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Site-based Management, Job Autonomy, and Principal Turnover in the Public Education System

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SITE-BASED MANAGEMENT, JOB AUTONOMY, AND PRINCIPAL TURNOVER IN THE PUBLIC EDUCATION SYSTEM

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SITE-BASED MANAGEMENT, JOB AUTONOMY, AND PRINCIPAL TURNOVER IN THE PUBLIC EDUCATION SYSTEM

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SUMMARY

The purpose of this dissertation is to examine whether the implementation of site-based management leads to higher levels of principal autonomy and more collaborative decision-making processes between principals and teachers. It also measures the effects of principals' job autonomy and other principal- and school-related factors on the levels of principal turnover. The data of this dissertation mainly come from the 2011-12 Schools and Staffing Survey (SASS) and the 2012-13 Principal Follow-up Survey (PFS). The controlled principal- and school-related factors include the individual characteristics of the principal, the contextual factors of the school which assess the physical background of the school and the composition of the student and teacher body, and also the working conditions of the principal.

Using Wald-tests, linear regression models and logit regression models, I find that charter school principals perceive that they have higher levels of job autonomy than do traditional public school principals. I also find more collaborative and democratic decision-making processes in charter schools than in traditional public schools. In addition, I find that the levels of principals' job autonomy negatively affect their turnover rates. Charter school principals, however, are more likely than traditional public school principals to leave their jobs even though they enjoy higher levels of job autonomy. The differences in the contextual factors of the school drive the higher levels of turnover probability among charter school principals.

CHAPTER 1

INTRODUCTION

Turnover is an important topic in organizational research, given the organizational costs employee turnover imposes in terms of loss of institutional memory, hiring, training, and lower levels of employee performance (Moynihan and Pandey, 2008). A rich literature has explored the individual, organizational, and environmental factors that induce employees to leave. Managers have also implemented various human resource practices designed to reduce undesirable and avoidable employee turnover (Holtom, Mitchell, Lee and Eberly, 2008; Moynihan and Pandey, 2008). The importance of employee turnover has gained much attention in critical industries (Holtom, Mitchell, Lee and Eberly, 2008). Educational researchers, especially those focusing on public schools, have noticed the turnover behaviors of school employees (Renzulli, Parrott and Beattie, 2011; Stuit and Smith, 2012; Ladd, 2011; Johnson, 2006; Boyd, Grossman, Ing, Lankford, Loeb and Wyckoff, 2011).

School principals play a variety of roles in the daily operations of schools, not the least of which is creating academically supportive environments for both teachers and students (Weinstein, Jacobowitz, Ely, Landon and Schwartz, 2009). As school leaders, principals select, monitor, and support teachers, set school budgets, design curricula, manage discipline, and develop relationships with the broader community (Miller, 2013). They may substantially influence the recruitment, working environments, professional development, job satisfaction, and retention of teachers. For instance, principals have been found to strongly and directly affect the levels of teachers' cohesion and

commitment to the schools (Price, 2012). New teachers' inclination to remain teaching within the same school will decrease when they perceive having a poor relationship with the principal (Pogodzinski, Youngs, Frank and Belman, 2012). School principals also influence student achievement through configuring the goals of the school, determining curricula and instruction, and shaping school culture and climate (Hallinger and Heck, 1998; Baker, Punswick and Belt, 2010). The role of school principals is essential for creating a positive learning environment for students, although their impact on student achievement is mediated by the work of teachers (Leithwood, Harris and Hopkins, 2008; Baker, Punswick and Belt, 2010; Coelli and Green, 2012).

Thus, schools with high levels of principal turnover lack the necessary leadership stability for success (Gates, Ringel, Santibanez, Guarino, Ghosh-Dastidar and Brown, 2006). High levels of principal turnover incur financial costs in that a school district has to spend resources on recruiting, hiring, and training a new principal (Fuller and Young, 2009). High levels of principal turnover may also lead to high levels of teacher turnover, which has negative financial and educational impacts on schools (Fuller, Baker and Young, 2007).

Job autonomy is also an important topic in organizational research. It has been defined, by Hackman and Oldman (1976: 258), as "the degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out". In other words, job autonomy is the discretion an employee has to make decisions on the job (Breaugh, 1985).

The research examining the impacts of work-related factors on employee turnover is very diverse, although the results are quite consistent in admitting the importance of job autonomy. Even the earliest research has found turnover to be related to perceived lack of autonomy or to less autonomy than employees expected (Walker and Guest, 1952; Guest, 1955; Ross and Zander, 1957). A large and increasing number of studies have shown that job autonomy has a negative effect on turnover behavior (Hom and Griffeth, 1995; Iverson, 1999; Liu, Spector and Jex, 2005; Kim and Stoner, 2008; Galletta, Portoghese and Battistelli, 2011). Spector (1986) has found that perceived autonomy is positively associated with job satisfaction, organizational commitment, job involvement, work performance, and internal motivation, and negatively associated with physical symptoms, emotional distress, role stress, absenteeism, and turnover. According to the cognitive evaluation theory and the self-determination theory, job autonomy is one of the important determinants of work motivation. Work motivation will positively influence work satisfaction and negatively influence emotional exhaustion, which will eventually have a negative effect on turnover behavior (Richer, Blanchard and Vallerand, 2002). Liu, Zhang, Wang and Lee (2011) have indicated that high levels of job autonomy will increase the psychological empowerment of employees and ultimately reduce turnover rates. Dude (2012) has argued that increases in job autonomy are associated with increased organizational commitment, which will lead to decreased turnover rates.

1.1 Overview of the Theoretical Framework

Job characteristics theory (Hackman and Oldham, 1976; Hackman and Oldham, 1980) is one of the most influential theoretical frameworks for discussing job design in the public sector (Torraco, 2005). It links job autonomy with employee turnover,

explaining how autonomy and other four core characteristics of a job (skill variety, task identity, task significance, and feedback) influence employees' psychological states and their performance-related behaviors. According to job characteristics theory, jobs in which employees enjoy greater autonomy in carrying out their work will lead to higher levels of job satisfaction, job involvement, and organizational commitment, as well as lower levels of work exhaustion, absenteeism, and turnover (Spector, 1985; Spector, 1986; Fried and Ferris, 1987; Humphrey, Nahrgang and Morgeson, 2007).

Job characteristics theory has gained some empirical evidence in the educational research area. Educational researchers, especially those focusing on public schools, have studied how school-related factors affect the levels of teacher turnover. They have found that teachers who are granted higher levels of job autonomy are more satisfied with their jobs and are more likely to stay in their positions than teachers with less job discretion. Promoting job autonomy may boost teachers' work satisfaction and decrease their turnover rates (Renzulli, Parrott and Beattie, 2011; Shen, Leslie, Spybrook and Ma, 2012; Stuit and Smith, 2012; Ladd, 2011; Boyd, Grossman, Ing, Lankford, Loeb and Wyckoff, 2011; Johnson, 2006).

1.2 Statement of the Problem and Research Questions

The empirical studies of job characteristics theory have not paid much attention to school principals. In contrast to the research on teacher turnover, the research on the mobility of school principals has been surprisingly scarce and unsystematic, with much of it involving individual case studies, small-scale qualitative studies, and small surveys. The research on principal autonomy has also been scarce, compared to the research examining teachers' job autonomy. It is still unclear whether job autonomy also matters

to school principals and whether it is possible to lift principal retention rates by providing them with greater job autonomy.

Given that the limited previous research on principal autonomy and principal turnover provides insufficient information, this dissertation will try to answer these questions through conducting a partial empirical test for job characteristics theory. Instead of covering all the five core job characteristics (skill variety, task identity, task significance, autonomy, and feedback) mentioned by this theory, I will focus on one of them — job autonomy. I will investigate how the implementation of site-based management influences principals' job autonomy and hence influences their turnover rates by examining whether and how charter schools, which generally implement site-based management, differ from traditional public schools (TPSs) in their levels of principal autonomy and principal turnover. A much more thorough implementation of site-based management in charter schools should lead to higher levels of principal autonomy and hence lower principal turnover rates than in TPSs.

In addition to comparing charter schools with TPSs, I will distinguish between regular charter schools that are managed by local community members and those charter schools managed privately by management organizations (MOs), i.e., for-profit education management organizations (EMOs) and nonprofit charter management organizations (CMOs). Charter schools managed by MOs tend to centralize administrative functions into network offices. They are less likely than regular charter schools to implement site-based management (Brown, Henig, Lacireno-Paquet and Holyoke, 2004; Morley, 2006). Thus, I will test, in this dissertation, whether principals working in EMO- and CMO-managed charter schools perceive having lower levels of school-wide job autonomy and

show higher turnover rates than do principals who work in regular charter schools. Principals in MO-managed charter schools are expected to have similar levels of job autonomy and similar turnover rates as their counterparts working in TPSs.

Furthermore, I will test whether the implementation of site-based management affects the distribution of educational authority between principals and teachers. According to the previous research, teachers working in centrally managed schools just receive orders from principals in response to directives from the central offices. There are noticeable levels of power differential between principals and teachers. In contrast, site-based management encourages democratic and collaborative decision-making processes between principals and teachers. Educational authority is considered to be more evenly distributed in site-based managed schools than in other schools (Bredeson, 2000; White, 1992; Smylie, Lazarus and Brownlee-Conyers, 1996). Therefore, I expect that the power differential between principals and teachers is smaller in charter schools than in TPSs.

1.3 Overview of the Methodology

The major data for this dissertation come from the 2011-12 Schools and Staffing Survey (SASS) and the 2012-13 Principal Follow-Up Survey (PFS). These surveys are conducted by the National Center for Education Statistics (NCES) on behalf of the U.S. Department of Education. They are large-scale sample surveys of K–12 school districts, schools, teachers, and principals.

Their sampling frame was built from the 2009-10 Common Core of Data (CCD) school survey. These surveys are based on a stratified probability proportional to size sample, so I will use the final sampling weights and the balanced-repeated replicate (BRR) weights within the study. These weights are provided by the NCES. They adjust

for oversampling and non-response. After using these sampling weights, the descriptive statistics and the estimates of the regression models can represent the population of public school principals rather than simply the sample.

In order to analyze the data and interpret the results, I will use several statistical tools in this study, such as descriptive statistics, summated rating scales, hypothesis testing, multiple linear regressions, multiple logit regressions, and so on.

1.4 Organization of the Study

This dissertation includes seven chapters. Chapter one introduces the research topics and the research questions of this dissertation. Chapter two reviews the theoretical models and frameworks of turnover research, and discusses the theoretical considerations of this dissertation. It also summarizes the findings of the existing studies on principal autonomy and principal turnover. Chapter three introduces the data sources and methods of analysis, and also establishes the hypotheses and models of this dissertation. These models test whether the implementation of site-based management leads to higher levels of principal autonomy and lower levels of the power differential between principals and teachers in charter schools than in TPSs. These models also explore the relationships between principals' job autonomy as well as their other working conditions and their turnover behaviors. Chapter four to chapter six report and explain the results of quantitative analyses. These three chapters answer the research questions that are raised in chapter one and also verify whether the hypotheses of this study are correct. Chapter seven includes the summary of the findings and also the conclusions of this study.

CHAPTER 2

REVIEW OF LITERATURE

2.1 Background

Turnover has been defined as an occurring when "employees in an organization leave and are replaced by other individuals who are employed by the organization" (Rinefort and Van Fleet, 1998: 10). Most of the existing studies on turnover, however, focus on employee exit rather than employee replacement. Turnover costs include both quantifiable ones, such as lost productivity, extra recruitment, and training, and unmeasured ones, such as damaged market reputation and credibility with customers (Winkler and Janger, 1998).

The previous scholars have developed a variety of theoretical frameworks and models for employee turnover (see Maertz and Campion, 1998; Holtom, Mitchell, Lee and Eberly, 2008 for a detailed review of turnover research). The earliest models were established in 1950s. They were mainly focused on employees' attitudes, such as job satisfaction and organizational commitment, or the nature of the job and the employee. Brayfield and Crockett (1955) and Herzberg, Mausner, Peterson and Capwell (1957) found strong positive relationships between employees' job dissatisfaction and their turnover and absenteeism behaviors. The meta-analysis conducted by Porter and Steers (1973) concluded that employees' withdrawal behaviors (i.e., both turnover and absenteeism) were closely related to four categories of organizational factors: organization-wide factors (pay, organizational size, and promotion), immediate work environment factors (supervisory style, work unit size, and peer group interaction), job

content factors (overall reaction to job content, task repetitiveness, job autonomy and responsibility, and role clarity), and personal factors (age, tenure with organization, similarity of job with vocational interest, personality characteristics, and family considerations).

Distinct from the aforementioned turnover content research that focuses on turnover antecedents, turnover process research addresses how employees exit an organization. Mobley (1977) and Mobley, Griffeth, Hand and Meglino (1979) explained how a process including withdrawal cognitions and job-search behaviors linked job dissatisfaction to actual turnover behavior. Based on Mobley's process model, Steers and Mowday (1981) attempted to incorporate all prior piecemeal models into a more comprehensive process model of employee turnover. Hom, Griffeth and Sellaro (1984) proposed an alternative process model that suggests two decision paths rather than one. Once employees intend to quit, they either undertake a job search and compare their available alternatives to their current job or directly resign.

From 1985 to 1995, the main focus of turnover content research experienced a shift from individual-level factors toward organizational-level ones. For instance, organizational culture and pay inequality were found to affect individual turnover (Abelson, 1993; Pfeffer and Davis-Blake, 1992). Turnover research also started to consider employees' relationships with their co-workers, administrators, and the organization. The models investigating these relationships are generally called person-environment fit models (see Edwards, 2008 for a detailed review of person-environment fit models). O'Reilly, Chatman and Caldwell (1991) revealed the importance of value

congruence between employees and the organization. Employees whose individual values do not match the organizational culture are more likely to leave.

Turnover process research was also extended in this period. Hulin (1991) established a new withdrawal process model, which states that turnover is a subset of employees' adaptive behaviors. Job dissatisfaction triggers a sequence of cognitive and behavioral responses that lead to various adaptive behaviors. Employees' adaptive behaviors include not only turnover but also lateness, absenteeism, retirement, attempts to improve job performance, and so on. Lee and Mitchell (1994) also developed a new model regarding the turnover process. The unfolding model of turnover proposes that turnover decisions may be triggered by an external shock through multiple possible paths rather than purely caused by accumulated job dissatisfaction. In other words, employee turnover may sometimes happen without much deliberation.

Turnover research since 1995 mostly focuses on testing, expanding, and improving the existing models. Scholars have conducted a variety of empirical studies on the unfolding model that argues precipitating events or shocks more often are the immediate cause of turnover than job dissatisfaction (Lee, Mitchell, Holtom, McDaniel and Hill, 1999; Holtom, Mitchell, Lee and Inderrieden, 2005; Donnelly and Quinn, 2006), and have also increased the attention paid to organizational context, person-environment fit and interpersonal relationships. Perceptions of organizational justice, including distributive, procedural, and interactional justice, have been found to be important for understanding withdrawal behaviors (Colquitt, Conlon, Wesson, Porter and Ng, 2001; Simons and Roberson, 2003; Tekleab, Takeuchi and Taylor, 2005; Cho and Sai, 2013). Holtom, Lee and Tidd (2002) reported that the congruence between employees'

scheduling preferences and the policies determined by the employer was negatively related to turnover. Arthur, Bell, Doverspike and Villado (2006) finished a meta-analysis on fit variables. The authors found that person-organization fit predicted employee turnover but its impact was partially mediated by job cognitions and job attitudes. Bauer, Erdogan, Liden and Wayne (2006) discussed the role of leader-member exchange in a longitudinal study, saying that harmonious relations between supervisors and employees have a negative effect on employee leaving. Stanley, Vandenberghe, Vandenberg and Bentein (2013) examined the effects of organizational commitment on employee turnover rates. The authors found that employees with high emotional attachment with the organizations displayed lower turnover rates than did other employees.

2.2 Job Autonomy and Its Impact on Turnover

Job characteristics theory is among the most well-known and complete theories and frameworks of turnover content research. It explains how the core characteristics of a job affect employees' work-related behaviors, emphasizing the negative impact of job autonomy on employees' turnover behaviors (Torraco, 2005). It posits that five core characteristics of a job (skill variety, task identity, task significance, autonomy, and feedback) may enhance the positive psychological states of employees, such as feeling the work is meaningful, which, in turn, lead to favorable work-related outcomes: high work productivity and low absenteeism and turnover rates (Hackman and Oldham, 1976, 1980).

A series of empirical studies have tested the hypothesized linkages between job characteristics and employees' work-related performances. Hackman and Oldham (1976) showed that all five characteristics were correlated with employees' internal motivation

(employees feel a great sense of personal satisfaction when doing the job well and feel unhappy when performing poorly on the job) and job satisfaction, but only skill variety and autonomy were correlated with absenteeism and turnover. Autonomy is the only one that had significant positive correlations with employee's internal motivation, job satisfaction, and related work effectiveness, and had significant negative correlations with employee's absenteeism and turnover. A meta-analysis conducted by Spector (1985) examined the relationships between the five job characteristics and some dimensions of employee response (pay satisfaction, promotion satisfaction, supervision satisfaction, work satisfaction, co-worker satisfaction, growth satisfaction, general satisfaction, internal motivation, job involvement, absenteeism, and work performance). The authors found that each of the five job characteristics was significantly correlated with some but not all of the employee behaviors. The meta-analysis conducted by Fried and Ferris (1987) found that all five job characteristics were moderately to strongly correlated with overall job satisfaction, growth satisfaction, internal work motivation, work performance, and absenteeism. The authors argued that the five job characteristics had moderate and meaningful effects on employee turnover but did not directly analyze these effects. They also suggested that developing job autonomy might reduce employee absenteeism and improve employee's attitudinal or psychological outcomes. A third meta-analysis (Humphrey, Nahrgang and Morgeson, 2007) demonstrated that job characteristics had large impacts on worker attitudes and behaviors (internal work motivation, job satisfaction, organizational commitment, job involvement, work performance, absenteeism, and turnover). The authors also concluded that autonomy and social support were the two best predictors of employee job satisfaction and work performance. In

general, these empirical studies have suggested that job autonomy has the most consistent and significant negative effect on employee turnover among the five core characteristics. Breaugh and Becker (1987) asserted that job autonomy might be the most important characteristic of a job.

2.3 Site-based Management and Principal Autonomy

Principal autonomy refers to "the ability of individual school principal to affect internal and external issues" (Gawlik, 2008: 786). It has also been conceptualized as the right of principals to act or move freely. Principal autonomy tells who has the main responsibility for any specific issues in schools (Verschelde, Hindriks, Rayp and Schoors, 2012). Teachers and principals who perceive having higher levels of job autonomy tend to have higher organizational commitment, work motivation, and job satisfaction, as well as lower turnover rates (Humphrey, Nahrgang and Morgeson, 2007; Dysvik and Kuvaas, 2010; Galletta, Portoghese and Battistelli, 2011; Roch and Sai, 2015; Roch and Sai, 2016). On the other hand, principals who perceive having lower levels of job autonomy are more likely to leave their managerial positions (Wilson, 1994).

Principals' perceived levels of job autonomy influence their ability to establish satisfying working conditions for teachers and staff. Principals who perceive having higher levels of job autonomy may also grant teachers higher levels of job autonomy and hence enhance teachers' job satisfaction (Skinner, 2008). In contrast, lack of job autonomy is one of the main reasons that principals leave their positions (Whitaker, 1995). Lack of autonomy obstructs principals' ability to reward outstanding teachers and fire ineffective ones (Public Agenda, 2001). Nachmias and Rosenbloom (1977) found significant and inverse relationships between principals' perceived power, which is

defined as “the capacity to achieve desired objectives or results” (Astley and Sachdeva, 1984: 104), and their propensity to leave.

The levels of job autonomy delegated to school principals vary widely (Verschelde, Hindriks, Rayp and Schoors, 2012). They are closely associated with the manner in which schooling has been organized. Principals in rural and smaller schools have greater job autonomy, while principals working in schools with more poor and racial or ethnic minority students have less autonomy. The individual characteristics of principals such as race, gender, and work experience also affect the amount of autonomy a principal may enjoy. White, male, and more experienced principals are always granted higher levels of job autonomy (Gawlik, 2008).

2.3.1 Site-based Management

In addition to the individual characteristics of principals and the attributes of schools, the degree of principal autonomy is highly determined by whether a school implements site-based management. Site-based management has been defined as “a form of decentralization that identifies the individual school as the primary unit of improvement and relies on the redistribution of decision-making authority as the primary means through which improvements might be stimulated and sustained” (Malen, Ogawa and Kranz, 1990: 290). Unlike the previous decentralization reforms that transferred authority from large, central boards to smaller, local boards, site-based management shifts power to individual school sites (White, 1989). School-level control over budgeting, personnel, and educational issues (e.g., curriculum) leads to “increased staff commitment and satisfaction, a strong professional culture, and more effective resource allocation” (Finnigan, 2007: 514; Wohlstetter and Chau, 2004).

Site-based management sprouted in the public education system of the United States during the late 1980s. The public education system then was criticized for being highly centralized, which resulted in inertia, inefficiency, cynicism, and long delays for deciding small issues. Site-based management was developed partly as an antidote to bureaucracy and partly to encourage efficient use of resources at the school level (Cotton, 1992; Whitaker, 2003). Its theoretical foundation is the belief that principals and teachers work harder when they have discretion in their daily work and that schools are better able to respond to family and student needs when they are freed from bureaucratic constraints (Cotton, 1992; Brown, Henig, Lacireno-Paquet and Holyoke, 2004; Brown, 1992).

Site-based management has changed the roles of all educational stakeholders, especially principals (Cotton, 1992; Rhinehart, Short, Short and Eckley, 1998). Site-based management grants principals increased power of making decisions on school-related issues such as budgeting, personnel, and curriculum (Whitaker, 2003; Ford, 1992; Wohlstetter and Mohrman, 1993). Many principals have asserted their enthusiasm for site-based management and power decentralization (Brown, 1992). On the other hand, the implementation of site-based management has also created uncertainty for school principals (Hoque, Alam, Ariff, Mishra and Rabby, 2011; Whitaker, 2003). The changes in the roles of a principal cause an increase in overall workloads and the feeling of emotional exhaustion which prompts them to leave their positions (Whitaker, 2003; Whitaker, 1995). Principals have to spend more time on formal and informal meetings with parents and the community, and also face pressure to be more accountable for student achievement (Valdivia, 2012; Whitaker, 2003). Sometime, making collaborative

decisions with teachers, staff, parents, and community members have left some principals feeling like they have less authority and decreased autonomy (Whitaker, 1995).

During the late 1980s, around one-third of all school districts initiated some version of site-based management (Ogawa and White, 1994). However, the effect of implementing site-based management was not obvious among public schools, because state and local rules inhibit flexible operation and management (Morley, 2006). Most of the school-related decisions were still made by the state board of education and the local school board. In 1991, only 5% of all school-related decisions were autonomously made by schools without consultation with other levels of governance (National Center for Education Statistics, 1994). Under this situation, some states started to authorize charter schools. Charter schools played an essential role in the decentralization reform that aimed to provide additional autonomy to individual schools (Bulkley and Wohlstetter, 2004).

2.3.2 Charter Schools

Charter schools, by definition, are "public schools of choice that operate with more autonomy (and fewer regulations) under a charter or contract issued by a public entity, such as a local school board, a public university, or a state board of education" (Bulkley and Wohlstetter, 2004: 1). The number of charter schools has rapidly grown in the past two decades. In 2014, over 6,400 charter schools had been established (National Alliance for Public Charter schools, 2015). Charter schools have greater discretion and more decision-making responsibility in their operations than do TPSs (Bulkley and Wohlstetter, 2004). They are largely free from many constraints imposed by states and districts, allowing them to shape working and learning conditions that differ from those in TPSs.

The physical background and the composition of the teacher and student body in charter schools also differ from those in TPSs. Charter schools are generally smaller than TPSs and are more likely to be elementary schools (Ni, 2012; Renzulli, Parrott and Beattie, 2011). They are also more likely to be located in urban areas and on average remain slightly segregated, enrolling more low-income and racial or ethnic minority students than TPSs (National Center for Education Statistics, 2012; Miron, Urschel, Mathis and Tornquist, 2010; Lacireno-Paquet, Holyoke, Moser and Henig, 2002; Rapp and Eckes, 2007).

Not all charter schools are operated by the members of the local community. Some states provide the qualifications of establishing and running charter schools to private management organizations (MOs). MOs are hired to operate charter schools and are also delegated a significant portion of decision-making authority (Vergari, 2007). MOs include both for-profit organizations (educational management organizations or EMOs) and nonprofit organizations (charter management organizations or CMOs). The number of charter schools managed by EMOs and CMOs largely increased over the past decade. As of 2012, there had been 840 EMO-managed charter schools and 1,206 CMO-managed charter schools, which at that time took up 36% of all charter schools (Miron and Gulosino, 2013). MOs often pursue scale-based or even efficiency-oriented management strategies by simultaneously running multiple charter schools. Small-scale MOs manage 3 or fewer schools, but they only take up less than 20% of all MOs. Large-scale MOs manage 10 or more schools (Molnar, Miron and Urschel, 2008; Miron and Urschel, 2008). The increasing use of contracts with MOs that take responsibility for a

wide range of school-related activities has been viewed as one of the most controversial aspects of the development of charter schools (Bulkley, 2004).

