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From School to School: Examining the Contours of Switching Schools within the Special Education Teacher Labor Market

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From School to School: Examining the Contours of Switching Schools within the Special Education Teacher Labor Market

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Abstract

The United States is facing growing teacher shortages that may be disproportionately affecting schools serving high proportions of students of color, low-income students, and those in rural or urban areas. Special education teachers (SETs) are particularly in demand. Each year, nearly half of all vacancies are filled with teachers switching from one school to another, yet little research has addressed the nuances of within-career sorting, especially by subject. Utilizing longitudinal data covering 27 years and over 1.2 million teachers in Texas, this study examines SET switching patterns relative to core subject teachers, utilizing discrete time hazard modeling, fixed-effect regressions, and geographic information system mapping. Results show SETs switch schools at much higher rates, associated with experience, salary, and student demographics, yet generally transfer shorter distances than their peers. These findings highlight differential subject-specific labor market dynamics, suggesting targeted recruitment and retention strategies to address widespread shortages.

Keywords: *teacher shortages, teacher turnover, special education teacher, teacher labor market, teacher transfer*

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Introduction

Longstanding concerns about teacher supply, demand, and shortages appear to be justifiably increasing. Teacher preparation numbers have remained stagnant since the 2010s (e.g., Fuller, 2022) while post-Covid teacher turnover has increased (Bastian & Fuller, 2023; Camp et al., 2024; Goldhaber & Theobald, 2023) and teacher satisfaction (Kraft & Lyon, 2022) and desire to leave the profession (e.g., Doan et al., 2023)—both highly predictive of teachers departing the profession (Nguyen et al., 2020)—have reached all-time highs. Further and also highly predictive of turnover, teacher reports of working conditions have dipped in the wake of the pandemic (Baker & Koedel, 2024). Teacher shortages tend to be contextual and varied by school geographical factors (e.g., Nguyen, 2020), subject area taught (e.g., Mason-Williams et al., 2020), and other teacher and school characteristics (e.g., Clotfelter et al., 2007); schools that are urban, rural, lower-achieving, less White, and less-resourced have long had more difficulty recruiting and retaining teachers, especially in the fields of special education and science, technology, engineering, and mathematics (STEM) (e.g., Bettini et al., 2023; Goldhaber et al., 2023). Much of this uneven teacher sorting has long been explained by teachers beginning in schools with one or more of the characteristics mentioned above and then switching to schools that are suburban, higher-achieving, Whiter, and more affluent, which often have better working conditions (e.g., Simon & Johnson, 2015). However, researchers have rarely tracked individual teacher career paths across multiple positions and schools to gain a comprehensive view of how teacher switching impacts the labor market and shortage trends.

Research on teacher shortages has substantively and positively informed policy and practice, especially in terms of (a) novice teacher placement (e.g., Perrone & Meyers, 2023) and (b) teacher retention/turnover as a binary outcome (e.g., Nguyen et al., 2020), especially for

novice teachers (e.g., Edwards & Anderson, 2023). However, research provides limited insights into the approximately half of all empty vacated teaching positions (roughly 300,000 annually) in U. S. public schools that are filled by *switchers*—teachers who switch from teaching in one school in one year to teaching in another school the following year (e.g., Taie & Lewis, 2023). In a time of potentially exacerbating and spreading teacher shortages, understanding more nuanced teacher labor market trends becomes increasingly important, especially for in-demand subject area teachers (e.g., Edwards et al., 2024).

