated principal working conditions with school context. For instance, Akiba and Reichardt (2004) constructed principal working conditions as school context, including poverty level, proportion of students of color, school size, school location, and student achievement level, as well as instructional and administrative expenditure per student. A major reason for this conflation in research is that many principals prefer to work in schools with fewer low-income, low-performing students, and/or students of color, and these schools often have better working conditions and easier-to-manage school environments, including more affluent resources and parental involvement, fewer disciplinary problems, fewer teacher vacancies, and lower teacher turnover rates, as well as less pressures from the federal and state accountability policies on standardized testing (Li, 2015; Loeb et al., 2010).

Although broadly speaking, school context can be regarded as a part of principals' physical working conditions, it is necessary to separate them in research, because the former is more stable and innate to a school, but the latter is more subject to school district policy influences. Loeb et al. (2010) was one of the first empirical studies that responded to this issue by distinguishing student demographics and school environments regarding the effects on principal turnover with data from Miami-Dade County Public Schools in Florida. By adding interactions between school climate and quartiles of low-performing students, they indicated that positive school climate had a stronger impact in lowering principal turnover in schools with high concentrations of low-performing students. They also speculated that high principal turnover in schools with underserved student populations may be driven by undesirable working conditions rather than student characteristics.

Principal and Teacher Working Conditions

During recent years, several studies also began to explore various aspects of working conditions in relation to principal turnover with case study,

interviews, and surveys. For instance, Fraser and Brock (2006) applied narrative surveys and structured interviews on 47 random principals in elementary and secondary schools in New South Wales, and identified incentive factors (e.g., district support, professional development, support from teachers and parents, autonomy) and disincentive factors (e.g., stress from work, insufficient remuneration, staff issues, and demanding and disgruntled parents) that are related with principal retention. In addition, Farley-Ripple, Raffel, et al. (2012) applied a case study with more than 100 administrators' career transitions in Delaware, and found that economic benefits, working relations with multiple stakeholders, and the availability of opportunities into the district central office were all critical factors for principal retention. More recently, Fuller et al. (2015) analyzed survey data from a sample of principals in Texas and found that intrinsic rewards, overall workload, and a feeling of effectiveness were important factors influencing principal retention. However, given the broad range of factors constituting working conditions that are difficult to measure and the complex interplay of school contexts and working conditions, no common definition or framework of principal working conditions has been agreed on by researchers (Fuller et al., 2015).

With the consideration of the overlap between principal and teacher working conditions, this study refers to literature on teacher working conditions for a guiding framework. Johnson (1991) proposed a framework to analyze teacher working conditions, including physical environment (e.g., safety and comfort), economic factors (e.g., pay and job security), assignment structures (e.g., workload), and cultural and social elements (e.g., school culture and collegiality). Further developing their definition, Johnson (2006) summarized 11 dimensions of teaching working conditions, including teaching assignments, working relationships, support for new teachers and students, curricular support, resources and materials, facilities, assessment, professional development, professional influence and career growth, and principal leadership. More recently, Ladd (2011) identified six key dimensions of teacher working conditions: leadership, facilities and resources, teacher empowerment, professional development, mentoring, and time. Research on teacher working conditions has laid out some directions and frameworks for the research on principal working conditions, and has pointed out some similar issues that are also faced by principals as educators in the school system.

Principal Working Conditions and Principal Turnover

Based on the above frameworks and the data availability of this study, this section reviews literature on four major dimensions of principal working

conditions: (a) job benefits, (b) workload, (c) school disciplinary environment, and (d) principal influences on school matters.

First, although principals' salaries are competitive compared with those of teachers (Pounder & Merrill, 2001), many principals perceive the gap between teacher and principal salaries to be too small to reflect the much greater responsibility that principals assume compared with teachers. During recent years, the gap in compensation between principals and teachers has narrowed to the point that it may engender a discouraging impact on principal candidates or current principals who are considering entering or remaining in the principalship (Pijanowski & Brady, 2009; Pounder & Merrill, 2001). Empirical evidence shows that higher salary is associated with lower principal turnover rates (e.g., Akiba & Reichardt, 2004; Baker et al., 2010; Papa, 2007; Pijanowski & Brady, 2009). Principals are more likely to leave when they expect an increase in compensation if transferring to another school (Akiba & Reichardt, 2004). Papa (2007) found that on average schools paying a principal 1 standard deviation below the mean salary were 9.5 times more likely to lose the principal compared with schools paying 1 standard deviation above the mean salary. Moreover, Baker et al. (2010) stressed that principal's relative salary, compared with peers in the same labor market, was the most "consistent and potential policy lever for principal retention" (p. 551). They found that principals who moved to another school had a 5% increase in their relative salary (Baker et al., 2010). In addition to salary, there has been a lack of research on how other job benefits and district policies affect principal turnover (Yan, 2016).

Second, with principals assuming increasing responsibilities and pressures, ranging from enhancing student learning, managing school personnel, allocating school resources, cultivating school culture, to rallying various stakeholders to achieve school improvement goals (Hallinger, Wang, & Chen, 2013; James & Whiting, 1998; Robinson et al., 2008), oftentimes job benefits alone may not be adequate to compensate for the stress and overwhelming workload for principals (Pijanowski & Brady, 2009). Long working hours and time away from family are often regarded as personal and domestic concerns and disincentives for principal retention (Pounder & Merrill, 2001; Tekleselassie & Villarreal, 2011). Empirically, Fuller et al. (2015) found that overall workload was ranked as one of the Top 5 factors influencing principals' intentions to stay at the current schools by elementary principals from all the district types and secondary principals in urban districts in Texas.

Third, student disciplinary environment is also an integral part of principals' working conditions, and a number of proxies such as student suspension/expulsion rates and student disciplinary problems can reflect the

situation of student disciplinary environment. Tekleselassie and Villarreal (2011) found that a higher disciplinary environment composite rating was related to lower principal intention to change schools. Similarly, Sun and Ni (2015) found that the risk of principals leaving a school increased by 23% as the number of reported instances of teacher abuse and disrespect increased. With a survey administered in Miami-Dade County Public Schools during 2007-2008, Loeb et al. (2010) found that many principals stated preferences to work in safer and easier-to-serve schools. However, principals' aversion to working in underserved schools may not be driven by a distaste for certain student populations, but by a desire to serve in schools with more desirable school disciplinary environment. For instance, studies show that student disciplinary problems are often prevalent in predominantly African American schools, due to many complex issues including socioeconomic status, organizational structure, and cultural perspectives (Banks & Banks, 2010; McCarthy, 1990). These schools often lack both coherent instructional programs and regular routines, which largely result in disciplinary problems, high suspension rates, and high expulsion rates in school (Mukuria, 2002). Therefore, in empirical research, it is necessary to distinguish student characteristics and school disciplinary environment regarding the effects on principal turnover.

