Misalignments Between Student Teaching Placements and Initial Teaching Positions: Implications for the Early-Career Attrition of Special Education Teachers
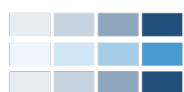
Ben Backes

James Cowan

Dan Goldhaber

Zeyu Jin

Roddy Theobald

February 2024

CALDER
National Center for Analysis of
Longitudinal Data in Education Research

AIR®

Misalignments Between Student Teaching Placements and Initial Teaching Positions: Implications for the Early-Career Attrition of Special Education Teachers

Ben Backes
American Institutes for Research / CALDER

James Cowan
Amercian Institutes for Research / CALDER

Dan Goldhaber
American Institutes for Research / CALDER
University of Washington / CEDR

Zeyu Jin
American Institutes for Research / CALDER

Roddy Theobald
American Institutes for Research / CALDER

Contents

Acknowledgments

Misalignments Between Student Teaching Placements and Initial Teaching Positions: Implications for the Early-Career Attrition of Special Education Teachers
Ben Backes, James Cowan, Dan Goldhaber, Zeyu Jin, & Roddy Theobald
CALDER Working Paper No. 293-0224
February 2024

Abstract

Graduates of special education teacher education programs can teach in a range of special education settings, raising the potential that their training can occur in very different settings than where they find their first jobs. We follow 263 completers of Moderate Disabilities programs in Massachusetts from their field placements to their early-career teaching positions and study the characteristics of their field placements and the degree to which these are aligned with their early-career teaching positions. We also assess the degree to which alignment is associated with early-career teacher turnover. We found that many of these teachers student-taught in an inclusive setting but were hired into a self-contained special education setting and vice versa, and teachers who experienced this misalignment were more likely to leave the workforce early in their careers. Teachers who student taught with a supervising practitioner without a special education license were also more likely to leave early. Findings suggest that teachers training to educate students with learning disabilities should student teach in a setting that is aligned with where they are likely to be hired, and with a supervising practitioner who is trained in special education.

1.   **Introduction**

Debates about the value of inclusive education for students with learning disabilities are a persistent feature of special education policy and practice. Although many analyses have connected education in an inclusive setting to a variety of improved outcomes for students with learning disabilities (e.g., Baer et al., 2003; Hehir et al., 2016; Theobald et al., 2019), other scholars have cast doubt on the robustness of these findings (e.g., D. Fuchs et al., 2023; L. Fuchs et al., 2015; Gilmour, 2018). It is unlikely that another paper, or indeed an entire journal special issue, will resolve these debates.

What might be more possible, however, is to begin to explore the *implications* of trends in inclusive education for policy and practice decisions that need to be made in this evolving environment. Teacher preparation is one policy area that has received very little attention in the inclusion literature despite a fundamental conundrum at the heart of the effort to prepare teachers to educate students with learning disabilities: In an era where special education teachers could be hired into inclusive or self-contained settings, where should they learn to teach?

Teacher preparation policy in Massachusetts, a state that licenses special education teachers through "Moderate Disabilities" and "Severe Disabilities" licensure programs, provides a good example of this issue. The state's Educator Licensure and Preparation Program Approval Regulations require candidates in these two programs to complete field placements in both an "inclusive general education setting" and a "separate or substantially separate setting for students with moderate disabilities." Yet candidates must choose one of these as the field placement in which they complete the required Candidate Assessment of Performance (CAP) (Chen et al., 2023), which is likely the longer of the two placements and the placement in which they receive structured feedback on essential elements of classroom instruction.

In this paper, we use administrative data from Massachusetts to explore the variation in special education field experiences, alignment with early-career teaching placements of special education teachers in the state, and whether these predict early-career teacher turnover. Although we provide descriptive information about teachers from a variety of special education and other licensure programs, we focus primarily on teachers from Moderate Disabilities programs, as they are the primary source of special education teachers in the state. As we show in later sections, there is considerable variation in both the field placements and early-career teaching placement classrooms for graduates of these programs in terms of the inclusion of students with disabilities in these classrooms.

2. Literature Review

This paper seeks to connect special education teachers' field placements—also called student teaching or clinical experiences—and their later decision to remain in the special education teacher workforce. We discuss the prior literature motivating this study, first in terms of studies of field experiences *not specific to special education*; then, with respect to studies of the field experiences of prospective special educators.

Field Placements

During the past several decades, researchers have explored the implications of teacher candidates' field placements for their later workforce outcomes. Although early quantitative work focused primarily on the field placement school (Boyd et al., 2009; Goldhaber et al., 2017; Ronfeldt, 2012, 2015), more recent work has focused on the field placement classroom (e.g., Krieg et al., 2022) and on the supervising practitioner (e.g., Bastian et al., 2022; Goldhaber et al., 2020; Ronfeldt et al., 2018) as predictors of future teacher outcomes. Research has recently validated the importance of supervising practitioners in a series of experimental studies in which candidates have been randomized to more or less effective mentors (Goldhaber, Ronfeldt et al.,

2022; Ronfeldt et al., 2023), showing that candidates randomized to more effective mentors tend to be more instructionally effective and show greater gains over the course of the field placement.

Another emerging theme from the literature on field placements and early-career experience is that the alignment of these experiences can matter for teacher and student outcomes. For example, teachers tend to be more effective when they perceive greater alignment between their field experiences and early-career experiences (Boyd et al., 2009), when the student demographics of their current school are similar to their student teaching school (Goldhaber et al., 2017), and when they are teaching in the same grade or grade level in which they student taught (Krieg et al., 2022). Another finding with relevance to the current study is that the importance of alignment extends to teacher attrition, as teachers who are teaching in the same school level and in schools with similar student demographics as their student teaching school are more likely to stay in the teaching profession (Goldhaber, Krieg et al., 2022).

Special Educator Turnover

Concerns about special education teacher shortages have been pervasive for decades (e.g., Carriker, 1989; Cowan et al., 2016; Mason-Williams et al., 2020). Central to these concerns is empirical evidence about the disproportionate turnover of special education teachers in public schools (Billingsley & Bettini, 2019; Boe et al., 2008; Gilmour et al., 2023), which has implications for the composition (e.g., Billingsley et al., 2019; Scott et al., 2023), distribution (e.g., Bettini et al., 2022; Mason-Williams, 2015), and effectiveness (e.g., McLeskey & Billingsley, 2008; Sindelar et al., 2010) of the special education teacher workforce (Bettini et al., in press).

Two lines of prior research are particularly relevant to the present study. The first examines the association between the proportion of students with disabilities in the classroom, both overall (Gilmour & Wehby, 2020) and by disability category (Gilmour et al., 2022), and turnover. These papers show that teachers in classrooms serving greater proportions of students with disabilities (particularly students with more intensive disabilities) are more likely to leave the workforce, but that these associations are moderated by special education licensure in the sense that these relationships are less strong for teachers with special education certification.

The second focuses on the implications of special education teacher preparation for teacher turnover (e.g., Brownell et al., 2010; Leko et al., 2015). Recent work in this direction has shown that special education program completers are more likely to enter special education teaching positions if they student teach with a supervising practitioner with a special education license but are less likely to stay in these positions if they are dual-licensed in another subject (Theobald et al., 2021).

3. Purpose and Research Questions

Our research builds on this prior literature by focusing on a feature of special education teacher preparation not previously considered: the inclusion of students with disabilities in special education teachers' field placement and current classrooms. Specifically, we followed 263 completers of preservice Moderate Disabilities teacher licensure programs in Massachusetts from their field placements to their early-career teaching positions to study the alignment between their field placement and early-career teaching positions and the implications of this alignment for their early-career attrition. In addition to the inclusion of students with disabilities, we also consider characteristics of the supervising practitioner (e.g., experience and licensure) and other classroom and school characteristics (e.g., student demographics and historical teacher retention rates) to address four research questions (RQs):

RQ1. What are the characteristics of teachers' field placement classrooms and schools?

RQ2. How well aligned are these field placements with their early-career classrooms?

RQ3. To what extent do characteristics of field placement classroom and school and the alignment with early-career classrooms predict teachers' early-career attrition from the state workforce?

