TEACHERS' ASSESSMENT OF PRINCIPALS' GOAL SETTING APPROACH AND ITS IMPLICATIONS FOR TEACHER TURNOVER

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Abstract

Theories addressing individual motivation abound in organizational research. Even public administration—a field criticized for having few homegrown theories—has its own theory of employee motivation. Yet, one of the most heavily researched, valid theories of motivation—goal setting theory—has received little attention in public management scholarship. Oddly, the basic tenets of goal setting theory underpin numerous systems widely implemented in public organizations. That a motivational tool so frequently implemented in public organizations has received so little scholarly attention is troubling. Responding to recent calls for research on goal setting in public organizations, this paper examines whether the goal setting approach of primary and secondary school principals affects actual teacher turnover. Utilizing data from the *School and Staffing Survey* and the *Teacher Follow-up Survey*, we find that teachers are more likely to remain in the same school if a principal sets clear goals. Results also suggest *all* teachers respond *similarly* to clear goals. Findings, which underscore the importance of goal setting in a sample of public organizations, are discussed in terms of their implications for public management research and theory.

Introduction

Theories purporting to explain why and under what conditions individuals and employees are motivated to complete tasks abound in organization theory and behavior research. In fact, while it is difficult to identify a concrete "start-date" for motivation research, most scholars agree interest in it traces back at least to the early 1900's and Freud's psychoanalytic work on instincts (Holt 1989; Weiner 1992). Since then, numerous motivation theories have emerged. For instance, a small sample from the field of psychology alone includes drive theory (Hull 1943), operant-condition (Skinner 1953), field theory (Lewin 1947), social learning theory (Rotter 1954), cognitive dissonance theory (Festinger 1957), achievement motivation theory (Atkinson 1964), expectancy theory (Vroom 1964), attribution theory (Weiner 1974), effectance motivation (White 1959; Harter 1978), self-efficacy theory (Bandura 1977), and self-determinance theory (Deci and Ryan 1985). Similarly, business administration has its own theories on workplace motivation, including, most notably, Herzberg's two-factor theory (2003) as well as considerable bodies of research exploring the role job design and job characteristics (*e.g.*, Hackman and Oldham 1976), rewards (*e.g.*, Wiersma 1992) and employee participation and autonomy (*e.g.*, Spector 1986) play in motiving workers. Even public administration—a field frequently criticized for having few "homegrown" theories (*e.g.*, Bozeman and Feeney 2011; Pandey and Moynihan 2008)—has its own extensively studied theory of motivation: public service motivation (Perry and Wise 1990).

As these examples suggest, few topics in the literature on organizations—public, private, or nonprofit—have received as much attention as that of motivation. In public administration, the vast majority of academic research over the past two decades has clearly focused on public service motivation—a theory that attempts to explain why certain individuals possess altruistic

motives and are seemingly predisposed to work in the public sector (Perry and Hondeghem 2008; Perry and Wise 1990). The desire to develop theories that distinguish public from private sector employees is understandable and enjoys a lengthy history in the field (Appleby 1945; Long 1949; Mosher 1968). Unfortunately though, considerably less attention has been spent studying traditional theories of work motivation or, even more narrowly, public sector motivation (for a discussion, see Wright 2001).

The relative dearth of research examining and applying other theories of motivation in public administration is problematic in at least two regards. First, no single, overarching theory of motivation exists. Instead, we have several *theories* of motivation—each providing important and unique insights into those factors, traits, and characteristics most commonly associated with individual motives and motivation. To focus too heavily on one theory or a small subset of theories risks generating inaccurate conclusions about the most important sources and drivers of employee motivation in the public sector. For instance, we simply do not know whether public service motivation is more or less important for employees than issues of fairness on-the-job that are part and parcel of equity and expectancy theories (Adams 1963; Vroom 1964).

Second, many current organizational practices draw upon, or are even directly adapted from, theories of work motivation that have received insufficient scholarly attention in public administration. Consequently, we know little about whether and under which conditions these widely accepted and administered practices actually work to motivate public employees. As an example, [public] organizations and managers have long utilized performance measurement systems, such as *Management by Objectives* (MBO), that encompass key tenets of work motivation theories (Drucker 1954; Odiorne 1965). While MBO has existed for decades, it has come to be closely associated with Locke and Latham's goal setting theory (Brown 2007;

Chemers 2014; Locke 1968; Locke and Latham 1990, 2002, 2013). Goal setting theory is widely regarded as one of the most accurate and robust theories of work motivation—a theory that can be applied in multiple situations and conditions to enhance individuals' task motivation. Yet, despite its widespread application across organizations of all types, research in public administration has largely failed to examine the relationship between goal setting, individual effort, and organizational outcomes (notable exceptions include Latham, Borgogni, and Petitta 2008; Perry and Porter 1982; Usher and Cornia 1981; Taylor 2013; Wright 2004).[1]

This paper responds to recent calls for new and additional public sector research on goal setting theory (Latham et al 2008; Taylor 2013; Wright 2004). Furthermore, research outside of public administration has primarily focused on establishing the links between goal setting and task motivation. Far less attention has been directed toward determining whether and when goal setting practices and processes affect other important individual and organizational outcomes (Kwan, Lee, Wright, and Hui 2013; Locke and Latham 2013). To address this shortcoming, we draw on a large, nationally-representative random sample of elementary and secondary public school teachers to investigate whether variations in principals' goal setting strategies affect teacher turnover. Unlike many existing studies, we have access to actual turnover data and are subsequently able to ascertain whether goal setting drives teachers' decisions to stay in their current schools (*stayers*), move to another school (*movers*), or leave full-time employment in the teaching profession (*leavers*). Consequently, we are able to make meaningful contributions to the research on goal setting theory—both generally and in the context of public administration specifically—and public sector turnover. In the next section, we begin with a review of goal

[1] A separate body of research regarding the relative clarity and ambiguity of public organizations' goals has received greater attention in public administration scholarship (see *e.g.*, AUTHOR CITES; Chun and Rainey 2005a, 2005b; Jung 2014; Pandey and Rainey 2006). This project, however, is principally concerned with a public sector application of goal setting theory.

setting theory, before turning to a discussion of goal setting in the context of schools and its likely relationship to teacher turnover. Subsequent sections describe our measures and methods and then present results and conclusions.

A Summary of the Basic Tenets of Goal Setting Theory

From an academic standpoint, goal setting theory enjoys a long and rich history. The first empirical studies on the topic emerged from the work of Cecil Alec Mace (Carsona, Carsona, and Heady 1994; Locke and Latham 2002). Mace was a British psychologist who argued people have a "will to work" that goes beyond, and is frequently more significant than, tangible on-the-job rewards and incentives such as a paycheck. Mace is credited with being the first researcher to suggest and test the notion that goal setting affects employee motivation (Carsona et al. 1994; Locke and Latham 2002). Yet, despite Mace's early efforts, goal setting theory is most closely associated with the work of Edwin Locke and his colleague Gary Latham (Locke 1968; Locke and Latham 1990, 2002, 2013).