EMOs have private motives in their daily operations. They need to create profits for their owners, and external constraints imposed by outside investors also substantially affect the behavior of actors working in these organizations (Cooman, Gieter, Pepermans and Jegers, 2011). The actors working in CMOs, in contrast, are more closely tied to the mission and the service goals of their organizations. They are often focused on promoting the betterment of a needy population (Henig, Holyoke, Brown and Lacireno-Paquet, 2005). Some CMOs receive grants from foundations, lessening the efficiency-seeking pressure within these organizations (Scott and DiMartino, 2010). Regular charter schools do not work under the umbrella of an MO, thus they do not have the same incentive to seek out scale-based efficiencies as EMO- or CMO-managed charter schools do. Many of regular charter schools operate in a stand-alone format, while a few work within the context of their local school districts. These schools have more localized missions and largely pursue the interests of a geographically defined group of citizens who share certain interests and values relating ethnicity, housing tenure, and socioeconomic class (Henig, Holyoke, Brown and Lacireno-Paquet, 2005).

MO-managed charter schools look somewhat different from regular charter schools. EMO-managed charter schools are often larger and more likely to be elementary schools, whereas CMO-managed charter schools are smaller but more likely to be at higher grades (Miron, Urschel, Aguilar and Dailey, 2012). Compared to regular charter schools, EMO-managed charter schools enroll fewer low-income, disabled, and limited English proficiency (LEP) students (Lacireno-Paquet, 2006; Wamba and Ascher, 2003;

Ertas and Roch, 2014), while CMO-managed charter schools accept more low-income and minority students than do their local district schools and charter schools nationally (Lake, Bowen, Demeritt, McCullough, Haimson and Gill, 2012).

2.3.3 Principals Working in Charter Schools

The information on the demographic and professional statuses of charter school principals is very limited. The key differences separating charter school principals from TPS principals are their average age and administrative experiences. Charter school principals are generally younger and are slightly more likely to be racial or ethnic minority and female than TPS principals. They also have less administrative experiences than do TPS principals (Campbell and Gross, 2008; Bini, 2011). Bini (2011) has also found that the proportions of principals who hold at least a master's degree are quite close between these two groups. Among the principals who responded to the survey, around 98% of charter school principals hold at least a master's degree, and around 96% of TPS principals hold at least a master's degree.

Charter school principals also have different working conditions than those of TPS principals. Charter school principals are on average paid less. Their mean salary equals to only 81% of the mean salary for a TPS principal (Bodine, Fuller, González, Huerta, Naughton, Park and The, 2008; Fuller, Gawlik, Kuboyama-Gonzales and Park, 2004). They also face heavier workloads and higher work-related stress (Whitaker, 2003). On the other hand, charter schools have more democratic and autonomous working environments than do TPSs, attracting teachers and principals to work there. Teachers and principals working in charter schools have been found to enjoy higher levels of job autonomy in their interactions with external actors and in the decision-making processes

within the schools (Malloy and Wohlstetter, 2003; Ni, 2012; Gawlik, 2007). The levels of parental involvement are also higher in charter schools than in TPSs in various activities, ranging from open houses to budget decisions (Bulkley and Fisler, 2003; Bifulco and Ladd, 2006). These higher levels of involvement may be achieved through using parent contracts, which have emerged as a common approach for charter schools to encourage parental involvement (Corwin and Becker, 1995; Smith, Wohlstetter, Kuzin and De Pedro, 2011), or through the creaming of more involved parents from TPSs (Bifulco and Ladd, 2006).

2.3.4 Principal Autonomy in Charter Schools

There is a debate in educational policy research over the question of whether the benefits of site-based management can be achieved within the TPS systems or only through the introduction of more market-oriented alternatives, such as charter schools (Brown, Henig, Lacireno-Paquet and Holyoke, 2004). Traditional public schools face constraints imposed by governance structures on upper levels and rarely make independent decisions, while charter schools are actually site-based managed and less bureaucratically bound (David, 1995; Brown, Henig, Lacireno-Paquet and Holyoke, 2004). Wohlstetter and Chau (2004) have stated that charter schools even have more school-level autonomy than do TPSs that have implemented site-based management.

Nathan (1996) has indicated that at the core of the charter school concept is site-based management whereby key school-related decisions are determined at the school level. Wohlstetter, Smith and Farrell (2013) have also stated that autonomy from rules and regulations is central to the charter school concept. They pointed out that fourteen charter laws across the United States cite increased school-level autonomy as a key driver

behind the legislation. Charter school principals have reported keeping control over scheduling, hiring of teaching staff, budgeting, and purchasing of supplies and equipment (Triant, 2001; RPP International, 2001; SRI International, 2002). They have also reported sharing educational authority with their chartering agencies in areas such as instruction and curriculum, student assessment policies, and student discipline policies (SRI International, 2002). According to the research by Triant (2001), the lack of job autonomy in TPSs is an important reason for principals to move to charter schools. Charter school principals are granted the freedom to create schools that would not be possible if the charter law did not exist. The sense of freedom is viewed as one of the greatest parts of taking the principal positions in charter schools.

Much of the previous work examining the levels of principal autonomy in charter schools, however, has been based on theoretical analysis and case studies, with a few quantitative studies that compare the levels of principal autonomy in charter schools with those in TPSs. In a survey of the school principals in California, Zimmer and Buddin (2007) found that charter school principals had greater control over decision-making processes than did their counterparts in TPSs. Gawlik (2008) conducted a comparative study using the 1999-2000 SASS data. The results show that charter school principals enjoy greater degrees of job autonomy in making decisions related to school standards, curriculum, professional development programs, teacher recruitment, school budgets, and discipline policy than do TPS principals. In this study, the author ignored the effect of school managers on the working conditions within charter schools, treating all charter schools as a homogeneous group. Adamowski, Therriault and Cavanna (2007) found that charter school principals felt they had greater autonomy with regard to key

school functions such as hiring teachers and designing curriculum than did principals working in district-operated public schools. The sample of this study included 30 TPS principals and 3 charter school principals; thus, the conclusions of this study may not be as convincing as those based on large samples.

Prior research has suggested that considerable variations exist in the levels of autonomy charter schools experience, depending on those schools' relationships with their authorizers and their partnerships with MOs (Wohlstetter, Smith and Farrell, 2013). Differing MOs and their distinct educational philosophies lead charter schools to behave differently within their own working environments (Brown, Henig, Lacireno-Paquet and Holyoke, 2004). In general, charter schools managed by MOs have less school-level autonomy than do regular charter schools (Wohlstetter and Chau, 2004). From the organizational perspective, management organizations have to deal with the tensions between their needs for efficiency, control and some level of "brand-name" consistency, and the wishes of the school communities (Bulkley, 2004). The pursuit of efficiency gains induces MOs, which simultaneously take care of multiple charter schools, to centralize managerial functions into network offices. Network offices can centralize data collection, reporting, and accounting. Through centralizing the educational authority of decision-making to network offices, MOs eliminate the need for each principal to invest time in becoming fully informed and weighing the options for each decision facing the school (Morley, 2006). Because MOs pursue more centralized approaches to management, they limit the autonomy of school-level actors in recruiting, training, and firing employees. They may require that all of their schools use the same curriculum and instructional approach (Bulkley, 2005; Scott and DiMartino, 2010; Horn and Miron, 2000). The

existence of MOs has important implications for school-level autonomy in that charter schools sacrifice some of their site-based control for the potential financial, technical, and educational benefits of corporate support (Bulkley, 2004).

Some researchers have examined the levels of principal autonomy in MO-managed charter schools. Brown, Henig, Lacireno-Paquet and Holyoke (2004) compared EMO-managed charter schools with other types of charter schools without distinguishing between CMO-managed and regular charter schools. They found that EMO-managed charter schools exhibited significantly less control over school-level decision-making processes in the areas of curriculum, testing and standards, student discipline, facilities, and general administration, compared to more community- or mission-oriented charter schools. Gawlik (2007) has indicated that the levels of professional autonomy for teachers and principals working in CMO-managed charter schools are quite limited because most of the materials and methodologies are prescribed. However, there has been limited evidence that MOs have a negative effect on the levels of principal autonomy within charter schools.

2.4 Turnover Rates of Public School Principals

Grusky (1960) is one of the first to recognize that leadership turnover can aggravate instability in an organization. He has pointed out that turnover is disruptive to organizations because it disturbs the traditional norms of an organization and promotes changes in the formal and informal relationships among members of the system. In addition, more costs will be incurred when the top management person leaves. Replacing a top manager disrupts communication, decision-making, and power processes. For most members of an organization, leader turnover leads to feelings of apprehension,

abandonment, loss or even fear, and it also sends a signal of turbulence to outside stakeholders (Hargreaves, Moore, Fink, Brayman and White, 2003; Harrison, Torres and Kukalis, 1988). In general, the departure of the leader of an organization has a negative effect on organizational effectiveness (Miskel and Cosgrove, 1985).

Principal turnover refers to "the change from one principal to another principal" (Partlow, 2007: 60). In the educational sector, principal stability is a crucial component of a healthy school. It ensures that the school can effectively provide a supportive environment for improving student learning (Weinstein, Jacobowitz, Ely, Landon and Schwartz, 2009; Useem, Christman, Gold and Simon, 1996). High rates of principal attrition may lead to high rates of teacher turnover and a dip in school performance (Miller, 2009; Akiba and Reichardt, 2004). Thus, policy initiatives aimed at increasing school effectiveness must consider ways by which schools can attract and retain highly qualified principals (Papa Jr., 2007).

Principal turnover is viewed as a serious problem for charter schools (Henig, Holyoke, Lacireno-Paquet and Moser, 2001); but no current research has quantitatively assessed the turnover rates among charter school principals. Some past research has evaluated the turnover rates among principals in all public schools without making a comparison between charter schools and TPSs. According to the limited evidence, the turnover rates among public school principals are high (Branch, Hanushek and Rivkin, 2009; Weinstein, Jacobowitz, Ely, Landon and Schwartz, 2009). In the range of 14-30% of public school principals leave their jobs from one year to the next (Battle and Gruber, 2010; DeAngelis and White, 2011; Cullen and Mazzeo, 2007; Ringel, Gates, Chung, Brown and Ghosh-Dastidar, 2004; Gates, Guarino, Santibanez, Brown, Ghosh-Dastidar

and Chung, 2004; Fuller, Young and Orr, 2007; Beteille, Kalogrides and Loeb, 2011). Only 20-40% of the newly hired principals will stay in their positions after six years (Gates, Ringel, Santibanez, Guarino, Ghosh-Dastidar and Brown, 2006). Using the data from Missouri schools, Baker, Punswick and Belt (2010) found that approximately half of principals left their positions within 5 years.

2.5 Factors Associated with Principal Turnover

As I have reviewed at the beginning of this chapter, the turnover behavior of an employee has been found to be closely related to four categories of factors: personal characteristics (e.g., age and gender), organizational factors (e.g., organizational size), immediate work environment (e.g., supervisory style and peer group interaction), and job content (e.g., job autonomy) (Porter and Steers, 1973; Holtom, Mitchell, Lee and Eberly, 2008). In this dissertation, I follow Ma, Ma and Bradley (2008) and Shen, Leslie, Spybrook and Ma (2012), dividing all the factors under control into three categories: the individual characteristics of principals, the contextual factors of schools which measure the physical background of schools and the composition of the student and teacher body, and the evaluative assessments of the working conditions of principals.

The previous sections of this chapter have discussed principal autonomy in details. Job autonomy is viewed as one of the most influential job characteristics to employee behaviors. It negatively affects the turnover rates of employees (Hackman and Oldham, 1976; Fried and Ferris, 1987; Wilson, 1994; Humphrey, Nahrgang and Morgeson, 2007; Dysvik and Kuvaas, 2010; Galletta, Portoghese and Battistelli, 2011). In addition to the levels of job autonomy, the turnover rates of principals are also correlated

with the individual characteristics of principals, the contextual factors of schools, and other working conditions of principals.

The findings on how the individual characteristics of principals affect their turnover rates appear to be mixed. Although there has been some different evidence (DeAngelis and White, 2011; Fuller, Young and Orr, 2007), a majority of the research has indicated that principals who are female and racial or ethnic minority are more likely to change their positions or to leave the system than principals who are male and non-minority (Gates, Ringel, Santibanez, Guarino, Ghosh-Dastidar and Brown, 2006; Akiba and Reichardt, 2004; Papa Jr., 2007, Baker, Punswick and Belt, 2010). Akiba and Reichardt (2004) conjectured that the higher attrition rates of female principals might be associated with the likelihood of young female principals leaving their positions to raise families and with their earlier retirement.

The effect of age on the turnover rates of principals is still unclear. There has been no clear evidence about whether older principals are more mobile than young principals (Gates, Ringel, Santibanez, Guarino, Ghosh-Dastidar and Brown, 2006; DeAngelis and White, 2011; Papa Jr., 2007; Fuller, Young and Orr, 2007). Principals who have a master's degree have been found to be less likely to change schools or positions (Gates, Ringel, Santibanez, Guarino, Ghosh-Dastidar and Brown, 2006; Akiba and Reichardt, 2004), while principals holding a doctoral degree have shown a greater propensity to leave than other principals (DeAngelis and White, 2011). Experience is also a predictor for principal departures. Most of the research states that more experienced principals are more likely to stay in one place and are less likely to move (Gates, Ringel, Santibanez, Guarino, Ghosh-Dastidar and Brown, 2006; Papa Jr., 2007; Baker, Punswick,

and Belt, 2010), but there has also been the evidence of an inverse relationship (DeAngelis and White, 2011).

The contextual factors of schools also play a pivotal role in predicting the turnover rates of principals. Schools with higher proportions of low-income, racial or ethnic minority, and low-achieving students tend to have higher turnover rates for principals (Clotfelter, Ladd, Vigdor and Wheeler, 2007; Branch, Hanushek and Rivkin, 2009; Loeb, Kalogrides and Horng, 2010; Miller, 2013; Fuller and Young, 2008; Fuller and Young, 2009; Cullen and Mazzeo, 2007; Gates, Ringel, Santibanez, Guarino, Ghosh-Dastidar and Brown, 2006; Baker, Punswick and Belt, 2010; DeAngelis and White, 2011; Clark, Martorell and Rockoff, 2009; Burkhauser, Gates, Hamilton and Ikemoto, 2012; Ringel, Gates, Chung, Brown and Ghosh-Dastidar, 2004; Gates, Guarino, Santibanez, Brown, Ghosh-Dastidar and Chung, 2004; Papa Jr., 2007). On the other hand, Akiba and Reichardt (2004) found some different evidence that the poverty levels and the proportions of minority students were independent from the turnover rates of school principals. Fuller, Young and Orr (2007) also found that there were few differences in the retention rates among principals working in schools with different proportions of minority and low-income students.

Partlow (2007) argued that building enrollment, student attendance, student mobility, pupil-teacher ratio, and teacher attendance had no effect on the turnover rates of principals. Although some scholars believe that larger schools have a greater degree of principal stability on average (Gates, Ringel, Santibanez, Guarino, Ghosh-Dastidar and Brown, 2006; Ringel, Gates, Chung, Brown and Ghosh-Dastidar, 2004), more scholars have found that schools with fewer students have lower levels of principal turnover

(Akiba and Reichardt, 2004; Papa, 2004; Papa Jr., 2007; Baker, Punswick and Belt, 2010). Besides varying across school sizes, the turnover rates of principals also vary across school levels, with elementary schools having the lowest rates and high schools having the highest ones (Fuller and Young, 2009; Cullen and Mazzeo, 2007; Gates, Guarino, Santibanez, Brown, Ghosh-Dastidar and Chung, 2004; Fuller, Young, and Orr, 2007; DeAngelis and White, 2011). In addition, schools being located in rural and small town districts and schools being located in urban areas both have higher principal turnover rates than do schools being located in suburban districts (Gates, Ringel, Santibanez, Guarino, Ghosh-Dastidar and Brown, 2006; Fuller and Young, 2009; Akiba and Reichardt, 2004; Baker, Punswick and Belt, 2010; DeAngelis and White, 2011).

The past research on principal turnover sometimes refers to the driving factors of teacher turnover. Aspects of working conditions that lead to high levels of teacher turnover (e.g., lack of student motivation, student discipline problems, lack of parental support, lack of influence over decision-making, and in particular low salaries) may also affect the turnover decisions of principals (Gates, Ringel, Santibanez, Guarino, Ghosh-Dastidar and Brown, 2006; Clotfelter, Ladd, Vigdor and Wheeler, 2007; Liu and Ramsey, 2008; Ingersoll, 2002; Ingersoll and Smith, 2003; Sheppard, 2010). Hertling (2001) maintains that lack of support from parents and the community along with negative comments from students and media contribute to high levels of principal turnover. Excessive workloads and other pressure also lead to high levels of principal turnover (Brooking, Collins, Court and O'Neill, 2003; Sheppard, 2010; Hertling, 2001).

Sheppard (2010) found that salary, compensation, and other benefits provided by the schools were significant factors in predicting the odds of principal turnover.

Principals are more likely to move to schools offering higher salaries (Papa Jr., 2007; Baker, Punswick and Belt, 2010). They are inclined to move when there is an expected increase in their compensation for transferring to another education-related position (Akiba and Reichardt, 2004). Baker, Punswick and Belt (2010) found that salary was the most consistent policy lever for affecting principal retention. Principals receiving higher salaries appear to be more likely to stay longer. Principals moving to other schools are able to increase their salaries, on average, by 5%. Papa Jr. (2007) indicated that the likelihood of principal retention would increase by 8.1% as a result of a $1,000 increase in salary.

Higher salaries sometimes may even offset the disadvantages of other working conditions. For instance, larger schools tend to have more problems, but the principals in larger schools are also paid more. The salary differentials are sometimes large enough to retain principals (Gates, Ringel, Santibanez, Ross and Chung, 2003). Higher salaries may also compensate for the disadvantages of schools with higher proportions of racial or ethnic minority students, LEP students, and less-qualified teachers (Papa Jr., 2007). In contrast, Papa Jr., Lankford and Wyckoff (2002) found that although principals working in the New York City and other urban areas typically received higher salaries than did principals working in suburban areas, they were still much more likely to leave the New York state public school system.

March and Simon (1958) have proposed that alternative employment opportunities play a critical role in affecting the turnover decisions of employees. Some research has found that the availability of alternative jobs can explain turnover variance (Griffeth, Hom and Gaertner, 2000). The school-related research, however, has paid little

attention to the labor market. Akiba and Reichardt (2004) and Papa Jr. (2007) examined how the density of schools and the amount of school leader positions in the local area influenced principal turnover, finding that neither of them had a significant effect on the turnover rates of principals.

To summarize, being female, being minority, and having a doctoral degree tend to increase the likelihood that principals leave their positions, while having a master's degree may decrease this likelihood. The effects of age and administrative experiences on the turnover rates of principals are still unclear.

Principals working in larger schools and suburban schools are more likely to leave their positions than principals working in smaller schools and rural schools, while principals working in elementary schools and combined schools are both less likely to leave than principals working in secondary schools. Principals are also less likely to work in schools with higher proportions of low-income and minority students.

Among the working conditions, job autonomy negatively affects the turnover rates of principals. Besides, student motivation, parental support, and positive comments from students and colleagues also negatively affect the turnover rates of principals. On the other hand, student discipline problems, low salaries, and heavy workloads will lead to higher turnover rates for principals.

CHAPTER 3

DATA AND METHODOLOGY

Building on the theoretical framework and the literature reviewed in chapter 2, this chapter introduces the methodology of this dissertation in details. It begins with an introduction of the hypotheses that correspond to each research question. This section is followed by an overview of the dataset, including the 2011-12 Schools and Staffing Survey (SASS) and the 2012-13 Principal Follow-up Survey (PFS). Then I will introduce the measures, the models, and the statistical tools used to test the hypotheses.

3.1 Hypothesis

The hypotheses of this dissertation are built on the past research on principal autonomy and principal turnover and on the work that has studied the individual characteristics of school principals and the contextual factors and working conditions of charter schools and TPSs. The main purpose of this dissertation is to examine whether the principals in multiple types of charter schools enjoy higher levels of job autonomy when making decisions concerning school-related issues and therefore have lower turnover rates than do TPS principals. In this study, I first consider the current levels of job autonomy that are granted to principals working in different types of charter schools and to TPS principals based on principals' perceptions of their school-wide influence. I also consider the levels of the power differential between principals and teachers in charter schools and in TPSs, seeing whether the distributions of power between principals and teachers are different in charter schools and in TPSs. Next, I consider the relationships between job autonomy, working conditions, and principal turnover, while continuing to

investigate the differences between each type of charter schools and TPSs. I examine whether differences in the turnover rates of principals between charter schools and TPSs, if there are any, are driven by the differences in the levels of principal autonomy and other working conditions of principals.

3.1.1 Principal Autonomy

As I have discussed in chapter 2, charter schools are site-based managed, which ensures that the school-wide issues of charter schools are mostly decided at the school-level. Traditional public schools, by contrast, face state- and federal-level constraints imposed by governance structures and make few independent decisions. Therefore, charter school principals should enjoy higher levels of job autonomy than do their counterparts working in TPSs.

***H1a*:** Charter school principals perceive that they have higher levels of job autonomy than do TPS principals.

EMO- and CMO-managed charter schools are more likely than regular charter schools to centralize administrative functions and reduce school-level autonomy. Thus, principals in these schools will likely have lower levels of job autonomy than do principals in regular charter schools.

***H1b*:** Principals in EMO- and CMO-managed charter schools perceive that they have lower levels of job autonomy than do principals in regular charter schools.

I also examine the differences between MO-managed charter schools and TPSs. The previous research on MOs, however, has not directly compared MO-managed charter schools with TPSs, providing me with no solid evidence that the working conditions within EMO- and CMO-managed charter schools differ from those in TPSs. For this

reason, I develop a more tentative hypothesis for MO-managed charter schools. Considering that principals in MO-managed charter schools and TPS principals are both expected to have lower levels of job autonomy than do principals in regular charter schools, I establish a hypothesis assuming that the levels of principal autonomy are similar in MO-managed charter schools and in TPSs.

***H1c*:** Principals in EMO- and CMO-managed charter schools perceive that they have similar levels of job autonomy as TPS principals.

3.1.2 The Principal-teacher Power Differential

School principals have more power than do teachers (Bredeson, 2000). White (1992), however, has argued that educational authority is more evenly distributed in decentralized schools. In schools that implement site-based management, teachers are granted increased job autonomy and are more involved in making decisions on school-related issues than teachers working in centrally managed schools, who just receive orders from principals in response to the directives from the central offices (Ford, 1992; Wohlstetter and Mohrman, 1993; White, 1992). Smylie, Lazarus and Brownlee-Conyers (1996) have also argued that site-based management encourages more collaborative decision-making processes between principals and teachers. On the other hand, the previous research on school principals has provided little evidence on how the individual characteristics of principals and the contextual factors of schools affect the levels of the principal-teacher power differential. Therefore, I expect to see that the levels of the power differential between principals and teachers should be lower in charter schools than in TPSs.

Given that EMO- and CMO-managed charter schools are more likely than regular charter schools to centralize administrative functions and are less likely to implement site-based management, the levels of the power differential between principals and teachers should be higher in EMO- and CMO-managed charter schools than in regular charter schools. Again, I establish a hypothesis assuming that the levels of the principal-teacher power differential are similar in MO-managed charter schools and in TPSs since both MO-managed charter schools and TPSs are expected to have higher levels of the principal-teacher power differential than do regular charter schools.

***H2a*:** The levels of the power differential between principals and teachers are lower in charter schools than in TPSs.

H2b: The levels of the power differential between principals and teachers are higher in EMO- and CMO-managed charter schools than in regular charter schools.

H2c: The levels of the power differential between principals and teachers are similar in EMO- and CMO-managed charter schools and in TPSs.

3.1.3 Principal Turnover

The main focus of this quantitative study is to conduct an empirical test for job characteristics theory, investigating how job autonomy and other school-related factors affect the levels of principal turnover. I use a multi-step model to better capture the effects of the individual, organizational, and environmental factors on principal turnover. The first step is to make a comparison between charter schools and traditional public schools by only controlling for the variable for charter schools. In the next steps, I add the individual characteristics of principals, the contextual factors of schools, and the working

conditions of principals to the model one group by one group. The fourth step is the full model for principal turnover, which controls for all the school-related factors.

As I have mentioned in chapter 2, the information on the individual characteristics of charter school principals is very limited. The only known differences between charter school principals and TPS principals are their ages and administrative experiences. The impacts of these two factors on the turnover rates of principals, however, are still controversial. Therefore, comparing the individual characteristics of charter school principals with those of TPS principals does not tell whether charter school principals are more likely than TPS principals to leave their jobs.

The total effect of the contextual factors of schools on the turnover rates of charter school principals appears to be mixed. Charter school principals may be less likely to leave their positions because a higher percentage of charter schools, compared to TPSs, are elementary schools, while the makeup of the student body may lead to higher turnover rates of principals in charter schools than in TPSs.

