Annenberg Institute
BROWN UNIVERSITY

EdWorkingPaper No. 25-1286

Examining the Distribution and Characteristics of Emergency-Licensed Special Education Teachers

Tashnuva Shaheen
Binghamton University, SUNY

Hannah C. Kistler
University at Albany, SUNY

The Individuals with Disabilities Education Act (IDEA) mandates that special education teachers be fully licensed, either by obtaining state certification or passing a licensure examination. However, despite this federal mandate, many states have historically issued emergency licenses to fill special education teacher positions due to persistent shortages in the workforce. We use longitudinal state data from Indiana spanning years 2012 to 2021 to document the proportion of special education teachers working under emergency licensure, the students they serve, and the instructional settings in which they work. We find that emergency-licensed teachers make up a growing proportion of the special education teacher workforce, and that they serve more students with autism and with intellectual disabilities in more restrictive settings than their non-emergency licensed counterparts.

VERSION: September 2025

Suggested citation: Shaheen, Tashnuva, and Hannah C. Kistler. (2025). Examining the Distribution and Characteristics of Emergency-Licensed Special Education Teachers. (EdWorkingPaper: 25-1286). Retrieved from Annenberg Institute at Brown University: https://doi.org/10.26300/vxmn-v062

Examining the Distribution and Characteristics of Emergency-Licensed Special Education Teachers

Tashnuva Shaheen, PhD
tshaheen@binghamton.edu
Binghamton University, SUNY

Hannah Kistler, PhD
hkistler@albany.edu
University at Albany, SUNY

Author Bios

Tashnuva Shaheen, Ph.D. is an Assistant Professor at Binghamton University, SUNY. Her research explores how to cultivate a robust teacher workforce, with a focus on improving policies and practices that ultimately improves outcomes for students with disabilities. ORCID: 0000-0001-5141-3305

Hannah C. Kistler, Ph.D. is an Assistant Professor at University at Albany, SUNY. Her research focuses on how educational policies impact teacher supply and student outcomes, with an emphasis on schools in historically underserved communities. 0009-0001-1201-9265

Abstract

The Individuals with Disabilities Education Act (IDEA) mandates that special education teachers be fully licensed, either by obtaining state certification or passing a licensure examination. However, despite this federal mandate, many states have historically issued emergency licenses to fill special education teacher positions due to persistent shortages in the workforce. We use longitudinal state data from Indiana spanning years 2012 to 2021 to document the proportion of special education teachers working under emergency licensure, the students they serve, and the instructional settings in which they work. We find that emergency-licensed teachers make up a growing proportion of the special education teacher workforce, and that they serve more students with autism and with intellectual disabilities in more restrictive settings than their non-emergency licensed counterparts.

Examining the Distribution and Characteristics of Emergency-Licensed Special Education Teachers

The Individuals with Disabilities Education Act (IDEA) mandates that special education teachers (SETs) be fully certified, either by obtaining state certification or passing a licensure examination (IDEA, 2004). This requirement is intended to ensure that students with disabilities (SWDs) receive appropriate, high-quality instruction from qualified professionals. However, despite this federal mandate, many states, including Indiana, have historically issued emergency permits to fill SET positions due to persistent shortages in the workforce. An emergency permit is a temporary credential issued at a school district's request when it cannot staff a position with a properly licensed educator and allows for an individual with a bachelor's degree but no formal teacher training, or without licensure in the particular content area, to work in a teaching position (Indiana Department of Education, n.d.).

During the early COVID-19 pandemic years, when shortages became particularly severe, states increasingly relied on emergency-licensed teachers to fill vacancies in hard-to-staff areas and in schools serving more historically marginalized students (Backes et al., 2024). Research has long shown that SETs are a hard-to-staff group, with high attrition rates that intensify shortages and disrupt continuity of services for SWDs (Billingsley, 2001; Billingsley & Bettini, 2019). More recent studies confirm that SET turnover remains higher among teachers in high-need schools or without full preparation (Bettini et al., 2020; Gilmour & Wehby, 2020). Such patterns contribute to the churn that forces districts to turn to emergency-licensed teachers to staff special education classrooms, particularly in the very positions that are most difficult to fill but also the most high-need. Indeed, the literature reveals that in high-poverty schools, SETs are likely to work in self-contained settings (Bettini et al., 2022), and that SETs serving students with

emotional and behavioral disorders in self-contained settings have low rates of certification (O'Brien et al., 2019).

Our study extends both the literatures on teacher emergency licensure in hard-to-staff areas and on SET assignment to students by describing the school contexts, instructional settings, and student populations served by this subset of the workforce, who are increasingly central to states' strategies for addressing shortages. This inquiry constitutes a novel contribution, as we are not aware of prior work that explores these questions.

In 2022, Indiana discontinued the practice of issuing emergency licenses to SETs, aligning with IDEA's certification requirements. We study the period prior to this policy change to inform predictions about where staffing challenges are likely to emerge in the coming years. The elimination of emergency licensure raises critical questions about how schools and districts that previously relied on these teachers will have to adapt. If, for example, emergency-licensed SETs are working in schools that would otherwise be unable to staff their classes or in positions that are particularly hard to fill, schools and districts may need to implement creative strategies to recruit and retain personnel or be forced to increase caseload sizes for remaining staff. Our results around how Indiana used emergency-licensed SETs provides an important baseline for understanding patterns of SET assignment by licensure status and how the removal of this pathway might shape staffing patterns, service delivery, and ultimately, students' experiences.

We leverage the novel level of detail in the Indiana longitudinal dataset that allows us to capture the characteristics of SETs' schools, as well as their student assignments and compare emergency to non-emergency licensed SETs. Specifically, we ask four research questions: 1) How have the counts and proportions of SETs on emergency licenses changed over time? 2) To what extent do SETs on emergency licenses work in schools serving different populations of

students (e.g., proportion students in each race/ethnicity category, proportion ELL, proportion FRPL, total student enrollment, and school level) than their non-emergency licensed SET peers? 3) To what extent do SETs on emergency licenses work with students in different instructional settings (self-contained, resource, or inclusion) than their non-emergency licensed SET peers? and 4) To what extent do SETs on emergency licenses work with students with different disabilities than their non-emergency licensed SET peers?

Through these analyses, we find that emergency-licensed SETs make up a large share of the SET workforce, and that they work with students with significant needs. Over the past decade, the count of SETs working on emergency licenses in Indiana increased drastically, so that in school year 202-2021, almost one in seven SETs were working on emergency licenses (up from 4% in 2012-13). These SETs on emergency licenses work in schools serving large proportions of economically disadvantaged students and students of color where staffing tends to be more difficult, filling positions that might otherwise be vacant. And, even in comparison to non-emergency licensed SETs with the same characteristics working within the same schools and years, SETs on emergency licenses are more likely to work with students in self-contained settings and with greater proportions of students with autism and intellectual disabilities.

These patterns suggest that emergency-licensed SETs play a critical role in supporting students who require more intensive services and in staffing the most challenging positions. Although the state has now ended this licensure option, understanding its historical use offers important insights for other states still grappling with similar shortages, and for anticipating how policy shifts may shape staffing and service delivery. Our study also contributes to ongoing conversations about way that states should be building pipelines for SETs, particularly in contexts that have historically relied on emergency licensure pathways to address shortages.

Importantly, our analyses include two of the COVID-19 pandemic years, where research is more limited and where teacher shortages were further exacerbated.

The paper is organized as follows: First, we review the literature on SET shortages and the ways that emergency licensure can help to address the challenges schools face in recruiting SETs. Next, we define the data and sample for our analyses, followed by a description of our research methods. We then present the results and discuss them in the context of the existing literature.

Special Education Teacher Shortages, Assignment to Students, and Emergency Licensure

Shortages of SETs have persisted for several decades, dating back to at least the early 1970's (Bettini et al., 2020; Weatherly & Lipsky, 1977). More recently, this shortage has intensified, reaching historic levels during and after the COVID-19 pandemic (Goldhaber & Theobald, 2023). The U.S. Department of Education (2017) defines shortages broadly to include unfilled positions, teachers teaching out of field, teachers without certification, and teachers whose credentials do not align with their specific teaching roles (Nguyen et al., 2022). By this definition, 48 states (including Indiana) currently face shortages in special education (National Center for Education Statistics [NCES], 2022). This means that schools often struggle to fill SET positions; James et al. (2023) examined job openings in the Boston Public Schools from 2014-15 to 2018-19 and found that the district advertised more positions for SETs than any other category of educators, despite SETs constituting a much smaller percentage of the teaching population than elementary educators.

Reducing Licensure Requirements as a Solution to Addressing Shortages

Reducing requirements for licensure has emerged as a solution to address the shortages of teachers in hard-to-staff areas, including special education. However, tensions emerge between

the potential for increasing teacher supply (Chi et al., 2023) and ensuring teacher quality (Backes & Goldhaber, 2023). While proponents of reducing barriers to entry into the profession via emergency licensure argue that it can address teacher shortages, particularly in hard-to-staff areas and schools, critics express concerns that it may result in reduced teacher quality and worse outcomes for students, especially the most disadvantaged who are already the least likely to have access to high-quality teachers (Bettini et al., 2022).

The same tensions emerge around SETs. IDEA (2004) requires that SETs be fully certified, although the effectiveness of licensure as a signal of teacher quality is contested. On the one hand, early research found positive associations between special education licensure and student outcomes (e.g., Feng & Sass, 2013) and some critics warn that reductions in teacher preparation can lead to reduction in quality (Darling-Hammon, 2010). In contrast, more recent studies provide limited or inconsistent support for the idea that certification predicts student outcomes. For example, researchers have found null or negative associations between certification and the academic outcomes of students with disabilities overall (Theobald et al., 2018), as well as for students with emotional and behavioral disorders (Gilmour, 2019), learning disabilities (Gilmour, 2019), and autism spectrum disorder (Goldman & Gilmour, 2021). States often elect to reduce barriers to entry into the teaching profession as a way of increasing teacher supply, creating the current conditions in which many states depend on these routes to staff classrooms in shortage areas such as special education (Connelly et al., 2014).