Locke and Latham describe goal setting as "…a theory of motivation that explains what causes some people to perform better on work-related tasks than others" (Locke and Latham 2013, 3; Latham et al. 2008; Locke and Latham 1990). Despite its emphasis on people, the logic of goal setting theory is deeply rooted in a biological and evolutionary perspective of life that assumes all living entities 1) have needs and 2) survival requires fulfilling these needs (Latham et al. 2008; Locke and Latham 1990, 2013). In other words, the viability of all life forms is ultimately contingent upon their ability to realize particular goals. Yet, unlike other life forms (*e.g.*, plants), people and animals possess both an awareness of their surroundings as well as an ability to learn and retain knowledge that allows them to develop conscious goals (Locke and

Latham 2013, 3). Only humans, however, hold the ability to make volitional choices (Locke and Latham 2013, 3; Latham et al. 2008).

That humans are able to make volitional choices is significant for three reasons. First, it means individuals can establish their own, consciously derived goals (Locke and Latham 2013). Second, it also means individuals can "…apprise their performance relative to their goals, possess varying levels of confidence to attain them, experience emotions regarding goal success and failure, and raise or lower their goals as a result" (Locke and Latham 2013, 3). Finally, people can choose whether and to what extent they will pursue goals established by others—a notion particularly important to the study of organizations (Locke and Latham 2002, 2013). Together, the biological drive to realize goals, when coupled with peoples' ability to make volitional choices, implies "goals are the primary source of an individual's motivation" (Locke and Latham 2013, 4; Locke 1968; Locke and Latham 1990, 2002). Further, studying goals and goal setting in organizations is useful for explaining and predicting individuals' performance on work-related tasks—Locke and Latham's primary interest (Locke and Latham 2002).

Locke and Latham define goals as "the object or aim of an action, for example, to attain a specific standard of proficiency, usually within a specified time limit" (Locke and Latham 2002, 705). They further argue all goals contain two core attributes: content and intensity (Locke and Latham 2013, 4-5; Locke and Latham 1990, 2002). Goal content concerns the particular object or outcome being pursued in a given situation. Content is shaped by, or a direct function of, goal specificity, goal difficulty, time span, and the number of goals established (Locke and Latham 1990, 2002, 2013). Goal intensity "refers to the effort needed to set a goal, the position of a goal in an individual's goal hierarchy, and the extent to which a person is committed to goal attainment" (Locke and Latham 2013, 5).

Over time, two core findings emerged from goal setting research. First, until individuals reach the limits of their ability, there is "a linear relationship between goal difficulty and performance" (Locke and Latham 2013, 5; Locke 1967, 1968; Mento, Steele, and Karren 1987; Tubbs 1986; Wood, Mento, and Locke 1987). Second, "specific, difficult goals lead to higher performance than no goals as well as vague, abstract goals such as 'do your best'" (Locke and Latham 2013, 5; Latham and Yukl 1975; Mento et al. 1987; Tubbs 1986; Wood et al. 1987). Essentially, ambiguous goals lead to uncertainty about what constitutes poor, acceptable, or high performance, thereby making it difficult for employees to understand how effort produces or leads to anticipated outcomes (Latham and Lee 1986; Locke and Latham 1990, 2002, 2013).

Conversely, specific, difficult goals motivate employees and result in stronger organizational performance in four ways:

1) Goals serve a directive function; they direct attention and effort toward goal-relevant activities and away from goal-irrelevant activities.
2) Second, goals have an energizing function. High goals lead to greater effort than low goals.
3) Third, goals affect persistence. When participants are allowed to control the time they spend on a task, hard goals prolong effort.
4) Fourth, goals affect action indirectly by leading to the arousal, discovery, and/or use of task-relevant knowledge and strategies (Locke and Latham 2002, 706-707: citing LaPorte and Nath 1976; Wood and Locke 1990).

Nevertheless, there are also a number of factors that moderate the relationship between goals and task performance, including ability (Locke 1982), performance feedback (Locke, Cartledge, and Koeppel 1968), goal commitment (Erez and Zidon 1984; Locke and Latham 1990), task

complexity (Locke and Latham 1990; Wood et al. 1987), situational and resource constraints (Peters et al. 1982), and affect (Locke and Latham 1990). Furthermore, research has demonstrated employees 1) can pursue multiple goals within the constraints of their ability (Locke and Latham 1990), 2) can perform equally well when goals are assigned rather than set participatively as well as when goals are self-set (Locke and Latham 2013), and 3) must have a strong sense of self-efficacy when approaching tasks (Bandura 1986; Locke, Motowidlo, and Bobko 1986).

The arguments and assumptions inherent in goal setting theory have been tested extensively and largely substantiated since Locke's early work on the topic (see *e.g.*, Locke 1968). In fact, as Pinder (1984) notes "goal setting theory has demonstrated more scientific validity to date than any other theory or approach to work motivation….Moreover, the evidence thus far indicates that it probably holds more promise as an applied motivational tool for managers than does any other approach" (169). The success of goal setting theory is largely attributable to widespread, ongoing efforts to empirically verify various dimensions of goal setting theory as well as to systematically parse the direct and indirect relationships between goal setting strategies and task motivation. Yet, despite the weighty body of research indicating goal setting and employee task motivation are linked, surprisingly little is known about whether, and to what extent, goal setting can be used to predict other, significant employee outcomes (Kwan et al. 2013, 585; citing Häsänen, Hellgren, and Hansson 2011). Even less is known about the efficacy of goal setting strategies in the public sector context (see *e.g.*, Taylor 2013). To this end, we examine whether principals' goal setting approaches affect public school teachers' decisions to stay or leave their school. In the next section, we briefly review the literature on goal setting in schools before turning to a discussion of our theoretical expectations.

Goal Setting in the Context of Schools

Not surprisingly, goal setting theory has been widely studied and applied in various academic settings, albeit with something of a gulf existing between research and practice. Much of the academic research typically explores whether goal setting strategies can be employed to improve student outcomes (Morisano 2013).[2] To this end, studies generally involve students who are tasked with, and responsible for, establishing specific, challenging grade goals (Locke and Bryan 1968; Locke and Kristof 1996; Morisano et al. 2010; Wood and Locke 1987). The efficacy of goal setting is then assessed by examining student progress toward meeting predetermined grade goals and by accounting for past academic performance, actual attained grades, and performance on standardized tests (Morisano 2013).