RQ4. To what extent do characteristics of field placement classroom and school and the alignment with early-career classrooms predict teachers' early-career mobility between schools?

4.   Method

We use administrative data provided through a data sharing agreement with the Massachusetts Department of Elementary and Secondary Education (DESE). Human subjects approval was provided by the institutional review board at the American Institutes for Research. Below, we review the data, measures, and analytic approach used in the study.

Administrative Data

Data on candidate field-based experiences and supervising practitioners come from data collected as part of the Massachusetts CAP, a performance-based test required for teacher preparation program completion in Massachusetts since 2016–17. The CAP is locally scored by supervising practitioners and field placement supervisors (Chen et al., 2023); therefore—although the data collection was not intended for this purpose—the CAP data provide a census of every teacher candidate in the state linked to the field placement school in which they took the CAP and the supervising practitioner of this placement. As discussed in the introduction, a limitation of the analysis is that Moderate Disabilities candidates are required to complete an additional field placement (in either an inclusive or substantially separate environment) that is not captured in these data, but, given that the CAP placement is likely the longer of the

placements and the placement in which candidates are receiving structured feedback through the CAP process, we focus on these placements throughout the analysis. We use data from the 2016–17 through 2019–20 CAP administrations in this analysis, linked to the Education Personnel Information Management System (EPIMS) for the school years 2017–18 through 2021–22 through unique identifiers for both candidates *and* supervising practitioners.

We define the sample for this paper through program information provided in the state's Educator Licensure and Renewal (ELAR) system, which provides information about each candidate's program and licenses. We use the "program type" in the ELAR data to identify candidates in specific programs of interest, including the Moderate Disabilities programs that are the focus of the analysis, but also Elementary Education, Severe Disabilities, and English as a Secondary Language (ESL) programs that provide points of comparison for these candidates. Importantly, we also restrict the sample to *preservice* candidates by dropping candidates who have prior or concurrent teaching experience to their field placement. Although candidates who pursue initial licensure during their early-career teaching experience are an important source of teachers in Massachusetts, particularly in special education, we do not consider them in this analysis because they are doing their field placement in their in-service classroom and thus are not relevant for our analysis of RQs 1–4.

Measures

We now discuss how we develop the key outcomes, variables of interest, and control variables summarized in Table 1. The outcomes of RQ3 and RQ4—teacher attrition and mobility, respectively—are coded directly from EPIMS. They represent binary indicators for whether the teacher does not appear in the Massachusetts public school workforce in the following year or is employed in a different Massachusetts public school in the following year.

Other teacher variables include their experience, coded from EPIMS as the number of years that teacher has appeared in the Massachusetts public school workforce, and candidates' scores on the Communication and Literacy Skills Test (CLST) fields of the Massachusetts Tests for Educator Licensure (MTEL), which come from licensure test data provided by DESE. As described in greater detail in Cowan et al. (2023), nearly all candidates in the state take the MTEL CLST tests because they are a requirement for educator licensure, and candidates typically take the tests before entering their program. Although there are also MTEL subject tests, we do not include these scores in this analysis because these tests are often taken after a candidate's field placement and thus cannot serve as a "pre-treatment" control in our models.

Variables about the teacher's current placement are derived from the EPIMS data merged with data from the state's Student Information Management System (SIMS), which provides information about the students in each teacher's classroom in the state. Of particular interest in this analysis is the proportion of students with disabilities in the teacher's classroom, which we calculate by taking the mean of the "special education" indicator across all students taught by the teacher in a given school year. Following Theobald et al. (2021), we also dichotomize this variable by coding all teachers for whom this proportion is less than 0.5 as teaching in an "inclusive" classroom, whereas all other teachers (i.e., who teach more than 50% students with disabilities) as teaching in a "self-contained" environment. Likewise, we calculate the proportion of students of color (i.e., all students who are in a category other than White) and economically disadvantaged students in the teacher's classrooms by taking the mean of these indicators across all students taught by the teacher in a given school year.

The final variable of interest for current placements is developed in Ronfeldt (2012) and called the "school stay ratio," which is defined as the proportion of teachers in the teacher's

current school who stayed in the school the following year, averaged over the previous 5 years in the school. The stay ratio is intended as a proxy for the stability of a school environment, and Ronfeldt (2012) shows that it is correlated with other survey-based measures of teacher working conditions in New York City.

We next create analogous measures of each teacher's field placement. We rely on the supervising practitioner information in the CAP data, which can be linked to the same datasets described above to capture measures of the supervising practitioner's students and school in the year that the teacher did their field placement with that teacher. An important caveat is that we do *not* know the specific classroom in which the teacher's field experience occurred (just that it occurred in a given school year with a given supervising practitioner), so these are not direct measures of the field placement classroom but, rather, aggregate measures of all the students taught by the supervising practitioner in the teacher's field placement year. In calculating supervising practitioner experience, we also account for right censoring in this measure, as we only have EPIMS data back to 2008, so we code this variable as the supervising practitioner having at least 10 years of experience because we have up to 10 years of prior data on each supervising practitioner, given the timing of the first year of the CAP data.

Finally, the "alignment variables" in Table 1 are the variables of interest in the study, as they capture some of the ways that a teacher's field placement may or may not be aligned with their early-career placement. First, we create an indicator for whether the teacher student taught and is currently teaching in an inclusive classroom. We also create an indicator for whether the supervising practitioner's license is aligned with the teacher's program area. In the case of the primary sample of interest, teachers in Moderate Disabilities programs, the supervising practitioner's license is considered "aligned" if it is any special education license, whereas for

other programs (e.g., Elementary Education), we use crosswalks of aligned licenses provided by DESE. Finally, we create indicators for whether the teacher is teaching in the same school or same school level (elementary, middle, high) as their field placement; the school level variable is coded from the Public School Universe Survey administered by the National Center for Education Statistics.

Analytic Approach

Our analyses of RQ1 and RQ2 are descriptive analyses that involve calculating summary statistics of the key variables outlined in Table 1. Our analyses of RQ3 and RQ4 are regression analyses in which we predict the probability that each teacher in the sample leaves the workforce (RQ3) or switches schools (RQ4) as a function of these key variables, estimated in separate models and relative to teachers who do not switch schools. Specifically, we estimate discrete-time hazard models predicting the probability that teacher i in class c, school s, district d, program p, and time t leaves at the end of the year, T_{icsdpt}:

$$T_{icsdpt} = \beta_0 + \beta_1 X_{it} + \beta_2 X_i + \beta_3 A_{it} + \beta_t + \varepsilon_{icsdpt} \qquad (1)$$

In the model in Equation 1, the vector X_{it} includes time-variant control variables such as the teacher experience and current placement variables listed in Table 1, whereas X_i includes time-invariant variables like the MTEL scores and field placement variables listed in Table 1. The alignment variables of interest are included in A_{it}, so the coefficients of interest in β_3 can be interpreted as the expected change in the probability of leaving the workforce (RQ3) or switching schools (RQ4) associated with each type of alignment, holding the other variables in the model constant. We estimate the model in Equation 1 as a linear probability model, include year effects β_t in all specifications, and cluster standard errors at the teacher level to account for correlations between observations for the same teacher over time.

9

We estimate several additional specifications of the model in Equation 1 to test the robustness of our findings. We first experiment with including the various measures of alignment in the same specification and different specifications to assess the extent to which relationships are driven by the inclusion of these multiple collinear variables. We add controls for MTEL scores and the additional classroom/school controls in Table 1 to ensure that results are not driven by differences across different schools and classrooms that are collinear with our variables of interest. Finally, we estimate specifications that include district effects β_d and program effects β_p to make comparisons solely between candidates teaching in the same district or who graduated from the same institution, respectively.

5.   Results

RQ1. What are the characteristics of teachers' field placement classrooms and schools?

The summary statistics in Table 2 include all of the key variables defined in Table 1, separately for the sample of interest (teachers from Moderate Disabilities programs) and then separately for teachers from Elementary Education, Severe Disabilities, and ESL programs to provide context. Columns 1–4 include all teacher observations before the teacher leaves the workforce or switches schools, whereas columns 5–8 focus just on the first observation for each teacher. Although columns 1–4 provide the appropriate summary statistics for interpreting the regression results for RQ3 and RQ4, we focus on columns 5–8 here because each teacher in these columns is counted only once.