When looking at the working conditions of principals, the lower levels of income and union membership coverage and the higher workloads predict higher turnover rates for charter school principals than for TPS principals. Students in charter schools have been found to make smaller achievement gains than do TPS students, which should also lead to higher turnover rates for charter school principals. The positive effects of these factors on the turnover rates of principals, however, may be counteracted by the effect of the job autonomy of principals. According to prior research, the levels of the job autonomy of principals are significantly and inversely related to their turnover rates. Principals who perceive having higher levels of job autonomy may feel more satisfied

with their working conditions and are more likely to stay in their current positions. In addition, the higher levels of parental involvement and the more collaborative principal-teacher relationships in charter schools may also have a negative effect on the turnover rates of principals. The effects of the classroom control and the school-wide influence of teachers on the turnover rates of principals are still unclear. In general, the total effect of the working conditions of principals should lead to lower turnover rates among charter school principals than among TPS principals.

Given that neither the individual characteristics of principals nor the contextual factors of schools can help distinguish the turnover rates of charter school principals from those of TPS principals, and given that the working conditions of principals have a negative total effect on the turnover rates of charter school principals, I expect that principals in charter schools have lower turnover rates than do principals in TPSs.

H3a: Principals in charter schools have lower turnover rates than do TPS principals.

There has been no evidence indicating how the individual characteristics and the working conditions of principals in MO-managed charter schools differ from those in regular charter schools. The effects of the contextual factors of schools appear to be mixed. Compared to regular charter schools, EMO-managed charter schools are often larger but more likely to be elementary schools, while CMO-managed charter schools are often smaller but more likely to be at higher grades. The main difference between MO-managed charter schools and regular charter schools is reflected in the levels of principal autonomy. Charter schools managed by MOs tend to centralize administrative functions into network offices and are less likely than regular charter schools to implement site-based management. Therefore, both EMO- and CMO-managed charter schools are

expected to have lower levels of principal autonomy than do regular charter schools, which may lead to higher turnover rates of principals in EMO- and CMO-managed charter schools than in regular charter schools.

***H3b*:** Principals in EMO- and CMO-managed charter schools have higher turnover rates than do principals in regular charter schools.

Considering that both MO-managed charter schools and TPSs are expected to have higher turnover rates of principals than do regular charter schools, I expect to see similar turnover rates of principals in MO-managed charter schools and in TPSs.

***H3c*:** Principals in EMO- and CMO-managed charter schools have similar turnover rates as TPS principals.

After testing these hypotheses, I extend my analysis to control for the variables which describe the individual characteristics of principals. The total effect of the individual characteristics of principals on their turnover rates is still unclear, thus controlling for the individual characteristics of principals may not change the relationships described in hypotheses H3a-c.

***H4a*:** After controlling for their individual characteristics, charter school principals have lower turnover rates than do TPS principals.

***H4b*:** After controlling for their individual characteristics, principals in EMO- and CMO-managed charter schools have higher turnover rates than do principals in regular charter schools.

***H4c*:** After controlling for their individual characteristics, principals in EMO- and CMO-managed charter schools have similar turnover rates as TPS principals.

The next step is to add the contextual factors of schools to the model. As I have mentioned, the total effect of the contextual factors of schools on the turnover rates of principals is also mixed, thus controlling for the contextual factors of schools should not change the relationships described in hypotheses H4a-c.

***H5a*:** After controlling for their individual characteristics and the contextual factors of their schools, charter school principals have lower turnover rates than do TPS principals.

***H5b*:** After controlling for their individual characteristics and the contextual factors of their schools, principals in EMO- and CMO-managed charter schools have higher turnover rates than do principals in regular charter schools.

***H5c*:** After controlling for their individual characteristics and the contextual factors of their schools, principals in EMO- and CMO-managed charter schools have similar turnover rates as TPS principals.

After finishing all these comparisons, I directly test the effect of principal autonomy on the turnover rates of principals by estimating a fully specified model that simultaneously controls for the individual characteristics of principals, the contextual factors of schools and the working conditions of principals. According to the previous research, the levels of principal autonomy are expected to have a negative effect on the turnover rates of principals.

***H6a*:** The levels of principal autonomy have a negative effect on the turnover rates of principals.

After accounting for the factors that measure the working conditions of principals, the negative effect of charter schools on the turnover rates of principals, which is expected to be driven by higher levels of principal autonomy, may disappear.

H6b: After controlling for their individual characteristics, the contextual factors of their schools, and their working conditions, charter school principals have similar turnover rates as TPS principals.

Triant (2001) has indicated that the sense of freedom is viewed as one of the greatest parts of taking the principal positions in charter schools, and the lack of job autonomy in TPSs is an important reason for principals to move to charter schools. Therefore, I conjecture that charter school principals are more concerned with their job autonomy than their counterparts working in TPSs. Each unit gain in the levels of the job autonomy of principals will have a larger negative effect on the turnover rates of principals for charter schools than for TPSs, that is, the interaction term between principal autonomy and charter schools should have a negative effect on the turnover rates of principals.

***H7*:** Principal autonomy has a larger negative impact on the turnover rates of principals in charter schools than in TPSs.

3.2 Data

The hypotheses of this dissertation are tested using the data from the 2011-12 SASS and the 2012-13 PFS surveys, which are conducted by the National Center for Education Statistics (NCES) on behalf of the U.S. Department of Education. The 2011-12 SASS surveys are large-scale sample surveys of K-12 school districts, schools, teachers, and principals in the U.S. They provide a nationally representative dataset on educational issues of elementary and secondary schools. The 2012-13 PFS survey is an important component of the 2011-12 SASS surveys. It reveals the attrition rates of those principals who were interviewed by the 2011-12 SASS surveys.

Sampling for the SASS and PFS surveys begins by selecting schools as the primary sampling unit, and then, including the school district, principal, and a relatively small sample of teachers within each selected school. Public schools selected for the SASS and PFS surveys are sampled from the Common Core of Data (CCD). The NCES collects data for the CCD annually from all state education agencies and modifies the list of schools from the CCD to meet the definition of a school as used by the SASS and PFS surveys. The sampling frame for the 2011-12 SASS and the 2012-13 PFS surveys was built on the preliminary 2009-10 CCD nonfiscal school universe data file. To make sure that the sample contains sufficient observations, the SASS and PFS surveys use a stratified probability sample design. The final sampling weights and the balanced-repeated replicate (BRR) weights are used in the data analyses of this dissertation. These weights adjust for nonresponse and oversampling and are used so that estimates can represent the population of public school principals rather than simply the sample.

After merging the data of the 2011-12 SASS surveys and the data of the 2012-13 PFS survey into one dataset, I excluded the special education schools which primarily serve students with disabilities and the career, technical, and vocational schools which primarily serve students being trained for occupations. I also excluded schools that are specifically for students who have been suspended or expelled, who have been dropped out, or who have been referred for behavioral or adjustment problems.

The school questionnaires of the 2011-12 SASS surveys include survey items that help distinguish among EMO-managed charter schools, CMO-managed charter schools, regular charter schools, and TPSs. Some schools, however, did not provide clear information on these items, thus I use the 2011-12 National Alliance for Public Charter

Schools (NAPCS) annual data to categorize these schools[1]. The dataset used in this dissertation includes 20 principals in EMO-managed charter schools, 70 principals in CMO-managed charter schools, 280 principals in regular charter schools, and 6,100 TPS principals (these numbers are rounded to the nearest 10th as requested by the NCES). After taking the final sampling weights and the BRR weights into consideration, the weighted sample includes 270 principals in EMO-managed charter schools, 740 principals in CMO-managed charter schools, 2,600 principals in regular charter schools, and 73,800 TPS principals (These numbers again are rounded to the nearest 10th as requested by the NCES).

The numbers of the multiple types of charter schools that are included in the weighted sample are smaller than those reflected by national data, which shows that during the 2011-12 school year there were 840 EMO-managed charter schools, 1,206 CMO-managed charter schools, 3,573 regular charter schools, and 90,753 TPSs in the U.S. (Miron and Gulosino, 2013; National Alliance for Public Charter schools, 2013). This is particularly true for EMO-managed charter schools. This may occur in part because I excluded virtual and technical schools.

The percentage of charter schools in the weighted sample is 4.7%, which is a little lower than the true percentage of 5.8% reported by the NAPCS. The percentages of

[1] In the dataset, there are 10 charter schools that did not provide information on their governance structure (whether they are an EMO-managed, a CMO-managed, or a regular charter school) (this number is rounded to the nearest 10th as requested by the NCES). So I use the data provided by NAPCS to divide them into the EMO-managed, CMO-managed, and regular charter school groups. It is worthwhile to note that there are some conflicts between the SASS data and the NAPCS data. For example, some schools identify themselves as CMO-managed charter schools but are marked as EMO-managed or regular charter schools in the NAPCS's dataset. Under such circumstances, I follow the SASS data and use those schools' own answers to categorize them.

EMO-managed, CMO-managed, and regular charter schools in the weighted sample are 7.4%, 20.4%, and 72.2%, while the true percentages of these types of charter schools in the population are 14.9%, 21.5%, and 63.6%. It seems that this dataset under represents EMO-managed charter schools and over represents regular charter schools.

Among the EMO-managed charter schools included in the sample, 87% are managed by large-scale EMOs (managing 10 or more schools), and 13% are managed by small-scale EMOs (managing 3 or fewer schools)[2]. According to Miron and Gulosino (2013), in the 2011-12 school year, 75.3% of EMO-managed charter schools were managed by large-scale EMOs, 13.8% were managed by medium-scale EMOs, and 10.9% were managed by small-scale EMOs. The sample appears to over represent the schools managed by large-scale EMOs and under represent the schools managed by medium-scale EMOs. It also slightly over represents the schools managed by small-scale EMOs. Among the CMO-managed charter schools included in the sample, 49% are managed by large-scale CMOs, 35.3% are managed by medium-scale CMOs, and 15.7% are managed by small-scale CMOs[3].According to Miron and Gulosino (2013), in the 2011-12 school year, 51% of CMO-managed charter schools were managed by large-scale CMOs, 30.1% were managed by medium-scale CMOs, and 18.9% were managed by small-scale CMOs. We can see that in the sample the schools managed by large- and small-scale CMOs are slightly under represented, while the schools managed by medium-scale CMOs are over represented. In general, the size distributions of EMOs and CMOs

[2] In the sample, the managers of <10 EMO-managed charter school cannot be identified (this number is rounded to the nearest 10th as requested by the NCES).
[3] In the sample, the managers of 20 CMO-managed charter schools cannot be identified (this number is rounded to the nearest 10th as requested by the NCES).

cannot completely reflect the population, however, after using the final sampling weights and the BRR weights, the percentages of EMO-managed, CMO-managed, and regular charter schools are close to the true percentages of these different types of charter schools in the population.

3.3 Methodology

3.3.1 Dependent Variables

I use three groups of dependent variables in this dissertation (see Appendix A). The first group (Table 17) includes eight variables. Seven of them are ordinal-level variables which evaluate the levels of job autonomy a principal may have on making decisions concerning (a) setting student performance standards, (b) establishing curriculum, (c) determining teacher professional development programs, (d) evaluating teachers, (e) hiring new teachers, (f) setting school discipline policy, and (g) deciding the school budgets. The eighth one is a summated rating scale that combines the seven dimensions of job autonomy. It measures the level of comprehensive job autonomy a principal may have in deciding school-related issues.

The second group (Table 18) also includes eight variables, which evaluate the levels of the power differential between a principal and those teachers who work in the same school with this principal. The dependent variables are calculated by deducting the school-level means of the job autonomy of teachers from the levels of the job autonomy of principal. Seven out of eight variables measure the levels of the principal-teacher power differential in (a) setting student performance standards, (b) establishing curriculum, (c) determining the professional development programs for teachers, (d) evaluating teachers, (e) hiring new teachers, (f) setting school discipline policy, and (g)

deciding the school budgets. The last one measures the level of the comprehensive power differential between the principal and the teachers.

The last group only includes one dichotomous dependent variable (Table 19), which indicates whether a principal left the school in which he or she was working during the 2011-12 school year. It equals to 1 if the principal worked at another school, worked on another position, or left the K-12 education system in the 2012-13 school year. It equals to 0 if the principal was still working in the same school as principal in the 2012-13 school year.

3.3.2 Control Variables

In this dissertation, I control for the variables which describe the individual characteristics of principals, the contextual factors of schools, and the working conditions of principals. The variables that describe the individual characteristics of principals (see Table 20) include gender (whether the principal is a female), race or ethnicity (whether the principal is racial or ethnic minority), age, length of administrative experiences, and the highest level of educational degree (whether the highest degree of the principal is a master's degree or a doctoral degree).

The variables that describe the contextual factors of schools (Table 21) include whether the school is a charter school, whether the school is an EMO-managed or a CMO-managed charter school, whether the school is a regular charter school, whether the school is an elementary or a combined elementary and secondary school, and whether the school is located in an urban or a suburban area. These variables also include the enrollment size of the school, the percentage of minority teachers, and the percentages of minority and low-income students.

In addition to the individual characteristics of principals and the contextual factors of schools, I also include the variables that describe the working conditions of principals (see Table 22) when examining the levels of principal turnover. These working conditions are factors that prior research has suggested are likely to differ between charter schools and TPSs and may explain differing turnover rates of principals between charter schools and TPSs. I include the measures of school-related income for each year, hours worked per week, and union membership (whether the principal is represented under a meet-and-confer agreement or a collective bargaining agreement). I also include the responses of principals to questions asking them to rate the levels of student discipline behaviors and parental involvement. In addition, I include the evaluations of teachers on student motivation, the degree of autonomy they have within classrooms, the levels of school-wide influence they have, and their perceptions of the performance of the principal. These working conditions, which are rated by teachers, are measured at the school-level. I also include a dummy variable indicating whether the school was identified for improvement at the end of the 2010-11 school year due to failing to make adequate yearly progress for two or more consecutive school years. This variable can measure the overall level of school performance.

3.3.3 Method of Analysis

This study makes multiple types of comparisons, including comparisons between charter schools and TPSs and comparisons between each type of charter schools and TPSs. These comparisons are conducted by both Wald-tests and regressions. The results of the Wald-tests are introduced in chapter 4. The results of the regressions are introduced in chapter 5 and chapter 6 along with the results of other models.

The full models for examining the levels of principal autonomy and the principal-teacher power differential are as below:

$$Principal\ Autonomy_i = \beta_0 + \beta_1 \cdot Charter\ School_i + \beta_2 \cdot Individual\ Characteristics\ of\ Principal_i + \beta_3 \cdot Contextual\ factors\ of\ School_i + \varepsilon_i$$

$$Principal\ Autonomy_i = \beta_0 + \beta_1 \cdot Regular\ Charter\ School_i + \beta_2 \cdot EMO\ Charter\ School_i + \beta_3 \cdot CMO\ Charter\ School_i + \beta_4 \cdot Individual\ Characteristics\ of\ Principal_i + \beta_5 \cdot Contextual\ Factors\ of\ School_i + \varepsilon_i$$

$$Principal - Teacher\ Power\ Differential_i = \beta_0 + \beta_1 \cdot Charter\ School_i + \beta_2 \cdot Individual\ Characteristics\ of\ Principal_i + \beta_3 \cdot Contextual\ Factors\ of\ School_i + \varepsilon_i$$

$$Principal - Teacher\ Power\ Differential_i = \beta_0 + \beta_1 \cdot Regular\ Charter\ School_i + \beta_2 \cdot EMO\ Charter\ School_i + \beta_3 \cdot CMO\ Charter\ School_i + \beta_4 \cdot Individual\ Characteristics\ of\ Principal_i + \beta_5 \cdot Contextual\ Factors\ of\ School_i + \varepsilon_i$$

I use seven ordinal-level variables to evaluate the levels of principal autonomy. These variables are four-level measures indicating whether a principal has (1) no influence, (2) a minor influence, (3) a moderate influence, or (4) a major influence in making decisions concerning school-related issues. They are used as dependent variables in the models which examine how the levels of principal autonomy in each dimension are influenced by different factors. Winship and Mare (1984) have pointed out that ordered logit model "can be implemented with widely available statistical software. Most of the literature on these methods focuses on estimating equations with ordinal dependent

variables (pp. 513).” Therefore, I use ordered logit regression models to estimate the relationships between the levels of principal autonomy and those control variables.

The variable evaluating the levels of comprehensive principal autonomy is a summated rating scale. Summated rating scales are obtained by adding up the values of all the relevant items of a latent variable and then calculating the average value, thus are widely treated as interval-level variables. Similarly, the school-level means of the job autonomy of teachers and the levels of the principal-teacher power differential (deducting the school-level means of the job autonomy of teachers from the levels of the job autonomy of principals) are also treated as interval-level variables. I use multiple linear regressions to examine the effects of those control factors on the levels of comprehensive principal autonomy and on the levels of the principal-teacher power differential.

The full model for examining the turnover rates of principals are as below:

$$
\begin{aligned}
&Principal\ Turnover_i \\
&\quad = \beta_0 + \beta_1 \cdot Principal\ Autonomy_i + \beta_2 \cdot Charter\ School_i + \beta_3 \\
&\quad \cdot Individual\ Characteristics\ of\ Principal_i + \beta_4 \\
&\quad \cdot Contextual\ Factors\ of\ School_i + \beta_5 \\
&\quad \cdot\ Other\ Working\ Conditions\ of\ Principal_i + \varepsilon_i
\end{aligned}
$$

$$
\begin{aligned}
&Principal\ Turnover_i \\
&\quad = \beta_0 + \beta_1 \cdot Principal\ Autonomy_i + \beta_2 \cdot Regular\ Charter\ School_i \\
&\quad + \beta_3 \cdot EMO\ Charter\ School_i + \beta_4 \cdot CMO\ Charter\ School_i + \ \beta_5 \\
&\quad \cdot Individual\ Characteristics\ of\ Principal_i + \beta_6 \\
&\quad \cdot Contextual\ Factors\ of\ School_i + \beta_7 \\
&\quad \cdot\ Other\ Working\ Conditions\ of\ Principal_i + \varepsilon_i
\end{aligned}
$$

The dependent variable for the models which investigate the effects of those control factors on the turnover rates of principals is a dichotomous variable. These models are estimated using multiple logit regressions, seeing whether and how the

individual characteristics of principals, the contextual factors of schools, and the working conditions of principals affect the turnover rates of principals.

3.3.4 Diagram of Regression Models

Figure 1 describes the hypothesized relationships among different groups of variables. The levels of principals' job autonomy and the levels of the principal-teacher power differential are expected to be determined by the individual characteristics of principals (gender, race, age, educational status, and administrative experiences) and the contextual factors of schools (governance structure, enrollment size, grade levels, location, and the composition of the student and teacher body). The dummy variable of charter schools should positively affect the levels of principals' job autonomy and negatively affect the levels of the principal-teacher power differential.

The levels of principal turnover are expected to be determined by the individual characteristics of principals, the contextual factors of schools, and the working conditions of principals. The working conditions of principals include principals' job autonomy, income, workload, union membership, teachers' classroom control and school-wide influence, teachers' evaluation on the principal, student discipline behaviors and student motivation, parental support, and school performance. According to my hypotheses, principals' job autonomy should have a substantial negative effect on the probability of principal turnover. Besides, the dummy variable of charter schools should negatively affect the probability of principal turnover, but this negative effect should disappear after I control for the working conditions of principals.

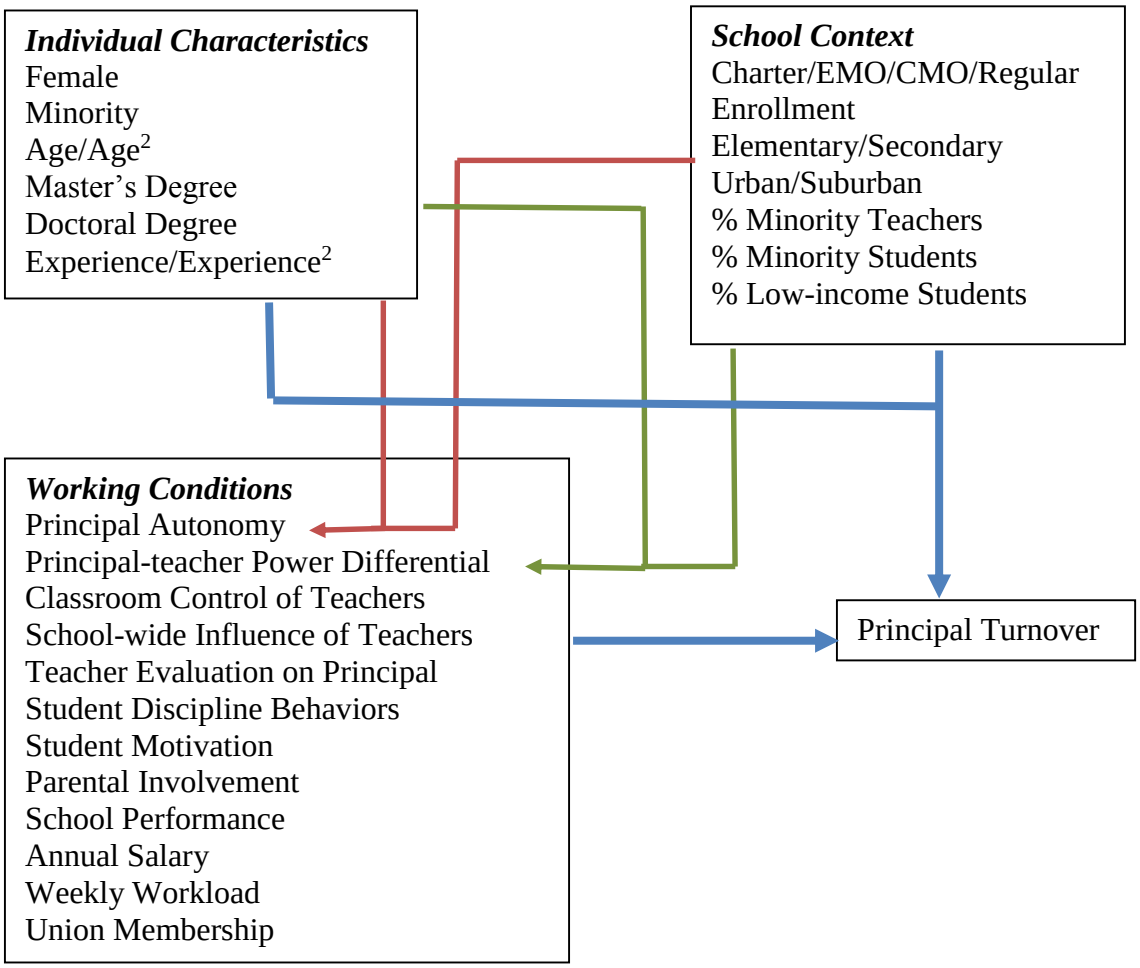

Figure 1: The Relationships among Dependent, Independent, and Control Variables

CHAPTER 4

RESULTS - DESCRIPTIVE STATISTICS

The following three chapters present the results of statistical analyses. Chapter 4 describes the descriptive statistics of variables, providing a general overview of the sampled principals and their working environments. Chapter 5 and chapter 6 display the results of those regression models and hypothesis tests which examine the levels of principal autonomy, the principal-teacher power differential and principal turnover in different types of charter schools as well as in TPSs.

4.1 Charter Schools vs. Traditional Public Schools

Table 1 lists the mean values of variables and makes a comparison between charter schools and TPSs. In the column of charter schools, the asterisks next to the mean values show the significance levels of the differences between charter schools and TPSs. Three asterisks signify that the difference between charter schools and TPSs is significant at the 0.01 level. Two asterisks signify a significance level of 0.05, and one asterisk signifies a significance level of 0.1, which is always mentioned as a marginal significance level. The colors of those asterisks indicate the directions of differences. Black asterisks tell that the mean values of charter schools are higher than those of TPSs, while red asterisks tell that the mean values of charter schools are lower than those of TPSs.

Compared to TPSs, charter schools hire higher proportions of minority principals. Around 32 percent of charter school principals are members of a minority group, compared to 18 percent of TPS principals. Charter school principals are younger and less experienced than TPS principals. On average, charter school principals are 46.67

Table 1: Descriptive Statistics: Charter Schools vs. TPSs

Variable	CSs	TPSs
Individual Characteristics of Principal		
Female	0.53	0.51
Minority	0.32***	0.18
Age	46.67**	48.05
Master's Degree	0.59	0.62
Doctoral Degree	0.27**	0.37
Principal Experience (yrs)	5.84***	7.28
Contextual Factors of School		
Enrollment	425.73***	577.94
Elementary	0.55***	0.73
Combined	0.23***	0.05
Urban	0.54***	0.23
Suburban	0.23	0.27
% Minority Teachers	27.97***	13.64
% Minority Students	61.59***	39.52
% Low-income Students	50.93	49.05
Working Conditions of Principal		
Weekly Work Hours	59.14	58.45
Annual Salary ($)	81233***	90936
Union Membership	0.27***	0.47
Student Discipline Behaviors	0.67	0.72
Parental Involvement	2.35	2.24
Student Motivation	2.77**	2.88
Classroom Control of Teachers	3.28	3.25
School-wide Influence of Teachers	2.31***	2.17
Teachers' Evaluations of Principal	3.16	3.16
Identified for Improvement	0.26	0.23
Principal Autonomy	3.71***	3.64
Principal Turnover Rates		
Turnover	0.28**	0.22

*** p<0.01; ** p<0.05; * p<0.1

years of age and have 5.8 years of administrative experiences, while TPS principals are 48.05 years of age and have 7.3 years of administrative experiences. Charter school principals are also less likely to have a doctoral degree. Around 27 percent of charter school principals have a doctoral degree, compared to 37 percent of TPS principals. The percentages of female principals and principals who have a master's degree are similar in charter schools and in TPSs. In charter schools, 53 percent of principals are female, and 59 percent of principals have a master's degree, which are close to those percentages of TPS principals (51 percent are female, and 62 percent have a master's degree).