Three key findings have emerged from research on student goal setting. First, as long as grade goals are specific and challenging, grade goal setting improves student performance and outcomes (*i.e.*, attained grades) even when students are otherwise struggling academically (Morisano 2013, 495; Morisano et al. 2010; Zimmerman and Bandura 1994). Second, students who set grade goals are more likely to attain their degree (Pascarella and Terenzini 2005) and may—as a function of learning to set goals—actually fare better in other aspects of their lives as well as into the future (Morisano 2013; citing Holahan 1988; Bandura 1997). Third, as with other goal setting studies, the efficacy of grade goal setting is contingent on a host of other factors, such as student ability (Morisano 2013). Chief among these is the need for teachers who can both assess students' needs and promote appropriate grade goal setting techniques (Ames 1992; Zimmerman and Bandura 1994).

[2] Existing research tends to focus on post-secondary students with somewhat less attention devoted to primary and secondary students.

The realm of practice—particularly, recent practice involving primary and secondary education—approaches goal setting in academia differently. Rather than focus on providing students the skills and techniques necessary to apply goal setting strategies and establish grade goals themselves, practice has tended to emphasize the importance of holding teachers accountable for student performance (McBride and Miller 2005; Tucker and Strong 2005). In this case, practitioners [and politicians] typically assume teachers can and should make a difference in the classroom by generating meaningful gains in student performance and achievement. Consequently, the primary onus for producing improved academic performance is placed squarely on the shoulders of teachers rather than students.[3]

To the extent that student performance is [perceived as] a direct function of teacher efficacy, it then becomes necessary for school districts to measure and evaluate teacher quality. Teacher quality essentially becomes a partial, but powerful, indicator of student performance—an indicator that can be assessed through multiple criteria, such as formal training, licensure, instructional approach, time spent preparing for class, ability to present subject matter to diverse students, and student grades and performance on standardized tests (Tucker and Strong 2005, 2-3). Not surprisingly, efforts to develop district- and school-wide performance evaluation systems have coincided with increased interest in evaluating teacher quality and its tangible outcomes on student performance. Such systems are intended to identify gaps in teacher quality that can be addressed through additional training as well as to dismiss teachers exhibiting recurrent performance deficits.

Notably, performance evaluation systems are often intentionally designed to incorporate various assessment criteria that theoretically provide evidence of both teacher quality and student

[3] The merits of these assumptions are a matter of considerable, on-going debate among academics and practitioners. We take no stand on these issues here. Instead, our discussion is merely for descriptive purposes.

learning progress throughout an academic year. Such systems frequently include techniques and approaches drawn—directly and indirectly—from goal setting theory. As an example, the Alexandria City School District in Virginia developed a performance assessment tool for teachers that encompasses and relies on five main criteria: 1) student achievement, 2) formal observation, 3) informal observation, 4) supporting documentation (*i.e.*, teaching portfolios), and 5) goal setting, which is viewed as an acceptable method for satisfying assessment requirements contained in Virginia state law (McBride and Miller 2005, 57).

In the case of Alexandria, teachers are required to work individually with performance assessment experts to identify "areas of student performance and instruction that require improvement….and [then] select areas they would like to improve for both themselves and their students" (McBride and Miller 2005, 61). The process for establishing targets and subsequently evaluating teachers' realization of them draws directly on the principles of goal setting theory. Specifically, the process encompasses three inter-related steps: 1) defining clear, measurable teaching objectives, 2) selecting appropriate assessment strategies, and 3) reviewing and adjusting goals and objectives as necessary—typically on a yearly basis (McBride and Miller 2005, 62). Much like MBO, teachers are then evaluated using multiple criteria to determine whether and to what extent they attained targets. In instances when teachers fall short of their goals, training and development exercises may be mandated; alternatively, teachers may be dismissed for poor performance.

As these examples highlight, goal setting is prevalent in academic institutions even if it is examined and administered quite differently by scholars and practitioners and across primary, secondary, and post-secondary educational systems. However, lost in both general goal setting

research and actual practice is any meaningful discussion of the role administrators—principals, in the context of this paper—assume in shaping teachers' understanding of their goals.

Principals, Goal Setting, and Teachers

To understand how and why principals' goal setting strategies are likely to affect teachers, it is necessary to turn to education research applying goal setting theory. Education research has long argued principals play an important leadership role in schools. In this role, principals are tasked with crafting a healthy, instructional climate, which, in turn, shapes teacher and student outcomes (see *e.g.*, Bossert, Dwyer, Rowan, and Lee 1982; Hallinger and Heck 1996; Robinson, Lloyd, and Rowe 2008). While existing education research has failed to provide strong empirical evidence supporting claims that principals meaningfully influence student outcomes, researchers often assert any relationship is likely to be indirect in nature, with principals creating the "conditions…through which teachers make a more direct impact on students" (Robinson et al. 2008, 659-660). It is in this context that goal setting becomes significant.

In essence, to be an effective leader capable of improving student outcomes, principals must create an organizational climate that jointly integrates students' instructional needs, staff expectations, and fundamental task requirements (Robinson et al. 2008). Goal setting is one technique useful in accomplishing this objective insofar as it can be applied in ways that "focus and coordinate" the work of teachers (Robinson et al. 2008, 659; see also, Locke and Latham 2002; Ogawa and Bossert 1995). In fact, past research indicates principals who make academic performance a core organizational goal (Goldring and Pasternak 1994) and who work to embed goals "in school and classroom routines and procedures" (Robinson et al. 2008, 659; Robinson 2001) tend to have higher performing schools.

Simply, academic accomplishment in high performing schools increases partly as a function of principals' ability to establish and set goals that alter how teachers conduct themselves in the classroom (Ogawa and Bossert 1995). To this end, principals engage in several behaviors consistent with the broader tenets of Locke and Latham's (2002) goal setting theory. First, principals in high performing schools generate clear, concise goals that are communicated to teachers (Heck, Larsen, and Marcoulides 1990; Heck, Marcoulides, and Lang 1991). Conversely, lower performance is common in those schools where principals convey vague, "do your best" goals—a finding wholly consistent with Locke and Latham's theory (Robinson et al. 2008). Second, research indicates teachers must have a shared understanding of goals (Goldring and Pasternak 1994; Vancouver and Schmitt 1991). Without a shared understanding of goals, it appears as if teachers struggle to determine how goals should be prioritized (Robinson et al. 2008, 666). In such cases, teachers are unlikely to believe they are capable of meeting principals' expectations and to determine what constitutes reasonable on-the-job performance (Bandura 1986; Locke et al. 1986; Robinson et al. 2008). Third, for teachers to remain committed to goals, they require feedback from principals about expectations as well as a sense of consistency about what constitutes a schools' core goals (Heck et al. 1991; Locke and Latham 2002). Finally, for goal setting to improve outcomes for students, the principals' goals must be aligned with core education tasks (Robinson et al. 2008).