Inequitable Distribution of SETs

Not all schools face the same challenges with SET positions, and they turn to non-traditional certification routes to varying extents. Only a handful of studies explore the unequal distribution of SETs using widely varied datasets and methods (e.g., Billingsley, 2001; Fall &

Billingsley, 2008; Lai et al., 2021; Mason-Williams, 2015). These studies consistently find: (a) Higher-poverty schools and districts and those serving more students of color employ less qualified, less effective teachers than lower-poverty schools and districts and those serving more white students; and (b) within schools, students of color and low-income students are disproportionately assigned to the least qualified, least experienced teachers compared to their white and affluent peers. For example, Mason-Williams (2015) found that more SETs in low-poverty schools (83.1%) completed traditional or degree-focused preparation programs compared to those in high-poverty schools (68.7%). Additionally, high-poverty schools had a higher proportion of SETs completing nontraditional or alternative certification programs, or no preparation programs at all. Fall and Billingsley (2008) documented that SETs in high-poverty schools were significantly more likely to be teaching outside their certification area and had fewer years of experience. These patterns suggest that schools serving the most economically disadvantaged students systematically employ teachers with less specialized training in special education.

Some research suggests that there may be heterogeneity in these relationships between licensure status and student assignment by student disability type. Lai and colleagues (2021) analyzed data from the Los Angeles Unified School District (LAUSD), focusing on students in grades 3 – 8. They linked these students to their teachers and assessed teacher quality using value-added measures. They found that students with specific learning disabilities face significant teacher quality gaps, particularly in lower-poverty schools, where teachers have –0.074 SD lower Value-added and –0.087 SD lower evaluation scores. In contrast, students with autism generally do not experience significant teacher quality gaps, with minimal differences across all measures.

Further research on general education teachers of SWDs has revealed disparities in teacher quality across disability categories. For example, Gilmour and Henry (2018) found that middle school students with intellectual disabilities or emotional disturbances were assigned teachers with academic achievement scores 0.05 to 0.06 standard deviations lower than their peers without disabilities. In addition, SWDs were 15% less likely to be assigned to experienced teachers in elementary school and 19.9% less likely in middle school (Gilmour & Henry, 2018). These trends suggest that SWDs, particularly those with more significant disabilities such as autism and intellectual disabilities, may be assigned to teachers with lower qualifications.

However, there are signs that some disparities may be improving over time. Using nationally representative data from 2000 to 2016, Bettini, Nguyen, and colleagues (2022) found that certification gaps between SETs in higher- and lower-poverty schools were minimal in more recent years. While SETs in higher-poverty schools were significantly less likely to be certified than their counterparts in lower-poverty schools in 2000, by 2016 they were equally likely to be certified in both settings.

Within this literature, few studies have directly examined the relationship between teacher licensure status and the disability composition of students assigned to teachers. Given the equity implications if emergency-licensed teachers are disproportionately working in schools and classrooms with students that already face multiple disadvantages, our study fills an important gap within the literature.

Instructional Settings of SWDs

There is also variation in the instructional settings, or service delivery models, that schools use to support SWDs, as well as the teachers assigned to these models. Service delivery models range in inclusivity, 1) from "push-in" models, where SWDs receive instruction

alongside their non-disabled peers in the general education classroom, to 2) "pull-out" models, where students receive separate, supplemental instruction, and 3) self-contained models, where SWDs spend most of their day in a specialized classroom setting (Epler & Ross, 2015; Zigmond, 2003). Jones et al. (2025) used administrative data from Indiana and found that SWDs in more inclusive settings, such as general education or co-taught classrooms, perform better than those in self-contained or pull-out settings. In particular, students placed in general education settings scored 0.053 SD higher in math compared to their peers in pull-out services, with middle school students scoring 0.062 SD higher in math and 0.100 SD higher in ELA compared to students in self-contained settings.

Self-contained classrooms, often serving students with autism, intellectual disabilities (ID), or emotional and behavioral disturbances (EBD), are among the most challenging environments to staff. These roles are associated with higher burnout and turnover (Bettini et al., 2016; Gilmour & Wehby, 2020), and research suggests that teachers in these settings may be less qualified or experienced (Billingsley et al., 2006). However, there is little empirical evidence to date on how licensure status is related to SETs' assignments to self-contained classrooms, especially in contexts that relied heavily on emergency licensure.

Research Design

We use longitudinal administrative data from Indiana to describe the changes in the counts and proportions of SET working on emergency licensed over time, as well as the instructional settings and disability categories of the students assigned to emergency licensed SETs. We present descriptive statistics and fit models predicting school and student characteristics, described in more detail below, to compare emergency-licensed SETs to non-emergency licensed SETs.

Data Sources

The Indiana dataset includes information on all teachers and students in the state from 2012-2013 to 2020-2021, which is prior to the policy change in Indiana that prohibited the issuance of emergency licenses to SETs. We note that two years of data (2019-20 and 2020-21) include teachers who were potentially affected by the beginning of the COVID-19 pandemic, in that testing centers may have been closed, and administrative processes may have been more difficult. We fit models to check that the results are not primarily driven by COVID by excluding these two years (See Appendix, Figures A1 and A2, and Table A3), and we find that the results are substantively similar.

Teacher-level Characteristics. The Indiana administrative staffing dataset includes information on school assignment, classroom setting, and position type, along with teacher demographic characteristics and licensure information on the subjects and pathways through which teachers are qualified to teach in the state. Using this information, we create a binary variable indicating whether individuals are SETs in the given year based on the special education classroom setting code provided by the state. Here, 0 indicated not a special education teacher, and codes 1 through 7 represented different special education roles: 1 = Core Academic Elementary School Teacher, 2 = Core Academic Junior High/Middle or Secondary Teacher, 3 = Team Teaching, 4 = Co-Teacher, 5 = Consultant Teacher, 6 = Resource Room Teacher, and 7 = Non-Core Academic Instruction Teacher. We created a binary variable where 0 indicated a general education teacher and 1 indicated a special education teacher if assigned any of the special education roles (codes 1–7).

We also create a variable indicating whether these individuals are emergency-licensed or non-emergency-licensed in a given year. In this study, "emergency-licensed" refers to SETs who

hold a temporary license and who have not completed the preparation required for special education teacher licensure in the state or enrolled in a preparation program. This can include teachers without any teacher training, or those who hold a certificate in another licensure area, but not in special education. We note that the non-emergency licensed teachers group includes individuals who come through alternative pathways such as Teach for America and Indiana Teaching fellows. Thus, the comparison group includes teachers who come through a variety of teaching pathways, but all of whom have received more training in special education than the emergency-licensed teachers.

This dataset also includes teacher-level demographic information such as categorical variables for individuals' racial/ethnic identity (white, Black, Hispanic, or other race/ethnicity not listed); gender; and whether they hold a Master's degree or higher; as well as variables for age and years of experience teaching in the state (which we include in our models as continuous).

School-level Characteristics. We collapse the data to construct time-varying school-level characteristics that reflect the context of the school that a teacher works in each year. For each school and year, we calculate the proportion of students in the school who are white, Black, Hispanic, other race/ethnicity category not listed, receive ELL services, and receive Free and Reduced-price lunch. We also calculate the total number of students enrolled in the school in that year. We complement this dataset with school information from the Common Core of Data (CCD) from the National Center for Education Statistics to capture categorical variables for school level (elementary, middle, high, and other level).

Student Characteristics: Service Delivery and Disability Category. We link this teacher-level dataset to information on the students they are assigned in order to calculate the

proportion of a given teachers' students who fall into each disability category. We aggregate the categories of primary student disabilities in the same way as Gilmour & Henry (2018) to be the following: autism, emotional and behavioral disorders, speech and language impairment, specific learning disability, intellectual disabilities, other health impairment and a combined "other disabilities" category that includes blindness or low vision, deafness or hard of hearing, multiple disabilities, orthopedic impairment, and traumatic brain injury. We create this "other" category to account for very small numbers in these last five individual categories.

We also use the teacher-student linkages to understand the service delivery of teachers' students. We do this by 1) calculating the proportion of time in special education that a given student spends in each service delivery model within the school year and then 2) averaging across all of teachers' students within the year. In practice, this means that if a teacher is assigned ten students within the year, five of whom receive only one resource class and five of whom receive one resource class and two inclusion classes, then this teacher would have a value of 0 for self-contained (because they have no students who receive that service); 0.78 for resource (5 students have scores of 1 on resource, and 5 have scores of .33); and .33 for inclusion (5 students have scores of 0 an inclusion, and 5 have scores of .67).

Sample

This process yields a sample of 41,444 observations of 12,406 unique SETs working across 1,628 Indiana schools in school years 2012-13 through 2020-21. In Table 1, we present the sample that demonstrates the extent to which emergency licensed SETs differ from those who are not emergency licensed. Echoing prior literature, we find that emergency licensed SETs are more racially and ethnically diverse than their non-emergency licensed counterparts, and that a greater proportion are male. Emergency licensed SETs typically have fewer years of experience

and are younger on average than traditionally licensed teachers, which is unsurprising given that the emergency licenses are only renewable for up to two years and teachers who persist in the state teacher workforce as SETs must eventually convert to non-emergency licenses. When we restrict the sample to only teachers who are new to teaching in the state (Table A1), we find that emergency licensed teachers are older on average, but that otherwise the substantive patterns and the results are substantively similar though less precisely estimated given the much smaller sample (Figure A3, Figure A4, Table A3).

