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Yongmei Ni¹, Min Sun², and Andrea Rorrer¹

Abstract

Purpose: Informed by literature on labor market and school choice, this study aims to examine the dynamics of principal career movements in charter schools by comparing principal turnover rates and patterns between charter schools and traditional public schools. **Research Methods/Approach:** This study uses longitudinal data on Utah principals and schools from 2004 to 2011. The Aalen-Johansen estimator and discrete-time competing risk models are used to analyze principal turnover rates and transition patterns in charter schools in relation to those in traditional schools. We also explore the extent to which school contextual and principal background factors contribute to principal turnover. **Findings:** Our analyses show that charter schools had a higher principal turnover rate than traditional schools and very different principal transition patterns. When charter principals left, they tended to move to nonprincipal positions or leave the Utah public school system altogether, instead of moving to another school as principals. In contrast, when traditional school principals left, they tended to continue to be principals in another school, mostly within the same school district. **Conclusions and Implications:** The findings suggest that unlike the traditional school principal position that is often regarded as a “stepping

¹Department of Educational Leadership and Policy, University of Utah, Salt Lake City, Utah, USA

²College of Education, University of Washington, Seattle, USA

Corresponding Author:

Yongmei Ni, PhD, Associate Professor, Department of Educational Leadership and Policy, University of Utah, 1705 Campus Center Drive, Room 1111, Salt Lake City, Utah 84112, USA.
Email: yongmei.ni@utah.edu

stone” along an established career path, the charter school principal position is more likely to be a “stopping point.” This may cause overall principal shortage in charter schools and highlights the need for supportive systems that develop and sustain strong leadership in charter schools.

Keywords

principal turnover, principal transition patterns, charter school, discrete-time competing risk models, longitudinal study

Despite controversies surrounding school choice, the charter school movement has evolved from a small-scale experiment to a major policy movement in the public education landscape in the relatively short time span of the past two decades. The No Child Left Behind (NCLB) Act of 2001 solidified charter schools as an important policy instrument. More recently, President Obama’s Race to the Top grant program rewarded states for school reform that included the development of high-performing charter schools. By 2011, more than 40 states had passed legislation supporting the establishment of charter schools and over 1.8 million students had enrolled in more than 5,300 charter schools nationwide (National Center for Education Statistics, 2013).

School choice proponents who support the expansion of charter schools argue that autonomy in school governance and the market mechanisms of choice and competition would promote innovation and lead to better educational outcomes (Chubb & Moe, 1990; Finn, Manno, & Vanourek, 2000; Kolderie, 2004). Despite these expectations for success, empirical research on the effectiveness of charter schools has produced mixed results (Betts & Tang, 2011). For instance, some studies show that charter schools have positive effects on student achievement, whereas others show no effects or even negative effects (see, e.g., Abdulkadiroglu, Angrist, Dynarski, Kane, & Pathak, 2011; Bifulco & Ladd, 2006; Booker, Gilpatric, Gronberg, & Jansen, 2007; Center for Research on Education Outcomes, 2013; Ni & Rorrer, 2012; Tuttle, Gleason, & Clark, 2012; Zimmer, Gill, Booker, Lavertu, & Witte, 2012). Empirical research continues to demonstrate that building effective schools is more complex than simply introducing autonomy and competition. Student achievement in charter schools is affected by many other factors, including the teaching and learning process, organizational factors, and importantly, school leadership (Berends, Goldring, Stein, & Cravens, 2010; Berends, Watral, Teasley, & Nicotera, 2008; Ni, 2012; Zimmer & Buddin, 2007).

Principal leadership is regarded as instrumental in a school’s success (Hoy & Miskel, 2007; Leithwood, Louis, Anderson, & Wahlstrom, 2004). Although

imperative, the influence of the principal on teaching and learning has been considered largely indirect, stemming from the principal's ability to establish school values and conditions in which effective teaching and learning activities occur (Hallinger & Heck, 1998; Heck & Hallinger, 2009; Robinson, Lloyd, & Rowe, 2008). Moreover, principal leadership has been regarded as the "driver" of school improvement, which often needs coherent and long-term efforts (Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010). Stable and experienced school leadership matters to school performance (Leithwood, Patten, & Jantzi, 2010). Although a certain amount of turnover is believed to be beneficial to schools if it results in better principal-school matches and the infusion of new and productive ideas into schools, excessive principal turnover, even when the principal successor is effective, is likely to have negative effects on student outcomes (Abelson & Baysinger, 1984; Baker, Punswick, & Belt, 2010; Fullan, 1991). Besides the high costs of recruiting and developing new principals, excessive principal turnover is often associated with a loss of school institutional memory and inconsistencies in school goals, policy, and culture. It often leads to decreased teacher commitment, increased teacher turnover, and potential disruptions in a faculty's collective efficacy (Goddard, Hoy, & Hoy, 2000; Goddard & Salloum, 2011; Ross & Gray, 2006). High principal turnover is particularly detrimental for high-poverty and/or low-performing schools, as they are notably less able to attract experienced and effective principals (Béteille, Kalogrides, & Loeb, 2012; Branch, Hanushek, & Rivkin, 2009).

Despite the importance of principal leadership stability for maintaining a vision and creating optimal conditions for teaching and learning, only a few studies have provided empirical evidence on principal turnover in charter schools. Battle and Gruber (2010) reported that the 2008-09 principal follow-up survey (PFS) of the 2007-08 Schools and Staffing Survey (SASS) indicated that 28% of principals in charter schools left their previous schools, compared to 20% in traditional public schools (TPS). In another survey of charter school teachers and leaders conducted by the Center on Reinventing Public Education, 71% of 400 charter school leaders indicated that they expected to leave their current jobs within 5 years, and many reported struggling in their current schools (Campbell, 2010). Using the 2008-09 PFS, our own study identified a series of factors pertaining to school contexts and working conditions that could explain much of the principal turnover gap between charter schools and TPSs (Sun & Ni, 2013). Because all of these studies rely on survey data, results are potentially limited by response rates and accuracy of self-report measures. Moreover, both Campbell (2010) and Battle and Gruber (2010) are descriptive in nature and failed to use advanced

statistical models to examine whether and how principal turnover rate in charter schools differs from that in TPSs.

This study fills a gap in the literature about dynamics of the charter school principal labor market. Specifically, we examine principal turnover rates and turnover patterns in charter schools relative to TPSs. Using administrative longitudinal data on Utah principals and schools from 2004 to 2011, we apply discrete-time competing risk models to compare principal transition patterns—moving to another school, changing positions, and leaving the system—between charter schools and TPSs.