Finally, principals need adequate influence to establish and achieve meaningful school improvement goals and cultivate positive school culture (Fink & Brayman, 2006). Although states and school districts can provide administrative and professional support for principals, their excessive control over school matters can hurt principals' autonomy in school management, thus undermining their job satisfaction and retention (e.g., Adamowski, Therriault, & Cavanna, 2007; Ni, Yan, & Pounder, 2017; Papa & Baxter, 2008). Tekleselassie and Villarreal (2011) found that principals' influence on hiring and evaluating teachers, setting disciplinary policies, and budgeting are significantly associated with their departure and mobility intentions. Additionally, the areas of recruiting/transferring/discharging teachers are regarded by principals as having the greatest gap between the authority they need to make changes in school and the actual influence they possess that is delegated from the district central office (Adamowski et al., 2007).

In summary, studies on the relationships between working conditions and principal turnover have been evolving during recent years. The first important progress is the effort to distinguish working conditions from school contextual factors. Because working conditions are more amenable to policy making and educational practices than school contextual factors, separating them provides a more nuanced and comprehensive perspective to conduct research and inform policy making. Second, several studies began to explore how various factors of working conditions affect principal turnover with case

study, interviews, and surveys. These studies provide important insights for future studies in terms of conceptualizing frameworks, refining measurements, and designing more rigorous research.

Methodology

This study utilizes restricted-use data of the Principal Questionnaire and School District Questionnaire in the SASS in 2011-2012 and its PFS in 2012-2013, sponsored by the NCES. SASS is one of the largest and the most extensive survey of K-12 education, including a broad range of information of districts, principals, teachers, school climate, and working conditions (Cox & Cox, 2015; Goldring & Taie, 2014). The 2012-2013 PFS was sent during the 2012-2013 school year to all school principals who responded to the 2011-2012 SASS Principal Questionnaire and assesses their occupational status in 2012-2013.

The sample of this study only includes traditional public schools and public charter schools. Private schools, Bureau of Indian Affairs schools, schools that only provide special/career/technical/vocational/alternative education, and early childhood programs/day care centers are excluded from this study, because the governance and funding structures in these schools are generally different from regular public schools. Moreover, to better represent all the principals in the U.S. public schools and obtain less biased estimates, this study incorporates the final sampling weights in SASS and PFS, which is consistent with a number of studies using SASS questionnaires (e.g., Grissom, 2011; Ni et al., 2017; Sun & Ni, 2015). With the weights applied, this sample (6,590 observations) can represent a population of 78,160 principals in all the U.S public schools.

Variables

The dependent variable, principal turnover is categorized into six categories: (a) stayer, still worked as a principal at current school; (b) mover, transferred to another school but remained a principal; (c) demoted, changed to a non-principal position in the same or a different school; (d) promoted, worked in the district central office (as a superintendent or other district staff); (e) leaver, took a job outside of education; (f) retired.

This categorization of principal turnover is subject to several caveats. First, the turnover category (f) retired is separated from the other categories, because retirement is a planned career decision associated with many social job benefits. Second, the movers include within-district movers (3.2%) and between-district mover (2.7%). Given the relatively small number of

observations in these two categories, this study combines both types of the movers into one category. Third, the other turnover statuses, including on leave[3], deceased, and other statuses that were unable to obtain, are excluded from this study, due to the less predictable feature of this category compared with other occupational transitions.

The independent variables in this study include principal characteristics, school context, and working conditions. As Table 2 shows, principal characteristics include age, gender, race/ethnicity, experiences (prior principal experience, principal experience at current school, prior total teaching experience, and whether having management experience outside of education), whether having a PhD degree, and whether having attended aspiring principal preparation programs before becoming a principal. School context includes school level (elementary, middle, high school, and combined schools), urbanicity (city, suburban, town, and rural), school type (charter school and traditional public school), school enrollment, district enrollment (total number of students enrolled in the district), whether the school made adequate yearly progress (AYP) in the previous year, percentage of students of color, and percentage of enrolled students approved for National School Lunch Program (NSLP).

For modelling and interpreting purposes, several variables are recoded. For principal characteristics, due to the nonlinear relationship between age/experience and principal turnover, they are recoded into categorical variables. Age is recoded into three categories: (a) younger than 40 years, (b) between 40 and 54 years, and (c) older than 55 years. Based on the quartile cutoff values of total prior principal experiences and principal experiences at current school, prior total years of principal experience is recoded into four categories: (a) 2 years or less, (b) between 3 and 5 years, (c) between 6 and 10 years, and (d) 11 years and older. Principal experience at current school is recoded into four categories: (a) 1 year or less, (b) between 2 and 3 years, (c) between 3 and 6 years, and (d) 7 years and older. For school contextual factors, in order to better compare schools that serve different student populations, schools are divided into four quartile groups based on the percentage of students of color and the percentage of students approved for NSLP in a school, respectively. School enrollment, district enrollment, and salary are applied a logarithmic transformation to better fit normal distributions.

Job benefits include whether having collective bargaining/meet-and-confer agreements, annual salary, whether having a salary schedule in the district, whether having principal tenure system in the district, and whether student test score outcomes or growth are included as a principal evaluation criterion. Principals' workload include number of days required to work

Table 2. Variable Description.

Category	SASS Label	Variable Type
Principal turnover	ATAC	Stayer = 1, mover = 2, demoted = 3, promoted = 4, leaver = 5, retired = 6
Principal characteristics		
Age	AGE_P	Continuous, recoded to categorical variable
Male	A0320	Male = 1, female = 0
Race (White)	A0322	White = 1, non-White = 0
Prior total principal experience	A0025	Continuous, recoded to a categorical variable
Principal experience at current school	A0026	Continuous, recoded to a categorical variable
Total years of teaching experience	TCHEXPER	Continuous
Management experience outside education	A0039	Yes = 1, no = 0
PhD	A0058	Yes = 1, no = 0
Participation in aspiring programs	A0037	Yes = 1, no = 0
School context		
School level	SCHLEVE2	Elementary, middle, high, and combined school
Urbanicity	URBANS12	City = 1, suburb = 2, town = 3, rural = 4
Charter school	CHARFLAG	Yes = 1, no = 0
School enrollment	ENRK12UG	Continuous
Total enrollment in district	D0418	Continuous
Made AYP last year	A0293	Yes = 1, no = 0
% Students of color	MINENR	Continuous, recoded into quartile groups
% Low-income students	NSLAPP_S	Continuous, recoded into quartile groups
Working conditions		
Contract type	A0248	Collective bargaining or meet-and-confer agreements = 1, no contract = 0
Annual salary	A0335	Continuous
Salary schedule in district	D0500	Yes = 1, no = 0
Principal tenure system in district	D0457	Yes = 1, no = 0