Given this gap in our understanding, the present study aims to inform the field about the switching behaviors of teachers, with specific attention to one of the most critically needed subjects—special education (e.g., Goldhaber et al., 2023). We concentrate on special education teacher (SET) switching given the increasing need to address SET shortages as the proportion of students receiving special education services grows (e.g., NCES, 2024) (see Bettini et al. (2023), Gilmour et al. (2023), and Theobald et al. (2021) for excellent overviews of SET supply, demand, and shortages). This study addresses the following research questions: (1) *What trends define and differentiate SET switching?* (2) *Which individual, school, and district features explain SET switching?* Using longitudinal administrative data in Texas from 1995 through 2022 following over 1.2 million teachers, we utilize both discrete-time hazard and fixed-effect regression modeling of SET switching behaviors to answer calls for general teacher labor market research to differentiate and focus on high-needs subjects (e.g., Cowan et al., 2016). We devote particular attention to traits that remain generally unexamined but highly important in the SET labor market, including individual (e.g., sex, race, salary) and school correlates (e.g., demographics, size) of SET switching, as well as the geospatial trends (locale, distance).

As one of the few studies in recent years to follow teachers longitudinally across schools and multiple switching events (Sun, 2018; Williams et al., 2021), we aim to provide comprehensive insight into the SET labor market that can be used to inform local and state policy decisions to address critical SET shortage issues. We begin with an overview of the literature regarding teacher switching behaviors, the geographic nature of teacher switching, and the SET labor market. Next, we introduce our analysis plan, including a description of the data used and the modeling approach. We then present and describe the results of our two main research questions, followed by a discussion of the theoretical and policy implications of our results.

Literature Review

Research addressing teacher shortages via teacher mobility patterns has substantively informed policy and practice, especially by providing clearer understandings of (a) recruitment of new teachers into schools and (b) both novice and veteran teacher turnover as a binary outcome (switching and leaving treated as the same). These areas of prioritized exploration are justified as beginning teachers (a) are a central workforce supply source and represent tremendous potential as growth in effectiveness is greatest in the early years (e.g., Podolsky et al., 2019) while also having a higher risk of turnover than their non-retirement eligible veteran peers (e.g., Nguyen et al., 2020). Focus on teacher turnover (b) as a binary outcome is also crucial because switching from a school and leaving the profession both require a school to recruit for and fill an empty position, regardless of whether the teacher remains in the profession or not. Available datasets also tend to be unable to measure switching due to geographic (e.g., district-level data cannot follow teachers who switch outside a district) and temporal limitations (e.g., cross-sectional datasets rarely contain enough observations to make certain inferences

about switchers and often do not track teachers to their subsequent placements). Nonetheless, our understanding of switching patterns from school to school, including for SETs, remains relatively limited at a time in which this group of switchers may be at a greater premium.

Switchers (i.e., teachers who teach in one school one year and switch to teacher another the following year) account for half of U. S. teacher turnover each year and also naturally fill half of all vacated positions (roughly eight percent of teachers switch each year; e.g., Taie & Lewis, 2023), yet we know little about their larger career patterns. We present an overview of the literature relevant to this study below, beginning with predictors of switching and the research capturing where teachers switch. There is, though, a dearth of literature capturing to where switchers switch and factors of distance and subject taught in teacher labor markets. We therefore proceed to inform our study with the research related to the roles that geographic distance and teacher subject have with general teacher and SET hiring and turnover; both hiring and turnover are encompassed by switching.

Predictors of Switching

Research has firmly identified a set of teacher and school factors that predict turnover, but less is naturally known regarding such associations with switching. The extant research has, though, generally established that certain characteristics can predict switching and they largely mirror those for turnover as a binary outcome. Most relevant to the focus of this study, Nguyen and colleagues' (2020) meta-analysis of the teacher turnover literature (1980-2018) found that SETs and STEM teachers have higher odds of switching than their peers, holding all other variables constant. Additionally, fitting one or more of the following teacher characteristics also predicts greater odds of switching than staying at the same school: being of color / not White; having an advanced degree; being National Board Certified; having a lower salary; having less

teaching experience; working in an urban (as opposed to rural) school or a school with a higher proportion of students living in poverty. Notably, though, Billingsley and Bettini's (2019) review of the SET turnover and turnover intent literature (2002-2017) revealed an absence of turnover research disaggregating switching findings for SETs, let alone for SETs of color and male SETs.