Analytic Approach

We descriptively compare SETs who are working on emergency licenses to those who are not working on emergency licenses. To answer Research Question (RQ) 1, we leverage the longitudinal nature of the data to create annual measures of the proportions of SETs working on emergency licenses and present graphs that show the proportions over time relative to the SET workforce overall. We also present the counts of emergency licensed teachers by the school-level quartile of FRPL students to understand how schools differentially drew on this source of teachers across time.

To answer RQ2 and describe the schools in which teachers work, we compare school-level characteristics (e.g., the proportion of students who receive FRPL) between emergency-licensed SETs and non-emergency licensed SETs. We present means for each variable to document differences. We then fit a series of regressions to predict each school characteristic (proportion of white, Black, Hispanic, other race students, ELL students, FRPL students, and school level) as a function of 1) a binary variable for whether the SET holds an emergency license in that year; 2) year fixed effects to account for differences across years; 3) district fixed effects to account for sorting of emergency-licensed teachers to certain districts; and 4) teacher

characteristics to account for the ways that teacher characteristics are often correlated with the schools they choose to teach in. In all models described here, standard errors are clustered at the school level.

To answer RQ3 and describe the instructional settings of teachers' students, we compare the instructional setting outcomes for emergency versus non-emergency licensed SETs. We again describe mean differences and then use regressions to further explore patterns, holding different factors constant. Here, the outcome is the average service delivery model of students that the teacher is assigned (self-contained, resource, and inclusion). We model each service delivery outcome as a function of SET emergency licensure status, year and district fixed effects, and teacher characteristics as above. For these outcomes, we also include school fixed effects to allow us to make comparisons of teachers working within the same schools and years.

Finally, for RQ4, in describing the composition of students assigned to emergency-licensed teachers by disability category, we compare difference in mean values. We also fit a series of models predicting the proportion of the teacher's students in each disability category (autism, emotional and behavioral disturbances, speech and language impairment, learning disability, intellectual disability, other health impairment, and other disability) as a function of SET emergency licensure status, year, district, and school fixed effects, and teacher characteristics to determine differences in the types of students assigned to emergency-licensed SETs, compared to non-emergency SETs.

Results

Our results provide clear evidence that emergency-licensed SETs make up a growing proportion of the SET workforce, and that they serve students with substantial needs in more restrictive settings than their non-emergency licensed counterparts.

Proportion and Counts of SETs on Emergency Licenses Have Increased Over Time

To answer our first research question, we present descriptive evidence in Figure 1 that the proportion of SETs working on emergency licenses has increased substantially over the past decade. In 2013, four percent of SETs held emergency licenses and by 2021, this proportion had more than tripled, so that 14% of SETs held emergency licenses. These increases are steady over the study period, but are especially apparent in the pandemic years, when teacher supply was particularly constrained. In Figure 2, we present evidence that this growth occurred across schools serving varying proportions of FRPL students over time (although the growth is most apparent in the highest FRPL schools). For example, in school year 2012-13, a total of 192 SETs worked on emergency licenses, with 48 of them working in schools in the top quartile of FRPL students. By school year 2021-22, 654 SETs in the state were working on emergency licenses, with nearly two-thirds of them (208 teachers) working in schools in the top quartile of FRPL.

SETs on Emergency Licenses Often Work in Schools Serving More Historically Marginalized Students

In Table 1, we show that SETs on emergency licenses work in schools employing higher proportions of SETs on emergency licenses overall (where 38% of SETs in the school are emergency licensed) than their counterparts (where 6% are), suggesting that they may be concentrated in certain schools. Indeed, 42% of schools never have an emergency licensed SET over the entire panel. These schools that have no emergency licensed SETs serve smaller proportions of students on FRPL and larger proportions of white students. On the other end of the spectrum, in about 3% of schools, more than 50% of SETs are emergency licensed. These schools serve larger proportions of students of color and of FRPL students. At the district level, most (80%) districts employ at least one emergency licensed SET over the study period, meaning

that 20% never have even one within their district. These districts that do not employ SETs on emergency licenses serve more white students and fewer students eligible for FRPL.

With these patterns in mind, we next answer research question 2 by comparing school-level student characteristics for both non-emergency and emergency-licensed SETs (Table 1). We find similar patterns as the broader literature on emergency licensed teachers, where emergency licensed teachers work in schools serving larger proportions of students of color and economically disadvantaged students. Emergency-licensed SETs work in schools with higher proportions of Black students (16% vs. 13%), and students who receive free/reduced lunch (55% vs. 51%) compared to their non-emergency licensed counterparts. We also find that smaller proportions of emergency licensed SETs work in elementary schools (34% vs. 40%) and larger proportions work in high schools (30% vs. 28%), where shortages may be more severe and assignments may be more challenging.

These patterns bear out in the regressions presented in Table 2, where we predict each of the school-level student characteristic variables as a function of a SET's license status as well as their individual characteristics and fixed effects for district and year. Holding year, district, and teacher characteristics constant, emergency licensed SETs work in schools with a Black student enrollment share that is about one percentage-point higher than non-emergency licensed SETs. We note that some of the relationships (such as the proportion of white and proportion FRPL students) are less strong after the addition of the district fixed effect, suggesting that at least some of the variation in the schools that teachers work in by emergency licensure status is explained by differences in the districts they choose to work in. For example, the estimate on the relationship between SET emergency licensure status and the proportion of white students is very precisely estimated ($p<.01$) and negative in the model that only includes year fixed effects, but

becomes less precise and smaller in magnitude when district fixed effects and then teacher characteristics are added.

Emergency Licensed SETs Are Assigned to Greater Proportions of Self-Contained Students Than Their Non-Emergency Licensed Peers

Next, in answering our third research question, we present evidence that SETs on emergency licenses serve students in different settings than their peers who hold non-emergency licenses. In Table 1, we describe the instructional setting of emergency and non-emergency SETs' students and find that non-emergency SETs are assigned to students who spend less of their time in self-contained settings on average (where students' needs are typically greater), in comparison to emergency SETs. In contrast, non-emergency SETs are assigned to students who spend more of their time in inclusion settings, in comparison to emergency SETs.

These patterns are consistent in the regressions presented in Figure 3, where we show the proportion of special education class time that SETs' students spend in self-contained, resource, or inclusion settings as a function of SET emergency licensure status as well as school, district, and year fixed effects and individual teacher characteristics. Here, emergency licensed SETs are assigned to students who spend 8.2 percentage-points more of their time in self-contained settings than students whose teachers are not emergency licensed. And, they are assigned to students who spend 8.4 percentage-points less of their time in inclusion settings than students whose teachers are not emergency licensed, even in comparison to teachers working in the same schools and years and with similar characteristics.

We demonstrate in Table 3 that the results that use proportion of time in self-contained are remarkably consistent across models that include year, district, and school fixed effects, as well as teacher characteristics, suggesting that these results are not driven primarily by teacher

sorting. We present the results for the other service delivery and disability category outcomes in the Appendix (See Table A2). Although in most cases, the magnitude of the estimate becomes slightly smaller when district and then school fixed effects are added, this does not seem to be primarily a story about school or district-level sorting. For example, the estimate on emergency licensure status for the self-contained outcome is 0.093 ($p<.001$) in the model that includes only year fixed effects, and decreases slightly in magnitude to 0.082 but maintains its statistical significance as other fixed effects and teacher characteristics are added. Given that student disabilities are similarly distributed across schools, unlike student characteristics above where schools and district are often segregated by race/ethnicity or economic disadvantage, this is consistent with what we might expect.

Emergency Licensed SETs Are Assigned Greater Proportions of Students with Autism and Intellectual Disabilities Than Non-Emergency Licensed SETs

The results above provide evidence that SETs on emergency licenses work with students with who spend more time in self-contained classes, and who are likely to have more significant challenges. We present evidence in Table 1 and Figure 4 that confirms that this is the case. In Table 4, we describe the proportion of students assigned to SETs by emergency licensure status who have autism, emotional and behavioral disorders (EBD), speech or language impairment (SLI), learning disabilities (LD), intellectual disabilities (ID), other health impairment (OHI), or other disabilities. Emergency-licensed SETs work with greater proportions of students with autism (15% vs. 13%), emotional and behavioral disorders (13% vs. 10%), and intellectual disabilities (19% vs. 16%) compared to their non-emergency licensed counterparts. We also find that emergency licensed SETs work with smaller proportions with specific learning disabilities

(28% vs. 32%) and speech/language impairments (4% vs. 7%) than non-emergency licensed SETs.

The regressions presented in Figure 4, where we predict the proportion of students assigned to a SET in each disability category as a function of licensure status, individual teacher characteristics, and school and year fixed effects support these findings. Indeed, even controlling for other factors and comparing SETs within the same school and year with the same characteristics, we find that emergency licensed SETs work with greater proportions of students with autism, ID, and other disabilities and smaller proportions of students with SLI, LD, and OHI. These results are robust across specifications that include or exclude school, district, and year fixed effects (Table A2).

Although the modeling approaches mostly yield similar findings, the differences in the proportion of students with EBD assigned to a teacher are sensitive to modeling decisions. While emergency licensed teachers descriptively have larger proportions of EBD students (Table 4) and models that include year, district, and school fixed effects reveal that they work with larger proportions of students with EBD, models that add teacher characteristics yield null findings. Taken together, these results suggest that emergency licensed teachers may be more likely to work with students with EBD, but that this is driven in part by differences in teacher characteristics than differences by licensure status.

Discussion and Conclusion

In this study, we describe the emergency-licensed SET workforce in Indiana, including assignments to students, which past research had not yet explored. Using longitudinal administrative data, we surface key themes around emergency licensure, including differences in school assignments, instructional settings, and assigned students' disabilities. The results of this

study highlight the increasing presence of emergency-licensed SETs in the workforce; the number of SETs holding emergency licenses has more than tripled over the past decade, reaching 14% by 2021. This indicates that schools who very recently relied on emergency licensed teachers to fill SET classrooms may need to approach staffing and recruitment differently and creatively.