Focusing on the rows associated with the "Field Placement Variables" described in Table 1, we see that 79.1% of Moderate Disabilities teachers student taught with a supervising practitioner with at least 10 years of experience and the average Moderate Disabilities teacher did their field placement with a supervising practitioner who taught 48.2% students with

disabilities. This average is misleading, however, because as shown in Figure 1, the majority of supervising practitioners of Moderate Disabilities teachers (blue kernel density plot) taught considerably less than 50% students with disabilities or more than 80% students with disabilities. When we dichotomize this variable to create a measure of "inclusive SP classroom" using the 50% cutoff described in the previous section, 60.5% of Moderate Disabilities teachers did their field placement in an inclusive setting, whereas the other 39.5% did their field placement in a self-contained setting. This is a much lower rate of inclusion than Elementary and ESL teachers and a much higher rate of inclusion than Severe Disabilities teachers, which can be seen continuously in the other kernel density plots in Figure 1.

Other observable characteristics of field placement classrooms and schools are shown in subsequent rows of Table 2. The average Moderate Disabilities teacher did their field placement with a supervising practitioner whose classrooms included 45.5% students of color and 37.7% economically disadvantaged students, and in a school in which 83.5% of teachers had remained in the school over the previous 5 years. Note that there are not large differences in these averages between Moderate Disabilities teachers and other teachers, with the notable exception that ESL teachers tend to do their field placements with far more students of color and economically disadvantaged students than other teachers.

RQ2. How well aligned are these field placements with their early-career classrooms?

The last four rows of Table 2 provide summary statistics of the four alignment measures of interest. Among Moderate Disabilities completers, 43% did their field placement and got their first teaching position in an inclusive setting, whereas another 27.8% did their field placement and got their first teaching position in a self-contained setting. Put together, this means that

70.7% of Moderate Disabilities completers experienced alignment between the setting of their field placement and their first teaching position.

This can be seen more easily in Figure 2, which plots the proportion of the supervising practitioner's students in special education on the *x*-axis and the proportion of the teachers' current students in special education on the *y*-axis, with the size of each bubble representing the proportion of teachers in each part of the figure. Moderate Disabilities teachers in the bottom left corner of this figure did their field placement and are currently teaching in inclusive settings, whereas teachers in the top right corner did their field placement and are currently teaching in self-contained settings. The teachers in the other corners of the figure are teachers who experience misalignment between their field experience and current experience (i.e., student teaching in an inclusive environment and teaching in a self-contained environment or vice versa). It is relatively common for Moderate Disabilities teachers to experience substantial misalignment between field and current placements according to this measure; in other words, almost 30% of Moderate Disabilities teachers experience misalignment according to this binary measure, which is a much higher percentage than completers of other program areas in Table 2, all of whom have alignment rates of over 89%.

Considering the other measures of alignment in Table 2, 81.7% of Moderate Disabilities teachers had a supervising practitioner with an aligned license, 23.6% of these teachers are hired into the same school where they did their field placement, and 71.9% are hired into the same school level. Interestingly, rates of license alignment with supervising practitioners are lower for Moderate Disabilities teachers than for any of the other program areas; the most common area of misalignment is having a supervising practitioner with just an Elementary license. Moderate Disabilities teachers are also more likely to be hired into the same school than Elementary and

ESL teachers (but less likely than Severe Disabilities teachers), which likely reflects high demand for special education teachers by the same schools that hosted their field placements. We consider the implications of these areas of misalignment in our analysis of RQ3 and RQ4.

RQ3. To what extent do characteristics of field placement classroom and school and the alignment with early-career classrooms predict teachers' early-career attrition from the state workforce?

Table 3 provides estimates from the discrete-time hazard model shown in Equation 1 predicting the probability that each Moderate Disabilities teacher leaves the workforce. Column 1 shows that, although teachers are marginally more likely to leave the workforce if they are currently teaching in or did their field placement in an inclusive setting, all else equal, they are substantially (25 percentage points) less likely to leave the workforce if both placements are inclusive. Column 2 shows that Moderate Disabilities teachers are 12 percentage points less likely to leave the workforce if they did their field placement with a supervising practitioner with a special education license. The remaining columns of Table 3 show that these relationships are largely (but not entirely) robust to the inclusion of other alignment measures, MTEL scores, classroom/school controls, district effects, and institution effects; the coefficients of interest from the model with all controls but no fixed effects (Column 6) are shown in Figure 3. The exception is that field placement alignment is no longer a statistically significant predictor of attrition in models with district fixed effects (column 7), which may represent limitations of sample sizes within specific districts (given the magnitude of the standard error) more than differences in the estimated relationship.

The supervising practitioner license alignment coefficients from Table 3 are straightforward to interpret because they represent average marginal effects across all Moderate

Disabilities teachers, but the interaction effects for inclusive current and field placement classrooms are more difficult to interpret, as these effects depend on both field placement *and* current classroom indicators. We therefore plot separate marginal effects in Figure 4 for the four possible categories of teachers (both inclusive, both self-contained, and each type of misalignment). Figure 4 shows that this is largely an alignment story, as Moderate Disabilities teachers who experience alignment between their field placement and current classroom are less likely to leave the workforce *whether or not they are currently in an inclusive or self-contained setting*, though the difference is larger for Moderate Disabilities teachers who are currently in an inclusive setting.

RQ4. To what extent do characteristics of field placement classroom and school and the alignment with early-career classrooms predict teachers' early-career mobility between schools?

Table 4 provides estimates from the discrete-time hazard model shown in Equation 1 predicting the probability that each Moderate Disabilities teacher moves to another school. Unlike for teacher attrition, column 1 shows that Moderate Disabilities teachers are marginally less likely to switch schools if they are currently teaching and did their field placement in an inclusive environment, but this relationship is not robust to the inclusion of additional controls in the remaining columns. In particular, because same school placements and same school level placements are both marginally predictive of lower rates of school mobility in some specifications, the inclusion of these variables in the model makes the interaction effect of dual-inclusion placements statistically insignificant. Unlike for teacher attrition, there is no statistically significant evidence that Moderate Disabilities teachers who student teach with a

supervising practitioner with an aligned license are any less likely to switch schools than other teachers.

6.   Discussion

The motivating question at the outset of this analysis was the following: In an era when teachers who educate students with learning disabilities can teach in such different settings (i.e., inclusive or self-contained), where should they *learn* to teach? The answer, as is so often the case in education policy, appears to be that "it depends." Specifically, Moderate Disabilities teachers in Massachusetts appear to be less likely to leave the workforce if their field placement was in an aligned setting (inclusive or self-contained) to their current placement, and when the supervising practitioner of their field placement had a special education license. This analysis comes with a number of important limitations outlined in the next sub-section, but also suggests several policy implications and implications for the education of students with learning disabilities that we discuss in the final sub-sections.

Limitations

This analysis has limitations in terms of its generalizability and measures. This study is situated in a specific context (Massachusetts public schools) that may be not applicable to other settings. For example, Massachusetts is somewhat unique in having separate Moderate Disabilities and Severe Disabilities licenses as opposed to the broader "special education" licenses and programs that have been studied in other states (e.g., Feng & Sass, 2013; Gilmour, 2020; Theobald et al., 2022). Further work will be necessary in these other settings to ensure that trends are not state-specific.

The broadest concern about the measures used in this study is that they all come from state administrative data, which provides large-scale, longitudinal, but admittedly blunt measures of the important variables in the study. Follow-up qualitative and single-case study work will be

important to uncover *why* Moderate Disabilities teachers who experience misalignment between their field placements and early-career placements are more likely to leave, and the classroom experiences that may moderate and influence these decisions.

Even within the context of administrative data studies, limitations of the CAP data (the data used to measure field placements) are particularly important for this analysis. Perhaps most importantly, the CAP data only include the field placement in which each teacher took the CAP despite the fact that state teacher preparation regulations require field placements in multiple settings for Multiple Disabilities teachers. The inability to observe the specific field placement classroom also implies that we must rely on very broad proxies of the field placement experience based on all the students taught by the supervising practitioner during the field placement year.

