


Article

## **Voice Effects of Public Sector Unions on Turnover: Evidence From Teacher Contracts**

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### **Abstract**

Based on Hirschman's exit and voice model, this article examines the impact of voice mechanisms on turnover using the case of teacher unions in New York State. In addition, we intend to identify heterogeneous effects of voice mechanisms on turnover depending on observable teacher characteristics. Our findings reveal that school districts with stronger grievance procedures are associated with low turnover at the individual level. These results shed light on public sector union literature as well as the studies on the relationship between turnover and performance.

### **Keywords**

public sector unions, voice effects, turnover, grievance procedures, teacher contracts

After the passage of collective bargaining laws across states during the 1970s, there was initial rapid growth in the unionization of public sector employees. This growth has stabilized since the 1980s, while unionization in the private sector has been falling (Ricucci, 2007). According to a 2014 U.S. Bureau of Labor report, the union membership rate in local governments, which employ approximately 16.9 million individuals, is 40.8%.<sup>1</sup> This rate is six times higher than the private sector rate of 6.7%. Of these local government unions, 4.5 million are teacher unions, which is one of the most heavily unionized occupations.

In addition to their substantial size in the public sector, teacher unions play an influential role, not only in electoral campaigns of national and state politics but also in policy-making (Davis, 2013; Moe, 2008; Ricucci, 2011). For example, the National

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Education Association (NEA) and American Federation of Teachers (AFT) are significant political campaign donors. They are often involved in shaping education policy to be more favorable toward them.

Related research presents two opposing arguments regarding the impact of teacher unions on organizational outcomes. One argument against teacher unions is that the outcome of collective bargaining with rigid rules restricts management discretion in educating children and often leads to poor organizational performance. A large body of empirical research examines whether teacher unions hinder organizations' competitiveness, performance, and innovation. However, there is not a consensus about the impacts of teacher unions (Eberts & Stone, 1987; Hoxby, 1996; Moe, 2008, 2011).

Supporters of teacher unions argue that one benefit of unionization is a reduction in turnover. Efficiency wage theory posits that higher wages in organizations with unions enable the retention of employees because they are not willing to risk earning less money in other jobs (Katz, 1986). Applying Hirschman's exit and voice model to labor unions, Freeman and Medoff (1980, 1984) argue that unions are an avenue through which workers can voice their concerns. As an alternative to exit, additional voice mechanisms in the unionized work setting could reduce employee turnover. A great volume of research empirically documents that employees in a unionized work environment are less likely to exit because of voice mechanisms, even when wages and other factors are held constant (Batt, Colvin, & Keefe, 2002; Delery, Gupta, Shaw, Jenkins, & Ganster, 2000; Freeman, 1980; Hammer & Avgar, 2005; Rees, 1991).

Based on Hirschman's exit and voice model, this article examines the impact of voice mechanisms on turnover using the case of teacher unions in New York State. In addition, we identify the heterogeneous effects of voice mechanisms on turnover, depending on observable teacher characteristics. We use rich administrative data sets—teacher contracts from the State of New York Public Employee Relations Board (PERB), individual teacher employment data from the Personnel Master File (PMF), and School Report Card data from the NY State Department of Education (NYSDE).

Hirschman (1970) defines voice as "expressing employees' dissatisfaction directly to management or to some other authority to which management is subordinate or through general protest addressed to anyone who cares to listen" (p. 4). Freeman (1980) further argues that the grievance procedure as the voice mechanism offers employees an alternative to exiting their professions. With the stronger and wider coverage of grievance procedures, employees are more able to express concerns related to the mismanagement of school districts. Through grievance procedures, management decisions can be reversed. Even if a grievance is not upheld, the employee at least perceives that his/her complaints are being considered (Rees, 1991).

Existing studies show that voice mechanisms decrease turnover in unionized organizations (Batt et al., 2002; Hammer & Avgar, 2005), but most of those studies primarily rely on the underlying assumption that turnover is disruptive to organizational performance. These studies tend to overlook the fact that turnover can enhance an organization's performance by replacing low performers with higher performing new employees, and increasing workforce innovation (Kellough & Osuna, 1995), and the

flexibility and adaptability of organizations (Abelson & Baysinger, 1984; Dalton & Todor, 1979). Focusing on this gap, this article includes teacher characteristics (i.e., high- vs. low-performing teachers) as a moderating variable to explain the impact of voice mechanisms.

This article is organized as follows. In the next section, we provide a brief summary of the research on teacher unions and teacher contracts as well as on turnover and performance. We then discuss the methodology used for coding contracts and empirical strategies for analysis. The article concludes with a summary of our findings and recommendations for practice and future research.

## Literature Review

This section begins by outlining collective bargaining in public education to provide background information. Then, we review research on the antecedents of turnover and the effect of unions, as voice mechanisms, on turnover.

### *Collective Bargaining in Public Education*

While collective bargaining in the private sector is governed primarily by the National Labor Relations Act, collective bargaining in public sector education is primarily governed at the state and local level. Thus, the collective bargaining outcome is determined by state laws and regulations as well as bargaining between teacher unions and local school district administrators.

Freeman and Valletta (1988, p. 82) categorized the area of bargaining rights into five groups: bargaining prohibited; no provision for bargaining; bargaining permitted; "meet and confer" or "present proposals"; and duty to bargain, to develop an index of the favorableness of the state laws toward collective bargaining. According to this categorization, each group is not mutually exclusive. For example, "In the states that prohibit public sector bargaining, meet-and-confer is the only agreement option available to employers and employees. In other states, employers and employees can choose a meet-and-confer agreement instead of a bargaining contract" (Freeman & Han, 2013, p. 9).