Another key finding of this study is the differential assignment of emergency-licensed SETs to schools serving larger proportions of historically marginalized students. This pattern mirrors broader research on SETs, which shows they are disproportionality placed in under-resourced schools (Bettini et al., 2022). The research also suggests that SETs in high-poverty schools are more likely to work in self-contained settings, report greater student behavior challenges, and have reduced access to collegial support and materials (Fall & Billingsley, 2011). If emergency-licensed teachers are less effective or have shorter tenures (Backes & Goldhaber, 2023), their concentration in under-resourced schools may exacerbate inequities in access to high-quality instruction for SWDs. These results highlight the significant staffing challenges that schools face, and point to the necessity to develop plans for teacher supply in hard-to-staff schools in the absence of emergency licensure options for SETs.

In addition to differences in school characteristics, this study provides evidence that emergency-licensed SETs are more likely to be assigned to students in self-contained classrooms and to students with autism and intellectual disabilities. These findings persist even when school and year fixed effects and teacher characteristics are included in the model, suggesting that they are assigned differently than their peers within the same schools and years. If we think of staffing a classroom with an emergency licensed teacher as a principal's effort to avoid a vacancy or position that would otherwise go unfilled, this indicates that schools may be making

differentiated teacher assignments. It also points to staffing shortages in the state in particular types of SET positions, highlighting the challenges schools face in staffing qualified personnel for students in self-contained classrooms and the need to strengthen the pipeline for these teachers in the state.

Students with disabilities such as autism, intellectual disabilities (ID), and emotional and behavioral disorders, are often in need of more intensive behavioral and academic support than their peers with less significant challenges (Conroy et al., 2014). Gilmour and Henry (2018), find that teachers with lower value-added scores were more frequently assigned to students with emotional and behavioral disabilities and intellectual disabilities. Taken together with our evidence, this raises potential concerns about whether the emergency licensed SETs who are most likely to work with these students are adequately qualified. This trend could reflect the challenges of staffing high-need positions with teachers who have less formal preparation and pedagogical training.

As states continue to grapple with persistent shortages, these patterns point to the need for creative strategies to bring more SETs into schools and keep them there. This could include targeted recruitment incentives, competitive compensation, reduced caseloads, high-quality induction and mentoring, and opportunities for collaboration with general educators – supports that can stabilize the workforce and improve outcomes for SWDs. Efforts to build pathways and collaborate with teacher preparation programs to prepare and support students in high-need subjects, especially special education, may help address the imbalance created when the majority of preparation is for general elementary teachers, which is not currently a shortage area.

This study focuses on Indiana, a geographically diverse state that arguably is similar to many other state contexts, but we recognize that the findings reflect the state's specific licensure

policies, teacher supply challenges, and school contexts. Examining whether these patterns hold in other states or regions, particularly those with different emergency licensure or teacher recruitment policies, will be an important next step. Additionally, this analysis uses comprehensive administrative data, which does not capture qualitative aspects such as emergency-licensed SETs' lived experiences, professional development, or the supports they receive within schools. Understanding the challenges and supports these teachers encounter could provide valuable guidance for improving policies and practices aimed at supporting emergency-licensed teachers, ensuring they are adequately prepared for the complex needs of students with disabilities. Future research should explore these areas including mentorship and ongoing training.

Our inquiry also invites several avenues for future research that are outside the scope of this study, but substantively important. First, future studies could investigate the relationship between emergency licensure and student outcomes. Understanding whether emergency-licensed SETs are as effective as non-emergency licensed teachers in promoting student success—especially for SWDs—would provide important insights into how to structure licensure requirements moving forward.

Future research should examine turnover patterns more deeply to understand who replaces emergency-licensed SETs and whether these teachers eventually obtain full certification. Although turnover was not a central focus of this study, exploratory analyses point to important directions for future research. We tracked teachers across consecutive school years to determine whether they stayed in the same school, transferred within or across districts, or exited the state's teaching workforce. We found that emergency-licensed SETs were more likely than non-emergency-licensed SETs to leave teaching in-state (20% vs. 16%) and to transfer schools or

districts (9–10% vs. 4–6%). Because emergency-licensed SETs are often hired to quickly fill special education roles, their higher turnover can disrupt consistent instruction and support for students with disabilities, making staffing challenges worse in schools serving high-need populations. Further exploring these workforce transitions and the extent to which emergency licensed SETS need support in converting their licenses into permanent licenses could provide important insights for developing policies and supports that improve retention and professional advancement for emergency-licensed SETs.

By leveraging longitudinal administrative data, we describe the characteristics of emergency-licensed SETs over time and, crucially, the SWDs they were assigned to work with. Prior research had not attended to these particular questions, whose results shed light on the broader implications of emergency licensure policies on schools' staffing approaches and what schools should expect in the wake of removal of these policies. Future policy can build on this evidence to develop plans for building a strong pipeline of SETs, with the ultimate goal of improving stability in special education services.

References

Backes, B., Cowan, J., Goldhaber, D., & Theobald, R. (2024). Four years of pandemic-era emergency licenses: retention and effectiveness of emergency-licensed Massachusetts teachers over time. *Economics of Education Review*, *101*, 102562.

Backes, B., & Goldhaber, D. (2023). The Relationship between Pandemic-Era Teacher Licensure Waivers and Teacher Demographics, Retention, and Effectiveness in New Jersey. Working Paper No. 286-0623. *National Center for Analysis of Longitudinal Data in Education Research (CALDER)*.

Bettini, E., Cumming, M. M., O'Brien, K. M., Brunsting, N. C., Ragunathan, M., Sutton, R., & Chopra, A. (2020). Predicting special educators' intent to continue teaching students with emotional or behavioral disorders in self-contained settings. *Exceptional Children*, *86*(2), 209-228.

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.

Bettini, E., Park, Y., Benedict, A., Kimerling, J., & Leite, W. (2016). Situating special educators' instructional quality and their students' outcomes within the conditions shaping their work. *Exceptionality*, *24*(3), 176-193.

Bettini, E., Wang, J., Cumming, M., Kimerling, J., & Schutz, S. (2019). Special Educators' Experiences of Roles and Responsibilities in Self-Contained Classes for Students With Emotional/Behavioral Disorders. *Remedial and Special Education*, *40*(3), 177-191. https://doi.org/10.1177/0741932518762470

Billingsley, B. S. (2001). Beginning Special Educators: Characteristics, Qualifications, and Experiences. SPeNSE Summary Sheet.

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., Fall, A. M., & Williams Jr, T. O. (2006). Who is teaching students with emotional and behavioral disorders?: A profile and comparison to other special educators. *Behavioral Disorders*, *31*(3), 252-264.

Boe, E. E., & Cook, L. H. (2006). The chronic and increasing shortage of fully certified teachers in special and general education. *Exceptional Children*, *72*(4), 443-460. https://doi.org/10.1177/001440290607200404

Chi, O. L., Bacher-Hicks, A., Tichnor-Wagner, A., & Baloch, S. (2023). Who Becomes a Teacher When Entry Requirements Are Reduced? An Analysis of Emergency Licenses in Massachusetts. *Educational Researcher*, 0013189X251346091.

Conroy M. A., Alter P. J., Boyd B. A., Bettini E. (2014). Teacher preparation for students who demonstrate challenging behaviors. In Sindelar P.T., McCray E.D., Brownell M.T., Lignugaris-Kraft B. (Eds.), *Handbook of research on special education teacher preparation* (pp. 320–333). New York, NY: Routledge.

Darling-Hammond, L. (2010). Teacher education and the American future. *Journal of Teacher Education, 61*, 35– 47. https://doi.org/10.1177/0022487109348024

Epler, P. L. & Ross, R. (2015). *Models for Effective Service Delivery in Special Education Programs*. IGI Global. https://doi.org/10.4018/978-1-4666-7397-7

Fall, A.-M., & Billingsley, B. (2008). Disparities in teacher quality among early career special educators in high- and low-poverty districts. In T. E. Scruggs & M. A. Mastropieri (Eds.),

Advances in learning and behavioral disabilities: Personnel preparation (Vol. 21, pp. 181–206). Greenwich, CT: JAI.

Fall A. M., Billingsley B. (2011). Disparities in work conditions among early career special educators in high- and low-poverty districts. *Remedial and Special Education*, 32, 64-78.

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

Gilmour, A. F., & Henry, G. T. (2018). A comparison of teacher quality in math for late elementary and middle school students with and without disabilities. *The Elementary School Journal, 118*(3), 426–451. https://doi.org/10.1086/696140

Gilmour, A. F., & Wehby, J. H. (2020). The association between teaching students with disabilities and teacher turnover. *Journal of Educational Psychology, 112*(5), 1042–1060. https://doi.org/10.1037/edu0000394

Goldhaber, D., & Theobald, R. (2023). Teacher attrition and mobility in the pandemic. *Educational Evaluation and Policy Analysis*, *45*(4), 682-687.

Goldhaber, D., Quince, V., & Theobald, R. (2018). Has it always been this way? Tracing the evolution of teacher quality gaps in US public schools. *American Educational Research Journal*, *55*(1), 171-201.

James, J., Kraft, M. A., & Papay, J. P. (2023). Local supply, temporal dynamics, and unrealized potential in teacher hiring. *Journal of Policy Analysis and Management*, *42*(4), 1010-1044.

Jones, N., Kaler, L., Markham, J., Senese, J., & Winters, M. A. (2025). Service Delivery Models: Impacts for Students With and Without Disabilities. *Educational Researcher*, *54*(3), 141-

152.