Research has also found that working conditions are generally more salient predictors of teacher switching than teacher and school characteristics. Nguyen and colleagues (2020) found that lower levels of administrative support, classroom autonomy, effectiveness ratings, and professional development are all positively associated with switching. At the same time, working conditions are often associated with several of the aforementioned characteristics that also predict switching (e.g., student poverty level and working conditions are often positively associated; Simon & Johnson, 2015). Studies accounting for working conditions in switching tend to have some limitations in that they usually use cross-sectional survey data that are not administered in subsequent schools and/or do not have sample sizes large enough to make reliable inferences about the schools to which switchers transition. It is also rare for state data to contain reliable information about school working conditions across many years (see Sun (2018) and Williams et al. (2021) for rare exceptions) and we are unaware of statewide datasets that track individual teacher perceptions of working conditions across multiple years. Similarly, very few longitudinal studies account for or make findings pertinent to the school to which individual teachers switched in longitudinal studies.

From and To Where Switchers Switch

General teacher sorting patterns have long been inferable based on school faculty compositions as well as turnover trends. However, sparse literature has used teacher-level data to trace differences in schools and districts of switcher *departure* (schools/districts they switched

from) and *arrival* (schools/districts to which they switched) or how these switches occur across a career (e.g., how many times the average teacher switches, when switches tend to take place).[1, 2] Hanushek and colleagues (2005) investigation into teachers in one large urban Texas district (1989/90-2001/02) found that switches tended to be to schools with higher math scores and lower proportions of students who were Black, Hispanic, and living in poverty and that arrival school salaries were relatively higher for intra- than inter-district switchers. Miller (2012) found that switchers in New York State (1984/85-2003/04) starting in metropolitan schools were more likely to transfer to suburban schools, and rural switchers switched to other rural schools but were more likely out of district. Béteille and colleagues (2009) determined that higher-performing transfer teachers within Miami-Dade County Public Schools (2003/04-2008/09) were more likely to switch to schools with higher value-added principals. Boyd et al. (2011) found that more effective New York City School District teachers (2006/07-2007/08) were less likely to apply for intra-district transfer but more likely to be hired when they did. Feng and Sass (2017) found that switchers in Florida (1996/97-2002/03) switched to higher-performing schools with lower proportions of Black students, and higher-performing switchers were more likely to switch to higher-performing schools.

Overall, the research tracking teacher switches from one school to the next is relatively sparse and dated. Two more recent studies, though, have tracked teacher switches from departure to arrival school through the 2010s and did so with attention to switching differentiation by teacher race. First, Sun (2018) examined elementary and middle school switching pattern

[1] Some rigorous studies across different time periods have differentiated between inter- and intra-district switching (e.g., Feng, 2009; Imazeki, 2005; Richards et al., 2020). We restrict our literature review, however, to studies that capture information about the districts and schools (e.g., demographics, locale) to which teachers switch.
[2] Miller (2012) is the only study we are aware of to examine how many years until the first switch; median years in a New York State teacher's first school were similar across in-demand subject areas in his study (between 8.1 and 8.7 years for math teachers, SETs, and science teachers).

differences between Black and White teachers in North Carolina (2004-2015). The researcher found that Black teachers in North Carolina were more likely than White teachers to switch to schools with higher percentages of Black students. Williams and colleagues (2021) also investigated the switching patterns of rural Georgia K-12 teachers (2010/11-2018/19). The authors revealed that Black switchers in rural schools were significantly more likely than White rural switchers to transfer to another district and for that subsequent district to be suburban or urban.

Roles of Geographic Distance and Subject Area in Switching

This section provides an overview of what is known about the roles of geographic distance in teacher labor markets as well as potential differential switching patterns by subject taught. This includes aspects of hiring as switching encompasses both turnover and finding and securing a teaching position elsewhere.

