

**How Principal Leadership and Teacher Burnout Are Associated with Early Career
Teacher Mobility: Insights from the Beginning Teacher Longitudinal Survey**

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The importance of quality teaching is irrefutable and the fact that teachers are the most important school-level factor in student learning is well-established (e.g., Rivkin et al., 2005; Rockoff, 2004). Unfortunately, the United States has shifted from a period of teacher surplus to teacher shortage (e.g., Sutchter et al., 2016) with high-poverty schools disproportionately experiencing this scarcity, especially in subject areas such as science, mathematics, and English as a second language (U.S. Department of Education, 2017). Teacher attrition plays a key role in the larger teacher shortage while also negatively impacting instructional quality (Hanushek et al., 2016) and student learning (Ronfeldt et al., 2013); it also costs U.S. schools an estimated \$2.2 billion annually (Ingersoll & May, 2012). In sum, issues of teacher retention may be even more pressing in an era of looming teacher shortages.

One particular strand of teacher attrition research focuses on early career teachers (ECTs), defined here as teachers with three or less years of teaching experience, and for good reason. ECTs have the highest attrition rates of teachers not eligible for retirement (e.g., Allen, 2005); in the first year of teaching alone, 10 percent of U.S. ECTs have been shown to leave the profession and 16 percent to move to teach in another school (Gray & Taie, 2015). These ECT attrition rates are traditionally higher in low-achieving and high-poverty schools (e.g., Hanushek et al., 2004), schools that also face difficulties hiring teachers and disproportionately fill vacancies with ECTs (e.g., Allensworth et al., 2009). Teacher effectiveness also increases the most in the early stages of teachers' careers (e.g., Henry et al., 2011; Papay & Kraft, 2015). Thus, novice teacher departure from the profession may unduly harm educational quality as ECTs leave before developing into higher-quality teachers and are disproportionately replaced in low-performing schools by other first-year teachers (e.g., Allensworth et al., 2009). Overall, ECT

turnover has serious implications for both individual schools and the overall teacher workforce supply and quality.

Two studies in particular have advanced the field's quantitative understanding of ECT turnover, both of which use nationally representative longitudinal data from the Beginning Teacher Longitudinal Survey (BTLS). First, Kelly and Northrop (2015) investigated career adjustment and mobility among teachers who graduated from selective colleges and those who did not. In their study, they found that teacher burnout predicted turnover. More recently, Kim (2019) utilized the BTLS to investigate the association between leadership and ECT turnover and determined that similar to veteran teachers (e.g., Player et al., 2017), more positive perceptions of school leadership predicted lower rates of teachers moving to different schools but not leaving the profession.

This study expands upon Kelly and Northrop's (2015) and Kim's (2019) findings from the BTLS by examining the same two key factors – principal leadership and burnout – in tandem with largely unexplored elements in ECT turnover. In particular, I investigate precise reasons that ECTs provide for final moving and leaving as well as how principal-reported difficulty filling a teacher's position is associated with leadership, burnout, and teacher mobility.

Literature Review

ECT Sorting Patterns

Teacher placement and turnover tend to align with different stages of teachers' careers. Over time, teachers tend to move to schools with different characteristics according to level of experience. Traditionally, ECTs are more likely to work in low-performing, high-minority, urban, and/or rural schools than their veteran peers (e.g., Borman & Dowling, 2008). Schools with one or more of these characteristics generally have higher overall teacher turnover (e.g.,

Allensworth et al., 2009) and higher ECT turnover (e.g., Clotfelter et al., 2007) than high-performing, predominantly white, and/or suburban schools.

Hard-to-staff positions and schools. It is important to note, though, not all schools with low-performing, high-minority, and/or high-poverty students are necessarily “hard-to-staff.” Though high-poverty, high-minority, and/or low-performing status have a strong relationship with hiring difficulty (e.g., Allensworth et al., 2009), schools are often automatically and incorrectly considered “hard-to-staff” based solely on having one or more of these characteristics (Opfer, 2011). At the same time, certain teaching positions are “hard-to-staff” when compared to others. A clear distinction should be made between being a hard-to-staff school and specific teaching positions that are hard-to-staff.

While past studies have examined employment opportunities for certain subject area teachers (e.g., math, science) both inside and outside of education, beginning teachers have received less attention by subject taught with rare exceptions (e.g., Ingersoll & May, 2012; Redding et al., 2019). Evidence demonstrates that teacher shortages in certain fields exist, especially for high-poverty schools (U.S. Department of Education, 2017). Therefore, one can reasonably expect beginning teachers certified in shortage areas (e.g., math, special education) to have greater teaching opportunities than beginners in areas with surpluses (e.g., English, history; Perrone & Eddy Spicer, 2019).

Principal Leadership and Turnover

A theme across several chapters in this book is that principal leadership plays both direct and indirect roles in teachers’ work experiences. Pertinent to this study and the principal’s direct role, a strong body of research demonstrates that when considered as one dimension of working conditions, principal leadership is often the most prominent predictor of turnover. For instance,

when analyzing statewide data from North Carolina, Ladd (2011) treated leadership as one of several measures of teacher working conditions. Ladd's analyses revealed that stronger leadership reported by teachers translated into higher probabilities of remaining in teaching, intent to remain at the same school, and actually staying at the same school. Using data from New York City (NYC), Boyd and colleagues (2011) also found that both novice and veteran teacher perceptions of principal leadership, including administrative support, positively and most saliently predicted retention.

The findings from Boyd and colleagues (2011) and Ladd (2011) are unique in that they utilized teacher perceptions of leadership recorded near or after the end of the school year. In contrast, most quantitative studies, especially those of ECTs, tend to rely on mid-year teacher perceptions of leadership. This is because so much retention research relies upon the Schools and Staffing Survey (SASS) and the BTLS; over half of all responses to these surveys are received by January 11th of each survey year (e.g., Tourkin et al., 2010). Thus, ECTs' understandings of their work environments may not yet be fully developed or correctly explain their actual reasons for end-of-year turnover. Additionally, factors such as wanting to move home or leaving because of family reasons may be missed as they are not asked in the initial SASS and BTLS surveys.