Interestingly, neither education nor goal setting research has adequately examined the possible link between teachers' (or, more broadly, employees') perceptions of principals' (or managers) goal setting strategies and turnover (*e.g.*, Kwan et al. 2013). At best, existing research indicates commitment to organizational goals, the structure and design of jobs (Heslin and Caprar 2013), and team empowerment (Oettingen, Wittchen, and Gollwitzer 2013) shape

turnover intentions and actual turnover. That said, goal setting research has consistently demonstrated employees' ability to attain their goals increases job satisfaction (see *e.g.*, Borgogni and Russo 2013; Locke and Latham 2002; Latham 2007). Decades of research on employee turnover indicates job satisfaction is one of the best predictors of employee turnover (see *e.g.*, Griffeth, Hom, and Gaertner 2000; Mobley, Griffeth, Hand, and Meglino 1979). While job satisfaction has been defined in numerous ways, it is a concept that is generally assumed to reflect an employee's "affective attachment to the job viewed either in its entirety (global satisfaction) or with regard to particular aspects (facet satisfaction; *e.g.*, supervision)" (Tett and Meyer 1993).

In the context of goal setting theory, when employees find themselves unable to attain goals (*e.g.*, as a function of goal conflict or ambiguity), intrinsic motivation suffers as a result (Borgogni and Russo 2013; Locke and Latham 2002; Latham 2007). When intrinsic motivation declines, employees perceive less control over their lives and are also less likely to believe any effort exerted toward goal attainment will result in positive outcomes; essentially, employees' sense of self-efficacy and overall job satisfaction declines (Locke and Latham 2002). As job satisfaction declines, employees become less committed to their organizations and are more likely to 1) demonstrate withdrawal cognitions, 2) engage in job searches, 3) express turnover intentions, and 4) actually turnover (see *e.g.*, Griffeth et al. 2000).

We draw on the logic described above to examine whether teachers' perceptions of principals' goal setting strategies drive their decision to remain at or leave their schools. Consistent with goal setting theory, we assume those teachers who believe a principal's goal setting approach produces goals that are clear and specific will be more likely to remain in their current school. However, when teachers believe a principal's goal setting approach results in

unclear goals, teachers will be more likely to move to another school or leave the teaching profession altogether. Consequently, we test the following hypotheses:

> *Hypothesis 1: Teachers who report principals set clear goals are more likely to continue employment at their current school.*
>
> *Hypothesis 2: Teachers who report principals set unclear goals are more likely to seek employment in another school or to leave full-time employment in the teaching profession.*

The data and methods employed to test these hypotheses are discussed next.

Data and Measures

The current study relies on public school teacher data from the restricted-use versions of the 2007-2008 *School and Staffing Survey* (SASS) and the 2008-2009 *Teacher Follow-up Survey* (TFS)[4], both collected by the *National Center of Education Statistics* (NCES).[5] SASS is a nationally representative random sample of elementary and secondary public school teachers. Approximately 43,000 teachers are surveyed each time SASS is administered. Information is also collected from principals, schools, and school districts. One year later, TFS randomly samples approximately 5,300 SASS respondents to determine if and where they are still teaching. Numerous studies have utilized SASS and TFS to examine teacher mobility on a national scale (*e.g.*, Grissom 2011, 2012; Grissom, Nicholson-Crotty, and Kaiser 2012; Hayes 2014; Ingersoll 2001; Shen 1997). Consistent with previous studies, we utilize the teacher, principal, school, and school district questionnaires from SASS and TFS to collect unique

[4] Data also exist for 2011-2012 (SASS) and 2012-2013 (TFS). However, public schools confronted major budgetary issues during this later evaluation cycle. Therefore, to avoid the potentially confounding effects of budgetary shortfalls on our analysis, we have opted to utilize the 2007-2008 SASS and 2008-2009 TFS data.

[5] See http://nces.ed.gov/surveys/sass/index.asp for additional information.

information on teachers, including items that capture teachers' socio-demographic profile and job mobility.

Teacher mobility across schools—including attrition from the teaching profession—is examined by linking individual respondents in SASS to TFS, the latter of which asks a random subsample of the previous year's SASS teachers if 1) they are still teaching, 2) they are still teaching in the same school, 3) they are still teaching in the same district, and 4) they are still teaching in the same state. Because TFS is a subsample of the SASS sample, the current analysis is restricted to teachers included in both SASS and TFS. The analytical sample is therefore restricted to full-time, regular public teachers who were surveyed in both SASS and TFS surveys and who were not missing data for any of the variables used in this analysis.[6] This results in a sample size of approximately 2,600 teachers.

Dependent Variables. The outcome of interest in this study is teacher turnover. As such, three dependent variables are created using TFS. TFS includes measures that ask SASS teachers to describe their current teaching status and location. Using these items, teacher turnover is measured by three separate binary indicator variables: stayers, movers, and leavers. Stayers are teachers who reported that they remained in the same school. Movers are teachers who reported that they remained a public school teacher, but relocated to another school, district, or state.[7] Lastly, leavers are teachers who reported that they were no longer a full-time, public teacher.[8]

[6] The analytical sample includes teachers who retired between the SASS and TFS surveys. The results remain robust if the sample excludes these retirees.

[7] As a robustness check, the analysis was run with two mover variables: school mover and district/state mover. There is no practical or statistical difference between the main coefficients for the school mover and district/state mover models. Therefore, the main analysis combines school, district, and state movers in one mover category.

[8] The weighted average of stayers is 86% for the analytical sample. The non-weighted average of stayers is 66%. As a sensitivity check, the main results are estimated with and without sampling weights. The sampling weights account for the unequal probabilities of sample selection by NCES-provided sampling weights. The main results yield qualitatively similar results with or without the sampling weights.

Independent Variable. The primary independent variable of interest in this study is goal setting. In 1984, Locke and Latham generated a 53-item goal setting questionnaire that encompassed several core goal attributes, such as goal clarity and specificity. Results from subsequent studies have generally confirmed the validity and reliability of Locke and Latham's original items as well as their broader conceptionalization of the goal setting process (see *e.g.*, Kwan et al. 2013; Lee, Bobko, Earley, and Locke 1991).

SASS contains several variables that mirror or are close proxies for items and constructs included in Locke and Latham's (1984) original questionnaire. We draw on these items to create a variable that captures teachers' perceptions of principals' ability to establish and communicate clear goals to workers (see Table 1). More specifically, we utilize three items that measure the extent to which 1) principals' support teachers and are therefore more likely to allow teachers to participate in the goal setting process, 2) principals provide a meaningful rationale for goals, 3) goals are clear and shared by other teachers, and 4) schools and principals facilitate goal attainment (see *e.g.*, Lee et al. 1991). The items we have selected comport with four goal dimensions proposed and validated by Locke and Latham: supervisor support/participation, goal rationale, goal clarity, and organizational facilitation of goal achievement (Lee et al. 1991; Locke and Latham 1984).

To verify the appropriateness of treating the items we selected as a single construct, we conducted a confirmatory factor analysis of responses to our items using data from the SASS Teacher Questionnaire. These items are measured on a 4-point Likert-type scale, ranging from strongly disagree to strongly agree. The factor analysis results in one factor using the standard minimum eigenvalue criterion. Shown in Table 1, the three items each load highly onto the

underlying factor, and the factor has a high degree of reliability (Cronbach's $\alpha = 0.67$).[9] The standard linear scoring method was employed to generate individual measures of principals' ability to set clear goals.