Lai, I., Wood, W. J., Imberman, S. A., Jones, N. D., & Strunk, K. O. (2021). Teacher quality gaps by disability and socioeconomic status: Evidence from Los Angeles. *Educational Researcher*, *50*(2), 74-85. https://doi.org/10.3102/0013189X20955170

Mason-Williams, L. (2015). Unequal opportunities: A profile ofthe distribution of special education teachers. Exceptional Children, 81(2), 247–262. https://doi.org/f6xrzj

Nguyen, T. D., Lam, C. B., & Bruno, P. (2022). Is There a National Teacher Shortage? A Systematic Examination of Reports of Teacher Shortages in the United States. EdWorkingPaper No. 22-631. *Annenberg Institute for School Reform at Brown University*.

O'Brien, K. M., Brunsting, N. C., Bettini, E., Cumming, M. M., Ragunathan, M., & Sutton, R. (2019). Special educators' working conditions in self-contained settings for students with emotional or behavioral disorders: A descriptive analysis. Exceptional Children, 86(1), 40-57.

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.

Weatherley, R. & Lipsky, M. (1977). Street-level bureaucrats and institutional innovation: Implementing special education reform. *Harvard Educational Review, 47*(2), 171 – 197. https://doi.org/10.17763/haer.47.2.v870r1v16786270x

Zigmond, N. (2003). Where should students with disabilities receive special education services? Is one place better than another?. *The Journal of special education*, *37*(3), 193-199.

Table 1

Descriptive Characteristics of Special Education Teachers (SETs) in Sample, By Emergency Licensure Status

	SET, Non-emergency Licensed	SET, Emergency Licensed
Teacher Characteristics		
White	0.94	0.87
Black	0.04	0.09
Hispanic	0.01	0.02
Other race/ethnicity not listed	0.01	0.02
Female	0.86	0.76
Master's degree or higher	0.51	0.20
Years of experience	13.57	3.64
Age	43.69	36.83
School Characteristics		
Prop white students	0.69	0.64
Prop Black students	0.13	0.16
Prop Hispanic students	0.11	0.13
Prop other student race/ethnicity not listed	0.02	0.02
Total student enrollment (school-level)	989.25	1009.86
Prop ELL	0.05	0.05
Prop FRPL	0.51	0.55
Elementary school	0.40	0.34
Middle school	0.21	0.22
High school	0.28	0.30
Other level school	0.12	0.14
Proportion SETs who are emergency licensed	0.06	0.38
Assigned Student Characteristics		
Prop autism	0.13	0.15
Prop EBD	0.10	0.13
Prop SLI	0.07	0.04
Prop LD	0.32	0.28
Prop ID	0.16	0.19
Prop OHI	0.14	0.14
Prop other disability category not listed	0.07	0.08
Self-contained	0.23	0.32
Resource	0.22	0.20

Inclusion	0.52	0.45
Observations	37601	3843

Note. The table above presents average values on each of the variables for each teacher-year combination, for SETs on emergency and non-emergency licenses. Here, EBD stands for Emotional/Behavioral Disturbance; SLI stands for Specific Learning Incidence; LD stands for learning disability; ID stands for Intellectual Disability; OHI stands for Other Health Impairment; and Other disability includes all other primary disability types not listed.

Table 2

Predicting School Characteristics, By SET Emergency Licensure Status

	(1) Year FE	(2) Add district FE	(3) Add teacher characteristics
Prop white	-0.035***	-0.009***	-0.002
	(0.010)	(0.002)	(0.002)
Prop other race/ethnicity	-0.003**	0.000	0.000
	(0.001)	(0.000)	(0.001)
Prop Hisp	0.011*	-0.001	-0.004*
	(0.004)	(0.001)	(0.002)
Prop Black	0.026***	0.009***	0.006**
	(0.007)	(0.002)	(0.002)
Prop ELL	-0.002	-0.001	-0.004**
	(0.002)	(0.001)	(0.001)
Prop FRPL	0.041***	0.006*	-0.001
	(0.007)	(0.003)	(0.003)
Elementary school	-0.056***	-0.038***	-0.045***
	(0.016)	(0.011)	(0.011)
Middle school	0.010	0.013	0.008
	(0.014)	(0.010)	(0.010)
High school	0.026	0.024*	0.032**
	(0.019)	(0.012)	(0.011)
Other school level	0.020+	0.001	0.005
	(0.011)	(0.007)	(0.007)
Year FE	X	X	X
District FE		X	X
N	41388	41388	41388

Note. In the above table, we present output from a series of regressions that predict the school-level characteristics in the row as a function of SET emergency licensure status and a year fixed effect. In column 2, we add a district fixed effect, in column 3 we add teacher-level characteristics. Here, for brevity, we only present the estimate on the SET emergency license variable. Standard errors, clustered at the school level, in parentheses; + p < .10, * p < .05, ** p < .01, *** p < .001

Table 3

Predicting Self-contained Status of Assigned Students, By SET Emergency Licensure Status

	(1) Year FE only	(2) Add district FE	(3) Add school FE	(4) Add teacher characteristic	(5) Add time-varying school characteristics
Emergency licensed	0.093***	0.094***	0.086***	0.082***	0.082***
	(0.011)	(0.011)	(0.010)	(0.010)	(0.010)
Other race/ethnicity				-0.012	-0.012
				(0.025)	(0.025)
Hispanic				-0.045+	-0.044+
				(0.027)	(0.027)
Black				-0.036*	-0.035*
				(0.017)	(0.017)
Female				0.023*	0.022*
				(0.010)	(0.010)
Master's or higher				0.001	0.001
				(0.008)	(0.008)
Years of experience				-0.001*	-0.001*
				(0.001)	(0.001)
Age				0.000	0.000
				(0.000)	(0.000)
Prop other race/ethnicity					0.579*
					(0.245)
Prop Hispanic					-0.150
					(0.133)
Prop Black					0.080

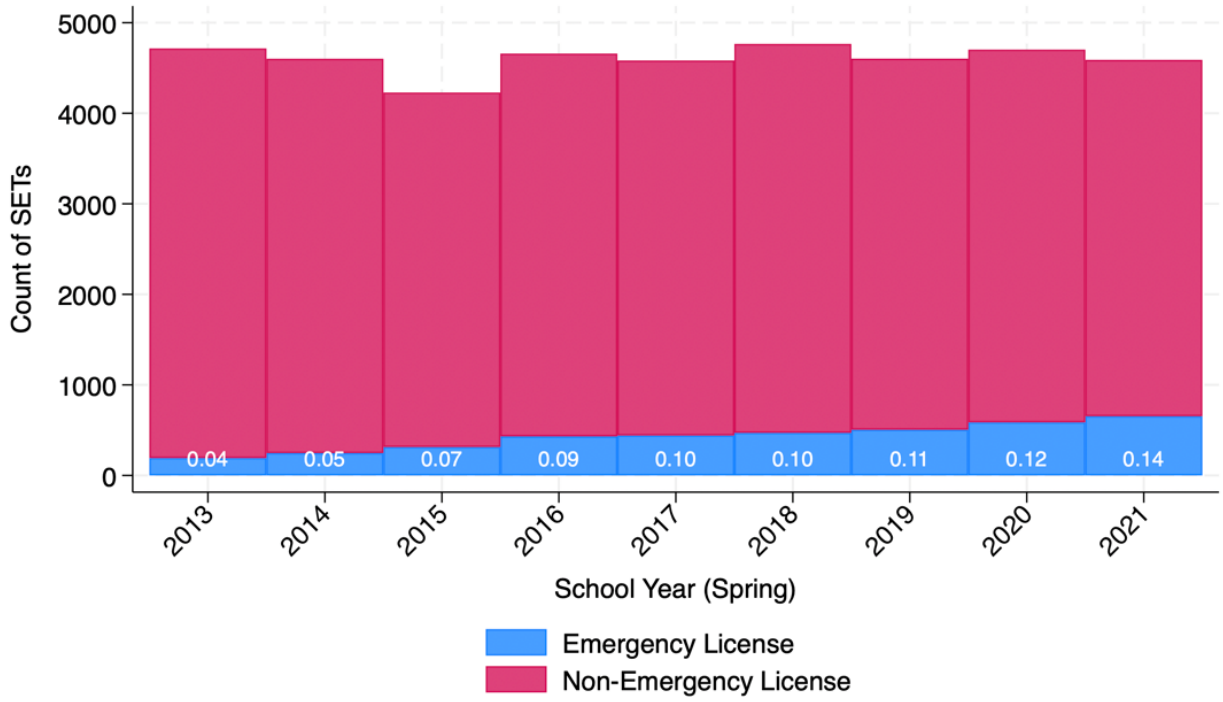
	(1) Year FE only	(2) Add district FE	(3) Add school FE	(4) Add teacher characteristic	(5) Add time-varying school characteristics
					(0.138)
Prop ELL					0.135
					(0.149)
Prop FRPL					-0.043
					(0.056)
_cons	0.268***	0.233***	0.234***	0.211***	0.222***
	(0.007)	(0.004)	(0.001)	(0.016)	(0.041)
Year FE	X	X	X	X	X
District FE		X	X	X	X
School FE			X	X	X
N	41388	41388	41388	41388	41388
R^2	0.008	0.113	0.259	0.260	0.260
adj. R^2	0.008	0.105	0.223	0.224	0.224

Standard errors in parentheses
$^{+}$ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Note. In the above table, we present output from a series of regressions that predict the average proportion students assigned to the teacher spend in self-contained settings as a function of SET emergency licensure status and a year fixed effect. In column 2, we add a district fixed effect, in column 3 we add a school fixed effect, in column 4 we add teacher-level characteristics, and in column 5 we add time-varying school characteristics. Standard errors, clustered at the school level, in parentheses; + p < .10, * p < .05, ** p < .01, *** p < .001