Finally, this analysis focuses on an important teacher outcome (turnover) but does not consider teachers' impacts on the student outcomes of the students with learning disabilities in their classrooms. Although prior work from other states has estimated "value added" models of special education teachers' contributions to test score gains for this group of students (Feng & Sass, 2013; Gilmour, 2020; Theobald et al., 2022), those papers were based on considerably larger sample sizes of special education teachers than are currently linkable to student test score gains in Massachusetts. Thus, follow-up work will need to consider this important outcome alongside the turnover analysis presented in this paper.

Implications for State Policy

Because of the limitations above, we consider this as a very preliminary look at the role of inclusive field placements and field placement alignment in predicting early-career special education teacher attrition. But even this preliminary analysis suggests several important state policy implications. The first and most straightforward is related to the finding that early-career

Moderate Disabilities teachers are less likely to leave the workforce if they student teach with a supervising practitioner with an aligned special education license. This is already required under state teacher preparation regulations, but given that nearly 20% of Moderate Disabilities teachers did their field placement with a supervising practitioner without such a license, the policy implication appears to be that DESE and teacher preparation providers may need additional accountability measures to ensure that all Moderate Disabilities teachers have a qualified supervising practitioner along this dimension.

The policy implication of the importance of alignment between field placements and current placements in terms of inclusionary placements is less straightforward because it may be difficult to anticipate the type of placement a preservice candidate will be hired into. Nonetheless, DESE and teacher preparation programs may want to better anticipate these placements by surveying candidates and placing them in a field placement aligned with their *intended* future position, or perhaps by surveying hiring schools and making more inclusion and self-contained placements in schools, districts, and regions with greater demand for a given type of teacher. Likewise, school districts with hiring needs in a given area may want to seek out student teachers in that area given that student teaching has been shown to be a potentially important source of new teachers for districts experiencing staffing challenges (e.g., Goldhaber et al., 2021).

Implications for Education of Students with Learning Disabilities

The findings from this study also inform efforts to improve educational outcomes for learning disabilities. The most direct connection is that prior research (e.g., Ronfeldt et al., 2013) has shown that teacher turnover in a school causes worse student test outcomes, so the direct implications for teacher turnover discussed above also have second-order implications for the

outcomes of students with learning disabilities in these classrooms. Simply put, Moderate Disabilities teachers in Massachusetts cannot positively affect the educational outcomes of students with learning disabilities in the state if they do not remain in the classroom.

Even more indirectly, and as previewed in the introduction, this study may help chart a path toward understanding the conditions under which inclusive education may have more or less positive effects for students with learning disabilities. Although many prior studies have asked *whether* inclusion leads to positive outcomes, it may be more helpful to ask *when* this may (or may not) be the case. If the findings on teacher attrition in this paper do translate in future work to impacts on student outcomes, this line of research suggests that inclusion may only "work" if the teachers in these classrooms have been prepared in similar settings.

References

Baer, R. M., Flexer, R. W., Beck, S., Amstutz, N., Hoffman, L., Brothers, J., Stelzer, D., &
Zechman, C. (2003). A collaborative followup study on transition service utilization and
post-school outcomes. *Career Development for Exceptional Individuals*, *26*(1), 7–25.
https://doi.org/10.1177/088572880302600102

Bastian, K. C., Patterson, K. M., & Carpenter, D. (2022). Placed for success: Which teachers
benefit from high-quality student teaching placements? *Educational Policy*, *36*(7), 1583–
1611. https://doi.org/10.1177/0895904820951126

Bettini, E., Nguyen, T. D., Gilmour, A. F., & Redding, C. (2022). Disparities in access to well-
qualified, well-supported special educators across higher versus lower poverty schools over
time. *Exceptional Children*, *88*(3), 283–301. https://doi.org/10.1177/00144029211024137

Bettini, E., Scott, L. A., Meyer, K. M., Mathews, H. M., & Shaheen, T. (in press). Challenges
facing the special education teacher workforce: Composition, distribution, and effectiveness.
In J. Kauffman, D. Hallahan, & P. Pullen (Eds.), *Handbook of special education* (3rd ed.).

Billingsley, B., & Bettini, E. (2019). Special education teacher attrition and retention: A review
of the literature. *Review of Educational Research*, *89*(5), 697–744.
https://doi.org/10.3102/0034654319862495

Billingsley, B. S., Bettini, E. A., & Williams, T. O. (2019). Teacher racial/ethnic diversity:
Distribution of special and general educators of color across schools. *Remedial and Special
Education*, *40*(4), 199–212. https://doi.org/10.1177/0741932517733047

Boe, E. E., Cook, L. H., & Sunderland, R. J. (2008). Teacher turnover: Examining exit attrition,
teaching area transfer, and school migration. *Exceptional Children*, *75*(1), 7–31.
https://doi.org/10.1177/001440290807500101

Boyd, D. J., Grossman, P. L., Lankford, H., Loeb, S., & Wyckoff, J. (2009). Teacher preparation

and student achievement. *Educational Evaluation and Policy Analysis*, *31*(4), 416–440.

Brownell, M. T., Sindelar, P. T., Kiely, M. T., & Danielson, L. C. (2010). Special education

teacher quality and preparation: Exposing foundations, constructing a new model.

Exceptional Children, *76*(3), 357–377. https://doi.org/10.1177/001440291007600307

Carriker, W. (1989). A free appropriate education: But who will provide it. In Testimony to

Congress for the reauthorization of PL 94-142.

Chen, B., Cowan, J., Goldhaber, D., & Theobald, R. (2023). Assessing the predictive validity of

the Massachusetts Candidate Assessment of Performance. *Educational Policy*, *0*(0).

https://doi.org/10.1177/08959048231174876

Cowan, J., Goldhaber, D., Hayes, K., & Theobald, R. (2016). Missing elements in the discussion

of teacher shortages. *Educational Researcher*, *45*(8), 460–462.

https://doi.org/10.3102/0013189X16679145

Cowan, J., Goldhaber, D., Jin, Z., & Theobald, R. (2023). Assessing licensure test performance

and predictive validity for different teacher subgroups. *American Educational Research

Journal*, *60*(6), 1095–1138. https://doi.org/10.3102/00028312231192365

Feng, L., & Sass, T. R. (2013). What makes special-education teachers special? Teacher training

and achievement of students with disabilities. *Economics of Education Review*, *36*, 122–134.

https://doi.org/10.1016/j.econedurev.2013.06.006

Fuchs, D., Mirowitz, H. C., & Gilbert, J. K. (2023). Exploring the truth of Michael Yudin's

claim: The more time students with disabilities spend in general classrooms, the better they

do academically. *Journal of Disability Policy Studies*, *33*(4), 236–252.

https://doi.org/10.1177/10442073221097713

Fuchs, L. S., Fuchs, D., Compton, D. L., Wehby, J., Schumacher, R. F., Gersten, R., & Jordan,

    N. C. (2015). Inclusion versus specialized intervention for very-low-performing students:

    What does access mean in an era of academic challenge? *Exceptional Children*, *81*(2), 134–

    157. https://doi.org/10.1177/0014402914551743

Gilmour, A. F. (2018). Has inclusion gone too far? Weighing its effects on students with

    disabilities, their peers, and teachers. *Education Next*, *18*(4), 8–17.

    https://eric.ed.gov/?id=EJ1191012

Gilmour, A. F. (2020). Teacher certification area and the academic outcomes of students with

    learning disabilities or emotional/behavioral disorders. *The Journal of Special Education*,

    54(1), 40–50. https://doi.org/10.1177/0022466919849905

Gilmour, A. F., Neugebauer, S. R., & Sandilos, L. E. (2022). Moderators of the association

    between teaching students with disabilities and general education teacher turnover.