Geographic Distance

As noted earlier, research has found that factors of geographic locale (e.g., rural, urban) can predict to where teachers switch and there is a tendency to migrate towards suburban schools over time (e.g., Miller, 2012). Much of the related research understandably and usefully treats geography in switching with a categorical locale variable (urban, rural) and does not include information about the distance between arrival school and other relevant places (e.g., departure school, college attended). Yet various geographical distance factors appear to be highly influential in teacher switching, though they have been examined substantively more in initial teacher placement than switching activities. The proximity of a teacher's hometown, college, and student teaching site has been a salient predictor of the location of a teacher's first placement with teachers more likely to work near one or more of those sites in a national study (Reininger,

2012) as well as in New York State (Boyd et al., 2005), Texas (Edwards, Kirksey, et al., 2024), and Washington State (e.g., Goldhaber et al., 2014; Goldahber et al., 2021; Krieg et al., 2016). Research has made similar findings regarding principal preparation students' internship sites having close proximity to principal candidate employment before and after the practicum (Drake & Bastian, 2024).

Research has generally posited that teacher labor markets are highly localized and contextual (e.g., Edwards et al., 2024), but much of this is based on studies of teacher hiring at the school level rather than larger teacher career patterns with switching (e.g., Perrone & Meyers, 2023). Thus, little is known about how teachers switch across different points of their careers or how far from where they currently work that teachers are willing to switch. Research does show, though, that teacher applicants across career stages have been more likely to apply for positions near where they live or grew up (e.g., Engel et al., 2014; Killeen et al., 2015), and schools and districts have also historically tended to favor local applicants in advancement to the interview stage (e.g., Hinrichs, 2021) and eventual hiring (Jacob et al., 2018; Killeen et al., 2015). There also appears to be a driving factor of working close to home as teachers with STEM degrees were more likely to apply to schools that were closer to their current places of residence, higher-performing, and socioeconomically advantaged and in 2000s Chicago Public Schools (Engel et al., 2014), and, more recently in Washington State, schools and districts that hosted more student teachers or were also near districts that did tended to be better at hiring highly qualified candidates (Goldhaber et al., 2021). While research has found that teachers living closer to home in one large urban district were positively associated with higher retention rates, lower teacher absence rates, and higher student test scores (Santelli & Grissom, 2022), it remains generally unclear if there are similar trends in teacher switching distance. This latter dearth of knowledge

has implications for teacher recruitment practice and policy, specifically in terms of the scope and span of recruitment efforts.

Teacher Subject Area and SETs in Particular

Teacher labor markets and needs are highly place-specific and vary substantively by subject area (e.g., Edwards et al., 2024). As noted earlier, teachers have historically been unevenly distributed across schools based on geographic location and student demographics of race/ethnicity and socioeconomic status. Urban, rural, lower-achieving, less White, and less-resourced schools have consistently faced challenges in attracting and keeping teachers (e.g., Bettini et al., 2023), often being unable to fill some or all vacancies with credentialed teachers (e.g., National Center for Educational Statistics, 2024a). Specific to special education where SETs are of premium demand, over half of U. S. public schools in March of 2024 reported having an SET-specific vacancy to fill before the next school year (National Center for Educational Statistics, 2024b). Some research suggests considerable choice for in-demand subject area teachers as, for instance, SETs and STEM teachers were more likely to be hired directly out of their teacher preparation programs in Washington State (Goldhaber et al., 2022). Still, research on recruiting and hiring that reports by subject area is extremely limited, especially for SETs and SET switchers (Perrone & Meyers, 2023).