National Council on Teacher Quality (2014) and Lindy (2011, p. 1137) classify the legality of collective bargaining into three categories:

- 1) mandatory states where the law requires school districts to bargain collectively with a properly recognized teachers' union,
- 2) permissive states, where a district may choose whether or not to engage in collective bargaining and
- 3) prohibitive states, where the law expressly prohibits collective bargaining between a school district and a teachers' union.

In general, the state can be classified in one of these three categories in terms of the legality of collective bargaining. Currently, all states except five (i.e., Georgia, North Carolina, South Carolina, Texas, and Virginia) have mandatory or permissive collective bargaining laws (National Council on Teacher Quality, 2014).<sup>2</sup>

The state defines whether collective bargaining is legal and what issues can be negotiated in collective bargaining. In mandatory or permissive states, the scope of collective bargaining generally includes wages, hours, and terms and conditions of employment. However, how unions and school districts interpret terms and conditions is not clear, particularly when state law does not specify them. This ambiguity leads to wide variation in the scope of collective bargaining at the state and local level. For example, class size is a prohibited subject of collective bargaining in Maryland and Oregon, whereas it is a mandatory subject in Massachusetts and California. In New York, where no state law or regulation addresses this issue, the variation depends on the bargaining outcome between unions and administrators in school districts.

In New York, school administrators are required to negotiate with unions over wages, hours, and terms and conditions of employment (N.Y. Civ.Serv. Law A 204(2)). Furthermore, state regulations prohibit collective bargaining related to pension and retirement benefits (N.Y. Civ.Serv. Law A 201(4)) and the right to strike (N.Y. Civ.Serv. Law A 210(1)). Evaluation processes or instruments (N.Y. Edu. Law 3012 C) and grievance procedures (N.Y. Civ.Serv. Law A 204(2)) are mandatory subjects of bargaining. Thus, grievance procedures should be negotiated through collective bargaining in all school districts, but there are wide variations in procedures across school districts in New York because state law does not specify the details of grievance procedures.

### *Antecedents of Turnover*

Previous literature categorizes three broad factors associated with turnover: economic, individual, and organizational factors (Moynihan & Landuyt, 2008; Selden & Moynihan, 2000). In terms of individual characteristics, variables such as age, tenure, gender, education, and minority status are used in the analysis. For example, by explaining the concept of the life cycle stability hypothesis, Moynihan and Landuyt (2008) find that older and longer tenured employees are less likely to quit. In addition, females and minorities are more likely to stay in public organization jobs. They argue that this is attributable to changing demographics in labor market participation and wage penalties for females in the private sector.

Furthermore, Kim (2005) divides organizational factors into three categories: job characteristics, work environment, and Human Resource Management (HRM) practices. With regard to job characteristics and work environment, a number of authors conclude that employees with greater workloads (Moynihan & Landuyt, 2008) and lower job satisfaction (Iverson & Currihan, 2003) are more likely to quit. Teacher labor market studies also conclude that teacher turnover is determined by working conditions, such as class size, number of preparation days (Guarino, Santibañez, & Daley, 2006), and a high share of minority and low-performing students (Hanushek, Kain, & Rivkin, 2004). Studies find mixed evidence on the effects of supervisory status (Cotton & Tuttle, 1986; Kellough & Osuna, 1995; Lewis, 1991) and HRM policies such as pay and benefits (Harris & Adams, 2007), family-friendly policies (Lee & Hong, 2011), hiring practices in school districts (Ballou & Podgursky, 1997), and professional development and mentoring (Guarino et al., 2006).

Another factor affecting employee turnover is the economic factor in the labor market. Employees are clearly exposed to events in the external labor market such as local unemployment rate (Bradley, Green, & Mangan, 2012, p. 248). Many empirical studies have shown that when unemployment rate increases, people are less likely to quit (Selden & Moynihan, 2000).

### *Unions, Collective Bargaining Agreements (CBAs), and Turnover*

A union plays a role in furthering “the economic interests of their members by negotiating on their behalf over terms and conditions of employment” (Hammer & Avar, 2005, p. 241). The union as a representative of employees in collective bargaining often increases wages, improves benefits, and provides protection against unjust treatment. A number of studies indicate that these results have positive effects on employees’ work attitudes such as commitment and job satisfaction (Carson, Carson, Birkenmeier, & Toma, 2006; Davis, 2013). The underlying notion is that employees with union membership perceive that “they could not find new jobs with the same wages and benefits should they quit” because of the beneficial effect of unions (Hammer & Avar, 2005, p. 250).

Using Hirschman’s exit–voice mechanism, Freeman (1980) and Freeman and Medoff (1980, 1984) provide the theoretical foundation for union influence on organizational turnover. Batt and colleagues (2002, p. 573) explain that unions “provide a voice mechanism through which employees can negotiate higher compensation and redress problems as an alternative to exit.” Industrial relations research from other countries provides evidence that supports this proposition (Freeman, 1980; Hammer & Avar, 2005). However, their conclusions are mainly based on private sector organizations, such as the telecommunication service industry (Batt et al., 2002) and the transportation industry (Delery et al., 2000).

