



Should I Stay or Should I Go (Later)? Teacher Intentions and Turnover in Low-Performing Schools and Districts Before and During the COVID-19 Pandemic

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ABSTRACT

Teacher turnover is a perennial concern that became more salient during the COVID-19 pandemic as teacher-reported intentions to leave teaching escalated. The extent to which these teacher reports may translate into actual turnover remains an open question—especially given the pandemic context. Using unique survey data from teachers in 35 districts in Michigan linked to statewide administrative data, we examine the extent to which teacher-reported intentions are predictive of actually leaving. We measure behavior one, two, and three years following reported intent. We find intent is a significant predictor of turnover and becomes increasingly predictive over time. We also find organizational commitment and school organizational conditions are important factors in teachers' intent and, to a lesser degree, actual turnover behavior.

DISCLAIMER

This research result used data structured and maintained by the MERI-Michigan Education Data Center (MEDC). MEDC data is modified for analysis purposes using rules governed by MEDC and are not identical to those data collected and maintained by the Michigan Department of Education (MDE) and/or Michigan's Center for Educational Performance and Information (CEPI). Results, information, and opinions solely represent the analysis, information, and opinions of the author(s) and are not endorsed by, or reflect the views or positions of, grantors, MDE, and CEPI or any employee thereof.

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INTRODUCTION

A growing evidence base has documented rising rates of teacher turnover just as schools were working to accelerate student learning as the nation recovers from the pandemic (Camp et al., 2023; Goldhaber & Theobald, 2023; Hopkins et al., 2023). High rates of teacher turnover threaten recovery efforts because teacher turnover can damage student achievement and thwart ongoing reforms (Burns et al., 2023; Henry et al., 2020; Henry & Redding, 2020; Ronfeldt et al., 2013). Because low-performing schools and districts—which are often disadvantaged economically and have high proportions of minoritized students—face particularly acute staffing challenges, the costs of high teacher churn are exacerbated in these contexts (Atteberry et al., 2016; Boyd et al., 2008; Guarino et al., 2006; Guin, 2004).

As a result of these patterns, a growing consensus of researchers, policymakers, and practitioners have underscored the need to better understand teachers' decisions to

leave their schools, districts, and the teaching profession, particularly in low-performing, poverty-dense schools and districts (e.g., Bleiberg & Kraft, 2023; Nguyen et al., 2022). During the pandemic, policymakers and stakeholders were concerned with a mass exodus of teachers from the profession, as teachers reported increasing burnout, exhaustion, and disillusionment with how some members of the public viewed teachers (Alves et al., 2021; Pressley, 2021; Pressley et al., 2021; Zamarro et al., 2022). While high levels of attrition did not immediately materialize, researchers in several states documented increasing turnover after the 2020-21 school year followed by even greater increases—including to a nearly 40-year high in Washington state—after 2021-22 (Bacher-Hicks et al., 2022; Bleiberg & Kraft, 2023; Camp et al., 2023; Goldhaber & Theobald, 2022, 2023; Hopkins et al., 2023). If this trend of rising teacher turnover holds true for other states, we may see a substantial increase in turnover nationally in the next few years, given that 55% of educators in the 2021-22 school year reported they were thinking about leaving education sooner rather than later (Walker, 2022).

Understanding teacher turnover, particularly in low-performing schools and districts such as those undergoing turnaround, is critical for three reasons. First, turnover can impede improvement efforts by suppressing potential positive effects of ongoing school improvement efforts (Henry et al., 2020). Second, weakening teacher labor markets will disproportionately damage low-performing schools and districts because they have historically experienced more acute recruitment challenges (Engel et al., 2014). Third, the effects of the pandemic have been especially severe in low-performing schools, districts, and the communities they serve, highlighting that pandemic recovery efforts in these schools will require a stable and effective teacher workforce (Cullum & Harbatkin, 2023; Harbatkin et al., 2022).

One way to determine the likelihood and causes of future attrition is through asking teachers about their plans to stay in or leave their schools and districts. Although there is some pre-pandemic research documenting the relationship between teachers' stated intentions to leave and their actual exit behavior, there is little evidence to date on the extent to which the pandemic may have affected the relationship between intentions and behavior *during* the pandemic (for exceptions, Camp et al., 2023; Zamarro et al., 2022). Further, very little is known about the pandemic's effects on teacher perceptions, intentions to leave, and actual teacher turnover in low-performing turnaround schools and districts. Examining the relationship across perceptions, intent, and actual turnover behavior can help administrators and policymakers identify levers to mitigate turnover, particularly in low-performing schools and districts that have historically suffered the most from high levels of teacher churn.

In this paper, we draw from unique teacher survey data linked to statewide administrative data from Michigan, two years before to two years after the onset of the pandemic, to examine the extent to which teacher-reported intent to leave predicts whether and when teachers actually leave their jobs in Michigan's lowest performing districts. We examine this relationship through an organizational science lens, which posits that individual teacher characteristics, work environment, organizational

commitment, and alternative employment opportunities influence teacher intentions and behaviors. Our unique dataset has multiple measures of these important factors. For instance, our survey data allow us to create several measures of school organizational conditions that provide a more complete picture of teachers' work environments and organizational commitment. We employ multiple measures of turnover, including leaving the school, leaving the district, and leaving Michigan public schools entirely. Furthermore, we examine whether there is delayed mobility for up to three years after a teacher reports plans to leave—which may be especially salient given that teachers may need time to seek out alternative employment opportunities. We examine these issues in the context of low-performing schools and districts that desperately need a stable workforce of highly effective teachers. In sum, our comprehensive data, particularly on malleable school factors related to organizational conditions, enable us to provide the first evidence in the pandemic era of the relationship between intended and actual turnover and the potential factors that might be leveraged to decrease teacher turnover, particularly for low-performing schools. Specifically, we ask and answer the following research questions:

1. To what extent are teachers' expressed intentions to turn over associated with their actual turnover behavior immediately and in later years?
2. Are there differences in this relationship before and during the COVID-19 pandemic?
3. What teacher and school characteristics predict teachers' stated intent to turn over, and do these factors differ from those that predict actual turnover behavior?

The rest of the paper proceeds as follows. First, we discuss the conceptual framework guiding our study and the extant research on teacher intentions and turnover. Next, we describe our data and empirical approach, describe our findings, and finally discuss implications for policy and practice. We find that intent to turn over is a meaningful signal of eventual turnover behavior and becomes more predictive of eventual turnover two and three years later. The first pandemic year temporarily muddled the relationship between turnover intent and behavior, but the relationship rebounded in 2020-21 and 2021-22 when teachers reporting plans to transfer were nearly 20 percentage points more likely to transfer than their peers reporting plans to stay, even after controlling for a robust set of covariates and school fixed effects. The relationship between intent to leave education or retire and behavior returned to similar levels as prior to the pandemic a year later, in 2021-22. We find that the most consistent predictors of intent to turn over are school organizational conditions, including improvement goal buy-in, school leadership, school climate, and school safety. These conditions are also predictive of actual turnover behavior, though the relationship is substantially weaker.

CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

The organizational sciences literature provides a framework for understanding the relationship between employee intent and behavior. Research in this literature suggests intent and behavior are partially overlapping constructs that are driven by distinct factors (Kirschenbaum & Weisberg, 1990). Our framework for examining intent and turnover, presented in Figure 1, is guided by this literature, which shows that intent to quit is a significant predictor of actual behavior across a wide variety of professions in both the public and private sectors (Cho & Lewis, 2012; Griffeth et al., 2000; Hom & Hulin, 1981; Mobley et al., 1978). However, the extent to which intent is predictive of behavior appears to depend on a variety of factors and in some cases is only a weak predictor (Cho & Lewis, 2012; Cohen et al., 2016; Steel & Ovalle, 1984). This is because employee characteristics, working conditions, organizational commitment, and alternative employment opportunities may complicate the relationship between intent and turnover (Griffeth et al., 2000; Kirschenbaum & Weisberg, 1990; Mobley et al., 1978; Steel & Ovalle, 1984).

We posit that individual teacher characteristics, work environment, organizational commitment, and alternative employment opportunities (either in or outside of teaching) influence teachers' withdrawal behaviors and cognitions. In our study, we measure several dimensions of work environment that education research has shown to be especially important to teacher turnover—school climate, safety, and school leadership (Finnigan & Stewart, 2009; Henry & Harbatkin, 2019; Kraft et al., 2016). We also measure teacher perceptions of human resources hindrances to meeting improvement goals, which reflect working conditions challenges. Finally, we observe a measure of teacher resources and capacity, which speaks to the extent to which the school or district is able to provide teachers with what they need to be successful. This is important because job resources play an important role in employee engagement and intent (De Cuyper et al., 2011; Kim, 2017).

Our measure that is related to organizational commitment is buy-in to improvement goals (Datnow, 2000; Dunaway et al., 2012). Finally, to understand the potential moderating influence of alternative employment opportunities, we draw on teacher licensure endorsement data to understand whether the relationship between intent and behavior is different by subject area. Here, we hypothesize that teachers with STEM and special education endorsements may have more alternative employment opportunities than other teachers both inside and, for STEM in particular, outside the profession. Thus, the relationship between intent and behavior may be stronger for this subset of teachers.

While we cannot measure withdrawal behaviors (shown in the second box of Figure 1 in gray text), we can measure withdrawal cognition using reported teacher intent. Intent is

predictive of actual turnover behavior, shown at the far right. While the factors in the top-left box may also have a direct relationship with behavior, the relationship between these factors and actual behavior is more distal than their relationship with intent. Thus, we would expect the factors in the top left box to have a stronger relationship with intent than actual behavior, shown by the darker arrow connecting the top left and bottom boxes. From this broad organizational lens, we next focus on the turnover intention and actual turnover for teachers specifically, a subset of public sector employees for whom the relationship between intent and behavior might vary.

FIGURE 1

Teacher Turnover Intent

Research has examined intentions for several reasons. First, many researchers and policymakers rely on teacher intentions because they lack a direct measure of teacher turnover due to delays in data availability (particularly at the national level), data privacy concerns, and the expense of collecting accurate turnover data (Gersten et al., 2001). Second, as described above, previous research has demonstrated that employee intention is predictive of behavior (Mobley et al, 1978; Steel & Ovalle, 1984), and the empirical links between intentions and behaviors exist in many professions, including education (Harrison et al., 2006). Third, stated intentions to leave signal teachers' dissatisfaction, stress and burnout, which on their own have implications for teaching and learning and are particularly meaningful in the current climate of teacher shortages and the ongoing pandemic (Friedman, 2000; Madigan & Kim, 2021; Pressley, 2021). In a recent paper, Nguyen and Kramer (2022) showed teacher dissatisfaction and burnout are highly associated with teacher intentions to leave.

However, to our knowledge, there are few studies in the education context that have examined the association between teacher intentions and actual behaviors. Using state survey and administrative data, Ladd (2011) found that actual and intended departure rates within schools were correlated, though the correlation was not especially strong. However, this study had three key limitations—the survey asked broadly about career intentions rather than specific intent for the following year, it was only able to link a single year of intent and turnover data, and it drew on school- rather than teacher-level measures.

A few other studies have examined teacher-level intentions and behaviors, though with limitations and mixed findings. Examining undergraduate teaching degree completers from 12 public institutions in 2003-04, DeAngelis and colleagues (2013) found that teacher-reported plans to change schools were highly predictive of actual transfer and plans to leave education were moderately predictive after one year. Grant and Brantlinger (2023) found a very weak relationship between preservice intention and tenure in teaching for secondary math teachers entering New York City public schools through NYC Teaching Fellows in 2006 and 2007. A study using the Schools and Staffing Survey (SASS) nationally representative data from 1987 to 1995 found only 15% of teachers who turned over had reported they intended to do so in the

previous six months, while more than two-thirds of special education teachers who reported they intended to leave did so within 15 months (Boe et al., 1999). Using more recent data from the SASS, Nguyen and colleagues (2022) found that intentions were moderately predictive of turnover but measures of intent were distinct from actual turnover behaviors. In particular, they found that about one-third of teachers who intended to leave actually left the next year.

These findings may differ from one another for several reasons, including geographic context, when intent was measured, and type of teachers. Moreover, there are several limitations in these works, including the fact that intentions as measured by the SASS may not accurately capture true intent due to the ways in which teachers may interpret the response choices, or that some studies only measure actual teacher mobility for the following year but not for subsequent years, or that the data these studies draw on may be outdated. This last limitation is particularly critical as it severely limits what we know about how the pandemic may have influenced the relationship between intent and turnover. Finally, these studies do not examine low-performing turnaround contexts where teacher mobility is especially high and where turnover could have some of the most damaging effects on student outcomes. Our work helps to fill these gaps, particularly for low-performing schools and districts and in the pandemic era.

The Importance and Costs of Turnover in Low-Performing Schools

Teacher turnover is costly, both in terms of impacts on student achievement and of the actual dollar costs of replacing a teacher. For instance, in some districts, the average cost to replace an individual teacher can reach \$20,000 (DeFeo et al., 2017). This may be a conservative estimate because it does not account for substantial indirect costs of turnover to schools and students, in particular reduced teacher quality and decreased student achievement (Synar & Maiden, 2012; Sorenson & Ladd, 2020).

These costs may be particularly acute in low-performing schools and districts for several reasons. First, teacher turnover has been consistently more challenging in traditionally disadvantaged schools, especially low-performing schools (Aragon, 2016; Boyd et al., 2005b; Engel et al., 2014; Ingersoll, 2004; Nguyen et al., 2020; Sass et al., 2012; Scheopner, 2010). Of particular concern, effective teachers tend to transfer from low-performing to higher-performing schools, while less effective teachers tend to stay in low-performing schools (Boyd et al., 2008). Second, working conditions that influence teachers' decisions about whether and where to teach, such as school leadership, collegial relationships, school climate and culture, administrative support, teacher collaboration, salary, and class size, may be especially challenging in low-performing schools (Aragon, 2016; Hanushek et al., 2004; Ladd, 2011; Nguyen, 2021; Simon & Johnson, 2015; Strunk et al., 2021, 2022). Together, these school organizational conditions play a central role in teachers' decisions to stay in or leave a school (Lovison & Mo, 2022; Viano et al., 2021). Third, accountability systems broadly, and turnaround in particular, may on its own lead

to higher rates of teacher turnover in low-performing schools and districts, which may undermine improvement efforts (Clotfelter et al., 2004; Henry et al., 2020; Henry & Harbatkin, 2020; Podolsky et al., 2016; Strunk et al., 2016). As a result, the negative impact of turnover on student achievement is accentuated in these same schools (Harbatkin, 2022; Henry et al., 2021). Finally, recruiting highly effective teachers is especially challenging in low-performing schools and districts; thus, retaining existing talent in the school building is especially critical (Engel et al., 2014; Guarino et al., 2006; Harbatkin, 2022; Strunk et al., 2020).

BACKGROUND

Our study is set against the backdrop of the 35 lowest performing districts in Michigan. These districts were identified as “Partnership districts” in 2016-17 and 2017-18 as part of the state’s efforts to turn around its lowest performing schools and districts. Under the Partnership Model, the Michigan Department of Education (MDE) identified the lowest performing schools in the state as Partnership schools. The districts operating those schools were classified as Partnership districts and charged with improving student outcomes in identified schools.

Leaders in Partnership districts have consistently cited staffing as a key challenge to successful turnaround. Partnership districts experienced significantly higher rates of teacher turnover than other districts throughout Michigan, a pattern that predated the Partnership Model and has persisted throughout the intervention (Burns et al., 2023; Strunk et al., 2019, 2022). Principals in Partnership district schools attributed staffing challenges to a range of factors, but identified competition from nearby districts, student performance, student discipline, and teacher salaries as the most salient factors (Strunk et al., 2019). This teacher churn stymied momentum around instructional change as new teachers continually needed to be trained around their district’s improvement efforts (Burns et al., 2023).

DATA, SAMPLE, AND METHODS

Data and Sample

To examine the relationship between teacher intentions and behavior and their predictors in high-needs, low-performing turnaround districts, we draw on statewide administrative data from the Michigan Department of Education (MDE) and the Center for Educational Performance and Information (CEPI) merged with teacher survey data from the 35 low-performing districts slated for turnaround under the Partnership Model. Our sample comprises all teachers in Partnership districts for whom we have survey data from 2018-19 through 2021-22. In total, there were 19,249 teacher-years in 35 Partnership districts during the study period.

Over four years of a larger evaluation of the Partnership Model, we administered annual surveys to all teachers in Partnership districts. To identify the population of Partnership district teachers to survey, we drew from statewide administrative data identifying all school and district employees. The survey was administered to all teachers in Partnership districts in two pre-pandemic (fall 2018 and 2019) and two pandemic years (spring 2021 and 2022).

We merge the administrative and survey data and restrict the analytic dataset to the 7,714 Partnership district teachers whose job assignment was at least 25% teaching and for whom we have relevant survey data (i.e., intent) and full covariates, or 40% of teacher-year observations across 1,119 school-years and 114 district-years. The teacher coverage rates in our full analytic dataset are 38% in the first year, 49% in the second, 39% in the third, and 30% in the fourth. When we restrict the sample to just those teachers for whom we have construct data representing school organizational conditions, we include 6,189 teachers across 1,034 school-years and 98 district-years, with teacher coverage rates of 25% in the first year, 34% in the second, 39% in the third, and 30% in the fourth.¹ Relative to the full population of teachers, survey respondents were less likely to be Black and more likely to be White and female, though these differences were small after accounting for school fixed effects (Appendix A). Thus, we suggest caution in generalizing findings to the full population of teachers in Partnership districts, though we include weights in our analysis and the balance tests suggest findings may be reasonably generalized to *schools* in Partnership districts.

Ultimately, we observe four survey response cohorts and their turnover behavior as of the following year. In our study period, we examine three years of turnover behavior for the 2018-19 and 2019-20 response cohorts (both pre-pandemic responses), two years for the 2020-21 response cohort (pandemic era response), and one year for the 2021-22 response cohort.

Partnership districts disproportionately served students from disadvantaged backgrounds. Table 1 presents selected student and teacher characteristics for Partnership districts as well as all non-Partnership districts throughout Michigan in the 2018-19 school year, the first year that both cohorts of Partnership districts were implementing Partnership. Panel A of Table 1 shows that Partnership districts served a much higher share of students of color than districts across the rest of the state. Partnership districts served more students of color, English learners, and economically disadvantaged students than non-Partnership districts. Along with having lower average student achievement, the primary factor in Partnership identification, more than half of students in Partnership districts were chronically absent compared with 17% of students in non-Partnership districts. Panel B shows that to serve this higher-needs population, Partnership districts were staffed with a less experienced corps of teachers.

TABLE 1

Outcomes

To measure actual turnover behavior, we draw on five years of statewide administrative data from 2017-18 through fall 2022. We generate four mutually exclusive mobility indicators: stayer, transfer, leave Michigan public education, and role change. We code a teacher as a stayer if they remain in the same school in $t+1$. We code a teacher as a transfer if they move to a teaching position in a new school, regardless of school district. We code a teacher as a leaver if they drop out of the dataset of Michigan public education employees entirely. The fourth measure represents a role change, though we do not estimate regression models predicting this outcome because we lack a parallel intent measure. We also create a separate “leave school, any” measure that takes a value of one regardless of pathway out, including if they transfer, move to a non-teaching role outside the school, or leave the dataset entirely. We measure mobility from school year t to fall of $t+1$.

We create separate variables for year $t+1$ (i.e., mobility between year t and $t+1$) and then for two additional years (i.e., mobility between year t and $t+2$; mobility between year t and year $t+3$). We construct these additional year lagged variables to indicate whether a teacher takes a particular pathway at any time up to a given year. For example, a teacher who transfers from their year t school in year $t+1$ would be coded as a transfer in $t+1$, $t+2$, and $t+3$ because they have transferred *as of* each of these time periods. A teacher who transfers from their school in year $t+2$ would be coded as a stayer in $t+1$ and a transfer in $t+2$ and $t+3$. In other words, $t+2$ mobility is inclusive of $t+1$ mobility, and $t+3$ mobility is inclusive of $t+1$ and $t+2$ mobility.

Expressed Intent

To measure teacher intent, we draw from a question in the teacher survey asking about employment plans for the following school year. Teachers were asked to select one option about their plans for the next year from the following response options: (a) continue teaching in this school, (b) serve in a different position in this school, (c) continue teaching in my district but in a different school, (d) leave this district to work in a different district or charter network, (e) leave to pursue a job not in education, or (f) retire. We collapse these responses into three mutually exclusive categories in parallel with the first three mobility outcomes we measure for actual behavior described above: stay in school (option a or b), transfer (option c or d), and leave or retire (option e or f). In line with our approach to the outcome in the administrative data, we again create a measure of intent to “leave school, any,” which, in parallel to the actual behavior variable, takes the value of one for any teacher reporting plans to leave the school, regardless of intended pathway out (option c, d, e or f).

Other Predictors of Teacher Mobility

Guided by the organizational science literature showing that working conditions play a role in both intent and actual turnover behavior (e.g., Griffeth et al., 2000), we include in our analyses several malleable school organizational conditions from both the

administrative and survey data as possible predictors of teacher mobility. Drawing on the survey data, we use exploratory factor analysis to develop constructs related to work environment and organizational commitment as shown in our conceptual framework. We then conduct a confirmatory factor analysis and generate seven measures of school organizational conditions and pandemic conditions from teachers' responses to survey questions about 1) the extent to which they buy in to their school or district's improvement goals; 2) positive school climate; 3) school safety and student behavior; 4) effective school leadership; 5) human resources hindrances; 6) adequate teacher resources and capacity; and 7) student pandemic challenges. Each of these constructs aligns with a bulleted item in the "Direct and indirect influences on turnover behavior" box in the conceptual framework in Figure 1.² Thus, we would expect that each would influence intent, and to a lesser degree, actual behavior. Some questions were not asked during the pandemic because the research team chose to remove items that might be less applicable when schools were operating largely remotely, and other questions were only asked during the pandemic school years in order to understand new challenges that might have arisen as a result of the pandemic. Cronbach's α values range from 0.740 to 0.944.³

We also draw on administrative data to create school- and teacher-level demographic and certification measures relevant to our conceptual framework. School-level variables are intended to capture school characteristics that may be associated with teachers' desires to stay in or leave a given school and may therefore reflect work environment. Specifically, we create variables measuring school enrollment (size) and the shares of students who are economically disadvantaged, special education, English learners, Black, Hispanic or Latino/a/x, White, and other race (Asian, Pacific Islander, two or more races, other). At the teacher level, we control for individual characteristics (the first item in our conceptual framework) that may be associated with intent to exit, including demographic variables for race/ethnicity following the same categories above, as well as gender and age. We include four teacher certification levels: standard (the state's initial standard teaching certificate), professional (a more advanced certification that teachers can progress to after three years at a standard certification), legacy (credentials that are no longer offered but are similar to the professional certification and, unlike the others, do not need renewal), and interim or temporary certification.

Finally, for supplementary analyses, we also draw on teacher certification endorsement areas. While Michigan teachers can be endorsed in several different subject areas based on education and subject-area tests, we focus on endorsements for STEM subjects and special education, while teachers in all other areas as "other." Subject area may contribute to what we call alternative employment opportunities in our conceptual framework because teachers in hard-to-staff subjects such as STEM and special education likely have more teaching—and in the case of STEM, non-teaching—potential job opportunities that may motivate them to leave their positions (Ingersoll, 2001; Ingersoll & Perda, 2010; Sutcher et al., 2019).

Weighting

In all analyses, we weight teacher responses separately by year using sampling and nonresponse weights. We calculate the sampling weight using the school-level coverage of our sampling frame and calculate the nonresponse weight as the inverse probability of response based on demographic characteristics (race/ethnicity, gender), certification type, and experience in the district.