(continued)

Table 2. (continued)

Category	SASS Label	Variable Type
Principal evaluation this year	A0249	Yes = 1, no = 0
Using test scores in principal evaluation	A0250	Yes = 1, no = 0
Days required to work	A0247	Continuous
Hours spent on school activities	A0240	Continuous
Frequency of disciplinary problems	A0149-A0161	Likert-type scale (1-5)
Number of students expelled	A0130	Continuous
Number of students suspended	A0131	Continuous
Principal perceived influence in school	A0083-A0089	Likert-type scale (1-4)

Note. SASS = Schools and Staffing Survey; AYP = adequate yearly progress.

under current contract and total hours spent on all school activities during a typical full week.

For *student disciplinary environment* measure, the question frequency of student disciplinary problems includes physical conflicts among students, robbery or theft, vandalism, student use of alcohol, student use of illegal drugs, student possession of weapons, physical abuse of teachers, student racial tensions, student bullying, student verbal abuse of teachers, widespread disorder in classrooms, student acts of disrespect in classrooms, and gang activities, on a 5-point scale from 1 (*happens daily*) to 5 (*never happens*). Due to the large number of items in the question that may engender multicollinearity, factor analysis is conducted to generate a composite variable *student discipline* (Cronbach's $\alpha = .83$), with a higher student discipline rating meaning safer and better student disciplinary environment. Another variable that reflects school disciplinary environment is student suspension ratio, which is calculated as total number of student suspensions in a school divided by student enrollment in the school year.

The measure of *principals' influences on school matters* is another composite measure of principals' perceived influences on seven domains (Cronbach's $\alpha = .61$) with factor scores developed from factor analysis, including setting performance standards, establishing curriculum, determining the content of in-service professional development programs, evaluating

teachers, hiring new teachers, setting discipline policy, and budget spending, on 4-point scale from 1 (*no influence*) to 4 (*strong influence*).

Analytic Strategies

This study applies principals as the unit of analysis and utilizes multinomial logistic regressions with region fixed effects[4] to examine how principal working conditions are associated with the probability of different types of principal turnover, while controlling for principal characteristics and school context.

$$\log\left\{\Pr\left(Y_i = m\right)/\Pr\left(Y_i = 1\right)\right\} = \beta_0 + \beta_1\left(\text{principal characteristics}\right)_i + \beta_2\left(\text{school context}\right)_i + \beta_3\left(\text{working conditions}\right)_i + \alpha_j + \varepsilon_i \quad (1)$$

The outcome variable Y_i is principal i's status in 2012-2013, α_j is region fixed effect, and ε_i is the error term. The relative risk ratio (RRR), obtained by exponentiating the multinomial logit coefficients ($e^{coef.}$), is the risk of a principal making a certain type of transition ($m = 2, 3, 4, 5, 6$) relative to staying ($m = 1$). RRR greater than 1 indicates that principals are more likely to make a type of transition relatively to staying, and RRR smaller than 1 means that principals were are less likely to make the transition, while holding all the other variables constant.

Three major sets of multinomial logistic regressions are conducted in this study. The first model only includes principal characteristics. The second model only includes school contextual factors. The third model includes working conditions, principal characteristics, and school context. To account for the characteristics of principal labor markets in the four geographic regions in the United States—Northeast, Midwest, South, and West—all these models include region fixed effects at the principal level. The final weights in the SASS and PFS data sets are incorporated in the descriptive analysis and multinomial logistic regression models to obtain less biased estimates.

Results

Summary Statistics

Table 3 shows descriptive analysis for key variables in this study. Overall, 77.3% of the principals in 2011-2012 stayed at their current positions in the

Table 3. Descriptive Analysis.

Variable	*N*	*M*	*SD*	Minimum	Maximum
Principal turnover					
Stayer	6,590	77.3%		0	1
Mover	6,590	6.6%		0	1
Demoted	6,590	2.7%		0	1
Promoted	6,590	2.9%		0	1
Leaver	6,590	1.0%		0	1
Retired	6,590	4.3%		0	1
Principal characteristics					
Age	6,590	48	8.9	23	80
Male	6,590	48.2%		0	1
White	6,590	88.5%		0	1
Master degree	6,590	98.4%		0	1
Prior principal experience	6,590	7.2	6.5	0	45
Principal experience at current school	6,590	4.3	4.6	0	45
Teaching experience	6,590	12.3	6.6	0	43
Management experience	6,590	39.6%		0	1
PhD	6,590	9.9%			
Aspiring program	6,590	55.8%		0	1
School context					
Elementary	6,590	60.5%		0	1
Middle school	6,590	16.9%		0	1
High school	6,590	17.7%		0	1
Combined	6,590	4.9%		0	1
City	6,590	23.8%		0	1
Suburb	6,590	27.9%		0	1
Town	6,590	14.0%		0	1
Rural	6,590	34.4%		0	1
Charter school	6,590	3.3%		0	1
School enrollment	6,590	584	556	2	9,999
District enrollment	6,590	38488	93036	2	1,032,013
Made AYP in the previous year	6,590	55.3%		0	1
Percentage of students of color	6,590	42.7	32.1	0	100
Percentage of low-income students	6,480	50.7	27.3	0	100
Working conditions					
Contract type	6,590	46.0%		0	1
Salary	6,590	90453	21910.0	20,000	220,000
Salary schedule	5,370	69.6%		0	1

(continued)

Table 3. (continued)