Burnout and Turnover

Research on teacher burnout, especially ECT burnout, has been relatively scarce this century. Burnout is defined as a response to chronic emotional and interpersonal job stressors, and it encompasses a teacher's feelings of emotional exhaustion, detachment, and lacking sense of accomplishment (Schaufeli et al., 2009). Employees experiencing burnout tend to experience a lack of productivity along with other negative attitudes, including lower levels of job commitment and intent to stay in the profession (e.g., Schaufeli et al., 2009). Some recent

research has demonstrated that such outcomes naturally extend to teachers, with lower burnout predicting higher job commitment and intent to stay (Ford et al., 2019) as well as actual ECT retention (Kelly & Northrop, 2015). However, how leadership impacts burnout for ECTs has not been examined using nationally representative data. It is important to consider how ECT burnout is shaped by other school-level factors such as burnout contagion (Kim et al., 2017).

Research Questions

This study addresses several gaps in research by answering the following research questions.

1. How highly do moving and leaving ECTs rank leadership as a factor for turnover?

H1: Principal leadership is expected to be a leading factor in teacher moving, leaving, and turnover. Leadership is likely to be ranked as a higher cause for movers than leavers.

2. Are measures of difficulty filling a teaching position related to perceptions of principal leadership and/or burnout?

H2: Teaching in a hard-to-fill position is expected to predict more positive teacher perceptions of leadership as the principal may treat the respective teacher preferentially due to difficulty replacing the teacher should he or she leave the school. Teaching in a hard-to-fill position is also expected to predict higher levels of burnout because of potentially higher job demands or larger responsibilities due to staffing shortages.

3. Are principal leadership, ECT burnout, and/or difficulty filling a position related to ECT mobility?

H3: Filling a hard-to-fill position is expected to predict lower rates of staying and higher rates of moving and leaving. Teachers filling these positions are likely to have more job choice within the teaching profession, thus more flexibility to move to another school.

Additionally, many hard-to-staff positions may also be occupied by teachers with more employment opportunities outside of education.

Methods

Data

This study uses restricted-use data from the National Center for Education Statistics' BTLS to answer these research questions. Initially administered as part of the 2007-08 SASS, the nationally representative BTLS followed 1,770 regular full-time teachers in the United States who began teaching during the 2007-08 school year. The BTLS tracked this cohort over five years (2007-08 to 2011-12) and annually recorded their attitudes and employment status. The 2007-08 survey included questions about teacher attitudes and work environments. The following years' surveys were briefer, first tracking mobility and then asking about changes in working conditions and reasons for teacher retention and turnover. In the study presented here, I merged BTLS data with the 2007-08 SASS School Survey data and Principal Survey data.

The base year sample was restricted to the 1,400 survey completers who were full-time, K-12 regular public and charter school teachers who participated in the first three waves of the survey and could be matched to their principals and schools. Three-year analyses were conducted because these years represent the period of greatest gains in teaching effectiveness (Henry et al., 2011), cover the period for which teachers are generally labeled novices, guard against issues of sample attrition (sample attrited to 1,140 across five years), and are more relevant due to the time-invariant nature of most variables.

Measures

Rank of leadership in reasons of mobility. Questions on the BTLS exit survey were used to determine factors that teachers who leave their schools of origin or profession exits. In

2008-09 and 2009-10, 26 questions on a five-point Likert-scale (1 = “Not at all important;” 5 = “Extremely important”) were included on both the mover and leaver exit surveys. The 2010-11 and 2011-12 BTLS exit survey results are omitted because items on these surveys were not entirely consistent with the first two exit survey waves. (See Table 1 for survey items that scored among the highest five reasons for turnover, moving, and/or leaving across the three time points.)

Principal leadership and burnout. Composite scales were created using questions hypothesized to indicate measures of two distinct constructs: principal leadership and burnout (See Table 2 for survey items). The leadership items measure ECT perceptions of school leader behaviors commonly examined in quantitative research (e.g., Boyd et al., 2011; Kim, 2019) and the burnout items include emotional exhaustion questions from the one of the prevailing burnout measurement instruments in the Maslach Burnout Inventory . Several of these burnout items were also utilized by Kelly and Northrop (2015). Item responses were directionally recoded so that the most positive potential attitudinal four-point Likert-scale responses (“Strongly Agree”) were set equal to four and the lowest (“Strongly Disagree”) were set equal to one. Final values for leadership and burnout were then standardized. The final leadership and burnout variables had a correlation of -0.18 ($p < .001$).

[INSERT TABLE 1]

Hard-to-staff positions. Teachers were separated into groups of *easy-to-fill*, *somewhat hard-to-fill*, *hard-to-fill*, and *other* teaching positions by utilizing one item on the SASS School Questionnaire. The survey item, “How easy or difficult was it to fill the vacancies for this school year in each of the following fields?,” was assigned a categorical value (1=Position not offered at school, 2=No vacancy this year, 3=Easy, 4=Somewhat difficult, 5=Very difficult, 6=Could not

fill vacancy) by the survey respondent for 12 teaching fields. I matched the school SASS responses for each field to each respective beginning teacher's subject field. Next, I created indicator variables that identify BTLS teacher positions as *easy-to-fill* (3=Easy), *somewhat hard-to-fill* (4=Somewhat difficult), *hard-to-fill* (5=Very difficult; 6=Could not fill vacancy),¹ and *other* (1=Position not offered at school; 2=No vacancy this year). In many of the *other* classifications, teacher field taught did not match any of 12 fields listed on SASS questionnaire.²

Mobility. Mobility outcomes were measured using three binary outcome variables based on mobility status collected during the 2008-09 and 2009-10 BTLS waves. These outcome variables indicate whether the teachers were *turnovers* (i.e., those who switch schools *or* leave the profession), *leavers* (i.e., those who leave the profession), or *movers* (i.e., those who switch schools). Teachers were considered either a leaver or mover contingent upon which type of mobility took place first; a teacher cannot be both a leaver and a mover using the discrete-time survival approach and moving to another school means a change in leadership thus negating the subsequent utility of the leadership factor measured in the first year. Similarly, this study does not account for the roughly 30 teachers in the three-year period who re-entered the profession after leaving. This guards against inflated moving and leaving counts as some teachers who re-entered would otherwise be counted as moving or leaving more than once. The study's longitudinal approaches additionally necessitated treating any form of turnover as a terminal outcome and both moving and leaving impact an individual school in the same way.