Distinguishing different principal transition movements is important in designing policies that address these movements. For example, principal movement between schools might cause unequal distributions of effective principals among schools. Principal movement out of the profession (through changing positions or leaving the educational system altogether), on the other hand, will lead to an overall shortage. Findings from this study are expected to help decision makers develop strategies to support and retain high-quality principals in charter schools. In addition, this study will lead to future research on why principals leave charter schools and how turnover might influence student outcomes in charter schools. In what follows, we briefly review the conceptual reasons and empirical evidence underlying differences in principalship and the constitution of the principal labor force between charter schools and TPSs. We then hypothesize how such differences may lead to different principal turnover patterns between these two types of schools.

Conceptual Framing and Hypotheses

In this section, we develop conceptual understanding and hypotheses regarding variations in principal turnover patterns between charter schools and TPSs. We draw on research on differences between individuals attracted to the principal position, the nature of the job, and school working conditions. On the supply side, an individual is often attracted to the principalship of a charter school because of the school's unique mission (Campbell, 2010). Alignment between principals and school missions is likely to result in higher levels of commitment in charter school principals to their schools. Moreover, in contrast to TPS leaders who are bound by many formal rules and regulations, charter school principals generally answer directly to a board and have greater influence and flexibility in hiring and retaining effective teachers, firing those perceived as ineffective, establishing professional learning communities, and allocating resources to facilitate innovations in instruction (Gawlik, 2008; Preston, Goldring, Berends, & Cannata, 2012; Stuit & Smith, 2007). This high level of flexibility and autonomy is expected to promote

organizational commitment, which could lead to lower principal turnover in charter schools than TPSs.

On the other hand, charter schools have more freedom than TPSs to recruit their leaders. Given such flexibility, charter school principals, on average, have significantly less experience at their current schools, less general administrative experience in schools, less teaching experience, and are less likely to hold at least a master's degree (Battle & Gruber, 2010; Sun & Ni, 2013; Zimmer & Buddin, 2007). Such attributes are often associated with an increased likelihood of turnover because they indicate not only low levels of expertise in educational leadership but also less investment in the profession (e.g., Baker et al., 2010; Papa, 2007).

Moreover, principals' decisions on whether and where to continue to work depend on their assessments of the earnings and workplace amenities they can expect from their current school compared to earnings and amenities in other schools or occupations (see, e.g., Borman & Dowling, 2008; Clotfelter et al., 2004; Guarino, Santibanez, & Daley, 2006; Ingersoll & May, 2012). Although initially attracted to a charter school based on a match between personal values and the school's mission, a charter school principal may be disheartened by lack of job security (due to flexible hiring and dismissal policies) or inferior salary and benefit packages, and thus may view their positions as short-term jobs rather than long-term careers (Campbell & Gross, 2008).

On the demand side of the labor market, responsibilities of the principal position and accountability pressure also influence principal turnover in charter schools. First, charter school leaders may have greater responsibilities than their counterparts in TPSs. Although this increases decision-making power of the charter principals, it also means heavier workloads. Although principals share many traditional responsibilities in leading instruction and managing daily school operations, charter school principals also assume much of the same responsibilities as a district superintendent (Allen & Gawlik, 2009). These include recruiting students and negotiating relationships with boards, parents, and authorizing agencies while maintaining the traditional principal responsibilities of hiring, evaluating, and firing teachers, and balancing pressures both within and outside schools. In fact, charter school principals on average spend two thirds of their time on administrative tasks and far less time on instruction (Campbell & Gross, 2008). These management responsibilities may create heavier and different workloads for charter school principals and increase their risk of "burnout" and turnover (Whitake, 1995).

In addition, many charter schools are relatively newly established compared to TPSs. Similar to their TPS counterparts, improving student achievement is a constant pressure on charter school faculty and administrators

(Clotfelter, Ladd, Vigdor, & Wheeler, 2006). However, newly established charter schools are more likely to suffer from insufficient staffing, high turnover rates among teachers, low proportions of experienced and highly qualified teachers, and insufficient supports for teachers (Cannata, 2008; Ni, 2012; Stuit & Smith, 2012). The lack of internal capacity to improve students' learning may add to principals' work pressure, particularly given the market mechanism of parental choice and accountability to consumers (Henig, Moser, Holyoke, & Lacireno-Paquet, 1999; Yatsko, Gross, & Christensen, 2009). Thus, the stress related to the "newness" of charter schools and accountability pressure can be another factor that results in high principal turnover rates in charter schools.

After reviewing factors in both supply and demand sides of the labor market, we expect different levels of principal turnover rates between charter schools and TPSs, although theories and evidence from the literature do not warrant a conclusion of definitely higher or lower rates in either type of schools. We now consider principal turnover patterns, as understanding different movements upon leaving would put us in a better position for designing effective policies to address these movements.

TPS principals are often former teachers who desire career advancement within the educational system and the experience of leading a school, which may serve as a "stepping stone" along a recognized career path (Chubb & Moe, 1990). In addition to the opportunity to move to a higher administrative position, there are often opportunities for TPS principals to move between schools as many TPSs are structured similarly, particularly within a school district. As principals gain seniority within a district, they often get their choice of schools; typically, the top choices are schools that serve less at-risk student populations and have better working conditions (Loeb, Kalogrides, & Horng, 2010). Therefore, TPS principals might be less likely to leave the system.

Where charter school principals tend to go after leaving the position, however, can be a very different story. Movement between charter schools is more difficult, due to the uniqueness of each charter school's mission and the difficulty of finding a good "fit" between the school and principal. In addition, charter school principals are less likely to move to a TPS principal position because they typically have limited credentials (less professional experience as a teacher or principal, and lower likelihood of having an administrative license or a master's degree in educational administration; Sun & Ni, 2013). In this sense, a charter school principal position is likely to be regarded as a "stopping point" in the educational system, whereas a TPS principal position is regarded as a "stepping stone" (Chubb & Moe, 1990).

In addition to the aforementioned factors, there are other contextual factors that might influence principal turnover. Charter schools and TPSs differ significantly in many ways such as location, curricular programs, student populations, staff, and enrollment size (Ni, 2012; Zimmer & Buddin, 2007). Regardless of school type, all of these factors may influence a principal's likelihood of leaving a school and, once they leave, where they go (see, e.g., Baker et al., 2010; DeAngelis & White, 2011; Gates et al., 2006; Mitgang, 2003; Papa, 2007; Papa, Lankford, & Wyckoff, 2002; Partlow, 2007). It is important to explore the extent to which these school contexts and principal characteristics moderate or mediate charter school effects on principal turnover.