As for the contextual factors of schools, charter schools in general are smaller than TPSs. Charter schools on average enroll 426 students, compared to the 578 students' size of TPSs. Compared to TPSs, charter schools are less likely to be an elementary school and more likely to be a combined school. Among charter schools, 55 percent are elementary schools, and 23 percent are combined schools. In contrast, 73 percent of TPSs are elementary schools, and 5 percent are combined schools. Charter schools are also more likely to be located in urban areas (54 percent vs. 23 percent). The proportions of minority teachers and minority students are both higher in charter schools than in TPSs. In charter schools, 28 percent of teachers and 62 percent of students are members of a minority group; In TPSs, 14 percent of teachers and 40 percent of students are members of a minority group. The percentages of low-income students are similar in charter schools and in TPSs. In charter schools, 51 percent of students are classified as low-income students, compared to 49 percent of students in TPSs. The proportions of schools that are located in suburban areas are also similar in charter schools and in TPSs. Around 23 percent of charter schools and 27 percent of TPSs are located in suburban areas.

Charter school principals are less likely to be protected by a contract union. Around 27 percent of charter school principals are union members, compared to 47 percent of TPS principals. Therefore, charter school principals in general receive lower annual salaries than do TPS principals ($81,233 for charter school principals vs. $90,936 for TPS principals). The workloads of principals are similar in charter schools and in TPSs. Charter school principals on average work for 59 hours per week, and TPS principals work for 58 hours per week.

I also compare the working conditions of principals in charter schools with those in TPSs. The mean levels of principal autonomy and school-wide influence of teachers are both higher in charter schools than in TPSs. Compared to principals and teachers working in TPSs, principals and teachers working in charter schools perceive themselves as more influential to the decision-making processes of school-related issues. The mean level of student motivation, however, is lower in charter schools than in TPSs, which means that the students in charter schools in general are less motivated.

The mean levels of student discipline behaviors, parental involvement, classroom control of teachers, and teachers' evaluations of the principal are similar in charter schools and in TPSs. Besides, the mean value of the percentages of charter schools that are identified by the states for improvement is similar to that of TPSs. Around 26 percent of charter schools and 23 percent of TPSs are identified for improvement because of dissatisfying performance. We can also see that charter schools have higher principal turnover rates than do TPSs. Around 28 percent of charter schools experience principal turnover in the survey year, compared to 22 percent of TPSs.

Table 2: Principal Autonomy: Charter Schools vs. TPSs

Variable	CSs	TPSs
Student Performance Standards	3.81***	3.63
Curriculum	3.53***	3.17
Teacher Professional Development	3.73***	3.63
Teacher Evaluation	3.90***	3.96
Teacher Recruitment	3.88	3.81
Discipline Policy	3.82	3.78
School budgets	3.30***	3.54

*** p<0.01; ** p<0.05; * p<0.1

Table 2 compares the mean levels of principal autonomy in charter schools with those in TPSs. The levels of principal autonomy are measured by a group of Likert-type scales. The values of these scales are between 1 and 4. Each scale evaluates the level of influence a principal may have on deciding one type of school-related issues. I find that charter school principals have higher levels of autonomy in setting student performance standards, establishing curriculum, and determining teacher professional development programs than do TPS principals. On the other hand, charter school principals have lower levels of autonomy in evaluating teachers and deciding school budgets than do TPS principals. The levels of autonomy in recruiting teachers and setting discipline policy are similar among charter school principals and TPS principals.

Table 3 compares the mean levels of teachers' school-wide influence in charter schools with those in TPSs. Charter school teachers have higher levels of school-wide influence in establishing curriculum, evaluating teachers, and setting school discipline policy than do TPS teachers. The levels of influence in setting student performance standards, determining teacher professional development programs, recruiting teachers, and deciding school budgets are similar in charter schools and in TPSs.

Table 3: School-wide Influence of Teachers: Charter Schools vs. TPSs

Variable	CSs	TPSs
Student Performance Standards	2.69	2.58
Curriculum	2.94***	2.61
Teacher Professional Development	2.42	2.37
Teacher Evaluation	1.93***	1.63
Teacher Recruitment	1.99	1.87
Discipline Policy	2.55***	2.38
School budgets	1.70	1.74

*** p<0.01; ** p<0.05; * p<0.1

Table 4 compares the mean levels of the principal-teacher power differential between charter schools and TPSs. The levels of the principal-teacher power differential are measured by the levels of job autonomy a principal may have deducting the school-level mean values of the school-wide influence of teachers. We can see that the levels of the principal-teacher power differential are positive in both charter schools and TPSs, which means that principals are always more influential to school-related issues than teachers. The levels of the principal-teacher power differential are lower in charter schools than in TPSs when evaluating teachers, deciding school budgets, and setting school discipline policy. The overall level of the principal-teacher power differential is also lower in charter schools than in TPSs. In other words, charter schools distribute power more evenly between principals and teachers than do TPSs.

Table 4: Principal-Teacher Power Differential: Charter Schools vs. TPSs

Variable	CSs	TPSs
Student Performance Standards	1.12	1.05
Curriculum	0.59	0.56
Teacher Professional Development Programs	1.31	1.26
Teacher Evaluation	1.98***	2.33
Teacher Recruitment	1.89	1.93
Discipline Policy	1.27*	1.40
School budgets	1.60***	1.81
Principal-Teacher Autonomy Differential	1.40*	1.48

*** p<0.01; ** p<0.05; * p<0.1

4.2 Each Type of Charter Schools vs. Traditional Public Schools

Table 5 distinguishes among EMO-managed, CMO-managed, and regular charter schools. It lists the mean values of variables for each type of charter schools and compares between each type of charter schools and TPSs. The proportions of minority principals are higher in all types of charter schools than in TPSs, and principals in all types of charter schools are less experienced than TPS principals. Principals in CMO-managed charter schools are generally younger and are less likely to have a doctoral degree than TPS principals, while principals in EMO-managed and regular charter schools have similar ages and similar likelihoods to have a doctoral degree as TPS principals.

Table 5: Descriptive Statistics: Each Type of Charter Schools vs. TPSs

Variable	EMOs	CMOs	REGULARs	TPSs
Individual Characteristics of Principal				
Female	0.54	0.49	0.54	0.51
Minority	0.43**	0.30**	0.32***	0.18
Age	44.53	45.13*	47.31	48.05
Master's Degree	0.71	0.58	0.58	0.62
Doctoral Degree	0.23	0.13***	0.32	0.37
Principal Experience (yrs)	5.67*	4.67***	6.18*	7.28
Contextual Factors of School				
Enrollment	672.48	435.06***	400.10***	577.94
Elementary	0.68	0.54***	0.53***	0.73
Combined	0.21*	0.27***	0.22***	0.05
Urban	0.61***	0.52***	0.53***	0.23
Suburban	0.32	0.23	0.22*	0.27
% Minority Teachers	19.99	31.95***	27.59***	13.64
% Minority Students	59.06**	72.82***	58.64***	39.52
% Low-income Students	65.22***	64.93***	45.62	49.05
Working Conditions of Principal				
Weekly Work Hours	60.81	60.78	58.52	58.45
Annual Salary ($)	84973	81283***	80870***	90936
Union Membership	0.25*	0.23***	0.29***	0.47
Student Discipline Behaviors	0.72	0.65	0.67	0.72
Parental Involvement	2.55**	2.37	2.32	2.24
Student Motivation	2.75	2.68**	2.80	2.88
Classroom Control of Teachers	3.04**	3.21	3.33	3.25
School-wide Influence of Teachers	2.22	2.17	2.36***	2.17
Teachers' Evaluations of Principal	3.21	3.07	3.18	3.16
Identified for Improvement	0.49**	0.26	0.23	0.23
Principal Autonomy	3.69	3.66	3.73***	3.64
Principal Turnover Rates				
Turnover	0.17	0.42***	0.25	0.22

*** p<0.01; ** p<0.05; * p<0.1

CMO-managed and regular charter schools always enroll fewer students than do TPSs. They are also less likely to be elementary schools. All types of charter schools are more likely to be combined elementary and secondary schools and are more likely to be located in urban areas than TPSs. Regular charter schools are less likely to be located in suburban areas than TPSs. Compared to TPSs, CMO-managed and regular charter schools have higher proportions of minority teachers, EMO- and CMO-managed charter schools have higher proportions of low-income students, and all three types of charter schools have higher proportions of minority students.

Principals in all types of charter schools have similar weekly workloads as TPS principals, while principals in CMO-managed and regular charter schools earn less money each year than do TPS principals. It may partially be caused by the lower proportions of contract union members among the principals in CMO-managed and regular charter schools. Principals in EMO-managed charter schools also have lower proportions of union members than do TPS principals, however, their average salary is similar as that of TPS principals.

As for the external working environments of principals, EMO-managed charter schools have higher levels of parental involvement than do TPSs. Regular charter schools have higher levels of principal autonomy and school-wide influence of teachers than do TPSs, while EMO- and CMO-managed charter schools have similar levels of principal autonomy and school-wide influence of teachers as TPSs. On the other hand, students of CMO-managed charter schools are less motivated than TPS students, and teachers of EMO-managed charter schools have lower levels of classroom control than do TPS teachers. The general performance of EMO-managed charter schools is worse than that of

TPSs. EMO-managed charter schools are more likely to be identified for improvement because of a continuing dissatisfying performance. Besides, CMO-managed schools have higher principal turnover rats than do TPSs. That is why we see higher turnover rates among charter school principals than among TPS principals. The turnover rates of principals in EMO-managed and regular charter schools are similar as the ones in TPSs.

Table 6: Principal Autonomy: Each Type of Charter Schools vs. TPSs

Variable	**EMOs**	**CMOs**	**REGULARs**	**TPSs**
Student Performance Standards	3.79**	3.80***	3.81***	3.63
Curriculum	3.53***	3.40*	3.57***	3.17
Professional Development Programs	3.66	3.71	3.74***	3.63
Teacher Evaluation	3.91	3.87*	3.91***	3.96
Teacher Recruitment	3.95***	3.96***	3.85	3.81
Discipline Policy	3.82	3.81	3.82	3.78
School budgets	3.15*	3.10***	3.38**	3.54

*** p<0.01; ** p<0.05; * p<0.1

Table 6 compares the levels of each dimension of principal autonomy between each type of charter schools and TPSs. Compared to TPS principals, principals in all types of charter schools have higher levels of autonomy in setting student performance standards and establishing curriculum but have lower levels of autonomy in deciding school budgets. Principals in regular charter schools have higher levels of autonomy in determining teacher professional development programs, and principals in EMO- and CMO-managed charter schools have higher levels of autonomy in recruiting teachers. On the other hand, principals in CMO-managed and regular charter schools have lower levels of autonomy in evaluating teachers than do TPS principals. In general, principals in different types of charter schools enjoy different levels of job autonomy.

Table 7: School-wide Influence of Teachers: Each Type of Charter Schools vs. TPSs

Variable	EMOs	CMOs	REGULARs	TPSs
Student Performance Standards	2.65	2.63	2.71	2.58
Curriculum	2.40	2.84**	3.01***	2.61
Professional Development Programs	2.33	2.26	2.48	2.37
Teacher Evaluation	1.87	1.87***	1.95***	1.63
Teacher Recruitment	2.17***	1.85	2.01	1.87
Discipline Policy	2.35	2.31	2.63***	2.38
School budgets	1.76	1.46***	1.76	1.74

*** p<0.01; ** p<0.05; * p<0.1

According to Table 7, compared to TPS teachers, teachers working in EMO-managed charter schools have higher levels of influence in recruiting teachers, and teachers working in regular charter schools have higher levels of influence in setting school discipline policy. Teachers working in CMO-managed and regular charter schools have higher levels of influence in establishing curriculum and evaluating teachers than do TPS teachers, but teachers working in CMO-managed charter schools have lower levels of influence in deciding school budgets than do TPS teachers.

Table 8 shows that the levels of the principal-teacher power differential in establishing curriculum are higher in EMO-managed charter schools than in TPSs, and the levels of the power differential in determining teacher professional development programs and recruiting teachers are higher in CMO-managed charter schools than in TPSs. On the other hand, the levels of the power differential in teacher evaluation are lower in CMO-managed and regular charter schools than in TPSs, and the levels of the power differential in setting discipline policy and deciding school budgets are lower in regular charter schools than in TPSs. In general, regular charter schools distribute power more evenly than do TPSs since the levels of the comprehensive principal-teacher power

differential are lower in regular charter schools than in TPSs. The levels of the comprehensive principal-teacher power differential in EMO- and CMO-managed charter schools, however, are not different from the ones in TPSs.

Table 8: Principal-Teacher Power Differential: Each Type of Charter Schools vs. TPSs

Variable	**EMOs**	**CMOs**	**REGULARs**	**TPSs**
Student Performance Standards	1.14	1.18	1.10	1.05
Curriculum	1.14***	0.56	0.55	0.56
Professional Development Programs	1.32	1.45***	1.27	1.26
Teacher Evaluation	2.04	1.99***	1.97***	2.33
Teacher Recruitment	1.78	2.11*	1.84	1.93
Discipline Policy	1.47	1.50	1.19**	1.40
School budgets	1.39	1.64	1.62**	1.81
Principal-Teacher Autonomy Differential	1.47	1.49	1.36*	1.48

*** p<0.01; ** p<0.05; * p<0.1

CHAPTER 5

RESULTS – PRINCIPAL AUTONOMY

This chapter includes two sections that examine the levels of principal autonomy and the levels of the principal-teacher power differential in different types of charter schools and in TPSs. In each section, I first separately examine the levels of principal autonomy and the levels of the principal-teacher power differential across different dimensions (setting student performance standards, establishing curriculum, determining teacher professional development programs, evaluating teachers, hiring teachers, setting school discipline policy, and deciding school budgets). Then I examine the levels of comprehensive principal autonomy and the levels of the comprehensive principal-teacher power differential, which are summated rating scales combining all the dimensions.

I establish four regression models for examining the levels of principal autonomy and the levels of the principal-teacher power differential. The first model only controls for a dummy variable that indicates whether the school is a charter school. This model directly compares charter schools with TPSs, seeing whether charter school principals enjoy higher levels of job autonomy than do TPS principals and whether the levels of the principal-teacher power differential are smaller in charter schools than in TPSs. The second model is the fully specified model. The coefficients for the newly added variables show how the individual characteristics of principals and the contextual factors of schools may affect the levels of principal autonomy and the levels of the principal-teacher power differential. Models 3 and 4 are similar to the first two models except that the dummy variable for charter schools are replaced by three dummy

variables which indicate whether the school is an EMO-managed, a CMO-managed, or a regular charter school. These three dummy variables separate all schools into four groups: EMO-managed charter schools, CMO-managed charter schools, regular charter schools, and TPSs (the reference group). Models 3 and 4 show how the differences in the individual characteristics of principals and the contextual factors of schools help drive the different levels of principal autonomy and the differentials in the power between principals and teachers in each type of charter schools than those in TPSs.

The results of these models are reported in Tables 9 to 14. The coefficients for the models which examine the levels of principal autonomy in different dimensions (Tables 9 to 10) show how the probabilities (percentage points) for principals to report that they have a major influence in deciding the school-related issues will change as each control variable increases by one unit (holding other control variables at their mean values). These coefficients are calculated based on the estimates of the ordered logit regression models using the *prchange* command in Stata (see the original coefficients for the ordered logit regression models in Appendix B). The *prchange* command helps calculate discrete and marginal changes in the predicted outcomes. In the models which measure the levels of principals' job autonomy, the outputs of the *prchange* command report the effects of control variables on the probability for principals to report that they have a major influence in deciding school-related issues. For dummy variables, the results indicate how the probability of having a major influence will change as the value of control variables increases from 0 to 1. For interval-level variables, the outputs indicate how the probability will change as the value of control variables has a marginal increase.

The coefficients for the models which examine the levels of comprehensive principal autonomy and the levels of the principal-teacher power differential (Tables 11 to 14) show how the dependent variables (the levels of comprehensive principal autonomy, the levels of the principal-teacher power differential in different dimensions, and the levels of the comprehensive principal-teacher power differential) will change as each control variable increases by one unit (holding other control variables unchanged).

5.1 Influential Factors of Principal Autonomy

5.1.1 The Levels of Principal Autonomy in Separate Dimensions

In this dissertation, the levels of principal autonomy are measured across seven separate dimensions: setting student performance standards, establishing curriculum, determining teacher professional development programs, evaluating teachers, hiring teachers, setting discipline policy, and deciding school budgets. I first examine the levels of autonomy a principal may have in each dimension.

Table 9: The Percentage Points for Principals to Report That They Have a Major Influence in Deciding School-related Issues: Charter Schools vs. TPSs

Variable	D1	D2	D3	D4
Model 1				
Charter School	14.4***	22***	8.4***	-5.5***
Model 2				
Charter School	13.9***	20.5***	7**	-3.7***
Individual Characteristics of Principal				
Female	0.8	2.7	6.9***	1*
Minority	3.5	4.8**	-1.6	1.1
Age (+10)	-2.1**	2.0*	-2	1
Master's Degree	6.9	-5.7	-2.6	1.7
Doctoral Degree	8.4	-6.2	-1	1.9
Experience (yrs) (+10)	2.6*	-1	-1	0
Contextual Factors of School				
Enrollment (+100)	-0	-0.63***	0.5***	-0
Elementary	-1.9	-11.1***	0.2	0.7
Combined	-3.4	2.6	4.1	0.3
Urban	1.4	-13.4***	0.9	-3.2***
Suburban	-0.03	-11.6***	-6.9***	-4.2***
% Minority Teachers	0.12**	0.2***	0.0	-0.0
% Minority Students	-0.0	-0.07***	0.0	0.02*
% Low-income Students	-0.0	-0.0	-0.07***	-0.03**

*** p<0.01; ** p<0.05; * p<0.1

Notes: N = 6,420 public school principals. Data are from the 2011-12 SASS.

D1: Setting Student Performance Standards
D2: Establishing Curriculum
D3: Determining the Teacher Professional Development Programs
D4: Evaluating Teachers
D5: Deciding School Budgets
D6: Hiring New Teachers
D7: Setting Discipline Policy

Table 9 (continued)

Variable	D5	D6	D7
Model 1			
Charter School	-13.7***	3.1	1.9
Model 2			
Charter School	-10.9**	5.1	4.1
Individual Characteristics of Principal			
Female	3.3*	1.6	0.4
Minority	-2.1	-5.4***	-3.7*
Age (+10)	3***	1	2.5**
Master's Degree	6.8	-0.0	7.3
Doctoral Degree	8.6	-10.1	6.1
Experience (yrs) (+10)	-1	-115	0
Contextual Factors of School			
Enrollment (+100)	0.67***	0.21*	-0.24*
Elementary	7.7***	-2.6**	1.2
Combined	-9.8***	-5.1	-0.2
Urban	5**	-4.6**	-0.3
Suburban	-2.1	-6.7***	-0.8
% Minority Teachers	0.0	0.0	-0.0
% Minority Students	0.08**	-0.0	-0.0
% Low-income Students	-0.12***	-0.05*	-0.0

*** p<0.01; ** p<0.05; * p<0.1
Notes: N = 6,420 public school principals. Data are from the 2011-12 SASS.

D1: Setting Student Performance Standards
D2: Establishing Curriculum
D3: Determining the Teacher Professional Development Programs
D4: Evaluating Teachers
D5: Deciding School Budgets
D6: Hiring New Teachers
D7: Setting Discipline Policy

5.1.1.1 Charter Schools vs. Traditional Public Schools

According to Table 9, charter school principals have higher levels of autonomy in setting student performance standards, establishing curriculum, and determining teacher professional development programs than do TPS principals. Charter school principals are 14.4 percentage points more likely than TPS principals to report having a major influence in setting student performance standards. They are also 22 and 8.4 percentage points more likely to report having a major influence in establishing curriculum and determining teacher professional development programs. On the other hand, charter school principals have lower levels of autonomy in evaluating teachers and deciding school budgets. They are 5.5 and 13.7 percentage points less likely than TPS principals to report that they have a major influence in evaluating teachers and in deciding school budgets. The levels of autonomy in hiring new teachers and setting school discipline policy are similar between charter school principals and TPS principals.

After adding the individual characteristics of principals and the contextual factors of schools to the model, the significances of the coefficients for charter schools do not change[4]. Compared to TPS principals, charter school principals have higher levels of autonomy in setting student performance standards (13.9 percentage points higher), establishing curriculum (20.5 percentage points higher) and determining teacher professional development programs (7 percentage points higher), and have lower levels

[4] I have also run a series of models that include the square terms of principal's age and length of administrative experiences to see whether the relationships between the levels of principal autonomy and principal's age and length of administrative experience follow a U-shape curve. The results show that the two square terms are insignificant, and the significant coefficients for age and length of administrative experiences will become insignificant once I control for their square terms. Therefore, I have decided not to include the square terms when examining the levels of principal autonomy.

of autonomy in evaluating teachers (3.7 percentage points lower) and deciding school budgets (10.9 percentage points lower).

Female principals have higher levels of autonomy in determining teacher professional programs, evaluating teachers, and deciding school budgets. They are more likely than male principals to report that they have a major influence in these issues. Minority principals have higher levels of autonomy in establishing curriculum than white principals, and they have lower levels of autonomy in hiring new teachers and setting school discipline policy. Age affects the levels of principal autonomy in some dimensions. Older principals have higher levels of autonomy in establishing curriculum, deciding school budgets, and setting discipline policy than younger principals, but younger principals have higher levels of autonomy in setting student performance standards. Principals' educational level has no significant effects on the levels of principal autonomy. The length of administrative experience only affects principals' autonomy in setting student performance standards. Principals gain higher levels of autonomy in setting student performance standards as they gain more administrative experiences.

As for the contextual factors of schools, principals working in larger schools have higher levels of autonomy in determining teacher professional development programs, deciding school budgets, and hiring new teachers than do principals working in smaller schools. But they have lower levels of autonomy in establishing curriculum and setting school discipline policy. Compared to principals in secondary schools, principals in elementary schools have higher levels of autonomy in deciding school budgets and have lower levels of autonomy in establishing curriculum and setting discipline policy; principals in combined elementary and secondary schools have lower levels of autonomy

in deciding school budgets. Principals working in urban and suburban schools have lower levels of autonomy than principals working in rural schools except in deciding school budgets. Principals working urban schools have lower levels of autonomy in establishing curriculum, evaluating teachers, and hiring new teachers but have higher levels of autonomy in deciding school budgets. Principals in suburban schools have lower levels of autonomy in establishing curriculum, determining teacher professional development programs, evaluating teachers, and hiring new teachers.

The proportions of minority teachers positively affect principal autonomy. Principals working in schools with higher percentages of minority teachers have higher levels of autonomy in setting student performance standards and establishing curriculum. In contrast, the proportions of low-income students negatively affect principal autonomy. Principals in schools with higher percentages of low-income students have lower levels of autonomy in determining teacher professional development programs, evaluating teachers, deciding school budgets, and hiring new teachers. The proportions of minority students have both positive and negative effects on principal autonomy. Principals working in schools with higher percentage of minority students have higher levels of autonomy in evaluating teachers and deciding school budgets but have lower levels autonomy in establishing curriculum.

5.1.1.2 Each Type of Charter Schools vs. Traditional Public Schools

Table 10 distinguishes among different types of charter schools and compares each type of charter schools with TPSs. Principals in EMO-managed charter schools have lower levels of autonomy in deciding school budgets than do TPS principals. They are 27.9 percentage points less likely than TPS principals to report having a major influence

Table 10: The Percentage Points for Principals to Report That They Have a Major Influence in Deciding the School-related Issues: Each Type of Charter Schools vs. TPSs

Variable	D1	D2	D3	D4
Model 3				
EMO Charter	15.7	18.5	3.8	-5.3
CMO Charter	14.6**	16.2**	7.9	-7.2
Regular Charter	14.2***	24***	9*	-5***
Model 4				
EMO Charter	15.5	24.3	2.2	-2.6
CMO Charter	14.9**	14.6**	6.6	-3.4
Regular Charter	13.5***	21.7***	7.7*	-4**
Individual Characteristics of Principal				
Female	0.8	2.7	6.9***	1*
Minority	3.5	4.8*	-1.6	1.1
Age (+10)	-2.1**	1.9*	-2	1
Master's Degree	6.9	-6.1	-2.6	1.7
Doctoral Degree	8.4	-6.7	-1	1.9
Experience (yrs) (+10)	2.6*	-1	-1	0
Contextual Factors of School				
Enrollment (+100)	-0	-0.63***	0.5***	-0
Elementary	-1.9	-11.1***	0.3	0.7
Combined	-3.4	2.6	4.1	0.3
Urban	1.4	-13.4***	0.9	-3.2***
Suburban	-3.3	-11.6***	-6.9***	-4.2***
% Minority Teachers	0.12**	0.2***	0.0	-0.0
% Minority Students	-0.0	-0.07***	0.0	0.02*
% Low-income Students	-0.0	0.0	-0.07**	-0.03**

*** p<0.01; ** p<0.05; * p<0.1

Notes: N = 6,420 public school principals. Data are from the 2011-12 SASS.