Variable	*N*	*M*	*SD*	Minimum	Maximum
Tenure system	5,810	26.3%		0	1
Principal evaluation	6,590	100%		0	1
Principal evaluation based on test scores	6,040	59.6%		0	1
Professional development activities	6,590	99.5%		0	1
Days require to work	6,590	230	33.0	108	365
Hours spent on all school activities	6,590	59.0	12.3	1	168
Frequency of student disciplinary problems					
Physical conflicts	6,590	3.5	0.8	1	5
Robbery or theft	6,590	4.0	0.6	1	5
Vandalism	6,590	4.1	0.5	1	5
Use of alcohol	6,590	4.7	0.6	1	5
Use of illegal drugs	6,590	4.6	0.7	1	5
Possession of weapons	6,590	4.6	0.5	1	5
Physical abuse of teachers	6,590	4.8	0.4	2	5
Student racial tensions	6,590	4.5	0.6	1	5
Student bullying	6,590	3.4	0.9	1	5
Verbal abuse of teachers	6,590	4.1	0.8	1	5
Disorder in classroom	6,590	4.7	0.6	1	5
Disrespect for teachers	6,590	3.7	0.9	1	5
Gang activities	6,590	4.8	0.5	1	5
Number of student expelled	6,590	1.6	12.1	0	550
Number of student suspended	6,590	89.5	275.6	0	5,340
Principal influences					
Set standards	6,590	3.6	0.7	1	4
Establish curriculum	6,590	3.1	0.8	1	4
Determine PD	6,590	3.6	0.6	1	4
Evaluate teacher	6,590	3.9	0.4	1	4
Hire teacher	6,590	3.8	0.5	1	4
Set discipline	6,590	3.8	0.5	1	4
Budget	6,590	3.6	0.7	1	4

Note. SASS = Schools and Staffing Survey; AYP = adequate yearly progress; NCES = National Center for Education Statistics. Estimates adjusted using SASS probability weights. Sample sizes rounded due to NCES nondisclosure rules.

next year (stayer). Among all the turnover categories, movers accounted for the highest percentage (6.6%), followed by retired (4.3%), promoted (2.9%), demoted (2.7%), and leavers (1.0%). For principal demographics, the average age of principals was 48 years. Male principals accounted for 48.2% of all the principals in public schools, White principals accounted for 88.5%, and 9.9% principals had PhD degrees. On average, principals had 7.2 years of prior principal experience, 4.3 years of experience as a principal at the current school, 12.3 years of prior teaching experience, and 39.5% of them had management experience outside of education. Additionally, more than half (55.8%) of public school principals had attended aspiring principal programs before their principalship.

For school contextual factors, elementary schools accounted for 60.5% of all the public schools, followed by high schools (17.7%), middle schools (16.9%), and combined schools (4.9%). Schools located in rural, suburban, urban areas, and towns[5] accounted for 34.4%, 27.9%, 23.8%, and 14.0%, respectively. For student characteristics, the average percentage of students of color in school was 42.7%. The average percentage of enrolled students who were approved for the NSLP in school was 50.7%, among which 4.5% schools had no NSLP students, 4% had all students that were approved for NSLP. About a half of all the public schools (55.3%) made AYP in previous year.

The last section of Table 3 shows descriptive analysis for working conditions. In terms of contract type and job benefits, 46.0% principals held meet-and-confer or collective bargaining agreements,[6] the average annual salary for principals was $90,453 with a standard deviation of $21,910, and less than one third (26.3%) of the principals were in school districts with a tenure system. All the principals were rated in formal evaluations during the school year 2011-2012, and 59.6% of principal evaluations included student test score outcomes or growth as an evaluation criterion. For workload, on average, principals spent as high as 59 hours per week on all school-related activities before, during, and after school (about 12 hours per day), which is consistent with a national report conducted by the Institute for Educational Leadership that on average a principal works over 10 hours a day (Usdan, McCloud, & Podmostko, 2000). In terms of school disciplinary environment, the average numbers of students expelled and suspended were 1.6 and 90, respectively. Bullying, physical conflicts, and acts of disrespect for teachers were the three most frequent among all the student disciplinary problems in school. For principal influences in school, principals perceived themselves having the highest influence on evaluating teachers (3.9 on a 4.0 Likert-type scale), hiring teachers (3.8), setting discipline policies (3.8), and the lowest influence on establishing curriculum (3.1).

Multinomial Logit Analysis of Principal Turnover

In this section, to examine how various factors are associated with different types of principal turnover,[7] this study performs several multinomial logistic regressions with region fixed effects. Model 1 only includes principal characteristics. Model 2 only includes school contextual factors. Model 3 includes working conditions, principal characteristics, and school context. By further separating the effects of working conditions, Model 4 examines how salary alone is associated with principal turnover and Model 5 examines how principal influences on seven domains of school matters are associated with principal turnover, while statistically controlling for principal characteristics and school context, respectively.

To separate school disciplinary environment from student characteristics regarding the effects on principal turnover, Model 6 adds with interactions between whether a school was in the highest quartile of students of color and student disciplinary environment (the composite variable student discipline and suspension ratio, respectively), Model 7 adds interactions between whether a school was in the highest quartile of low-income students and student disciplinary environment, and Model 8 adds interactions between whether a school made AYP in the previous year and student disciplinary environment, while controlling for the full set of principal characteristics, school context, working conditions, and regional fixed effects. Each table reports the estimated RRRs of principals moving to another school, changing to nonprincipal positions, getting promoted to the district central office, leaving the education system, and retiring, relative to remaining as a principal in the same school.

Principal characteristics and school context. As shown in Model 1 (Table 4), principals who were older than 55 years were 42.2% less likely to move to another school than principals who were between 40 and 55 years. Male principals and principals of color were about 50% more likely to change to nonprincipal roles in school than female and White principals, respectively. For professional experiences, the relative risks of principals with 3 or more years of principal experience getting a promotion to the district central office were much higher compared with principals with 3 or less years of experiences. Principals with 11 years or more principal experiences were 56% less likely to change to nonprincipal positions than those with three years or less principal experiences. Compared with principals who were in their current schools for less than 1 year, principals who stayed at their current schools for 2 to 3 years were 53% less likely to change to nonprincipal positions. Moreover, principals who had attended

Table 4. Model 1: Principal Characteristics Influence on Principal Turnover.