    Exceptional Children, *88*(4), 401–420. https://doi.org/10.1177/00144029221081239

Gilmour, A. F., Nguyen, T. D., Redding, C., & Bettini, E. (2023). The shifting context of special

    education teachers' work and its relationship with retention. *Remedial and Special*

    Education, *44*(3), 171–183. https://doi.org/10.1177/07419325221113016

Gilmour, A. F., & Wehby, J. H. (2020). The association between teaching students with

    disabilities and teacher turnover. *Journal of Educational Psychology*, *112*(5), 1042.

    https://eric.ed.gov/?id=EJ1259051

Goldhaber, D., Krieg, J. M., & Theobald, R. (2017). Does the match matter? Exploring whether

    student teaching experiences affect teacher effectiveness. *American Educational Research*

    Journal, *54*(2), 325–359. https://doi.org/10.3102/0002831217690516

Goldhaber, D., Krieg, J., & Theobald, R. (2020). Effective like me? Does having a more

    productive mentor improve the productivity of mentees? *Labour Economics*, *63*, 101792.

    https://doi.org/10.1016/j.labeco.2019.101792

Goldhaber, D., Krieg, J., Naito, N., & Theobald, R. (2021). Student teaching and the geography

    of teacher shortages. *Educational Researcher*, *50*(3), 165–175.

    https://doi.org/10.3102/0013189X20962099

Goldhaber, D., Krieg, J., Theobald, R., & Goggins, M. (2022). Front end to back end: Teacher

    preparation, workforce entry, and attrition. *Journal of Teacher Education*, *73*(3), 253–270.

    https://doi.org/10.1177/00224871211030303

Goldhaber, D., Ronfeldt, M., Cowan, J., Gratz, T., Bardelli, E., & Truwit, M. (2022). Room for

    improvement? Mentor teachers and the evolution of teacher preservice clinical evaluations.

    American Educational Research Journal, *59*(5), 1011–1048.

    https://doi.org/10.3102/00028312211066867

Hehir, T., Grindal, T., Freeman, B., Lamoreau, R., Borquaye, Y., & Burke, S. (2016). *A*

    Summary of the evidence on inclusive education. Abt Associates.

Krieg, J. M., Goldhaber, D., & Theobald, R. (2022). Disconnected development? The importance

    of specific human capital in the transition from student teaching to the classroom.

    Educational Evaluation and Policy Analysis, *44*(1), 29–49.

    https://doi.org/10.3102/01623737211025306

Leko, M. M., Brownell, M. T., Sindelar, P. T., & Kiely, M. T. (2015). Envisioning the future of

    special education personnel preparation in a standards-based era. *Exceptional Children*,

    82(1), 25–43. https://doi.org/10.1177/0014402915598782

Mason-Williams, L. (2015). Unequal opportunities: A profile of the distribution of special

education teachers. *Exceptional Children*, *81*(2), 247–262.

https://doi.org/10.1177/0014402914551737

Mason-Williams, L., Bettini, E., Peyton, D., Harvey, A., Rosenberg, M., & Sindelar, P. T.

(2020). Rethinking shortages in special education: Making good on the promise of an equal

opportunity for students with disabilities. *Teacher Education and Special Education*, *43*(1),

45–62. https://doi.org/10.1177/0888406419880352

McLeskey, J., & Billingsley, B. S. (2008). How does the quality and stability of the teaching

force influence the research-to-practice gap? A perspective on the teacher shortage in special

education. *Remedial and Special Education*, *29*(5), 293–305.

https://doi.org/10.1177/0741932507312010

Ronfeldt, M. (2012). Where should student teachers learn to teach? Effects of field placement

school characteristics on teacher retention and effectiveness. *Educational Evaluation and

Policy Analysis*, *34*(1), 3–26. https://doi.org/10.3102/0162373711420865

Ronfeldt, M. (2015). Field placement schools and instructional effectiveness. *Journal of Teacher

Education*, *66*(4), 304–320. https://doi.org/10.1177/0022487115592463

Ronfeldt, M., Brockman, S. L., & Campbell, S. L. (2018). Does cooperating teachers'

instructional effectiveness improve preservice teachers' future performance? *Educational

Researcher*, *47*(7), 405–418. https://doi.org/10.3102/0013189X18782906

Ronfeldt, M., Loeb, S., & Wyckoff, J. (2013). How teacher turnover harms student achievement.

American Educational Research Journal, *50*(1), 4–36.

https://doi.org/10.3102/0002831212463813

Ronfeldt, M., Truwit, M., Bardelli, E., Schaaf, K., & Smith, B. (2023). Cultivating stronger

coaching in clinical mentors: An experimental evaluation of the Mentors Matter Professional

Development Initiative. *Educational Evaluation and Policy Analysis*, 01623737231183414.

https://doi.org/10.3102/01623737231183414

Scott, L. A., Bell, N., Dayton, M., Bowman, R. W., Evans, I., Grillo, M., Spence, C., & Layden,

S. J. (2023). Special education teachers of color retention decisions: Findings from a national

study. *Exceptional Children*, *89*(3), 256–274. https://doi.org/10.1177/00144029221109850

Sindelar, P. T., Brownell, M. T., & Billingsley, B. (2010). Special education teacher education

research: Current status and future directions. *Teacher Education and Special Education*,

33(1), 8–24. https://doi.org/10.1177/0888406409358593

Theobald, R. J., Goldhaber, D. D., Gratz, T. M., & Holden, K. L. (2019). Career and technical

education, inclusion, and postsecondary outcomes for students with learning disabilities.

Journal of Learning Disabilities, *52*(2), 109–119.

https://doi.org/10.1177/0022219418775121

Theobald, R. J., Goldhaber, D. D., Holden, K. L., & Stein, M. L. (2022). Special education

teacher preparation, literacy instructional alignment, and reading achievement for students

with high-incidence disabilities. *Exceptional Children*, *88*(4), 381–400.

https://doi.org/10.1177/00144029221081236

Theobald, R., Goldhaber, D., Naito, N., & Stein, M. (2021). The special education teacher

pipeline: Teacher preparation, workforce entry, and retention. *Exceptional Children*, *88*(1),

65–80. https://doi.org/10.1177/00144029211010162

Figures and Tables

Figure 1. Distribution of Students with Disabilities in Supervising Practitioner's Classroom During Field Experience, by License Type
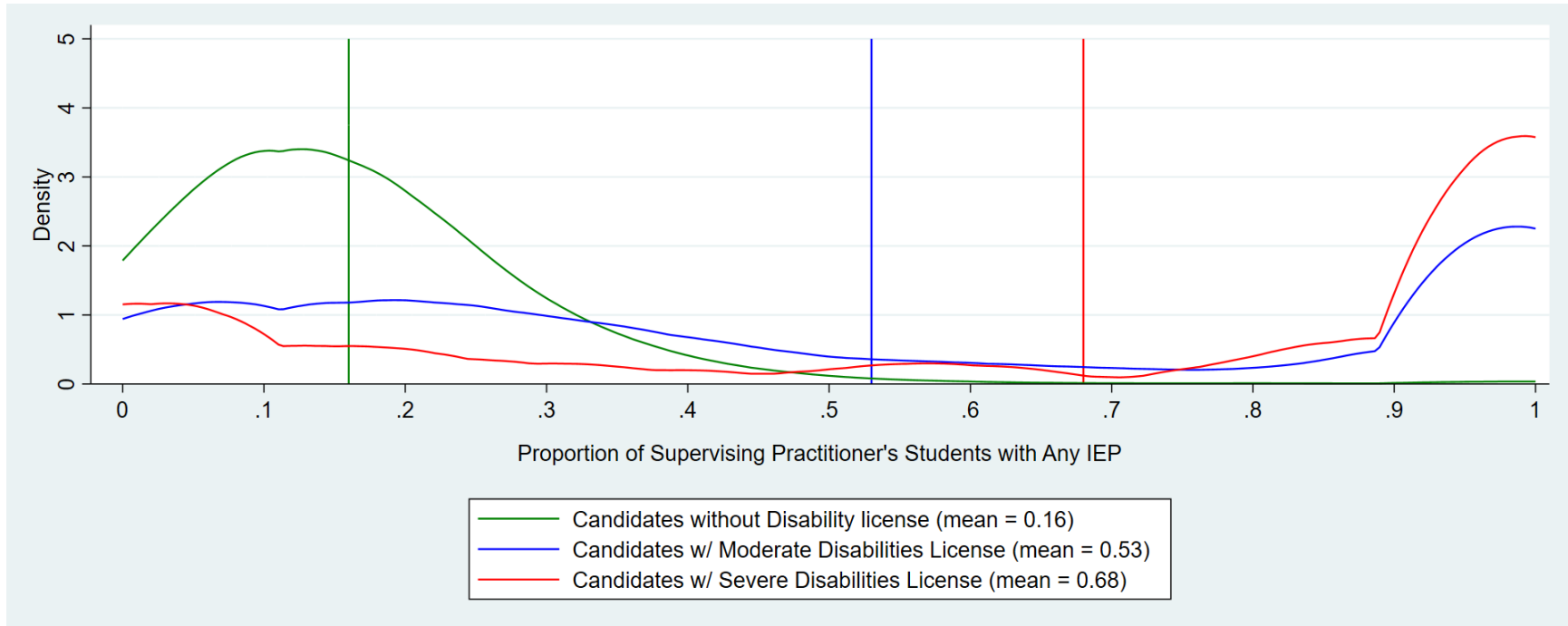
Figure 2. Percent of Students with Disabilities in Field Placement and First Classrooms, Moderate Disabilities Completers