Control Variables. Previous studies illustrate the importance of teacher- and school-level characteristics in predicting teachers' decisions to leave a school (Guarino et al. 2006; Grissom 2012; Grissom et al. 2012; Hayes 2014; Ingersoll 2001). Accordingly, the regression models control for relevant teacher and school characteristics. Control variables come from the SASS teacher, principal, and school questionnaires.

Teacher characteristics include sex, race, age, teaching experience, education, teacher certifications, the quality of the teacher's undergraduate institution, and academic-year base salary. The quality of the teacher's undergraduate institution was created using college rankings from *Barron's Profiles of American Colleges*. Barron's ranks all undergraduate institutions in seven categories: most competitive, highly competitive, very competitive, competitive, less competitive, non-competitive, and special.[10]

School characteristics include proportions of students who are African-American, Hispanic, Free and Reduced Lunch, and Limited English Proficiency (LEP). Previous studies find teachers are more likely to leave schools with high levels of non-white and low-income students (Hanushek, Kain, and Rivkin 2004; Scafidi, Sjoquist, and Stinebrickner 2007). Student-to-teacher ratio, teacher-to-administration ratio, teacher aid-to-teacher ratio, principal's race, principal's experience, and indicators for urban, suburban, and rural areas also are included. Lastly, the regression models control for whether or not the teacher's principal left the school after the SASS survey year. It is possible that teachers are more likely to turnover if their

[9] See https://www.princeton.edu/~otorres/Factor.pdf.

[10] Special schools are institutions that specialize in vocational, art, drama, dance, and other specialty majors.

principal turnovers as well. Descriptive statistics are shown in Table 2 for all variables included in the analysis.

Methodology

The empirical analysis proceeds in two steps. First, we examine whether there is a relationship between the probability of teacher turnover and principals' ability to set clear goals. To test for this, we estimate the following baseline linear probability model (LPM) for each category of teacher turnover through Ordinary Least Squares (OLS):

$$(1)\ \Pr(y_{isd}) = \ Goal\ Setting_{isd}\ \alpha_1 + \ X'_{isd}\ \beta_1 + c_d + \ e_{isd}$$

where *y* is a binary indicator of teacher *i*, in school *s*, in district *d*, experiencing a type of teacher turnover; *Goal Setting* is a standardized measure of the principal's ability to set and communicate clear goals; *X* is a vector of control variables; *c* is a district fixed effect; and *e* is an error term.[11] A higher score for *Goal Setting* implies that the principal sets clearer goals. The coefficient of interest in equation (1) is α_1, which is expected to be positive and statistically significant when the dependent variable is the stayer category of turnover. Otherwise, this coefficient is expected to be negative and statistically significant when the dependent variable is the mover or leaver category of turnover.

Second, we test for heterogeneity in the relationship between principals' ability to set clear goals and the probability of teacher turnover. To this end, we estimate an extension of equation (1) that includes interaction variables between the goal setting index and various teacher and student characteristics.

[11] The preferred model is a linear probability model (LPM). However, the main results are robust across other estimators and models, such as probit, logit, and multinomial logit models. See Appendix B for the average partial effects (APEs) from these other models.

Equation (1) includes district fixed effects, which control for all time invariant unobserved heterogeneity across districts (Grissom 2012). District fixed effects control for long-term economic and political preferences of the district that do not vary over time. For example, the district fixed effects will control for teacher and non-teacher labor market differences across school districts. As a robustness check, the regressions are also estimated without fixed effects.[12] Results yield qualitatively similar results with or without fixed effects. Finally, standard errors are robust to district-level clustering, which makes inference robust to serial correlation within districts over time and heteroskedasticity.

Results

The first column in Table 3 reports the coefficient of interest in equation (1) when the dependent variable is stayer. The coefficient of interest in panel one is 0.093. This coefficient suggests that a one standard deviation increase in a principal's ability to set clear goals is associated with an increase in the likelihood of a teacher remaining in the same school by 9.3 percentage points. This coefficient is both practically and statistically significant. The regression in panel one does not include district fixed effects or any of the control variables described in the data section. As mentioned above, there are important reasons to incorporate district fixed effects and control variables.

Notably, the results in panels two through five provide similar coefficients. For example, the coefficient in panel five is 0.083. The regression in panel five is the preferred specification of equation (1) because it includes district fixed effects and all control variables. This coefficient suggests that a one standard deviation increase in the principal's ability to set clear goals is associated with an increase in the likelihood of a teacher remaining in the same school by 8.7

[12] In models without district fixed effects, the results remain robust if the model includes county unemployment rates.

percentage points. Overall, the results in column one provide support for the theory that principals who set clear goals can increase the likelihood of teachers remaining in their school.

The second column in Table 3 reports the coefficient of interest in equation (1) when the dependent variable is mover. As mentioned above, the regression in panel five is the preferred specification of equation (1). The coefficient of interest in panel five is -0.062. This coefficient suggests that a one standard deviation increase in the principal's ability to set clear goals is associated with a decrease in the likelihood of a teacher moving to another school, district, or state by 6.2 percentage points. Again, this coefficient is both practically and statistically significant. Results in panels one through four provides similar results. Overall, the results in column 2 provide support for the theory that principals who set and communicate clear goals increases the likelihood of teachers remaining in their school.

The last column in Table 3 reports the coefficient of interest in equation (1) when the dependent variable is leaver. The coefficient of interest in panel one is -0.024. This coefficient suggests that a one standard deviation increase in the principal's ability to set clear goals is associated with a decrease in the likelihood of a teacher leaving full-time employment in the teaching profession by 2.4 percentage points.

Shown in panels two through five, the sign of the coefficient remains negative. However, the statistically significance disappears when district fixed effects and control variables are added to equation (1). One possible reason for this result is that the act of leaving the teaching profession is significantly different than the act of just leaving a school. A principal is likely to have more impact on the latter than the former. For example, one possible reason for a teacher to leave the full-time teaching profession is due to the birth of a child. Effective principals have no more control over preventing this than ineffective principals.

Appendix A reports coefficients for all other variables in equation (1). Surprisingly, many of the coefficients are not statistically significant, with the exception of rural, non-Hispanic other race, and state certification. Non-Hispanic other race teachers are less likely to remain in the same school relative to non-Hispanic white teachers. Teachers who hold a state certification are less likely to remain in the same school relative to all other teachers. Finally, teachers located in rural areas are less likely to remain in the same school relative to teachers in suburban areas.