Empirical Strategy

To understand the extent to which turnover intent is associated with turnover behavior, we construct simple crosstabulations of teacher-reported intent (i.e., stay, transfer, leave education or retire) and actual turnover behavior (i.e., stay, transfer, out-of-school role change, leave Michigan public education). For example, we measure the share of teachers who reported plans to stay in year t who actually stayed, transferred, moved to a different role, and left Michigan public education, respectively, in $t+1$. We do the same for teachers who reported plans to transfer and who reported plans to leave or retire. We run this analysis on the pooled sample and separately by survey year. We then repeat this analysis for intent in year t and actual turnover behavior in $t+2$ and $t+3$ to examine whether intent is predictive of later behavior. We carry out these analyses on lagged behavior by response cohort to compare whether a stable group of teachers are more likely to follow through with their expressed intent in subsequent years. We then run a linear probability model predicting each binary turnover outcome (leave school for any pathway, transfer, and leave or retire) for teacher i in school s at time $t+1$ as a function of expressed intent:

$$\begin{aligned} \text{TurnoverBehavior}_{ist+1} &= \beta_0 + \beta_1 \text{TransferIntent}_{ist} + \beta_2 \text{LeaveRetireIntent}_{ist} + \gamma \mathbf{X}'_{st} + \lambda \mathbf{Y}'_{it} + \pi_t \\ &+ \sigma_s + \varepsilon_{ist}, \end{aligned} \quad (1)$$

In Equation 1, *TransferIntent* is a binary variable that takes a value of one if the teacher reported plans in year t to transfer and zero otherwise. *LeaveRetireIntent* is a binary variable that takes a value of one if the teacher reported plans in year t to leave education for another field or retire and zero otherwise. \mathbf{X}' is vector of time-variant school-level covariates including share of students who are economically disadvantaged, English learners, and receive special education, respectively, share of students in each racial/ethnic group described above with White as the reference category, and a logged function of enrollment. \mathbf{Y}' is a vector of teacher covariates including race with White as the reference category, gender with female as the reference category, a spline function of age, and certification type with professional certification as the reference category. We operationalize age with six indicator variables—less than 30, 30-45, 46-54, 55-59, and 60+, with 30-45 as the reference category. Each of the three upper age categories align with various Michigan retirement system ages; teachers who are members of the retirement plan that went into effect in 1990 can retire at age 46, 55, or 60, depending on years of service and other factors. We also include a year fixed effect (π), school fixed effect (σ), and idiosyncratic error term clustered at the school level

(ε). The school fixed effect allows us to isolate the effect of turnover intent from other stable school-level factors that might also contribute to turnover.

Because the outcome is a dichotomous measure of turnover behavior, the estimate on β_1 provides the estimated difference in probability of turnover associated with expressed intent to transfer, and β_2 provides the estimated difference in probability of turnover associated with expressed intent to leave or retire—both relative to intent to stay, after controlling for school covariates, teacher covariates, and school fixed effects. To the extent that expressed intentions are predictive of actual turnover behavior even after controlling for these factors, we can conclude that intent provides useful information on likelihood of teacher mobility over and above other teacher- and school-level factors that existing literature suggests is predictive of turnover.

For the model predicting leaving the school, regardless of pathway out, estimates are relative to remaining in the school. For the model predicting leaving Michigan public K-12 education or retiring, estimates are relative to staying in education, including staying at the same school or transferring. In the model predicting transfer, we include control variables for leaving Michigan K-12 public education and out-of-school role change. Thus, the estimates in the transfer models are also relative to remaining in the school.

We then replicate these models replacing the outcome with turnover behavior in $t+2$ and $t+3$, respectively, in order to examine the association between intent and lagged behavior. In these models, we restrict the sample to the 2018-19 and 2019-20 survey response cohorts to track the same group of teachers over time.

To answer our second question about pre-pandemic and pandemic-era differences, we repeat each of these main models separately for each year, dropping the school covariates and year fixed effects. We do not pool the pre-pandemic and pandemic years (i.e., years 1 and 2 vs. years 3 and 4) because they are meaningfully different. Specifically, fall 2018 responses were largely business as usual, and turnover behavior after the 2018-19 school year would not be affected by the pandemic. However, while fall 2019 responses were business as usual, actual turnover behavior at the end of the 2019-20 school year is heavily confounded by the start of the pandemic. Then, in 2020-21, national and Michigan-specific analyses suggested teachers were waiting out the pandemic before making job changes; transfers in particular dipped considerably relative to other years (Camp et al., 2023; Goldhaber & Theobald, 2023; Hopkins et al., 2023). By 2021-22, teachers were no longer in a pandemic holding pattern but had been impacted by pandemic era teaching.

Finally, to answer our third question about factors that predict intent to turn over and actual turnover behavior, we run a series of regressions predicting each of the three binary outcomes (leave school for any pathway, transfer, leave Michigan education or retire) for intent and actual turnover behavior, respectively. Predicting the outcome for teacher i in school s at time t , these models take the form

$$\text{TurnoverOutcome}_{ist} = \beta_0 + \gamma \mathbf{X}'_{st} + \lambda \mathbf{Y}'_{it} + \beta_1 \text{SchOrgCondition}_{ist} + \pi_t + \varepsilon_{ist}, \quad (2)$$

where \mathbf{X}' and \mathbf{Y}' represent the same school and teacher covariate vectors as in Equation 1. $\text{SchOrgCondition}_{ist}$ is a construct representing school organizational conditions for teacher i in school s at time t , with constructs added one at a time in separate models to avoid collinearity. In the models with all four years pooled together, we include, one at a time, the three constructs we can observe in all four years: improvement goal buy-in, positive school climate, and effective school leadership. When we repeat the models by year, we run separate models that include any additional available constructs for that year (i.e., human resources hindrances, student pandemic challenges, adequate teacher resources and capacity, and school safety and positive student behavior). π is a year fixed effect and ε is an idiosyncratic error term clustered at the school level. Similar to Equation 1, we add a control for (intent to) leave education or retire (and in the case of the actual behavior models, a control for switching to a non-teaching role outside of the school) to the model predicting transfer so that the coefficient estimates are relative to remaining in the school. In these models, we do not include school fixed effects because we are interested in leveraging between-school variation in school-level factors and school organizational conditions in our estimates, which are descriptive in nature. While models including school fixed effects provide more precise estimates on the intent variables in Equation 1 above, they would be less informative for understanding the role of individual characteristics, school organizational conditions, and organizational commitment because they would leverage very limited between-year variation that is likely driven in large part by differences in respondents, especially in smaller schools.

We estimate these models on the pooled sample and then separately by year (again excluding year fixed effects) in order to examine differences by school organizational conditions that we cannot measure in all four years. Because we do not find meaningful differences by year in these models, we report only the coefficients on school organizational conditions because they vary in availability by year. We highlight any relevant year differences in text and point readers to Appendices E and F providing year-by-year models.

For both Equations 1 and 2, our preferred models are LPMs that include sample and nonresponse weights because the LPM coefficients allow for ease of interpretability and the weighted models account for observable differences between the respondent and actual sample. However, we have also run several variations on these models to check the robustness of our results, and find qualitatively similar results across all variations, including logistic regressions and unweighted models (these additional results available upon request).

Limitations

There are three important limitations in the survey data in particular. The first is that in the first survey year (2018-19), respondents were allowed to select multiple options to the question asking about plans for the following year. Here, if they selected any plan to

leave the school (even if they also selected a plan to stay), we coded them as intending to leave (“leave school, any”). For the mutually exclusive mobility categories, we coded the most extreme plan selected. For example, we would code a respondent selecting transfer and retire as “leave or retire.”

A second limitation related to comparing pre-pandemic and pandemic-era responses stems from the timing of the survey. The pre-pandemic surveys were both administered in late fall (November-December of 2018 and 2019), while the pandemic-era surveys were administered in early spring (February-March of 2021 and 2022). It is possible that teachers have a better idea of their employment plans in spring than in fall. Therefore, pre-pandemic to pandemic-era differences (or lack thereof) in the extent to which intent predicts behavior may be confounded by survey timing. However, districts typically ask teachers to notify them of plans to leave later in the spring semester with teacher job applications tending to peak in March (Levin & Quinn, 2003), and surveys in all years were administered on that timeline. Thus, the effects of survey timing may be minimal. Finally, in our analyses examining predictors of intent, because the outcome and school organizational condition constructs come from the same survey, it is possible that they are capturing similar variation. In other words, it may be the case that intent and perceptions of school leadership, improvement goals, school climate, and school safety are jointly a measure of content with one’s job.

FINDINGS

Intent as a Predictor of Actual Turnover Behavior

While intent to leave is not a perfect predictor of actually leaving that school year, we find it is a meaningful signal; teachers reporting plans to leave are about three times more likely to do so than their peers reporting plans to stay. Nonetheless, the majority of teachers (nearly 83%) stayed in their school, regardless of expressed intent the year prior. Figure 2 provides the share of teachers in each intention category (stay, transfer, and leave/retire) who actually stayed, transferred, changed roles, or left Michigan education, respectively. Across all four years of the survey, about 90% of the teachers reporting plans to stay did stay in their school the next year, while about 7% transferred, 2% changed roles, and 1% left Michigan public education. By comparison, about 30% of teachers who reported plans to leave their school (for any pathway) actually did so, compared with 10% of teachers who reported plans to stay. Approximately a quarter of the nearly 11% of the sample reporting plans to transfer the following year actually did so, and less than one-fifth (16%) of the 7% of teachers who reported plans to leave education or retire did so, whereas nearly three-fourths of them stayed in their school in the following year.

FIGURE 2

Importantly, turnover behavior may lag behind turnover intent. Teachers who express plans to leave but do not follow through immediately may take additional time to carry

out their plans. Panel A of Figure 3 follows the 2018-19 and 2019-20 survey response cohorts for three years after they were surveyed, with actual turnover behavior in $t+1$, $t+2$, and $t+3$ by expressed intent in year t . Similar to the full sample, while only about 20% of intended transfers in this cohort of respondents actually transferred in $t+1$ (as shown in the left most set of bars in Panel A), one-third had transferred by $t+2$, and 45% had transferred by $t+3$. Because several other intended transfers ended up changing roles or leaving Michigan public schools, by the end of the three-year period, only 40% of intended transfers remained in their school. Among those reporting plans to leave education or retire, the share who actually did so ticked upward only slightly during the three observed years. However, those reporting plans to leave education or retire did leave their schools at increasing rates—in many cases for a role change within Michigan public education. The share of these teachers who remained in their school decreased to 72% in $t+1$, 42% in $t+2$, and just 28% in $t+3$. While only 18% left Michigan public schools entirely by $t+3$, more than one-third had shifted to a non-teaching role in public education while 19% had transferred to a teaching position at another school. Thus, reported plans to leave education or retire are a strong signal that the teacher will leave their school—if not to retire then to move into a non-teaching role or transfer to another school. Panel B shows that mobility among the 2020-21 survey response cohort also increased over time, though we can only observe one additional year for this cohort.

FIGURE 3

While the figures above display the naïve relationship between intent and actual behavior, we find that this strong relationship holds even after controlling for other factors in our conceptual framework. Figure 4 provides relevant regression coefficients from regressions predicting actual turnover (leaving the school for any pathway out, transferring, and leaving Michigan public education, respectively) as a function of expressed intent. The first estimate in Panel A shows that reporting plans to transfer is associated with a 22 percentage point increase in the probability of leaving the school for any pathway out by $t+1$, and reporting plans to leave education or retire is associated with an 18 percentage point increase. This relationship holds even after controlling for school covariates (Model 2), teacher covariates (Model 3), and the inclusion of school fixed effects (Model 4). Even in the model including teacher covariates, time-varying school covariates, and school fixed effects, intent to transfer and leave education or retire are both associated with a 20 percentage point increase in the probability of leaving the school.

Panel B shows regression coefficients on models predicting transfer. Here, we find that intent to transfer is again a strong predictor of actually doing so; the naïve model shows that those who report plans to transfer have an 18 percentage point greater probability of doing so and this relationship attenuates only slightly to 15 percentage points when including school fixed effects. By contrast, intent to leave or retire is not a strong predictor of actually transferring by the end of the school year, though these teachers are descriptively more likely to transfer than those reporting plans to stay in

their school. Finally, Panel C again shows that intent to leave education or retire is a strong predictor of actually doing so. All four models show that teachers expressing plans to leave or retire are about 15 percentage points more likely to do so than teachers expressing plans to stay in their school. Teachers expressing plans to transfer are also more likely to leave, though the estimate is substantially smaller at about 3-3.5 percentage points depending on the model.

FIGURE 4

Figure 5 provides the coefficient estimates on the intent variables in fully specified school fixed effects regressions predicting actual turnover behavior in $t+1$, $t+2$, and $t+3$. These models restrict the sample to just the 2018-19 and 2019-20 response cohorts in order to compare estimates over time for the same group of teachers. Panel A shows that the estimates on intent to transfer increase monotonically in each subsequent year, while the estimates on intent to leave education or retire increase in from $t+1$ to $t+2$ and remain elevated in $t+3$. Even after controlling for school and teacher covariates and school fixed effects, teachers who reported in year t that they intended to transfer were 14 percentage points more likely to leave their school in year $t+1$, 22 percentage points more likely in $t+2$, and 24 percentage points more likely in $t+3$. Those reporting plans to leave education or retire were 19 percentage points more likely to leave their school in $t+1$, 37 percentage points more likely in $t+2$, and 36 percentage points more likely in $t+3$.

The Panel B shows estimates from our preferred school fixed effects models predicting transfer. Teachers reporting plans to transfer were 11 percentage points more likely to do so in $t+1$, 15 percentage points more likely in $t+2$, and 18 percentage points more likely in $t+3$. The coefficient estimates on intended leavers in both panels B and C, respectively, show that teachers who reported plans to leave Michigan public education altogether are no more likely to transfer in any given year, but are substantively more likely to leave Michigan public education (approximately 16-17 percentage points more likely to leave in each year).

FIGURE 5

It is clear from these figures that teacher intent provides information about teacher behavior, over and above other teacher and school characteristics, and that actual behavior may lag behind intent. Descriptively, teachers reporting plans to transfer and retire leave their school at increasing rates over a three-year period. Even after controlling for other factors, teachers who report plans to transfer from their school are at much greater risk of actually leaving their school, even if they do not do so immediately.

Finally, in alignment with organizational theory research showing that alternative employment opportunities affect employee decisions, we find that the strength of the relationship between intent to transfer and actually leaving the school varies by a teacher's endorsement area. We observe the strongest relationship for STEM teachers, the next strongest for special education teachers, and the weakest for other

teachers. In particular, intent to transfer is associated with a 27.5 percentage point increase in actually leaving the school for STEM teachers, a 22 percentage point increase for special education teachers, and a 16 percentage point increase for other teachers. Meanwhile, intent to leave education or retire is associated with a 25 percentage point increase in the probability of leaving the school for special education teachers compared with an 18 percentage point increase for STEM and other teachers. This latter finding appears to be driven by special education teachers leaving classroom teaching for other roles in special education rather than leaving the public school system entirely. We do not find differences by subject area in the extent to which plans to leave education or retire are predictive of leaving the education system entirely, though this may stem from relatively small sample sizes of teachers reporting plans to leave. These findings are provided in Appendix D.

Differences Pre-Pandemic and Pandemic Era

While intent is a strong predictor of turnover in our pooled sample, we find that the pandemic temporarily muddled the relationship between intent and turnover behavior. Figure 6 illustrates descriptive differences in turnover intentions and actual behavior before and during the pandemic, with Panel A showing intentions over time and B showing behavior. The share of teachers reporting plans to leave their school in fall 2019 increased from the prior year, but then the pandemic struck and turnover behavior dipped at the end of 2019-20. Then, in spring 2021, when teachers in Partnership districts were largely teaching remotely, they reported relatively few plans to turn over and actually did so at even lower rates than their reported plans. By spring 2022, intent and actual behavior aligned again but with intent to turn over outpacing actual mobility.

FIGURE 6

While more teachers reported plans to leave education or retire than actually did so, the rate of intended transfer was very similar to the rate of actual transfer in the last two survey years. It is possible that this greater alignment was a result of the pandemic causing teachers to be more deliberate in their self-reporting, or because of the substantial teacher shortage that emerged during and in the wake of the pandemic (when teachers may have found it relatively easy to find a new position). However, it is also possible that this greater alignment may be in part due to the timing of the survey. By February, when most teachers were taking the survey in these last two survey waves, they may have had a better idea of their next school year's employment plans—though as we describe above teaching applications typically do not peak until March.

In order to more directly examine the relationship between teacher turnover intent and behavior, Figure 7 provides estimates from regressions predicting actual turnover behavior by year, controlling for school covariates, teacher covariates, and school fixed effects. Panel A shows that intent to transfer and leave education or retire are both associated with a significant increase in actually leaving the school in all four years. Though these estimates are less precise than the estimates on the full sample,

there are some descriptive differences by year. Specifically, the predictive power of intent to transfer was weakest when (a) pandemic schooling was in effect, and (b) teachers were asked about their intent in late fall rather than early spring. It was strongest when teachers were asked about their intent after schools had returned to in-person learning and later in the school year. However, intent remained a strong and significant predictor of behavior across years and survey timing.

While intent to transfer was the least predictive of actually leaving the school in 2019-20 when pandemic uncertainty was heightened, intent to leave or retire was the weakest predictor in the following year, 2020-21—though confidence intervals on intent to leave or retire overlap in all years. We do not see the same patterns with respect to fall and spring survey years; intent to leave or retire does not appear to be differentially likely to predict turnover based on survey timing.

Meanwhile, intent to transfer is a strong predictor of actually doing so (Panel B) in all years and it is a weaker but often statistically significant predictor of leaving Michigan public education (Panel C). Intent to leave or retire is a strong predictor of actually doing so but not a significant predictor of transferring in most years. Otherwise, Panels B and C follow similar patterns to the first: intent to transfer was the weakest predictor of actually transferring in 2019-20 and strongest in 2020-21 and 2021-22, while intent to leave or retire was the weakest predictor of actually doing so in 2020-21.

FIGURE 7

Together, these findings suggest that the pandemic appeared to temporarily stall plans to transfer (though Figures 3 and 5 show that many of these intended transfers eventually did so) but that those reporting plans to leave education or retire just before the pandemic struck were similarly likely to do so by the end of the 2019-20 school year as intended leavers in the year prior.

Predictors of Intent and Actual Turnover Behavior

Across all years, it is clear that intent provides information about actual turnover behavior, though there is some variation by year, especially for intent to transfer. We turn next to predictors of intent and actual turnover behavior. Here, we do not observe many differences by year and therefore focus on estimates from the pooled sample and on individual year estimates when we cannot measure constructs in all four years. When they emerge, we highlight year-to-year differences in the text. Tables from year-to-year estimates are in Appendices E and F.

Predictors of Intent

Table 2 provides estimates from regressions predicting intent to leave the school for any pathway out (columns 1-3), transfer (4-6), and leave education or retire (7-9), respectively. Within each outcome, there are four models. The first includes all school and teacher covariates and the next three separately add each of the three constructs

we can measure in all four years. While not shown here, we also estimate models with just school-level covariates, and in alignment with other research (Boyd et al., 2005; Kraft et al., 2016; Loeb et al., 2005), we find that while teacher turnover is higher in schools with greater shares of economically disadvantaged students, the estimate attenuates as we add additional covariates related to teachers and school organizational conditions (see Appendix E). No other school-level variables are significant predictors of leaving the school or either pathway out, suggesting that teacher turnover intentions are not, in fact, driven by these student demographics.

We also do not find differences by teacher race or ethnicity or gender. However, age is an important predictor of turnover intent, with teachers under 30 about 8-9 percentage points more likely to report plans to leave their school than teachers aged 30-45 (the reference category), 6-7 percentage points more likely to report plans to transfer, and 2-3 percentage points more likely to report plans to leave education or retire (though the latter estimates are only marginally significant). Teachers who are 60 and older and therefore eligible to retire are about 10 percentage points more likely than their 30-45-year-old counterparts to report plans to leave their school, similarly likely to report plans to transfer, and 11 percentage points more likely to report plans to leave education or retire. Teachers who are 55-59 (eligible for retirement under certain conditions) are significantly less likely to report plans to transfer and significantly more likely to report plans to leave or retire. While not shown here, these differences in intent to transfer for retirement-eligible teachers are driven by pre-pandemic years. Additionally, we find that teachers of retirement age (55-59 and 60+) were significantly more likely to report plans to leave their school for any pathway in 2020-21 in particular, suggesting the pandemic induced older teachers to consider leaving at higher rates (see Appendix E).

The most consistent predictors of intent to turn over—for any pathway out, to transfer, and to leave or retire—are school organizational conditions and organizational commitment. Positive school climate, effective school leadership, and improvement goal buy-in are each associated with a lower probability of intent to turn over. Specifically, a one standard deviation increase in each of these factors, respectively, is associated with an 8-9 percentage point decrease in probability of intent to turn over, even after controlling for other school- and teacher-level covariates. They are each associated with a 5-6 percentage point decrease in intent to transfer and a 2-3 percentage point decrease in intent to leave or retire.

TABLE 3

We turn next to the full set of school organizational conditions we observe at any point over the four survey years. Table 4 provides estimates from separate regressions for each year predicting each intended pathway out as a function of school and teacher covariates with each construct added one at a time. Each cell provides a coefficient from a different regression.

In the years we can measure school safety and positive student behavior, we find that it is a strong predictor of all intended pathways out. A one standard deviation increase in teacher perceptions of school safety and positive student behavior is associated with a 9-12 percentage point decrease in intent to leave the school for any pathway, a 6-8 percentage point decrease in intent to transfer, and a 3-4 percentage point decrease in intent to leave education or retire.

On the other hand, perceptions of greater school-level human resources hindrances such as low teacher retention, insufficient supply of teachers, and low teacher retention, and lack of availability of subs, are associated with greater intent to turn over, transfer, and leave education or retire. When teachers perceive that they have greater resources and capacity, they are less likely to report plans to turn over, transfer, and leave education or retire. Finally, teachers with perceptions of greater pandemic-related challenges among their students are more likely to report an intent to leave their school for any pathway out and to leave education or retire specifically—but not to report intent to transfer.

TABLE 4

Predictors of Actual Turnover Behavior

While teacher age, perceptions of school organizational conditions, and organizational commitment in particular are predictive of teacher *intent* to turn over, this may not translate to actual turnover behavior. Table 5 provides estimates from the same models as shown in Table 3, but replaces intent with actual behavior. After including covariates, we find that student economic disadvantage share remains a significant predictor of transfer but not of leaving the school for any pathway or leaving education/retiring. The coefficient on enrollment is negative and significant, suggesting that teachers leave larger schools at higher rates than smaller ones (the patterns were similar but attenuated in the intent models). As with intent, we find that teachers of retirement age (in this case 60+) are significantly more likely to leave Michigan public education. However, unlike the estimates on intent to leave or retire, the estimates on actually leaving are driven by the pre-pandemic years rather than the pandemic years (Appendix F). This suggests that while more older teachers considered retirement during the pandemic, they thus far have not actually left Michigan public education at higher rates than their younger counterparts, after controlling for other teacher and school covariates.

As in the intent models, we again find that school organizational conditions are significant predictors of actual turnover behavior. However, the estimates are attenuated by as much as two-thirds from those in the intent models. This adds to existing evidence that organizational conditions are a more distal predictor of behavior than intent—and that behavior operates in part through withdrawal cognitions as illustrated in the conceptual framework.

TABLE 5

Finally, Table 6 provides estimates on all school organizational conditions available by year, following the same format as Table 4 above. We find that school safety and student behavior remains a significant predictor of actual turnover in two of three years measured, though again the estimate is attenuated from the models predicting intent. The other constructs are less consistent predictors of turnover. Together, these findings suggest that teacher perceptions of school organizational conditions provide some information about their eventual turnover behavior but appear to be more informative for understanding teacher job satisfaction than actual turnover.

TABLE 6

DISCUSSION AND CONCLUSION

In this paper, we set out to examine how teacher intentions are associated with eventual turnover behavior in low-performing turnaround districts as well as how these relationships may vary before and after the pandemic. Then we examine and compare predictors of intended and actual turnover behavior. We pay careful attention to possible levers that may mitigate teacher turnover (i.e., organizational conditions) in schools where turnover may be a perennial concern.