Field Placement: Inclusive
First Job: Self-contained

Field Placement: Inclusive
First Job: Inclusive

Field Placement: Self-contained
First Job: Self-contained

Field Placement: Self-contained
First Job: Inclusive

Figure 3. Summary of Teacher Attrition Results

Figure 4. Predicted Probabilities of Attrition by Inclusive Field Placements and Current Classrooms

Table 1. Variable Definitions

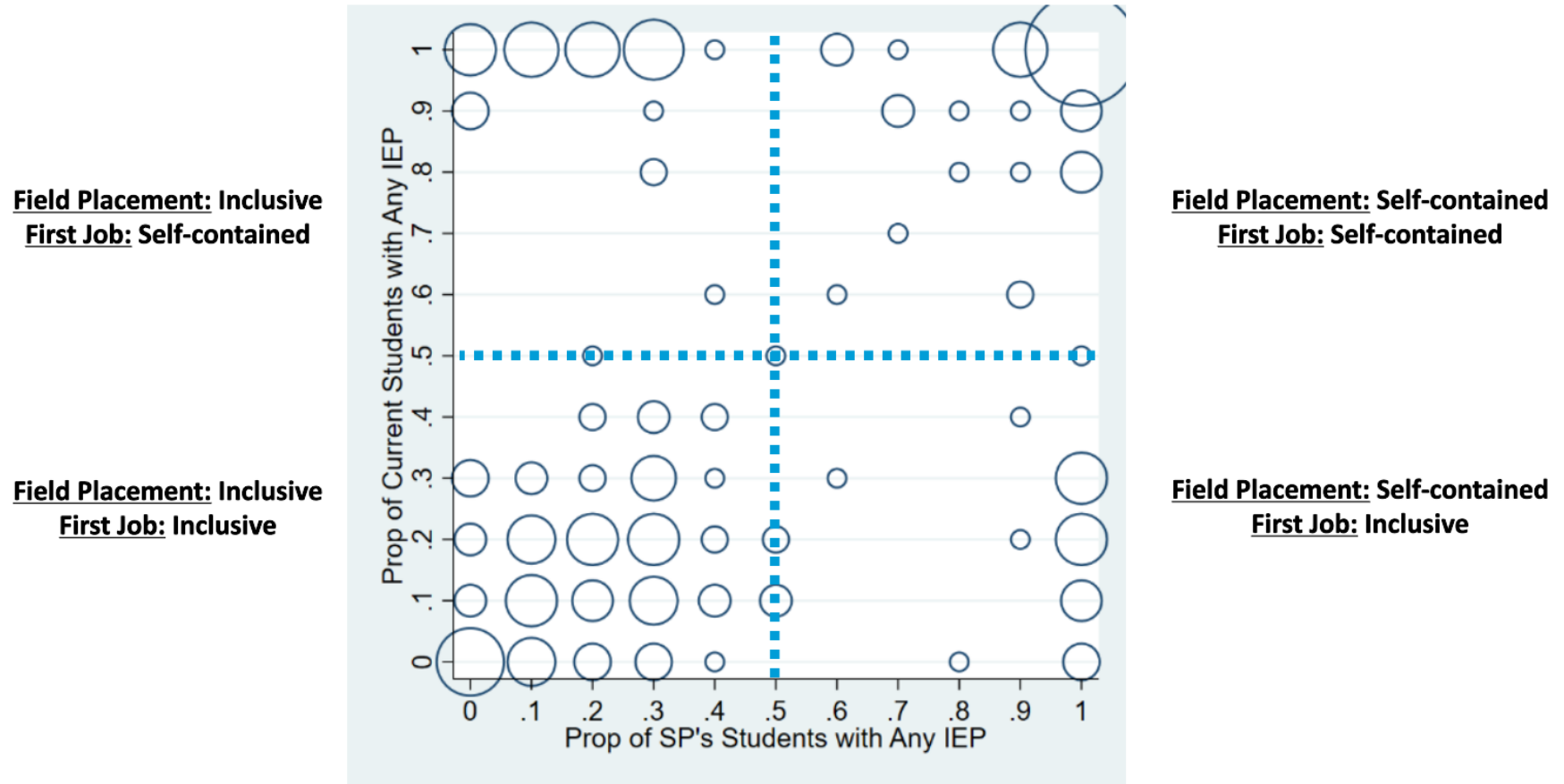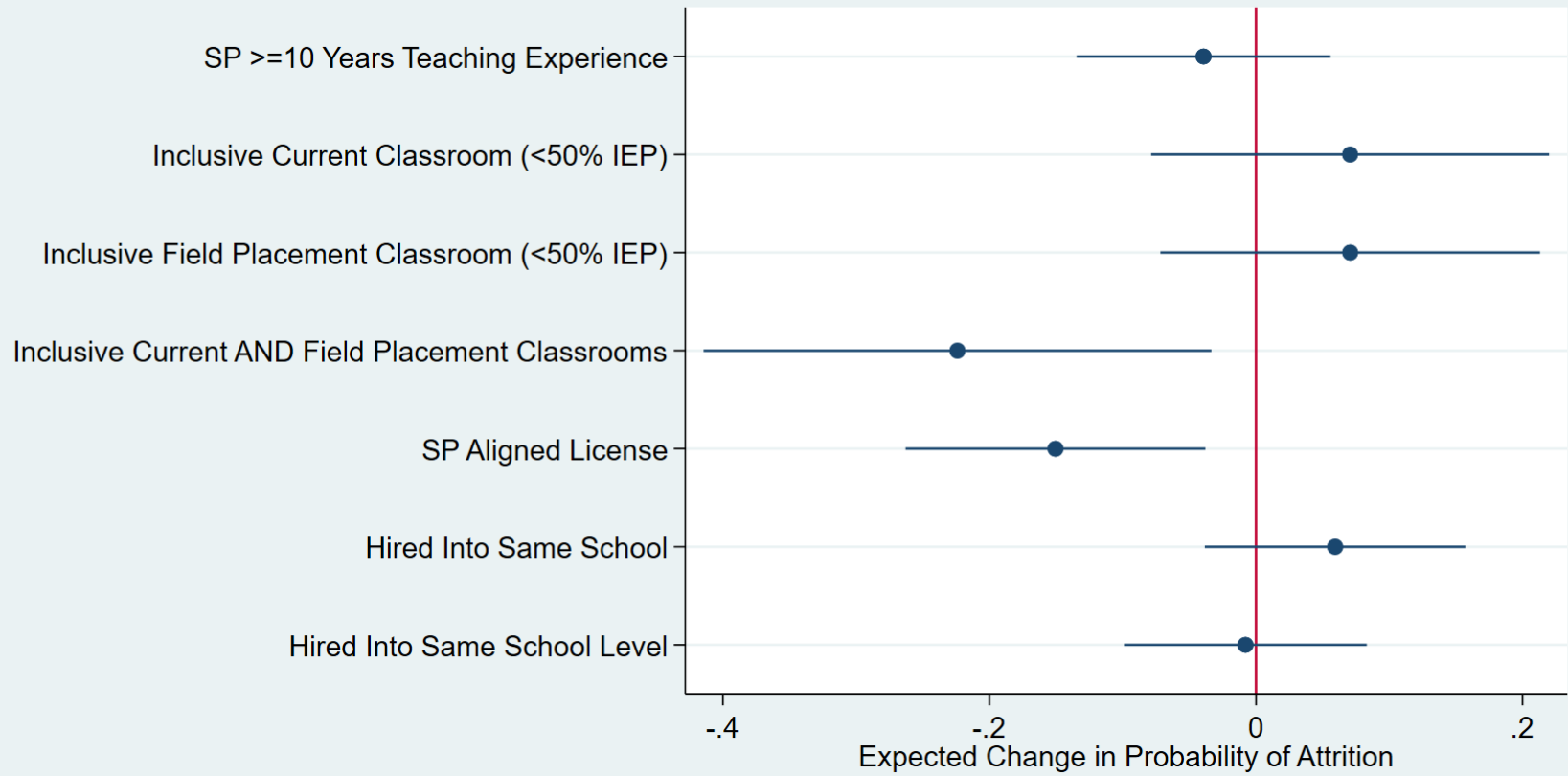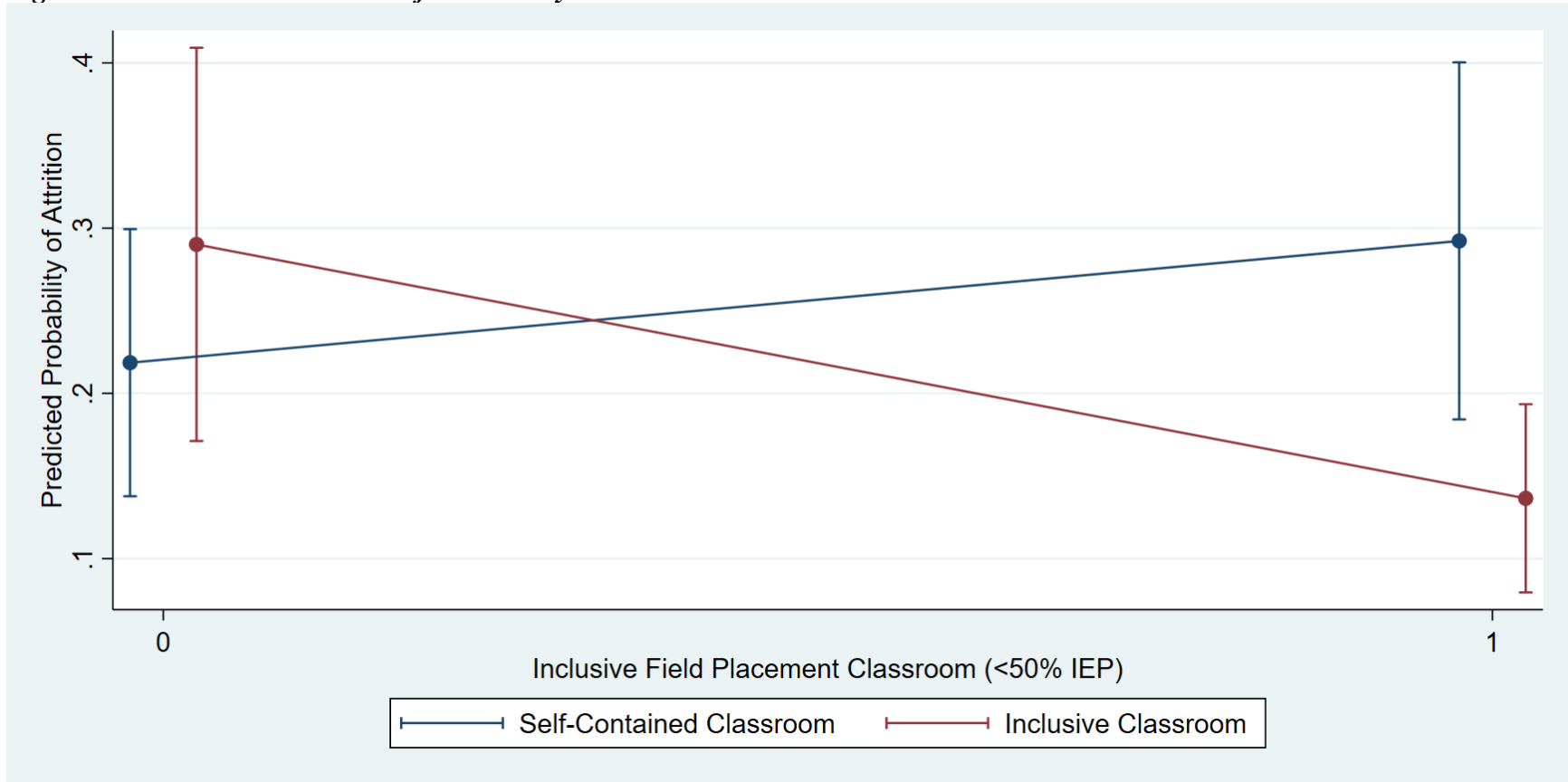| Variable	Definition
Outcome variables	
Leaves workforce	Binary indicator for whether teacher does not appear in Massachusetts public school workforce in following year
Switches schools	Binary indicator for whether teacher is employed in different Massachusetts public school in following year
Teacher variables	
Teacher experience	Discrete variable for number of years that teacher has appeared in Massachusetts public school workforce
Teacher MTEL CLST score (std.)	The score from the first time the teacher took the MTEL CLST, standardized across all test takers and averaged across Reading and Writing fields
Current placement variables	
Proportion SWD in current classrooms	The proportion of students in the teacher's current classroom(s) who have an IEP
Inclusive current classroom	Indicator for whether the proportion of SWD in the teacher's current classroom(s) is less than 0.5
Classroom proportion SOC	The proportion of students in the teacher's current classroom(s) who are not White
Classroom proportion EcoDis	The proportion of students in the teacher's current classroom(s) who are economically disadvantaged
School stay ratio	The proportion of teachers in the teacher's current school who stayed in the school the following year, averaged over the previous 5 years in the school
Field placement variables	