Utah Charter Schools

In 1998, Utah passed legislation to allow charter schools as a public school option statewide. In the fall of 1999, six charter schools were opened and enrolled 390 students. Since then, Utah has experienced fast and steady growth in both number of charter schools and charter school enrollment. Originally, enrollment increase at charter schools was capped at 1.4% of the total school district enrollment as of the previous school year. In the 2010 legislative session, the State Board of Education was given the authority to remove the cap on charter school enrollment, contingent on the availability of legislative appropriations (Utah Code §53A-1a-502.5). By 2011, there were 78 charter schools, serving more than 40,120 students, or 7% of students in the state's public schools.

Unlike many other states, Utah charter schools tend to serve a larger proportion of White and nonpoverty students than TPSs (Ni & Rorrer, 2012). Of these 78 charter schools, 70 were authorized by the Utah Charter School Board and 8 were authorized by school districts. All Utah charter schools are start-up schools. Except for a few charter schools in the state that are managed by local Charter Management Organizations (CMOs), most are free-standing independent charter schools with the full responsibility of running a single school (The National Alliance for Public Charter Schools, 2013). To date, no charter schools focusing on general education have been closed.¹ The average length of operation for charter schools in 2011 was 5.3 years.

Utah charter schools receive revenue from multiple sources, including state funds (e.g., Local Revenue Replacement Program, Minimum School Fund, Revolving Loan Fund for capital outlay, School LAND Trust funds), federal funds (e.g., Federal Dissemination grants, Federal Start Up and Implementation Awards), or other sources (e.g., grants, endowments, gifts, property donations). The Local Revenue Replacement Program and

Revolving Loan Fund are specifically intended to reduce disparity in revenue-generating capacity between charter schools and TPSs, similar to the purpose of the federal funding sources for charter schools. Current state fiscal policies require districts to contribute a portion of their local property tax revenue to the Local Replacement Program according to the number of charter students residing within their boundaries. Charter schools in Utah are not eligible for state-supported transportation funding.

Principals in Utah public schools, including charter schools, are required to hold a valid state administrative license. Most Utah districts do not have specific formal regulations on principal recruitment, selection, assignment, and retention.² Recognizing the need for charter school leaders, the Utah State Office of Education (USOE) has facilitated various training opportunities. These trainings have included topics of general interest to those in school leadership positions (e.g., use of data, annual progress, strategic planning, and school improvement efforts) and issues that may be more relevant to charter schools (e.g., public relations, charter-specific laws).

Data

The data for this study come from multiple databases housed at the USOE. The main dataset is the Comprehensive Administration of Credentials for Teachers in Utah Schools (CACTUS). CACTUS contains longitudinal administrative data for all educators in Utah K-12 public schools, including charter schools. Since 1984, this system has tracked demographic information, highest educational degree received, license status, and current and previous district and school assignments for all public educators in Utah.

In addition, since 2004, the USOE Data Warehouse has maintained complete records of all students as they progress through Utah public schools. The information includes, but is not limited to, student enrollment, attendance, and demographics. The Data Warehouse also includes results from state sponsored criterion referenced tests (CRTs), which are administered at the end of each academic year to provide information about the core skills and abilities that students have acquired during the school year. The scores are reported on the same scale for all tests in mathematics, English language arts, and science, which makes student performance for different years and different tests comparable.

We merged the two datasets to analyze schools and their principals in each year. Although our analysis focuses on 8 years of longitudinal data between 2004 and 2011 when the student demographic and achievement data were available, some of our variables on principal characteristics (such as their

work experience and educational levels) were generated from CACTUS data earlier than 2004. Our longitudinal dataset allows us to track the career path of each individual who was a principal at least once between 2004 and 2011 in the Utah public school system. In the dataset, each observation corresponds to a year for an individual principal and includes the principal's personal and professional characteristics, characteristics of the school he or she worked in, and any transitions or movements the principal made from one year to another. Over the 8 years, about 1,270 individuals held principal positions in Utah public schools. Because some individuals held a principal position in only some of the years, the total number of observations was approximately 6,200.

A principal can make several types of career and place transitions. We identified the transition status of a principal in each year based on whether he or she changed schools and/or positions in the subsequent year.³ A principal was identified as "1—Stayer," if he or she remained a principal at the same school in the next year; "2—Mover," if he or she remained a principal but moved to another school in the subsequent year; "3—Changer," if he or she changed to a nonprincipal position but remained in the public school system; or "4—Leaver," if he or she left the Utah public school system altogether. The leavers include those who retired, moved out of state, or changed to a noneducational position, all of whom were grouped into one category as we were unable to distinguish them in this dataset.

Methods

Comparison Groups

Most Utah charter schools have existed less than 10 years, whereas TPSs on average have been in operation for an average of 36 years. When comparing the turnover rates of charter schools and TPSs, we recognized that differences might be attributed to the "newness" of charter school organizations instead of institutional differences between charters and TPSs. To account for the possible "newness" effect, in addition to having all TPSs as the comparison group for charter schools, we also constructed another comparison group—TPSs opened since 1999, the year when the first charter schools were opened in Utah. In total, 133 new TPSs were opened between 1999 and 2010, compared to 78 charter schools that were opened in the same period of time. As Figure 1 shows, the distributions of schools opened during this time period are very similar across charter schools and TPSs, with about half the schools in both categories opening after 2006.

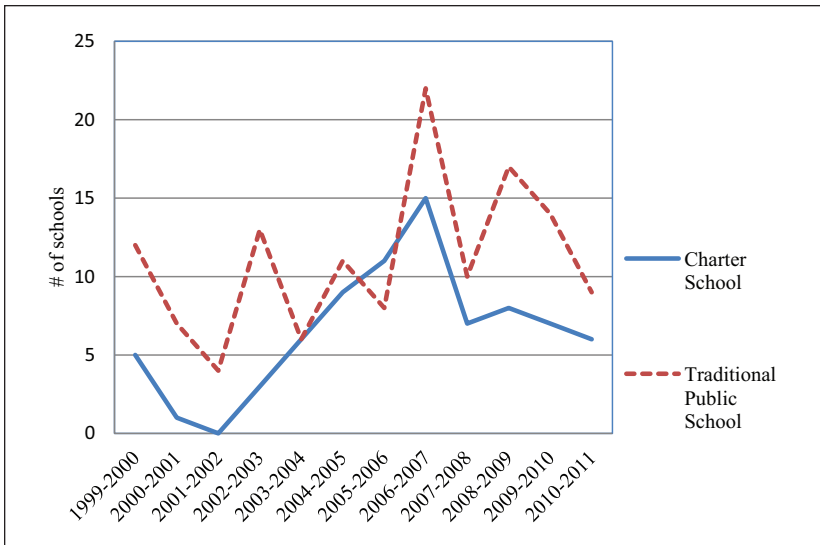


Figure 1. Number of new schools opened between 1999-2000 and 2010-2011.