Table 4 reports the interaction variable estimates described in the method section. The regression models interact the goal setting index with a set of control variables, including teachers' race, sex, and degrees/certifications as well as school characteristics. The general lack of individually statistically significant interaction terms is striking. In fact, only the interaction term for national board certification is significant. While the result is only marginally significant, the positive sign of the interaction term is theoretically plausible. The act of gaining a national board certification is a signal that the teacher is highly motivated. Therefore, the attitude and motivation levels between national board certification teachers and all other teachers may be significantly different. A teacher with national board certification may be less likely to need a principal who sets clear goals compared to teachers without certification. As a result, national board certification teachers will be more likely to leave their school relative to all other teachers, when the principal is perceived to set clearer goals.[13]

Overall, the results show that teachers are more likely to remain in the same school if the principal sets and communicates clear goals. Interestingly, there is appears to be no variation in the effect of setting clear goals on teacher turnover. Shown in Table 4, the interaction terms are not jointly significant. This implies that *all* teachers respond *similarly* from clear goals and the

[13] It is also possible that teacher with national board certifications are more attractive in the teacher labor market relative to teachers with national board certifications.

response is strong. One potential caveat to the previous claim is that the study has a sample of only 2,600 teachers. With this sample size, the inclusion of district fixed effects and all of these interaction variables reduces statistical power and the likelihood of a seeing a statistically significant result.

Discussion and Conclusions

In this paper, we have applied aspects of Locke and Latham's goal setting theory to examine whether teachers' who believe principals set clear goals are more likely to remain employed in their schools. Locke and Latham's (2002) theory presumes, at the very least, goals must be 1) clear and specific, 2) communicated to and accepted by employees, and 3) supported by supervisors for task motivation to result (see also, Locke 1968; Locke, Cartledge, and Knerr 1970). When, in particular, employees find themselves subject to vague or inconsistent goals, they struggle to understand what is expected of them and task motivation and performance suffer as a consequence (Locke and Latham 2002, 2013).

Notably, several striking findings relevant to public management research and practice emerge from the current study. First and foremost, results from our empirical models clearly indicate teachers' perceptions of the relative clarity of goals set by principals matter considerably in the context of public schools. Across the board, findings demonstrate teachers are more likely to remain in the same school when principals establish clear goals and effectively communicate those goals to staff, fully supporting hypotheses 1 and 2. Further, results also provide strong reason to anticipate the effects of goal setting are robust, with *all* teachers responding *similarly* when goals are perceived as clear.

That study results so unequivocally demonstrate a connection exists between goal setting and turnover is—in and of itself—quite significant. Decades of goal setting research have

demonstrated the importance of key moderators and contextual variables (*e.g.*, ability, goal commitment, resources) in predicting and shaping the overarching efficacy of goal setting practices. We have included none of these factors in our model, focusing instead solely on the relationship between goal setting and teacher turnover. There is strong reason to anticipate the relationships examined in this paper—perceptions of goal setting practices and teacher turnover—would only be strengthened with the inclusion of these other contextual factors.

Second, from a practical standpoint, results underscore the real need for principals to devote meaningful time and attention to establishing and communicating organizational goals to teachers. Simply, the merits of goal setting practices—at least in the context of teacher turnover in the public schools examined here—appear to be contingent on two overarching factors. First, principals must establish goals that are clear and precise. Only when goals are clear and specific will teachers understand and perceive value in them. Second, principals must communicate these goals to staff in ways that create some degree of internal organizational consistency. In other words, teachers must believe goals are shared throughout a school and by other staff. These two conclusions are wholly consistent with findings from goal setting research outside of the public sector setting. More importantly, in the context of teacher turnover, they are also practically significant.

While it is difficult to accurately estimate the total, long-term costs of teacher turnover in public schools, existing evidence suggests the up-front financial costs (*e.g.*, replacement and training costs) associated with turnover are considerable. In fact, a study conducted by Barnes and colleagues (2007) suggests the average cost to replace and train a single teacher in the Chicago area is $15,325. Similarly, Milanowski and Odden (2007) indicate the cost of replacing a teacher with five years or more of experience with a new teacher in a Midwest urban area can

cost a school up to $33,403.[14] Given experienced teachers possess skills that are less tangible and more difficult to easily quantify, it is likely these figures underestimate the true costs of teacher turnover for schools and students. However, as these estimates suggest, the loss of good teachers is financially significant at the very least. To the extent that principals can apply the fundamental tenets of goal setting theory in their schools to reduce the teacher turnover, current findings are particularly noteworthy.

Third, results point to the very real implications employee perceptions have on actual organizational outcomes. Our findings indicate teachers make concrete decisions to remain or leave their current place of employment based, at least partly, on whether or not they *believe* principals' goals are clear and shared by other teachers. The notion that employee perceptions affect actual organizational outcomes is hardly new in organization theory and behavior research (see *e.g.*, Allen, Shore, and Griffeth 2003; Merton 1948). In fact, research has long acknowledged employee perceptions shape work-related attitudes and, in turn, employee behavior (Allen et al. 2003; Cropanzano, Howes, Grandey, and Toth 1997; Merton 1948). In this sense, study results comport with arguments that perception frequently becomes reality for employees—regardless of whether that perception is objectively accurate. This suggests principals must attend not only to the content and communication goals, but also to employees' perceptions of goals.

Fourth, this study is valuable for two other reasons. First, we address recent calls to study goal setting in the context of public organizations (Latham, Borgogni, and Petitta 2008; Taylor 2013; Wright 2001, 2004). Second, we also make a contribution to broader goal setting theory by demonstrating that employees' perceptions of goals affects actual organizational outcomes,

[14] Replacement costs are lower when a teacher has less than five years of experience.

thereby responding to calls by Kwan and colleagues (2013) to determine whether goal setting affects employee and organizational outcomes other than task motivation.

Although we believe our findings are considerable, this study is not without limitations. For example, while turnover generally comes with considerable up-front financial costs, it is clearly the case that employee turnover is sometimes healthy for organizations. In the context of education, dismissing teachers who are poor performers likely comes with significant long-term social and economic benefits for students and society. We are unable to determine whether turnover is healthy or harmful in this study. Second, as noted earlier, our model leaves out a number of contextual factors, such as goal commitment, known to alter the relationship between goal setting and task motivation. Third, while our results indicate clear goals limit the likelihood that teachers will turnover, we are unable to offer insight concerning the relationship between principals' espoused goals, the behavior of teachers in classrooms, and actual student outcomes. Future research would benefit from taking up these issues. Fourth, the relationship between employees' perceptions of managers' goal setting strategies may be different when examined in other organizational contexts. Consequently, some effort should be made to validate our findings in other organizational settings. Fifth, the current study uses cross-sectional data on public school teachers. A cross-sectional dataset only allows us to observe turnover currently and in one time period. Future research should utilize panel data on teachers in order to follow teachers' decisions to relocate to another school over several years.