D1: Setting Student Performance Standards
D2: Establishing Curriculum
D3: Determining the Teacher Professional Development Programs
D4: Evaluating Teachers
D5: Deciding School Budgets
D6: Hiring New Teachers
D7: Setting Discipline Policy

Table 10 (continued)

Variable	D5	D6	D7
Model 3			
EMO Charter	-27.9***	4.9	-1.5
CMO Charter	-23.2***	9.9	2.3
Regular Charter	-9.6*	1	2.1
Model 4			
EMO Charter	-25.4**	7.8	1.3
CMO Charter	-18.1**	10.9	5.9
Regular Charter	-7.6*	3	3.8
Individual Characteristics of Principal			
Female	3.3*	1.5	0.4
Minority	-2.1	-5.4***	-3.7*
Age (+10)	3.2***	1	2.5***
Master's Degree	6.3	-9.1	7.4
Doctoral Degree	8.1	-10.4	6.3
Experience (yrs) (+10)	-1	-0	0
Contextual Factors of School			
Enrollment (+100)	0.69***	0.2*	-0.24*
Elementary	7.8***	-2.6**	1.2
Combined	-9.7***	-5.2	-0.2
Urban	5**	-4.5**	-0.3
Suburban	-2	-6.7***	-0.8
% Minority Teachers	0.0	0.0	-0.0
% Minority Students	0.08**	-0.0	-0.0
% Low-income Students	-0.11***	-0.05**	-0.0

*** p<0.01; ** p<0.05; * p<0.1

Notes: N = 6,420 public school principals. Data are from the 2011-12 SASS.

D1: Setting Student Performance Standards
D2: Establishing Curriculum
D3: Determining the Teacher Professional Development Programs
D4: Evaluating Teachers
D5: Deciding School Budgets
D6: Hiring New Teachers
D7: Setting Discipline Policy

in deciding school budgets. Principals in CMO-managed charter schools have higher levels of autonomy in setting student performance standards and establishing curriculum but have lower levels autonomy in deciding school budgets than do TPS principals. They are 14.6 and 16.2 percentage points more likely than TPS principals to report having a major influence in setting student performance standards and establishing curriculum. They are also 23.2 percentage points less likely than TPS principals to report having a major influence in deciding school budgets.

Principals working in regular charter schools have higher levels of autonomy in setting student performance standards, establishing curriculum, and determining teacher professional programs than do TPS principals. They are 14.2, 24, and 9 percentage points more likely than TPS principals to report than they have a major influence in these issues. On the other hand, principals in regular charter schools have lower levels of autonomy in evaluating teachers and deciding school budgets. They are 5 and 9.6 percentage points less likely than TPS principals to report that they have a major influence in these two issues. We can see that principals working in EMO-managed, CMO-managed, and regular charter schools all have lower levels of autonomy in deciding school budgets than do TPS principals, that is why we see lower levels of principal autonomy in deciding school budgets in charter schools than in TPSs.

After adding in the individual characteristics of principals and the contextual factors of schools, the significances of the variables for comparing between each type of charter schools and TPSs do not change. The effects of other control variables (the individual characteristics of principals and the contextual factors of schools) are similar to what we see in the models for comparing charter schools with TPSs.

5.1.2 The Comprehensive Levels of Principal Autonomy

Table 11 examines the levels of overall job autonomy principals have. The dependent variable is a summated rating scale which combines all the seven dimensions of principal autonomy. The coefficients show how the dependent variable, the levels of comprehensive principal autonomy, will change as each control variable increases by one unit when holding other control variables unchanged.

Model 1 compares the levels of principal autonomy in charter schools with those in TPSs. We can find that the coefficient for charter schools (0.06) is positive and is significant at the 0.01 level, which means that charter school principals have higher levels of job autonomy than do TPS principals. The levels of principal autonomy are between 1 (no influence) and 4 (a major influence). The average value of the levels of principal autonomy in charter schools is 3.71, which is higher than the value in TPSs (3.64). This finding is in accordance with my hypothesis and also the quantitative research by Gawlik (2008) and Adamowski, Therriault and Cavanna (2007).

Model 2 is the fully specified model for principal autonomy that also controls for the individual characteristics of principals and the contextual factors of schools. In this model, the positive coefficient for charter schools (0.07) is still significant at the 0.01 level, indicating that the levels of principal autonomy are higher in charter schools than in TPSs even after controlling for the individual characteristics of principals and the contextual factors of schools. The average level of principal autonomy in charter schools is 0.07 higher than the one in TPSs. The positive coefficient for female principals (0.03) is significant, which indicates that the average level of the job autonomy of female principals is 0.03 higher than that of male principals.

Table 11: Comprehensive Principal Autonomy: Charter Schools vs. TPSs & Each Type of Charter Schools vs. TPSs

Variable	Model 1	Model 2	Model 3	Model 4
Charter School	0.06***	0.07***		
EMO Charter			0.02	0.05
CMO Charter			0.03	0.06
Regular Charter			0.08***	0.08***
Individual Characteristics of Principal				
Female		0.03***		0.03***
Minority		0.01		0.01
Age (+10)		0.01		0.01
Master's Degree		0.04		0.03
Doctoral Degree		0.03		0.03
Principal Experience (yrs) (+10)		-0.0003		-0.0003
Contextual Factors of School				
Enrollment (+100)		0.001		0.001
Elementary		-0.02**		-0.02**
Combined		-0.03*		-0.03*
Urban		-0.04**		-0.04**
Suburban		-0.08***		-0.08***
% Minority Teachers		0.001		0.001
% Minority Students		-0.0002		-0.0002
% Low-income Students		-0.001**		-0.001**
Constant				
Constant	3.64***	3.63***	3.64***	3.63***

*** p<0.01; ** p<0.05; * p<0.1

Notes: N = 6,480 public school principals. Data are from the 2011-12 SASS.

Among the contextual factors of schools, the negative coefficient for elementary schools (-0.02) is significant. It shows that the average level of principal autonomy in elementary schools is 0.02 lower than the one in secondary schools. The coefficient for combined schools (-0.03) is also negative and significant. The average level of principal autonomy in combined schools is 0.03 lower than the one in secondary schools. Besides, the negative coefficients for urban schools (-0.04) and suburban schools (-0.08) are both significant. Compared to the average level of principal autonomy in rural schools, the one in urban schools is 0.04 lower, and the one in suburban schools is 0.08 lower. In addition, the proportion of low-income students (-0.001) negatively affects the levels of comprehensive principal autonomy. Holding other control variables unchanged, as the percentage of low-income students increases by 1 percent, the levels of principal autonomy will decrease by 0.001.

Models 3-4 try to figure out whether and how MOs influence the levels of principal autonomy within charter schools. These two models are similar to Models 1-2 except that I replace the dummy variable for charter schools with three dummy variables: EMO-managed, CMO-managed, and regular charter schools. These three variables compare the levels of principal autonomy in each type of charter schools with those in TPSs, seeing whether principals working in each type of charter schools enjoy higher levels of job autonomy than do principals working in TPSs. In Model 3, the coefficients for EMO- and CMO-managed charter schools (0.02 and 0.03) are both insignificant. It seems that there are no obvious differences in the levels of comprehensive principal autonomy between EMO- or CMO-managed charter schools and TPSs. The coefficient for regular charter schools (0.08) is significant at the 0.01 level, which indicates that the

levels of principal autonomy tend to be higher in regular charter schools than in TPSs. The average level of principal autonomy in regular charter schools is 3.72, which is 0.08 higher than the one in TPSs (3.64). I can say that charter school principals seem to enjoy higher levels of job autonomy than do TPS principals is only because those working regular charter schools are granted higher levels of job autonomy.

In Model 4, the positive coefficient for regular charter schools (0.08) is still significant, indicating that the levels of principal autonomy are higher in regular charter schools than in TPSs even after controlling for the individual characteristics of principals and the contextual factors of schools. The coefficients for EMO- and CMO-managed charter schools, however, are both insignificant in this model. The results of other control variables are similar to the ones we see in Model 2. Female principals have higher levels of job autonomy than do male principals. Principals in elementary or combined schools have lower levels of job autonomy than do principals in secondary schools, and principals in urban or suburban schools have lower levels of job autonomy than do principals in rural schools. It seems that principals working in secondary schools and rural schools have the greatest degrees of freedom. The proportion of low-income students also negatively affects the levels of comprehensive principal autonomy. Holding all the other control variables unchanged, as the percentage of low-income students increases, the levels of principal autonomy will decrease.

5.2 Influential Factors of the Principal-Teacher Power Differential

5.2.1 The Levels of the Principal-teacher Power Differential in Separate Dimensions

This section examines the levels of the perceived power differential between principals and teachers who work in the same schools. I want to figure out whether principals are more influential to the decision-making processes of school-related issues and what factors may enlarge or shrink the principal-teacher power differential. I also want to examine whether site-based management encourages more collaborative decision-making processes between principals and teachers in charter schools than in TPSs, that is, whether the levels of the principal-teacher power differential are lower in charter schools than in TPSs.

The regression models are similar to the ones used in the last section. For each dimension and also the comprehensive measure of the power differential, I establish four regression models. Models 1-2 compare between charter schools and TPSs, examining whether the decision-making powers are more evenly distributed in charter schools than in TPSs. These models also show whether the individual characteristics of principals and the contextual factors of schools affect the distributions of power between principals and teachers. Models 3-4 replace the dummy variable for charter schools with three dummy variables: EMO-managed, CMO-managed, and regular charter schools. These two models show us how the individual characteristics of principals and the contextual factors of schools lead to different levels of the principal-teacher power differential in each type of charter schools than those in TPSs.

5.2.1.1 Charter Schools vs. Traditional Public Schools

The results reported in Table 12 indicate how the levels of the power differential in different dimensions will change as each control variable increases by one unit (holding other control variables unchanged). The levels of the power differential in

evaluating teachers, deciding school budgets, and setting discipline policy are lower in charter schools than in TPSs. In other words, the decision-making powers in these issues are more evenly distributed between principals and teachers in charter schools than in TPSs. Charter schools have more collaborative processes for principals and teachers to make decisions. This is what the advocates of charter schools expect to see. The levels of the power differential in other dimensions are similar in charter schools and TPSs.

After I add the individual characteristics of principals and the contextual factors of schools to the model, the differences, between charter schools and TPSs, in the power differential in deciding school budgets and setting discipline policy disappear. It seems that the differences in the power differential in these dimensions are driven by the individual characteristics of principals and the contextual factors of schools. Only the difference in the power differential in evaluating teachers maintains significant, indicating that charter school principals are more likely than TPS principals to share the power of teacher evaluation with teachers.

The effects of gender and race on the levels of the power differential are not in accordance with our intuitions. The levels of the power differential for female principals are higher than those for male principals in setting student performance standards, establishing curriculum, determining teacher professional development programs, evaluating teachers, and deciding school budgets. Female principals are more likely than male principals to dominate these decision-making processes. Minority principals are more likely than white principals to dominate the processes for setting student performance standards and establishing curriculum. The levels of the power differential in these two dimensions are higher for minority principals than for white principals.

Table 12: Principal-teacher Power Differential in Deciding the School-related Issues: Charter Schools vs. TPSs

Variable	D1	D2	D3	D4
Model 1				
Charter School	0.06	0.03	0.05	-0.35***
Model 2				
Charter School	0.08	0.03	0.004	-0.33***
Individual Characteristics of Principal				
Female	0.08**	0.13***	0.15***	0.04*
Minority	0.10*	0.14**	0.02	0.01
Age (+10)	-0.04	0.07**	-0.001	0.02
Master's Degree	0.13	0.08	-0.13	0.13
Doctoral Degree	0.16	0.03	-0.2	0.11
Experience (yrs) (+10)	0.03	-0.06**	-0.02	-0.002
Contextual Factors of School				
Enrollment (+100)	0.02***	0.002	0.01***	0.004
Elementary	0.04	0.14***	-0.01	0.1***
Combined	-0.11*	0.02	-0.03	0.02
Urban	0.08	-0.08	0.01	0.03
Suburban	-0.07*	-0.17	-0.11***	0.02
% Minority Teachers	0.002	0.002	-0.001	-0.001
% Minority Students	-0.001	-0.00	0.001*	0.001
% Low-income Stu.	0.001	0.003***	-0.001	-0.001

*** $p<0.01$; ** $p<0.05$; * $p<0.1$

Notes: N = 6,420 public school principals. Data are from the 2011-12 SASS.

D1: Setting Student Performance Standards
D2: Establishing Curriculum
D3: Determining the Teacher Professional Development Programs
D4: Evaluating Teachers
D5: Deciding School Budgets
D6: Hiring New Teachers
D7: Setting Discipline Policy

Table 12 (continued)

Variable	D5	D6	D7
Model 1			
Charter School	-0.19***	-0.04	-0.13*
Model 2			
Charter School	-0.06	-0.01	-0.05
Individual Characteristics of Principal			
Female	0.07**	0.04	0.04
Minority	0.06	-0.01	0.004
Age (+10)	0.01	0.02	0.03*
Master's Degree	0.29*	-0.14	0.32*
Doctoral Degree	0.32*	-0.18	0.26*
Experience (yrs) (+10)	0.03	-0.01	0.02
Contextual Factors of School			
Enrollment (+100)	0.02***	0.02***	0.03***
Elementary	0.1***	-0.05*	-0.09***
Combined	-0.19***	-0.01	-0.12**
Urban	-0.08*	-0.14***	-0.07*
Suburban	-0.07*	-0.07*	-0.08**
% Minority Teachers	-0.001	0.001	0.001
% Minority Students	0.001	-0.00	0.00
% Low-income Stu.	-0.00	0.002**	0.001

*** p<0.01; ** p<0.05; * p<0.1

Notes: N = 6,420 public school principals. Data are from the 2011-12 SASS.

D1: Setting Student Performance Standards
D2: Establishing Curriculum
D3: Determining the Teacher Professional Development Programs
D4: Evaluating Teachers
D5: Deciding School Budgets
D6: Hiring New Teachers
D7: Setting Discipline Policy

The age of principals positively affects the levels of the power differential in establishing curriculum and setting discipline policy. As principals' age increases, the levels of the power differential in these two dimensions will also increase. Having a master's degree and having a doctoral degree positively affect the levels of the principal-teacher power differential in deciding school budgets and setting discipline policy. The levels of the power differential in these two issues are higher for principals who have a master's or a doctoral degree than for those who have a bachelor's degree. The finding on how principals' administrative experiences affect the power differential in establishing curriculum also deviates from the intuition. The levels of the power differential in establishing curriculum are lower for more experienced principals than for less experienced principals. As the length of administrative experiences increases, the levels of the power differential will decrease.

Among the contextual factors of schools, enrollment size has a positive effect on the levels of the principal-teacher power differential in setting student performance standards, determining teacher professional development programs, deciding school budgets, hiring new teachers, and setting discipline policy. As schools enroll more students, the levels of the power differential in these dimensions will increase. The decision-making processes are more collaborative and democratic in combined schools than in secondary schools. The levels of the principal-teacher power differential in setting student performance standards, deciding school budgets and setting discipline policy are all lower in combined schools than in secondary schools. On the other hand, the levels of the power differential in establishing curriculum, evaluating teachers and deciding school budgets are higher in elementary schools than in secondary schools, while the ones in

hiring new teachers and setting discipline policy are lower in elementary schools than in secondary schools.

Compared to rural schools, urban and suburban schools in general have more collaborative and democratic decision-making processes. Urban schools have lower levels of the power differential in deciding school budgets, hiring new teachers and setting discipline policy, and suburban schools have lower levels of the power differential in setting student performance standards, determining teacher professional development programs, deciding school budgets, hiring new teachers, and setting discipline policy.

The composition of the student body also affects the levels of the principal-teacher power differential. As the proportion of minority students increases, the levels of the power differential in determining professional development programs will also increase. As the proportion of low-income students increases, the levels of the power differential in establishing curriculum and hiring new teachers will increase.

The differences in the power differential in deciding school budgets and setting discipline policy are driven by the control factors. These differences will disappear if I add the control variables to the model. According to the descriptive statistics of variables, charter school principals in general are younger than TPS principals (46.67 years of age vs. 48.05 years of age) and are less likely than TPS principals (27% vs. 37%) to have a doctoral degree. Besides, charter schools are smaller than TPSs (426 students vs. 578 students). They are also less likely to be elementary schools (55% vs. 73%) and more likely to be combined (23% vs. 5%) and urban schools (54% vs. 23%). These factors lead to lower levels of the power differential in deciding school budgets and setting discipline policy in charter schools than in TPSs.

Table 13: Principal-teacher Power Differential in Deciding the School-related Issues: Each Type of Charter Schools vs. TPSs

Variable	D1	D2	D3	D4
Model 3				
EMO Charter	0.08	0.49***	0.08	-0.33*
CMO Charter	0.13	-0.01	0.22***	-0.31***
Regular Charter	0.04	-0.01	-0.003	-0.36***
Model 4				
EMO Charter	0.01	0.45***	0.02	-0.35*
CMO Charter	0.17	-0.04	0.15	-0.26***
Regular Charter	0.07	0.003	-0.04	-0.34***
Individual Characteristics of Principal				
Female	0.08**	0.13***	0.15***	0.04*
Minority	0.10*	0.14**	0.02	0.01
Age (+10)	-0.04	0.07**	-0.001	0.02
Master's Degree	0.14	0.06	-0.12	0.14
Doctoral Degree	0.17	0.02	-0.18	0.11
Experience (+10 yrs)	0.03	-0.06**	-0.02	-0.002
Contextual Factors of School				
Enrollment (+100)	0.02***	0.002	0.01***	0.004
Elementary	0.04	0.14***	-0.01	0.1***
Combined	-0.11*	0.01	-0.03	0.02
Urban	0.08	-0.08	0.01	0.03
Suburban	-0.07*	-0.17	-0.11***	0.02
% Minority Teachers	0.002	0.002	-0.001	-0.001
% Minority Students	-0.001	-0.0004	0.001*	0.001
% Low-income Stu.	0.001	0.003***	-0.001	-0.001

*** p<0.01; ** p<0.05; * p<0.1

Notes: N = 6,420 public school principals. Data are from the 2011-12 SASS.

D1: Setting Student Performance Standards
D2: Establishing Curriculum
D3: Determining the Teacher Professional Development Programs
D4: Evaluating Teachers
D5: Deciding School Budgets
D6: Hiring New Teachers
D7: Setting Discipline Policy

Table 13 (continued)

Variable	D5	D6	D7
Model 3			
EMO Charter	-0.47*	-0.13	0.02
CMO Charter	-0.14	0.2**	0.11*
Regular Charter	-0.17**	-0.1	-0.22**
Model 4			
EMO Charter	-0.43*	-0.13	0.04
CMO Charter	0.04	0.19*	0.23*
Regular Charter	-0.05	-0.05	-0.14
Individual Characteristics of Principal			
Female	0.07**	0.04	0.04
Minority	0.06	-0.01	0.01
Age (+10)	0.01	0.02	0.04*
Master's Degree	0.30*	-0.12	0.35*
Doctoral Degree	0.33**	-0.16	0.3*
Experience (+10 yrs)	0.03	-0.01	0.02
Contextual Factors of School			
Enrollment (+100)	0.02***	0.02***	0.03***
Elementary	0.10***	-0.05*	-0.09***
Combined	-0.18***	-0.01	-0.12**
Urban	-0.08*	-0.14***	-0.07*
Suburban	-0.07*	-0.07*	-0.09**
% Minority Teachers	-0.001	0.001	0.001
% Minority Students	0.001	-0.0003	0.0003
% Low-income Stu.	-0.00	0.001**	0.001

*** p<0.01; ** p<0.05; * p<0.1

Notes: N = 6,420 public school principals. Data are from the 2011-12 SASS.

D1: Setting Student Performance Standards
D2: Establishing Curriculum
D3: Determining the Teacher Professional Development Programs
D4: Evaluating Teachers
D5: Deciding School Budgets
D6: Hiring New Teachers
D7: Setting Discipline Policy

5.2.1.2 Each Type of Charter Schools vs. Traditional Public Schools

According to Table 13, compared to TPSs, EMO-managed charter schools have higher levels of the power differential in establishing curriculum, and have lower levels of the power differential in evaluating teachers and deciding school budgets. CMO-managed charter schools have higher levels of the power differential in determining professional development programs, hiring new teachers and setting discipline policy, and have lower levels of the power differential in evaluating teachers. Regular charter schools in general have more collaborative and democratic decision-making processes than do TPSs. They have lower levels of the power differential in evaluating teachers, deciding school budgets, and setting discipline policy.

The effects of the individual characteristics of principals and the contextual factors of schools on the levels of the principal-teacher power differential are all similar to what we observe in the models for charter schools (see Table 12). After controlling for these factors, some coefficients for CMO-managed and regular charter schools become insignificant. The positive coefficient for CMO-managed charter schools on determining teacher professional development programs becomes insignificant in model 4. The descriptive statistics of variables show that CMO-managed charter schools on average have higher proportions of minority students (72.82% vs. 39.52%), leading to higher levels of the principal-teacher power differential in CMO-managed charter schools than in TPS. The negative coefficients for regular charter schools on deciding school budgets and setting discipline policy also become insignificant once I control for the individual characteristics of principals and the contextual factors of schools. The descriptive statistics of variables show that regular charter schools are more likely than TPSs to be

combined schools (22% vs. 5%) and urban schools (53% vs. 23%) and are less likely to be elementary schools (53% vs. 73%). Besides, regular charter schools are often smaller than TPSs (400 students vs. 578 students). These factors lead to lower levels of the principal-teacher power differential in regular charter schools than in TPSs.

5.2.2 Comprehensive Ratings of the Principal-Teacher Power Differential

Table 14 examines the comprehensive levels of the principal-teacher power differential. The dependent variable combines all the seven dimensions of the principal-teacher power differential. Model 1 only controls for the dummy variable for charter schools. We can find that the coefficient for charter schools (-0.08) is marginally significant at the 0.1 level, which means that the overall levels of the principal-teacher power differential are lower in charter schools than in TPSs. It seems that site-based management does reduce the levels of the power differential between principals and teachers, and charter school principals are more likely than TPS principals to share educational authority with teachers who work in their schools.

Model 2 is the fully specified model. In this model, the coefficient for charter schools (-0.05) becomes insignificant, which indicates that the levels of the principal-teacher power differential are similar in charter schools and in TPSs after I control for the individual characteristics of principals and the contextual factors of schools. The coefficients for female principals (0.08) and minority principals (0.05) are positive and significant. The levels of the principal-teacher power differential for female principals and minority principals are higher than those for male and white principals.

Table 14: Comprehensive Principal-Teacher Power Differential: Charter Schools vs. TPSs & Each Type of Charter Schools vs. TPSs

Variable	Model 1	Model 2	Model 3	Model 4
Charter School	-0.08*	-0.05		
EMO Charter			-0.04	-0.06
CMO Charter			0.03	0.07
Regular Charter			-0.12**	-0.08
Individual Characteristics of Principal				
Female		0.08***		0.08***
Minority		0.05*		0.05*
Age (+10)		0.02		0.02
Master's Degree		0.11		0.13
Doctoral Degree		0.09		0.1
Principal Experience (+10 yrs)		0.0002		0.0002
Contextual Factors of School				
Enrollment (+100)		0.01***		0.01***
Elementary		0.03		0.03
Combined		-0.06**		-0.06**
Urban		-0.03		-0.03
Suburban		-0.08***		-0.08***
% Minority Teachers		0.0004		0.0004
% Minority Students		0.0003		0.0003
% Low-income Students		0.001		0.001
Constant				
Constant	1.47***	1.13***	1.47***	1.12***

*** p<0.01; ** p<0.05; * p<0.1

Notes: N = 6,480 public school principals. Data are from the 2011-12 SASS.

Among the contextual factors of schools, the negative coefficients for combined schools (-0.06) and suburban schools (-0.08) are significant. It shows that the levels of the principal-teacher power differential are lower in combined schools and suburban schools than in secondary schools and rural schools. In addition, the enrollment size of schools has a positive effect on the levels of the principal-teacher power differential. As schools enroll more students, the levels of the comprehensive principal-teacher power differential will increase.

Charter school principals are more likely than TPS principals to be minority, which may lead to higher levels of the principal-teacher power differential in charter schools than in TPSs. On the other hand, charter schools are generally smaller and more likely to be combined schools, which lead to lower levels of the principal-teacher power differential in charter schools than in TPSs. It seems that the negative effect of the contextual factors of schools on the levels of the principal-teacher power differential within charter schools outnumber the positive effect of the individual characteristics of principals. So the lower levels of the principal-teacher power differential in charter schools than in TPSs, which we observe in Model 1, should be explained by the differences in the contextual factors of schools between charter schools and TPSs.

Models 3-4 examine whether and how MOs influence the levels of the comprehensive principal-teacher power differential within charter schools. These two models compare the levels of the principal-teacher power differential in each type of charter schools with those in TPSs, seeing whether the distributions of power between principals and teachers are more balanced in each type of charter schools than in TPSs. In Models 3 and 4, the coefficients for EMO- and CMO-managed charter schools are all

insignificant. The coefficient for regular charter schools (-0.12) is significant in Model 3. The levels of the principal-teacher power differential tend to be lower in regular charter schools than in TPSs, indicating that principals in regular charter schools are more likely than TPS principals to share powers with teachers.