Discrete-Time Competing Risk Models

To investigate whether principals who worked in charter schools had different turnover patterns than principals who worked in the two TPS categories, we estimated a set of discrete-time competing risk models. The unit of analysis was individuals that were employed as a principal at least once between 2004 and 2010. As noted earlier, our longitudinal dataset was constructed in such a way that each observation corresponded to a year for every principal. The data are described in such a discrete-time fashion because the transitions typically happened at the end of a school year. The data are also right censored in the sense that no transition had occurred for some principals by 2010, the last year of our data.

Because a principal can make more than one type of transition, we employed multinomial logistic regressions to explore the discrete-time hazard ratios, or the relative risk ratios (RRRs), of principals making different transitions. As shown in Equation (1), the outcome variable is y with four possible values (1—Stayer, 2—Mover, 3—Changer, and 4—Leaver) and follows a multinomial distribution. The risk of principal i making a certain type of transition m ($m = 2, 3, \text{ or } 4$) relative to staying ($m = 1$, the reference category) in year t , conditional on no prior event occurrence, is a function of the type of school in which the principal worked, after controlling for principal

and school characteristics. Following Loeb, Kalogrides, and Hornig (2010), for the principals who had multiple transitions during the time period in our dataset, the clock restarted each time a transition was made, whether the move was to another school, a different position, or out of the educational system:

$$\log\left\{\frac{\Pr(y_{it} = m)}{\Pr(y_{it} = 1)}\right\} = [\alpha_1 D_1 + \alpha_2 D_2 + \dots + \alpha_7 D_7] + [\beta_1 (\text{charter}_{it}) + \beta_2 (\text{newTPS}_{it}) + \gamma_1 (\text{school contextual factors}_{it}) + \gamma_2 (\text{principal characteristics}_{it})]. \quad (1)$$

The primary variable of interest is *charter*, a dichotomous variable indicating whether principal *i* worked in a charter school in year *t*. Holding all other covariates constant, the exponential of β_1 gives the RRR of principal turnover in charter schools in comparison to TPSs. An RRR greater than 1 indicates that principals in charter schools are more likely to make a certain type of transition than TPS principals, or vice versa. *NewTPS* identifies whether a TPS was opened after 1999. The coefficient of this variable, β_2 , captures any different transition patterns of principals in new TPSs relative to more established TPSs.

In terms of school characteristics, we included student demographics (the percentages of minority, low-income, special education, and LEP students), educational level (elementary, middle, and high school), urbanicity, and student achievement measured by mean standardized test scores in mathematics and English language arts. Other variables, including the percentage of novice teachers with less than 3 years of teaching experience, percentage of NCLB-defined highly qualified teachers, and pupil-teacher ratio, were initially included in the models and dropped later because they were statistically insignificant in almost all model specifications.

Covariates also included principals' demographic and professional characteristics, such as prior teaching or administration experience in Utah, the highest degree earned (bachelor's, master's, or doctoral),⁴ gender, and pay rate. Because principals' annual salaries and time commitment vary greatly, we measured principals' pay by hourly rate, calculated from annual salaries, contract days, and number of days a principal actually worked in a particular year.⁵ Variables on race were included initially, but then dropped due to statistical insignificance. Over 95% of Utah principals were White, so there was not enough variation in the race variables for their influence on principal turnover to be accurately estimated.

To account for the dependence of the risk of turnover on the duration of a principal in the same school, we included in the models a set of "time

indicators," D_1 to D_7 . Each variable is set to 1 in the time period it represents and 0 elsewhere. For example, $D_1 = 1$ in the first year an individual assumes the principal position in a school and 0 thereafter, $D_2 = 1$ in the second year of his or her principalship in the same school and 0 in other years, and so forth.⁶ Thus, the parameters α_1 to α_7 represent the flexible baseline logit hazard function (Singer & Willett, 2003). In addition to the time indicators, a set of school year dummy variables were added to control for any systematic factors in different years that influenced the probability of principal turnover in all schools, such as changes in other employment opportunities.

Results

School and Principal Characteristics

Table 1 compares the average school and principal characteristics in 2010 for all charter schools, TPSs opened since 1999, and TPSs that are more established. Among the three groups of schools, charter schools served the smallest proportions of students identified as eligible for free or reduced lunch (FRL), LEP students, or special education. One exception is that charter schools served a slightly higher percentage of students of color than new TPSs. Charter schools also had a considerably higher percentage of novice teachers than TPSs. Among TPSs, new TPSs served smaller proportions of low-income students, LEP students, and students with special education needs. As for student performance levels, although all three types of schools had similar proficiency levels in English language arts, new TPSs had much higher proficiency levels in mathematics than charter schools and more established TPSs.

Large differences existed in principal characteristics between charters and TPSs, whereas new TPSs and more established TPSs had many similarities. First, charter school principals on average had fewer years of experience teaching and leading a school than TPS principals. It is important, however, that these calculated years of experience be interpreted with caution because we were limited to include only experiences in the Utah public school system. Experiences outside the state or in private schools were not included, as our current dataset does not provide such information.

A smaller proportion of charter school principals had an advanced degree than TPS principals. Although almost all TPS principals held at least a master's degree, about 70% of the charter school principals held at least a master's degree. As shown in Table 1, all TPS principals held current state administrative licenses, whereas about 6% of charter school principals did not. Despite the differences in experience, education level, and licensure

Table 1. Descriptive Statistics of Charter Schools and TPSs in 2010.

	Charter Schools (N = 78)	Newly Opened TPSs (N = 133)	More Established TPSs (N = 640)
School characteristics			
Average school size	334	524	430
Minority (%)	19.9	18.9	25.1
FRL (%)	30.6	37.3	44.6
LEP (%)	3.6	5.3	7.6
Special ed (%)	11.9	12.3	13.8
Novice teachers (%)	52.7	25.1	21.8
Proficient in language arts (%)	98.1	97.7	95.2
Proficient in math (%)	86.1	94.5	88.2
Urban (%)	16.0	17.7	17.5
Suburban (%)	40.0	42.7	41.4
Elementary (%)	44.1	76.3	70
Principal characteristics			
Average years as a teacher	3.1	8.3	8.5
Average years as a principal	5.6	9.9	7.7
Doctoral degree (%)	4.4	6.1	6.0
Master's degree (%)	63.2	93.9	91.6
No state administrative license (%)	6.3	0.0	0.0
Average salary per hour (\$)	45.0	46.3	45.2
Average age (years)	48.4	51.8	49.7
White (%)	95.3	96.8	93.7
Male (%)	59.4	58.5	56.0

status, pay rates for principals were similar among the three types of schools. With regard to personal characteristics, the differences between charter and TPS principals are less prominent. The vast majority of the principals, both in charter schools and TPSs, were White with an average age of 50. About 59% of charter school principals and 56% of TPS principals were male.