Despite any limitations, this study makes an important contribution to public management research and practice. Regardless of sector, goal setting approaches and techniques are firmly embedded in organizational practice. At the very least, vestiges of goal setting approaches can be found in organizational and employee performance evaluation systems and

performance-related pay schemes. Decisions about the allocation of organizational resources and even the termination of employees are frequently derived from systems incorporating goal setting tenets. Furthermore, over 1,000 studies in fields other than public administration have been conducted on goal setting since Locke's early work on the topic (Locke and Latham 2013). These studies consistently demonstrate goal setting has real implications on employees' task motivation and performance. Yet, notwithstanding existing research and actual organizational practice, public administration scholarship has largely overlooked goal setting theory. Only a handful of studies—such as those of Taylor (2013) and Wright (2001, 2004)—consider the possible value and implications of goal setting tactics. Additional studies that account for the unique institutional context of public organizations are much needed.

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Tables

Table 1. Factor Analysis of Main Independent Variable

Variable	Factor Loading
Goal Setting Index (Eigenvalue = 1.11 , Cronbach's α = 0.67)	
The school administration's behavior toward the staff is supportive and encouraging.	0.64
Most of my colleagues share my beliefs and values about what the central mission of the school should be.	0.44
The principal knows what kind of school he or she wants and has communicated it to the staff.	0.71

Table 2. Descriptive Statistics

	Mean	SD	Min	Max
Dependent Variable				
Stayer	0.86		0	1
Mover	0.07		0	1
Leaver	0.07		0	1
Independent Variable				
Goal Setting Index (standardized)	0	1	-2.92	0.82
Teacher Characteristics				
Non-Hispanic White	0.84		0	1
Non-Hispanic Black	0.08		0	1
Non-Hispanic Other Race	0.02		0	1
Hispanic	0.07		0	1
Female	0.77		0	1
Age	42.23	11.54	20	77
Total Teaching Experience	12.44	9.56	0	43
Experience in Current School	8.47	8.28	0	39
Less than Bachelor's Degree	0.01		0	1
Bachelor's Degree	0.47		0	1
Master's Degree	0.45		0	1
More than Master's Degree	0.07		0	1
Academic-Year Base Salary ($)	49,075.77	14,260.32	0	121,000
National Board Certified	0.17		0	1
Holds a State Certification	0.88		0	1
Most Competitive Undergraduate Institution	0.01		0	1
Highly Competitive Undergraduate Institution	0.06		0	1
Very Competitive Undergraduate Institution	0.16		0	1
Competitive Undergraduate Institution	0.46		0	1
Less Competitive Undergraduate Institution	0.19		0	1
Non-Competitive Undergraduate Institution	0.09		0	1
Special Undergraduate Institution	0.02		0	1
School Characteristics				
Principal Remained in School	0.79		0	1
Total Enrollment	838.24	626.10	25	5,300
Proportion of Black Students	0.18	0.24	0	1
Proportion of Hispanic Students	0.19	0.26	0	1
Proportion of Free and Reduced Lunch	0.44	0.29	0	1

Table 2 (Cont.) Descriptive Statistics

	Mean	SD	Min	Max
School Characteristics (Cont.)				
Located in Urban Area	0.27	0.44	0	1
Located in Suburban Area	0.53	0.51	0	1
Located in Rural Area	0.20	0.40	0	1
Student to Teacher Ratio	14.42	3.93	2.05	54.77
Prop. Limited English Proficiency	0.08	0.14	0	1
Teacher to Administration Ratio	23.94	8.59	2	104
Teacher Aid to Teacher Ratio	0.16	0.16	0	3
Principal is Black	0.12	0.32	0	1
Principal is Hispanic	0.07	0.24	0	1
Principal is Male	0.51	0.49	0	1
Principal's Base Salary ($)	91,102.19	718.15	30,000	200,000
Total Experience as Principal	7.45	6.47	0	44
Experience as Principal in School	4.30	4.84	0	37
Principal Holds a Doctorate	0.08	0.27	0	1
# of Teachers		2,600		
# of Schools		2,000		
# of Districts		1,600		
# of States		51		

Notes: Estimates adjusted using SASS probability weights. Sample sizes rounded due to NCES nondisclosure rules. Sample is restricted to full-time, regular public teachers who were surveyed in both the SASS and TFS surveys. Sample is further excludes any teachers who indicated that they retired in the TFS.

Table 3. Goal Setting and Teacher Turnover: Linear Probability Model

	Stayer	Mover	Leaver
	(1)	(2)	(3)
Panel 1: No Controls and No FEs			
Goal Setting Index	0.093***	-0.068***	-0.024**
	(0.013)	(0.011)	(0.010)
Panel 2: No Controls and District FEs			
Goal Setting Index	0.098***	-0.066**	-0.033
	(0.037)	(0.027)	(0.030)
Panel 3: Teacher Controls and District FEs			
Goal Setting Index	0.087**	-0.061**	-0.026
	(0.036)	(0.028)	(0.030)
Panel 4: School Controls and District FEs			
Goal Setting Index	0.095***	-0.063**	-0.032
	(0.037)	(0.027)	(0.031)
Panel 5: All Controls and District FEs			
Goal Setting Index	0.087**	-0.062**	-0.025
	(0.037)	(0.028)	(0.031)

Notes: N= 2,600. FEs is the abbreviation for fixed effects. All panels include school district fixed effects except panel 1. Each estimate of the goal setting index is from a separate regression of equation (1). Teacher controls include all teacher characteristics from Table 2. School controls include all school characteristics from Table 2. The coefficients of all control variables are reported in Appendix A. Standard errors are clustered at the district-level, *** p<0.01, ** p<0.05, * p<0.1.

Table 4. Heterogeneity in Goal Setting Index and Teacher Turnover: Linear Probability Model

	Stayer	Mover	Leaver
	(1)	(2)	(3)
Goal Setting Index (GS)	-0.049	0.042	0.008
	(0.206)	(0.186)	(0.178)
GS × Non-Hispanic Black Teacher	0.064	-0.070	0.006
	(0.129)	(0.134)	(0.091)
GS × Other Race Teacher	0.194	-0.076	-0.118
	(0.132)	(0.139)	(0.114)
GS × Hispanic Teacher	-0.027	0.044	-0.017
	(0.111)	(0.092)	(0.096)
GS × Female	-0.001	0.005	-0.004
	(0.072)	(0.071)	(0.058)
GS × National Board Certified	0.005	0.118*	-0.123
	(0.085)	(0.063)	(0.080)
GS × Total Experience in Current School	-0.006	0.001	0.005
	(0.008)	(0.006)	(0.006)
GS × Total Teaching Experience	0.005	-0.000	-0.005
	(0.005)	(0.004)	(0.004)
GS × Less than Bachelor's Degree	-0.309	0.279	0.030
	(0.330)	(0.174)	(0.369)
GS × Master's Degree	0.060	-0.077	0.017
	(0.071)	(0.061)	(0.062)
GS × More than Master's Degree	0.098	-0.168	0.070
	(0.129)	(0.114)	(0.138)
GS × Total School Enrollment	0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)
GS × Proportion of Free and Reduced Lunch	0.031	-0.038	0.007
	(0.133)	(0.109)	(0.121)
GS × Prop of Limited English Proficiency	-0.103	-0.003	0.105
	(0.202)	(0.174)	(0.168)
GS × Teacher to Administration Ratio	0.001	-0.001	0.001
	(0.005)	(0.003)	(0.004)
GS × Student to Teacher Ratio	0.004	-0.004	-0.000
	(0.010)	(0.009)	(0.008)
Adjusted R^2	0.06	0.05	0.04
Joint Significance of Interactions (F-stat)	0.66	0.76	0.49
p-value	(0.82)	(0.72)	(0.95)

Notes: N=2,600. Standard errors are robust to clustering at the district level. All regressions include district fixed effects and all of the control variables. The variables interacted with goal setting index (GS) and all other control variables are included in the model in levels, but these coefficients are not reported in the interest of brevity. The results are qualitatively when the interactions are added to the baseline model one at a time. *** p<0.01, ** p<0.05, * p<0.1.