Several studies analyze the determinants of turnover in public organizations using Hirschman’s voice–exit–loyalty model. For instance, organizational commitment and loyalty are more likely to reduce the intention to quit in the federal government (Lee & Whitford, 2008). Moynihan and Landuyt (2008) find no significant relationship between the voice mechanism and the intention to quit, whereas Iverson and Currrivan (2003) show the effect of union voice on employees quitting. Different findings are largely because of the different measures of voice mechanism, such as empowerment (Lee & Whitford, 2008; Moynihan & Landuyt, 2008) and participation in union activities (Iverson & Currrivan, 2003). Another explanation for differences in these studies is the focus on the intention to quit, which may differ from actual turnover. Thus, it can be difficult to provide practical suggestions for reducing actual turnover in an organization as HRM strategies (Cho & Lewis, 2012). In addition, most studies primarily rely on one data set, which could be affected by common method bias.

Prior studies examine unionism across states to identify the effects of unions because collective bargaining mandates and the right to strike vary from state to state (Ricucci, 2011). Existing studies use the dichotomous variable as union establishments for measuring voice mechanisms. This approach may be reasonable in certain

kinds of studies, but address several potential pitfalls; thus, it needs to have finer and more detailed measures.

First, the complexity and variability of legal environments across states make it difficult to compare different states with the simple measure of union status. We focus on one state, New York, for our analysis. This allows us to control for a wide range of heterogeneous legal institutions and regulations regarding collective bargaining across states. Recent studies suggest that contract provisions vary considerably across school districts such that each provision in CBAs provides the unique opportunity to examine its impact on turnover and the quality of the workforce (Ballou, 2000; Chung, Duncombe, Melamed, & Yinger, 2008).

Second, although voice mechanism stems from the strength of the teacher union in a district, union status does not directly capture variations in voice mechanisms. The exception is a study conducted by Rees (1991). Using New York State public school teacher data between 1975 and 1978, Rees investigates the effect of grievance strength procedures on teacher turnover. Specifically, he finds that the existence of binding arbitration for contract and non-contract disputes is negatively associated with the teacher turnover rate.

Recent studies focus on the role of CBAs on employees' mobility and turnover (Anzia & Moe, 2014; Munk, 1998). For example, strict regulations in CBAs could be barriers to dismissing poor-performing teachers. Munk (1998, p. 47) states that "more than 90 percent of the CBAs contain language which serves to limit the ability of administrators to hire, place and dismiss teachers." In addition, higher rates of turnover could exist in school districts with little regulation if employees are in search of positions with more job security (Stuit & Smith, 2012). Another channel of influence is through administrative support from CBAs. A number of papers find that administrative support in CBAs is related to lower rates of teacher turnover and mobility (Berry, Noblit, & Hare, 1985; Odell & Ferraro, 1992). Seniority provisions in teacher contracts are also one of the factors changing teacher dynamics, but studies find mixed results (Anzia & Moe, 2014; Koski & Horng, 2007). Based on the previous discussion, we focus on the role of a grievance procedure as a voice effect and propose the following hypothesis.

**Hypothesis 1:** Teachers in school districts with stronger grievance procedures will be less likely to leave their jobs.

### *Heterogeneous Effects of Voice Mechanisms*

A conventional assumption from human capital theory is that turnover is not beneficial for the organization because turnover eliminates organization-specific human capital accumulation (Alexander, Bloom, & Nuchols, 1994; Kim, 2002). From this perspective, we can consider that reduction in turnover through voice effects may lead to a better performing organization.

However, cost-based assessment literature questions whether all turnover is bad (Abelson & Baysinger, 1984; Dalton & Todor, 1979). Although there are costs

associated with replacing, retaining, and training employees, turnover can enhance an organization's performance by replacing low performers with higher performing new employees, increasing workforce innovation (Kellough & Osuna, 1995), and bringing flexibility and adaptability to organizations (Dalton & Todor, 1979).

In the case of public schools, the effect of turnover on organizational performance can be indirectly gleaned from the changing composition in quality of workforce. For example, turnover can be functional when relatively poor-performing teachers are leaving the teaching profession, but can be dysfunctional when high-performing teachers are leaving. If voice mechanisms encourage poor-performing teachers to stay and high-performing teachers to leave, then reduction in turnover can be detrimental to organizational performance. In this sense, it is important to examine how teachers' responses on grievance procedure affect their turnover because turnover makes changes on workforce composition in terms of quality, thereby the quality of workforce affects student performance. In other words, depending on what types of teachers are staying or leaving, the impact of grievance procedure might vary. However, existing research does not address what types of teachers are more responsive to stronger grievance procedures. To fill this gap, the present study focuses on what types of teachers are more likely to stay or leave in response to stronger voice mechanisms by examining the interaction effects between teacher characteristics and the degree of grievance procedure.