Principal Turnover Patterns

Table 2 compares principal turnover rates among the three groups of schools from 2004 to 2010. On average, charter schools had the highest turnover rates. As the last row of Table 2 indicates, the average length of time principals remained in one school was 2.95 years for charter schools, 4.02 years for principals in more established TPSs, and 4.26 years for principals in newly

Table 2. Principal Turnover Rates by Year, 2004 to 2010.

School Year	Charter Schools	Newly Opened TPSs	More Established TPSs
	(%)	(%)	(%)
2004	18.2	11.8	20.0
2005	44.4	9.2	18.8
2006	14.8	17.1	24.3
2007	22.4	12.5	18.6
2008	40.3	16.8	18.4
2009	13.8	12.0	20.7
2010	26.7	15.1	18.8
Overall	25.8	13.5	20.0
Average stay (years)	2.91	4.26	4.02

Table 3. Principal Turnover Rates by Transition Type, from 2004 to 2010.

Transition Type	Charter Schools (%)	Newly Opened TPSs (%)	More Established TPSs (%)
	(N = 307)	(N = 625)	(N = 4,775)
Stay	74.3	86.6	79.6
Move	2.6	6.6	10.3
To a charter school	2.3	0.2	0.2
To a TPS	0.3	6.4	10.2
Change	11.4	2.6	5.1
Leave	11.7	4.3	4.9

opened TPSs. The year-to-year turnover rates in charter schools fluctuated considerably. In some years, the principal turnover rates in charter schools were higher than 40%. Overall, the average annual turnover rate between 2004 and 2010 was 25.8% in charter schools compared to 20.0% in more established TPSs and 13.5% in new TPSs. Table 2 also indicates that in all but one year, new TPSs had the lowest principal turnover among the three groups of schools.

Table 3 disaggregates principal turnover to different transition types and shows very different turnover patterns between charter schools and TPSs. After charter school principals left, they tended to change to nonprincipal positions (11.4%) or leave the Utah public school system altogether (11.7%). Only a small percentage of charter school principals (2.6%) took principal

positions at other schools. In contrast, when TPS principals left their current schools, they were more likely to move to another school and remain principals, instead of changing to nonprincipal positions or leaving the system.

It is worth emphasizing that when principals changed schools, they tended to move to schools within the same sector. That is, charter school principals were very likely to move to another charter school, whereas TPS principals tended to move to another TPS, mostly within the same school district. Interestingly, although new and more established TPSs shared similar transition patterns, new TPSs showed lower turnover rates in all transition categories.

The “leavers” category includes those who retired, changed profession, or moved out of state. Although it is impossible to distinguish them, we can make some speculations on the likelihood of leaving due to retirement. According to a survey conducted in 1998 by the National Association of Elementary School Principals, the average age at retirement is 57. The average age in our sample of charter schools leavers was 50.7 and the average age of TPS leavers was 56.8. This might indicate that TPS principals were more likely to retire when they leave, whereas charter schools principals were more likely to change to noneducational jobs or move out of state.

Another way to illustrate principal turnover is to look at the predicted cumulative hazard of different types of transition over the years. Figure 2 shows the Aalen-Johansen estimator, a matrix version of the Kaplan-Meier estimator, of the cumulative mean probability of different transitions in all three types of schools (Borgan, 1998). The dotted lines are the 95th confidence interval for the mean. As the top panel of Figure 2 demonstrates, a principal’s probability of changing schools gradually increases as the duration at the school increases. By the end of the 8th year, about 10% of principals in charter schools are likely to change schools, whereas 35% of principals in new TPSs and 38% of principals in more established TPS are likely to make such changes.

The middle and bottom panels of Figure 2 present the cumulative probabilities of principals changing to nonprincipal positions or leaving the Utah public school system, respectively. Here, charter school principals display much higher probabilities of changing positions or leaving the system compared to TPS principals. By the end of the 8th year, about 35% of charter school principals are likely to change positions and about 38% are likely to leave the system. In contrast, principals in both newly opened and more established TPSs have much lower probabilities of leaving the principal position.

Because the probabilities of all types of transitions add to 100%, the results of the Aalen-Johansen estimator indicate that by the end of the 8th

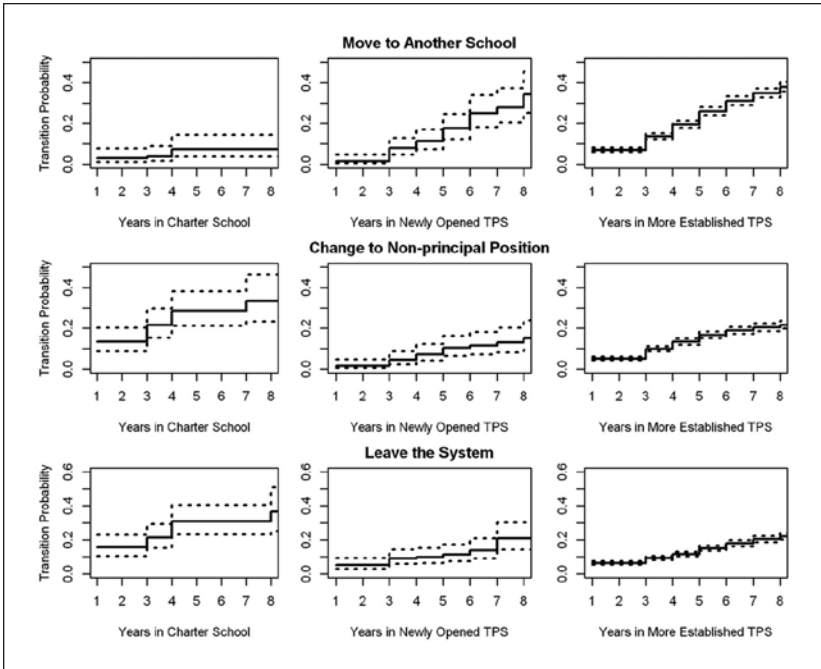


Figure 2. Aalen-Johansen estimates of the principal transition probabilities in charter schools and TPS.

year, about 30% of principals in new TPSs are likely to be principals in the same schools, whereas only 22% in more established TPSs and 17% in charter schools are likely to have their status unchanged. Although both more established TPSs and charter schools have high probabilities of principal turnover, the transition patterns are very different. Specifically, principals in more established TPSs tend to move between schools, whereas principals in charter schools are more likely to change positions or leave the state public educational system.