This negative effect of regular charter schools, however, disappears in Model 4 after controlling for the individual- and school-related factors. The coefficients for EMO- and CMO-managed charter schools are still insignificant in model 4. There are no obvious differences in the levels of the principal-teacher power differential between each type of charter schools and TPSs in this model. The results of other control variables are similar to what we observe in Model 2. The levels of the power differential are higher for female principals and minority principals than for male principals and white principals. Besides, the levels of the power differential are lower in combined schools and suburban schools than in secondary schools and rural schools and are higher in larger schools than in smaller schools.

According to the descriptive statistics, principals in regular charter schools are more likely than TPS principals to be minority (32% vs. 18%), and regular charter schools are less likely than TPSs to be suburban schools (22% vs. 27%). These two factors may lead to higher levels of the power differential in regular charter schools than in TPSs. On the other hand, regular charter schools are smaller than TPSs (400 students vs. 578 students) and are more likely to be combined schools, which may lead to lower levels of the principal-teacher power differential in regular charter schools than in TPSs. The total effect of these factors seems to be negative, that is why we observe lower levels of the principal-teacher power differential in regular charter schools in Model 3.

5.3 Summary of This Chapter

In this chapter, I have examined the levels of principal autonomy in each type of charter schools and in TPSs. I find that charter school principals, compared to TPS principals, have higher levels of autonomy in setting student performance standards, establishing curriculum, and determining teacher professional development programs. In addition, charter school principals also enjoy higher levels of comprehensive job autonomy than do TPS principals. These higher levels of autonomy are significant even after I control for the individual characteristics of principals and the contextual factors of schools, indicating that these differences are driven by the implementation of site-based management rather than by the control variables. On the other hand, charter school principals have lower levels of autonomy in evaluating teachers and deciding school budgets, which deviate from my expectations.

I also find that the difference in the levels of comprehensive principal autonomy between charter schools and TPSs is caused by the difference between regular charter schools and TPSs. Principals in regular charter schools have higher levels of comprehensive job autonomy than do TPS principals, while principals working in EMO- and CMO-managed charter schools have similar levels of comprehensive job autonomy as principals working in TPSs.

I have also examined the levels of the principal-teacher power differential in each type of charter schools and in TPSs. I find that charter school principals are more likely than TPS principals to share the decision-making authority of evaluating teachers, deciding school budgets, and setting discipline policy with teachers. And they are also more likely to share the comprehensive decision-making powers with teachers. Most of

these differences in the levels of the principal-teacher power differential, however, are driven by the contextual factors of schools between charter schools and TPSs rather than by the implementation of site-based management.

Like the levels of comprehensive principal autonomy (see Table 11), the lower levels of the comprehensive principal-teacher power differential in charter schools than in TPSs are also caused by regular charter schools (see Table 14). In general, principals in regular charter schools are more likely than TPS principals to share power with teachers, while principals in EMO- and CMO-managed charter schools do not obviously differ from TPS principals.

CHAPTER 6

RESULTS – PRINCIPAL TURNOVER

This chapter reports the results of the multiple logit regression models which examine the levels of principal turnover in charter schools and in TPSs. As I have introduced in chapter 3, the dependent variable for these models is a dichotomous variable indicating whether schools experienced a principal turnover in the survey year (the 2012-13 school year). It equals to 1 if principals who worked in the 2011-12 school year left their positions and equals to 0 if principals were still working in the same positions during the survey year.

I establish two sets of models. The first set (Table 15) compares the levels of principal turnover in charter schools with those in TPSs, examining whether charter school principals leave their positions at higher rates than do TPS principals. The other set (Table 16) distinguishes among EMO-managed, CMO-managed and regular charter schools, comparing the levels of principal turnover in each type of charter schools with those in TPSs. This set of models may tell whether management organizations affect the levels of principal turnover within charter schools. The coefficients reported in these tables show how the probabilities (percentage points) for principals to leave their jobs will change as each control variable increases by one unit (holding other control variables at their mean values). These coefficients are also calculated using the *prchange* command in Stata (see the original coefficients for the logit regression models in Appendix C). Compared to odds ratios, these "changes in probabilities" provide more intuitive and direct comparisons between different types of charter schools and TPSs.

Table 15: Principal Turnover: Charter Schools vs. TPSs

Variable	Model 1	Model 2	Model 3	Model 4
Charter School	6.4***	5.7**	1.9	1.6
Principal Autonomy				-4.6**
Individual Characteristics of Principal				
Female		-2.3	-2.5	-2.8*
Minority		3.9**	-0.4	-1.2
Age		-2.6***	-2.5***	-2.5***
Age^2		0.04***	0.04***	0.04***
Master's Degree		3.9	4.7	5.6
Doctoral Degree		4.8	6.1	8
Principal Experience (yrs)		0.7**	0.8***	1***
Principal $Experience^2$		-0.03***	-0.03***	-0.04***
Contextual Factors of School				
Enrollment (+100)			-0.5***	-0.5**
Elementary			-2.3*	-2.5
Combined			2.2	0.7
Urban			0.0	1.3
Suburban			-0.1	2.4
% Minority Teachers			0.05	0.04
% Minority Students			0.09**	0.09**
% Low-income Students			-0.01	-0.03
Working Conditions of Principal				
Teachers' Classroom Control				-0.9
Teachers' School-wide Influence				-0.9
Teachers' Evaluation of Principal				-9.5***
Student Discipline Problems				2.8
Student Motivation				0.2
Parental Involvement				0.3
Poor School Performance				-1.7
Annual Salary (+$1000)				-0.15***
Weekly Workload (hrs)				0.09*
Union Membership				-1.2

*** p<0.01; ** p<0.05; * p<0.1

Notes: N = 6,470 public school principals. Data are from the 2011-12 SASS.

Table 15 (continued)

Variable	Model 5	Model 6
Charter School	69.3*	41***
Principal Autonomy	-3.7*	-4.4**
Individual Characteristics of Principal		
Female	-2.8*	-2.9*
Minority	-1.1	-1.2
Age	-2.5***	-2.5***
Age^2	0.04***	0.04***
Master's Degree	6.2	8
Doctoral Degree	8.8	10.6
Principal Experience (yrs)	1***	1***
Principal $Experience^2$	-0.04***	-0.04***
Contextual Factors of School		
Enrollment (+100)	-0.47**	-0.47**
Elementary	-2.5	-2.5
Combined	0.7	1.1
Urban	1.2	0.9
Suburban	2.4	2.1
% Minority Teachers	0.04	0.04
% Minority Students	0.09**	0.09**
% Low-income Students	-0.04	-0.03
Working Conditions of Principal		
Teachers' Classroom Control	-0.8	-0.7
Teachers' School-wide Influence	-0.8	-0.9
Teachers' Evaluation of Principal	-9.6***	-9.6***
Student Discipline Problems	2.8	2.9
Student Motivation	0.3	0.4
Parental Involvement	0.3	0.3
Poor School Performance	-1.6	-1.7
Annual Salary (+$1000)	-0.14***	-0.12***
Weekly Workload (hrs)	0.1*	0.1*
Union Membership	-1.2	-1.3
Interaction Terms		
Principal Autonomy * Charter	-16.6*	
Annual Salary (+$1000) * Charter		-0.4***

*** p<0.01; ** p<0.05; * p<0.1

Notes: N = 6,470 public school principals. Data are from the 2011-12 SASS.

I start from the first set of models. In Model 1, I include the dichotomous variable for charter schools as the only predictor variable, directly comparing the levels of principal turnover in charter schools with those in TPSs. Charter school principals have higher turnover rates than do TPS principals. They are 6.4 percentage points more likely than TPS principals to leave their positions. This finding is in accordance with the descriptive statistics of variables. The descriptive statistics show that 28% of charter school principals left their positions during the survey year and this average rate is significantly higher than that of TPS principals (22%).

In Model 2, I add the individual characteristics of principals to the model. The previous research on teacher turnover has pointed out that age is one of the most reliable predictors of the turnover rates of teachers and it follows a U-shape relationship. Younger teachers who are under 30 and older teachers who are greater than 50 both exit at higher rates than do middle-aged teachers. Similarly, the relationship between the teaching experiences of teachers and the turnover rates of teachers follows a U-shape distribution. New teachers who have less than five years of teaching experiences have high turnover rates. Turnover rates, however, decline through the mid-career period and then rise again in the years close to retirement (please see Roch and Sai (2015) for a more detailed literature review on teacher turnover). As I have mentioned in chapter 2, the existing quantitative research on principal turnover has been scarce, thus I have to refer to the research on teacher turnover to establish models. Basing on the findings of the research on teacher turnover, I conjecture that the relationship between age and the turnover rates of principals and the relationship between the lengths of administrative experiences and the turnover rates of principals both follow a U-shape distribution. Therefore, I add the

square terms of the age of principals and the administrative experiences of principals to the model.

The results of Model 2 show that charter school principals still have higher turnover rates than do TPS principals. The positive coefficient for charter schools in Model 2 is slightly smaller than the one in Model 1, but is still significant. Minority principals are more likely to leave their positions than white principals. The turnover rates of minority principals are 3.9 percentage points higher than those of white principals. Both the negative coefficient for age and the positive coefficient for age square are significant. It seems that young principals have high turnover rates. As age increases, turnover rates will decrease until principals become 43 (42.72) years old. Once principals are older than 43 years, their turnover rates will start to increase as age increases. Similarly, the two coefficients for principal experiences and experiences square are both significant, indicating that turnover rates will increase as the working experiences of principals increase and then will decline once principals gain more than 14 (14.36) years of administrative experiences.

In Model 3, I also include the contextual factors of schools. I find that the positive coefficient for charter schools become insignificant, that is, the turnover rates are similar among charter school principals and among TPS principals after controlling for the school context. I also find that several contextual factors significantly drive the likelihood that principals will leave their positions. Principals working in larger schools are less likely to leave than their counterparts working in smaller schools. As schools enroll 100 more students, principals will become 0.5 percentage points less likely to leave their positions. Principals in elementary schools are 2.3 percentage points less likely than

principals in secondary schools to leave their positions. Besides, the proportion of minority students positively affects the turnover rates of principals. As the percentage of minority students increases by 1 percent, principals will become 0.09 percentage points more likely to leave their positions.

According to the descriptive statistics, charter schools are generally smaller than TPSs (426 students vs. 578 students) and are less likely to be elementary schools (55% vs. 73%). They also have higher proportions of minority students (61.59% vs. 39.52%). Given that principals are more likely to stay in larger schools, elementary schools and schools with less minority students, the differences in the contextual factors of schools between charter schools and TPSs appear to explain why we see higher turnover rates among charter school principals than among TPS principals. The results for the individual characteristics of principals are similar to what we observe in Model 2 except that the coefficient for minority principals becomes insignificant.

In Model 4, I expand the model and also control for the working conditions of principals. This is the fully specified model for principal turnover. I find that the levels of principal autonomy and teachers' evaluations of the principal negatively affect the turnover rates of principals. As the levels of principal autonomy and teachers' evaluations of the principal increases by 1 level, the turnover rates of principals will decrease by 4.6 and 9.5 percentage points. Annual salaries also negatively affect the turnover rates of principals. As principals earn $1000 more, their turnover rates will decrease by 0.15 percentage points. In contrast, weekly workloads positively affect the turnover rates of principals. As principals work for 1 more hour in each week, their turnover rates will increase by 0.09 percentage points.

The results of other control variables are similar to the ones we observe in Model 3 except for two variables. The negative coefficient for elementary schools becomes insignificant, while the negative coefficient for female principals becomes significant. The turnover rates of female principals are 2.8 percentage points lower than those of male principals. Compared to Model 3, we see a decrease in the coefficient for charter schools in Model 4, signifying that the higher turnover rates among charter school principals can be partially explained by the differences in the working conditions of principals. Charter school principals have higher levels of job autonomy than do TPS principals, leading to lower turnover rates among charter school principals. The negative effect of principal autonomy, however, is outnumbered by the effect of annual salaries. Charter school principals receive lower levels of payment than do TPS principals, thus tend to have higher turnover rates.

In Models 5 and 6, I examine whether differences exist between charter schools and TPSs in the effects of working conditions on the turnover rates of principals, considering both the factor that helps increase their turnover rates (weekly workloads) and those that help decrease their turnover rates (principal autonomy, teachers' evaluations of the principal, annual salaries). I have run a series of models that I do not report here in which I add in the interaction terms between charter schools and the working conditions of principals one by one. I find that only two of these interaction terms are significant. In Model 5, I control for the interaction term between charter schools and the levels of principal autonomy, seeing whether the slopes of principal autonomy are different for charter school principals and for TPS principals. I find a negative and significant interaction between charter schools and the levels of principal

autonomy, signifying that principal autonomy has a greater effect on the turnover rates of principals in charter schools than in TPSs. We can say that the levels of principal autonomy are more influential to charter school principals than to TPS principals. This finding can substantiate my hypothesis. In Model 6, I find a negative interaction between charter schools and annual salaries, indicating that payment has a greater effect on the turnover rates of charter school principals than that of TPS principals.

The results of the second set of models are reported in Table 16. This set of models is the same as the first set, but I replace the charter school variable with three dichotomous variables that indicate whether the school is a regular charter school or managed by an EMO or a CMO. In Model 1, the coefficients for EMO-managed and regular charter schools are insignificant, which means that principals in EMO-managed and regular charter schools have similar turnover rates as TPS principals. The turnover rates among principals in CMO-managed charter schools, however, appear to be higher than those among TPS principals. Principals in CMO-managed charter schools are 19.9 percentage points more likely than TPS principals to leave their positions.

In Models 2 and 3, we can still see higher turnover rates among principals in CMO-managed charter schools than among TPS principals, and the turnover rates of principals in EMO-managed and regular charter schools are similar to those in TPSs. Minority principals, the square term of age, and administrative experiences positively affect the turnover rates of principals, while age and the square term of administrative experiences negatively affect turnover rates. Among the contextual factors of schools, enrollment size and elementary schools negatively affect turnover rates, and the proportion of minority students positively affects the turnover rates of principals.

Table 16: Principal Turnover: Each Type of Charter Schools vs. TPSs

Variable	Model 1	Model 2	Model 3	Model 4
EMO Charter	3.3	3	2.4	2
CMO Charter	19.9***	19.3***	13.3***	12**
Regular Charter	2.9	2.6	-0.9	-1.1
Principal Autonomy				-4.6**
Individual Characteristics of Principal				
Female		-2.3	-2.5	-2.8*
Minority		4**	-0.2	-1
Age		-2.4***	-2.4***	-2.4***
Age^2		0.04***	0.03***	0.04***
Master's Degree		5.6	6.2	7
Doctoral Degree		6.6	7.7	9.6
Principal Experience (yrs)		0.7**	0.8***	1***
$Principal\ Experience^2$		-0.03***	-0.03***	-0.04***
Contextual Factors of School				
Enrollment (+100)			-0.5***	-0.5**
Elementary			-2.3*	-2.5
Combined			2.1	0.6
Urban			0.1	1.4
Suburban			-0.2	2.4
% Minority Teachers			0.05	0.04
% Minority Students			0.09**	0.09**
% Low-income Students			-0.01	-0.04
Working Conditions of Principal				
Teachers' Classroom Control				-0.9
Teachers' School-wide Influence				-0.8
Teachers' Evaluation of Principal				-9.5***
Student Discipline Problems				2.8
Student Motivation				0.2
Parental Involvement				0.2
Poor School Performance				-1.6
Annual Salary (+$1000)				-0.15***
Weekly Workload (hrs)				0.09*
Union Membership				-1.2

*** p<0.01; ** p<0.05; * p<0.1

Notes: N = 6,470 public school principals. Data are from the 2011-12 SASS.

Table 16 (continued)

Variable	Model 5
EMO Charter	121.7**
CMO Charter	45.9**
Regular Charter	27.8*
Principal Autonomy	-4.6*
Individual Characteristics of Principal	
Female	-3.1*
Minority	-1
Age	-2.4***
Age^2	0.03***
Master's Degree	8*
Doctoral Degree	10.3**
Principal Experience (yrs)	1***
$Principal\ Experience^2$	-0.04***
Contextual Factors of School	
Enrollment (+100)	-0.47***
Elementary	-2.5
Combined	1.1
Urban	0.9
Suburban	2
% Minority Teachers	0.04
% Minority Students	0.09**
% Low-income Students	-0.03
Working Conditions of Principal	
Teachers' Classroom Control	-0.8
Teachers' School-wide Influence	-0.8
Teachers' Evaluation of Principal	-10.3***
Student Discipline Problems	2.9
Student Motivation	0.5
Parental Involvement	0.3
Poor School Performance	-1.7
Annual Salary (+$1000)	-0.12***
Weekly Workload (hrs)	0.09
Union Membership	-1.4
Interaction Terms	
Annual Salary (+$1000) * EMO Charter	-1***
Annual Salary (+$1000) * CMO Charter	-0.39
Annual Salary (+$1000) * Regular Charter	-0.35*

*** p<0.01; ** p<0.05; * p<0.1

Notes: N = 6,470 public school principals. Data are from the 2011-12 SASS.

Model 4 is the fully specified model which also controls for the working conditions of principals. In Model 4, principals in CMO-managed charter schools still exit at higher rates than do their counterparts working in TPSs. Principals working in EMO-managed and regular charter schools and TPS principals appear to have similar turnover rates. Principal autonomy and teachers' evaluations of the principal both have a negative effect on the turnover rates of principals. As the levels of principal autonomy and teachers' evaluations of the principal increase by 1 level, the turnover rates of principals will decrease by 4.6 and 9.5 percentage points. Besides, annual salaries negatively affect the turnover rates of principals, while weekly workloads positively affect their turnover rates. As principals earn $1000 more, their turnover rates will decrease by 0.15 percentage points. In contrast, as the weekly workloads increase by 1 hour, their turnover rates will increase by 0.09 percentage points. The results of the individual characteristics of principals and the contextual factors of schools are similar to the ones we observe in the fully specified model in Table 15.

The positive coefficient for CMO-managed charter schools keeps decreasing from Model 1 to Model 4. We can see that the higher turnover rates among principals in CMO-managed charter schools than among TPS principals can be partially explained by the differences in the individual characteristics of principals, the contextual factors of schools, and the working conditions of principals. Compared to TPS principals, principals in CMO-managed charter schools are much younger and more likely to be minority. They also earn less than do TPS principals. Besides, CMO-managed charter schools are smaller than TPSs and are less likely to be elementary schools. They also enroll higher proportions of minority students. All these differences will lead to higher turnover rates

among principals in CMO-managed charter schools than among TPS principals. These observed factors, however, cannot explain all of the differences in the turnover rates of principals. The turnover rates of principals still appear to be higher in CMO-managed charter schools than in TPSs even after I control for all these visible factors. There must be some unobservable or immeasurable factors that help drive the higher turnover rates among principals in CMO-managed charter schools.

Similarly, I examine whether differences exist between each type of charter schools and TPSs in the effects of the working conditions of principals on their turnover rates. I have run another series of models in which I add in the interaction terms between each type of charter schools and the working conditions of principals one by one. I find that only the interaction term between EMO-managed charter schools and the annual salaries of principals and the one between regular charter schools and the annual salaries of principals are significant. These two negative coefficients signify that annual salaries have greater effects on the turnover rates of principals working in EMO-managed and regular charter schools than those of principals working in TPSs. We can say that annual salaries are more influential to principals in EMO-managed and regular charter schools than to TPS principals. The interaction term between CMO-managed charter schools and annual salaries, however, is insignificant. As for principal autonomy, I have examined the interaction terms between the levels of principal autonomy and each type of charter schools. Although the interaction term between principal autonomy and charter school is significant in the first set of principal turnover models, the interaction terms between principal autonomy and EMO-managed, CMO-managed and regular charter schools are insignificant in this set of models.

CHAPTER 7

CONCLUSION

In this dissertation, I have explored the levels of principal autonomy in charter schools and compared them with those in TPSs. I have also explored the levels of the principal-teacher power differential in charter schools and in TPSs. I have observed whether implementing site-based management may grant a more even distribution of power between principals and teachers in charter schools than in TPSs. In addition, I have explored the turnover rates of public school principals. I have investigated whether and how the individual characteristics and the working conditions of principals as well as the contextual factors of schools affect the turnover rates of school principals. I have conducted comparisons between charter schools and TPSs, examining whether charter school principals are more likely than TPS principals to leave their positions.

Besides comparing charter schools with TPSs, I have also distinguished among for-profit EMO-managed charter schools, nonprofit CMO-managed charter schools and regular charter schools. I have examined whether management organizations decrease the levels of principal autonomy and increase the levels of the principal-teacher power differential within charter schools. I have also examined whether principals in EMO- and CMO-managed charter schools exit at higher rates than do principals in regular charter schools and TPSs.

7.1 Charter School Principals Enjoy Higher Levels of Job Autonomy

I have explored the levels of principal autonomy in both charter schools and TPSs. I find that charter school principals perceive that they have higher levels of job

autonomy than do TPS principals. Compared to TPS principals, charter school principals have higher levels of autonomy in setting performance standards for students, establishing curriculum, and determining professional development programs for teachers. Although they also have lower levels of autonomy in evaluating teachers and deciding school budgets than do TPS principals, the levels of comprehensive principal autonomy appear to be higher in charter schools than in TPSs. The levels of comprehensive principal autonomy are measured by a summated rating that combines multiple dimensions of principal autonomy, including setting performance standards for teachers, establishing curriculum, determining professional development programs for teachers, evaluating teachers, hiring new teachers, setting discipline policy, and deciding school budgets. The higher levels of comprehensive principal autonomy in charter schools than in TPSs maintain even after I control for the individual characteristics of principals and the contextual factors of schools.

I have also distinguished among for-profit EMO-managed charter schools, nonprofit CMO-managed charter schools and regular charter schools. I find that principals in CMO-managed charter schools have higher levels of autonomy in setting performance standards for students and establishing curriculum and have lower levels of autonomy in deciding school budgets than do TPS principals. Principals in EMO-managed charter schools have lower levels of job autonomy in deciding the school budgets than do TPS principals. The levels of their autonomy in other dimensions of principal autonomy are similar to those of TPS principals. Principals in regular charter schools have higher levels of autonomy in setting performance standards for students, establishing curriculum and determining professional development programs for teachers

than do TPSs, and they have lower levels of autonomy in evaluating teachers and deciding school budgets. As for the levels of comprehensive principal autonomy, principals in regular charter schools perceive that they have higher levels of job autonomy than do TPS principals. The levels of comprehensive principal autonomy in EMO- and CMO-managed charter schools, however, are not obviously different from those in TPSs. In other words, among all charter school principals, those who work in regular charter schools enjoy higher levels of job autonomy than do TPS principals, and those who work in MO-managed charter schools have similar levels of job autonomy as their counterparts working in TPSs. We have observed higher levels of principal autonomy in charter schools than in TPSs because principals in regular charter schools, who take up the majority of charter school principals, have higher levels of job autonomy than do TPS principals.

The individual characteristics of principals and the contextual factors of schools also affect the levels of principal autonomy. I find that female principals on average have higher levels of job autonomy than do male principals. On the other hand, principals in elementary schools and combined schools both have lower levels of job autonomy than do principals in secondary schools. Principals in urban schools and suburban schools both have lower levels of job autonomy than do principals in rural schools. The proportions of low-income students in the schools negatively affect the levels of principal autonomy. As the percentage of low-income students increases, the levels of principal autonomy will decrease.

The findings of this dissertation are generally in accordance with those of prior research on the job autonomy of principals. According to Gawlik (2008), principals

working in rural schools have more job autonomy, while principals working in schools with more poor and minority students have less job autonomy. I find, in this study, that principals in rural schools have greater job autonomy than do principals in urban and suburban schools, and principals working in schools with higher proportions of low-income students tend to have lower levels of job autonomy. Gawlik (2008) has also found that white, male and more experienced principals are granted higher levels of job autonomy; however, I find that female principals perceive that they have higher levels of job autonomy than do their male counterparts. Compared to male principals, female principals have higher levels of influence in determining professional development programs for teachers, evaluating teachers and deciding school budgets, and they also have higher levels of comprehensive job autonomy.

As I have reviewed in chapter 2, the existing studies examining the levels of principal autonomy in charter schools have been scarce, and only a few are quantitative studies that compare the levels of principal autonomy in charter schools with those in TPSs. Gawlik (2008) found that charter school principals, compared to TPS principals, were granted greater degrees of autonomy in making decisions related to school standards, curriculum, professional development programs, teacher recruitment, school budgets, and discipline policy. Adamowski, Therriault and Cavanna (2007) found that charter school principals perceived that they had greater autonomy in hiring teachers and designing curriculum than did TPS principals.

In this dissertation, I find that charter school principals have higher levels of autonomy in making decisions related to student performance standards, school curriculum and teacher professional development programs but have lower levels of job

autonomy in determining teacher evaluation and school budgets than do TPS principals. I also find that the levels of comprehensive principal autonomy are higher in charter schools than in TPSs, which is in accordance with the results of Gawlik (2008) and Adamowski, Therriault and Cavanna (2007).