Volumes of research have documented what consists of teacher quality. Literature on teacher quality has devoted to identify effective teachers using student achievement data such as academic records (Ballou, 1996), experience (Hanushek et al., 2004; Jacob, 2007), and Teach for America program (Kane, Rockoff, & Staiger, 2008). Regarding teacher experience, studies have shown that more experienced teachers are more effective on raising student achievement than beginning teachers (Clotfelter, Ladd, & Vigdor, 2006; Hanushek et al., 2004; Jacob, 2007). Specifically, teachers are very effective in raising student test scores in the first year or two of their teaching careers. Then, their effect flattens out (Staiger & Rockoff, 2010). Subject-matter knowledge is another factor for evaluating teacher quality. However, there is mixed evidence that observable teacher characteristics such as education and teacher certification are associated with teacher impact on student performance (Hanushek et al., 2004; Jacob, 2007). Taken all together, if teachers with more than 3 years of experience or more competence on their subjects are more likely to stay in an organization with the stronger grievance procedures, the procedures then will have a positive and indirect influence on organizational performance. Therefore, using a unique and detailed administrative data set of teacher personnel information, this article attempts to identify whether voice mechanisms have heterogeneous effects on turnover depending on teacher characteristics. Based on previous research, we propose the following hypotheses.<sup>3</sup>

**Hypothesis 2:** Experienced teachers in school districts with stronger grievance procedures will be less (or more) likely to leave the job compared with those in school districts with less strong grievance procedures.

**Table 1.** Descriptive Statistics.

	Observations	M	SD	Minimum	Maximum
Grievance	108,506	2.45	0.894	1	4
Wage index	108,410	1.25	0.157	1.01	1.55
Unemployment	108,410	5.27	1.46	3.4	9.8
Salary	108,506	59,152.4	18,472.4	24,403	113,969
Age	108,506	38.5	8.97	0	54
Gender	108,502	0.257	0.437	0	1
Math and science	108,506	0.139	0.346	0	1
High quality	108,506	0.78	0.41	0	1
Degree	108,450	2.86	0.359	1	4
Experience	108,506	0.127	0.33	0	1
% Minority	108,506	30.8	30.43	0	100
% FRM	108,506	0.0796	0.043	0	0.285
Class	108,506	12.58	1.608	3.31	22.33
Special education	108,506	0.121	0.326	0	1

Notes. Our sample is constructed as unbalanced panel data structure during 2005-2009.  
FRM = students with free reduced meals program.

**Hypothesis 3:** More competent and certified teachers in school districts with the stronger grievance procedures will be less (or more) likely to leave the job compared with those in school districts with less strong grievance procedures.

## Methods

### Sample Characteristics

This article employs three main data sources for voice mechanism and teacher mobility: teacher contracts from the State of New York PERB, the PMF, and the School Report Card from the NYSDE. We codified 307 teacher contracts.<sup>4</sup> Our final sample consists of 108,506 teachers and 925 school districts. Table 1 offers descriptive statistics of variables we use in this article.

### Measures

**Turnover.** Our main dependent variable is actual turnover at the individual level from the PMF file. Many previous studies have used the intention to quit as a proxy variable for turnover and they find the correlation between turnover intention and actual turnover ranges from .31 to .7 (Cho & Lewis, 2012; Dalton, Johnson, & Daily, 1999). However, Cho and Lewis (2012) find that “they [turnover intention] respond differently enough to demographic factors to suggest the need for caution in extrapolating the apparent impact of HRM practices from turnover intention to behavior” (p. 4). In this sense, analyzing actual turnover provides more meaningful implications for



managers to understand and reduce turnover in their organizations. We analyzed the determinants of turnover based on three separate samples (probationary teachers, permanent teachers, and all teachers). In addition, to separate the effect of voice mechanism from early retirement decision, we restricted the sample to teachers who are less than 55 years old.

*Grievance procedures as a voice mechanism.* We measure voice mechanisms using the variation in grievance procedures from teacher contracts. Hirschman (1970, p. 4) provides the definition of voice in the following: “expressing employees’ dissatisfaction directly to management or to some other authority to which management is subordinate or through general protest addressed to anyone who cares to listen.” Our measure is consistent with Hirschman’s original proposition because employees with the stronger grievance procedures have more leeway in voicing their opinions as an alternative to leaving their professions.

The typical grievance procedure in a NY school district is a three- or four-step process (Rees, 1991). A teacher with a complaint usually tries to resolve it with her immediate supervisor first. Second, a written version of the complaint is filed with the Superintendent of Schools and the Board of Education. Finally, there is third-party arbitration.

The grievance procedure is the subject of mandatory bargaining in New York. However, there is wide variation in the definition of grievance and the types of final arbitration across school districts in New York. Thus, the strength of the grievance procedure in this study is measured in terms of (a) whether the grievance covers the non-contract issue and (b) whether the outcome of final arbitration is binding or advisory.<sup>5</sup>

Regarding the scope of grievance procedures, teacher contracts provide information concerning what constitutes a violation of the contract. Some contracts (e.g., Alfred and Almont School District) restrict the violation or dispute to the terms of the contract. For instance,

A grievance shall be any alleged misinterpretation, violation or improper application of the terms and conditions of this Agreement. (Alfred and Almont School District Teacher Contract, 1)

Other contracts define grievance in a broader context, including any law or rule:

A Grievance shall mean any claimed violation, misinterpretation, or inequitable application of any provision of this agreement or of any law, Board or administrative rule, regulation, or policy relating to or involving the teachers, or school nurses. (Ballston School District Teacher Contract, 7)

Based on the contract language, we codify two types of grievance coverage: (a) a grievance procedure includes only contract issues when the definition is restricted to the terms of the agreement between the two parties and (b) the grievance procedure

**Table 2.** Measures of Grievance Procedures.

Description	Number	Score
Binding arbitration for contract and non-contract disputes	69 (22%)	4
Binding arbitration for contract disputes, advisory arbitration for non-contract disputes	14 (5%)	3
Binding arbitration for contract disputes. No non-contract grievance	207 (67%)	2
Advisory arbitration for contract disputes. No non-contract grievance	17 (6%)	1

Note. The basic coding scheme is adapted from Rees (1991).

includes contract issues as well as other rules or regulations when it is defined more broadly.<sup>6</sup>

The second part of the coding scheme is based on whether the final outcome of arbitration is binding or advisory. Some school districts indicate whether the final outcome of arbitration is advisory.