Multinomial Logit Analysis of Principal Turnover

In this section, we compared principal transition patterns between charter schools and TPSs using longitudinal competing risk models, which allowed us to examine the extent to which different types of principal transition can be explained by school type, school contextual factors, and principal

characteristics. Four multinomial logit models were estimated. Model 1 only includes a dichotomous variable indicating whether a school is a charter school or TPS. Model 2 includes one more variable, *newTPS*, to further distinguish newly opened TPSs from more established TPSs. Model 3 extends Model 2 by including characteristics of the schools where principals worked. Finally, Model 4 extends Model 3 to include principal personal and professional characteristics.

Principal turnover patterns between charter schools and TPSs. Table 4 reports the estimated RRRs of principals moving to other schools, changing positions, and leaving the Utah public school system relative to remaining as a principal in the same school. As the results in Model 1 show, charter school principals had significantly lower odds of moving to another school than TPS principals (RRR = .40). However, their odds of changing positions or leaving the Utah public school system were almost tripled (RRR = 2.98 and RRR = 3.03, respectively) compared to TPS principals.

When the dichotomous variable, *newTPS*, was added to Model 2, the RRRs of all types of principal transition in charter schools remained similar to those in Model 1. The odds of principal turnover were significantly lower in newly opened TPSs than in more established TPSs. This applies to all types of transition except for leaving the system, which was statistically insignificant.

Controlling for school contextual factors in Model 3 and adding principal characteristics in Model 4 caused little change to the odds of principal turnover among the three types of schools. The RRRs remained similar, although the risk of charter school principals moving between schools was no longer significantly different than principals in more established TPSs.

Influence of principal and school characteristics on principal turnover patterns. Student demographics, such as percentages of minority, low-income, special education, and LEP students, had little direct effect on the risk of principal turnover, as indicated in Model 3 of Table 4. The only significant effect is that an increase in percentage of students with special needs slightly increased the risk of principals changing positions. School size did not have much of an impact on the likelihood of principal turnover in this study either. However, schools at different educational levels seemed to experience different principal turnover rates. Compared to elementary school principals, principals at high schools were less likely to transfer to another school, but more likely to change positions. However, there was no significant difference in the probability of a principal leaving the Utah educational system altogether across educational levels. In addition, principal turnover did not seem to vary

Table 4. Multinomial Logit Models of Principal Transition Patterns.

	Model 1			Model 2			Model 3			Model 4		
	Move	Change	Leave	Move	Change	Leave	Move	Change	Leave	Move	Change	Leave
Charter	.40* (.157)	2.98** (.649)	3.03** (.663)	.37* (.146)	2.75** (.603)	2.98** (.654)	.44 (.184)	2.54** (.645)	2.86** (.733)	.44 (.206)	2.30** (.707)	2.94** (.883)
New TPS				.58** (.098)	.50** (.128)	.89 (.189)	.54** (.095)	.54** (.145)	.92 (.203)	.54** (.10)	.52* (.139)	.80 (.186)
School characteristics												
% minority							1.01 (.007)	1.01 (.008)	.99 (.008)	1.01 (.008)	1.01 (.009)	1.00 (.008)
% low income							.99 (.004)	1.00 (.006)	.99 (.005)	.99 (.004)	.98 (.006)	.99 (.006)
% special ed.							.99 (.014)	1.03* (.016)	.99 (.015)	.99 (.014)	1.03* (.014)	1.01 (.016)
% LEP							.98 (.01)	.98 (.012)	1.01 (.011)	.98 (.01)	.98 (.012)	1.00 (.011)
Ln(school size)							1.03 (.119)	1.09 (.136)	.89 (.107)	1.02 (.118)	1.09 (.133)	1.02 (.128)
High school							47** (.099)	1.7** (.333)	1.04 (.232)	.51** (.111)	1.66* (.353)	.91 (.232)
Middle school							.97 (.139)	1.28 (.236)	1.24 (.229)	.97 (.146)	1.36 (.255)	1.25 (.246)
Suburban							68** (.245)	1.06 (.217)	.96 (.189)	.63** (.249)	1.05 (.226)	.93 (.198)
Rural							1.23 (.221)	1.56* (.327)	1.06 (.224)	1.20 (.221)	1.59* (.34)	1.11 (.248)
Math score							.65* (.137)	.84 (.211)	.56* (.141)	.64* (.136)	.84 (.213)	.60* (.145)
Principal characteristics												
Years as teacher										.97* (.012)	.99 (.016)	1.01 (.016)
Years as principal										1.01 (.012)	1.02 (.016)	1.04* (.017)
Age										1.03 (.075)	.86 (.077)	.826 (.107)
Age square										.99 (.001)	1.01 (.001)	1.03* (.001)
Master's degree										2.72 (1.833)	.96 (.395)	.45* (.18)
Doctoral degree										2.77 (1.942)	1.18 (.549)	.42 (.196)
Male										.78* (.083)	.83 (.118)	1.07 (.17)
Pay rate										1.01 (.008)	1.01 (.012)	.99 (.013)
N											5,381	5,316

Staying in the same school as principal is the reference outcome. RRRs are reported. Clustered robust standard errors are in parentheses. All models include time indicators and year dummies.

* $p < .05$. ** $p < .01$.

depending on urbanicity, except that suburban principals in comparison to their rural peers had a higher likelihood of moving to principal positions at other schools, when all other variables in the model were controlled.

Student achievement was negatively associated with principal turnover. The increase of one standard deviation in mathematics test scores lowered the odds of a principal moving to another school by 35% or leaving the system by 44%. Increased mathematics scores may also be associated with lower risk of changing positions, although it was not statistically significant.⁷ This might be due to either voluntary turnover of principals at low-performing schools who may seek better working conditions elsewhere or involuntary turnover initiated by schools wishing to remove ineffective leaders.

Model 4 shows that some of the principal characteristics were significant predictors of turnover. Principals with more teaching experience were slightly less likely to take a principal position at another school, whereas principals with more prior principalship experience were more likely to leave the system, probably indicating a greater likelihood of retirement. Individuals with higher educational levels, either a master's or doctoral degree, were less likely to leave the educational system than individuals with only a bachelor's degree. In this study, gender had no significant influence on turnover. Interestingly, pay rate also had little impact on principal turnover, possibly due to the poor quality of the pay rate data as previously noted.

Differential effects of school and principal characteristics on principal turnover.

In order to examine whether school characteristics may moderate the effect of school type on principal turnover, we added interaction terms between the charter dichotomous variable and each of the school and principal covariates. Although not reported here, most of the interaction terms were not statistically significant, indicating that the influences of school and principal characteristics on principal turnover were similar across school types. For example, the interaction effect between student achievement and school type on principal turnover was insignificant. This indicates that although student achievement is negatively associated with principal turnover, the association was neither stronger nor weaker in charter schools than in TPSs.