Analytical Approach

The first research question was addressed using a descriptive approach with the available data and respective mobility measures, utilizing base and replicate weights corresponding with

the year of each respective exit survey. I then examined the second research question using the linear regression in Model 1 below:

$$Y_i = \beta_0 + \beta_1 DiffFilling_i + \beta_2 X_i + \beta_3 S_i + \gamma_s + \varepsilon_i \quad (1)$$

where Y is a measure of the variable of interest (leadership or burnout) for teacher i in the first year of the BTLS and $DiffFilling_i$ is a vector of variables indicating the difficulty that the school had filling beginning teacher i 's position (i.e., easy-to-fill, somewhat hard-to-fill, hard-to-fill; other/unknown omitted). X_i and S_i are vectors of time-invariant teacher and school characteristics, respectively, recorded in the base year (see Table 3 for full list of teacher and school characteristics). ε_i represents mean-zero random error. Leadership and burnout constructs were also tested as independent variables in the final models. Longitudinal probability weights and base replicate weights for the first wave of the BTLS were applied to these linear regressions.

I examined the third research question using a single risk discrete-time survival analysis to account for the potential effect that time had on attrition and a sample size that changed from year to year. Following Singer and Willet (1993), this analysis built upon a logistic regression model but with added variables for time. The discrete-time survival treated the data as a panel where each subject was observed until either the observation period ended or the teacher left the profession or moved to another school. I used the following model to determine mobility (turnover, leaving, moving) over the first three years of a teacher's career:

$$\begin{aligned} \text{logit Mobility}_{ijk} = & \alpha_1 T2_{ijk} + \beta_1 Leadership_{ij} + \beta_2 PJFit_{ij} + \\ & \beta_3 Difficulty Filling_{ij} + \beta_4 X_{ij} + \beta_5 S_{ij} \end{aligned} \quad (2)$$

where $\text{logit Mobility}_{ij}$ represents the probability of turnover (compared to staying), leaving (compared to staying and moving), or moving (compared to staying and leaving) for teacher i in

school j , over the three-year period. α_2 is the time parameter for time indicator $T2_{ijk}$ that identified teacher i 's mobility by school j by year k . In this equation, $T2_{ijk}$ indicates the time point at the start of 2009-2010. These regressions use 2008-09 as the reference time point. $Leadership_{ij}$ is a measure of principal leadership, $Burnout_{ij}$ is a measure of burnout, and $Difficulty Filling$ represents the level of difficulty filling the teacher's position. X_{ij} and S_{ij} represent the same respective vectors of teacher and school characteristics used in the linear regression for Model 1. I then extended this model to test for additional interactions between the variables of interest and year. Appropriate longitudinal probability weights were employed in regression and discrete-time survival analyses to account for SASS' complex sample design. Robust standard errors were clustered at the teacher level due to potentially correlated error terms resulting from multiple observations for the same teachers.

Findings

Approximately 1,400 of the 1,580 beginning K-12, full-time BTLS respondents who could be matched to schools and principals completed the survey across the first three years. Weighted means for the three-year sample are consistent with prior research covering beginning teacher demographics (See Table 2 for descriptive statistics). These means are not statistically different than unweighted means for either the entire first-year sample of eligible teachers or the three-year sample.

Notable Differences by Difficulty Filling the Teaching Position

Beginning teacher characteristics predictably varied by the level of difficulty that a school had filling their position. This is evident in Table 2, which provides unweighted descriptive statistics comparing the four teacher groups of interest (other, easy-to-fill, somewhat hard-to-fill, hard-to-fill). One-way ANOVAs and subsequent Tukey's HSD (honestly significant

difference) tests were conducted to determine significant differences ($p < 0.05$) among the three group means. Attitudinal responses for leadership and several burnout items were significantly poorer for the hard-to-fill (HF) group. HF teachers had significantly worse overall perceptions of their school leaders that extended across all four underlying survey items than the other teacher groups. HF ECTs also had significantly higher burnout scores than the other groups as well as each underlying survey item.

[INSERT TABLE 2 ABOUT HERE]

RQ1: How highly do moving and leaving ECTs rank leadership as a factor for turnover?

Weighted and unweighted BTLS mover and leaver responses reveal, as expected, that ECTs who turned over identified lack of administrative support, on average, as a salient factor in turnover (see Table 2). In terms of overall turnover, administrative support was seen as the second or third highest rated of the 26 potential reasons for moving or leaving listed in the two exit surveys, coming after only reasons of wanting to be close to home and “other.” Much of this turnover ranking is driven by high rankings by movers as seen in the 2008-09 ($M=2.07$, $SD=1.55$) and 2009-10 ($M=1.92$, $SD = 1.46$) results. General dissatisfaction with administration was also listed as highly important, especially among leavers. Respondents in 2009-10 from leavers identified general dissatisfaction with administration as the top reason ($M=2.06$, $SD=1.61$) for leaving the profession. Also noteworthy and often attributed to principal leadership (e.g., Kim, 2019), student discipline issues were tied with change in residence/wanting to be close to home as the top reason for leaving the profession in 2008-09 ($M=2.23$, $SD=1.72$).