Figure 1

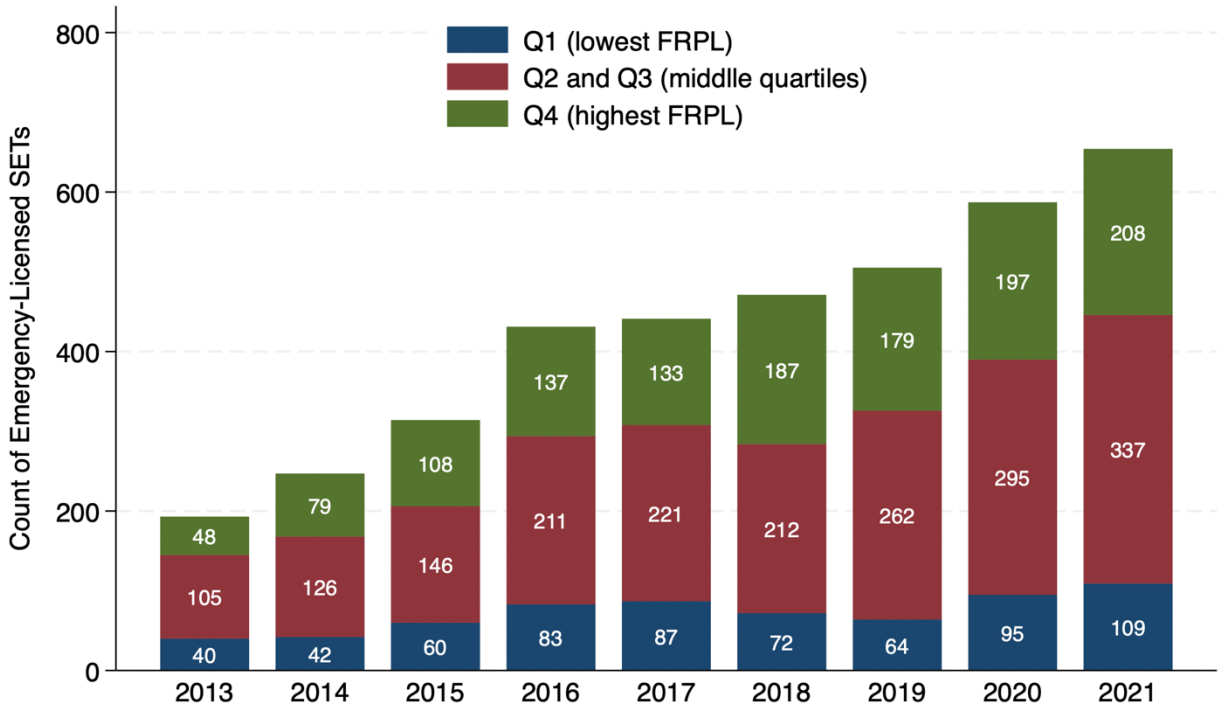
Proportion Special Education Teachers Working on Emergency Licenses, By School Year



Note. The figure above presents the counts of SETs by year working on emergency and non-emergency licenses. The proportions in white text indicate the proportion of total SETs in the given year that are emergency licensed.

Figure 2

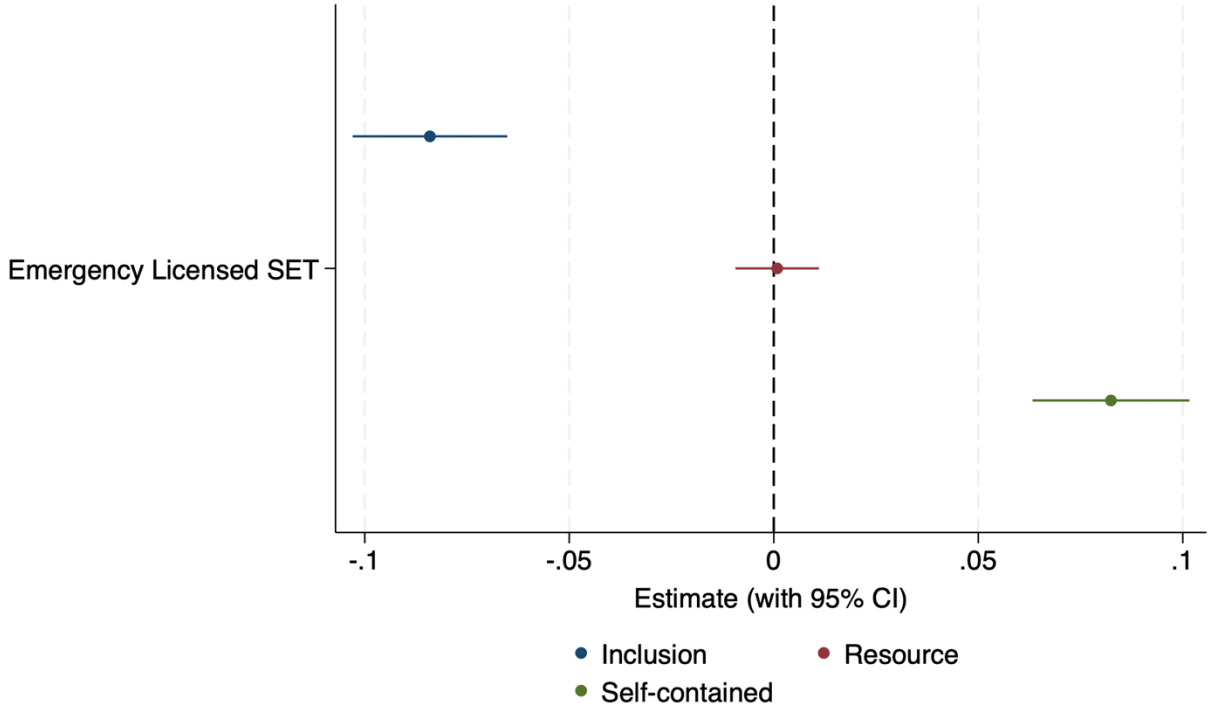
Proportion Special Education Teachers Working on an Emergency License, By Quartile of Free and Reduced Price Lunch (School-Level)



Note. The figure above presents the counts of emergency-licensed SETs by year and by quartile of school FRPL.

Figure 3

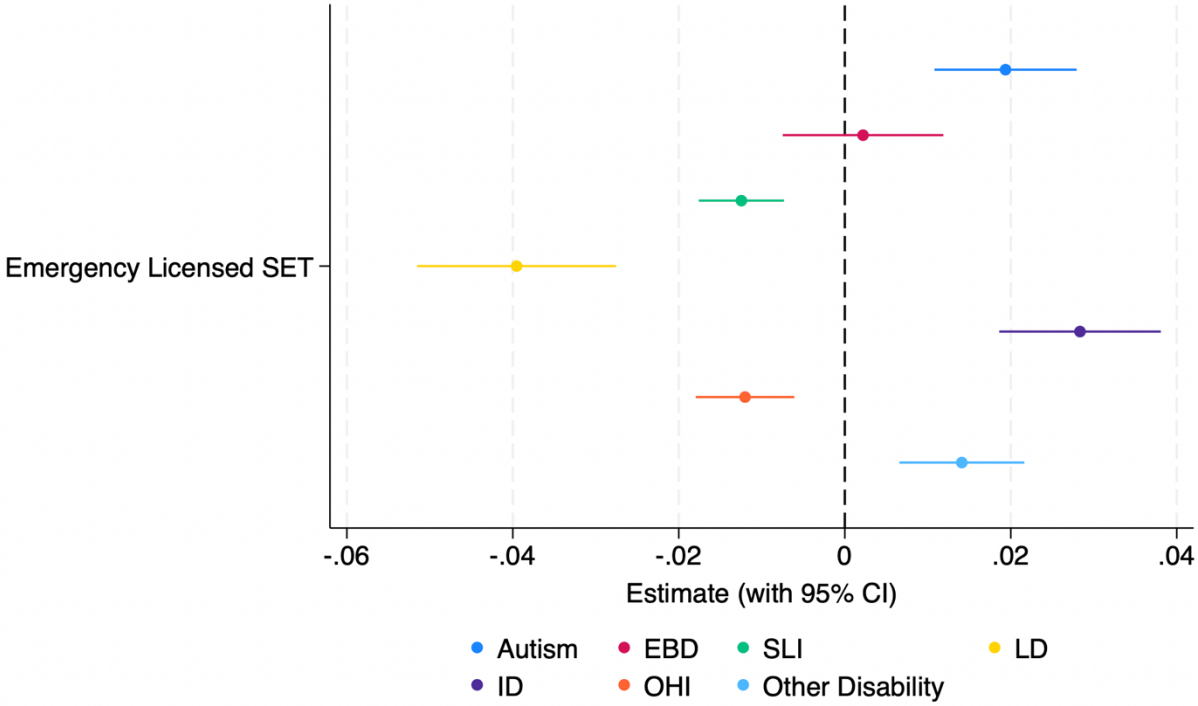
Results From Models Predicting Proportion Students in Each Service Delivery Model, As a Function of SET Emergency Licensure Status, Teacher, and School Characteristics (And School and Year Fixed Effects)



Note. The above graph presents estimates from a fixed-effects model that predicts proportion students receiving each service delivery model and includes controls for SET emergency certification status, teacher characteristics, school characteristics, and school and year fixed effects. This presents the estimates on the binary variable for whether an SET is emergency licensed. This is the output from three separate models, where each of the service delivery models (the average time in self-contained of students assigned to a teacher) is the dependent variable. The point represents the estimate, and the bars represent a 95% confidence interval.

Figure 4

Results From Models Predicting Proportion Students In Each Disability Category, As a Function of SET Emergency Licensure Status, Teacher, and School Characteristics (And School and Year Fixed Effects)



Note. The above graph presents estimates from a fixed-effects model that predicts proportion students in each disability category and includes controls for SET emergency certification status, teacher characteristics, school characteristics, and school and year fixed effects. This presents the estimates on the binary variable for whether an SET is emergency licensed. This presents the output from six separate models, where each of the disability categories is the dependent variable. EBD stands for Emotional/Behavioral Disturbance; SLI stands for Specific Learning Incidence; LD stands for learning disability; ID stands for Intellectual Disability; OHI stands for Other Health Impairment; and Other disability includes all other primary disability types not listed. The point represents the estimate, and the bars represent a 95% confidence interval.