The only significant interaction terms were between "charter" and "years as principal." The RRRs were less than one for all transition types. This means that charter school principals with more prior principalship experience were less likely to transfer, change, or leave the Utah public school system than less experienced charter school principals. This result suggests experience matters more to charter school principals than TPS principals in predicting probability of staying.

Sensitivity Analysis

Some principals had multiple transitions during the time period of our data. About 18% of principals had made more than one transition between 2004 and 2010. About 20 principals had made up to four transitions during these 8 years. If the multiple transitions of one individual are treated as independent events, it might cause problems with endogeneity if the later events are correlated with the first transition for the same individual. In fact, in our dataset, the average durations of the first, second, third, and fourth events are 3.9, 2.5, 2.0, and 1.1 years, indicating an increasingly shorter duration as the number of events increases. For a sensitivity analysis, we estimated the discrete-time competing risk models with the subsample of the first transition of all principals.

As Table 5 shows, although the magnitude and statistical significance of the RRRs changed slightly for some variables as compared to Table 4, the main results were similar. Compared to TPS principals, charter school principals were still more likely to change positions or leave the system. Although the odds of moving between schools were less than half for charter schools compared to TPSs in Model 1, this difference was no longer statistically significant. This is most likely caused by the increased standard errors when the sample size is reduced. The fairly consistent results between the initial transition subsample and the full sample indicate the internal validity of our findings.

Discussions and Implications

The importance of effective leadership for schools is no longer contested terrain. Due to intensifying demands for accountability, effectiveness, efficiency, choice, and equity, the school principal position has become increasingly complex for both charter and TPSs. Drawing on longitudinal administrative records of Utah public schools and their principals, this study adds new evidence to the thin literature on leadership stability by comparing principal turnover in charter schools and TPSs, and exploring how the variation in principal turnover can be explained by other school contextual factors and principal characteristics. Although our data did not allow us to fully examine the reasons for the differences in principal turnover rates and patterns between charter schools and TPSs nor the reasons that charter school principals opted to “step-out” of public school leadership positions and schools, the findings provide important insights for future research on how to design effective principal personnel strategies to retain high-quality principals in charter schools as well as in TPSs.

Table 5. Multinomial Logit Models of Principal Transition Patterns, First Transition Only.

	Model 1			Model 2			Model 3			Model 4		
	Move	Change	Leave	Move	Change	Leave	Move	Change	Leave	Move	Change	Leave
Charter	.41 (.189)	3.78** (.925)	4.86** (1.427)	.40* (.184)	3.66** (.901)	4.76** (1.402)	.49 (.244)	2.95** (.847)	4.13** (1.391)	.47 (.283)	2.66** (.988)	2.56* (1.072)
New TPS				.72 (.144)	.67 (.208)	.77 (.241)	.62* (.132)	.76 (.241)	.81 (.258)	.58* (.127)	.68 (.214)	.62 (.222)
School characteristics												
% minority					1.01 (.008)	1.00 (.01)	1.01 (.008)	1.01 (.01)	1.00 (.01)	1.01 (.009)	1.01 (.01)	1.01 (.011)
% low income					.99 (.005)	.99 (.006)	.99 (.005)	.99 (.006)	.98* (.006)	.99 (.005)	.99 (.006)	.98* (.006)
% special ed.					1.00 (.016)	1.03 (.017)	1.01 (.015)	1.00 (.016)	1.01 (.015)	1.01 (.016)	1.03 (.016)	1.02 (.018)
% LEP					.97* (.011)	.98 (.014)	.97* (.011)	.98 (.014)	1.01 (.013)	.97 (.012)	.99 (.014)	.99 (.015)
Ln(school size)					1.25 (.176)	1.01 (.146)	1.22 (.174)	1.01 (.146)	.82 (.12)	1.05 (.146)	1.05 (.146)	.88 (.127)
High school					.37** (.088)	.38	.37** (.088)	.38	.83 (.225)	.44** (.11)	1.67* (.428)	.63 (.202)
Middle school					.84 (.141)	1.44 (.30)	.84 (.141)	1.44 (.30)	1.17 (.269)	.96 (.163)	1.57* (.339)	1.14 (.288)
Suburban					.71** (.275)	.89 (.203)	.71** (.275)	.89 (.203)	1.01 (.249)	1.71** (.29)	.86 (.207)	.88 (.24)
Rural					1.08 (.219)	1.28 (.292)	1.08 (.219)	1.28 (.292)	1.06 (.273)	1.09 (.227)	1.33 (.313)	1.08 (.307)
Math score					.65 (.151)	.74 (.225)	.65 (.151)	.74 (.225)	.46* (.149)	.64 (.151)	.74 (.233)	.53 (.206)
Principal characteristics												
Years as teacher										.97 (.014)	.99 (.018)	.99 (.02)
Years as principal										1.02 (.015)	1.04 (.022)	1.06* (.025)
Age										.99 (.085)	.84 (.088)	.82 (.134)
Age square										1.00 (.001)	1.00 (.001)	1.00 (.002)
Master's degree										2.11 (1.571)	1.13 (.532)	.34* (.148)
Doctoral degree										1.88 (1.462)	1.64 (.865)	.32* (.164)
Male										.68** (.083)	.66* (.109)	.94 (.193)
Pay rate										1.00 (.01)	1.00 (.014)	1.04* (.017)
N												3,893
												3,905
												3,917

Samples are limited to the first transition of principal turnover during 2004 and 2010. Staying in the same school as principal is the reference outcome. RRRs are reported. Clustered robust standard errors are in parentheses. All models include time indicators and year dummies.
p* < .05. *p* < .01.

Our analyses show that charter schools had an overall higher principal turnover rate than TPSs. The competing risk analysis of principals' movements further indicated that charter schools and TPSs had very different principal turnover patterns, even after controlling for principal and school characteristics. When charter school principals left their previous schools, they tended to move to a nonprincipal position or leave the Utah public school system altogether, instead of moving to other schools to be principals. This may be due to the fact that unlike many charter schools in other states that are owned and operated by CMOs or Educational Management Organizations, most charter schools in Utah are independent. The specificity with which charter school principals are sought and hired to fit the schools' missions might reduce the likelihood of charter school principals moving to other charter schools. It is also possible that their limited prior leadership experiences and credentials in comparison to TPS counterparts, as indicated in this study, constrain the likelihood of charter school principals to attain principal positions in TPSs.