	Mover	Demoted	Promoted	Leaver	Retired
Young (<40 years old)	0.886 (0.178)	0.987 (0.304)	0.875 (0.234)	2.463† (1.193)	0.512 (0.380)
Older (>55 years old)	0.578** (0.122)	1.792† (0.589)	0.880 (0.257)	1.119 (0.482)	15.554** (4.313)
Male	0.964 (0.150)	1.552* (0.341)	1.106 (0.214)	1.749 (0.631)	0.892 (0.163)
White	0.806 (0.162)	0.509* (0.161)	1.563 (0.466)	1.884 (1.238)	1.524 (0.500)
Principal experience (3-5 years)	1.117 (0.265)	1.575 (0.575)	2.137* (0.810)	1.350 (1.105)	1.425 (0.652)
Principal experience (6-10 years)	1.123 (0.262)	0.966 (0.304)	2.792** (1.014)	1.333 (0.858)	1.691 (0.672)
Principal experience (11+ years)	0.761 (0.252)	0.437* (0.182)	2.380* (0.913)	1.725 (1.149)	2.225† (0.919)
Principal experience at current school (2-3 years)	1.345 (0.286)	0.465* (0.158)	1.098 (0.339)	0.726 (0.492)	0.760 (0.259)
Principal experience at current school (4-6 years)	1.362 (0.333)	0.599 (0.195)	1.125 (0.362)	0.805 (0.520)	1.042 (0.335)
Principal experience at current school (7+ years)	1.464 (0.465)	0.877 (0.302)	0.793 (0.264)	1.086 (0.604)	1.081 (0.325)
Teaching experience	0.984 (0.013)	0.992 (0.023)	0.968* (0.014)	1.011 (0.028)	1.011 (0.013)
Management experience	1.100 (0.164)	1.054 (0.277)	0.914 (0.170)	1.955† (0.701)	0.809 (0.149)
PhD	1.034 (0.249)	1.205 (0.440)	1.107 (0.301)	0.598 (0.283)	0.498* (0.156)
Aspiring program	1.155 (0.176)	0.545* (0.134)	0.731† (0.137)	0.801 (0.297)	0.932 (0.173)
Midwest	1.603* (0.371)	1.489 (0.528)	0.874 (0.274)	0.728 (0.389)	0.773 (0.203)
South	1.711* (0.394)	2.336* (0.777)	1.907* (0.580)	1.244 (0.639)	1.116 (0.287)
West	1.599† (0.436)	1.886† (0.716)	1.178 (0.385)	1.888 (0.989)	0.863 (0.256)
Pseudo R^2	.084				
N	6,340				

Note. SASS = Schools and Staffing Survey; NCES = National Center for Education Statistics. Estimates adjusted using SASS probability weights. Sample sizes rounded due to NCES nondisclosure rules. Standard errors are included in parentheses.
†$p < .1$. *$p < .05$. **$p < .01$.

aspiring principal programs before becoming a principal were 45% less likely to change to nonprincipal roles in school.

For school contextual factors, as shown in Model 2 (Table 5), principals in middle/high/combined schools were about twice as likely to move to the district central office than elementary school principals, which suggests that elementary school principals had a lower chance of getting promoted to the district central office than principals from other school levels. Moreover, middle school principals were 39% more likely to move to another school than elementary school principals. Charter school principals were 78% less likely to get a promotion to the district central office than those in traditional public schools. For school enrollment, principals who were in schools with a larger student enrollment were less likely to move to another school, but more likely to get a promotion to the district central office. For student characteristics, principals in schools with high concentrations of students of color (in the third and fourth quartiles of percentage of students of color) were about 60% to 70% more likely to move to another school than those in schools with the lowest quartile of percentage of students of color. Moreover, principals who were in schools in the third quartile of low-income students were about 60% less likely to change to nonprincipals roles compared with those in schools with the lowest quartile of low-income students.

Working conditions. Model 3 (Table 6) shows the effects of working conditions on principal turnover while controlling for principal characteristics and school context. Principals who were represented under meet-and-confer/collective bargaining agreements were 55.8% less likely to change to nonprincipal positions, and principals who had tenure system were 67.8% and 41.6% less likely to leave the education system and retire, respectively, while holding all the other variables constant. Additionally, 1 standard deviation improvement in school disciplinary environment rating lowers the odds of principals moving to another school by 36.4% relative to staying.

However, different from previous studies, Model 3 shows that salary did not have a significant effect on principal turnover. Suspecting that other working conditions moderated the effect of salary on principal turnover to a certain extent, Model 4 statistically controls for principal characteristics and school context and examines how salary is associated with the probability of different types of principal turnover. As Table 7 shows, one-unit increase of principals' logarithmic salary lowered the relative risk of principals moving to another school by 53.0% relative to staying. However, adding any other variables of working conditions or even the

Table 5. Model 2 School Context Influence on Principal Turnover.

	Mover	Demoted	Promoted	Leaver	Retired
Middle school	1.391* (0.222)	1.045 (0.277)	1.981** (0.486)	0.714 (0.360)	1.000 (0.206)
High school	1.314 (0.266)	1.231 (0.341)	1.926* (0.587)	1.222 (0.549)	1.165 (0.221)
Combined	1.209 (0.333)	1.015 (0.392)	2.684* (1.307)	1.958 (1.057)	1.022 (0.392)
Suburban	0.913 (0.199)	1.479 (0.607)	0.794 (0.207)	0.585 (0.362)	1.155 (0.307)
Town	0.671 (0.168)	1.878 (0.832)	1.062 (0.305)	0.831 (0.641)	0.729 (0.243)
Rural	0.641† (0.149)	1.759 (0.701)	1.024 (0.250)	0.828 (0.539)	1.015 (0.305)
Charter	0.559† (0.193)	0.876 (0.389)	0.223* (0.167)	2.337 (1.578)	2.009† (0.765)
Log (school enrollment)	0.702** (0.086)	0.783 (0.166)	1.564* (0.279)	0.923 (0.237)	0.815 (0.109)
Log (district enrollment)	0.955 (0.052)	0.828 (0.096)	0.906 (0.087)	0.932 (0.160)	1.181* (0.081)
Made AYP in previous year	0.736† (0.121)	0.762 (0.170)	1.262 (0.276)	1.798 (0.786)	0.889 (0.161)
Second quartile of percentage of students of color	1.349 (0.305)	0.572† (0.181)	1.274 (0.372)	1.210 (0.528)	1.119 (0.291)
Third quartile of percentage of students of color	1.615* (0.375)	0.696 (0.224)	0.974 (0.266)	0.783 (0.408)	1.183 (0.312)
Fourth quartile of percentage of students of color	1.711* (0.421)	1.882† (0.651)	1.074 (0.368)	0.896 (0.528)	0.692 (0.212)
Second quartile of percentage of FRL students	0.757 (0.182)	1.091 (0.355)	1.115 (0.308)	0.997 (0.489)	1.101 (0.273)
Third quartile of percentage of FRL students	0.793 (0.192)	0.392** (0.140)	1.083 (0.296)	1.757 (0.855)	1.048 (0.249)
Fourth quartile of percentage of FRL students	0.945 (0.247)	0.537† (0.196)	1.308 (0.368)	0.768 (0.448)	1.109 (0.292)
Pseudo R^2	.034				
N	6,340				

Note. SASS = Schools and Staffing Survey; AYP = adequate yearly progress; NCES = National Center for Education Statistics; FRL = free or reduced-price lunch. Estimates adjusted using SASS probability weights. Sample sizes rounded due to NCES nondisclosure rules. Standard errors are included in parentheses.