Appendix

Table A1

Descriptive Characteristics of Special Education Teachers (SETs) in Sample, By Emergency Licensure Status, For Only Teachers New to the State and For Whom We Can Observe Licensure Information

	SET, Non-Emergency Licensed	SET, Emergency Licensed
Teacher Characteristics		
White	0.92	0.86
Black	0.04	0.08
Hispanic	0.02	0.02
Other race/ethnicity not listed	0.01	0.03
Female	0.84	0.76
Master's degree or higher	0.09	0.08
Years of experience	0.00	0.00
Age	30.34	32.95
School-level Characteristics		
Prop white	0.64	0.64
Prop Black	0.16	0.16
Prop Hispanic	0.13	0.13
Prop other race/ethnicity not listed	0.02	0.02
Total student enrollment	872.36	1000.58
Prop ELL	0.06	0.05
Prop FRPL	0.56	0.56
Elementary school	0.49	0.38
Middle school	0.19	0.21
High school	0.19	0.29
Other level school	0.13	0.12
Prop emergency licensed SETs	0.07	0.36
Assigned Student Characteristics		
Prop autism	0.12	0.14
Prop EBD	0.12	0.14
Prop SLI	0.08	0.04
Prop LD	0.32	0.29
Prop ID	0.14	0.18
Prop OHI	0.15	0.14
Prop other disability	0.07	0.08
Prop self-contained	0.24	0.31
Prop resource	0.21	0.20
Prop inclusion	0.53	0.46
Observations	1673	1168

Note. The table above presents average values on each of the variables for each teacher-year combination, for SETs on emergency and non-emergency licenses. Here, EBD stands for Emotional/Behavioral Disturbance; SLI stands for Specific Learning Incidence; LD stands for learning disability; ID stands for Intellectual Disability; OHI stands for Other Health Impairment; and Other disability includes all other primary disability types not listed.

Table A2

Regressions Predicting Student Disability Category and Service Delivery, As a Function of SET Emergency License Status

	(1) Year FE	(2) Add district FE	(3) Add school FE	(4) Add teacher char.	(5) Add time-varying school char.
Autism	0.011*	0.015***	0.018***	0.019***	0.019***
	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)
EBD	0.028***	0.023***	0.018***	0.002	0.002
	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)
SLI	-0.026***	-0.021***	-0.014***	-0.012***	-0.012***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
LD	-0.030***	-0.038***	-0.040***	-0.039***	-0.040***
	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)
ID	0.028***	-0.013***	0.019***	0.028***	0.028***
	(0.005)	(0.003)	(0.005)	(0.005)	(0.005)
OHI	-0.013***	-0.010***	-0.009**	-0.012***	-0.012***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Other disability	0.003	0.009*	0.009*	0.014***	0.014***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Inclusion	-0.080***	-0.081***	-0.081***	-0.084***	-0.084***
	(0.011)	(0.010)	(0.010)	(0.010)	(0.010)
Resource	-0.012+	-0.013*	-0.005	0.001	0.001
	(0.007)	(0.005)	(0.005)	(0.005)	(0.005)
Self-contained	0.093***	0.094***	0.086***	0.082***	0.082***
	(0.011)	(0.011)	(0.010)	(0.010)	(0.010)
Year FE	X	X	X	X	X
District FE		X	X	X	X
School FE			X	X	X
N	41388	41388	41388	41388	41388

Note. In the above table, we present output from a series of regressions that predict service delivery or disability category of a teacher's students in the row as a function of SET emergency licensure status and a year fixed effect.

In column 2, we add a district fixed effect, in column 3 we add a school fixed effect, in column 4 we add teacher-level characteristics, and in column 5 we add time-varying school characteristics. Here, for brevity, we only present the estimate on the SET emergency license variable. Standard errors, clustered at the school level, in parentheses; + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table A3

Predicting School Characteristics, By SET Emergency Licensure Status For Different Samples

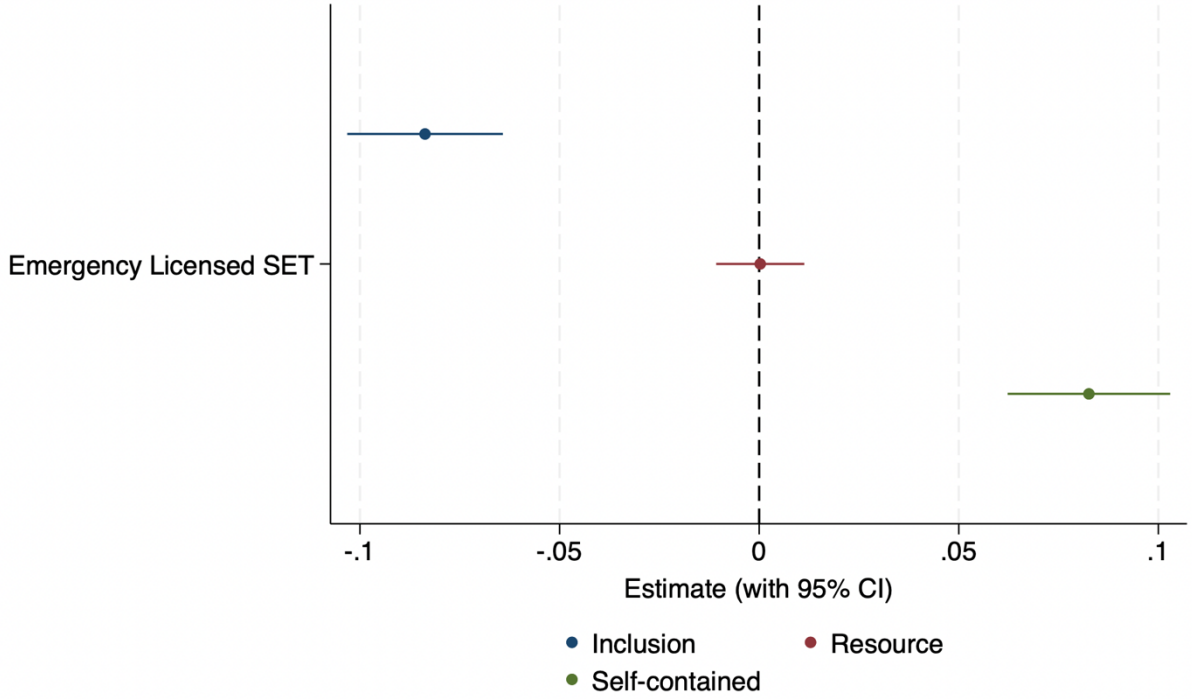
	(1) Main sample	(2) Remove 2020 and 2021	(3) New teachers only
Prop white	-0.002	-0.002	-0.003
	(0.002)	(0.003)	(0.005)
Prop other race/ethnicity	0.000	-0.000	0.001
	(0.001)	(0.001)	(0.001)
Prop Hisp	-0.004*	-0.005**	-0.005
	(0.002)	(0.002)	(0.003)
Prop Black	0.006**	0.007**	0.008+
	(0.002)	(0.002)	(0.005)
Prop ELL	-0.004**	-0.004***	-0.003
	(0.001)	(0.001)	(0.002)
Prop FRPL	-0.001	-0.001	-0.013**
	(0.003)	(0.003)	(0.005)
Elementary school	-0.045***	-0.059***	-0.080***
	(0.011)	(0.013)	(0.019)
Middle school	0.008	0.009	0.003
	(0.010)	(0.012)	(0.018)
High school	0.032**	0.038**	0.071***
	(0.011)	(0.013)	(0.019)
Other school level	0.005	0.012	0.006
	(0.007)	(0.009)	(0.012)
Year FE	X	X	X
District FE	X	X	X
Teacher characteristics	X	X	X
N	41388	32086	2478

Note. In the above table, we present output from a series of regressions that predict the school-level characteristics in the row as a function of SET emergency licensure status, a year fixed effect, a district fixed effect, and teacher-level characteristics. In the first column, we include the output from our preferred sample in the main paper for comparison. Then, in column 2, we exclude years 2019-20 and 2020-21 and in column 3 we include only teachers

new to teaching in the state. Here, for brevity, we only present the estimate on the SET emergency license variable. Standard errors, clustered at the school level, in parentheses; + p < .10, * p < .05, ** p < .01, *** p < .001