In contrast, when TPS principals left their schools, they tended to continue to be principals in other TPSs, mostly within the same school district. Although our data do not indicate the actual reasons for the departure, they suggest either voluntary movement initiated by principals, possibly seeking better working conditions, or involuntary movement initiated by school districts, possibly in an attempt to achieve better matches between principals and schools. Whether this mobility is a measure for improvement in distributive efficiency of principal labor force, however, would be a different issue that requires more empirical research.

The different principal transition patterns between charter schools and TPSs confirmed the argument that unlike the TPS principal position that is often regarded as a "stepping stone" along an established career path within the educational system, the charter school principal position is more likely to be a "stopping point" (Chubb & Moe, 1990). It is possible that charter school principals are more interested in using their position as stepping stones to other types of administrative positions outside the educational system; however, we do not have the data to test this hypothesis. The high principal turnover rate in charter schools combined with the fact that most principals have changed to nonprincipal positions upon leaving tend to cause overall principal shortages in charter schools and highlight the need to establish supportive systems that develop and sustain strong leadership in charter schools.

As indicated in our analyses, school and principal characteristics only have limited effects on principal turnover. The interaction effects suggest that prior principal experience has a positive relationship with the retention of charter school principals. Experience in the field as either a teacher or principal is often indicative of expertise and positively associated with

school performance (Baker et al., 2010; Clark, Martorell, & Rockoff, 2009). On-the-job experience helps build confidence and success in creatively solving problems and maneuvering through a myriad of challenges that face charter school leaders (Campbell & Gross, 2008). With limited experience and professional background and development in areas specific to school leadership and other roles and responsibilities of leaders in charter schools, principals may be constrained in their ability to meet a charter school's mission, elevate instructional practices, or raise student learning, which results in less job satisfaction and generally shorter tenure as a principal in a charter school.

Interestingly, in this study, the new TPSs, which had only existed as long as the charter schools, showed much lower principal turnover rates than both charter schools and other established TPSs. It is likely that school districts play a large role in increasing leadership stability in new TPSs. Specifically, a resurgence of district-level research indicates that districts and central administration are poised to ensure that schools have sufficient value commitments, infrastructure, structures, talents, policies, and practices to improve teaching and learning for all students (Honig, 2012; Levin, Datnow, & Carrier, 2012; Rorrer, Skrla, & Scheurich, 2008). Future research on what types of support are provided by school districts to the newly opened TPSs and whether similar district-like supports would be beneficial to promoting charter school leadership stability could inform strategies for building a working environment to attract and retain high-quality principals in charter schools.

Finally, we emphasize that although the focus of this study is on comparing principal turnover in charter and traditional schools, not all types of principal turnover are detrimental to schools. Further research is needed to distinguish optimal and dysfunctional turnover by examining underlying reasons for principal turnover and the impact of different types of principal turnover on various school outcomes, including teacher turnover, teacher effectiveness, and student achievement. Further evidence about recruitment, retention, and longevity policies and practices for effective leadership that promote successful learning environments for teachers and students is also necessary.

Although our analysis does not fully explain what leadership and organizational factors caused the high principal turnover in charter schools, given previous literature and our findings in this article, we tentatively propose several avenues to strengthen leadership preparation and development that will potentially diminish principal turnover while improving the quality of leaders in charter schools, particularly in contexts such as Utah where charters operate more independently and in isolation from one another. Given that charter school principals spend much more time on administrative responsibilities than on instruction, it is important to give attention to the

development of charter principals in both their general leadership capacity for high-quality instruction and their capacity to address more unique aspects related to operating a charter school (e.g., legislative or state provisions, decision-making, budgeting, and operations). This calls for leadership preparation and professional learning to offer high-quality training programs, maybe in collaboration with other public schools and districts, universities, and other training agencies (Allen & Gawlik, 2009). As research has indicated, the quality of both preservice and in-service training for school leaders is imperative to both what they learn and how they can enact what they learn (Darling-Hammond, LaPointe, Meyerson, Orr, & Cohen, 2007; Davis, Darling-Hammond, LaPointe, & Meyerson, 2005; Orr, 2011), as well as help charter school leaders establish peer networks and peer mentoring (Aiken, 2002; Browne-Ferrigno, 2003; Crow & Mathews, 1998; Peterson & Kelley, 2001). These types of networks may be beneficial in reducing anxiety among charter school principals, facilitating the diffusion of leadership expertise and effective practices, and when necessary, finding other leadership opportunities within the public school system.

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Notes

1. Two nontraditional charter schools, one providing special education and the other alternative education, were closed. Nontraditional schools are not the focus of this study.
2. With regard to formal titled positions such as principal or director in charter schools, individuals are sought who can fulfill the requirement of being “a capable administrator who shares the mission and vision of the school and supports them by ensuring they have the necessary resources to accomplish goals. The administrator is responsible for meeting the school’s goals through the day-to-day management of the school” (USOE, 2011, p. 21).
3. Data in 2011 had to be removed from the dataset, because they were used to identify principals’ transitions in 2010. Thus, our final panel data include 7 years of principals’ turnover patterns with about 5,400 observations.
4. Another measure of principals’ education we intended to use was the selectivity of a principal’s undergraduate college. However, we were unable to construct this variable because the college names were unavailable for principals who

- graduated from institutions outside Utah.
5. Despite our efforts to make the pay rate variable more accurate in measuring principal salary, the results on this variable need to be interpreted with caution. The definition of salary has not been standardized across districts in Utah. In addition, the report of pay data is not part of state legal compliance audits. As a result, the data have been manually entered at the district level and are therefore prone to errors.
 6. Alternatively, we tried a “duration” variable, which is simply a count of the number of years a principal remained in a school until a transition. When the logarithm of the duration variable was included in the model instead of the time indicators, the results remained similar.
 7. When English language arts test scores were included in the place of the math scores, the results were similar in that principal turnover rates were higher in low-performing schools. However, when both math and language arts scores were entered in the model, the magnitude and significance of RRRs were less consistent, suggesting that the model with both scores suffers from multicollinearity due to the high correlation between the two test scores.

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Author Biographies

Yongmei Ni is an associate professor in the Department of Educational Leadership and Policy at the University of Utah. Her research has examined the effectiveness of charter schools and how charter schools affect student outcomes through influencing teacher working conditions, teacher commitment, and principal turnover.

Min Sun is an assistant professor in the College of Education at the University of Washington, Seattle. She specializes in quantitative policy research and educator quality. Her recent work analyzes policy issues of educators' preparation, development, evaluation, accountability, and retention. She has also been involved in a number of projects examining the ways in which intraorganizational mechanisms influence policy implementation in schools.

Andrea Rorrer is a professor at the University of Utah and Director of the Utah Education Policy Center. Her research examines how districts and states increase educational equity in access and outcomes for all students through leadership, organizational, and policy change.