[INSERT TABLE 2 ABOUT HERE]

RQ2: Is difficulty filling a position related to perceptions of principal leadership and/or burnout?

Table 3 shows that level of difficulty filling a position (using Other as the reference group) did not predict either perceptions of leadership or burnout for a teacher in his or her first year. This did not change by reference group selected and was the case even absent teacher and school controls as seen in the first and third columns of Table 2. However, higher ECT perceptions of leadership predicted lower levels of burnout (-0.288 , $p < .001$), meaning that an increase in leadership of one standard deviation predicted a lower ECT burnout score of 0.288 standard deviations. Both factors accounted for substantial variance across all regression models.

[INSERT TABLE 3 ABOUT HERE]

RQ3: Are principal leadership, ECT burnout, and/or difficulty filling a position related to ECT mobility?

This study hypothesizes that (a) more positive perceptions of principal leadership and lower levels of burnout are associated with lower levels of turnover over time; (b) leadership will predict teacher moving but not leaving; (c) burnout will predict teacher leaving but not moving; and (d) filling a hard-to-staff position will predict higher likelihood of ECT turnover, moving, and leaving. These relationships are explored using discrete-time survival analyses, which use the 2009-10 school year as a variable for time.

Turnover (moving or leaving). The model including the teacher and school controls in Column 1 of Table 4 shows a significant relationship between leadership and turnover with an *OR* of 0.726 ($p < 0.01$) as well as significant relationships between time (2009-10) and turnover ($OR = 0.681$, $p < 0.05$) and burnout ($OR = 1.260$, $p < 0.05$) and turnover. This leadership *OR* translates into a beginning teacher who perceived leadership at one standard deviation higher than the average first-year teacher having roughly 27 percent lower odds of turning over. An ECT with perceived burnout one standard deviation above the mean would have a 26 percent

higher odds of turnover. Column 2 of Table 4 shows there were no significant interactions between time and any of the variables of interest.

[INSERT TABLE 4 ABOUT HERE]

Moving. This study also examined how principal leadership, burnout, and difficulty filling a teaching position predicted teacher mobility from one school to another. Results from the discrete-time survival reveal a significant relationship between leadership and moving with an *OR* for leadership of 0.763 ($p < 0.01$) (see Table 4, Column 3). The fully interactive model reveals a significant interaction between leadership and the 2009-10 time point, meaning that the association between leadership and ECT moving is stronger in the first year of teaching than the second year. Burnout and difficulty filling a position were not related to moving in any of the models.

Leaving. This study's hypotheses that leadership, burnout, and difficulty filling a position predict teacher leaving were tested using discrete-time survival analysis. This analysis confirms that burnout is a significant predictor of teacher leaving ($OR = 1.497$, $p < 0.01$) as seen in in column 5 of Table 4. Thus, a teacher with first-year burnout one standard deviation above normal had approximately 50 percent higher odds of leaving the profession over the three years. Leadership also predicted leaving ($OR = 0.760$, $p < 0.05$) as an ECT with a perception of leadership one standard deviation above the mean had 24 percent lower odds of leaving after three years. Overall, the effects of high burnout were larger on leaving than poor leadership. There were no significant relationships between teacher leaving and time, difficulty filling a position, or the tested interaction terms.

Limitations

This study has some limitations. First, the measures of principal leadership and burnout are time-invariant, which has some potential ramifications. Principal improvement from one year to the next also cannot be accounted for given the time-invariant measures. Differences in school leadership due to principal turnover are also not captured as a measure for principal turnover did not improve model fit enough to be included in any final models. Second, the descriptive findings for RQ1 use small representative subsamples of the BTLS. As noted earlier, larger samples may be more helpful to more definitively answering the research questions. Last, the study utilizes self-reports of not just ECT attitudes but also of the SASS respondents' reports of how difficult a teaching position was to fill. Perceptions of levels of difficulty may vary widely from school to school, which could perhaps explain why there were null findings regarding difficulty filling a position and leadership, burnout, and ECT mobility.

Discussion

Mean ECT rankings of leadership for turnover in the exit surveys were comparably high (see Table 1). Interestingly, administrative support received a higher average rating of importance than overall dissatisfaction with administration in the first year survey. This suggests a need for a deeper investigation into a wider range of leadership behaviors in relation to teacher mobility (e.g., Boyd et al., 2011). Unfortunately, the nature of most large-scale survey data, including the BTLS, precludes generating such a deeper understanding of the nature of support or why perceptions of support are so critical. The exit survey findings for student discipline as a reason for leaving also complements Kim's (2019) findings regarding student discipline. They also call for greater attention to how principals handle discipline and, in turn, how preparation programs prepare leaders and teachers to address these issues.

The exit survey also illustrates the importance of location in teacher movement patterns, something that is rarely captured using nationally representative data. Teacher labor markets are highly localized (e.g., Engel & Cannata, 2015) and mobility decisions may often be impacted by teacher location. Research from Washington State also shows that student teacher placement is highly predictive of the geographical regions in which beginning teachers find work (Krieg et al., 2016). Future research should examine surveys of larger samples of the exit waves of the SASS/TFS to better understand reasons for moving and leaving with greater confidence.

Difficulty Filling a Position, Leadership, and Burnout

Surprisingly, difficulty filling a position was not related to perceptions of leadership or burnout. I hypothesize that these null findings could be due to several factors. On the one hand, one may expect a principal to show preference, especially in terms of support and recognition, to a beginning teacher in a HF position over an EF or SHF position. Simply put, the stakes for losing the HF beginning teacher are likely higher and both personal attention and work assignments might be preferable for an HF teacher. Further, teachers in HF positions may have more teaching employment opportunities and experience an earlier hiring season that invites more information-rich hiring. However, there are limits to knowing what exactly made positions hard-to-fill. Late unexpected turnover, for instance, could have been a reason that many HF positions were so hard-to-fill. An HF position may have also been difficult for a beginning teacher to obtain, too. It is also possible that principals may guard against preferential treatment. Perhaps too many other unobserved or situation-specific factors are at play in hard-to-fill designation and subsequent ECT attitudes.