SP 10 yrs teaching experience	Indicator for whether, in year of field placement, SP had appeared in Massachusetts public school workforce for at least 10 years since 2008
Proportion SWD in SP's classrooms	The proportion of students in the SP's classroom(s) in the field placement year who have an IEP
Inclusive SP classroom	Indicator for whether the proportion of SWDs in the SP's classroom(s) in the field placement year is less than 0.5
SP classroom proportion SOC	The proportion of students in SP's classroom(s) in the field placement year who are not White
SP classroom proportion EcoDis	The proportion of students in SP's classroom(s) in the field placement year who are economically disadvantaged
Field placement school stay ratio	The proportion of teachers in the field placement school who stayed in the school the following year, averaged over the previous 5 years in the school
Alignment variables	
Both placements inclusive	Indicator for whether "Inclusive current classroom" and "Inclusive SP classroom" are both 1
SP aligned license	Indicator for whether SP has aligned license with candidate (e.g., Moderate Disabilities or Severe Disabilities license for Moderate Disabilities candidate)
Same school placement	Indicator for whether teacher's current school is same as field placement school
Same school level placement	Indicator for whether the level (elementary, middle, high) of teacher's current school is same as field placement school

Note. EcoDis = economically disadvantaged; Elem = Elementary program; ESL = English Second Language program; Mod Dis = Moderate Disabilities program; MTEL CLST = Massachusetts Tests for Education Licensure, Communication and Literacy Skills Test; Sev Dis = Severe Disabilities program; SOC = students of color; SP = supervising practitioner; SWD = students with disabilities.