The Board must make a determination, in writing, within ten (10) days of considering the grievance. In the event the grievant is still dissatisfied with the determination, he/she may submit the matter to advisory arbitration pursuant to the rules and procedures established by the Public Employment Relations Board. The determination of the arbitrator shall be advisory only. (East Quogue Teachers Association, 11)

By contrast, other school districts state that arbitration in the final stage is binding.

The arbitrator's decision will be in writing and will set forth his findings, reasoning and conclusions on the issue(s) submitted. The arbitrator will be without power or authority to make any decisions which require the commission of and prohibited by law or which is violative of the terms of this Agreement. The decision of the arbitrator shall be binding. (Addison School District Teacher Contract, 21)

Based on previous studies, this study categorizes grievance procedures into four dimensions as indicated in Table 2. School districts with the strongest grievance procedures have binding arbitration for contract and non-contract issues, which offers a formal process by which a teacher can express almost any complaint or concern about contract and non-contract issues (Rees, 1991). Grievance procedure is added to the model as a binary variable because of the ordinal characteristics of the measure. The omitted category here is an advisory arbitration for contract disputes; therefore, it is the base group.

*Teacher characteristics.* The individual characteristics of teachers were included, such as age, gender, level of education, education experience inside and outside the district,

type of assignment (i.e., special education or math/science), and whether the teacher is classified as a *high- or low-qualified teacher*. According to NYSDE, a *high-qualified teacher*, as defined in the PMF file “must have at least a Bachelor’s degree, be certified to teach in the subject area and show subject matter competency” (New York State Education Department, 2014). Thus, high-qualified teacher status captures whether teachers are certified and have a high level of subject competency. We use two of the above variables (whether teaching experience is more than 3 years or not and whether teacher is defined as a high-qualified teacher by NYSDE) to represent high-performing teachers as proxy variables in the interaction term.

**Control variables.** At the school district level, we use information from the school district report cards. Previous studies have shown that teachers are more likely to leave less attractive working environments such as schools with larger share of minority and disadvantaged students (Hanushek et al., 2004; Loeb, Darling-Hammond, & Luczak, 2005). To indicate the quality of the work environment, we include data regarding the share of students in the Free Reduced Meals Program, the share of minority students, class size, and individual salary. We also included the Comparable Wage Index (CPI) developed by Taylor and Fowler (2007) for measuring geographic variations in the wages paid to educators. This serves as the proxy variable to reflect the base salary in each school district.

### Empirical Strategy

The basic model for examining individual teachers is logit model with a robust standard error (drawn from panel data) in the following specification. All independent variables are lagged variables at  $t - 1$  year to avoid the simultaneity bias.

$$\text{Teacher Turnover}_{it} = f(\text{Grievance Procedure, Age, Gender, Experience, Wage Index, Math/Science, Special Education, Education Degree, Experience, Class Size, \% Minority, \% Free Reduced Meals Program, Salary, Grievance Procedure} \times \text{Individual Characteristics})_{t-1} \quad (1)$$

We also add the interaction term between grievance strength and teacher characteristics. This captures whether the strength of grievance procedures has a differential impact on turnover, depending on the individual traits of employees. In the empirical model, we estimated the effect of grievance procedure in the different sample: all teachers, probationary teachers, and permanent teachers, respectively. Each sample is categorized based on the status of legal certification.

Despite the panel structure (which allows us to control for several time-invariant variables at the school district and individual level), we do not add the fixed effects for school districts or schools in the model because grievance strength, our main variable, rarely changes within a district during our sample period. Instead, we add the time fixed effects to the model; thereby, we are able to control for any time specific effects on turnover such as economic conditions.<sup>7</sup>

**Table 3.** Results of Logit Models: Impact of Grievance Procedures on Teacher Turnover.

	(1) All	(2) Probationary	(3) Permanent
Binding only for contract	-0.3141 (0.2170)	-0.1796 (0.1915)	-0.3351 (0.2211)
Binding and advisory	-0.7972*** (0.2601)	-0.7264*** (0.2432)	-0.8125*** (0.2825)
Binding for all disputes	-0.5836*** (0.2154)	-0.4543* (0.2331)	-0.6064*** (0.2088)
Wage index	-0.5324 (0.4905)	-0.3430 (0.7059)	-0.9152* (0.5114)
Unemployment	-0.2644*** (0.0982)	-0.2648** (0.1140)	-0.2664*** (0.0960)
Salary (\$10,000)	0.0436 (0.0413)	0.158 (0.161)	0.0657* (0.0352)
BA degree	0.3499** (0.1409)	0.0939 (0.3478)	1.1517*** (0.4125)
Master's degree	0.2401 (0.1553)	0.0280 (0.2970)	0.8920*** (0.3369)
PhD degree	0.5388*** (0.1879)	0.5115 (0.4877)	1.1238*** (0.4224)
Age	-0.0088*** (0.0029)	-0.0009 (0.0048)	-0.0124*** (0.0024)
Gender	-0.0867*** (0.0212)	-0.1057** (0.0451)	-0.0871*** (0.0169)
Math/science	-0.0082 (0.0074)	-0.0263** (0.0107)	-0.0146 (0.0154)
High-quality status	-0.0261* (0.0149)	-0.0178 (0.0276)	-0.0331** (0.0151)
Experience	0.1058*** (0.0146)	0.1060* (0.0562)	0.1748* (0.1058)
% minority	-0.0123 (0.0081)	-0.0131 (0.0081)	-0.0119 (0.0082)
% free reduced meals	0.0163 (4.0880)	0.1612 (3.6279)	-0.0921 (4.2363)
Class size	0.0066 (0.0379)	0.0482 (0.0356)	-0.0063 (0.0399)
Special education	-0.0302 (0.0283)	-0.1007** (0.0451)	-0.0110 (0.0276)
Pseudo R <sup>2</sup>	0.120	0.106	0.125
	108,406	23,067	85,339
Time fixed effect	Yes	Yes	Yes
Random effect	No	No	No