Appendix A. Full Regressions from Table 3

	Stayer	Mover	Leaver
	(1)	(2)	(3)
Independent Variable	0.087**	-0.062**	-0.025
Goal Setting Index	(0.037)	(0.028)	(0.031)
Teacher Characteristics			
Non-Hispanic White		omitted	
Non-Hispanic Black	-0.072	0.081	-0.009
	(0.103)	(0.098)	(0.079)
Non-Hispanic Other Race	-0.279**	0.178*	0.101
	(0.137)	(0.100)	(0.113)
Hispanic	-0.003	-0.020	0.023
	(0.099)	(0.080)	(0.077)
Female	0.015	-0.018	0.003
	(0.056)	(0.049)	(0.045)
Age	0.000	-0.001	0.001
	(0.003)	(0.002)	(0.003)
Total Teaching Experience	-0.009	0.003	0.006
	(0.006)	(0.005)	(0.005)
Experience in Current School	0.009	-0.007	-0.002
	(0.007)	(0.006)	(0.006)
Less than Bachelor's Degree	-0.030	-0.178	0.208
	(0.218)	(0.125)	(0.216)
Bachelor's Degree		omitted	
Master's Degree	-0.024	-0.002	0.026
	(0.065)	(0.056)	(0.048)
More than Master's Degree	-0.131	-0.022	0.154
	(0.120)	(0.102)	(0.110)
Academic-Year Base Salary ($)	-0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)
National Board Certified	0.004	-0.020	0.016
	(0.068)	(0.051)	(0.057)
Holds a State Certification	-0.116**	0.068	0.049
	(0.058)	(0.049)	(0.046)
Most Competitive Undergraduate	-0.065	0.053	0.011
	(0.183)	(0.153)	(0.184)
Highly Competitive Undergraduate	-0.131	-0.017	0.147
	(0.106)	(0.074)	(0.090)
Very Competitive Undergraduate	-0.062	0.049	0.013
	(0.071)	(0.060)	(0.063)
Competitive Undergraduate		omitted	

Appendix A (Cont.). Full Regressions from Table 3

	Stayer	Mover	Leaver
	(1)	(2)	(3)
Teacher Characteristics			
Less Competitive Undergraduate	-0.005	-0.021	0.026
	(0.079)	(0.063)	(0.070)
Non Competitive Undergraduate	0.018	0.035	-0.053
	(0.108)	(0.087)	(0.082)
Special Undergraduate	0.016	0.033	-0.050
	(0.166)	(0.148)	(0.131)
School Characteristics	-0.000	0.000	0.000
Total Enrollment	(0.000)	(0.000)	(0.000)
	-0.018	-0.156	0.174
Proportion of Black Students	(0.236)	(0.209)	(0.168)
	-0.112	-0.059	0.171
Proportion of Hispanic Students	(0.267)	(0.197)	(0.194)
	-0.147	0.136	0.012
Proportion of Free and Reduced Lunch	(0.194)	(0.160)	(0.132)
	-0.039	0.031	0.008
Located in Urban Area	(0.110)	(0.122)	(0.090)
Located in Suburban Area		omitted	
Located in Rural Area	-0.604**	0.237*	0.367
	(0.236)	(0.137)	(0.277)
Student to Teacher Ratio	0.006	-0.001	-0.005
	(0.011)	(0.010)	(0.008)
Prop. Limited English Proficiency	0.180	0.077	-0.257
	(0.323)	(0.266)	(0.235)
Teacher to Administration Ratio	0.002	-0.005	0.003
	(0.005)	(0.004)	(0.004)
Teacher Aid to Teacher Ratio	0.031	-0.029	-0.003
	(0.149)	(0.128)	(0.103)
Principal is Black	-0.038	0.045	-0.006
	(0.120)	(0.086)	(0.093)
Principal is Hispanic	-0.012	0.036	-0.024
	(0.140)	(0.119)	(0.098)
Principal is Male	0.064	-0.033	-0.031
	(0.065)	(0.050)	(0.057)
Principal's Base Salary ($)	0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)
Total Experience as Principal	-0.004	0.001	0.003
	(0.007)	(0.005)	(0.006)

Appendix A. Full Regressions from Table 3

	Stayer	Mover	Leaver
	(1)	(2)	(3)
School Characteristics			
Experience as Principal in School	0.008	-0.009	0.000
	(0.009)	(0.007)	(0.008)
Principal Holds a Doctorate	0.091	-0.064	-0.027
	(0.111)	(0.080)	(0.100)
Principal Remained in School	-0.062	0.058	0.004
	(0.092)	(0.068)	(0.073)
Adjusted R^2	0.06	0.05	0.05

Notes: N= 2,600. FEs is the abbreviation for fixed effects. All panels include school district fixed effects except panel 1. Standard errors are clustered at the district-level, *** p<0.01, ** p<0.05, * p<0.1.

Appendix B. Reported Average Partial Effects (APEs) Using Alternative Estimators and Models

	Stayer	Mover	Leaver
	(1)	(2)	(3)
Panel 1: Linear Probability Models (LPMs)			
Goal Setting Index	0.087**	-0.062**	-0.025
	(0.037)	(0.028)	(0.031)
Panel 2: Logit Models			
Goal Setting Index	0.083***	-0.057**	-0.023**
	(0.013)	(0.009)	(0.010)
Panel 3: Probit Models			
Goal Setting Index	0.082***	-0.058***	-0.022**
	(0.013)	(0.009)	(0.010)
Panel 4: Multinomial Logit Models (MNLs)			
Goal Setting Index	0.083***	-0.058***	-0.025**
	(0.013)	(0.009)	(0.010)

Notes: N= 2,600. Each estimate of the goal setting index is from a separate regression of equation (1). Panel 1 reports the APE results from Panel 5 in Table 3. The remaining panels are analogous regressions using a different model/estimator. Standard errors are clustered at the district-level, *** p<0.01, ** p<0.05, * p<0.1.