We find that reported intent is in fact a significant predictor of eventual turnover behavior and becomes increasingly predictive over time. In particular, about 30% of teachers who reported plans to leave their school did so the next year, consistent with a recent study using national data showing that about one-third of teachers who indicated they would leave teaching as soon as possible actually left the next year (Nguyen et al., 2022). Our data allow us to expand on this national study, showing that turnover behavior lags behind turnover intention. Of teachers who intended to transfer, 20% transferred to another teaching job the next year, one-third by year two, and 45% after year three. Many other teachers reporting plans to transfer ended up changing roles in education or leaving the public education system entirely and only about 40% of intended transfers remained in their original positions after three years. Teachers reporting plans to leave or retire also left their schools at increasing rates over time; though less than 20% of those reporting plans to leave or retire did so within three years, another 55% transferred or shifted to a new role—showing that intent to leave teaching provides a strong signal about eventual teacher behavior. Together, these findings align with a large organizational sciences literature showing that employee intent—or “withdrawal cognitions” is a meaningful antecedent to turnover. As suggested by our conceptual framework, the relationship between intent and behavior is strongest for STEM and special education teachers, who likely have more alternative employment opportunities than teachers in other areas.

The relationship between stated intent to transfer or leave and immediately doing so is not perfect, nor would we expect it to be. To transfer schools or districts or to take a non-teaching position within public education, teachers must not only want to

leave—there also must be positions available and they need to be selected into those positions. Depending on teachers' skills, qualifications and local labor market conditions, it may take time for those who wish to transfer or leave their schools to find an opportunity to do so, which may explain why intent to leave is more predictive over multiple years. At minimum, however, intent to leave signals job dissatisfaction, and teachers who say they are going to leave education or retire are highly likely to leave their school within three years—if not teaching or public education entirely.

Measuring the relationship between stated intent and actual exit behavior is a critical first step toward understanding the extent to which survey measures of teachers' stated preferences may signal future turnover. However, it is equally or more important to understand what malleable factors might impact teachers' intentions, and potentially therefore their actual decisions, to stay or leave. By doing so, policymakers and school and district leaders can implement programs and policies that target those areas that might induce retention. In other words, as the organizational science literature suggests, we need to consider the work environment and organizational commitment as critical and malleable factors that contribute to the intention and turnover relationships (Dalessio et al., 1986; Griffeth et al., 2000; Harrison et al., 2006; Hopkins et al., 2010). Consistent with the organizational literature at large and prior works examining teacher mobility specifically (e.g., Cho & Lewis, 2012; Cohen et al., 2016; Hopkins et al., 2010; Kirschenbaum & Weisberg, 1990; Nguyen, 2021; Nguyen et al., 2020), our analyses suggest that school organizational conditions and organizational commitment are important factors shaping the intentions of teachers in low-performing turnaround schools and districts to remain in their school, and, to a lesser degree, their actual turnover behavior. In alignment with our conceptual framework, we find that these factors have a stronger relationship with intent than actual behavior.

While the question of how to better predict and reduce teacher turnover is evergreen in K-12 education policy conversations, it is especially pertinent today. Studies from several states across the country, including in Michigan, show that teacher attrition is increasing in the aftermath of the pandemic (Bacher-Hicks et al., 2022; Camp et al., 2023; Goldhaber & Theobald, 2022; Hopkins et al., 2023; Zamarro et al., 2022). Media headlines across the country decry a national teacher shortage (Barnum, 2023a, 2023b; CBS News, 2021; French, 2021). Our results help to explain the seeming misalignment between the alarming teacher intention survey data collected during the pandemic and the relatively low rates of exit that occurred immediately afterward, followed by the recent increase in actual attrition rates. Our study suggests that the stated intentions to leave may be borne out in the years *after* the pandemic; while the relationship between stated intentions and actual exit behavior diminished during the pandemic, the association between the proxy and actual measure has regained its strength and returned to pre-pandemic levels of association. It may be the case that prior research showing that teacher turnover decreases during economic recessions and then surges during economic recovery (e.g., Sorensen & Ladd, 2020) translates to pandemic conditions here. In our context, teachers reporting plans to leave during the pandemic

may have been delaying plans due to economic and health uncertainty. Because Michigan teacher mobility was lower in districts operating remotely than those operating in-person in 2020-21 (Hopkins et al., 2023), it is also possible that Partnership districts' heavy reliance on remote learning (Harbatkin et al., 2022) motivated their teachers to remain in their positions at least through the school year—even if they planned to leave following the return to in-person learning.

As education leaders and policymakers consider how best to mitigate increasing teacher turnover in high-need schools and districts, our study adds to the literature base that points to the importance of organizational conditions in schools—especially low-performing turnaround schools (Hanushek et al., 2004; Johnson et al., 2012; Kraft et al., 2016). It also highlights that organizational commitment matters as well. Schools can stem the tide of turnover by staffing schools with effective principals, generating buy-in to school improvement plans, and improving workplace culture, climate, and safety. While these are not easy school improvement levers to pull, they are indeed malleable and therefore can be targeted in school and district interventions.

It is clear that high teacher turnover of the kind that low-performing schools and districts across the country are facing has been shown to both harm student achievement and hinder school and district improvement efforts. By collecting and acting on information about teacher intent, district and school leaders may be able to mitigate turnover-related challenges in order to reduce teacher turnover and, ultimately, improve student outcomes.

ENDNOTES

¹ We have also tested the robustness of the regression models against a larger sample that does not exclude teachers for whom we have no construct data on a given construct.

² Unlike the first six, each of which fit cleanly into a single category, student pandemic challenges may reflect two different categories. It may fall under work environment to the extent that the interaction of student challenges and teacher resources affect teacher self-efficacy, or under organizational commitment to the extent that student challenges prompt mission-driven teachers to remain in their positions. Prior research on this sample has found that students are among the most salient reasons teachers choose to stay (Strunk et al., 2021, 2022).

³ For items included in each factor, factor loadings, and more information on our EFA, please see Appendix B.

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TABLES

Table 1. Student Characteristics in Partnership Districts and Other Districts Statewide, 2018-19

	Partnership Districts	All Other Districts
<i>Panel A. Students</i>		
White	8.7%	68.6%
Black or African American	73.7%	14.6%
Hispanic or Latino/a/x	13.1%	8.0%
Other non-white ¹	4.5%	8.8%
Economically disadvantaged ²	89.4%	50.7%
English learner	10.8%	6.9%
Chronically absent ³	56.0%	17.0%
Students with disabilities	17.4%	13.6%
<i>N</i>	77,175	1,394,873
<i>Panel B. Teachers⁴</i>		
First-year teacher	11.9%	5.9%
Early career (1-5) teachers	35.2%	27.3%
<i>N</i>	4,166	85,353

¹ This group includes students identified as American Indian, Asian, Native Hawaiian, or multiple races.

² Students are identified as economically disadvantaged if they are eligible for free/reduced meals, qualify for SNAP/TANF, are homeless, are migrant, or are in foster care.

³ Students are identified as chronically absent if they are absent for more than 10% of eligible school days.

⁴ We calculate experience as the number of years serving as a teacher in the Michigan public education system since fall 2011.

Table 2. Predictors of Turnover Intent

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Leave school, any				Transfer			Leave MI ed/retire	
<i>Student demographics</i>									
Economically disadvantaged	0.169** (0.058)	0.072 (0.060)	0.164** (0.061)	0.161*** (0.040)	0.093* (0.039)	0.155*** (0.040)	0.008 (0.042)	-0.021 (0.044)	0.009 (0.044)
English learners	-0.026 (0.095)	0.051 (0.094)	-0.010 (0.091)	-0.007 (0.074)	0.045 (0.072)	0.005 (0.066)	-0.019 (0.051)	0.005 (0.051)	-0.015 (0.053)
Special education	0.056 (0.065)	0.045 (0.061)	0.062 (0.066)	0.016 (0.033)	0.007 (0.031)	0.018 (0.033)	0.040 (0.042)	0.038 (0.041)	0.043 (0.043)
Black	-0.019 (0.048)	-0.007 (0.048)	-0.000 (0.048)	-0.041 (0.043)	-0.033 (0.041)	-0.028 (0.042)	0.022 (0.027)	0.026 (0.028)	0.028 (0.027)
Hispanic or Latino/a/x	-0.034 (0.106)	-0.050 (0.107)	-0.027 (0.103)	-0.083 (0.085)	-0.095 (0.085)	-0.080 (0.079)	0.049 (0.056)	0.046 (0.057)	0.053 (0.058)
Asian, Pacific Islander, 2+ races, Other	-0.008 (0.146)	0.024 (0.134)	-0.034 (0.134)	-0.109 (0.129)	-0.087 (0.117)	-0.128 (0.117)	0.101 (0.069)	0.111 (0.071)	0.094 (0.070)
Enrollment (logged)	-0.008 (0.008)	-0.018* (0.008)	-0.005 (0.009)	-0.007 (0.006)	-0.015* (0.006)	-0.006 (0.006)	-0.001 (0.004)	-0.003 (0.004)	0.001 (0.005)
<i>Teacher age</i>									
Age <30	0.095*** (0.026)	0.083** (0.026)	0.081** (0.026)	0.067** (0.024)	0.059* (0.024)	0.057* (0.024)	0.029 (0.015)	0.024 (0.015)	0.024 (0.015)
Age 46-54	-0.014 (0.014)	-0.006 (0.014)	-0.012 (0.014)	-0.026* (0.012)	-0.020 (0.012)	-0.025* (0.012)	0.012 (0.008)	0.014 (0.008)	0.012 (0.008)
Age 55-59	0.018 (0.017)	0.020 (0.017)	0.012 (0.017)	-0.040** (0.013)	-0.038** (0.013)	-0.044*** (0.012)	0.059*** (0.014)	0.059*** (0.014)	0.056*** (0.014)
Age 60+	0.097*** (0.023)	0.105*** (0.024)	0.099*** (0.023)	-0.012 (0.019)	-0.005 (0.020)	-0.009 (0.019)	0.109*** (0.019)	0.110*** (0.019)	0.107*** (0.018)
<i>School organizational conditions</i>									
Improvement goal buy-in	-0.082*** (0.006)			-0.050*** (0.005)			-0.032*** (0.004)		
Positive school climate		-0.093*** (0.006)			-0.063*** (0.005)			-0.029*** (0.004)	
Effective school leadership			-0.089*** (0.007)			-0.065*** (0.006)			-0.024*** (0.004)
Constant	0.037 (0.065)	0.154* (0.066)	-0.006 (0.070)	0.050 (0.050)	0.134* (0.052)	0.025 (0.050)	-0.013 (0.039)	0.020 (0.040)	-0.031 (0.043)
N	6,192	6,192	6,192	6,192	6,192	6,192	6,192	6,192	6,192
R ²	0.068	0.074	0.075	0.051	0.062	0.068	0.042	0.038	0.035
Adj R ²	0.064	0.071	0.071	0.047	0.059	0.064	0.038	0.034	0.031

NOTE: Regression coefficients from weighted linear probability models. All models include year fixed effects and controls for teacher demographics (race/ethnicity, gender), certification type (interim/temporary, legacy, and standard, with professional certification as the reference category), and experience (first-year teacher, and 1-3 years experience, with 4+ years as the reference category). Model predicting transfer includes control for intent to leave Michigan public education, so reference category is remaining in the school. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3. School Organizational Conditions Predictors of Intent by Year

	2018-19			2019-20			2020-21			2021-22			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
	Leave school, any	Transfer	Leave MI ed / retire	Leave school, any	Transfer	Leave MI ed / retire	Leave school, any	Transfer	Leave MI ed / retire	Leave school, any	Transfer	Leave MI ed / retire	
Improvement goal buy-in	-0.045*** (0.011)	-0.036*** (0.009)	-0.010 (0.006)	-0.101*** (0.011)	-0.069*** (0.010)	-0.033*** (0.008)	-0.087*** (0.010)	-0.055*** (0.009)	-0.033*** (0.007)	-0.088*** (0.011)	-0.044*** (0.010)	-0.044*** (0.009)	
Positive school climate	-0.083*** (0.012)	-0.056*** (0.010)	-0.028** (0.008)	-0.091*** (0.011)	-0.069*** (0.011)	-0.022*** (0.006)	-0.084*** (0.011)	-0.056*** (0.010)	-0.028*** (0.007)	-0.107*** (0.013)	-0.069*** (0.010)	-0.038*** (0.009)	
Effective school leadership	-0.068*** (0.012)	-0.051*** (0.011)	-0.017** (0.006)	-0.092*** (0.012)	-0.068*** (0.011)	-0.024*** (0.007)	-0.086*** (0.011)	-0.061*** (0.010)	-0.025*** (0.007)	-0.104*** (0.013)	-0.076*** (0.011)	-0.028** (0.009)	
Safe school & positive student behavior	-0.086*** (0.013)	-0.058*** (0.011)	-0.027** (0.010)	-0.103*** (0.012)	-0.071*** (0.011)	-0.032*** (0.007)	a	a	a	-0.123*** (0.014)	-0.084*** (0.012)	-0.038*** (0.009)	
Human resources hindrances	a	a	a	a	a	a	0.046*** (0.011)	0.024* (0.009)	0.022** (0.007)	0.062*** (0.013)	0.037*** (0.010)	0.025** (0.009)	
Adequate teacher resources and capacity	a	a	a	a	a	a	-0.039*** (0.011)	-0.024* (0.009)	-0.014* (0.006)	-0.074*** (0.011)	-0.043*** (0.008)	-0.031** (0.010)	
Student pandemic challenges	a	a	a	a	a	a	0.030* (0.012)	0.015 (0.011)	0.014* (0.007)	0.040* (0.017)	0.017 (0.013)	0.023* (0.012)	
	N	1,219-1,253			1,730-1,746			1,009-1,864			753-1,329		

^a Construct data not collected for given year

Note: Estimates from separate weighted linear probability models with a full set of school and teacher covariates, year fixed effects, and no school fixed effects. Constructs included one at a time, so each cell provides an estimate from a separate model. Ns are slightly different by year because we include all teachers for whom we have construct data for a given construct. Range is largest for 2020-21 and 2021-22 because the student pandemic challenges construct has substantially more missingness than the others. This is because teachers were more likely to select “I don’t know” in response to one or more of the questions asking about their students’ challenges. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4. Predictors of Actual Turnover Behavior

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Left school, any			Transferred			Left MI ed		
<i>Student demographics</i>									
Economically disadvantaged share	0.111 (0.057)	0.079 (0.059)	0.110 (0.057)	0.117** (0.043)	0.097* (0.045)	0.116** (0.043)	-0.010 (0.021)	-0.020 (0.022)	-0.010 (0.021)
English learner share	0.156 (0.105)	0.182 (0.103)	0.161 (0.104)	0.131 (0.100)	0.148 (0.100)	0.135 (0.099)	0.012 (0.037)	0.019 (0.037)	0.013 (0.037)
Special education share	-0.016 (0.036)	-0.019 (0.036)	-0.014 (0.036)	-0.018 (0.034)	-0.020 (0.034)	-0.017 (0.033)	-0.005 (0.010)	-0.006 (0.011)	-0.004 (0.010)
Black share	-0.098 (0.053)	-0.094 (0.053)	-0.092 (0.052)	-0.089 (0.051)	-0.086 (0.050)	-0.084 (0.050)	0.006 (0.017)	0.007 (0.017)	0.007 (0.017)
Hispanic or Latino/a/x	-0.240* (0.111)	-0.246* (0.110)	-0.238* (0.109)	-0.205 (0.106)	-0.208 (0.106)	-0.203 (0.104)	-0.002 (0.043)	-0.004 (0.043)	-0.001 (0.044)
Asian, Pacific Islander, 2+ races, Other	-0.275 (0.163)	-0.264 (0.159)	-0.283 (0.158)	-0.331* (0.147)	-0.324* (0.145)	-0.338* (0.143)	0.019 (0.051)	0.022 (0.051)	0.017 (0.051)
Enrollment (logged)	-0.021* (0.011)	-0.024* (0.011)	-0.020 (0.010)	-0.022* (0.009)	-0.024** (0.009)	-0.021* (0.009)	0.003 (0.003)	0.002 (0.003)	0.004 (0.003)
<i>Teacher age</i>									
Age <30	0.028 (0.029)	0.024 (0.030)	0.023 (0.030)	0.025 (0.028)	0.022 (0.028)	0.022 (0.028)	0.013 (0.011)	0.011 (0.011)	0.012 (0.011)
Age 46-54	-0.017 (0.013)	-0.015 (0.013)	-0.017 (0.013)	-0.019 (0.011)	-0.017 (0.011)	-0.019 (0.011)	0.000 (0.005)	0.001 (0.005)	0.000 (0.005)
Age 55-59	-0.016 (0.015)	-0.016 (0.015)	-0.018 (0.015)	-0.014 (0.013)	-0.013 (0.013)	-0.015 (0.013)	0.009 (0.008)	0.010 (0.008)	0.009 (0.008)
Age 60+	0.003 (0.020)	0.006 (0.020)	0.004 (0.020)	-0.026 (0.015)	-0.024 (0.015)	-0.025 (0.015)	0.039*** (0.011)	0.040*** (0.011)	0.039*** (0.011)
<i>School organizational conditions</i>									
Improvement goal buy-in	- 0.028*** (0.006)			- 0.020*** (0.005)			-0.008* (0.003)		
Positive school climate		- 0.031*** (0.006)			- 0.020*** (0.005)			- 0.009*** (0.003)	
Effective school leadership			- 0.028*** (0.006)			- 0.022*** (0.005)			-0.006* (0.003)
Constant	0.297** (0.098)	0.336*** (0.101)	0.282** (0.095)	0.252** (0.086)	0.276** (0.087)	0.241** (0.084)	0.001 (0.023)	0.013 (0.023)	-0.004 (0.023)
N	6,192	6,192	6,192	6,192	6,192	6,192	6,192	6,192	6,192
R ²	0.027	0.028	0.027	0.029	0.029	0.030	0.015	0.016	0.014
Adj R ²	0.024	0.024	0.023	0.025	0.025	0.026	0.011	0.012	0.010

NOTE: Regression coefficients from weighted linear probability models. All models include year fixed effects and controls for teacher demographics (race/ethnicity, gender), certification type (interim/temporary, legacy, and standard, with professional certification as the reference category), and experience (first-year teacher, and 1-3 years experience, with 4+ years as the reference category). Model predicting transfer includes control for leaving Michigan public education, so reference category is remaining in the school. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5. School Organizational Conditions Predictors of Actual Behavior by Year

	2018-19			2019-20			2020-21			2021-22		
	(1) Leave school, any	(2) Transfe r	(3) Leave MI ed / retire	(4) Leave school, any	(5) Transfe r	(6) Leave MI ed / retire	(7) Leave school, any	(8) Transfe r	(9) Leave MI ed / retire	(10) Leave school, any	(11) Transfe r	(12) Leave MI ed / retire
Improvement goal buy-in	-0.014 (0.012)	-0.021* (0.009)	0.012* (0.006)	-0.020* (0.008)	-0.013 (0.007)	-0.007 (0.003)	- 0.035*** (0.010)	-0.022* (0.009)	-0.011* (0.005)	-0.036** (0.012)	-0.020* (0.010)	-0.016* (0.007)
Positive school climate	-0.006 (0.011)	-0.003 (0.009)	0.002 (0.005)	- 0.031*** (0.009)	-0.024** (0.008)	-0.009* (0.004)	-0.028** (0.011)	-0.017 (0.010)	-0.008** (0.003)	- 0.051*** (0.012)	-0.032** (0.010)	-0.020** (0.007)
Effective school leadership	-0.001 (0.011)	-0.007 (0.009)	0.008 (0.005)	-0.018* (0.008)	-0.014 (0.007)	-0.003 (0.003)	- 0.038*** (0.011)	- 0.034*** (0.010)	-0.007 (0.004)	- 0.048*** (0.013)	-0.030* (0.012)	-0.017* (0.007)
Safe school & positive student behavior	-0.015 (0.014)	-0.013 (0.009)	-0.001 (0.006)	- 0.040*** (0.009)	-0.028** (0.009)	-0.009* (0.004)	a	a	a	- 0.047*** (0.013)	-0.032** (0.011)	-0.015* (0.007)
Human resources hindrances	a	a	a	a	a	a	0.007 (0.011)	-0.004 (0.010)	0.002 (0.004)	0.030* (0.015)	0.014 (0.011)	0.011 (0.006)
Adequate teacher resources and capacity	a	a	a	a	a	a	-0.002 (0.010)	0.004 (0.008)	-0.003 (0.003)	-0.034** (0.012)	-0.027** (0.009)	-0.010 (0.007)
Student pandemic challenges	a	a	a	a	a	a	0.023* (0.011)	0.012 (0.011)	0.002 (0.003)	0.013 (0.016)	0.011 (0.013)	0.005 (0.010)
<i>N</i>	1,219–1,253			1,730–1,746			1,009–1,864			753–1,329		

^a Construct data not collected for given year

Note: Estimates from separate weighted linear probability models with a full set of school and teacher covariates, year fixed effects, and no school fixed effects. Constructs included one at a time, so each cell provides an estimate from a separate model. Full model output is in the appendix. Range is largest for 2020-21 and 2021-22 because the student pandemic challenges construct has substantially more missingness than the others. This is because teachers were more likely to select “I don’t know” in response to one or more of the questions asking about their students’ challenges. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

FIGURES

Figure 1. Conceptual Framework

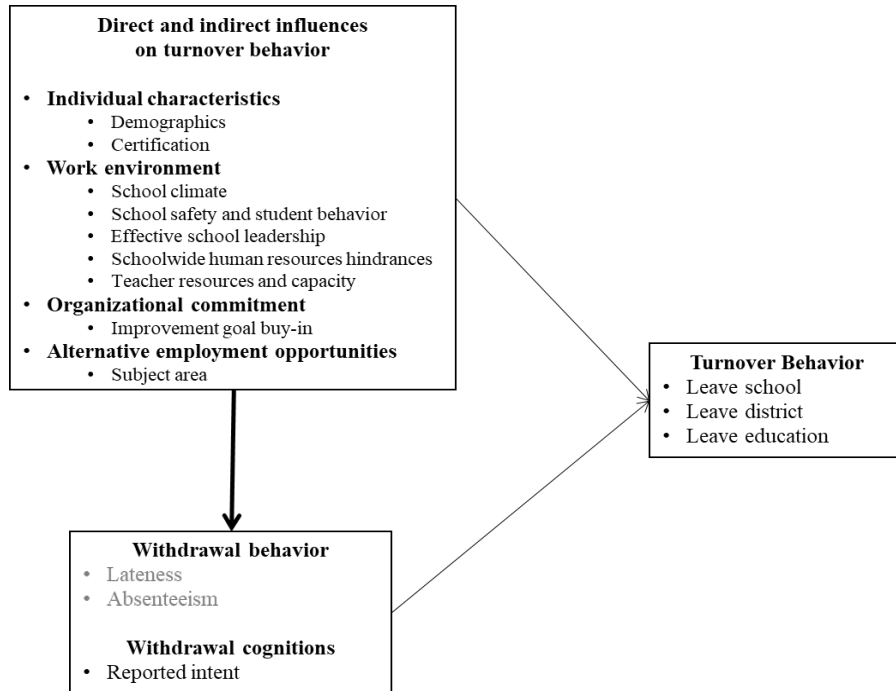
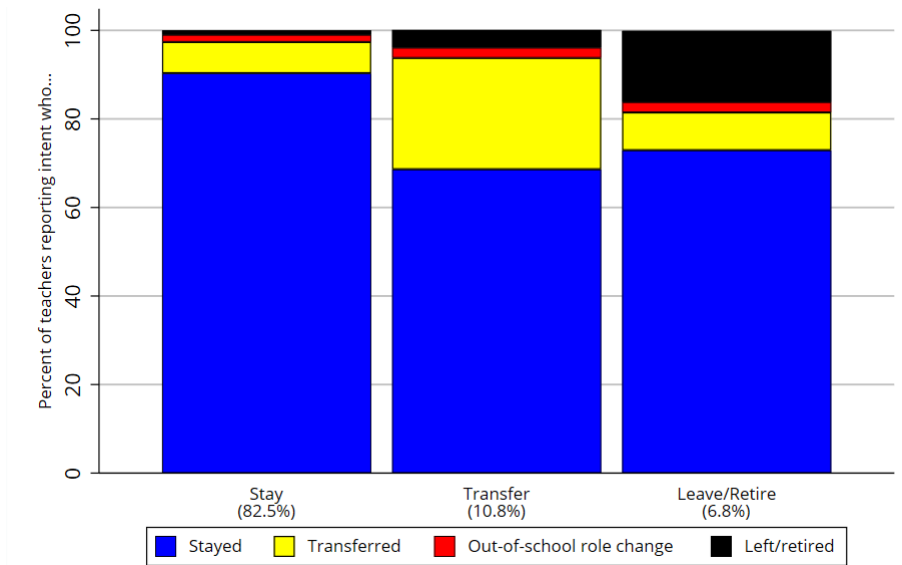