Figure A1

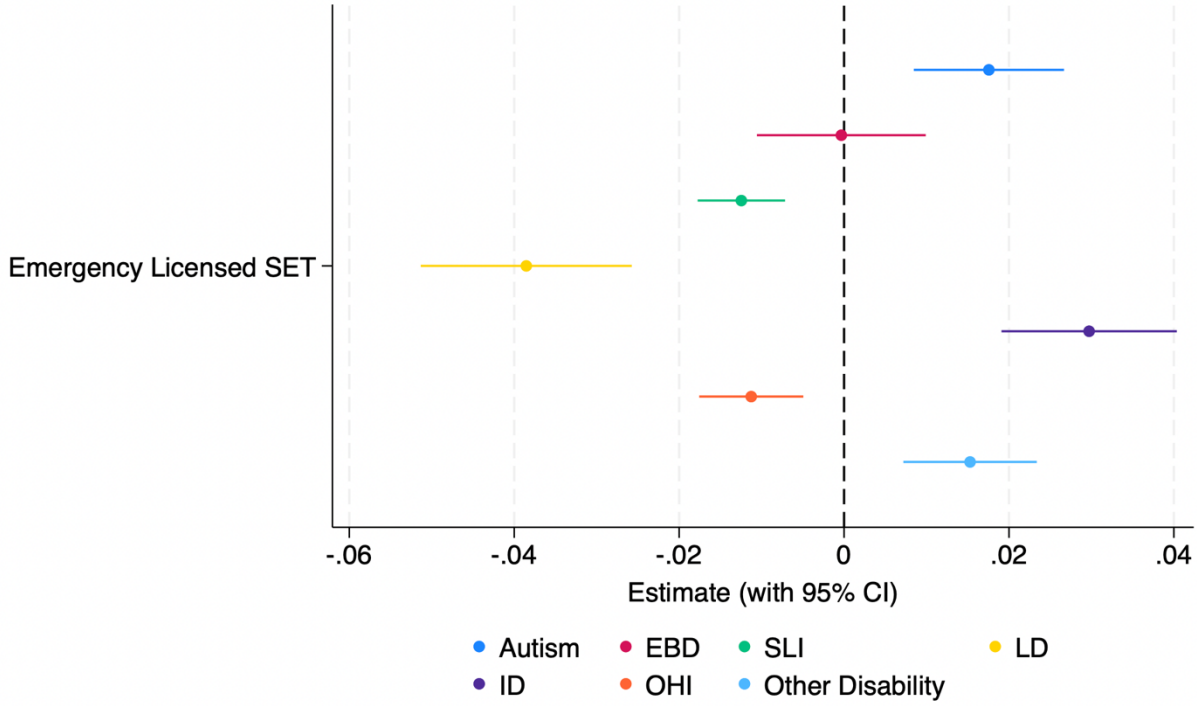
Results From Models Predicting Proportion Students in Each Service Delivery Model, As a Function of SET Emergency Licensure Status, Teacher, and School Characteristics (And School and Year Fixed Effects), For Only Observations in Pre-pandemic Years



Note. The above graph presents estimates from a fixed-effects model that predicts proportion students receiving each service delivery model and includes controls for SET emergency certification status, teacher characteristics, school characteristics, and school and year fixed effects. This presents the estimates on the binary variable for whether an SET is emergency licensed. This is the output from three separate models, where each of the service delivery models (the average proportion students assigned to the teacher spend in that service delivery) is the dependent variable. The point represents the estimate, and the bars represent a 95% confidence interval.

Figure A2

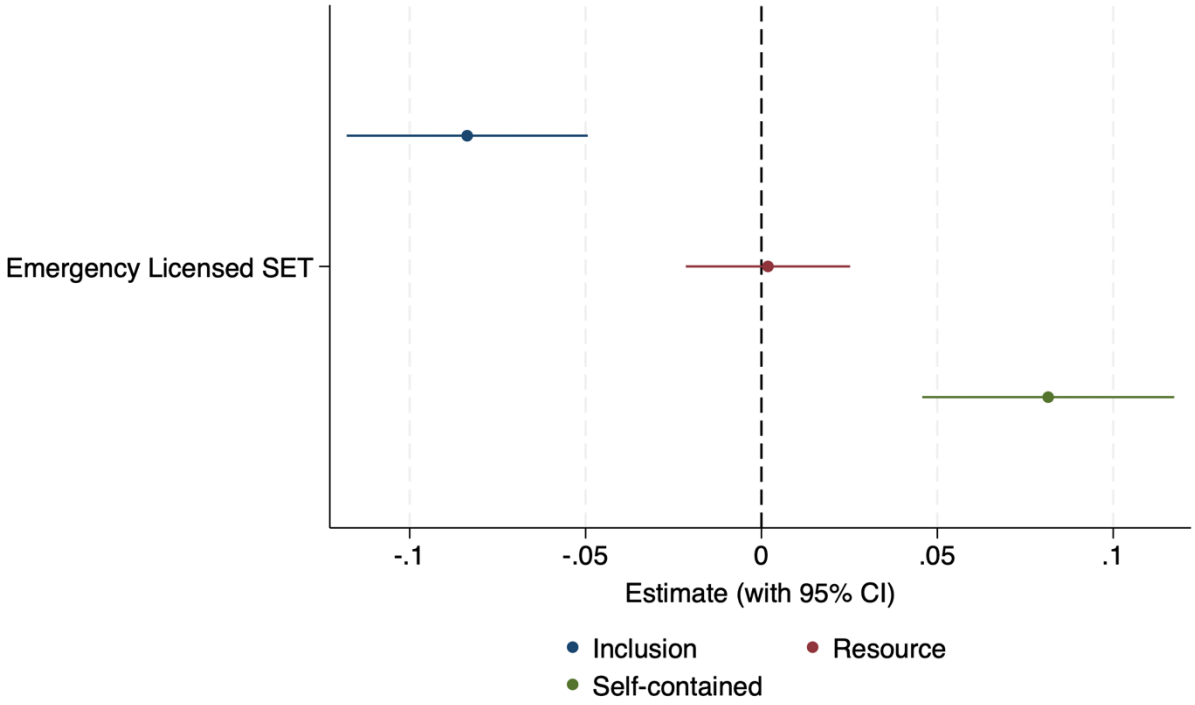
Results From Models Predicting Proportion Students In Each Disability Category, As a Function of SET Emergency Licensure Status, Teacher, and School Characteristics (And School and Year Fixed Effects), For Only Observations in Pre-pandemic Years



Note. The above graph presents estimates from a fixed-effects model that predicts proportion students in each disability category and includes controls for SET emergency certification status, teacher characteristics, school characteristics, and school and year fixed effects. This presents the estimates on the binary variable for whether an SET is emergency licensed. This presents the output from six separate models, where each of the disability categories is the dependent variable. EBD stands for Emotional/Behavioral Disturbance; SLI stands for Specific Learning Incidence; LD stands for learning disability; ID stands for Intellectual Disability; OHI stands for Other Health Impairment; and Other disability includes all other primary disability types not listed. The point represents the estimate, and the bars represent a 95% confidence interval.

Figure A3

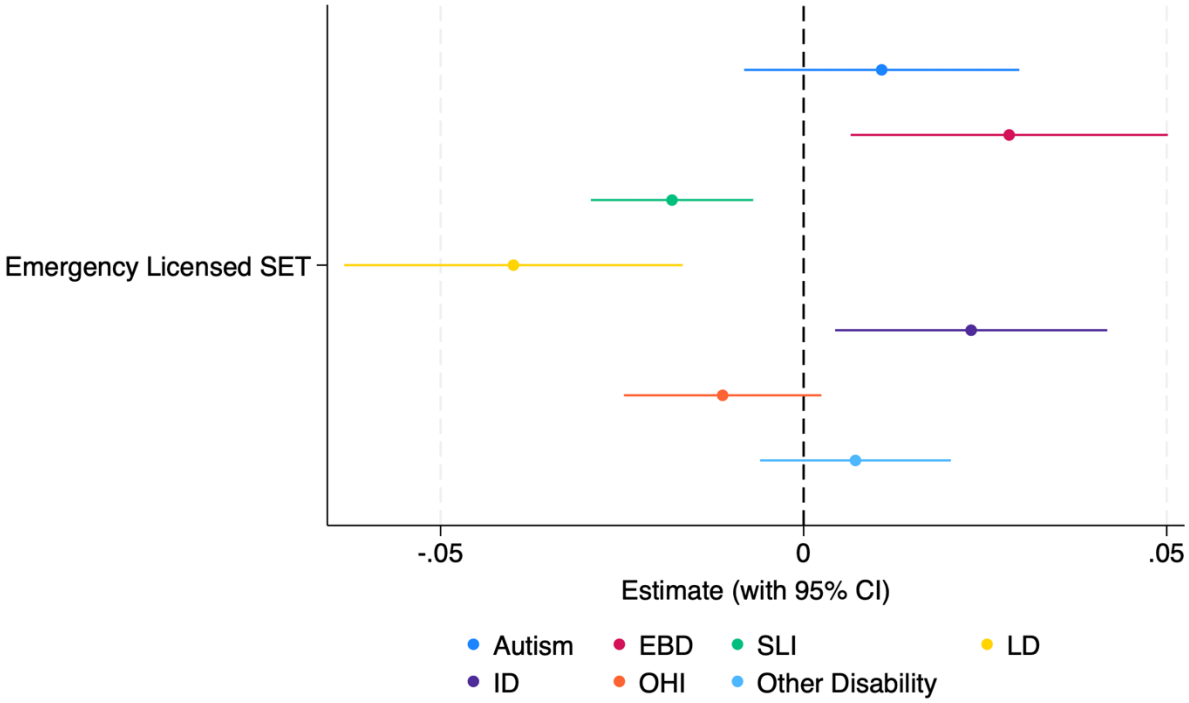
Results From Models Predicting Proportion Students in Each Service Delivery Model, As a Function of SET Emergency Licensure Status, Teacher, and School Characteristics (And School and Year Fixed Effects), For Only Teachers New to the State



Note. The above graph presents estimates from a fixed-effects model that predicts proportion students receiving each service delivery model and includes controls for SET emergency certification status, teacher characteristics, school characteristics, and school and year fixed effects. This presents the estimates on the binary variable for whether an SET is emergency licensed. This is the output from three separate models, where each of the service delivery models is the dependent variable. The point represents the estimate, and the bars represent a 95% confidence interval.

Figure A4

Results From Models Predicting Proportion Students In Each Disability Category, As a Function of SET Emergency Licensure Status, Teacher, and School Characteristics (And School and Year Fixed Effects), For Only Teachers New to Teaching in the State



Note. The above graph presents estimates from a fixed-effects model that predicts proportion students in each disability category and includes controls for SET emergency certification status, teacher characteristics, school characteristics, and school and year fixed effects. This presents the estimates on the binary variable for whether an SET is emergency licensed. This presents the output from six separate models, where each of the disability categories is the dependent variable. EBD stands for Emotional/Behavioral Disturbance; SLI stands for Specific Learning Incidence; LD stands for learning disability; ID stands for Intellectual Disability; OHI stands for Other Health Impairment; and Other disability includes all other primary disability types not listed. The point represents the estimate, and the bars represent a 95% confidence interval.