†$p < .1$. *$p < .05$. **$p < .01$.

Table 6. Model 3 Working Conditions Influence on Principal Turnover.

	Mover	Demoted	Promoted	Leaver	Retired
Contract type	0.995 (0.177)	0.442** (0.130)	1.335 (0.309)	0.809 (0.370)	0.851 (0.202)
Log (salary)	0.637 (0.322)	0.235 (0.210)	0.350† (0.201)	1.351 (2.072)	2.507 (1.619)
Salary schedule	1.132 (0.241)	0.791 (0.245)	1.327 (0.346)	1.198 (0.617)	1.091 (0.304)
Tenure system	0.662† (0.149)	1.519 (0.487)	0.710 (0.202)	0.322* (0.171)	0.584* (0.147)
Whether evaluated based on tests	1.070 (0.207)	0.928 (0.267)	1.149 (0.260)	1.391 (0.640)	0.833 (0.198)
Days required to work	0.999 (0.003)	0.998 (0.004)	0.994† (0.004)	0.994 (0.005)	0.994† (0.004)
Hours spent on school activities	1.005 (0.006)	1.015 (0.012)	0.995 (0.009)	1.001 (0.011)	1.003 (0.007)
Student discipline	0.636** (0.064)	0.768† (0.113)	0.930 (0.128)	1.136 (0.387)	0.939 (0.120)
Suspension ratio	1.336† (0.205)	0.705 (0.350)	0.795 (0.278)	0.037† (0.069)	1.400 (0.316)
Principal influence	1.062 (0.130)	0.862 (0.101)	1.019 (0.120)	0.715 (0.157)	0.935 (0.110)
Pseudo R^2	.145				
N	4,780				

Note. SASS = Schools and Staffing Survey; NCES = National Center for Education Statistics. Estimates adjusted using SASS probability weights. Sample sizes rounded due to NCES nondisclosure rules. Standard errors are included in parentheses. This model controls for the full set of principal characteristics, school context, and regional fixed effects; partially shown here.
†$p < .1$. *$p < .05$. **$p < .01$.

Table 7. Model 4 and Model 5 Effects of Salary and Principal Influence on Principal Turnover.

	Mover	Demoted	Promoted	Leaver	Retired
Model 4					
Log (salary)	0.470* (0.173)	0.256 (0.213)	0.724 (0.418)	1.413 (1.485)	1.282 (0.654)
Pseudo R^2	.112				
N	6,340				
Model 5					
Setting standards	1.122 (0.132)	0.847 (0.131)	1.009 (0.155)	2.234** (0.641)	0.927 (0.125)
Establishing curriculum	1.036 (0.123)	0.810 (0.129)	1.001 (0.109)	0.959 (0.219)	0.927 (0.115)
Determining PD	0.887 (0.097)	1.131 (0.207)	0.920 (0.150)	0.633* (0.143)	0.898 (0.130)
Evaluating teachers	1.214 (0.310)	0.654† (0.145)	1.226 (0.254)	0.736 (0.162)	1.322 (0.343)
Hiring teachers	0.793 (0.115)	1.397 (0.309)	0.928 (0.142)	1.124 (0.276)	1.023 (0.180)
Setting discipline policy	1.098 (0.158)	1.127 (0.298)	0.720* (0.114)	0.724 (0.148)	0.855 (0.147)
Deciding budget	0.927 (0.094)	1.060 (0.158)	1.057 (0.133)	0.699* (0.112)	0.973 (0.126)
Pseudo R^2	.119				
N	6,340				

Note. SASS = Schools and Staffing Survey; NCES = National Center for Education Statistics. Estimates adjusted using SASS probability weights. Sample sizes rounded due to NCES nondisclosure rules. Standard errors are included in parentheses. Models 4 and 5 control for the full set of principal characteristics, school context, and regional fixed effects.
†$p < .1$. *$p < .05$. **$p < .01$.

region fixed effects could eliminate the significant effect of salary on principal turnover. It could be speculated that salary alone is a significant factor influencing principal turnover, but when accounting for other factors of working conditions, the effect of salary on principal turnover was moderated.

Furthermore, this study examines how the seven domains of principal perceived influences are associated with principal turnover, while holding principal characteristics and school context constant. As Model 5 (Table 7) shows, one-unit increase on the rating of principal influences on setting performance standards increases the relative risk of principals leaving the education system by 123% relatively to staying, whereas one-unit increase on the rating of principal influences on determining teacher professional development and budgeting spending lowers the relative risk of principals leaving education by 36.7% and 30.1%, respectively. Additionally, principals who rated one unit higher on influencing setting disciplinary policies were 28% less likely to get a promotion to the district central office, while holding all the other factors constant.

Differential effects of disciplinary environment and student characteristics. Model 6 (Table 8) shows that for 1 standard deviation improvement in student disciplinary environment rating, the relative risk of principals moving to another school in schools with the highest quartile of percentage of students of color was 30.4% lower than those in other schools (RRR = 0.696). As Model 8 (Table 8) shows, as student suspension ratio increased, the relative risk of principals changing to nonprincipal positions in schools that made AYP in the previous year was much higher than those in schools that did not make AYP (RRR = 27.125).

For region fixed effects, compared with principals in the Northeast, principals in the South were more likely to move to another school, change to nonprincipal positions, and get promoted to the district central office, while controlling for principal characteristics (Table 4). However, these regional fixed effects were diminished when adding the other variables (not shown in Tables 5-8). It could be speculated that the effects of geographic region on the likelihood of principal turnover are moderated by the factors of school context and working conditions to some extent. The pseudo R^2 of the full model with principal characteristics, school context, and working conditions is 14.5% (Table 6), which has increased significantly compared with the models with only principal characteristics (Table 4), only school context (Table 5), and the model that includes all principal characteristics and school context variables[8] (8.4%, 3.4%, and 11%, respectively).

Table 8. Interactions Between Disciplinary Environment and Student Characteristics.