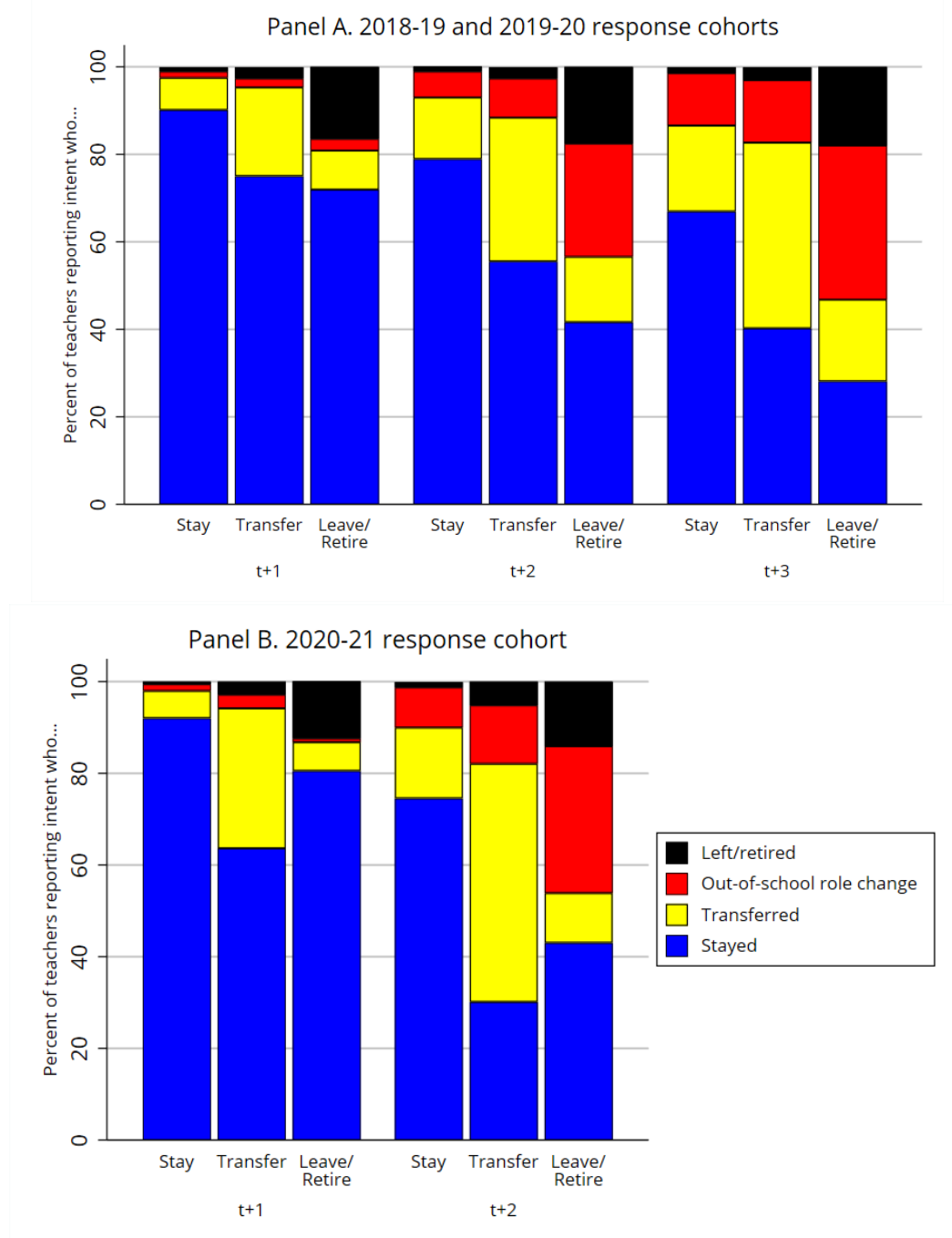
Figure 2. Actual Turnover Behavior by Reported Intent, 2018-19 through 2021-22



N=7,714 teachers with intent and behavior data.

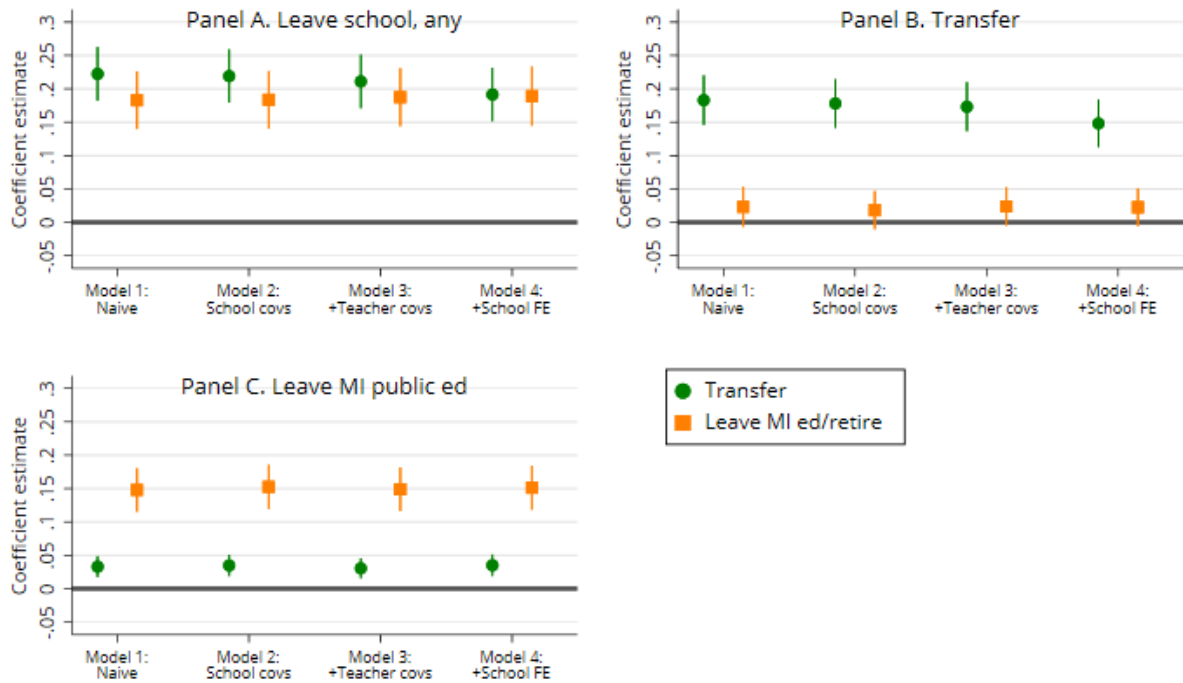
Note: Individual bars represent the sample of teachers reporting plans to stay in their school, transfer, or leave/retire, respectively. Percentages beneath bar labels denote share of teachers in sample reporting listed plan. Bar heights denote share of teachers who reported that plan who stayed in their school, transferred, left the school but switched to a non-teaching role, and left Michigan public education.

Figure 3. Actual Turnover Behavior by Reported Intent in $t+1$, $t+2$, and $t+3$



Note: Graphs track survey response cohorts over time ($t+1$, $t+2$, $t+3$) based on expressed intention in year t . First panel shows 2018-19 and 2019-20 respondents' actual behavior one, two, and three years after their responses. Second panel shows 2020-21 respondents' actual behavior one and two years after their responses. Individual bars represent the sample of teachers reporting plans to stay in their school, transfer, or leave/retire, respectively. Percentages beneath bar labels denote share of teachers in sample reporting listed plan. Bar heights denote share of teachers who reported that plan who stayed in their school, transferred, left the school but switched to a non-teaching role, and left Michigan public education as of each year.

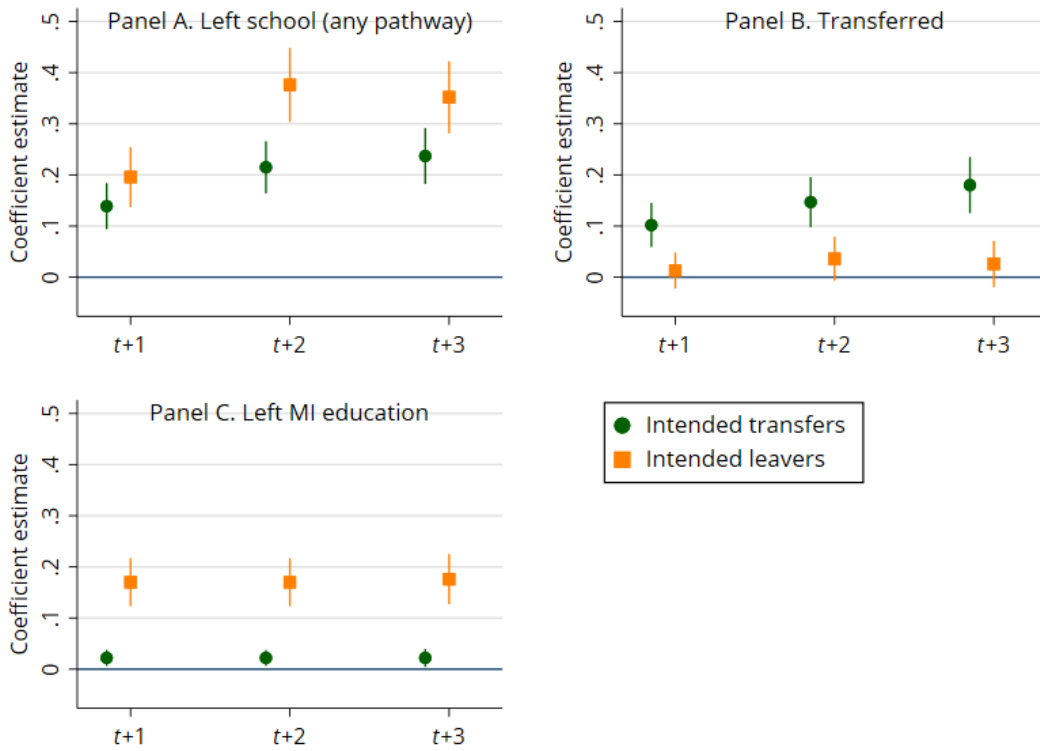
Figure 4. Coefficient Estimates on Intent Variables from Linear Probability Models Predicting Actual Turnover Behavior



N=7,506 teachers with both intent and behavior data along with all relevant covariates.

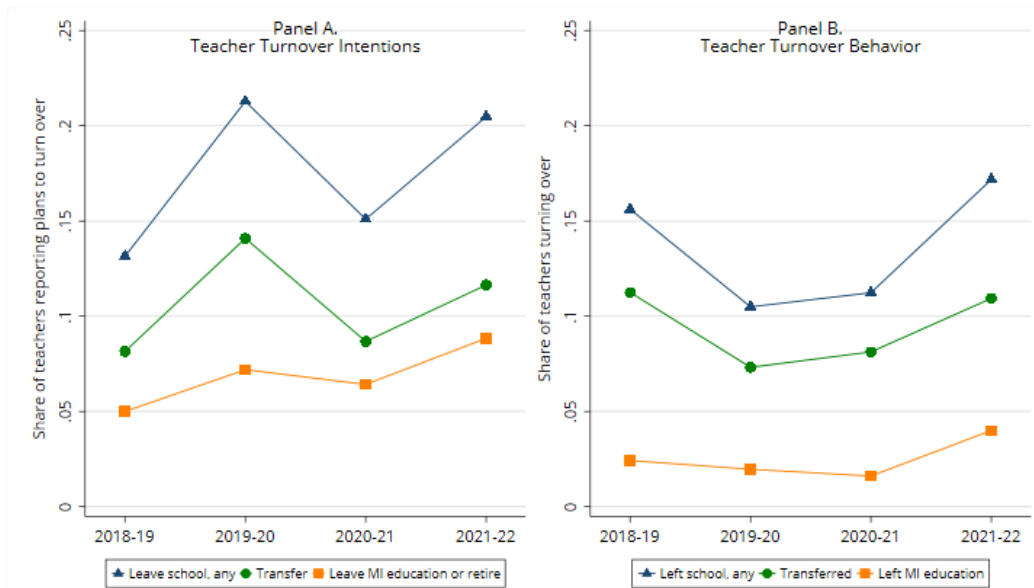
Note: Model 1 is naïve model predicting turnover behavior as a function of intent (transfer, with coefficient estimates denoted by blue circles and leave Michigan public education with coefficient estimates denoted by orange squares) and year fixed effects. Model 2 adds school covariates, including share of students who are economically disadvantaged, English learners, receiving special education services, respectively; school-level student race proportions (Black; Hispanic or Latino/a/x; and Asian, Pacific Islander, 2+ races, or other race, with White as the reference category); and a logged function of student enrollment. Model 3 adds teacher covariates including race using the same categories as above; gender (male with female as the reference category); a series of age indicators (<30, 30-45, 46-54, 55-59, and 60+, with 30-45 as the reference category); and a series of certification type indicators (interim or emergency certification, legacy certification, standard certification, and professional certification, with professional as the reference category). Model 4 adds school fixed effects. Full model results provided in Appendix C.

Figure 5. Coefficient Estimates on Regression of Actual Turnover Behavior on Expressed Intentions One, Two, and Three Years After Expressed Intention



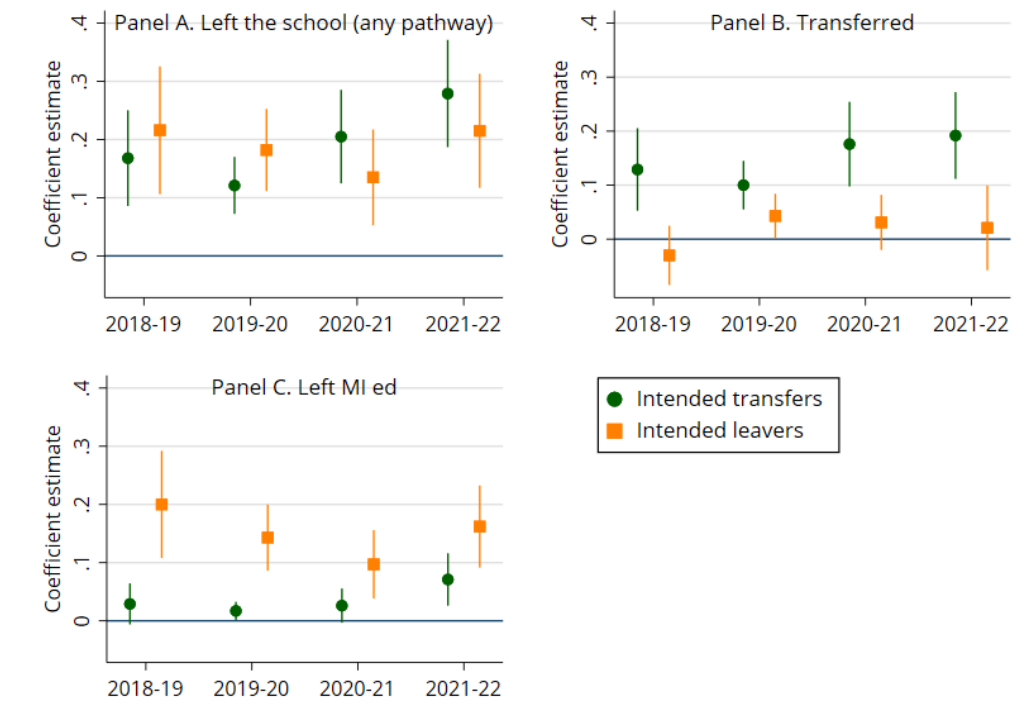
Note: Coefficient estimates from weighted, fully specified linear probability models with school fixed effects. Standard errors clustered at the school level. Models include school, teacher demographic, teacher certification, and survey construct covariates, and year fixed effects, along with reported intent. All models restricted to two response cohorts (2018-19 and 2019-20) where we can observe all three years of outcomes. Full model results provided in Appendix C.

Figure 6. Teacher Turnover and Actual Behavior Over Time in Study Sample



Note: Left panel displays intentions over time for the survey sample (N=7,714 teachers with both turnover and intent data), and right panel displays actual behavior—in alignment with intentions—in the survey sample.

Figure 7. Coefficient Estimates on Regression of Actual Turnover Behavior on Expressed Intentions, by Year



Note: Coefficient estimates from weighted, fully specified linear probability models with school fixed effects. Standard errors clustered at the school level. Models include school, teacher demographic, teacher certification, and survey construct covariates, and year fixed effects, along with reported intent. Full model results provided in Appendix C.

APPENDIX

A. Balance Tests Comparing Respondents and Non-Respondents

Table A-1. Differences from t-tests comparing survey respondents and non-respondents, standardized

	Respondents	Non-respondents	Diff	SE	<i>p</i> -value(diff)
Black	-0.188	0.059	-0.247***	0.028	0.000
Hispanic	0.000	-0.005	0.005	0.028	0.855
White	0.177	-0.052	0.230***	0.028	0.000
Other nonwhite	0.022	-0.001	0.023	0.028	0.413
Race unknown	-0.007	-0.014	0.007	0.027	0.804
Female	0.067	-0.013	0.080**	0.028	0.004
Elementary certified	-0.048	0.034	-0.081**	0.028	0.003
Secondary certified	0.050	-0.019	0.069*	0.028	0.014
New to teaching or district	0.110	-0.027	0.138***	0.028	0.000

NOTE: Table shows standardized differences between respondents and non-respondents.

Table A-2. Differences in respondents and non-respondents, controlling for school fixed effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Black	Hispanic	White	Other nonwhite	Unknown	Female	Elem cert	Sec cert	New teacher
Coefficient	-0.044*** (0.007)	0.003 (0.006)	0.036*** (0.007)	0.007 (0.006)	0.002 (0.006)	0.021*** (0.006)	-0.009 (0.007)	0.002 (0.007)	0.030*** (0.006)
<i>N</i>	6171	6171	6171	6171	6171	6105	6171	6171	6171

NOTE: Coefficients from bivariate regression with respondent dummy on left side, dummy variable listed in column header on right side, and school FE

** $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$*

B. Factor Loading Tables

This appendix provides factor loading tables from our confirmatory factor analysis (CFA). Before conducting the CFA, we began with an exploratory factor analysis (EFA) drawing from all question items related to work environment and organizational commitment. Within conceptually related items, we conducted parallel analyses (Horn, 1965) to determine number of factors and then used orthogonal varimax rotation to identify the separate factors. Then, drawing from the EFA findings, we ran CFAs and generated factor scores for each respondent with a mean of zero and a standard deviation of one. We used these scores in our regressions.

Table B-1. Factors, items, and years measured

Label	Construct	Items	Years
Improvement goal buy-in	Teachers buy-in to the school or district's improvement goals	Teachers' agreement that... <ul style="list-style-type: none"> • Goals are feasible • Goals focus on the most important issues facing the school • Goals help meet student needs • Staff focus on clear and concrete steps to improve student outcomes • Staff instructional efforts align with goals 	2018-19 2019-20 2020-21 2021-22
Positive school climate¹	Teachers report their school has a positive school climate	Teachers' agreement that ... <ul style="list-style-type: none"> • The school meets student socioemotional needs • The school meets student academic needs • Teachers have strong rapport with students • Teachers have high expectations for students • Students are enthusiastic to learn 	2018-19 2019-20 2020-21 2021-22
Effective school leadership	Teachers believe school leader is effective	Teachers' perceptions that principal is effective at... <ul style="list-style-type: none"> • Working with staff to meet curriculum standards • Communicating the central mission of the school • Making data-driven decisions • Working with community partners • Facilitating and encouraging teacher professional development • Encouraging parental engagement 	2018-19 2019-20 2020-21 2021-22
Safe school and positive student behavior	Teachers believe their school is safe and student behavior is appropriate	Teachers' beliefs that ... <ul style="list-style-type: none"> • The school has a safe and orderly environment • Students listen to staff • Teachers effectively manage student behavior • Teachers consistently enforce behavioral standards • Fights are frequent (<i>reverse-coded</i>) 	2018-19 2019-20 2021-22

Label	Construct	Items	Years
Human resources hindrances	Teachers believe human resources-related factors are hindrances to improvement goals	Teachers' perceptions that these hinder improvement ... <ul style="list-style-type: none"> • Low teacher attendance • Low teacher retention • Lack of availability of substitute teachers • Insufficient supply of certified teachers 	2020-21 2021-22
Adequate teacher resources and capacity	Teachers believe they have resources and capacity they need to educate their students	Teachers agree they... <ul style="list-style-type: none"> • Are able to educate their students at least as well as in prior years • Have the data they need to target instruction • Have the resources they need to adequately serve students 	2020-21 2021-22
Student pandemic challenges	Teachers believe their students faced challenges caused/exacerbated by the pandemic	Teachers believe their students face challenges related to... <ul style="list-style-type: none"> • Access to health care • Mental health • Access to mental health care • Food insecurity • Homelessness or housing instability 	2020-21 2021-22

¹ Because the survey was administered in 2020-21 when most Partnership district schools were operating remotely and the survey that year avoided questions that were not relevant in a remote learning pandemic context, this construct includes only a subset of typical school climate items.

Table B-2. Improvement Goal Buy-in

	Loadings	ψ
Goals are feasible	0.805	0.351
Goals focus on most important issues facing school	0.874	0.235
Goals help meet needs of students	0.881	0.224
Clear and concrete steps to improve student outcomes	0.835	0.303
Efforts align with goals	0.824	0.321
<i>N</i>	9206	
α	0.899	

Table B-3. Positive School Climate

	Loadings	ψ
Meet socioemotional needs	0.705	0.502
Meet academic needs	0.805	0.353
Teachers have strong rapport with students	0.735	0.460
Teachers have high expectations for students	0.752	0.434
Students enthusiastic to come to school	0.680	0.538
<i>N</i>	8422	
α	0.781	

Table B-4. Effective School Leadership

	Loadings	ψ
Leader effectiveness: work with staff to meet curriculum standards	0.898	0.193
Leader effectiveness: communicate central mission of the school	0.894	0.201
Leader effectiveness: use evidence to make data-driven decisions	0.895	0.200
Leader effectiveness: work with community partners	0.866	0.250
Leader effectiveness: facilitate and encourage PD	0.884	0.218
Leader effectiveness: encourage parental engagement	0.866	0.251
<i>N</i>	7853	
α	0.944	

Table B-5. Human Resources Hindrances

	Loadings	ψ
To what extent a hindrance: low teacher attendance	0.778	0.394
To what extent a hindrance: low teacher retention	0.855	0.268
To what extent a hindrance: Lack of availability of substitute teachers	0.771	0.406
To what extent a hindrance: insufficient supply of certified teachers	0.804	0.354
<i>N</i>	3814	
Alpha	0.809	

Table B-6. Student Pandemic Challenges

	Loadings	ψ
Challenges: Access to healthcare	0.815	0.336
Challenges: Mental health	0.797	0.365
Challenges: Access to mental health care	0.854	0.270
Challenges: Food insecurity	0.797	0.365
Challenges: Homelessness or housing instability	0.771	0.405
<i>N</i>	2177	
α	0.861	

Table B-7. Sufficient Teacher Resources and Capacity

	Loadings	ψ
Able to educate students at least as well as prior years	0.796	0.367
Have data and information to target instruction	0.837	0.299
Have resources to adequately serve students	0.802	0.357
<i>N</i>	3813	
α	0.740	

Table B-8. Safe School and Positive Student Behavior

	Loadings	ψ
Safe and orderly environment	0.851	0.276
Fights are frequent (reverse-coded)	0.680	0.538
Teachers consistently enforce behavioral standards	0.661	0.563
Students listen to staff	0.772	0.404
Teachers manage behavior	0.825	0.319
<i>N</i>	6292	
α	0.809	

Note: Factors created using principal components factors. In last column, ψ denotes the uniqueness, which is the remaining variation in the item not captured by the factor.