An important finding of this study is leadership's ability to predict burnout and vice versa. Some research has shown direct links between overall school leadership and general

teacher burnout (Fernet et al., 2012; Pas et al., 2012). Research has also examined how administrative climate and work demands are related to ECT burnout (Perrone et al., 2019) and burnout contagion among ECTs (Kim et al., 2017). However, this is the first study to unearth a direct relationship between leadership and ECT burnout using nationally representative data. It seems that more research on leadership's impact on ECT burnout is warranted, especially given the relationships between burnout and teachers leaving the profession found by Kelly and Northrop (2015), which is further detailed below.

Leadership, Burnout, and Mobility

Findings regarding principal leadership's ability to predict ECT mobility are consistent with other research on school leadership and teacher mobility. As previously noted, research has found that school leadership (Kim, 2019) and burnout (Kelly & Northrop, 2015) are salient factors in longitudinal ECT retention and this chapter confirms these findings. Similar to Kim's analysis, this study also importantly demonstrates that principal leadership predicts teacher turnover (leaving or moving) and moving. This is consistent with Player and colleagues' (2017) findings for teacher moving using a nationally representative sample of U.S. teachers of all experience levels in a one-year snapshot of the 2011-12 SASS and 2012-13 Teacher Follow-up Survey. However, Kim (2019) and Player et al. also found that leadership did not predict leaving in the ECT workforce and overall teacher workforce, respectively. The present study suggests that leadership may predict teacher ECT leaving, but that the magnitude of leadership's effect is much smaller than burnout. This in many ways further supports the Kim's (2019) and Player and colleagues' (2017) findings. Overall and most importantly at the immediate and individual school levels, is that this study provides additional evidence of poor leadership predicting teacher turnover in the critical first three years of a teacher's career.

Conclusion

This study makes several valuable contributions to the K-12 research field. First, it demonstrates the importance of accounting for the impact that geography may play in final veteran teacher and ECT mobility. Future research should utilize larger samples of ECT exit surveys using multiple years of the SASS/TFS to determine with better confidence to what ECTs most attribute their actual moving and leaving. Second, the study provides additional evidence connecting principal leadership to teacher, in this case ECT, burnout. Beyond issues of work assignment and general administrative climate (e.g., Perrone et al., 2019), little is known about exactly how and why this connection exists. Qualitative research has the potential to inform this along with the persistent question of how administrative support is defined by teachers and why it is such a salient factor in teacher, including ECT, mobility (Boyd et al., 2011). Principal preparation programs may be wise to emphasize the importance of teacher assignment and workload as well as potential professional development and interventions that will result in lower ECT burnout, especially in courses focused on human resources and human capital development. Lastly, while difficulty filling a teaching position did not predict perceptions of leadership or burnout in addition to ECT mobility, it is clear that ECTs in difficult-to-fill positions may experience leadership differently than those in less difficult-to-fill positions. Future research is needed to understand why this is and how other important measures may be associated with difficulty filling a position.

References

- Allen, M.B. (2005). *Eight questions on teacher recruitment and retention: What does the research say? A summary of the findings*. Education Commission of the States (ECS).
- Allensworth, E., Ponisciak, S., & Mazzeo, C. (2009). *The schools teachers leave: Teacher mobility in Chicago Public Schools*. Consortium on Chicago School Research.
- Borman, G. D., & Dowling, N. M. (2008). Teacher attrition and retention: A meta-analytic and narrative review of the research. *Review of Educational Research*, 78(3), 367-409.
- Boyd, D., Grossman, P., Ing, M., Lankford, H., Loeb, S., & Wyckoff, J. (2011). The influence of school administrators on teacher retention decisions. *American Educational Research Journal*, 48(2), 303-333.
- Clotfelter, C. T., Ladd, H. F., Vigdor, J. L., & Wheeler, J. (2007). *High-poverty schools and the distribution of teachers and principals* (CALDER Working Paper 1). Urban Institute.
- Engel, M., & Cannata, M. (2015). Localism and teacher labor markets: How geography and decision-making may contribute to inequality. *Peabody Journal of Education*, 90(1), 84-92.
- Fernet, C., Guay, F., Senécal, C., & Austin, S. (2012). Predicting intraindividual changes in teacher burnout: The role of perceived school environment and motivational factors. *Teaching and Teacher Education*, 28(4), 514-525.
- Ford, T. G., Olsen, J., Khojasteh, J., Ware, J., & Urlick, A. (2019). The effects of leader support for teacher psychological needs on teacher burnout, commitment, and intent to leave. *Journal of Educational Administration*, 57(6), 615-634.
- Gray, L., & Taie, S. (2015). *Public school teacher attrition and mobility in the first five years: Results from the first through fifth waves of the 2007–08 Beginning Teacher Longitudinal Study* (NCES 2015-337). U.S. Department of Education. National Center for Education Statistics. Retrieved from <http://nces.ed.gov/pubsearch>
- Grissom, J. A. (2011). Can good principals keep teachers in disadvantaged schools? Linking principal effectiveness to teacher satisfaction and turnover in hard-to-staff environments. *Teachers College Record*, 113(11), 2552-2585.
- Hanushek, E. A., Kain, J. F., & Rivkin, S. G. (2004). Why public schools lose teachers. *Journal of Human Resources*, 39(2), 326-354.
- Hanushek, E. A., Rivkin, S. G., & Schiman, J. C. (2016). Dynamic effects of teacher turnover on the quality of instruction. *Economics of Education Review*, 55, 132-148.
- Henry, G. T., Bastian, K. C., & Fortner, C. K. (2011). Stayers and leavers: Early-career teacher effectiveness and attrition. *Educational Researcher*, 40(6), 271-280.
- Hirsch, E. (2005). *Teacher working conditions are student learning conditions: A report to governor Mike Easley on the 2004 North Carolina Teacher Working Conditions Survey*. The Southeast Center for Teaching Quality. Retrieved December, 2019 from <https://nepc.colorado.edu/sites/default/files/EPRU-0504-110-OWI.pdf>
- Ingersoll, R. M., & May, H. (2012). The magnitude, destinations, and determinants of mathematics and science teacher turnover. *Educational Evaluation and Policy Analysis*, 34(4), 435-464.
- Jacob, B. A., & Rockoff, J. E. (2012). Organizing schools to improve student achievement: Start times, grade configurations, and teacher assignments. *The Education Digest*, 77(8), 28.