Note. Clustered standard error statistics in parentheses.

\* $p < .1$ . \*\* $p < .05$ . \*\*\* $p < .001$ .

## Results

### *Impact of Grievance Procedures on Turnover*

Table 3 presents the results of the logit model based on the individual teacher level. Our dependent variable regarding turnover decision is measured as the dichotomous variable indicating 1 if employees left the teaching profession at  $t + 1$  year and 0 otherwise. Our main independent variable is the strength of grievance procedures (*grievance*) in the model. Each column provides the results of the model (1) in different samples: all teachers, probationary teachers, and permanent teachers.

The coefficient of grievance procedure is statistically significant and negative except in the case of binding only for contract disputes. Each coefficient in grievance procedure should be interpreted as the difference in odds of turnover between school

districts with the stronger grievance procedure and school districts with advisory arbitration for contract disputes. For example, on average, teachers in school districts with binding arbitration for all disputes are less likely to leave schools compared with those with advisory arbitration for contract disputes ( $b = -0.5836$  at  $p$  value  $< .001$ ). This pattern is consistent for probationary ( $b = -0.4543$  at  $p$  value  $< .001$ ) and permanent teachers ( $b = -0.6064$  at  $p$  value  $< .001$ ). We conducted a joint  $F$  test in which all coefficients are zero, and reject the null at 1% of significance level. This implies that teachers in school districts with stronger voice mechanisms are less likely to leave their professions after controlling for a set of individual and school characteristics. This lends empirical support to Hypothesis 1.

Specifically, when the voice mechanism changes from *advisory arbitration only for contract disputes to binding arbitration for contract and non-contract disputes*, the probability of an employee leaving her organization will decrease by 13.1%, 10.5%, or 13.4% (for all probationary and permanent teachers, respectively) at the average level of covariates (marginal changes). Teachers in school districts with higher base salaries are more likely to stay in their jobs. However, these results are statistically insignificant. Female teachers are less likely to leave the teaching profession, whereas inexperienced teachers are more likely to leave the job. These variables are statistically significant across all three samples. Other school district characteristics that capture less attractive working environments, such as a higher share of minority students and students in the free reduced meals program, are not significant in the model.

### *Heterogeneous Effects of Voice Mechanisms*

The results of Table 4 show whether any group of teachers responds differently to voice mechanisms. In other words, this specification explores the idea that the magnitudes of voice effects could not be the same for everyone, and may vary with a range of individual and school district characteristics. If the interaction term is negative, it reflects that teachers with interacting characteristics are less likely to leave jobs as grievance strength increases. This mechanism reinforces the decreasing impact of grievance procedures on turnover. By contrast, if the interaction term is positive, teachers with interacting characteristics are more likely to leave their jobs as grievance strength increases. This makes the decreasing effect of grievance procedures smaller.

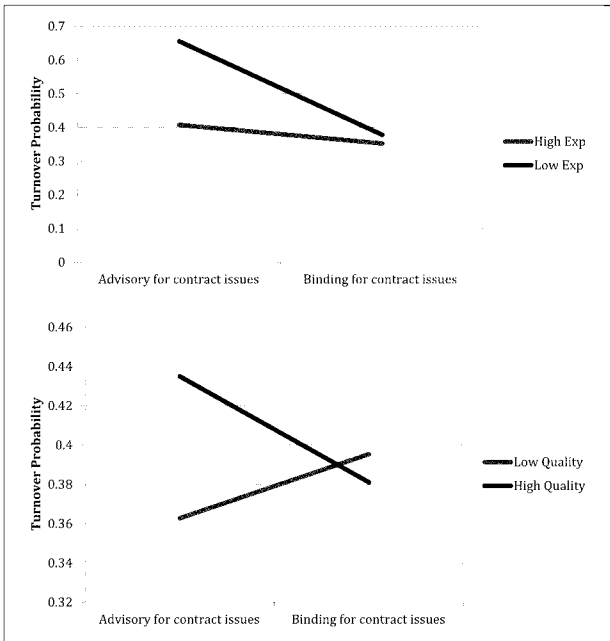
This interaction can capture the composition in quality of workforce and performance indirectly affected by the grievance procedures. For example, some teacher characteristics could be positively related with teacher quality, such as more experience and high-qualification status. Thus, if high-quality teachers with more experience are less likely to leave their jobs when there are stronger voice mechanisms, this could indirectly inform positive voice effects on performance because high-performing teachers stay in the organization.