C. Regression Tables from Models Predicting Behavior as a Function of Intent

Table C-1. Regression Estimates from Weighted Linear Probability Models Predicting Behavior as a Function of Intent

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Leave school, any			Transfer			Leave MI ed					
<i>Expressed intent</i>												
Transfer	0.222*** (0.020)	0.219*** (0.020)	0.211*** (0.020)	0.192*** (0.020)	0.183*** (0.019)	0.178*** (0.018)	0.173*** (0.019)	0.148*** (0.018)	0.033*** (0.008)	0.035*** (0.008)	0.031*** (0.008)	0.035*** (0.008)
Leave education/ retire	0.183*** (0.022)	0.183*** (0.022)	0.187*** (0.022)	0.189*** (0.023)	0.023 (0.015)	0.018 (0.015)	0.024 (0.015)	0.023 (0.014)	0.148*** (0.017)	0.153*** (0.017)	0.149*** (0.017)	0.151*** (0.017)
<i>School demographics</i>												
Economically disadvantaged		0.070 (0.055)	0.061 (0.053)	-0.067 (0.139)		0.094* (0.041)	0.080* (0.040)	0.038 (0.118)		-0.023 (0.020)	-0.022 (0.020)	-0.029 (0.066)
English learner		0.070 (0.098)	0.091 (0.097)	-0.567* (0.281)		0.047 (0.091)	0.076 (0.092)	-0.306 (0.215)		0.002 (0.028)	0.000 (0.029)	-0.065 (0.154)
Special education		-0.037 (0.038)	-0.026 (0.038)	0.053 (0.292)		-0.034 (0.033)	-0.022 (0.033)	0.176 (0.241)		-0.012 (0.014)	-0.012 (0.014)	-0.001 (0.090)
Black		-0.115* (0.046)	-0.089* (0.044)	0.305 (0.365)		-0.100* (0.044)	-0.074 (0.043)	0.325 (0.356)		0.006 (0.015)	0.010 (0.015)	0.009 (0.056)
Hispanic or Latino/a/x		-0.166 (0.099)	-0.172 (0.098)	-0.110 (0.464)		-0.125 (0.093)	-0.136 (0.093)	0.014 (0.445)		0.010 (0.034)	0.007 (0.035)	-0.032 (0.191)
Asian, Pacific Islander, 2+ races, Other		-0.254 (0.139)	-0.248 (0.138)	0.103 (0.638)		-0.247 (0.128)	-0.263* (0.127)	-0.005 (0.517)		0.003 (0.041)	0.007 (0.044)	-0.027 (0.237)
Enrollment (logged)		-0.021* (0.010)	-0.021* (0.010)	-0.002 (0.045)		-0.021* (0.009)	-0.020* (0.009)	-0.010 (0.043)		0.001 (0.003)	0.001 (0.003)	0.005 (0.017)
<i>Teacher characteristics</i>												
Black			-0.019 (0.012)	-0.004 (0.013)			-0.025* (0.011)	-0.018 (0.011)			-0.008 (0.005)	-0.006 (0.005)
Hispanic or Latino/a/x			0.012 (0.030)	-0.038 (0.029)			-0.004 (0.027)	-0.059* (0.029)			0.007 (0.015)	0.010 (0.017)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
		Leave school, any				Transfer				Leave MI ed		
Asian, Pacific Islander, 2+ races, Other			-0.030 (0.020)	-0.032 (0.020)			-0.021 (0.017)	-0.020 (0.018)			-0.019** (0.007)	-0.021* (0.008)
Male			0.003 (0.012)	0.009 (0.012)			0.002 (0.010)	0.006 (0.010)			0.003 (0.006)	0.002 (0.005)
Age <30			0.023 (0.022)	0.022 (0.020)			0.011 (0.020)	0.014 (0.018)			0.017 (0.009)	0.015 (0.010)
Age 46-54			-0.011 (0.012)	0.001 (0.012)			-0.010 (0.010)	0.002 (0.010)			0.000 (0.004)	0.000 (0.004)
Age 55-59			-0.020 (0.015)	-0.002 (0.015)			-0.006 (0.012)	0.012 (0.013)			0.000 (0.007)	-0.000 (0.007)
Age 60+			-0.010 (0.017)	0.011 (0.017)			-0.016 (0.013)	0.001 (0.013)			0.021* (0.009)	0.026** (0.009)
<i>Teacher certification</i>												
Interim or temporary certification			0.061* (0.030)	0.057* (0.029)			0.069* (0.028)	0.067* (0.027)			0.011 (0.012)	0.013 (0.013)
Legacy certification			-0.019 (0.021)	-0.025 (0.021)			-0.037* (0.014)	-0.041** (0.015)			0.010 (0.014)	0.006 (0.015)
Standard certification			0.008 (0.013)	0.001 (0.013)			0.018 (0.012)	0.016 (0.011)			-0.009 (0.005)	-0.012 (0.006)
Constant	0.136*** (0.013)	0.314*** (0.094)	0.313*** (0.093)	0.052 (0.441)	0.099*** (0.012)	0.240** (0.079)	0.240** (0.079)	-0.097 (0.418)	0.016*** (0.004)	0.028 (0.024)	0.022 (0.025)	0.019 (0.130)
N	7701	7544	7512	7506	7701	7544	7512	7506	7701	7544	7512	7506
R2	0.059	0.063	0.067	0.179	0.039	0.045	0.052	0.178	0.061	0.065	0.069	0.138
School FE				X				X				X

Note: Regression coefficients from linear probability models. All models include year fixed effects. Estimates from weighted models. Model predicting transfer includes control for intent to leave Michigan public education, so reference category is remaining in the school. Estimates reflected in Figure 4. Standard errors, clustered at the school level, in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table C-2. Regression Estimates from Weighted Linear Probability Models Predicting Behavior in t+1, t+2, and t+3 as a Function of Intent

	Leave school, any			Transfer			Leave MI ed		
	(1) t+1	(2) t+2	(3) t+3	(4) t+1	(5) t+2	(6) t+3	(7) t+1	(8) t+2	(9) t+3
<i>Expressed intent</i>									
Transfer	0.139*** (0.023)	0.215*** (0.026)	0.237*** (0.028)	0.102*** (0.022)	0.147*** (0.025)	0.180*** (0.028)	0.022** (0.008)	0.022** (0.008)	0.022* (0.009)
Leave education/retire	0.196*** (0.030)	0.376*** (0.037)	0.352*** (0.036)	0.013 (0.018)	0.036 (0.022)	0.026 (0.023)	0.170*** (0.024)	0.178*** (0.025)	0.176*** (0.025)
<i>School demographics</i>									
Economically disadvantaged	-0.066 (0.247)	-0.282 (0.272)	-0.493 (0.319)	0.106 (0.230)	0.216 (0.265)	0.097 (0.270)	-0.121 (0.080)	-0.112 (0.082)	-0.097 (0.085)
English learner	-0.711 (0.383)	0.135 (0.477)	-0.245 (0.586)	-0.536* (0.262)	-0.613 (0.362)	-0.596 (0.421)	-0.069 (0.231)	-0.047 (0.235)	-0.172 (0.278)
Special education	0.246 (0.492)	0.445 (0.522)	-0.029 (0.546)	0.359 (0.487)	0.771 (0.574)	0.543 (0.598)	-0.176 (0.151)	-0.244 (0.169)	-0.351 (0.186)
Black	0.025 (0.525)	0.405 (0.498)	0.721 (0.539)	-0.223 (0.491)	-0.293 (0.582)	-0.115 (0.676)	0.217 (0.166)	0.203 (0.176)	0.272 (0.216)
Hispanic or Latino/a/x	0.417 (0.649)	-0.306 (0.810)	0.154 (0.938)	-0.078 (0.602)	-0.482 (0.695)	-0.281 (0.792)	0.467 (0.245)	0.306 (0.273)	0.353 (0.283)
Asian, Pacific Islander, 2+ races, Other	1.660 (1.323)	1.159 (1.423)	-0.697 (1.433)	0.777 (1.212)	0.870 (1.398)	0.348 (1.758)	0.276 (0.383)	0.089 (0.410)	0.412 (0.544)
Enrollment (logged)	-0.022 (0.135)	0.095 (0.117)	0.076 (0.122)	-0.062 (0.116)	-0.028 (0.151)	-0.018 (0.146)	0.029 (0.035)	0.025 (0.035)	0.035 (0.035)
<i>Teacher characteristics</i>									
Black	0.005 (0.015)	0.008 (0.021)	-0.015 (0.024)	-0.006 (0.012)	-0.011 (0.016)	-0.045* (0.017)	-0.003 (0.007)	0.002 (0.008)	-0.001 (0.008)
Hispanic or Latino/a/x	-0.073* (0.029)	-0.085 (0.044)	-0.086 (0.057)	-0.067** (0.025)	-0.071 (0.040)	-0.110** (0.042)	-0.031** (0.010)	-0.030** (0.010)	-0.032** (0.010)
Asian, Pacific Islander, 2+ races, Other	-0.011 (0.030)	-0.001 (0.037)	-0.028 (0.042)	-0.015 (0.025)	-0.020 (0.028)	-0.042 (0.032)	-0.017 (0.012)	-0.017 (0.012)	-0.020 (0.012)
Male	0.002 (0.013)	0.036 (0.021)	0.033 (0.024)	0.006 (0.012)	0.021 (0.017)	0.020 (0.019)	0.009 (0.007)	0.003 (0.007)	0.004 (0.008)

	Leave school, any			Transfer			Leave MI ed		
	(1) <i>t</i> +1	(2) <i>t</i> +2	(3) <i>t</i> +3	(4) <i>t</i> +1	(5) <i>t</i> +2	(6) <i>t</i> +3	(7) <i>t</i> +1	(8) <i>t</i> +2	(9) <i>t</i> +3
Age <30	-0.001 (0.026)	0.068 (0.038)	0.097* (0.041)	-0.003 (0.024)	0.007 (0.033)	-0.010 (0.039)	0.020 (0.016)	0.023 (0.016)	0.027 (0.016)
Age 46-54	-0.002 (0.015)	-0.032 (0.019)	-0.015 (0.022)	-0.005 (0.014)	-0.035* (0.017)	-0.043* (0.018)	0.002 (0.005)	0.006 (0.006)	0.009 (0.006)
Age 55-59	0.017 (0.020)	0.015 (0.026)	0.056 (0.030)	0.005 (0.015)	-0.025 (0.019)	-0.042* (0.020)	0.015 (0.012)	0.021 (0.012)	0.023 (0.012)
Age 60+	0.028 (0.022)	0.060* (0.028)	0.123*** (0.033)	-0.014 (0.015)	-0.040* (0.019)	-0.070*** (0.019)	0.043** (0.013)	0.054*** (0.015)	0.067*** (0.016)
<i>Teacher certification</i>									
Interim or temporary certification	0.128* (0.060)	0.178** (0.059)	0.209*** (0.056)	0.057 (0.043)	0.062 (0.050)	0.047 (0.053)	0.072 (0.039)	0.075 (0.040)	0.075 (0.040)
Legacy certification	-0.008 (0.028)	0.007 (0.037)	0.023 (0.043)	-0.037* (0.017)	-0.050* (0.021)	-0.050* (0.023)	0.016 (0.022)	0.010 (0.022)	0.008 (0.023)
Standard certification	0.006 (0.016)	-0.006 (0.019)	-0.003 (0.023)	0.014 (0.014)	0.015 (0.018)	0.035 (0.021)	-0.019* (0.008)	-0.020* (0.008)	-0.022** (0.008)
Constant	0.175 (1.137)	-0.491 (1.012)	-0.145 (1.059)	0.499 (1.016)	0.273 (1.292)	0.273 (1.303)	-0.253 (0.323)	-0.188 (0.333)	-0.294 (0.358)
<i>N</i>	4159	4159	4159	4159	4159	4159	4159	4159	4159
<i>R</i> ²	0.246	0.257	0.237	0.245	0.230	0.245	0.186	0.184	0.180
Adjusted <i>R</i> ²	0.178	0.190	0.168	0.176	0.160	0.177	0.112	0.110	0.106
Within <i>R</i> ²	0.047	0.082	0.072	0.023	0.034	0.044	0.099	0.101	0.096

Note: Regression coefficients from linear probability models. All models include year fixed effects. Estimates from weighted models including school fixed effects. Sample restricted to 2018-19 and 2019-20 response cohorts. Model predicting transfer includes control for intent to leave Michigan public education, so reference category is remaining in the school. Estimates reflected in Figure 5. Standard errors, clustered at the school level, in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table C-3. Regression Estimates from Weighted Linear Probability Models Predicting Behavior as a Function of Intent by Year

	Leave school, any				Transfer				Leave MI ed			
	(1) 2018-19	(2) 2019-20	(3) 2020-21	(4) 2021-22	(5) 2018-19	(6) 2019-20	(7) 2020-21	(8) 2021-22	(9) 2018-19	(10) 2019-20	(11) 2020-21	(12) 2021-22
<i>Expressed intent</i>												
Transfer	0.168*** (0.042)	0.121*** (0.025)	0.205*** (0.041)	0.279*** (0.047)	0.129** (0.039)	0.100*** (0.023)	0.176*** (0.040)	0.192*** (0.041)	0.029 (0.018)	0.017* (0.008)	0.026 (0.015)	0.071** (0.023)
Leave education/retire	0.216*** (0.056)	0.182*** (0.036)	0.135** (0.042)	0.215*** (0.050)	-0.030 (0.028)	0.043* (0.021)	0.031 (0.026)	0.021 (0.040)	0.200*** (0.047)	0.143*** (0.029)	0.097** (0.030)	0.162*** (0.036)
<i>Teacher characteristics</i>												
Black	0.011 (0.024)	-0.003 (0.017)	0.002 (0.022)	-0.032 (0.031)	-0.007 (0.020)	-0.014 (0.014)	-0.019 (0.018)	-0.050 (0.029)	-0.001 (0.010)	-0.003 (0.009)	-0.000 (0.008)	-0.013 (0.013)
Hispanic or Latino/a/x	-0.050 (0.042)	-0.094** (0.033)	-0.080 (0.062)	0.045 (0.069)	-0.070* (0.034)	-0.058* (0.026)	-0.083 (0.059)	-0.026 (0.064)	-0.030* (0.015)	-0.039* (0.017)	-0.006 (0.007)	0.089 (0.054)
Asian, Pacific Islander, 2+ races, Other	-0.010 (0.049)	-0.016 (0.030)	0.020 (0.040)	-0.067 (0.043)	-0.012 (0.039)	-0.022 (0.029)	0.024 (0.035)	-0.051 (0.040)	-0.011 (0.022)	-0.021** (0.008)	-0.001 (0.016)	-0.025 (0.016)
Male	0.004 (0.024)	-0.005 (0.017)	0.025 (0.021)	0.014 (0.026)	0.011 (0.021)	-0.006 (0.014)	0.010 (0.017)	0.012 (0.026)	0.012 (0.012)	0.008 (0.009)	-0.004 (0.005)	-0.007 (0.014)
Age <30	-0.052 (0.044)	0.038 (0.030)	0.076* (0.037)	0.002 (0.041)	-0.043 (0.040)	-0.001 (0.027)	0.045 (0.032)	0.017 (0.035)	0.032 (0.032)	0.024 (0.013)	0.040 (0.021)	-0.021 (0.022)
Age 46-54	-0.061* (0.024)	0.039* (0.019)	0.024 (0.020)	-0.017 (0.034)	-0.040 (0.022)	0.019 (0.017)	0.035* (0.016)	0.001 (0.027)	-0.014 (0.008)	0.015* (0.007)	-0.001 (0.005)	-0.015 (0.016)
Age 55-59	0.007 (0.032)	0.010 (0.023)	-0.023 (0.026)	-0.019 (0.039)	-0.010 (0.025)	0.015 (0.019)	0.005 (0.022)	0.038 (0.032)	0.015 (0.017)	0.009 (0.011)	-0.013 (0.010)	-0.020 (0.021)
Age 60+	0.006 (0.039)	0.024 (0.024)	0.019 (0.032)	-0.037 (0.045)	-0.018 (0.027)	-0.008 (0.018)	0.026 (0.026)	0.001 (0.038)	0.041* (0.020)	0.035* (0.014)	0.009 (0.014)	0.002 (0.025)
<i>Teacher certification</i>												
Interim or temporary certification	0.162 (0.115)	0.044 (0.057)	-0.009 (0.040)	0.064 (0.053)	0.067 (0.064)	-0.008 (0.039)	0.016 (0.036)	0.131** (0.049)	0.081 (0.072)	0.069 (0.046)	-0.013 (0.010)	-0.016 (0.025)
Legacy certification	-0.026 (0.036)	0.013 (0.038)	0.005 (0.041)	-0.114* (0.057)	-0.045* (0.022)	-0.029 (0.027)	-0.014 (0.025)	-0.062 (0.055)	0.005 (0.028)	0.028 (0.030)	0.012 (0.030)	-0.048* (0.020)
Standard certification	0.024 (0.028)	-0.006 (0.018)	0.017 (0.021)	-0.018 (0.028)	0.029 (0.023)	0.009 (0.016)	0.027 (0.019)	0.014 (0.024)	-0.029 (0.018)	-0.017* (0.007)	-0.013 (0.007)	0.005 (0.016)
Constant	0.138*** (0.019)	0.063*** (0.014)	0.058** (0.018)	0.144*** (0.027)	0.114*** (0.016)	0.059*** (0.012)	0.040** (0.015)	0.084*** (0.021)	0.012 (0.008)	-0.002 (0.006)	0.010 (0.006)	0.028* (0.014)
N	1832	2288	1928	1375	1832	2288	1928	1375	1832	2288	1928	1375
R ²	0.309	0.287	0.243	0.312	0.333	0.290	0.234	0.315	0.265	0.196	0.199	0.265
Adjusted R ²	0.180	0.189	0.129	0.176	0.209	0.192	0.118	0.180	0.128	0.085	0.078	0.121
Within R ²	0.049	0.048	0.056	0.089	0.028	0.024	0.047	0.064	0.108	0.092	0.050	0.085

Note: Regression coefficients from linear probability models. Estimates from weighted models including school fixed effects. Model predicting transfer includes control for intent to leave Michigan public education, so reference category is remaining in the school. Estimates reflected in Figure 7. Standard errors, clustered at the school level, in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

D. Regression Tables from Models Predicting Intent by Subject Area

Table D-1. Regression Estimates from Weighted Linear Probability Models Predicting Behavior as a Function of Intent by Subject Area

	Left school			Left district			Left MI ed		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	STEM	SpEd	Other	STEM	SpEd	Other	STEM	SpEd	Other
<i>Expressed intent</i>									
Transfer	0.275*** (0.039)	0.216*** (0.045)	0.158*** (0.029)	0.244*** (0.036)	0.142*** (0.040)	0.115*** (0.027)	0.020 (0.016)	0.031 (0.018)	0.040** (0.012)
Leave education/retire	0.183*** (0.041)	0.250*** (0.039)	0.176*** (0.032)	0.044 (0.030)	0.074* (0.033)	-0.004 (0.018)	0.156*** (0.036)	0.148*** (0.028)	0.150*** (0.028)
<i>Teacher characteristics</i>									
Economically disadvantaged share	-0.125 (0.269)	0.083 (0.231)	0.146 (0.172)	0.136 (0.244)	0.242 (0.178)	0.092 (0.137)	-0.115 (0.095)	-0.017 (0.109)	0.034 (0.116)
English learner share	-0.281 (0.508)	-0.834 (0.490)	-0.357 (0.399)	-0.059 (0.504)	-0.718 (0.422)	-0.155 (0.269)	-0.148 (0.135)	-0.132 (0.163)	0.103 (0.296)
Special education share	-0.405 (0.547)	0.111 (0.793)	-0.020 (0.302)	-0.279 (0.510)	0.340 (0.450)	0.068 (0.265)	-0.115 (0.178)	0.135 (0.158)	-0.093 (0.109)
Black share	0.177 (0.567)	-1.413 (0.903)	0.092 (0.404)	0.240 (0.545)	-1.081 (0.798)	0.031 (0.296)	-0.053 (0.060)	-0.265 (0.324)	0.248 (0.188)
Hispanic or Latinx share	0.613 (0.807)	-0.589 (1.047)	-1.125 (0.594)	0.727 (0.750)	-0.120 (0.805)	-0.995 (0.554)	-0.457 (0.299)	-0.313 (0.344)	0.182 (0.346)
Asian, Pacific Islander, 2+ races, Other share	0.168 (1.247)	0.222 (1.022)	-0.212 (0.902)	0.011 (1.072)	-0.359 (0.882)	-0.038 (0.716)	0.060 (0.449)	-0.365 (0.364)	0.239 (0.336)
Enrollment (logged)	0.137 (0.079)	0.038 (0.081)	-0.014 (0.055)	0.060 (0.081)	0.040 (0.083)	-0.012 (0.050)	0.067* (0.026)	-0.027 (0.037)	0.001 (0.021)
Black	0.039 (0.024)	-0.031 (0.024)	-0.010 (0.018)	0.027 (0.023)	-0.022 (0.022)	-0.026 (0.016)	-0.008 (0.011)	-0.012 (0.011)	-0.006 (0.007)
Hispanic or Latinx	-0.029 (0.050)	-0.060 (0.064)	-0.023 (0.033)	-0.070* (0.035)	-0.037 (0.066)	-0.071* (0.033)	0.021 (0.056)	-0.031* (0.015)	0.028 (0.027)
Asian, Pacific Islander, 2+ races, Other	-0.049 (0.053)	0.006 (0.039)	-0.056 (0.032)	-0.019 (0.052)	0.019 (0.032)	-0.048 (0.030)	-0.027 (0.021)	-0.032** (0.012)	-0.028** (0.010)
Male	0.015 (0.023)	0.033 (0.030)	0.010 (0.017)	0.023 (0.023)	0.032 (0.028)	-0.005 (0.013)	0.011 (0.013)	0.013 (0.014)	-0.002 (0.008)
Age <30	-0.054 (0.041)	0.025 (0.059)	0.019 (0.028)	-0.041 (0.036)	0.011 (0.049)	0.017 (0.024)	0.016 (0.024)	0.065 (0.036)	0.002 (0.011)