- Kelly, S., & Northrop, L. (2015). Early career outcomes for the “best and the brightest”: Selectivity, satisfaction, and attrition in the Beginning Teacher Longitudinal Survey. *American Educational Research Journal*, 52(4), 624-656.
- Kim, J. (2019). How principal leadership seems to affect early career teacher turnover. *American Journal of Education*, 126(1), 101-137.
- Kim, J., Youngs, P., & Frank, K. (2017). Burnout contagion: Is it due to early career teachers' social networks or organizational exposure? *Teaching and Teacher Education*, 66, 250–260.
- Krieg, J. M., Theobald, R., & Goldhaber, D. (2016). A foot in the door: Exploring the role of student teaching assignments in teachers' initial job placements. *Educational Evaluation and Policy Analysis*, 38(2), 364-388.
- Ladd, H. F. (2011). Teachers' perceptions of their working conditions: How predictive of planned and actual teacher movement? *Educational Evaluation and Policy Analysis*, 33(2), 235-261.
- New Teacher Center. (2018). *North Carolina teacher working conditions: Frequently asked questions (FAQ)*. Retrieved December 15, 2019 from https://ncteachingconditions.org/uploads/File/NC18_FAQ.pdf
- Opfer, D. (2011). Defining and identifying hard-to-staff schools: The role of school demographics and conditions. *Educational Administration Quarterly*, 47(4), 582-619.
- Papay, J. P., & Kraft, M. A. (2015). Productivity returns to experience in the teacher labor market: Methodological challenges and new evidence on long-term career improvement. *Journal of Public Economics*, 130, 105-119.
- Pas, E. T., Bradshaw, C. P., & Hershfeldt, P. A. (2012). Teacher-and school-level predictors of teacher efficacy and burnout: Identifying potential areas for support. *Journal of School Psychology*, 50(1), 129-145.
- Perrone, F., & Eddy-Spicer, D. (2019). Teacher hiring and fit within a diverse school district. *Leadership and Policy in Schools*. <https://doi.org/10.1080/15700763.2019.1637903>
- Perrone, F., Player, D., & Youngs, P. (2019). Administrative climate, early career teacher burnout, and turnover. *Journal of School Leadership*, 29(3), 191-209.
- Player, D., Youngs, P., Perrone, F., & Grogan, E. (2017). How principal leadership and person-job fit are associated with teacher mobility and attrition. *Teaching and Teacher Education*, 67, 330-339.
- Redding, C., Booker, L. N., Smith, T. M., & Desimone, L. M. (2019). School administrators' direct and indirect influences on middle school math teachers' turnover. *Journal of Educational Administration*, 57(6), 708-730.
- Rivkin, S. G., Hanushek, E. A., & Kain, J. F. (2005). Teachers, schools, and academic achievement. *Econometrica*, 73(2), 417-458.
- Rockoff, J. E. (2004). The impact of individual teachers on student achievement: Evidence from panel data. *The American Economic Review*, 94(2), 247-252.
- Ronfeldt, M., Loeb, S., & Wyckoff, J. (2013). How teacher turnover harms student achievement. *American Educational Research Journal*, 50(1), 4-36.
- Schaufeli, W. B., Leiter, M. P., & Maslach, C. (2009). Burnout: 35 years of research and practice. *Career Development International*, 14(3), 204-220.
- Singer, J. D., & Willett, J. B. (1993). It's about time: Using discrete-time survival analysis to study duration and the timing of events. *Journal of Educational and Behavioral Statistics*, 18(2), 155-195.

- Sutcher, L., Darling-Hammond, L., & Carver-Thomas, D. (2016). *A coming crisis in teaching? Teacher supply, demand, and shortages in the U. S.* Learning Policy Institute
- Tourkin, S., Thomas, T., Swaim, N., Cox, S., Parmer, R., Jackson, B., Cole, C., and Zhang, B. (2010). *Documentation for the 2007–08 Schools and Staffing Survey* (NCES 2010-332). U.S. Department of Education. National Center for Education Statistics. Retrieved December 20, 2019 from <http://nces.ed.gov/pubsearch>
- U.S. Department of Education. (2017, June). Teacher shortage areas nationwide listing 1990-1991 through 2017-2018. Office of Postsecondary Education. Retrieved August 2019 from <https://www2.ed.gov/about/offices/list/ope/pol/ateachershortageareasreport2017-18.pdf>

Endnotes

1. I assigned teachers in subject areas that the schools listed as “Could not fill vacancy” as “Very difficult-to-fill” under the assumption that the teacher filled the position after the school year started, indicating serious difficulty filling the position.
2. *Other* corresponds with the teachers filling positions for which there was “No vacancy this year” reported or who taught in fields not covered in the 12 categories on the SASS questionnaire. Seventy-eight percent (n=70) of the teachers in this *other* subgroup taught physical education and/or health.