The results show mixed findings. Among all interaction terms, the interaction between high quality and binding only for probationary teachers ( $p = -.3616$  at  $p$  value  $< .05$ ) and between less experience and binding only ( $p = -.9069$  at  $p$  value  $< .1$ ) are only significant and negative relationships. It implies that less experienced teachers

**Table 4.** Results of Logit Models: Conditional Impact of Grievance Procedures on Teacher Turnover.

	(1) All	(2) Probationary	(3) Permanent
Binding only for contract	-0.1752 (0.2401)	0.1383 (0.3103)	-0.2343 (0.2407)
Binding and advisory	-0.7221* (0.3996)	-0.7185* (0.4076)	-0.7410* (0.4180)
Binding for all disputes	-0.5125*** (0.1858)	-0.3243 (0.3457)	-0.5579*** (0.1829)
Exp × Binding only	-0.1331 (0.1588)	-0.0373 (0.2049)	-0.9069* (0.4677)
Exp × Binding and advisory	-0.1192 (0.2147)	0.0672 (0.1631)	-0.8873 (0.5619)
Exp × Binding for all disputes	0.0482 (0.1866)	0.2630 (0.2820)	-0.8412 (0.6274)
High quality × Binding only	-0.1538 (0.1838)	-0.3616** (0.1645)	-0.1140 (0.2188)
High quality × Binding and advisory	-0.0729 (0.2230)	-0.0450 (0.3863)	-0.0761 (0.2665)
High quality × Binding for all disputes	-0.0961 (0.2247)	-0.3315 (0.2339)	-0.0483 (0.2581)
Wage index	-0.5365 (0.4965)	-0.3540 (0.7025)	-0.9175* (0.5155)
Unemployment	-0.2637*** (0.0985)	-0.2623** (0.1142)	-0.2663*** (0.0961)
Salary (\$10,000)	0.0441 (0.0409)	0.163 (0.158)	0.066* (0.035)
BA degree	0.3546*** (0.1371)	0.0885 (0.3416)	1.1593*** (0.4118)
Master's degree	0.2447 (0.1519)	0.0213 (0.2914)	0.8991*** (0.3352)
PhD degree	0.5405*** (0.1828)	0.4710 (0.4745)	1.1314*** (0.4189)
Age	-0.0088*** (0.0028)	-0.0009 (0.0046)	-0.0124*** (0.0023)
Gender	-0.0864*** (0.0210)	-0.1061** (0.0451)	-0.0865*** (0.0167)
Math/science	-0.0081 (0.0072)	-0.0232** (0.0108)	-0.0150 (0.0153)
High-quality status	0.1027 (0.1865)	0.3015* (0.1573)	0.0590 (0.2260)
Experience	0.1937 (0.1535)	0.0720 (0.1820)	1.0179* (0.5241)
% minority	-0.0122 (0.0081)	-0.0131 (0.0081)	-0.0119 (0.0082)
% free reduced meals	0.0088 (4.0855)	0.1353 (3.6148)	-0.0942 (4.2350)
Class size	0.0067 (0.0377)	0.0489 (0.0353)	-0.0065 (0.0399)
Special education	-0.0292 (0.0287)	-0.0977** (0.0464)	-0.0110 (0.0282)
	0.120	0.107	0.125
	108,406	23,067	85,339
Time fixed effect	Yes	Yes	Yes
Random effect	No	No	No

with high-quality status would like to stay more in their jobs. To better illustrate this relationship, we created Figure 1 describing significant interaction terms, holding other variables at the mean value. The first panel shows that both more and less



**Figure 1.** Relation between turnover probability and grievance procedure by experience and quality.

experienced teachers are less likely to leave their jobs, but its effects are much stronger for less experienced teachers. The second panel describes that predicted turnover for teachers with high quality drops while turnover probability increases for low-qualified teachers.

**Conclusion**

Despite the active engagement of public sector unions in policy-making and government management throughout the last three decades, scholarly attention has failed to assist in understanding their roles in government (Moe, 2011; Riccucci, 2011). When

public employees organize for the interests of their members, union opponents argue that it often leads to restrictive contract rules and government structure that limits managerial control. When these interests are not consistent with the purpose of an organization, and if these institutional rules really matter, then union activity and collective bargaining can dampen the performance of government. Empirically, recent studies on teacher contracts have documented mixed evidence regarding the role of restrictive rules in organizational operation and changing the composition of workforce (Anzia & Moe, 2014; Koski & Horng, 2007; Moe, 2011).

This study unpacks the underlying relationship between grievance rules as a voice mechanism, turnover, and organizational performance. Our findings reveal that school districts with stronger grievance procedures as a voice mechanism are related with low turnover at the individual level. This is consistent with prior empirical studies (Rees, 1991) and theoretical underpinnings (Hirschman, 1970). In addition, we wonder whether this reduction in turnover by the voice mechanism could indirectly enhance organizational performance through identifying the characteristics of leaving teachers. This debate is relatively uninformed by scholarship. The mixed evidence shows that the reduction in turnover by a voice mechanism might play a positive role in enhancing organizational performance with high-qualified teachers, but a negative role with less experienced teachers. The results do not show that the effect of grievance procedure induced by change in workforce on performance as a whole.