	Mover	Demoted	Promoted	Leaver	Retired
Model 6					
Student discipline	0.760* (0.096)	0.897 (0.178)	0.988 (0.156)	1.216 (0.376)	0.962 (0.159)
Suspension ratio	1.872* (0.573)	0.833 (0.622)	0.678 (0.297)	0.014† (0.032)	0.325† (0.203)
Student discipline × Fourth quartile of percentage of students of color	0.696* (0.116)	0.728 (0.174)	0.860 (0.198)	0.815 (0.625)	0.922 (0.195)
Suspension ratio × Fourth quartile of percentage of students of color	0.572 (0.210)	0.713 (0.720)	1.283 (0.783)	15.547 (53.356)	5.480** (3.553)
Pseudo R^2	.147				
Model 7					
Student discipline	0.702** (0.086)	0.808 (0.150)	0.965 (0.153)	0.949 (0.336)	0.901 (0.133)
Suspension ratio	1.065 (0.233)	0.703 (0.423)	1.030 (0.420)	0.006† (0.016)	0.692 (0.337)
Student discipline × Fourth quartile of percentage of FRL	0.825 (0.136)	0.881 (0.232)	0.910 (0.201)	1.787 (1.106)	1.089 (0.234)
Suspension ratio × Fourth quartile of percentage of FRL	1.522 (0.483)	0.969 (0.918)	0.522 (0.347)	59.255 (183.210)	2.608† (1.427)
Pseudo R^2	.146				
Model 8					
Student discipline	0.649** (0.078)	0.641* (0.119)	1.055 (0.175)	0.809 (0.420)	0.979 (0.136)
Suspension ratio	1.222 (0.201)	0.092† (0.124)	1.064 (0.282)	0.009 (0.039)	1.300 (0.364)
Student discipline × AYP	0.961 (0.171)	1.439 (0.394)	0.773 (0.178)	1.899 (1.092)	0.904 (0.204)
Suspension ratio × AYP	1.785 (0.787)	27.125* (38.894)	0.329 (0.252)	7.737 (33.769)	2.145 (1.424)
Pseudo R^2	.147				

Note. SASS = Schools and Staffing Survey; AYP = adequate yearly progress; NCES = National Center for Education Statistics; FRL = free or reduced-price lunch. Estimates adjusted using SASS probability weights. Sample sizes rounded due to NCES nondisclosure rules. Standard errors are included in parentheses. Models 6 to 8 control for the full set of principal characteristics, school context, working conditions, and regional fixed effects.
†$p < .1$. *$p < .05$. **$p < .01$.

Conclusion and Discussion

This study contributes to the thin literature on principal turnover by focusing on how job benefits, workload, school disciplinary environment, and principal influences are associated with different types of principal turnover with data from NCES, while statistically controlling for principal characteristics and school context. First, this study indicates that one-unit increase of principals' logarithmic salary lowers the odds of principals moving to another school by 53% relative to staying, while holding principal characteristics and school context constant. This finding is largely consistent with previous studies on the positive impact of salary on principal retention (Akiba & Reichardt, 2004; Baker et al., 2010; Papa, 2007; Pijanowski & Brady, 2009). However, one interesting finding of this study is that after statistically controlling for other working conditions, the effect of salary on principal turnover was moderated and became nonsignificant. It could be speculated that other job benefits and nonpecuniary working conditions become more influential concerns in principals' decision-making process and these factors lower the relative importance of salary to principals' career transitions. In addition to salary, this study investigates how other job benefits—tenure system and job contracts—are associated with principal turnover, which are often ignored by researchers and policy makers. This study indicates that principals who had tenure system were 68% less likely to leave the education system, and those with meet-and-confer or collective bargaining contracts were 56% less likely to change to nonprincipal positions than those without these job benefits.

Other than job benefits, nonpecuniary working conditions can also affect principals' psychological and emotional expectations, thus affecting their job transition behaviors. For workload, on average, principals spend as high as 59 hours per week on all school-related activities before, during, and after school (about 12 hours per day). Considering a typical workweek to be 40 hours, as low as 4.1% of principals work 40 hours or less, more than 90% of principals work 50 hours or more per week, and about 60% of principals work 60 hours or more per week on all school-related activities. However, this study does not show a statistically significant relationship between workload and principal turnover at the significance level of 0.05. This finding is different from Fuller et al. (2015)'s descriptive analysis which indicates that workload is among the most important concerns for principal retention. It could be speculated that the relative importance of workload may be lower than other more pressing factors, thus while statistically controlling for various factors in the regression models, the effects of workload on principal turnover become nonsignificant.

For school disciplinary environment, this study shows that 1 standard deviation improvement in school disciplinary environment rating lowers the odds of principals moving to another school by 36.4% relative to staying. It is consistent with previous studies on the positive relationship between better disciplinary environment and principal retention (Loeb et al., 2010; Sun & Ni, 2015; Tekleselassie & Villarreal, 2011), but this finding further identifies the statistically significant relationship lies between disciplinary environment and the probability of principals moving to another school.

The findings of this study also contribute to social equity by providing empirical evidence on mitigating principal turnover in underserved schools. This study shows that principals in schools with high concentrations of students of color are about 60% to 70% more likely to move to another school than those in schools in the lowest quartile of percentage of students of color, which confirms previous literature. However, principals' aversion to working in schools with high concentrations of students of color may not be driven by a distaste for certain student populations, but by a desire to serve schools with more desirable school disciplinary environment. By further separating school disciplinary environment from student characteristics regarding the effects on principal turnover, this study indicates that as school disciplinary environment rating increases by 1 standard deviation, the odds of moving to another school for principals in schools serving the highest quartile of students of color are about one-third lower than those in other schools. It indicates that improving school disciplinary environment plays a more important role in lowering principal turnover in schools serving high concentrations of students of color.

Furthermore, principals' influences on school matters are also important concerns for principal leadership (Adamowski et al., 2007; Fink & Brayman, 2006; Tekleselassie & Villarreal, 2011), however, not all areas are equally important to principals. Since principals are not the only decision maker in the school system, influences from multiple stakeholders such as state, local school boards, school districts, teachers, and parents can be either prohibiting or supportive to principals' influences in school (e.g., Harris, 2009; Louis, Leithwood, Wahlstrom, & Anderson, 2010; Ni et al., 2017; Spillane, 2006). A contribution of this study is the finding that principals having more influence on determining teacher professional development and budget spending and less influence on setting performance standards are associated with a lower likelihood of principals leaving the education system. It could be speculated that principals as school leaders may need more influences on personnel training and financial allocation for school improvement efforts and school operations. But for setting student performance standards, for example, state education agencies have a stronger influence than principals in this area and principals perceive states' influence as noninterfering (Ni et al., 2017).

Therefore, principals may need less autonomy but more support from other stakeholders in this area. This finding to some extent overturns the typical viewpoint that a lack of autonomy is always adverse to principals, and provides a more comprehensive perspective on the relationship between principal autonomy and principal turnover. However, more empirical and practical evidence is still needed to interpret why more influences on setting school disciplinary policies are associated with a lower probability of principals getting promoted to the district central office. In addition, with the correlational rather than causal design of this study, the significant estimates need to be interpreted with caution. But this study could serve as a first step to explore how principals' influences on different domains of school decision making can affect their career turnover behaviors.