Table 1

Weighted means and standard deviations for mover and leaver survey responses in first two BTLS waves (2008-09, 2009-10) (scored on five-point Likert-scale: 1 = “Not at all important”; 5 = “Extremely important”)

	2008-09			2009-10		
	Turnover Mean (SD)	Mover Mean (SD)	Leaver Mean (SD)	Turnover Mean (SD)	Mover Mean (SD)	Leaver Mean (SD)
Lack of support from admin	2.03 (1.52)	2.07 (1.55)	1.96 (1.48)	1.92 (1.73)	1.93 (1.46)	1.89 (1.63)
Dissatisfied with administration	1.85 (1.36)	1.80 (1.29)	1.93 (1.51)	1.90 (1.53)	1.84 (1.51)	2.06 (1.61)
Change in residence or wanted to be closer to home	2.41 (1.67)	2.49 (1.70)	2.23 (1.61)	2.29 (1.73)	2.47 (1.76)	1.79 (1.58)
Other	2.04 (1.62)	2.32 (1.72)	1.48 (1.22)	1.99 (1.65)	2.25 (1.77)	1.29 (0.95)
Student discipline issues	1.86 (1.41)	1.68 (1.18)	2.23 (1.72)	1.76 (1.32)	1.76 (1.33)	1.77 (1.30)
Lack of influence over school policies and practices	1.86 (1.41)	1.47 (1.05)	1.78 (1.30)	1.90 (1.49)	1.86 (1.43)	1.99 (1.65)
Dissatisfied with influence assessments had on curriculum	1.86 (1.41)	1.29 (0.78)	1.68 (1.20)	1.76 (1.32)	1.54 (1.08)	1.93 (1.39)
Dissatisfied with workplace conditions	1.83 (1.28)	1.79 (1.20)	1.90 (1.43)	1.64 (1.29)	1.67 (1.33)	1.58 (1.20)
Dissatisfied w/ how assessments & acct. impacted teaching	1.54 (1.11)	1.48 (1.07)	1.68 (1.19)	1.61 (1.03)	1.49 (0.97)	1.95 (1.14)
Could not meet financial obligations on salary	1.45 (1.04)	1.22 (0.77)	1.92 (1.31)	1.20 (0.68)	1.18 (0.59)	1.23 (0.89)
Health of self or loved one	1.30 (0.94)	1.26 (0.92)	1.38 (0.98)	1.32 (0.83)	1.33 (0.84)	1.27 (0.82)
Observations	200	120	70	100	40	130

Only survey items that received a ranking in the highest five in one of the categories are included above (there were 26 items in total). Observations are rounded to the nearest ten per NCES non-disclosure rules. SOURCE: U.S. Department of Education, National Center for Education Statistics, Beginning Teacher Longitudinal Survey (BTLS), “Waves 1-5,” 2007-12; Schools and Staffing Survey (SASS), “Public School Questionnaire,” and “Public School Principal Questionnaire,” 2007-08.

Table 2

Weighted means and significant differences by level of difficulty filling the position (other, easy-to-fill, somewhat hard-to-fill, hard-to-fill)

	Other	Easy-to-fill	Somewhat Hard-to-fill	Hard-to-fill
Teacher characteristics				
Female	0.69 ^a	0.77	0.77	0.71 ^a
Over 30	0.26	0.23	0.26	0.31 ^a
Minority (not White)	0.27	0.13 ^a	0.28	0.25
Same race as teachers	0.75	0.89	0.78	0.77
Minority principal	0.23	0.24	0.22	0.24
Master's (in education)	0.12	0.13	0.15	0.14
Regular certification	0.48	0.59 ^a	0.46	0.33 ^b
Teaches elementary	0.38	0.58	0.47	0.25
Base salary (log)	10.48 (0.16)	10.49 (0.17)	10.49	10.47 (0.16)
Teaches humanities	0.17	0.23 ^a	0.17	0.08 ^b
School characteristics				
Charter	0.06	0.04	0.06	0.05
Title I	0.47	0.41	0.50	0.44
Size (in 100s)	7.47 (2.16)	7.37 (1.89)	7.46 (2.42)	7.82 (2.58)
% minority teachers	24.63 (30.74) ^a	14.49 (20.60) ^b	21.76 (25.08) ^c	17.58 (23.07) ^d
% minority students	49.06 (34.39)	40.90 (31.17)	51.93 (34.91)	47.98 (33.08)
Urban	0.23	0.25	0.32	0.21
Suburban	0.33	0.32	0.23	0.24
Rural	0.19	0.14	0.15	0.10
Town	0.25	0.29	0.30	0.45
Leadership				
Supportive administration	0.01 (1.00)	0.16 (0.88)	-0.05 (1.03)	-0.23 (1.20) ^a
Teachers recognized	3.57 (0.73) ^a	3.65 (0.64) ^b	3.47 (0.79) ^c	3.40 (0.87) ^c
Principal enforces rules	3.24 (0.80) ^a	3.37 (0.73) ^b	3.17 (0.77) ^c	3.10 (0.81) ^c
Principal comm's clear mission	3.54 (0.71) ^a	3.62 (0.64) ^b	3.56 (0.71) ^a	3.36 (0.85) ^c
Burnout				
Leave for better pay	3.55 (0.68)	3.59 (0.66)	3.52 (0.78)	3.43 (0.74) ^a
Less enthusiasm	0.00 (1.00) ^a	-0.13 (0.88) ^a	0.06 (1.04) ^b	00.23 (1.15) ^b
I would be teacher again	1.80 (0.91) ^a	1.66 (0.80) ^b	1.74 (0.85) ^b	1.84 (0.88) ^c
Teaching not worth it	1.70 (0.93) ^a	1.60 (0.81) ^b	1.74 (0.92) ^a	1.90 (1.00) ^c
Too tired to go to work	1.78 (1.01) ^a	1.63 (0.87) ^b	1.71 (0.99) ^c	1.82 (1.06) ^b
Retention				
Turnover	1.69 (0.79) ^a	1.59 (0.76) ^b	1.71 (0.80) ^a	1.82 (0.87) ^c
Move	1.55 (0.82) ^a	1.54 (0.77) ^a	1.69 (0.91) ^b	1.78 (0.98) ^c
Leave	0.30	0.26 ^a	0.31	0.36 ^b
Observations	0.20	0.19	0.20	0.23
	0.11	0.08 ^a	0.12	0.16 ^b
Observations	380	540	420	200