The findings of this dissertation also fill a gap in the research on principal autonomy. Prior research has not provided a clear evidence that whether MO-managed charter schools have lower levels of principal autonomy than do regular charter schools and TPSs. Brown, Henig, Lacireno-Paquet and Holyoke (2004) compared the levels of school autonomy of EMO-managed charter schools with those of CMO-managed and regular charter schools, finding that EMO-managed charter schools have less autonomy with regard to curriculum, testing and standards, student discipline, facilities and general administration. Their research, however, does not directly focus on principal autonomy but examines school-level autonomy instead. In this dissertation, I have directly measured the levels of principal autonomy in each type of charter school, finding that the levels of principal autonomy in EMO- and CMO-managed charter schools are similar to those in TPSs and are lower than those in regular charter schools.

Gross (2011) has discussed how the greater degrees of school-level autonomy in charter schools affect the roles of principals. Charter schools offer their principals the opportunity to focus on a specific student group, hire the teachers they want and sometimes dismiss those they do not want, work with their staff to determine the best curriculum, and restructure the school day. These practices are not easy or even possible for TPS principals. Charter school principals not only play the role of instructional leadership, but also provide strong organizational management and act as the political

buffer between the schools and broader educational communities. These principals have considerable room to both rethink the way the staffs and communities engage in leadership activities and develop new partnerships to help support the schools. On the other hand, Gross (2011) has also mentioned that the new opportunities unlocked by autonomy also encounter new challenges. With greater autonomy come more tasks and responsibilities. Charter school principals need to create and support a vision, build a staff, manage budgets, deal with payroll and facilities management, and take care of the school's marketing and student recruitment. These practices bring a host of added responsibilities, and many charter school principals are struggling with these demands. To support these principals, authorizers of charter schools need to look closely for building and implementing a clear and achievable mission. Training programs need to be scaled up to provide specialized and sufficient training for school principals who are faced with increasing demands. Besides, states need to improve the reliability and stability of charter school funding, taking the burden of fund raising off the hands of charter school principals.

How the higher levels of school-level autonomy affect student achievement has not been determined (Wohlstetter, Smith and Farrell, 2013). Adamowski, Therriault and Cavanna (2007) found that two-thirds of charter school principals reported that having autonomy was necessary in raising student achievement. Zimmer and Buddin (2007), however, stated that the differences in school-level autonomy between charter schools and TPSs did not translate into differences in high school test scores. Based on the findings of the previous research on principal autonomy and also the findings of this dissertation, a critical question can be raised. Are principals and teachers in charter

schools truly utilizing the higher levels of autonomy as a tool for improving student achievement, or are higher levels of autonomy only granted but not used? Wohlstetter, Smith and Farrell (2013) have mentioned that although state laws grant charter schools greater degrees of autonomy, not all schools take advantage of this freedom to conduct school business in innovative ways. The relationships between autonomy and accountability and between autonomy and the growth of charter districts, how to react to potential barriers inhibiting autonomy, and how to link the higher levels of school-level autonomy to better student performance need further investigations.

7.2 The Principal-teacher Power Differential Is Smaller in Charter Schools

In this study, I have also explored the levels of the principal-teacher power differential in charter schools and in TPSs. I find that the levels of the principal-teacher power differential in evaluating teachers, setting discipline policy and deciding school budgets are lower in charter schools than in TPSs. Most of these differences, however, disappear once I control for the individual characteristics of principals and the contextual factors of schools. Only the differences in teacher evaluation remain after I add in the control variables. The levels of the comprehensive principal-teacher power differential are lower in charter schools than in TPSs, but these differences also become insignificant in the fully specified model. It seems that the differences in the contextual factors of schools between charter schools and TPSs help drive the lower levels of the principal-teacher power differential in charter schools than in TPSs.

Among the controlled principal- and school-related factors, the levels of the comprehensive principal-teacher power differential tend to be higher for female and minority principals than for male and white principals. Female principals are more

dominating than male principals in the processes of setting performance standards for students, establishing curriculum, determining professional development programs for teachers, evaluating teachers and deciding school budgets; minority principals are more dominating than white principals in the processes of setting student performance standards and establishing curriculum. The enrollment size of schools positively affects the levels of the comprehensive principal-teacher power differential. Larger schools have higher levels of power differential than do small schools. Besides, the levels of the comprehensive principal-teacher power differential appear to be lower in combined elementary and secondary schools and suburban schools than in secondary schools and rural schools.

In the models comparing the levels of the comprehensive principal-teacher power differential in charter schools with those in TPSs, the negative coefficient for charter schools is marginally significant in Model 1 but becomes insignificant in the fully specified model which also controls for the individual characteristics of principals and the contextual factors of schools. As I have mentioned in chapter 4, charter schools on average are smaller and more likely to be combined schools than TPSs (see the descriptive statistics of variables), which may lead to lower levels of the comprehensive principal-teacher power differential in charter schools than in TPSs. So the lower levels of the comprehensive principal-teacher power differential in charter schools, which are observed in Model 1, appear to be driven by the differences in the contextual factors of schools.

After distinguishing between MO-managed and regular charter schools, I find that the levels of the comprehensive principal-teacher power differential in regular

charter schools appear to be lower than those in TPSs, while the ones in EMO- and CMO-managed charter schools are both similar to those in TPSs. Like the negative coefficient for charter schools, the negative coefficient for regular charter schools also becomes insignificant in the fully specified model that controls for the individual characteristics of principals and the contextual factors of schools. We can say that the lower levels of the comprehensive principal-teacher power differential in charter schools, which are compared with those in TPSs, are led by the lower levels of the comprehensive principal-teacher power differential in regular charter schools.

The previous research has argued that educational authority is more evenly distributed in site-based managed schools than in schools that strictly follow the instructions coming from the local school boards and the state boards of education (White, 1992; Smylie, Lazarus and Brownlee-Conyers, 1996). Charter schools are designed to implement site-based management, thus are expected to have more collaborative and democratic processes of deciding school-related issues. Among all charter schools, EMO- and CMO-managed charter schools are often centrally managed by network offices and are less likely than regular charter schools to implement site-based management, thus the levels of the principal-teacher power differential are expected to be higher in MO-managed charter schools than in regular charter schools.

The findings of this dissertation support these hypotheses. I see lower levels of the principal-teacher power differential in charter schools than in TPSs, indicating that charter school principals are more likely than TPS principals to share educational authority with teachers, in particular in evaluating teachers, setting discipline policy and deciding school budgets. I also see that the levels of the principal-teacher power

differential in EMO- and CMO-managed charter schools are similar to those in TPSs and are higher than the ones in regular charter schools. The only problem is that the differences in the levels of the principal-teacher power differential between charter schools and TPSs become unobvious if I control for the individual characteristics of principals and the contextual factors of schools. It seems that the differences in the levels of the principal-teacher power differential are not caused by the differences in school philosophy or governance structure but by the differences in principals' demographic statuses and schools' contextual factors. According to this finding, the decision making processes of TPSs can become as collaborative and democratic as the ones of charter schools once TPSs enroll fewer students, enroll students at lower grades and locate themselves in suburban areas.

Prior research on charter schools has found that charter school teachers have higher levels of job autonomy than do TPS teachers (Renzulli, Parrott and Beattie, 2011; Ni, 2012; Wohlstetter, Smith and Farrell, 2013; Gross, 2011; Roch and Sai, 2015; Roch and Sai, 2016). The findings of this dissertation are in accordance with this previous research. Principals and also teachers who work in charter schools enjoy higher levels of job autonomy than do their counterparts working in TPSs, that is why we see lower levels of the principal-teacher power differential in charter schools than in TPSs. Principals are granted higher levels of job autonomy in charter schools, and they become more likely to share school-level educational authority with teachers. At the same time, teachers are also granted higher levels of job autonomy in charter schools and are more engaged in making decisions on school-related issues. As a result, we see a more even distribution of school-level educational authority between principals and teachers in charter schools than in

TPSs, leading to more collaborative and democratic decision-making processes. This finding also supports the statements of the previous scholars. Wohlstetter, Smith and Farrell (2013) found that charter school teachers became more involved, than TPS teachers, in making decisions related to schooling. Malloy and Wohlstetter (2003: 235) state that charter school teachers feel involved in school decision making when the principals create a "sense of team". Such perception, as Wohlstetter, Smith and Farrell (2013) have argued, may translate into positive behaviors such as greater teacher commitment to charter schools.

7.3 Charter School Principals Exit at Higher Rates

In this dissertation, I have also explored the turnover rates of principals who work in different types of charter schools and in TPSs. I find that charter school principals are more likely than TPS principals to leave their positions. The differences in turnover rates between charter school principals and TPS principals, however, become insignificant once I control for the individual characteristics of principals and the contextual factors of schools. It seems that the differences in the individual characteristics of principals and the contextual factors of schools drive the higher turnover rates among charter school principals than those among principals in traditional public schools.

After controlling for the individual characteristics of principals, the positive coefficient for charter schools decreases but is still significant, which indicates that the individual characteristics of principals help explain a small aspect of the turnover behaviors of principals. According to the results of the turnover models, minority principals are more likely than white principals to leave their positions. The relationship between age and the turnover rates of principals follows a U-shape distribution. Young

principals have high turnover rates. As age increases, turnover rates will decrease until principals become 43 (42.72) years old. Then, the turnover rates will increase as the age of principals increases. On the other hand, the relationship between the length of administrative experiences and the turnover rates of principals follows an inverse U-shape distribution. Turnover rates are relatively low for inexperienced principals. Principals will become more and more likely to leave their positions as they gain more administrative experiences. Then turnover rates will start to decline along with the increase of their administrative experiences once they have gained more than 14 (14.36) years of administrative experiences. Compared to TPS principals, charter school principals are younger and more likely to be minority, which may lead to higher turnover rates among charter school principals than among TPS principals. But they are also less experienced, which may lead to lower turnover rates among charter school principals than among TPS principals. It is possible that there exists a self-selection process among public school principals. We observe higher turnover rates among charter school principals is because those principals who have higher probabilities of turnover (minority principals, young principals) are more likely to work in charter schools than in TPSs.

After I control for the contextual factors of schools, I find that the positive coefficient for charter schools becomes insignificant, that is, the contextual factors of schools explain the main differences in the turnover rates of principals. Principals working in larger schools are less likely to leave than their counterparts working in smaller schools. Principals in elementary schools are less likely than principals in secondary schools to leave their positions. Besides, principals working in schools with higher proportions of minority students are more likely to exit than principals working in

schools with low proportions of minority students. Charter schools on average are smaller than TPSs and are less likely to be elementary schools. They also have higher proportions of minority students than do TPSs. Therefore, the differences in the school context between charter schools and TPSs appear to explain why we can see higher turnover rates among charter school principals than among TPS principals.

The working conditions also help explain an aspect of the exits of principals. I find that the levels of principals' job autonomy negatively affect their turnover rates. Principals' turnover rates are also affected by the evaluations they receive from the teachers working in their schools. Teachers' evaluations show whether teachers think principals are supportive and encouraging. Principals are less likely to leave their positions if they are granted higher levels of job autonomy and receive better evaluations from teachers. The levels of principals' payment also negatively affect their turnover rates. In contrast, principals' weekly workloads positively affect their turnover rates. Principals will become more likely to stay in their positions if they get higher payments and lower workloads. After I control for the working conditions of principals, I see a decrease in the positive and insignificant coefficient for charter schools, signifying that the higher turnover rates among charter school principals than among TPS principals can be partially explained by the differences in the working conditions of principals. Charter school principals do enjoy higher levels of job autonomy than do TPS principals. This negative effect on turnover rates, however, is outnumbered by the positive effect of the payment of principals since charter school principals receive lower salaries than do TPS principals.

In this dissertation, I have also run a series of models which include the interaction terms between charter schools and the working conditions of principals. I find a negative interaction term between charter schools and the levels of principal autonomy, indicating that principal autonomy has a greater negative effect on the turnover rates among charter school principals than on those among TPS principals. The levels of principal autonomy are more influential to charter school principals than to TPS principals. I also find a negative interaction term between charter schools and the annual salary of principals, signifying that payment also has a greater negative effect on the turnover rates among charter school principals than on those among TPS principals.

After distinguishing among EMO-managed, CMO-managed and regular charter schools, I find that principals in CMO-managed charter schools exit at higher rates than do TPS principals, that is why we see higher turnover rates among charter school principals than among TPS principals. As for other charter school principals who work in EMO-managed and regular charter schools, their turnover rates do not obviously differ from those of TPS principals. The size of the positive coefficient for CMO-managed charter schools keeps decreasing as I add in the control variables step by step, signifying that those principal- and school-related factors can explain a part of the differences in the turnover rates of principals. However, the positive coefficient for CMO-managed charter schools is still significant in the fully specified model. Some invisible factors that are not controlled for by my models help drive the differences in the turnover rates of principals between CMO-managed charter schools and TPSs. The uncontrolled factors may be related to the cultural context of schools. CMO-managed charter schools sometimes have school cultures that support and encourage long work hours such as 60 hours to 80 hours

per week. They also require employees to focus on meeting the mission and the goals of the school. This type of culture may be attractive to some principals with high levels of passion on the mission of the school, but may also facilitate the burnout and turnover of other principals (Torres, 2014; Lake, Dusseault, Bowen, Demeritt and Hill, 2010).

Similarly, I have run another series of models in which I add in the interaction terms between each type of charter schools and the working conditions of principals. I find significant negative interaction terms between EMO-managed charter schools and the annual salaries of principals and between regular charter schools and the annual salaries of principals. It seems that payment has a greater negative effect on the turnover rates among principals in EMO-managed and regular charter schools than among TPS principals. Annual salaries are more influential to principals in EMO-managed and regular charter schools than to TPS principals.

As I have mentioned in chapter 2, no current research has quantitatively assessed the turnover rates among charter school principals. Past research has only evaluated the turnover rates among principals in all public schools without distinguishing between charter schools and TPSs. This previous research has found that in the range of 14-30% of principals in public schools leave their jobs each year (Battle and Gruber, 2010; DeAngelis and White, 2011; Cullen and Mazzeo, 2007; Ringel, Gates, Chung, Brown and Ghosh-Dastidar, 2004; Gates, Guarino, Santibanez, Brown, Ghosh-Dastidar and Chung, 2004; Fuller, Young and Orr, 2007; Beteille, Kalogrides and Loeb, 2011). In this dissertation, I find that around 28% of charter school principals and 22% of TPS principals leave their jobs from one year to the next. This trend is in accordance with the findings of prior research.

There has been much more research that is focused on teacher retention. Some of this research has compared the turnover rates among charter school teachers with those among TPS teachers, finding that charter school teachers are more likely to leave their positions than do TPS teachers (Renzulli, Parrott and Beattie, 2011; Stuit and Smith, 2009; Stuit and Smith, 2012; Cannata, 2010). Roch and Sai (2015) found that teachers working EMO- and CMO-managed charter schools had higher levels of turnover intention than did teachers working in regular charter schools. In this dissertation, I find that charter school principals are more likely than TPS principals to leave their positions. I also find that principals in CMO-managed charter schools have higher turnover rates than do principals in EMO-managed and regular charter schools as well as TPS principals.

Gross (2011) has mentioned that starting a new charter school involves many challenges such as creating and supporting a vision, acquiring facilities, designing instructional programs, recruiting teachers and staff, managing budgets and payroll, and enrolling students, which bring added responsibilities to charter school principals. Operating an existing charter school is also a tough task for principals. Traditional public systems provide vital guidance and resources to school principals, which may help lighten the burden of school principals. Charter school principals, in contrast, have to rely more on themselves and are faced with demanding workloads. It is not surprising that we see higher turnover rates among charter school principals than among TPS principals. Charter school principals appear to be more mobile than TPS principals, but we are unclear about whether charter school principals are less embedded in the public education system and are more likely to move to the private sector than TPS principals. Prior

research on principal turnover does not provide useful information, and the data of this dissertation cannot answer this question either. It would be helpful if future versions of the Principal Follow-up Survey (PFS) included a question asking whether principals leave for a position in the private education system or private sector generally.

7.4 The Contributions and Limitations of This Study

This comprehensive quantitative study contributes to the literature on principal autonomy, the principal-teacher power differential, and principal turnover. My findings support and supplement the previous research on principal autonomy. I have shown that charter school principals, in particular those of regular charter schools, are granted higher levels of job autonomy than TPS principals. I have also shown that charter schools provide both principals and teachers with higher levels of job autonomy and charter school principals are more likely than TPS principals to share the decision-making powers with teachers and engage teachers in decision-making processes.

In addition, this dissertation provides job characteristics theory with empirical evidence, showing that the levels of job autonomy negatively affect the turnover rates of principals. Charter school principals enjoy higher levels of job autonomy than do TPS principals; however, they still exit at higher rates than do TPS principals because other principal- and school-related factors in general lead to higher turnover rates among charter school principals than among TPS principals. I have also demonstrated the role that salary and workloads play in determining the turnover rates of principals. Principals will be more likely to leave their jobs if they receive lower salaries and have higher weekly workloads. Besides, charter school principals are more concerned with job autonomy and salary than TPS principals. The levels of principal autonomy and annual

salaries both have a larger negative effect on the turnover rates among charter school principals than on those among TPS principals.

In this study, I find that principals in CMO-managed charter schools exit at higher rates than do principals in EMO-managed and regular charter schools and TPS principals. The models I have established in this dissertation, however, provide little evidence of which factors appear most important in driving the higher turnover rates among principals in CMO-managed charter schools. The significant and positive coefficient reflects these uncontrolled for factors. I conjecture that some factors are related to school philosophy and school culture, which I cannot measure in this study, may help explain the differences we observe in the turnover rates of principals between CMO-managed charter schools and TPSs. We need more comprehensive models, which can control for culture-related factors, to explore what factors help drive the higher turnover rates among principals in CMO-managed charter schools.

Besides, the sample of this study includes a relatively small number of EMO- and CMO-managed charter schools since MO-managed charter schools only make up a small proportion of existing public schools in reality. As I have mentioned in chapter 3, the sample of this study over represents the schools managed by large-scale EMOs and under represents the schools managed by medium-scale EMOs. It also slightly over represents the schools managed by small-scale EMOs. On the other hand, the sample of this study slightly under represents the schools managed by large- and small-scale CMOs and over represents the schools managed by medium-scale CMOs. Therefore, the conclusions about EMO- and CMO-managed charter schools may not be as solid as the ones about regular charter schools and TPSs.

This study suggests that policy makers should pay careful attention to the levels of job autonomy that are offered to school principals if they plan to decrease the turnover rates among public school principals. They may also need to consider carefully the payment they offer to school principals and the relationships between school principals and teachers. Higher levels of payment and more harmonious relationships between principals and teachers may help restrain the higher turnover rates among public school principals. I believe that future work should continue to explore and assess how CMO-managed charter schools differ from EMO-managed and regular charter schools in school philosophy and school culture as well as in other principal- and school-related factors, seeing why principals in CMO-managed charter schools show higher turnover rates than do their counterparts working in other charter schools and in TPSs. Future work should also work on verifying my conclusions about EMO- and CMO-managed charter schools as those conclusions of this study may be relatively tentative.

APPENDIX A

VARIABLES INCLUDED IN THE ANALYSES

Table 17: Dependent Variables: Principal Autonomy

How much actual influence do you think you have as a principal on decision concerning the following activities?

Variable	Survey Item	Coded Value
Student Performance Standards	A0083: Setting performance standards for students of this school	1 = No influence 2 = Minor influence 3 = Moderate influence 4 = Major influence
Curriculum	A0084: Establishing curriculum at this school	1 = No influence 2 = Minor influence 3 = Moderate influence 4 = Major influence
Teacher Professional Development	A0085: Determining the content of in-service professional development programs for teachers of this school	1 = No influence 2 = Minor influence 3 = Moderate influence 4 = Major influence
Teacher Evaluation	A0086: Evaluating teachers of this school	1 = No influence 2 = Minor influence 3 = Moderate influence 4 = Major influence
Teacher Recruitment	A0087: Hiring new full-time teachers of this school	1 = No influence 2 = Minor influence 3 = Moderate influence 4 = Major influence
Discipline Policy	A0088: Setting discipline policy at this school	1 = No influence 2 = Minor influence 3 = Moderate influence 4 = Major influence
School budgets	A0089: Deciding how your school budgets will be spent	1 = No influence 2 = Minor influence 3 = Moderate influence 4 = Major influence
Principal Autonomy	Summated rating scale that combines A0083 ~ A0089 (alpha=0.57)	

Table 18: Dependent Variables: Principal-Teacher Power Differential

How much actual influence do you think you have as a principal on decision concerning the following activities?

How much actual influence do you think teachers have over school policy at this school in each of the following areas?

Variable	Survey Item	Coded Value
Power Differential in Student Performance Standards	Setting performance standards for students of this school	A0083 - the school-level mean of T0420
Power Differential in Curriculum	Establishing curriculum at this school	A0084 - the school-level mean of T0421
Power Differential in Teacher Professional Development	Determining the content of in-service professional development programs for teachers of this school	A0085 - the school-level mean of T0422
Power Differential in Teacher Evaluation	Evaluating teachers of this school	A0086 - the school-level mean of T0423
Power Differential in Teacher Recruitment	Hiring new full-time teachers of this school	A0087 - the school-level mean of T0424
Power Differential in Discipline Policy	Setting discipline policy at this school	A0088 - the school-level mean of T0425
Power Differential in School budgets	Deciding how your school budgets will be spent	A0089 - the school-level mean of T0426
The Principal-Teacher Power Differential		Principal Autonomy - the school-level mean of the School-wide Influence of Teachers

Table 19: Dependent Variable: Principal Turnover

Variable	Survey Item	Coded Value
Turnover	Which of the following best describes the current occupational status of last year's Principal?	1 = Still working as a Principal, but not at this school OR Still working in a K-12 school, but not as a Principal OR Still working in K-12 Education, but not in a K-12 school OR Working at a job outside of K-12 Education OR Other (Retired, On leave, Deceased, etc.) 0 = Still working as Principal of this school

Table 20: Independent Variables: Individual Characteristics of Principal

Variable	Survey Item	Coded Value
Female	Are you male or female?	1 = Female 0 = Male
Minority	What is your race?	1 = Minority 0 = Non-Hispanic white
Age	What is your year of birth?	___ Years old
Master's Degree	Is the highest degree you have earned a master's degree (M.A., M.A.T., M.B.A., M.Ed., M.S., etc.)?	1 = Yes 0 = No
Doctoral Degree	Is the highest degree you have earned an educational specialist or a professional diploma (at least one year beyond master's level) OR a doctorate or first professional degree (Ph.D., Ed.D., M.D., L.L.B., J.D., D.D.S.)?	1 = Yes 0 = No
Principal Experience	Prior to this school year, how many years did you serve as the principal of this or any other school?	___ Years

Table 21: Independent Variables: Contextual Factors of School

Variable	Survey Item	Coded Value
CHARTER	Is this school a public charter school?	1 = Yes 0 = No
EMO	Is this charter school a part of a for-profit charter management organization or network of schools that are managed by a central agency?	1 = Yes 0 = No
CMO	Is this charter school a part of a non-profit charter management organization or network of schools that are managed by a central agency?	1 = Yes 0 = No
REGULAR	Is this charter school an independent or stand-alone charter school OR a part of a traditional public school district?	1 = Yes 0 = No
Enrollment	Around the first of October, how many students in grades K-12 and comparable ungraded levels were enrolled in this school?	___Students
Elementary	Is this school an elementary school?	1 = Yes 0 = No
Combined	Is this school a combined elementary and secondary school?	1 = Yes 0 = No
Urban	Is this school in a city?	1 = Yes 0 = No
Suburban	Is this school in a suburban area?	1 = Yes 0 = No
% Minority Teachers	How many percentages of teachers at this school are racial or ethnic minorities?	___%
% Minority Students	How many percentages of students at this school are racial or ethnic minorities?	___%
% Low-income Students	How many percentages of students at this school are approved for free or reduced-price lunches?	___%

Table 22: Independent Variables: Working Conditions of Principal

Variable	Survey Item	Coded Value
Weekly Work Hours	Including hours spent during the school day, before and after school, and on the weekends, how many hours do you spend on all school-related activities during a typical full week at this school?	___ Total weekly hours spend on school-related activities
Annual Salary	What is your current annual salary for your position in this school before taxes and deduction?	$___ per year
Union Membership	Are you represented under a meet-and-confer agreement or a collective bargaining agreement?	1 = Yes 0 = No
Student Discipline Behaviors	To the best of your knowledge, how often do the following types of problems occur at this school? a. Physical conflicts among students b. Robbery or theft c. Vandalism d. Student use of alcohol e. Student use of illegal drugs f. Student possession of weapons g. Physical abuse of teachers h. Student racial tensions i. Student bullying j. Student verbal abuse of teachers k. Widespread disorder in classrooms l. Student acts of disrespect for teachers m. Gang activities	0 = Never happens 1 = Happens on occasion 2 = Happens at least once a month 3 = Happens at least once a week 4 = Happens daily
Parental Involvement	Last school year (2010-11), what percentage of students had at least one parent or guardian participating in the following events? a. Open house or back-to-school night b. All regularly scheduled school-wide parent-teacher conferences c. Special subject-area events (e.g., science fair, concerts) d. Parent education workshops or courses e. Signing of a school-parent compact f. Volunteer in the school as needed or on a regular basis g. Involvement in school instructional issues (e.g., planning classroom learning	1 = 0 – 25% 2 = 25 – 50% 3 = 51 – 75% 4 = 76 – 100%

Table 22 (continued)

Variable	Survey Item	Coded Value
	activities, providing feedback on curriculum) h. Involvement in governance (e.g., PTA or PTO meetings, school board, parent booster clubs) i. Involvement in budget decisions	
Student Motivation	To what extent is each of the following a problem in this school? a. Student tardiness b. Student absenteeism c. Student class cutting e. Student dropping out f. Student apathy i. Students come to school unprepared to learn	1 = Serious problem 2 = Moderate problem 3 = Minor problem 4 = Not a problem
Classroom Control of Teachers	How much actual control do you have in your classroom at this school over the following areas of your planning and teaching? a. Selecting textbooks and other instructional materials b. Selecting content, topics, and skills to be taught c. Selecting teaching techniques d. Evaluating and grading students e. Disciplining students f. Determining the amount of homework to be assigned	1 = No control 2 = Minor control 3 = Moderate control 4 = A great deal of control
School-wide Influence of Teachers	How much actual influence do you think teachers have over school policy at this school in each of the following areas? a (T0420). Setting performance standards for students at this school b (T0421). Establishing curriculum c (T0422). Determining the content of in-service professional development programs d (T0423). Evaluating teachers e (T0424). Hiring new full-time teachers f (T0425). Setting discipline policy g (T0426). Deciding how the school budgets will be spent	1 = No influence 2 = Minor influence 3 = Moderate influence 4 = A great deal of influence

Table 22 (continued)

Variable	Survey Item	Coded Value
Teachers' Evaluations of Principal	To what extent do you agree or disagree with each of the following statements? a. The school administration's behavior towards the staff is supportive and encouraging. g. My principal enforces school rules for student conduct and backs me up when U need it. j. The principal knows what kind of school he or she wants and has communicated it to the staff. o. I am given the support I need to teach students with special needs.	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree
Identified for Improvement	At the end of the last school year (2010-11), was this school identified for improvement due to Adequate Yearly Progress (AYP) requirements? (A school is identified for improvement if it does not make Adequate Yearly Progress for two consecutive years or more in the same content area)	1 = Yes 0 = No

APPENDIX B

ORDERED LOGIT MODELS OF PRINCIPAL AUTONOMY

Table 23: Each Dimension of Principal Autonomy: Charter Schools vs. TPSs

Variable	D1	D2	D3	D4	D5	D6	D7
Model 1							
Charter	0.96***	0.91***	0.44***	-1.01***	-0.57***	0.29	0.12
	(0.21)	(0.19)	(0.15)	(0.24)	(0.18)	(0.47)	(0.17)
Cut1	-3.62***	-3.07***	-4.71***	-6.31***	-4.48***	-4.42***	-5.39***
	(0.11)	(0.09)	(0.23)	(0.57)	(0.15)	(0.18)	(0.29)
Cut2	-2.53***	-1.33***	-2.80***	-5.26***	-2.30***	-3.14***	-3.86***
	(0.07)	(0.05)	(0.08)	(0.25)	(0.05)	(0.10)	(0.11)
Cut3	-0.98***	0.34***	-0.81***	-3.39***	-0.60***	-1.80***	-1.41***
	(0.04)	(0.04)	(0.04)	(0.09)	(0.05)	(0.04)	(0.04)

*** p<0.01; ** p<0.05; * p<0.1

Note: N = 6,420 public school principals. Data are from the 2011-12 SASS.