	Left school			Left district			Left MI ed		
	(1) STEM	(2) SpEd	(3) Other	(4) STEM	(5) SpEd	(6) Other	(7) STEM	(8) SpEd	(9) Other
Age 46-54	-0.007 (0.023)	-0.012 (0.029)	0.013 (0.017)	0.012 (0.021)	0.010 (0.024)	0.011 (0.014)	-0.008 (0.008)	-0.004 (0.009)	0.001 (0.006)
Age 55-59	0.017 (0.030)	0.036 (0.028)	-0.011 (0.023)	0.035 (0.028)	0.039 (0.023)	0.013 (0.018)	-0.004 (0.010)	0.005 (0.011)	0.001 (0.014)
Age 60+	0.027 (0.036)	0.032 (0.034)	-0.011 (0.026)	0.026 (0.033)	0.021 (0.028)	-0.008 (0.019)	0.015 (0.019)	0.046** (0.016)	0.017 (0.015)
<i>Teacher certification</i>									
Interim or temporary certification	0.080 (0.058)	0.122 (0.113)	0.028 (0.035)	0.090 (0.062)	0.123 (0.103)	0.029 (0.031)	-0.008 (0.031)	0.002 (0.016)	0.026 (0.019)
Legacy certification	-0.016 (0.054)	-0.038 (0.035)	-0.019 (0.030)	-0.035 (0.045)	-0.062* (0.025)	-0.043* (0.021)	0.001 (0.018)	0.026 (0.030)	-0.002 (0.019)
Standard certification	0.033 (0.031)	0.012 (0.025)	-0.005 (0.018)	0.032 (0.029)	0.021 (0.023)	0.018 (0.014)	0.002 (0.010)	-0.023 (0.013)	-0.016 (0.009)
Constant	-0.812 (0.677)	0.912 (1.069)	0.232 (0.536)	-0.679 (0.674)	0.345 (0.871)	0.218 (0.456)	-0.180 (0.169)	0.433 (0.457)	-0.218 (0.227)
N	1909	1850	3875	1909	1850	3875	1909	1850	3875
R ²	0.308	0.313	0.209	0.280	0.317	0.212	0.274	0.284	0.160
Adj R ²	0.189	0.197	0.138	0.156	0.201	0.141	0.150	0.163	0.084
Within R ²	0.100	0.084	0.048	0.083	0.049	0.030	0.090	0.123	0.070

Note: Regression coefficients from linear probability models. Estimates from weighted models including school fixed effects. Model predicting transfer includes control for intent to leave Michigan public education, so reference category is remaining in the school. Estimates reflected in Figure 7. Standard errors, clustered at the school level, in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

E. Regression Tables from Models Predicting Intent

Table E-1. Predictors of Intent to Leave School (Any Pathway Out)

	(1)	(2)	(3)	(4)	(5)
<i>Student demographics</i>					
Economically disadvantaged	0.197** (0.062)	0.187** (0.064)	0.169** (0.058)	0.072 (0.060)	0.164** (0.061)
English learner	-0.025 (0.101)	-0.025 (0.099)	-0.026 (0.095)	0.051 (0.094)	-0.010 (0.091)
Special education	0.066 (0.068)	0.067 (0.068)	0.056 (0.065)	0.045 (0.061)	0.062 (0.066)
Black	-0.029 (0.051)	-0.013 (0.051)	-0.019 (0.048)	-0.007 (0.048)	-0.000 (0.048)
Hispanic or Latinx	-0.012 (0.114)	-0.015 (0.111)	-0.034 (0.106)	-0.050 (0.107)	-0.027 (0.103)
Asian, Pacific Islander, 2+ races, Other	0.004 (0.158)	-0.009 (0.156)	-0.008 (0.146)	0.024 (0.134)	-0.034 (0.134)
Enrollment (logged)	-0.003 (0.008)	-0.001 (0.009)	-0.008 (0.008)	-0.018* (0.008)	-0.005 (0.009)
<i>Teacher characteristics</i>					
Black		-0.015 (0.015)	0.001 (0.015)	0.012 (0.015)	0.008 (0.015)
Hispanic or Latinx		0.043 (0.038)	0.060 (0.036)	0.053 (0.034)	0.058 (0.037)
Asian, Pacific Islander, 2+ races, Other		-0.019 (0.029)	-0.025 (0.028)	-0.009 (0.028)	-0.013 (0.028)
Male		-0.005 (0.016)	-0.005 (0.016)	-0.018 (0.016)	0.001 (0.016)
Age <30		0.089*** (0.026)	0.095*** (0.026)	0.083** (0.026)	0.081** (0.026)
Age 46-54		-0.018 (0.015)	-0.014 (0.014)	-0.006 (0.014)	-0.012 (0.014)
Age 55-59		0.010 (0.018)	0.018 (0.017)	0.020 (0.017)	0.012 (0.017)
Age 60+		0.081** (0.025)	0.097*** (0.023)	0.105*** (0.024)	0.099*** (0.023)
<i>Teacher certification</i>					
Interim or temporary certification		0.044 (0.040)	0.032 (0.038)	0.043 (0.037)	0.053 (0.037)
Legacy certification		-0.024 (0.034)	-0.021 (0.033)	-0.028 (0.035)	-0.029 (0.033)
Standard certification		0.010 (0.016)	-0.002 (0.015)	0.005 (0.016)	0.007 (0.016)
First-year teacher		-0.070* (0.032)	-0.072* (0.031)	-0.070* (0.031)	-0.051 (0.031)

	(1)	(2)	(3)	(4)	(5)
1-3 years teaching experience		0.007 (0.017)	0.003 (0.016)	0.003 (0.017)	0.008 (0.017)
<i>School organizational conditions</i>					
Improvement goal buy-in			-0.082*** (0.006)		
Positive school climate				-0.093*** (0.006)	
Effective school leadership					-0.089*** (0.007)
Constant	0.001 (0.069)	-0.017 (0.072)	0.037 (0.065)	0.154* (0.066)	-0.006 (0.070)
<i>N</i>	6192	6192	6192	6192	6192
<i>R</i> ²	0.011	0.022	0.068	0.074	0.075
Adj <i>R</i> ²	0.009	0.018	0.064	0.071	0.071

Note: Estimates from weighted linear probability models predicting intent to leave school (any pathway out). All models include year fixed effects. No school fixed effects. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table E-2. Predictors of Intent to Transfer

	(1)	(2)	(3)	(4)	(5)
<i>Student demographics</i>					
Economically disadvantaged	0.184*** (0.043)	0.172*** (0.043)	0.161*** (0.040)	0.093* (0.039)	0.155*** (0.040)
English learner	-0.024 (0.081)	-0.007 (0.076)	-0.007 (0.074)	0.045 (0.072)	0.005 (0.066)
Special education	0.004 (0.035)	0.022 (0.036)	0.016 (0.033)	0.007 (0.031)	0.018 (0.033)
Black	-0.073 (0.045)	-0.037 (0.045)	-0.041 (0.043)	-0.033 (0.041)	-0.028 (0.042)
Hispanic or Latinx	-0.067 (0.090)	-0.071 (0.087)	-0.083 (0.085)	-0.095 (0.085)	-0.080 (0.079)
Asian, Pacific Islander, 2+ races, Other	-0.096 (0.143)	-0.109 (0.134)	-0.109 (0.129)	-0.087 (0.117)	-0.128 (0.117)
Enrollment (logged)	-0.004 (0.006)	-0.003 (0.006)	-0.007 (0.006)	-0.015* (0.006)	-0.006 (0.006)
<i>Teacher characteristics</i>					
Black		-0.018 (0.012)	-0.008 (0.012)	0.000 (0.012)	-0.001 (0.012)
Hispanic or Latinx		0.058 (0.034)	0.068* (0.033)	0.065* (0.032)	0.069* (0.033)
Asian, Pacific Islander, 2+ races, Other		-0.020 (0.022)	-0.023 (0.022)	-0.013 (0.022)	-0.015 (0.022)
Male		0.008 (0.013)	0.008 (0.013)	-0.002 (0.013)	0.012 (0.013)
Age <30		0.063** (0.024)	0.067** (0.024)	0.059* (0.024)	0.057* (0.024)
Age 46-54		-0.029* (0.013)	-0.026* (0.012)	-0.020 (0.012)	-0.025* (0.012)

	(1)	(2)	(3)	(4)	(5)
Age 55-59		-0.046*** (0.013)	-0.040** (0.013)	-0.038** (0.013)	-0.044*** (0.012)
Age 60+		-0.022 (0.020)	-0.012 (0.019)	-0.005 (0.020)	-0.009 (0.019)
<i>Teacher certification</i>					
Interim or temporary certification		0.033 (0.033)	0.026 (0.034)	0.032 (0.032)	0.040 (0.032)
Legacy certification		-0.049** (0.017)	-0.048** (0.016)	-0.052** (0.018)	-0.054** (0.016)
Standard certification		0.023 (0.015)	0.016 (0.014)	0.020 (0.014)	0.021 (0.015)
First-year teacher		-0.057* (0.027)	-0.058* (0.027)	-0.057* (0.026)	-0.043 (0.027)
1-3 years teaching experience		0.006 (0.014)	0.003 (0.014)	0.003 (0.014)	0.007 (0.014)
<i>School organizational conditions</i>					
Improvement goal buy-in			-0.050*** (0.005)		
Positive school climate				-0.063*** (0.005)	
Effective school leadership					-0.065*** (0.006)
Constant	0.019 (0.053)	0.017 (0.053)	0.050 (0.050)	0.134* (0.052)	0.025 (0.050)
<i>N</i>	6192	6192	6192	6192	6192
<i>R</i> ²	0.009	0.025	0.051	0.062	0.068
Adj <i>R</i> ²	0.007	0.022	0.047	0.059	0.064

Note: Estimates from weighted linear probability models predicting intent to transfer. All models include year fixed effects and control for intent to leave school or retire so reference category is intent to stay in school. No school fixed effects. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table E-3. Predictors of Intent to Leave Education or Retire

	(1)	(2)	(3)	(4)	(5)
<i>Student demographics</i>					
Economically disadvantaged	0.014 (0.044)	0.015 (0.044)	0.008 (0.042)	-0.021 (0.044)	0.009 (0.044)
English learner	-0.001 (0.054)	-0.019 (0.052)	-0.019 (0.051)	0.005 (0.051)	-0.015 (0.053)
Special education	0.062 (0.044)	0.045 (0.043)	0.040 (0.042)	0.038 (0.041)	0.043 (0.043)
Black	0.044 (0.028)	0.024 (0.027)	0.022 (0.027)	0.026 (0.028)	0.028 (0.027)
Hispanic or Latinx	0.055 (0.061)	0.057 (0.058)	0.049 (0.056)	0.046 (0.057)	0.053 (0.058)
Asian, Pacific Islander, 2+ races, Other	0.100 (0.073)	0.101 (0.071)	0.101 (0.069)	0.111 (0.071)	0.094 (0.070)

	(1)	(2)	(3)	(4)	(5)
Enrollment (logged)	0.001 (0.005)	0.002 (0.004)	-0.001 (0.004)	-0.003 (0.004)	0.001 (0.005)
<i>Teacher characteristics</i>					
Black		0.003 (0.009)	0.009 (0.009)	0.011 (0.010)	0.009 (0.009)
Hispanic or Latinx		-0.015 (0.016)	-0.009 (0.016)	-0.012 (0.015)	-0.011 (0.016)
Asian, Pacific Islander, 2+ races, Other		0.001 (0.020)	-0.001 (0.020)	0.004 (0.020)	0.002 (0.020)
Male		-0.012 (0.009)	-0.012 (0.009)	-0.017 (0.009)	-0.011 (0.009)
Age <30		0.026 (0.015)	0.029 (0.015)	0.024 (0.015)	0.024 (0.015)
Age 46-54		0.011 (0.008)	0.012 (0.008)	0.014 (0.008)	0.012 (0.008)
Age 55-59		0.055*** (0.014)	0.059*** (0.014)	0.059*** (0.014)	0.056*** (0.014)
Age 60+		0.103*** (0.019)	0.109*** (0.019)	0.110*** (0.019)	0.107*** (0.018)
<i>Teacher certification</i>					
Interim or temporary certification		0.011 (0.030)	0.006 (0.028)	0.011 (0.029)	0.013 (0.029)
Legacy certification		0.026 (0.029)	0.027 (0.029)	0.024 (0.029)	0.024 (0.029)
Standard certification		-0.013 (0.008)	-0.018* (0.008)	-0.015 (0.008)	-0.014 (0.008)
First-year teacher		-0.013 (0.019)	-0.014 (0.018)	-0.013 (0.019)	-0.008 (0.019)
1-3 years teaching experience		0.001 (0.010)	-0.001 (0.010)	-0.000 (0.010)	0.001 (0.011)
<i>School organizational conditions</i>					
Improvement goal buy-in			-0.032*** (0.004)		
Positive school climate				-0.029*** (0.004)	
Effective school leadership					-0.024*** (0.004)
Constant	-0.018 (0.041)	-0.034 (0.042)	-0.013 (0.039)	0.020 (0.040)	-0.031 (0.043)
<i>N</i>	6192	6192	6192	6192	6192
<i>R</i> ²	0.005	0.026	0.042	0.038	0.035
Adj <i>R</i> ²	0.003	0.022	0.038	0.034	0.031

Note: Estimates from weighted linear probability models predicting intent to leave education or retire. All models include year fixed effects. No school fixed effects. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table E-4. Predictors of Intent to Leave School (Any Pathway Out), by Year

	(1) 2018-19	(2)	(3)	(4) 2019-20	(5)	(6)	(7) 2020-21	(8)	(9)	(10) 2021-22	(11)	(12)
<i>Student demographics</i>												
Economically disadvantaged	0.139 (0.102)	0.001 (0.100)	0.136 (0.102)	0.359*** (0.087)	0.249** (0.084)	0.353*** (0.086)	0.077 (0.090)	0.039 (0.092)	0.089 (0.085)	0.174 (0.102)	0.053 (0.108)	0.151 (0.113)
English learner	0.033 (0.133)	0.129 (0.126)	0.038 (0.127)	0.151 (0.165)	0.281 (0.166)	0.222 (0.157)	-0.064 (0.151)	-0.046 (0.154)	-0.050 (0.146)	-0.078 (0.191)	-0.021 (0.192)	-0.101 (0.191)
Special education	-0.041 (0.066)	-0.048 (0.069)	-0.021 (0.067)	0.051 (0.077)	0.035 (0.069)	0.054 (0.079)	0.034 (0.084)	0.018 (0.079)	0.021 (0.080)	0.151 (0.149)	0.138 (0.162)	0.164 (0.167)
Black	-0.074 (0.097)	-0.044 (0.095)	-0.057 (0.095)	-0.149 (0.087)	-0.140 (0.085)	-0.131 (0.085)	0.058 (0.070)	0.057 (0.069)	0.074 (0.069)	-0.046 (0.106)	-0.043 (0.103)	-0.046 (0.109)
Hispanic or Latino/a/x	-0.138 (0.182)	-0.141 (0.173)	-0.108 (0.174)	-0.343 (0.186)	-0.391* (0.187)	-0.377* (0.178)	0.112 (0.171)	0.108 (0.172)	0.109 (0.167)	-0.026 (0.223)	-0.037 (0.223)	-0.017 (0.225)
Asian, Pacific Islander, 2+ races, Other	-0.175 (0.224)	-0.107 (0.220)	-0.214 (0.219)	-0.475 (0.265)	-0.501 (0.265)	-0.501 (0.261)	0.518* (0.214)	0.550* (0.219)	0.529* (0.216)	-0.250 (0.331)	-0.218 (0.305)	-0.320 (0.322)
Enrollment (logged)	-0.003 (0.013)	-0.021 (0.014)	-0.000 (0.014)	-0.035** (0.013)	-0.045*** (0.012)	-0.033* (0.013)	-0.022 (0.012)	-0.023 (0.012)	-0.017 (0.012)	0.019 (0.015)	0.009 (0.014)	0.023 (0.015)
<i>Teacher characteristics</i>												
Black	-0.016 (0.027)	0.017 (0.028)	0.001 (0.028)	0.024 (0.026)	0.024 (0.026)	0.021 (0.027)	0.016 (0.022)	0.016 (0.022)	0.023 (0.022)	-0.011 (0.032)	0.001 (0.033)	-0.007 (0.031)
Hispanic or Latino/a/x	-0.015 (0.056)	-0.025 (0.054)	-0.036 (0.053)	0.078 (0.072)	0.067 (0.069)	0.083 (0.077)	0.048 (0.052)	0.035 (0.053)	0.049 (0.056)	0.091 (0.068)	0.102 (0.066)	0.097 (0.067)
Asian, Pacific Islander, 2+ races, Other	0.044 (0.064)	0.057 (0.064)	0.045 (0.063)	-0.020 (0.051)	-0.005 (0.049)	-0.029 (0.052)	-0.062 (0.040)	-0.043 (0.041)	-0.039 (0.041)	-0.041 (0.054)	-0.029 (0.057)	-0.011 (0.054)
Male	0.027 (0.027)	0.018 (0.026)	0.032 (0.027)	-0.009 (0.027)	-0.018 (0.027)	-0.006 (0.027)	-0.011 (0.024)	-0.023 (0.024)	-0.002 (0.024)	-0.012 (0.028)	-0.034 (0.029)	-0.008 (0.029)
Age <30	0.210* (0.084)	0.195* (0.083)	0.192* (0.082)	0.086 (0.049)	0.057 (0.049)	0.056 (0.050)	0.076* (0.038)	0.074 (0.038)	0.064 (0.037)	0.063 (0.049)	0.050 (0.049)	0.053 (0.048)
Age 46-54	-0.045 (0.028)	-0.029 (0.027)	-0.039 (0.026)	-0.028 (0.025)	-0.021 (0.026)	-0.018 (0.025)	0.017 (0.023)	0.020 (0.024)	0.009 (0.023)	-0.019 (0.031)	-0.012 (0.031)	-0.017 (0.031)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	2018-19			2019-20			2020-21			2021-22		
Age 55-59	0.005 (0.033)	0.011 (0.032)	-0.005 (0.032)	-0.019 (0.031)	-0.009 (0.031)	-0.020 (0.030)	0.076* (0.029)	0.072* (0.029)	0.068* (0.030)	-0.011 (0.040)	-0.011 (0.040)	-0.014 (0.037)
Age 60+	0.032 (0.044)	0.049 (0.044)	0.035 (0.043)	0.048 (0.036)	0.049 (0.036)	0.055 (0.036)	0.159*** (0.037)	0.168*** (0.040)	0.152*** (0.039)	0.104 (0.054)	0.110* (0.051)	0.111* (0.050)
<i>Teacher certification</i>												
Interim or temporary certification	0.157 (0.292)	0.157 (0.259)	0.225 (0.275)	0.050 (0.098)	0.045 (0.092)	0.095 (0.093)	0.027 (0.049)	0.022 (0.050)	0.032 (0.047)	0.039 (0.052)	0.072 (0.052)	0.064 (0.050)
Legacy certification	-0.001 (0.046)	-0.007 (0.045)	-0.011 (0.045)	-0.045 (0.054)	-0.044 (0.058)	-0.049 (0.055)	-0.003 (0.060)	-0.015 (0.061)	-0.003 (0.059)	-0.030 (0.080)	-0.033 (0.083)	-0.042 (0.080)
Standard certification	-0.039 (0.037)	-0.019 (0.037)	-0.031 (0.037)	-0.036 (0.028)	-0.025 (0.028)	-0.018 (0.028)	0.033 (0.026)	0.033 (0.026)	0.040 (0.026)	-0.005 (0.029)	0.004 (0.028)	0.003 (0.029)
First-year teacher	0.062 (0.331)	0.008 (0.318)	0.037 (0.338)	-0.184** (0.065)	-0.172** (0.065)	-0.174* (0.071)	0.019 (0.047)	0.008 (0.044)	0.029 (0.045)	-0.123* (0.049)	-0.113* (0.051)	-0.087 (0.049)
1-3 years teaching experience	0.049 (0.048)	0.034 (0.045)	0.056 (0.047)	0.045 (0.034)	0.046 (0.035)	0.052 (0.035)	-0.038 (0.026)	-0.036 (0.026)	-0.037 (0.027)	-0.012 (0.035)	-0.009 (0.036)	-0.006 (0.036)
<i>School organizational conditions</i>												
Improvement goal buy-in	-0.045*** (0.011)			-0.101*** (0.011)			-0.087*** (0.010)			-0.088*** (0.011)		
Positive school climate		-0.083*** (0.012)			-0.091*** (0.011)			-0.084*** (0.011)			-0.107*** (0.013)	
Effective school leadership			-0.068*** (0.012)			-0.092*** (0.012)			-0.086*** (0.011)			-0.104*** (0.013)
Constant	0.115 (0.123)	0.286* (0.119)	0.069 (0.128)	0.263* (0.122)	0.402*** (0.117)	0.228 (0.122)	0.101 (0.104)	0.144 (0.109)	0.051 (0.101)	-0.026 (0.119)	0.136 (0.118)	-0.037 (0.125)
N	1253	1253	1253	1746	1746	1746	1864	1864	1864	1329	1329	1329
R ²	0.062	0.097	0.083	0.082	0.074	0.077	0.083	0.072	0.082	0.078	0.087	0.091
Adj R ²	0.046	0.081	0.068	0.071	0.063	0.066	0.073	0.061	0.071	0.063	0.072	0.076

Note: Estimates from weighted linear probability models predicting intent to leave school for any pathway out. No school fixed effects. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table E-5. Predictors of Intent to Transfer, by Year