Table 2. Summary Statistics by Program Area

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sample	All observations				First year observation			
Program type	Mod Dis	Elem	Sev Dis	ESL	Mod Dis	Elem	Sev Dis	ESL
Leaves workforce	0.184	0.139	0.235	0.108	0.190	0.166	0.229	0.128
Switches schools	0.092	0.119	0.111	0.078	0.114	0.127	0.104	0.128
Teacher experience	1.705	1.633	1.593	1.863	1.000	1.000	1.000	1.000
	(0.873)	(0.829)	(0.833)	(0.965)	(0.000)	(0.000)	(0.000)	(0.000)
Teacher MTEL CLST score (std.)	0.132	0.199	0.095	0.863	0.106	0.205	0.090	0.793
	(0.716)	(0.652)	(0.692)	(0.563)	(0.706)	(0.648)	(0.654)	(0.572)
Proportion SWDs in current classrooms	0.514	0.202	0.843	0.132	0.521	0.202	0.822	0.122
	(0.411)	(0.218)	(0.302)	(0.140)	(0.411)	(0.225)	(0.333)	(0.131)
Inclusive current classroom	0.555	0.938	0.099	0.971	0.548	0.936	0.125	0.979
Classroom proportion SOC	0.501	0.541	0.524	0.758	0.502	0.525	0.503	0.789
	(0.299)	(0.316)	(0.310)	(0.281)	(0.305)	(0.318)	(0.284)	(0.257)
Classroom proportion EcoDis	0.447	0.474	0.498	0.603	0.444	0.457	0.465	0.589
	(0.286)	(0.284)	(0.291)	(0.233)	(0.283)	(0.280)	(0.286)	(0.242)
School stay ratio	0.814	0.783	0.825	0.790	0.808	0.781	0.827	0.779
	(0.095)	(0.107)	(0.088)	(0.098)	(0.101)	(0.115)	(0.089)	(0.101)
SP 10 yrs teaching experience	0.784	0.796	0.815	0.853	0.791	0.792	0.813	0.787
Proportion SWD in SP's classrooms	0.481	0.179	0.788	0.128	0.482	0.179	0.773	0.139
	(0.393)	(0.135)	(0.347)	(0.116)	(0.392)	(0.136)	(0.342)	(0.124)
Inclusive SP classroom	0.613	0.983	0.173	0.971	0.605	0.982	0.188	0.957
	(0.487)	(0.128)	(0.380)	(0.170)	(0.490)	(0.134)	(0.394)	(0.204)
SP classroom proportion SOC	0.442	0.480	0.442	0.835	0.455	0.473	0.445	0.806
	(0.289)	(0.305)	(0.311)	(0.218)	(0.293)	(0.304)	(0.298)	(0.251)
SP classroom proportion EcoDis	0.365	0.340	0.444	0.482	0.377	0.337	0.433	0.499
	(0.252)	(0.248)	(0.300)	(0.234)	(0.256)	(0.246)	(0.292)	(0.243)
Field placement school stay ratio	0.837	0.821	0.836	0.812	0.835	0.822	0.836	0.806
	(0.092)	(0.098)	(0.100)	(0.087)	(0.098)	(0.099)	(0.100)	(0.091)
Both placements inclusive	0.439	0.928	0.086	0.941	0.430	0.924	0.104	0.936
Both placements not inclusive	0.271	0.006	0.815	0.000	0.278	0.006	0.792	0.000
Placements aligned	0.709	0.934	0.901	0.941	0.707	0.930	0.896	0.936
SP aligned license	0.828	0.887	0.889	0.892	0.817	0.888	0.875	0.851
Same school placement	0.240	0.153	0.296	0.157	0.236	0.155	0.292	0.191
Same school level placement	0.727	0.813	0.642	0.716	0.719	0.823	0.646	0.723
N	499	1755	81	102	263	982	48	47

Note. EcoDis = economically disadvantaged; Elem = Elementary program; ESL = English Second Language program; Mod Dis = Moderate Disabilities program; MTEL CLST = Massachusetts Tests for Education Licensure, Communication and Literacy Skills Test; Sev Dis = Severe Disabilities program; SOC = students of color; SP = supervising practitioner; SWD = students with disabilities

Table 3. Discrete-Time Hazard Models Predicting Attrition from Workforce (Relative to Staying in the Same School) for Teachers from Moderate Disabilities Programs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SP 10 years teaching experience	-0.019	-0.008	-0.024	-0.025	-0.029	-0.039	-0.052	0.037
	(0.046)	(0.046)	(0.046)	(0.046)	(0.046)	(0.048)	(0.077)	(0.055)
Inclusive current classroom	0.123+		0.118+	0.131+	0.140*	0.071	0.011	0.066
	(0.065)		(0.065)	(0.067)	(0.067)	(0.076)	(0.112)	(0.080)
Inclusive SP classroom	0.120+		0.075	0.088	0.083	0.071	0.010	0.131+
	(0.064)		(0.066)	(0.067)	(0.068)	(0.072)	(0.113)	(0.077)
Both placements inclusive	-0.248**		-0.232**	-0.253**	-0.255**	-0.224*	-0.166	-0.251*
	(0.089)		(0.089)	(0.092)	(0.092)	(0.097)	(0.145)	(0.104)
SP aligned license		-0.120*	-0.128*	-0.133*	-0.131*	-0.150**	-0.189*	-0.125+
		(0.058)	(0.060)	(0.060)	(0.060)	(0.057)	(0.083)	(0.073)
Same school placement				0.062	0.063	0.059	0.147+	0.050
				(0.048)	(0.048)	(0.050)	(0.088)	(0.054)
Same school level placement				0.003	0.006	-0.008	-0.052	-0.004
				(0.045)	(0.045)	(0.046)	(0.061)	(0.055)
MTEL control					X	X	X	X
Classroom/school controls						X	X	X
District effects							X	
Institution effects								X
Observations	453	453	453	453	453	453	453	453
R-squared	0.020	0.018	0.032	0.039	0.042	0.073	0.366	0.148

Note. MTEL = Massachusetts Tests for Educator Licensure; SP = supervising practitioner. All models control for teacher experience indicators and school year effects. MTEL control is teacher's average first score on MTEL Communication Skills and Literacy test fields. Classroom/school controls include the proportion of students of color and proportion of economically disadvantaged students in the SP and current classroom, and the stay ratio in the current and field placement school. P-values from two-sided t-test, +=p < .10, *p < .05, **p < .01, ***p < .001.

Table 4. Discrete-Time Hazard Models Predicting Mobility Between Schools (Relative to Staying in the Same School) for Teachers from Moderate Disabilities Programs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SP 10 years teaching experience	-0.005 (0.039)	-0.002 (0.039)	-0.004 (0.038)	0.002 (0.037)	-0.001 (0.038)	-0.004 (0.037)	-0.022 (0.065)	0.010 (0.044)
Inclusive current classroom	0.073 (0.061)		0.073 (0.061)	0.058 (0.059)	0.065 (0.060)	0.063 (0.067)	0.083 (0.103)	0.011 (0.074)
Inclusive SP classroom	0.112* (0.053)		0.119* (0.055)	0.094+ (0.055)	0.090 (0.056)	0.057 (0.063)	0.014 (0.099)	-0.003 (0.074)
Both placements inclusive	-0.142+ (0.080)		-0.144+ (0.080)	-0.109 (0.077)	-0.112 (0.077)	-0.094 (0.083)	-0.076 (0.125)	0.012 (0.094)
SP aligned license		-0.001 (0.044)	0.024 (0.047)	0.025 (0.047)	0.027 (0.047)	0.038 (0.049)	0.070 (0.082)	0.013 (0.063)
Same school placement				-0.060+ (0.032)	-0.060+ (0.032)	-0.053 (0.034)	-0.014 (0.076)	-0.024 (0.044)
Same school level placement				-0.055 (0.042)	-0.050 (0.041)	-0.068 (0.042)	-0.099+ (0.052)	-0.129* (0.051)
MTEL controls					X	X	X	X
School controls						X	X	X
District effects							X	
Institution effects								X
Observations	407	407	407	407	407	407	407	407
R-squared	0.020	0.018	0.032	0.039	0.042	0.073	0.366	0.148

Note. MTEL = Massachusetts Tests for Educator Licensure; SP = supervising practitioner. All models control for teacher experience indicators and school year effects. MTEL control is teacher's average first score on MTEL Communication Skills and Literacy test fields. Classroom/school controls include the proportion of students of color and proportion of economically disadvantaged students in the SP and current classroom, and the stay ratio in the current and field placement school. P-values from two-sided t-test, +=p < .10, *p < .05, **p < .01, ***p < .001.