Table 24: Each Dimension of Principal Autonomy (Full Model): CSs vs. TPSs

Variable	D1	D2	D3	D4
Model 2				
Charter	0.925***	0.878***	0.364**	-0.782**
	(0.213)	(0.200)	(0.151)	(0.313)
Individual Characteristics of Principal				
Female	0.0425	0.116	0.357***	0.336*
	(0.0953)	(0.0774)	(0.0851)	(0.199)
Minority	0.188	0.207**	-0.0751	0.390
	(0.132)	(0.104)	(0.113)	(0.277)
Age (+10)	-0.106**	0.0832*	-0.0759	0.210
	(0.0538)	(0.0487)	(0.0546)	(0.143)
Master's	0.394	-0.252	-0.124	0.670
	(0.392)	(0.300)	(0.378)	(0.510)
Doctoral	0.492	-0.277	-0.0492	0.797
	(0.393)	(0.276)	(0.377)	(0.525)
Experience (+10)	0.133*	-0.0277	-0.0610	0.0233
	(0.0796)	(0.0670)	(0.0619)	(0.195)
Contextual Factors of School				
Enrollment (+100)	-0.00785	-0.0251***	0.0239***	-0.0176
	(0.00701)	(0.00678)	(0.00786)	(0.0154)
Elementary	-0.0957	-0.504***	0.0116	0.233
	(0.0818)	(0.0695)	(0.0801)	(0.173)
Combined	-0.171	0.113	0.203	0.0837
	(0.128)	(0.138)	(0.125)	(0.318)
Urban	0.0746	-0.618***	0.0419	-0.699***
	(0.122)	(0.109)	(0.111)	(0.269)
Suburban	-0.165	-0.533***	-0.314***	-0.847***
	(0.0993)	(0.0881)	(0.0991)	(0.229)
% Minority Teachers	0.00608**	0.00821***	0.00179	-0.00652
	(0.00287)	(0.00241)	(0.00303)	(0.00623)
% Minority Students	-0.00128	-0.00425***	0.00102	0.00678*
	(0.00196)	(0.00162)	(0.00204)	(0.00404)
% Low-income Students	-0.000801	-1.01e-06	-0.00326***	-0.00894**
	(0.00162)	(0.00153)	(0.00136)	(0.00375)
Cut1	-3.724***	-3.782***	-5.093***	-5.046***
	(0.509)	(0.409)	(0.504)	(0.811)
Cut2	-2.638***	-2.015***	-3.180***	-3.992***
	(0.498)	(0.403)	(0.453)	(0.660)
Cut3	-1.078**	-0.270	-1.172**	-2.116***
	(0.503)	(0.393)	(0.448)	(0.683)

*** p<0.01; ** p<0.05; * p<0.1

Note: N = 6,420 public school principals. Data are from the 2011-12 SASS.

Table 24 (continued)

Variable	D5	D6	D7
Model 2			
Charter	-0.468**	0.521	0.283
	(0.189)	(0.463)	(0.196)
Individual Characteristics of Principal			
Female	0.150*	0.138	0.0286
	(0.0813)	(0.127)	(0.0946)
Minority	-0.0920	-0.403***	-0.223*
	(0.109)	(0.148)	(0.123)
Age (+10)	0.136***	0.0935	0.147**
	(0.0475)	(0.0743)	(0.0591)
Master's	0.321	-0.687	0.554
	(0.359)	(0.462)	(0.422)
Doctoral	0.411	-0.765	0.449
	(0.355)	(0.457)	(0.421)
Experience (+10)	-0.0366	-0.00733	0.0198
	(0.0706)	(0.116)	(0.0872)
Contextual Factors of School			
Enrollment (+100)	0.0294***	0.0212*	-0.0133*
	(0.00706)	(0.0119)	(0.00735)
Elementary	0.367***	-0.207**	0.0752
	(0.0705)	(0.102)	(0.0915)
Combined	-0.422***	-0.384	-0.0140
	(0.107)	(0.245)	(0.127)
Urban	0.230**	-0.345**	-0.0175
	(0.113)	(0.160)	(0.113)
Suburban	-0.0914	-0.483***	-0.0482
	(0.0939)	(0.146)	(0.107)
% Minority Teachers	0.00102	0.00108	-0.00149
	(0.00261)	(0.00384)	(0.00321)
% Minority Students	0.00357**	-0.00302	-0.000095
	(0.00179)	(0.00304)	(0.00226)
% Low-income Students	-0.00507***	-0.00524*	-0.000349
	(0.00144)	(0.00277)	(0.00194)
Cut1	-3.157***	-5.406***	-4.292***
	(0.430)	(0.596)	(0.582)
Cut2	-0.965**	-4.112***	-2.759***
	(0.433)	(0.554)	(0.445)
Cut3	0.776*	-2.753***	-0.294
	(0.436)	(0.557)	(0.448)

*** p<0.01; ** p<0.05; * p<0.1

Note: N = 6,420 public school principals. Data are from the 2011-12 SASS.

Table 25: Each Dimension of Principal Autonomy: Each Type of CSs vs. TPSs

Variable	D1	D2	D3	D4	D5	D6	D7
Model 1							
EMO	1.09	0.75	0.19	-0.99	-1.15***	0.49	-0.09
	(2.43)	(0.56)	(0.57)	(6.81)	(0.44)	(5.74)	(1.79)
CMO	0.98**	0.66**	0.41	-1.21	-0.95***	1.34	0.16
	(0.45)	(0.31)	(0.45)	(1.75)	(0.32)	(3.58)	(0.43)
Regular	0.94***	1.00***	0.47*	-0.95***	-0.40*	0.08	0.14
	(0.25)	(0.25)	(0.24)	(0.30)	(0.23)	(0.53)	(0.20)
Cut1	-3.62***	-3.07***	-4.71***	-6.31***	-4.48***	-4.43***	-5.39***
	(0.11)	(0.09)	(0.23)	(0.57)	(0.15)	(0.18)	(0.29)
Cut2	-2.53***	-1.33***	-2.80***	-5.26***	-2.30***	-3.14***	-3.86***
	(0.07)	(0.05)	(0.08)	(0.25)	(0.05)	(0.10)	(0.11)
Cut3	-0.98***	0.34***	-0.81***	-3.39***	-0.60***	-1.80***	-1.41***
	(0.04)	(0.04)	(0.04)	(0.09)	(0.04)	(0.04)	(0.04)

*** p<0.01; ** p<0.05; * p<0.1

Note: N = 6,420 public school principals. Data are from the 2011-12 SASS.

Table 26: Principal Autonomy (Full Model): Each Type of CSs vs. TPSs

Variable	D1	D2	D3	D4
Model 2				
EMO	1.074	1.055	0.107	-0.597
	(2.508)	(0.554)	(0.599)	(7.030)
CMO	1.013**	0.622**	0.340	-0.724
	(0.461)	(0.315)	(0.466)	(1.807)
Regular	0.885***	0.934***	0.400*	-0.822**
	(0.253)	(0.262)	(0.237)	(0.352)
Individual Characteristics of Principal				
Female	0.0425	0.116	0.357***	0.335*
	(0.0952)	(0.0771)	(0.0852)	(0.199)
Minority	0.188	0.203*	-0.0745	0.390
	(0.132)	(0.105)	(0.113)	(0.280)
Age (+10)	-0.106**	0.0825*	-0.0763	0.212
	(0.0539)	(0.0485)	(0.0548)	(0.145)
Master's	0.398	-0.272	-0.123	0.678
	(0.397)	(0.300)	(0.375)	(0.518)
Doctoral	0.496	-0.298	-0.0494	0.806
	(0.396)	(0.277)	(0.375)	(0.527)
Experience (+10)	0.133*	-0.0275	-0.0609	0.0224
	(0.0798)	(0.0669)	(0.0620)	(0.196)
Contextual Factors of School				
Enrollment (+100)	-0.00795	-0.0252***	0.0240***	-0.0181
	(0.00706)	(0.00679)	(0.00786)	(0.0157)
Elementary	-0.0962	-0.505***	0.0123	0.231
	(0.0819)	(0.0696)	(0.0802)	(0.175)
Combined	-0.172	0.114	0.205	0.0788
	(0.128)	(0.137)	(0.125)	(0.322)
Urban	0.0748	-0.620***	0.0424	-0.699***
	(0.122)	(0.109)	(0.111)	(0.270)
Suburban	-0.165	-0.532***	-0.313***	-0.848***
	(0.0994)	(0.0881)	(0.0997)	(0.230)
% Minority Teachers	0.00609**	0.00823***	0.00175	-0.00645
	(0.00287)	(0.00241)	(0.00303)	(0.00621)
% Minority Students	-0.00128	-0.00422***	0.00101	0.00679*
	(0.00196)	(0.00162)	(0.00204)	(0.00404)
% Low-income Students	-0.000823	0.0000370	-0.00323**	-0.00903**
	(0.00162)	(0.00152)	(0.00137)	(0.00378)
Cut1	-3.721***	-3.804***	-5.091***	-5.042***
	(0.511)	(0.409)	(0.504)	(0.821)
Cut2	-2.635***	-2.037***	-3.179***	-3.988***
	(0.502)	(0.404)	(0.450)	(0.679)

Table 26 (continued)

Variable	D1	D2	D3	D4
Cut3	-1.076**	-0.291	-1.171**	-2.112***
	(0.506)	(0.393)	(0.445)	(0.715)

*** p<0.01; ** p<0.05; * p<0.1

Note: N = 6,420 public school principals. Data are from the 2011-12 SASS.

Table 26 (continued)

Variable	D5	D6	D7
Model 2			
EMO	-1.076**	0.914	0.0870
	(0.442)	(5.647)	(1.716)
CMO	-0.767**	1.640	0.434
	(0.354)	(3.597)	(0.508)
Regular	-0.327*	0.281	0.264
	(0.232)	(0.523)	(0.213)
Individual Characteristics of Principal			
Female	0.149*	0.136	0.0286
	(0.0817)	(0.126)	(0.0946)
Minority	-0.0912	-0.399***	-0.221*
	(0.110)	(0.149)	(0.123)
Age (+10)	0.135***	0.0963	0.147***
	(0.0472)	(0.0748)	(0.0590)
Master's	0.296	-0.633	0.569
	(0.361)	(0.459)	(0.440)
Doctoral	0.384	-0.705	0.465
	(0.357)	(0.451)	(0.440)
Experience (+10)	-0.0361	-0.00765	0.0200
	(0.0702)	(0.116)	(0.0874)
Contextual Factors of School			
Enrollment (+100)	0.03***	0.0206*	-0.0132*
	(0.00711)	(0.0119)	(0.00736)
Elementary	0.370***	-0.209**	0.0757
	(0.0703)	(0.102)	(0.0915)
Combined	-0.418***	-0.388	-0.0141
	(0.106)	(0.247)	(0.128)
Urban	0.230**	-0.343**	-0.0162
	(0.112)	(0.161)	(0.113)
Suburban	-0.0887	-0.486***	-0.0480
	(0.0941)	(0.145)	(0.107)
% Minority Teachers	0.000928	0.00117	-0.00152
	(0.00260)	(0.00383)	(0.00323)
% Minority Students	0.00357**	-0.00307	-0.000116
	(0.00180)	(0.00302)	(0.00226)
% Low-income Students	-0.00491***	-0.00542**	-0.000354
	(0.00142)	(0.00269)	(0.00194)
Cut1	-3.180***	-5.353***	-4.275***
	(0.428)	(0.602)	(0.591)
Cut2	-0.986**	-4.059***	-2.742***
	(0.433)	(0.563)	(0.459)

Table 26 (continued)

Variable	D5	D6	D7
Cut3	0.756*	-2.699***	-0.277
	(0.435)	(0.566)	(0.463)

*** p<0.01; ** p<0.05; * p<0.1

Note: N = 6,420 public school principals. Data are from the 2011-12 SASS.

APPENDIX C

LOGIT MODELS OF PRINCIPAL TURNOVER

Table 27: Principal Turnover: Charter Schools vs. Traditional Public Schools

Variable	Model 1	Model 2	Model 3	Model 4
Charter School	0.340***	0.311**	0.112	0.096
	(0.135)	(0.141)	(0.153)	(0.163)
Principal Autonomy				-0.281**
				(0.134)
Individual Characteristics of Principal				
Female		-0.142	-0.156	-0.181*
		(0.093)	(0.097)	(0.100)
Minority		0.217**	-0.022	-0.074
		(0.111)	(0.124)	(0.129)
Age		-0.151***	-0.150***	-0.154***
		(0.039)	(0.041)	(0.042)
Age^2		0.002***	0.002***	0.002***
		(0.0004)	(0.0004)	(0.0004)
Master's Degree		0.219	0.261	0.314
		(0.345)	(0.350)	(0.342)
Doctoral Degree		0.264	0.333	0.442
		(0.342)	(0.351)	(0.343)
Experience		0.039**	0.045***	0.060***
		(0.017)	(0.017)	(0.018)
$Experience^2$		-0.002***	-0.002***	-0.002***
		(0.0006)	(0.0006)	(0.0007)
Contextual Factors of School				
Enrollment (+100)			-0.032***	-0.029**
			(0.0001)	(0.0001)
Elementary			-0.145*	-0.158
			(0.084)	(0.127)
Combined			0.126	0.043
			(0.160)	(0.176)
Urban			0.001	0.076
			(0.126)	(0.133)
Suburban			-0.009	0.141
			(0.103)	(0.111)
% Minority Teachers			0.002	0.002
			(0.003)	(0.003)
% Minority Students			0.005**	0.005**
			(0.002)	(0.002)

Table 27 (continued)

Variable	Model 1	Model 2	Model 3	Model 4
% Low-income Students			-0.001	-0.002
			(0.002)	(0.002)
Working Conditions of Principal				
Teachers' Classroom Control				-0.055
				(0.143)
Teachers' School-wide Influence				-0.053
				(0.140)
Teachers' Evaluation of Principal				-0.578***
				(0.118)
Student Discipline Problems				0.171
				(0.130)
Student Motivation				0.013
				(0.117)
Parental Involvement				0.017
				(0.088)
Poor School Performance				-0.103
				(0.108)
Annual Salary (+$1000)				-0.0086***
				(0.0023)
Weekly Workload (hrs)				0.006*
				(0.003)
Union Membership				-0.075
				(0.092)
Constant	-1.262***	1.291	1.330	4.709***
	(0.0366)	(0.901)	(0.939)	(1.275)

*** p<0.01; ** p<0.05; * p<0.1

Notes: N = 6,470 public school principals. Data are from the 2011-12 SASS.

Table 27 (Continued)

Variable	Model 5	Model 6
Charter School	3.811*	1.905***
	(2.301)	(0.703)
Principal Autonomy	-0.227*	-0.266**
	(0.138)	(0.134)
Individual Characteristics of Principal		
Female	-0.180*	-0.183*
	(0.101)	(0.100)
Minority	-0.068	-0.077
	(0.129)	(0.130)
Age	-0.153***	-0.151***
	(0.042)	(0.042)
Age^2	0.002***	0.002***
	(0.0004)	(0.0004)
Master's Degree	0.350	0.442
	(0.362)	(0.347)
Doctoral Degree	0.483	0.567
	(0.365)	(0.348)
Experience	0.061***	0.059***
	(0.018)	(0.018)
$Experience^2$	-0.002***	-0.002***
	(0.0007)	(0.0007)
Contextual Factors of School		
Enrollment (+100)	-0.029**	-0.029**
	(0.0001)	(0.0001)
Elementary	-0.157	-0.157
	(0.127)	(0.128)
Combined	0.043	0.064
	(0.179)	(0.177)
Urban	0.072	0.056
	(0.133)	(0.134)
Suburban	0.142	0.125
	(0.111)	(0.112)
% Minority Teachers	0.002	0.002
	(0.003)	(0.003)
% Minority Students	0.005**	0.005**
	(0.002)	(0.002)
% Low-income Students	-0.002	-0.002
	(0.002)	(0.002)
Working Conditions of Principal		
Teachers' Classroom Control	-0.050	-0.046
	(0.143)	(0.145)

Table 27 (continued)

Variable	Model 5	Model 6
Teachers' School-wide Influence	-0.050	-0.057
	(0.141)	(0.141)
Teachers' Evaluation of Principal	-0.584***	-0.583***
	(0.118)	(0.118)
Student Discipline Problems	0.174	0.178
	(0.130)	(0.130)
Student Motivation	0.017	0.026
	(0.117)	(0.117)
Parental Involvement	0.021	0.020
	(0.089)	(0.088)
Poor School Performance	-0.099	-0.106
	(0.108)	(0.107)
Annual Salary (+$1000)	-0.0085***	-0.0071***
	(0.0023)	(0.0023)
Weekly Workload (hrs)	0.006*	0.006*
	(0.003)	(0.003)
Union Membership	-0.073	-0.084
	(0.092)	(0.092)
Interaction Terms		
Principal Autonomy * Charter	-1.01*	
	(0.614)	
Annual Salary (+$1000) * Charter		-0.023***
		(0.009)
Constant	4.400***	4.275***
	(1.307)	(1.296)

*** p<0.01; ** p<0.05; * p<0.1

Notes: N = 6,470 public school principals. Data are from the 2011-12 SASS.

Table 28: Principal Turnover: Each Type of Charter Schools vs. TPSs

Variable	Model 1	Model 2	Model 3	Model 4
EMO Charter	0.180	0.171	0.135	0.120
	(0.791)	(0.843)	(0.846)	(0.799)
CMO Charter	0.936***	0.931***	0.676***	0.637**
	(0.241)	(0.267)	(0.265)	(0.257)
Regular Charter	0.162	0.146	-0.055	-0.069
	(0.153)	(0.155)	(0.173)	(0.183)
Principal Autonomy				-0.278**
				(0.134)
Individual Characteristics of Principal				
Female		-0.143	-0.157	-0.180*
		(0.093)	(0.097)	(0.100)
Minority		0.221**	-0.014	-0.065
		(0.111)	(0.123)	(0.128)
Age		-0.144***	-0.143***	-0.148***
		(0.039)	(0.041)	(0.042)
Age^2		0.002***	0.002***	0.002***
		(0.0004)	(0.0004)	(0.0004)
Master's Degree		0.307	0.339	0.390
		(0.364)	(0.368)	(0.360)
Doctoral Degree		0.355	0.415	0.522
		(0.363)	(0.370)	(0.363)
Experience		0.039**	0.045***	0.060***
		(0.017)	(0.017)	(0.018)
$Experience^2$		-0.002***	-0.002***	-0.002***
		(0.0006)	(0.0006)	(0.0007)
Contextual Factors of School				
Enrollment (+100)			-0.032***	-0.029**
			(0.010)	(0.012)
Elementary			-0.145*	-0.158
			(0.085)	(0.128)
Combined			0.120	0.038
			(0.161)	(0.176)
Urban			0.005	0.081
			(0.126)	(0.133)
Suburban			-0.011	0.141
			(0.103)	(0.112)
% Minority Teachers			0.002	0.002
			(0.003)	(0.003)
% Minority Students			0.005**	0.005**
			(0.002)	(0.002)
% Low-income Students			-0.001	-0.002
			(0.002)	(0.002)

Table 28 (continued)

Variable	Model 1	Model 2	Model 3	Model 4
Working Conditions of Principal				
Teachers' Classroom Control				-0.054
				(0.143)
Teachers' School-wide Influence				-0.049
				(0.140)
Teachers' Evaluation of Principal				-0.577***
				(0.118)
Student Discipline Problems				0.174
				(0.130)
Student Motivation				0.014
				(0.117)
Parental Involvement				0.014
				(0.088)
Poor School Performance				-0.102
				(0.108)
Annual Salary (+$1000)				-0.0087***
				(0.0022)
Weekly Workload (hrs)				0.006*
				(0.003)
Union Membership				-0.073
				(0.092)
Constant	-1.262***	1.034	1.101	4.481***
	(0.037)	(0.919)	(0.955)	(1.289)

*** p<0.01; ** p<0.05; * p<0.1

Notes: N = 6,470 public school principals. Data are from the 2011-12 SASS.

Table 28 (continued)

Variable	Model 5
EMO Charter	2.013**
	(1.116)
CMO Charter	2.554**
	(0.735)
Regular Charter	1.785*
	(0.695)
Principal Autonomy	-0.263*
	(0.134)
Individual Characteristics of Principal	
Female	-0.182*
	(0.101)
Minority	-0.068
	(0.129)
Age	-0.146***
	(0.042)
Age^2	0.002***
	(0.0004)
Master's Degree	0.525*
	(0.358)
Doctoral Degree	0.654**
	(0.358)
Experience	0.059***
	(0.018)
$Experience^2$	-0.002***
	(0.001)
Contextual Factors of School	
Enrollment (+100)	-0.029***
	(0.0001)
Elementary	-0.156
	(0.128)
Combined	0.062
	(0.176)
Urban	0.062
	(0.135)
Suburban	0.125
	(0.112)
% Minority Teachers	0.002
	(0.003)
% Minority Students	0.005**
	(0.002)
% Low-income Students	-0.002
	(0.002)

Table 28 (continued)

Variable	Model 5	
Working Conditions of Principal		
Teachers' Classroom Control	-0.046	
	(0.145)	
Teachers' School-wide Influence	-0.053	
	(0.141)	
Teachers' Evaluation of Principal	-0.583***	
	(0.118)	
Student Discipline Problems	0.180	
	(0.131)	
Student Motivation	0.028	
	(0.117)	
Parental Involvement	0.018	
	(0.088)	
Poor School Performance	-0.105	
	(0.108)	
Annual Salary (+$1000)	-0.0072***	
	(0.0023)	
Weekly Workload (hrs)	0.006	
	(0.003)	
Union Membership	-0.081	
	(0.092)	
Interaction Terms		
Annual Salary (+$1000) * EMO Charter	-0.026***	
	(0.011)	
Annual Salary (+$1000) * CMO Charter	-0.036	
	(0.009)	
Annual Salary (+$1000) * Regular Charter	-0.026*	
	(0.009)	
Constant	4.041***	4.036***
	(1.300)	(1.304)

*** p<0.01; ** p<0.05; * p<0.1

Notes: N = 6,470 public school principals. Data are from the 2011-12 SASS.

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