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	2018-19			2019-20			2020-21			2021-22		
<i>Student demographics</i>												
Economically disadvantaged	0.189* (0.074)	0.095 (0.075)	0.186* (0.073)	0.303*** (0.081)	0.218** (0.078)	0.297*** (0.077)	0.045 (0.074)	0.018 (0.074)	0.051 (0.069)	0.183** (0.069)	0.099 (0.064)	0.157* (0.069)
English learner	-0.068 (0.109)	-0.003 (0.108)	-0.064 (0.105)	0.033 (0.145)	0.129 (0.143)	0.083 (0.138)	0.056 (0.135)	0.068 (0.135)	0.065 (0.125)	-0.001 (0.128)	0.045 (0.128)	-0.003 (0.126)
Special education	-0.087 (0.049)	-0.090 (0.055)	-0.072 (0.052)	0.051 (0.055)	0.037 (0.052)	0.051 (0.058)	0.066 (0.070)	0.054 (0.067)	0.056 (0.066)	0.010 (0.056)	0.001 (0.055)	0.018 (0.057)
Black	-0.095 (0.088)	-0.073 (0.087)	-0.082 (0.087)	-0.101 (0.081)	-0.096 (0.079)	-0.088 (0.078)	-0.023 (0.061)	-0.023 (0.060)	-0.011 (0.059)	-0.006 (0.086)	-0.003 (0.079)	-0.004 (0.082)
Hispanic or Latino/a/x	-0.077 (0.153)	-0.076 (0.151)	-0.053 (0.149)	-0.203 (0.167)	-0.239 (0.165)	-0.228 (0.159)	-0.050 (0.150)	-0.052 (0.150)	-0.051 (0.141)	-0.092 (0.155)	-0.108 (0.151)	-0.100 (0.151)
Asian, Pacific Islander, 2+ races, Other	-0.215 (0.190)	-0.169 (0.191)	-0.245 (0.190)	-0.154 (0.245)	-0.173 (0.243)	-0.173 (0.239)	0.013 (0.189)	0.034 (0.186)	0.019 (0.180)	-0.148 (0.264)	-0.128 (0.243)	-0.201 (0.253)
Enrollment (logged)	-0.010 (0.011)	-0.021 (0.012)	-0.008 (0.011)	-0.015 (0.010)	-0.024* (0.011)	-0.015 (0.010)	-0.016 (0.011)	-0.017 (0.011)	-0.012 (0.011)	0.009 (0.011)	0.002 (0.011)	0.011 (0.011)
<i>Teacher characteristics</i>												
Black	0.002 (0.023)	0.023 (0.023)	0.014 (0.024)	0.016 (0.022)	0.019 (0.022)	0.016 (0.022)	-0.002 (0.018)	-0.002 (0.018)	0.004 (0.018)	-0.027 (0.028)	-0.017 (0.028)	-0.021 (0.026)
Hispanic or Latino/a/x	-0.015 (0.045)	-0.024 (0.046)	-0.032 (0.044)	0.110 (0.067)	0.103 (0.063)	0.115 (0.070)	0.056 (0.048)	0.048 (0.048)	0.058 (0.050)	0.087 (0.062)	0.096 (0.061)	0.095 (0.059)
Asian, Pacific Islander, 2+ races, Other	0.055 (0.055)	0.064 (0.056)	0.056 (0.055)	0.006 (0.048)	0.017 (0.047)	-0.002 (0.049)	-0.054* (0.027)	-0.042 (0.026)	-0.038 (0.027)	-0.070 (0.036)	-0.063 (0.034)	-0.050 (0.036)
Male	0.008 (0.022)	0.002 (0.021)	0.012 (0.021)	0.004 (0.023)	-0.003 (0.023)	0.006 (0.023)	0.004 (0.020)	-0.005 (0.020)	0.010 (0.020)	0.016 (0.021)	0.002 (0.022)	0.020 (0.022)
Age <30	0.192* (0.079)	0.181* (0.079)	0.178* (0.077)	0.070 (0.045)	0.049 (0.045)	0.049 (0.045)	0.032 (0.034)	0.031 (0.034)	0.024 (0.034)	0.048 (0.042)	0.040 (0.042)	0.041 (0.042)
Age 46-54	-0.054* (0.024)	-0.043 (0.023)	-0.050* (0.023)	-0.048* (0.023)	-0.043 (0.023)	-0.041 (0.022)	-0.005 (0.021)	-0.003 (0.021)	-0.011 (0.021)	-0.011 (0.028)	-0.006 (0.027)	-0.008 (0.028)
Age 55-59	-0.071** (0.022)	-0.067** (0.022)	-0.078*** (0.022)	-0.103*** (0.023)	-0.094*** (0.023)	-0.102*** (0.021)	-0.009 (0.023)	-0.011 (0.023)	-0.013 (0.023)	-0.003 (0.034)	-0.001 (0.034)	-0.002 (0.032)
Age 60+	-0.070* (0.031)	-0.060* (0.030)	-0.068* (0.029)	-0.037 (0.028)	-0.035 (0.028)	-0.031 (0.027)	0.019 (0.031)	0.026 (0.033)	0.016 (0.032)	0.013 (0.040)	0.018 (0.038)	0.020 (0.038)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	2018-19			2019-20			2020-21			2021-22		
<i>Teacher certification</i>												
Interim or temporary certification	0.102 (0.280)	0.105 (0.259)	0.154 (0.268)	0.021 (0.105)	0.014 (0.099)	0.052 (0.100)	0.029 (0.042)	0.025 (0.043)	0.031 (0.042)	0.033 (0.043)	0.053 (0.043)	0.049 (0.041)
Legacy certification	-0.026 (0.017)	-0.030 (0.019)	-0.033 (0.019)	-0.055 (0.032)	-0.055 (0.032)	-0.059 (0.032)	-0.048 (0.029)	-0.056 (0.031)	-0.047 (0.030)	-0.038 (0.053)	-0.039 (0.055)	-0.045 (0.050)
Standard certification	-0.025 (0.030)	-0.011 (0.029)	-0.019 (0.030)	-0.013 (0.026)	-0.005 (0.025)	0.001 (0.026)	0.030 (0.023)	0.029 (0.023)	0.033 (0.023)	0.036 (0.027)	0.039 (0.026)	0.038 (0.027)
First-year teacher	-0.275*** (0.081)	-0.313*** (0.083)	-0.295*** (0.080)	-0.130* (0.064)	-0.120 (0.064)	-0.122 (0.069)	0.040 (0.044)	0.033 (0.042)	0.047 (0.043)	-0.106** (0.039)	-0.101** (0.039)	-0.082* (0.038)
1-3 years teaching experience	0.038 (0.038)	0.029 (0.038)	0.044 (0.038)	0.018 (0.031)	0.019 (0.031)	0.023 (0.032)	-0.022 (0.020)	-0.020 (0.021)	-0.022 (0.021)	0.000 (0.032)	0.002 (0.031)	0.004 (0.032)
<i>School organizational conditions</i>												
Improvement goal buy-in	-0.036*** (0.009)			-0.069*** (0.010)			-0.055*** (0.009)			-0.044*** (0.010)		
Positive school climate		-0.056*** (0.010)			-0.069*** (0.011)			-0.056*** (0.010)			-0.069*** (0.010)	
Effective school leadership			-0.051*** (0.011)			-0.068*** (0.011)			-0.061*** (0.010)			-0.076*** (0.011)
Constant	0.120 (0.098)	0.231* (0.107)	0.084 (0.096)	0.090 (0.100)	0.203* (0.103)	0.070 (0.100)	0.149 (0.096)	0.182 (0.097)	0.121 (0.092)	-0.071 (0.101)	0.040 (0.096)	-0.067 (0.098)
N	1253	1253	1253	1746	1746	1746	1864	1864	1864	1329	1329	1329
R ²	0.090	0.110	0.107	0.068	0.070	0.071	0.052	0.049	0.061	0.048	0.067	0.083
Adj R ²	0.075	0.094	0.091	0.057	0.059	0.060	0.041	0.038	0.050	0.033	0.052	0.068

Note: Estimates from weighted linear probability models predicting intent to transfer. No school fixed effects. All models include controls for intent to leave education or retire so that reference category is intent to stay in school. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table E-6. Predictors of Intent to Leave Education or Retire, by Year

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	2018-19			2019-20			2020-21			2021-22		
<i>Student demographics</i>												
Economically disadvantaged	-0.050 (0.078)	-0.093 (0.080)	-0.050 (0.078)	0.056 (0.053)	0.032 (0.053)	0.056 (0.055)	0.033 (0.064)	0.021 (0.064)	0.038 (0.064)	-0.009 (0.081)	-0.047 (0.087)	-0.006 (0.085)
English learner	0.101 (0.066)	0.132* (0.062)	0.102 (0.066)	0.118 (0.104)	0.152 (0.105)	0.138 (0.104)	-0.120 (0.091)	-0.114 (0.093)	-0.115 (0.095)	-0.078 (0.116)	-0.066 (0.115)	-0.099 (0.116)
Special education	0.046 (0.046)	0.043 (0.045)	0.051 (0.045)	0.000 (0.049)	-0.002 (0.048)	0.002 (0.049)	-0.032 (0.030)	-0.037 (0.030)	-0.035 (0.031)	0.141 (0.129)	0.137 (0.137)	0.146 (0.138)
Black	0.022 (0.052)	0.028 (0.052)	0.025 (0.051)	-0.048 (0.047)	-0.045 (0.046)	-0.042 (0.047)	0.081* (0.038)	0.080* (0.039)	0.085* (0.039)	-0.040 (0.065)	-0.040 (0.067)	-0.042 (0.066)
Hispanic or Latino/a/x	-0.061 (0.098)	-0.065 (0.094)	-0.054 (0.096)	-0.140 (0.107)	-0.152 (0.109)	-0.149 (0.108)	0.161 (0.088)	0.160 (0.090)	0.161 (0.092)	0.066 (0.138)	0.071 (0.138)	0.083 (0.139)
Asian, Pacific Islander, 2+ races, Other	0.041 (0.131)	0.062 (0.130)	0.030 (0.129)	-0.321** (0.106)	-0.328** (0.106)	-0.328** (0.107)	0.505*** (0.135)	0.516*** (0.141)	0.509*** (0.142)	-0.102 (0.187)	-0.090 (0.185)	-0.120 (0.186)
Enrollment (logged)	0.007 (0.011)	0.001 (0.010)	0.007 (0.011)	-0.019* (0.008)	-0.021* (0.008)	-0.018* (0.009)	-0.006 (0.006)	-0.006 (0.006)	-0.004 (0.006)	0.011 (0.009)	0.008 (0.008)	0.013 (0.009)
<i>Teacher characteristics</i>												
Black	-0.018 (0.016)	-0.006 (0.018)	-0.013 (0.017)	0.008 (0.017)	0.006 (0.017)	0.005 (0.017)	0.018 (0.014)	0.018 (0.014)	0.020 (0.014)	0.016 (0.018)	0.019 (0.018)	0.014 (0.018)
Hispanic or Latino/a/x	0.000 (0.043)	-0.001 (0.042)	-0.004 (0.043)	-0.032 (0.025)	-0.036 (0.026)	-0.032 (0.026)	-0.008 (0.023)	-0.013 (0.023)	-0.010 (0.023)	0.004 (0.042)	0.006 (0.042)	0.002 (0.042)
Asian, Pacific Islander, 2+ races, Other	-0.011 (0.033)	-0.007 (0.033)	-0.011 (0.033)	-0.026 (0.021)	-0.021 (0.021)	-0.027 (0.022)	-0.008 (0.033)	-0.001 (0.034)	-0.000 (0.034)	0.029 (0.048)	0.034 (0.051)	0.038 (0.050)
Male	0.019 (0.020)	0.016 (0.020)	0.020 (0.020)	-0.013 (0.014)	-0.015 (0.014)	-0.012 (0.014)	-0.014 (0.014)	-0.019 (0.014)	-0.012 (0.014)	-0.028 (0.019)	-0.037 (0.020)	-0.028 (0.020)
Age <30	0.018 (0.031)	0.013 (0.030)	0.013 (0.031)	0.016 (0.025)	0.007 (0.024)	0.007 (0.024)	0.044 (0.023)	0.043 (0.023)	0.040 (0.023)	0.015 (0.033)	0.011 (0.033)	0.012 (0.033)
Age 46-54	0.009 (0.012)	0.014 (0.013)	0.010 (0.012)	0.020 (0.012)	0.021 (0.012)	0.022 (0.012)	0.022 (0.013)	0.023 (0.013)	0.019 (0.013)	-0.008 (0.020)	-0.006 (0.021)	-0.008 (0.021)
Age 55-59	0.076** (0.025)	0.078** (0.024)	0.073** (0.024)	0.083*** (0.025)	0.085*** (0.025)	0.083** (0.025)	0.084*** (0.023)	0.082*** (0.023)	0.081*** (0.023)	-0.008 (0.023)	-0.010 (0.023)	-0.012 (0.023)
Age 60+	0.102** (0.033)	0.109** (0.034)	0.103** (0.033)	0.085** (0.030)	0.084** (0.030)	0.086** (0.030)	0.140*** (0.030)	0.142*** (0.031)	0.136*** (0.031)	0.091* (0.040)	0.092* (0.040)	0.091* (0.040)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	2018-19			2019-20			2020-21			2021-22		
<i>Teacher certification</i>												
Interim or temporary certification	0.055 (0.105)	0.052 (0.101)	0.071 (0.104)	0.029 (0.056)	0.031 (0.057)	0.044 (0.057)	-0.001 (0.026)	-0.003 (0.026)	0.000 (0.025)	0.006 (0.040)	0.019 (0.041)	0.015 (0.041)
Legacy certification	0.025 (0.045)	0.023 (0.045)	0.023 (0.044)	0.010 (0.055)	0.011 (0.057)	0.010 (0.056)	0.044 (0.056)	0.040 (0.056)	0.045 (0.056)	0.008 (0.064)	0.006 (0.064)	0.003 (0.064)
Standard certification	-0.014 (0.017)	-0.008 (0.017)	-0.012 (0.017)	-0.023 (0.015)	-0.020 (0.016)	-0.018 (0.016)	0.003 (0.014)	0.004 (0.014)	0.006 (0.014)	-0.040* (0.019)	-0.035 (0.019)	-0.035 (0.019)
First-year teacher	0.337 (0.329)	0.322 (0.324)	0.331 (0.330)	-0.054** (0.017)	-0.052** (0.017)	-0.052** (0.017)	-0.021 (0.022)	-0.025 (0.022)	-0.019 (0.022)	-0.018 (0.032)	-0.012 (0.034)	-0.005 (0.034)
1-3 years teaching experience	0.010 (0.032)	0.005 (0.030)	0.012 (0.032)	0.027 (0.023)	0.027 (0.023)	0.029 (0.022)	-0.016 (0.016)	-0.015 (0.016)	-0.016 (0.016)	-0.013 (0.022)	-0.011 (0.023)	-0.010 (0.022)
<i>School organizational conditions</i>												
Improvement goal buy-in	-0.010 (0.006)			-0.033*** (0.008)			-0.033*** (0.007)			-0.044*** (0.009)		
Positive school climate		-0.028** (0.008)			-0.022*** (0.006)			-0.028*** (0.007)			-0.038*** (0.009)	
Effective school leadership			-0.017** (0.006)			-0.024*** (0.007)			-0.025*** (0.007)			-0.028** (0.009)
Constant	-0.005 (0.111)	0.055 (0.108)	-0.016 (0.112)	0.173* (0.079)	0.199* (0.078)	0.158 (0.080)	-0.049 (0.051)	-0.038 (0.054)	-0.070 (0.053)	0.045 (0.064)	0.095 (0.069)	0.030 (0.068)
N	1253	1253	1253	1746	1746	1746	1864	1864	1864	1329	1329	1329
R ²	0.043	0.055	0.047	0.045	0.038	0.039	0.068	0.061	0.061	0.054	0.044	0.037
Adj R ²	0.027	0.039	0.031	0.033	0.026	0.027	0.057	0.050	0.050	0.039	0.028	0.022

Note: Estimates from weighted linear probability models predicting intent to leave education or retire. No school fixed effects. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

F. Regression Tables from Models Predicting Actual Turnover Behavior

Table F-1. Predictors of Actually Leaving School (Any Pathway Out)

	(1)	(2)	(3)	(4)	(5)
<i>Student demographics</i>					
Economically disadvantaged	0.127* (0.058)	0.117* (0.057)	0.111 (0.057)	0.079 (0.059)	0.110 (0.057)
English learner	0.139 (0.108)	0.156 (0.105)	0.156 (0.105)	0.182 (0.103)	0.161 (0.104)
Special education	-0.026 (0.038)	-0.012 (0.037)	-0.016 (0.036)	-0.019 (0.036)	-0.014 (0.036)
Black	-0.124* (0.056)	-0.096 (0.053)	-0.098 (0.053)	-0.094 (0.053)	-0.092 (0.052)
Hispanic or Latinx	-0.228* (0.114)	-0.234* (0.111)	-0.240* (0.111)	-0.246* (0.110)	-0.238* (0.109)
Asian, Pacific Islander, 2+ races, Other	-0.274 (0.167)	-0.275 (0.162)	-0.275 (0.163)	-0.264 (0.159)	-0.283 (0.158)
Enrollment (logged)	-0.020 (0.010)	-0.019 (0.010)	-0.021* (0.011)	-0.024* (0.011)	-0.020 (0.010)
<i>Teacher characteristics</i>					
Black		-0.021 (0.014)	-0.016 (0.013)	-0.012 (0.014)	-0.014 (0.013)
Hispanic or Latinx		0.025 (0.035)	0.031 (0.034)	0.028 (0.034)	0.030 (0.034)
Asian, Pacific Islander, 2+ races, Other		-0.035 (0.021)	-0.037 (0.021)	-0.032 (0.021)	-0.033 (0.021)
Male		0.007 (0.013)	0.007 (0.013)	0.003 (0.013)	0.009 (0.013)
Age <30		0.026 (0.030)	0.028 (0.029)	0.024 (0.030)	0.023 (0.030)
Age 46-54		-0.019 (0.013)	-0.017 (0.013)	-0.015 (0.013)	-0.017 (0.013)
Age 55-59		-0.019 (0.015)	-0.016 (0.015)	-0.016 (0.015)	-0.018 (0.015)
Age 60+		-0.002 (0.020)	0.003 (0.020)	0.006 (0.020)	0.004 (0.020)

	(1)	(2)	(3)	(4)	(5)
<i>Teacher certification</i>					
Interim or temporary certification		0.052 (0.038)	0.048 (0.037)	0.052 (0.038)	0.055 (0.038)
Legacy certification		-0.035 (0.023)	-0.034 (0.023)	-0.036 (0.023)	-0.037 (0.023)
Standard certification		0.011 (0.015)	0.007 (0.015)	0.010 (0.014)	0.010 (0.015)
First-year teacher		0.023 (0.036)	0.022 (0.035)	0.023 (0.035)	0.029 (0.036)
1-3 years teaching experience		0.023 (0.021)	0.021 (0.020)	0.021 (0.020)	0.023 (0.020)
<i>School organizational conditions</i>					
Improvement goal buy-in			-0.028*** (0.006)		
Positive school climate				-0.031*** (0.006)	
Effective school leadership					-0.028*** (0.006)
Constant	0.285** (0.097)	0.279** (0.096)	0.297** (0.098)	0.336*** (0.101)	0.282** (0.095)
N	6192	6192	6192	6192	6192
R ²	0.013	0.021	0.027	0.028	0.027
Adj R ²	0.011	0.017	0.024	0.024	0.023

Note: Estimates from weighted linear probability models predicting actually leaving school (any pathway out). All models include year fixed effects. No school fixed effects. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table F-2. Predictors of Transfer

	(1)	(2)	(3)	(4)	(5)
<i>Student demographics</i>					
Economically disadvantaged	0.137** (0.045)	0.121** (0.043)	0.117** (0.043)	0.097* (0.045)	0.116** (0.043)
English learner	0.108 (0.103)	0.131 (0.100)	0.131 (0.100)	0.148 (0.100)	0.135 (0.099)
Special education	-0.034 (0.035)	-0.016 (0.034)	-0.018 (0.034)	-0.020 (0.034)	-0.017 (0.033)
Black	-0.123* (0.053)	-0.087 (0.051)	-0.089 (0.051)	-0.086 (0.050)	-0.084 (0.050)

	(1)	(2)	(3)	(4)	(5)
Hispanic or Latinx	-0.199 (0.110)	-0.200 (0.106)	-0.205 (0.106)	-0.208 (0.106)	-0.203 (0.104)
Asian, Pacific Islander, 2+ races, Other	-0.322* (0.153)	-0.331* (0.147)	-0.331* (0.147)	-0.324* (0.145)	-0.338* (0.143)
Enrollment (logged)	-0.021* (0.009)	-0.020* (0.009)	-0.022* (0.009)	-0.024** (0.009)	-0.021* (0.009)

Teacher characteristics

Black		-0.028* (0.012)	-0.024* (0.012)	-0.022 (0.012)	-0.023 (0.012)
Hispanic or Latinx		0.007 (0.032)	0.011 (0.031)	0.009 (0.031)	0.011 (0.032)
Asian, Pacific Islander, 2+ races, Other		-0.030 (0.018)	-0.032 (0.018)	-0.028 (0.018)	-0.029 (0.018)
Male		0.004 (0.011)	0.004 (0.011)	0.001 (0.011)	0.005 (0.011)
Age <30		0.024 (0.028)	0.025 (0.028)	0.022 (0.028)	0.022 (0.028)
Age 46-54		-0.020 (0.011)	-0.019 (0.011)	-0.017 (0.011)	-0.019 (0.011)
Age 55-59		-0.016 (0.013)	-0.014 (0.013)	-0.013 (0.013)	-0.015 (0.013)
Age 60+		-0.029 (0.015)	-0.026 (0.015)	-0.024 (0.015)	-0.025 (0.015)

Teacher certification

Interim or temporary certification		0.081* (0.036)	0.078* (0.036)	0.081* (0.036)	0.084* (0.036)
Legacy certification		-0.043** (0.016)	-0.042** (0.016)	-0.044** (0.016)	-0.045** (0.016)
Standard certification		0.023 (0.013)	0.020 (0.013)	0.022 (0.013)	0.022 (0.013)
First-year teacher		0.003 (0.029)	0.002 (0.029)	0.003 (0.029)	0.008 (0.029)
1-3 years teaching experience		0.005 (0.018)	0.004 (0.018)	0.004 (0.018)	0.005 (0.018)

School organizational conditions

	(1)	(2)	(3)	(4)	(5)
Improvement goal buy-in			-0.020*** (0.005)		
Positive school climate				-0.020*** (0.005)	
Effective school leadership					-0.022*** (0.005)
Constant	0.240** (0.086)	0.239** (0.084)	0.252** (0.086)	0.276** (0.087)	0.241** (0.084)
N	6192	6192	6192	6192	6192
R ²	0.011	0.024	0.029	0.029	0.030
Adj R ²	0.009	0.021	0.025	0.025	0.026

Note: Estimates from weighted linear probability models predicting actually transferring. All models include year fixed effects and controls for leaving Michigan education or moving to a non-teaching role outside of the school so that the reference category is staying in school. No school fixed effects. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table F-3. Predictors of Leaving Michigan Public Education

	(1)	(2)	(3)	(4)	(5)
<i>Student demographics</i>					
Economically disadvantaged	-0.007 (0.021)	-0.008 (0.021)	-0.010 (0.021)	-0.020 (0.022)	-0.010 (0.021)
English learner	0.009 (0.037)	0.012 (0.037)	0.012 (0.037)	0.019 (0.037)	0.013 (0.037)
Special education	-0.001 (0.010)	-0.004 (0.010)	-0.005 (0.010)	-0.006 (0.011)	-0.004 (0.010)
Black	0.004 (0.017)	0.006 (0.017)	0.006 (0.017)	0.007 (0.017)	0.007 (0.017)
Hispanic or Latinx	0.006 (0.044)	-0.000 (0.043)	-0.002 (0.043)	-0.004 (0.043)	-0.001 (0.044)
Asian, Pacific Islander, 2+ races, Other	0.017 (0.049)	0.019 (0.050)	0.019 (0.051)	0.022 (0.051)	0.017 (0.051)
Enrollment (logged)	0.003 (0.003)	0.004 (0.003)	0.003 (0.003)	0.002 (0.003)	0.004 (0.003)
<i>Teacher characteristics</i>					
Black		-0.007 (0.005)	-0.006 (0.005)	-0.004 (0.005)	-0.006 (0.005)
Hispanic or Latinx		0.008 (0.016)	0.009 (0.016)	0.009 (0.016)	0.009 (0.016)
Asian, Pacific Islander, 2+ races, Other		-0.016 (0.009)	-0.016 (0.009)	-0.015 (0.009)	-0.015 (0.009)

	(1)	(2)	(3)	(4)	(5)
Male		0.002 (0.007)	0.002 (0.007)	0.001 (0.007)	0.002 (0.007)
Age <30		0.012 (0.011)	0.013 (0.011)	0.011 (0.011)	0.012 (0.011)
Age 46-54		0.000 (0.005)	0.000 (0.005)	0.001 (0.005)	0.000 (0.005)
Age 55-59		0.008 (0.008)	0.009 (0.008)	0.010 (0.008)	0.009 (0.008)
Age 60+		0.037*** (0.011)	0.039*** (0.011)	0.040*** (0.011)	0.039*** (0.011)
<i>Teacher certification</i>					
Interim or temporary certification		-0.006 (0.014)	-0.007 (0.014)	-0.006 (0.014)	-0.006 (0.014)
Legacy certification		0.004 (0.016)	0.004 (0.016)	0.004 (0.016)	0.004 (0.016)
Standard certification		-0.010 (0.007)	-0.011 (0.007)	-0.011 (0.007)	-0.010 (0.007)
First-year teacher		0.008 (0.015)	0.008 (0.015)	0.008 (0.015)	0.010 (0.015)
1-3 years teaching experience		0.012 (0.008)	0.012 (0.008)	0.012 (0.008)	0.013 (0.008)
<i>School organizational conditions</i>					
Improvement goal buy-in			-0.008* (0.003)		
Positive school climate				-0.009*** (0.003)	
Effective school leadership					-0.006* (0.003)
Constant	0.004 (0.022)	-0.004 (0.023)	0.001 (0.023)	0.013 (0.023)	-0.004 (0.023)
N	6192	6192	6192	6192	6192
R ²	0.004	0.012	0.015	0.016	0.014
Adj R ²	0.003	0.009	0.011	0.012	0.010

Note: Estimates from weighted linear probability models predicting actually leaving Michigan public education. All models include year fixed effects. No school fixed effects. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table F-4. Predictors of Actually Leaving School (Any Pathway Out), by Year