SETs deserve special attention given previously noted increasing needs for teachers in special education (e.g., Bettini et al., 2023) as rising numbers of students receive special services (e.g., NCES, 2024). Meanwhile, 79% of SETs in 2022 were White while the majority of special education students are not (NCES, 2024), and there are substantive benefits for students of color to be taught by teachers of color (e.g., Joshi et al., 2018; Redding, 2019). This teacher-student incongruence warrants further investigation into SET career trajectories by race/ethnicity (e.g.,

Billingsley & Bettini, 2019). At the same time, there are also clear signs of discrimination against teacher applicants of color that must be considered in any investigation of teacher hiring (e.g., Bailes & Guthery, 2023; D'amico et al., 2017). Similarly, the field is even more overwhelmingly female as 86% of SETs are female, but research has yet to quantitatively examine mobility trends among male SETs (e.g., Billingsley & Bettini, 2019).

Methods

We ask two exploratory research questions to better understand the dynamics of SET switching: (1) *What trends define and differentiate SET switching?* (2) *What individual, school, and district features explain SET switching?* Below, we detail our methodological approach.

Data and Measures

We utilize roughly 30 years of longitudinal data collected by the Texas Education Agency's Public Education Information Management System (PEIMS) and the National Center for Educational Statistics (NCES) Common Core of Data, from the 1989/90 to 2021/22 school years. The PEIMS system collects data on every certified individual in the Texas education system, including individual, school, and district-level data. This set contains records of 113,109 SETs in total, along with demographic (sex, race, age, experience, salary) and school characteristics (standardized student achievement, school level (elementary, secondary, all grades), locale (e.g., urban, rural), enrollment, student racial composition, percentages of students identified for free and/or reduced meals (FARM) and limited English proficiency (LEP)). Notably, some covariates, such as the percentage of students achieving proficiency on the state exam, were first collected in 1995, so statistics and models utilizing these variables were restricted to the period of 1994/95 to 2021/22.[3]

[3] For ease of reporting, we refer to each school year as the year in which it ends from this point forward. For instance, the 1994/95 school year is referred to as 1995.

To provide a comparison to our SET teacher observations, we also include teachers from the "core" subjects of elementary, mathematics, reading/English language arts, science, and social studies. We combine these into the category of *core subject teacher* (CST). From this set, we identified each time a SET or CST switched schools from one year to the next. We operationalize teacher switches as horizontal transfers within the certified subject area within Texas (SET or CST). To maintain focus on the research questions at hand, we do not consider switches to a different content area assignment (neither SET nor CST) or from a teaching position to a non-teaching position (e.g., from teaching to instructional support).

Analytic Approach

Given the general scarcity of research on within-career mobility—particularly for SETs—we take a broadly exploratory approach. We look to identify major trends and patterns but do, per calls in the field (e.g., Billingsley & Bettini, 2019), focus on SET race/ethnicity and sex in our findings. Below we detail the approach for each research question.

RQ1: What trends define and differentiate SET switching?

To gain a general understanding of the characteristics defining of SET transfer market, we examine SET and CST market trends compositionally, longitudinally, and geographically. First, we examine the composition of the SET teacher market, comparing individual and school-level descriptive statistics for both SETs and CSTs in Texas from 1995 to 2022. This includes comparisons between SET and CST switching frequency, teacher (race, sex, age, experience), and position characteristics (salary, locale (urban, suburban, town, rural)). We also include within-SET teacher group comparisons by sex, race, and locale, given previous literature. Second, we examine these patterns longitudinally to illustrate how differences in switching rates

have changed over the 27-year period. Third, we look at the geographical characteristics of the SET and CST transfer market, using GIS to plot switching locations, density, and frequency across the state of Texas using ArcGIS Pro with NCES district boundaries.

RQ2: Which individual, school, and district features explain SET switching?