These findings offer several practical and theoretical implications. First, although the positive effects of voice mechanisms could be accidental, management could take advantage of the fact that rules matter to employees and organizations. Specifically, rearranging and strengthening procedures for employees' voices can have effects on reducing turnover. Using two classes of fixed-effects models, Ronfeldt, Loeb, and Wyckoff (2013) found that teacher turnover impedes student achievement, implying that a disruptive effect of turnover could be stronger than changing the teacher quality. As such, the stronger grievance procedure can have a mediating influence on improving organizational performance.

Second, research on turnover and performance is too scant to provide a comprehensive answer to the question of when turnover is good for an organization, one way or the other. Even among existing studies, this line of inquiry fails to explain the underlying mechanism by which reduced turnover can lead to improved performance (Kacmar, Andrews, Rooy, Steilberg, & Cerrone, 2006). Recent studies attempt to unveil the black box regarding the relationship between turnover and performance and offer an explanation about the mediating mechanisms of efficiency (Kacmar et al., 2006) or social capital loss (Holtom, Mitchell, Lee, & Eberly, 2008) on the relationship between turnover and organizational performance. This study is a small step in that direction. If there is some balance to be struck between functional and dysfunctional turnover, managers would like to be able to encourage or discourage specific turnover cases (Barrick & Zimmerman, 2005). Future study should incorporate these heterogeneous effects on turnover.

Third, reducing turnover has also an important implication in a cost-based assessment perspective. For example, the Alliance for Excellent Education (2005) projected the cost of replacing public school teachers to be about \$2.2 billion a year. This cost



estimate ranges from \$8.5 million in North Dakota to a half a billion dollars in Texas. Specifically, this turnover rate is much higher in urban, high-poverty, and lower-performing schools compared with more affluent schools (Hanushek et al., 2004). In a sense, school districts with stronger grievance procedures can reduce turnover, which could be serving as a control for the cost of replacing leaving teachers.

Finally, this article uses teacher contracts in New York State as an example; however, these veiled mechanisms may not have the same results in other public sector unions, such as firefighter, police officer, and other public sector unions that play a vital role in their own policy realms in other states. Our study has opened up a large research area on the relationship between voice, turnover, and performance. Future studies will expand the scope of public sector unions to other professions in other states and will be able to generalize these findings.

We acknowledge this study has several potential limitations. One caveat for this study is that it relies on observational data because the grievance procedures in school districts generally do not vary over time. If other factors affecting both teacher turnover and the grievance strength are not included in the model, the effect of the grievance procedure can be over- or under-estimated. Thus, as in other studies using contract language, our findings should be interpreted as “suggestive of a causal relationship and not as causally determinative” (Strunk & McEachin 2011, p. 896). To provide a stronger argument for the causal relationship between voice mechanisms and turnover, future research should take advantage of exogenous changes in voice mechanisms and investigate its effect on turnover and performance.<sup>8</sup> Second, the written rule matters when managing the workforce, but the practical application should also be examined. Research with qualitative information about how the organization applies grievance procedures in work settings can improve our understanding about the role of voice mechanisms. Despite this limitation, we think our study makes a unique contribution to the existing line of research by highlighting the relationship between voice mechanisms measured as contract language and turnover, which has been rarely tested before.

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### Notes

1. Bureau of Labor Report is retrieved from “<http://www.bls.gov/news.release/pdf/union2.pdf>.”
2. National Council on Teacher Quality describes the wide range of legal environments in collective bargaining across states on their website (<http://www.nctq.org/districtPolicy/stateInfluence.do>).

3. There is little literature on the differential effects of grievance procedure on different types of teachers (i.e., whether different types of teachers respond to the degree of grievance procedure). This effect could work in either direction. For example, experienced teachers would pay more attention to the voice mechanism as the working condition compared with inexperienced teachers or vice versa. In a sense, we are unable to predetermine the sign of relationship between experience and grievance procedure, and so Hypotheses 2 and 3 are proposed.
4. To check the possible sample selection bias, we checked whether there are any systematic discrepancies between the sample and the rest of the school districts. We did not find any substantial differences across two groups of the sample. New York City is excluded from the analysis because of data availability.
5. For reliable and consistent coding of teacher contracts, two coders worked on the same contract and compared their coding results.
6. Some school districts state that the final arbitration in contractual agreement is binding, but is advisory in other rules or regulation as follows:

Any claimed violation or misinterpretation of the express provisions of this agreement, or a dispute with respect to its meaning or application. In the event a grievance filed under this definition is appealed to arbitration, it is understood and agreed that the decision of the arbitrator shall be final and binding on both parties.

Any claimed violation, misinterpretation or inequitable application of the existing laws, rules, procedures, regulations, administrative orders or work rules of the School District. If a grievance filed under this definition is not settled to the satisfaction of the parties in the internal steps of the grievance procedure, it may be appealed to arbitration as outlined below. It is agreed and understood, however, that the decision of the arbitrator concerning such grievance is advisory in nature. (Clinton Central School District, 59)

This example shows that the school district acknowledges the distinction between the two definitions regarding the scope of grievance procedures.

7. Although the results of the Hausman test indicated a preference for fixed effects, we only add time (year) fixed effects (not the school district fixed effects) because the estimates of voice mechanisms have collinearity with school district. Alternatively, we also estimated the random effects with the same empirical models. The result offers the consistent estimates with our original models.
8. For example, Lindy (2011) utilizes the education reform as a natural experiment and investigates the effect of collective bargaining laws.

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