	(1) 2018-19	(2)	(3)	(4) 2019-20	(5)	(6)	(7) 2020-21	(8)	(9)	(10) 2021-22	(11)	(12)
<i>Student demographics</i>												
Economically disadvantaged	0.094 (0.122)	0.081 (0.122)	0.090 (0.121)	0.074 (0.095)	0.032 (0.094)	0.073 (0.093)	0.087 (0.082)	0.075 (0.085)	0.091 (0.080)	0.150 (0.110)	0.089 (0.114)	0.138 (0.114)
English learner	-0.046 (0.195)	-0.036 (0.194)	-0.043 (0.196)	0.181 (0.173)	0.221 (0.170)	0.195 (0.171)	0.331* (0.154)	0.338* (0.154)	0.336* (0.152)	0.150 (0.188)	0.182 (0.190)	0.142 (0.191)
Special education	-0.044 (0.058)	-0.042 (0.058)	-0.040 (0.058)	0.013 (0.059)	0.004 (0.061)	0.013 (0.058)	0.043 (0.067)	0.038 (0.068)	0.037 (0.067)	-0.057 (0.074)	-0.064 (0.074)	-0.052 (0.074)
Black	-0.002 (0.108)	0.007 (0.109)	0.006 (0.109)	-0.233* (0.105)	-0.232* (0.105)	-0.229* (0.104)	-0.102 (0.085)	-0.103 (0.084)	-0.095 (0.084)	-0.070 (0.126)	-0.068 (0.122)	-0.070 (0.127)
Hispanic or Latino/a/x	0.084 (0.186)	0.089 (0.188)	0.091 (0.189)	-0.359 (0.216)	-0.375 (0.215)	-0.366 (0.213)	-0.391* (0.182)	-0.392* (0.181)	-0.392* (0.180)	-0.247 (0.234)	-0.257 (0.236)	-0.246 (0.240)
Asian, Pacific Islander, 2+ races, Other	-0.111 (0.269)	-0.104 (0.269)	-0.110 (0.268)	-0.449 (0.295)	-0.456 (0.293)	-0.454 (0.291)	-0.141 (0.256)	-0.130 (0.252)	-0.137 (0.250)	-0.400 (0.354)	-0.385 (0.345)	-0.432 (0.353)
Enrollment (logged)	-0.012 (0.016)	-0.013 (0.016)	-0.011 (0.016)	-0.016 (0.014)	-0.021 (0.014)	-0.015 (0.014)	-0.029* (0.014)	-0.029* (0.014)	-0.027* (0.013)	-0.025 (0.025)	-0.030 (0.025)	-0.024 (0.025)
<i>Teacher characteristics</i>												
Black	-0.002 (0.031)	-0.002 (0.032)	-0.005 (0.031)	-0.014 (0.019)	-0.009 (0.019)	-0.014 (0.019)	-0.006 (0.021)	-0.007 (0.021)	-0.003 (0.020)	-0.030 (0.029)	-0.023 (0.029)	-0.027 (0.030)
Hispanic or Latino/a/x	0.063 (0.125)	0.059 (0.125)	0.059 (0.126)	-0.027 (0.049)	-0.029 (0.049)	-0.026 (0.049)	-0.033 (0.045)	-0.039 (0.045)	-0.032 (0.045)	0.081 (0.063)	0.087 (0.063)	0.084 (0.062)
Asian, Pacific Islander, 2+ races, Other	0.001 (0.056)	0.001 (0.056)	0.000 (0.055)	-0.018 (0.036)	-0.014 (0.037)	-0.020 (0.037)	-0.026 (0.040)	-0.019 (0.040)	-0.016 (0.039)	-0.097* (0.042)	-0.092* (0.044)	-0.084* (0.042)
Male	-0.018 (0.025)	-0.018 (0.025)	-0.017 (0.025)	0.010 (0.021)	0.006 (0.021)	0.011 (0.021)	0.016 (0.023)	0.011 (0.024)	0.019 (0.023)	0.010 (0.030)	-0.001 (0.030)	0.012 (0.030)
Age <30	0.039 (0.072)	0.037 (0.072)	0.038 (0.072)	0.024 (0.044)	0.017 (0.044)	0.018 (0.044)	0.032 (0.045)	0.030 (0.044)	0.027 (0.044)	-0.008 (0.048)	-0.014 (0.048)	-0.012 (0.048)
Age 46-54	-0.058* (0.028)	-0.057* (0.028)	-0.058* (0.028)	0.023 (0.021)	0.026 (0.021)	0.025 (0.021)	0.007 (0.022)	0.007 (0.022)	0.003 (0.022)	-0.048 (0.034)	-0.044 (0.034)	-0.046 (0.034)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	2018-19			2019-20			2020-21			2021-22		
Age 55-59	-0.001 (0.037)	-0.000 (0.037)	-0.001 (0.037)	0.024 (0.027)	0.028 (0.027)	0.024 (0.027)	-0.017 (0.025)	-0.019 (0.025)	-0.020 (0.025)	-0.058 (0.037)	-0.057 (0.037)	-0.059 (0.036)
Age 60+	0.021 (0.048)	0.019 (0.048)	0.017 (0.048)	0.038 (0.027)	0.040 (0.027)	0.039 (0.028)	0.016 (0.031)	0.018 (0.031)	0.014 (0.031)	-0.061 (0.045)	-0.057 (0.045)	-0.057 (0.045)
<i>Teacher certification</i>												
Interim or temporary certification	0.611*** (0.159)	0.617*** (0.159)	0.619*** (0.159)	-0.032 (0.064)	-0.040 (0.066)	-0.023 (0.065)	-0.077 (0.045)	-0.078 (0.046)	-0.075 (0.044)	0.084 (0.064)	0.099 (0.066)	0.094 (0.066)
Legacy certification	-0.044 (0.045)	-0.045 (0.044)	-0.045 (0.044)	-0.016 (0.041)	-0.017 (0.041)	-0.017 (0.041)	-0.025 (0.040)	-0.029 (0.041)	-0.025 (0.039)	-0.071 (0.059)	-0.072 (0.060)	-0.077 (0.060)
Standard certification	0.017 (0.040)	0.020 (0.041)	0.018 (0.041)	-0.006 (0.023)	-0.004 (0.023)	-0.003 (0.023)	0.009 (0.025)	0.010 (0.025)	0.011 (0.025)	0.005 (0.030)	0.009 (0.030)	0.008 (0.030)
First-year teacher	-0.231** (0.076)	-0.240** (0.076)	-0.237** (0.076)	-0.006 (0.068)	-0.000 (0.069)	-0.004 (0.068)	0.113* (0.054)	0.108* (0.054)	0.117* (0.054)	-0.031 (0.058)	-0.027 (0.059)	-0.015 (0.058)
1-3 years teaching experience	-0.025 (0.051)	-0.025 (0.051)	-0.023 (0.052)	0.053 (0.037)	0.053 (0.037)	0.055 (0.038)	0.069 (0.040)	0.070 (0.040)	0.069 (0.040)	-0.020 (0.039)	-0.019 (0.039)	-0.018 (0.039)
<i>School organizational conditions</i>												
Improvement goal buy-in	-0.014 (0.012)			-0.020* (0.008)			-0.035*** (0.010)			-0.036** (0.012)		
Positive school climate		-0.006 (0.011)			-0.031*** (0.009)			-0.028** (0.011)			-0.051*** (0.012)	
Effective school leadership			-0.001 (0.011)			-0.018* (0.008)			-0.038*** (0.011)			-0.048*** (0.013)
Constant	0.170 (0.122)	0.177 (0.123)	0.161 (0.124)	0.321* (0.139)	0.383** (0.142)	0.315* (0.137)	0.298* (0.134)	0.308* (0.138)	0.280* (0.130)	0.339 (0.188)	0.420* (0.194)	0.336 (0.189)
N	1253	1253	1253	1746	1746	1746	1864	1864	1864	1329	1329	1329
R ²	0.052	0.051	0.051	0.023	0.029	0.023	0.041	0.037	0.044	0.033	0.039	0.038
Adj R ²	0.036	0.035	0.035	0.011	0.017	0.011	0.030	0.026	0.033	0.017	0.024	0.023

Note: Estimates from weighted linear probability models predicting actually leaving school for any pathway out. No school fixed effects. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table F-5. Predictors of Transfer, by Year

	(1) 2018-19	(2)	(3)	(4) 2019-20	(5)	(6)	(7) 2020-21	(8)	(9)	(10) 2021-22	(11)	(12)
<i>Student demographics</i>												
Economically disadvantaged	0.093 (0.097)	0.082 (0.098)	0.088 (0.098)	0.143 (0.082)	0.112 (0.080)	0.142 (0.080)	0.035 (0.065)	0.028 (0.067)	0.036 (0.064)	0.194** (0.072)	0.155* (0.075)	0.185* (0.074)
English learner	-0.067 (0.187)	-0.058 (0.188)	-0.062 (0.188)	0.117 (0.144)	0.147 (0.141)	0.127 (0.142)	0.275 (0.151)	0.279 (0.150)	0.278 (0.148)	0.129 (0.161)	0.150 (0.162)	0.125 (0.160)
Special education	-0.073 (0.040)	-0.068 (0.041)	-0.066 (0.041)	0.047 (0.058)	0.040 (0.059)	0.047 (0.057)	0.050 (0.053)	0.047 (0.054)	0.044 (0.053)	-0.086 (0.060)	-0.090 (0.058)	-0.083 (0.058)
Black	-0.031 (0.091)	-0.018 (0.093)	-0.019 (0.092)	-0.210* (0.096)	-0.210* (0.096)	-0.207* (0.095)	-0.108 (0.081)	-0.109 (0.081)	-0.101 (0.081)	0.038 (0.092)	0.039 (0.091)	0.038 (0.090)
Hispanic or Latino/a/x	0.069 (0.164)	0.079 (0.167)	0.080 (0.167)	-0.307 (0.192)	-0.319 (0.191)	-0.312 (0.190)	-0.351 (0.181)	-0.351 (0.180)	-0.351 (0.179)	-0.080 (0.179)	-0.087 (0.181)	-0.081 (0.178)
Asian, Pacific Islander, 2+ races, Other	-0.293 (0.238)	-0.287 (0.241)	-0.294 (0.239)	-0.398 (0.273)	-0.403 (0.274)	-0.401 (0.270)	-0.301 (0.249)	-0.294 (0.246)	-0.299 (0.244)	-0.142 (0.281)	-0.133 (0.274)	-0.162 (0.277)
Enrollment (logged)	-0.019 (0.013)	-0.019 (0.014)	-0.018 (0.013)	-0.014 (0.013)	-0.018 (0.012)	-0.014 (0.012)	-0.019 (0.012)	-0.019 (0.012)	-0.018 (0.011)	-0.036 (0.023)	-0.039 (0.022)	-0.035 (0.022)
<i>Teacher characteristics</i>												
Black	0.015 (0.024)	0.011 (0.025)	0.013 (0.025)	-0.021 (0.016)	-0.017 (0.016)	-0.021 (0.016)	-0.028 (0.018)	-0.028 (0.018)	-0.023 (0.017)	-0.040 (0.026)	-0.036 (0.026)	-0.038 (0.026)
Hispanic or Latino/a/x	0.056 (0.109)	0.049 (0.109)	0.049 (0.110)	-0.014 (0.041)	-0.016 (0.041)	-0.013 (0.040)	-0.022 (0.043)	-0.025 (0.043)	-0.018 (0.043)	0.014 (0.054)	0.018 (0.055)	0.016 (0.055)
Asian, Pacific Islander, 2+ races, Other	0.001 (0.037)	0.001 (0.037)	0.000 (0.037)	-0.035 (0.025)	-0.032 (0.025)	-0.036 (0.026)	-0.013 (0.037)	-0.009 (0.037)	-0.005 (0.035)	-0.067 (0.039)	-0.064 (0.040)	-0.059 (0.039)
Male	-0.019 (0.022)	-0.018 (0.022)	-0.017 (0.022)	0.010 (0.019)	0.007 (0.019)	0.011 (0.018)	0.009 (0.020)	0.006 (0.021)	0.012 (0.020)	0.009 (0.026)	0.003 (0.027)	0.010 (0.026)
Age <30	0.044 (0.074)	0.042 (0.075)	0.041 (0.075)	0.017 (0.038)	0.012 (0.038)	0.013 (0.038)	0.017 (0.043)	0.016 (0.043)	0.014 (0.043)	0.008 (0.044)	0.004 (0.044)	0.005 (0.044)
Age 46-54	-0.064** (0.023)	-0.064** (0.023)	-0.064** (0.023)	-0.000 (0.019)	0.002 (0.019)	0.001 (0.019)	0.012 (0.019)	0.012 (0.018)	0.009 (0.019)	-0.031 (0.026)	-0.029 (0.026)	-0.030 (0.027)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	2018-19			2019-20			2020-21			2021-22		
Age 55-59	-0.047 (0.030)	-0.047 (0.030)	-0.048 (0.029)	-0.006 (0.022)	-0.002 (0.023)	-0.006 (0.022)	-0.006 (0.021)	-0.007 (0.021)	-0.007 (0.021)	-0.000 (0.032)	0.000 (0.032)	-0.000 (0.032)
Age 60+	-0.065* (0.029)	-0.069* (0.029)	-0.069* (0.029)	-0.015 (0.021)	-0.013 (0.021)	-0.013 (0.021)	0.002 (0.025)	0.003 (0.025)	0.002 (0.025)	-0.032 (0.038)	-0.030 (0.038)	-0.030 (0.038)
<i>Teacher certification</i>												
Interim or temporary certification	0.489** (0.170)	0.500** (0.170)	0.506** (0.170)	-0.047 (0.045)	-0.054 (0.047)	-0.041 (0.045)	-0.026 (0.041)	-0.027 (0.041)	-0.025 (0.040)	0.128* (0.060)	0.137* (0.061)	0.135* (0.061)
Legacy certification	-0.043* (0.022)	-0.045* (0.022)	-0.045* (0.022)	-0.045* (0.020)	-0.045* (0.020)	-0.045* (0.020)	-0.036 (0.026)	-0.039 (0.025)	-0.036 (0.026)	-0.024 (0.055)	-0.025 (0.055)	-0.027 (0.056)
Standard certification	0.003 (0.032)	0.007 (0.032)	0.006 (0.032)	0.013 (0.019)	0.015 (0.019)	0.016 (0.019)	0.026 (0.022)	0.027 (0.022)	0.026 (0.021)	0.031 (0.026)	0.032 (0.026)	0.032 (0.026)
First-year teacher	-0.185* (0.073)	-0.196** (0.073)	-0.195** (0.073)	-0.002 (0.069)	0.003 (0.070)	-0.000 (0.070)	0.069 (0.047)	0.066 (0.047)	0.074 (0.047)	-0.021 (0.049)	-0.019 (0.049)	-0.011 (0.049)
1-3 years teaching experience	-0.008 (0.046)	-0.006 (0.047)	-0.005 (0.047)	0.006 (0.030)	0.005 (0.030)	0.006 (0.030)	0.044 (0.037)	0.045 (0.037)	0.044 (0.036)	-0.019 (0.030)	-0.018 (0.030)	-0.017 (0.030)
<i>School organizational conditions</i>												
Improvement goal buy-in	-0.021* (0.009)			-0.013 (0.007)			-0.022* (0.009)			-0.020* (0.010)		
Positive school climate		-0.003 (0.009)			-0.024** (0.008)			-0.017 (0.010)			-0.032** (0.010)	
Effective school leadership			-0.007 (0.009)			-0.014 (0.007)			-0.034*** (0.010)			-0.030* (0.012)
Constant	0.221 (0.118)	0.216 (0.120)	0.206 (0.118)	0.226 (0.124)	0.275* (0.124)	0.223 (0.123)	0.267* (0.122)	0.272* (0.124)	0.259* (0.118)	0.172 (0.142)	0.223 (0.146)	0.172 (0.142)
N	1253	1253	1253	1746	1746	1746	1864	1864	1864	1329	1329	1329
R ²	0.071	0.067	0.067	0.025	0.031	0.026	0.033	0.030	0.041	0.043	0.047	0.047
Adj R ²	0.055	0.051	0.051	0.013	0.019	0.014	0.022	0.019	0.030	0.028	0.032	0.032

Note: Estimates from weighted linear probability models predicting actual transfer. No school fixed effects. All models include controls for leaving education or moving to a non-teaching role outside of the school so that reference category is staying in school. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table F-6. Predictors of Leaving Michigan Public Education, by Year

	(1) 2018-19	(2)	(3)	(4) 2019-20	(5)	(6)	(7) 2020-21	(8)	(9)	(10) 2021-22	(11)	(12)
<i>Student demographics</i>												
Economically disadvantaged	-0.039 (0.059)	-0.033 (0.060)	-0.037 (0.060)	-0.035 (0.033)	-0.047 (0.034)	-0.035 (0.033)	0.005 (0.027)	0.002 (0.028)	0.007 (0.027)	-0.003 (0.056)	-0.026 (0.056)	-0.006 (0.057)
English learner	0.022 (0.050)	0.018 (0.052)	0.020 (0.051)	0.049 (0.087)	0.061 (0.086)	0.052 (0.086)	0.023 (0.059)	0.025 (0.059)	0.025 (0.060)	-0.020 (0.095)	-0.009 (0.097)	-0.025 (0.098)
Special education	0.000 (0.024)	-0.003 (0.024)	-0.004 (0.024)	-0.020 (0.012)	-0.022 (0.012)	-0.019 (0.012)	-0.006 (0.009)	-0.008 (0.009)	-0.007 (0.010)	0.014 (0.026)	0.012 (0.024)	0.016 (0.024)
Black	0.012 (0.054)	0.005 (0.055)	0.006 (0.054)	0.011 (0.032)	0.011 (0.032)	0.012 (0.032)	-0.001 (0.020)	-0.001 (0.020)	0.000 (0.020)	-0.001 (0.050)	-0.000 (0.050)	-0.001 (0.052)
Hispanic or Latino/a/x	0.011 (0.079)	0.005 (0.081)	0.004 (0.081)	-0.003 (0.093)	-0.008 (0.092)	-0.005 (0.093)	-0.013 (0.053)	-0.014 (0.053)	-0.014 (0.053)	-0.015 (0.124)	-0.017 (0.125)	-0.012 (0.128)
Asian, Pacific Islander, 2+ races, Other	0.007 (0.134)	0.003 (0.137)	0.010 (0.136)	0.009 (0.075)	0.007 (0.074)	0.008 (0.076)	0.119 (0.073)	0.123 (0.075)	0.121 (0.074)	-0.089 (0.140)	-0.083 (0.142)	-0.100 (0.145)
Enrollment (logged)	0.009 (0.008)	0.008 (0.008)	0.008 (0.008)	0.001 (0.005)	-0.000 (0.005)	0.002 (0.005)	-0.001 (0.004)	-0.001 (0.004)	0.000 (0.004)	0.005 (0.006)	0.003 (0.006)	0.006 (0.006)
<i>Teacher characteristics</i>												
Black	-0.000 (0.015)	0.002 (0.015)	-0.001 (0.015)	-0.005 (0.009)	-0.004 (0.009)	-0.006 (0.009)	0.003 (0.008)	0.003 (0.007)	0.003 (0.007)	-0.019 (0.013)	-0.017 (0.013)	-0.019 (0.013)
Hispanic or Latino/a/x	-0.038** (0.014)	-0.034* (0.014)	-0.033* (0.014)	-0.032* (0.013)	-0.032* (0.013)	-0.032* (0.013)	-0.014* (0.006)	-0.016** (0.005)	-0.016** (0.005)	0.076 (0.050)	0.078 (0.050)	0.077 (0.050)
Asian, Pacific Islander, 2+ races, Other	0.004 (0.028)	0.004 (0.029)	0.004 (0.028)	-0.022*** (0.007)	-0.021** (0.007)	-0.022*** (0.007)	-0.010 (0.016)	-0.008 (0.016)	-0.007 (0.016)	-0.033* (0.015)	-0.031* (0.015)	-0.028* (0.014)
Male	0.019 (0.014)	0.018 (0.013)	0.018 (0.014)	0.005 (0.010)	0.004 (0.010)	0.005 (0.010)	-0.010 (0.006)	-0.011 (0.006)	-0.009 (0.006)	-0.003 (0.018)	-0.007 (0.017)	-0.002 (0.018)
Age <30	0.028 (0.032)	0.029 (0.032)	0.031 (0.032)	0.008 (0.010)	0.006 (0.010)	0.006 (0.010)	0.036* (0.017)	0.036* (0.017)	0.035* (0.017)	-0.020 (0.022)	-0.022 (0.022)	-0.022 (0.022)
Age 46-54	-0.008 (0.006)	-0.008 (0.006)	-0.008 (0.006)	0.014* (0.006)	0.014* (0.006)	0.014* (0.006)	0.001 (0.005)	0.001 (0.005)	-0.000 (0.005)	-0.008 (0.018)	-0.007 (0.018)	-0.008 (0.018)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	2018-19			2019-20			2020-21			2021-22		
Age 55-59	0.037 (0.021)	0.037 (0.021)	0.039 (0.021)	0.035* (0.016)	0.036* (0.016)	0.034* (0.016)	-0.003 (0.008)	-0.004 (0.008)	-0.004 (0.008)	-0.019 (0.016)	-0.019 (0.016)	-0.020 (0.016)
Age 60+	0.065* (0.030)	0.068* (0.030)	0.066* (0.030)	0.049** (0.016)	0.049** (0.016)	0.048** (0.016)	0.029 (0.016)	0.030 (0.016)	0.028 (0.016)	0.011 (0.025)	0.012 (0.025)	0.012 (0.025)
<i>Teacher certification</i>												
Interim or temporary certification	0.128 (0.109)	0.121 (0.109)	0.116 (0.108)	0.035 (0.045)	0.033 (0.045)	0.038 (0.045)	-0.028 (0.015)	-0.028 (0.015)	-0.027 (0.015)	-0.015 (0.025)	-0.009 (0.025)	-0.011 (0.025)
Legacy certification	0.015 (0.037)	0.016 (0.037)	0.016 (0.037)	0.001 (0.029)	0.001 (0.030)	0.001 (0.029)	0.010 (0.029)	0.009 (0.029)	0.010 (0.029)	-0.044** (0.015)	-0.044** (0.016)	-0.046** (0.016)
Standard certification	-0.005 (0.013)	-0.007 (0.013)	-0.007 (0.013)	-0.020* (0.009)	-0.019* (0.009)	-0.019* (0.009)	-0.021* (0.010)	-0.021* (0.010)	-0.020* (0.009)	-0.003 (0.015)	-0.001 (0.015)	-0.002 (0.015)
First-year teacher	-0.024 (0.027)	-0.018 (0.029)	-0.018 (0.028)	-0.007 (0.013)	-0.006 (0.013)	-0.008 (0.013)	0.034 (0.025)	0.032 (0.025)	0.034 (0.025)	-0.009 (0.020)	-0.007 (0.020)	-0.003 (0.020)
1-3 years teaching experience	-0.010 (0.018)	-0.012 (0.019)	-0.012 (0.018)	0.026 (0.019)	0.026 (0.019)	0.027 (0.019)	0.012 (0.012)	0.012 (0.013)	0.012 (0.013)	0.012 (0.022)	0.013 (0.022)	0.013 (0.022)
<i>School organizational conditions</i>												
Improvement goal buy-in	0.012* (0.006)			-0.007 (0.003)			-0.011* (0.005)			-0.016* (0.007)		
Positive school climate		0.002 (0.005)			-0.009* (0.004)			-0.008** (0.003)			-0.020** (0.007)	
Effective school leadership			0.008 (0.005)			-0.003 (0.003)			-0.007 (0.004)			-0.017* (0.007)
Constant	-0.024 (0.049)	-0.020 (0.048)	-0.014 (0.049)	0.017 (0.053)	0.033 (0.053)	0.013 (0.053)	0.012 (0.030)	0.014 (0.032)	0.004 (0.032)	0.033 (0.054)	0.063 (0.054)	0.030 (0.056)
N	1253	1253	1253	1746	1746	1746	1864	1864	1864	1329	1329	1329
R ²	0.053	0.048	0.050	0.031	0.033	0.029	0.030	0.026	0.025	0.023	0.024	0.022
Adj R ²	0.037	0.031	0.034	0.019	0.021	0.017	0.019	0.015	0.014	0.007	0.009	0.007

Note: Estimates from weighted linear probability models predicting actually leaving Michigan public education. No school fixed effects. * $p < 0.05$,

** $p < 0.01$, *** $p < 0.001$