In terms of principal characteristics and school context, this study shows that more experienced principals are more likely to get promoted to the district central office and less likely to change to nonprincipal positions in school. Additionally, aspiring principal programs lowers the likelihood of principals changing to nonprincipal positions. For school contextual factors, principals in elementary schools, charter schools, and/or smaller schools are less likely to get a promotion to the district central office. In addition, principals in middle schools, smaller schools, and/or schools with high concentrations of students of color are more likely to move to another school.

Policy Implications

During recent years, given the increasing principal turnover that negatively affects school system and student performance especially in underserved schools, as the demand side of the principal labor market, school districts have the responsibility and resources to provide positive working conditions to retain principals for the long-term school improvement and student success. The findings of this study provides empirical evidence on the associations between working conditions and principal turnover, and could have strong policy implications in promoting principal retention and social equity.

First, given the increasing pressures and workload that principals are confronted with, district policy makers, as the demand side of the principal labor market, could provide principals with better job benefit packages, including competitive salary, beneficial job contract (e.g., meet-and-confer or collective bargaining contract), and principal tenure system to improve the attractiveness of the principalship in school and to promote principal retention. Second, this study provides empirical evidence for policy makers to facilitate the development of student disciplinary environment in order to mitigate principal turnover issues, especially in schools serving high concentrations of

students of color. Different from other factors, student disciplinary environment is not only an integral part of principal working conditions, but is also influenced by principal leadership practices. As the supply side of the principal labor market, principals' performance evaluations may be negatively affected if they fail to improve and maintain a positive student disciplinary environment. As the demand side of the principal labor market, district policy makers could guide and support principals in utilizing joint effect by engaging teachers, communities, and parents to develop effective and flexible disciplinary plans, programs, and approaches to improve student disciplinary behaviors (Leithwood et al., 2004; Murphy, 1991; Sheldon & Epstein, 2002; Short & Greer, 2002). Furthermore, for schools with high concentrations of students of color, district policy makers could provide more support and resources to assist principals in maintaining a safe and positive school disciplinary environment to sustain long-term student success.

For principal influences on school matters, to improve principals' satisfaction and retention on their jobs, district policy makers could provide principals with more influences on determining teacher professional development and budget spending, but less influence on setting student performance standards. Although the findings are suggestive rather than causal, this finding should raise the attention for policy makers to contemplate the appropriate amount of principal autonomy in different areas. District policy makers could also have an open dialogue with principals on the desired amount of autonomy for their leadership practices so as to make joint efforts to achieve long-term school improvement goals and student success.

In addition to working conditions, the more comprehensive categorization of principal turnover in this study provides new evidence on the relationship between principal and school characteristics and principal turnover. For instance, as the supply side of the principal labor market, more experienced principals are more likely to get promoted to the district central office and less likely to change to nonprincipal positions in school. This finding not only justifies the necessity to separate different types of principal turnover but also provides a more nuanced understanding for policy makers, as the demand side of the principal labor market, to differentiate supportive resources and professional training programs for the retention of principals with various levels of experiences. For instance, district policy makers could provide experienced principals with more career advancement training and consulting programs to mentor and facilitate their career goals, and provide relatively new principals with more professional training to build their confidence and effectiveness to stay in the principalship. Moreover, district policy makers could design high-quality aspiring principal programs to improve the loyalty and confidence for principals to remain in the principalship.

For school contextual factors, principals in elementary, charter, and smaller schools are less likely to get a promotion to the district central office. The lack of career advancement opportunities could be a discouraging factor for principals to work in these types of schools. For smaller schools, principals are also more likely to move to another schools. It is unclear whether the higher probability of moving in smaller schools is related to the lower likelihood of career advancement opportunities to the district central office, but these findings provides a new direction for future research and policy practices to consider the link between career advancement opportunities and principals' career transition behaviors.

Limitations and Future Research

Despite the comprehensive findings of this study, it has a few limitations. First, this study cannot distinguish voluntary and involuntary turnover with the SASS and PFS data, which is also a limitation in most empirical studies on principal turnover (Farley-Ripple, Solano, et al., 2012). Future research could design surveys and conduct interviews to identify voluntary versus involuntary principal turnover behaviors. Second, given the limitation of the secondary data, some questions may not precisely reflect the constructs of working conditions in this study. For example, the measurement for workload using *hours spent on all school activities* and *days required to work under contract* may not be good proxies to reflect principals' workload and stress in their daily work. Moreover, principal influences are measured with principals' perceived influences rather than their actual influences on different domains of school decisions. Thus, future studies could apply more rigorous data collection approaches to better represent the factors of working conditions. Third, this study utilizes cross-sectional data to examine how factors affect principal turnover in the next year. Future research could utilize longitudinal data to reveal principals' career transition patterns and dynamics over time. Furthermore, future studies could consider applying cross-disciplinary theories and methodologies from economics and psychology to unravel the driving forces of principal career transitions and to gain a holistic and in-depth understanding of the principal labor market.

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Notes

1. "Other" includes principals who had left their base-year school, but for whom it was not possible to determine a mover or leaver status in the current school year. Retrieved from https://nces.ed.gov/pubs2014/2014064rev.pdf
2. Place dimension refers to working location change to another school, district, state, or outside of the education system. Role dimension refers to role change to teacher, staff, or central office administrator.
3. On leave includes maternity/paternity, military, disability, and sabbatical.
4. Given the large number of variables in this study, the models with state-level fixed effects cannot converge. Thus, this study utilizes regional fixed effects to reflect the regional differences of principal labor markets to some extent.
5. Definition of NCES's urban-centric locale. Retrieved from https://nces.ed.gov/surveys/ruraled/definitions.asp
6. "Meet-and-confer" discussions are for the purpose of reaching nonlegally binding agreements, and collective bargaining agreements are legally binding agreements (SASS Principal Questionnaire, 2011-2012), both of which are beneficial in protecting principals' benefits than without them.
7. Before multinomial logistic regressions, Hausman-McFadden Test was assessed for the assumption of the Independence of Irrelevant Alternatives to ensure the relative probability of excluding the mover, demoted, promoted, leaver, and retired categories was not affected by removing either one of them. The *p* values were either larger than .05 or negative, indicating that the Independence of Irrelevant Alternatives assumptions were not violated (Cheng & Long, 2007).
8. Due to the limitation of space, the model with only principal characteristics and school context factors are not shown in this article.

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