Standard deviations are in parentheses and are not reported for binary variables. Statistical significance ($p < 0.05$) is based on ANOVAs and are indicated with superscripts (superscript indicates significant between-group differences). For example, the Other and Easy-to-Fill groups do not have significantly different Burnout group means from one another (^a) but do have significantly different group means than both Somewhat-Hard-to-Fill and Difficult-to-Fill groups (^b). Rows with no superscripts indicate no significant between-group differences. Observations are rounded to nearest ten per NCES non-disclosure rules.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Beginning Teacher Longitudinal Survey (BTLs), “Waves 1-5,” 2007-12; Schools and Staffing Survey (SASS), “Public School Questionnaire,” and “Public School Principal Questionnaire,” 2007-08.

Table 3

Measures of difficulty filling a position, leadership, and burnout: Linear regressions

	<u>Leadership</u>		<u>Burnout</u>	
	(1)	(2)	(3)	(4)
Easy-to-fill	0.146 (0.109)	0.111 (0.109)	-0.065 (0.119)	-0.006 (0.109)
Somewhat Hard	-0.063 (0.121)	-0.062 (0.124)	-0.012 (0.119)	-0.082 (0.126)
Hard-to-fill	-0.237 (0.167)	-0.181 (0.142)	0.133 (0.145)	0.082 (0.120)
Leadership				-0.288*** (0.049)
Burnout		-0.280*** (0.041)		
Constant	0.011 (0.088)	-0.091 (2.835)	-0.022 (0.091)	4.881 (2.653)
Observations	1,400	1,380	1,400	1,380
R-squared	0.016	0.178	0.004	0.133
Teacher controls		X		X
School controls		X		X

Standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$. Wave 1 weights and base replicate weights employed. Observations are rounded to the nearest ten per NCES non-disclosure rules.

Teacher controls include: gender; age (over 30 years old); minority status; being the same race as the other teachers and the principal at the school; holding a master's degree in education; union membership; regular certification; teaching a core subject area (English, math, science social studies); teaching any students at the elementary level (grades K-5); log of salary in the base year.

School controls include: charter status, Title I status, and urban locale (urban, suburban, town; rural omitted), and school percentages of minority students and minority teachers.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Beginning Teacher Longitudinal Survey (BTLs), "Waves 1-5," 2007-12; Schools and Staffing Survey (SASS), "Public School Questionnaire," and "Public School Principal Questionnaire," 2007-08.

Table 4

Three-year discrete-time survival analysis of teacher mobility

	<u>Turnover</u>		<u>Moving</u>		<u>Leaving</u>	
	(1)	(2)	(3)	(4)	(5)	(6)
2009-10	0.681*	0.805	0.759	1.023	0.607	0.501
	(0.042)	(0.600)	(0.211)	(0.962)	(0.100)	(0.195)
Leadership	0.726**	0.655***	0.763*	0.647**	0.760*	0.842
	(0.001)	(0.000)	(0.017)	(0.002)	(0.030)	(0.262)
Burnout	1.260*	1.274	1.116	1.257	1.497**	1.618**
	(0.025)	(0.50)	(0.355)	(0.545)	(0.001)	(0.002)
Easy-to-fill	0.993	1.042	1.083	1.124	0.759	0.653
	0.981	1.024	(0.791)	(0.762)	(0.488)	(0.396)
Somewhat hard	(0.941)	(0.943)	0.913	1.069	0.870	0.912
	0.904	1.072	(0.780)	(0.868)	(0.731)	(0.851)
Hard-to-fill	(0.721)	(0.840)	1.086	1.257	1.154	1.018
	1.149	1.090	(0.800)	(0.545)	(0.712)	(0.966)
2009-10*Ldshp		1.341		1.650*		0.673
		(0.149)		(0.039)		(0.159)
2009-10*Burnout		0.964		1.119		0.762
		(0.847)		(0.632)		(0.220)
2009-10*Easy-to-fill		0.891		0.694		1.597
		(0.822)		(0.552)		(0.492)
2009-10*Somewht easy		0.633		0.597		0.749
		(0.436)		(0.442)		(0.739)
2009-10*Hard-to-fill		1.103		1.036		1.498
		(0.867)		(0.958)		(0.646)
Observations	2,180	2,180	2,180	2,180	2,180	2,180
Pseudo R-squared	0.070	0.075	0.058	0.067	0.104	0.112
AIC	181179.3	180337.7	148610.7	147237.6	75376.4	74855.0
BIC	181321.5	180508.4	148752.9	147408.3	75518.6	75025.7
Log-likelihood	-90564.6	-90138.8	-74280.3	-73588.7	-37663.1	-37397.5

Odds ratios in parentheses and robust standard errors clustered at the teacher level. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$. Wave 1 weights and base replicate weights employed. Observations are rounded to the nearest ten per NCES non-disclosure rules. All presented models include controls for *Teacher controls* include: gender; age (over 30 years old); minority status; being the same race as the other teachers and the principal at the school; holding a master's degree in education; union membership; regular certification; teaching a core subject area (English, math, science social studies); teaching any

students at the elementary level (grades K-5); log of salary in the base year. *School controls* include: charter status, Title I status, and urban locale (urban, suburban, town; rural omitted), and school percentages of minority students and minority teachers.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Beginning Teacher Longitudinal Survey (BTLS), “Waves 1-5”, 2007-12; Schools and Staffing Survey (SASS), “Public School Questionnaire,” and “Public School Principal Questionnaire,” 2007-08.