Upon examining the major trends of the SET transfer market, we next explore underlying features that are associated with (1) switching events and (2) switching distance. Beginning with switching events, we employ discrete time hazard (DTH) modeling to estimate the relative risk of a switching event in a given time period while including teacher (sex, race, age, experience, salary) and school characteristics (enrollment, student demographics, level, locale) in our estimations. These models allow us to compare the overall difference between SET and CST switching risk. We run models containing both SETs and CSTs, as well as models restricted to just SETs and CSTs. Models take the basic form below, whereby ν represents the baseline hazard and γ represents school fixed effects:

$$\text{Logit}\left[\frac{\text{p (switch)}}{1-\text{p(switch)}}\right] = \alpha + \beta 1 \text{ subject} + \beta 2 \text{ teacher characteristics} + \beta 3 \, \Delta \text{ school characteristics} + \nu + \gamma$$

Notably, for school covariates, we use the difference score between the current period (t_0) and future period (t_1), which for switching teachers would be the difference between the departure and arrival school (e.g., Δ salary = (arrival) salary t_1 – (departure) salary t_0), under the notion that relative difference in school conditions is an improved measure of educator switching preferences than absolute conditions (Pendola & Fuller, 2021).

For our estimates of SET switching distance, employ the same basic structure with ordinary least squares (OLS) regressions estimating switch distance with ρ year and γ school fixed effects.

$$\text{Distance} = \alpha + \beta 1 \text{ subject} + \beta 2 \text{ teacher characteristics} + \beta 3 \, \Delta \text{ school characteristics} + \rho + \gamma$$

Our initial dependent variable, within-career switching, is a binary event indicating whether a teacher changed schools but remained in the same content area (i.e., special education, core subject). We censor events where a teacher moved to another content area, another position (e.g., assistant principal), or out of public schools. Our second main dependent variable, transfer distance, is calculated using Vincenty's Euclidian distance method (1975) as the distance in miles between the departure and arrival school. Covariates are all time-variant and within-year standardized when applicable, with salary being adjusted to 2022 dollars, adjusted for regional cost of living differences (National Center for Education Statistics, 2021), and standardized.

Presented models were selected to balance fit and explanation, with robustness checks for alternative specifications including various fixed effects (e.g., district, county) and hierarchical linear model combinations. The presented models showed the best balance of goodness-of-fit across McFadden's adjusted and Craig & Uhler's r-squared (Singer & Willett, 2003), as well as lower Baysean information criterion (BIC) scores (Raftery, 1995). Alternative specifications were generally similar substantively. Multicollinearity checks demonstrated an average variance inflation score of < 3 suggesting that while some covariates are correlated (e.g., % limited English proficient and % Hispanic), they did not substantively bias results (O'Brien, 2007).[4]

[4] A few additional technical notes on the data and model selection: (1) We restricted observations to teachers who were above 0.5 full-time employment at a single site and transferred between traditional public schools to model 'typical' transfer situations. (2) We report racial categories as Asian, Black, Hispanic, and White, given TEA racial designations were recategorized in 2010-11 (Texas Education Agency, 2012, 2017). Categories of American Indian, Alaska Native, Pacific Islander, and two or more races were collapsed into the 'other' category given changes in reporting over the years. These account for roughly 1-2% of teachers. Given the low number of observations and nonspecific nature of the category, we generally do not present trends for 'other' teachers. (3) School racial composition is inherently interdependent. To reduce variance inflation due to multicollinearity (e.g., a proportional increase in one group necessitates a decrease in another), models were run with % White omitted, and then a second model was run with % Hispanic omitted and % White reintroduced. This approach did not change results for any other covariates. (4) We do not include school accountability ratings given considerable changes in the metrics over the sample period which calls into question their substantive meaning and value. We found that including them decreased model fit (via likelihood-ratio tests), increased the risk of overfitting or type I error, and offered no substantive results.

Limitations

Before proceeding, a few limitations are important to point out. First, teacher switching does not necessarily reflect individual preferences to leave a particular position or move to a specific place. Teachers can be transferred involuntarily for a multitude of reasons, and those who voluntarily transfer must have the opportunity of a position to transfer to. Switches can be based on personal factors, such as dissatisfaction with leadership or a spousal relocation, which are not captured in TEA data, though switching does confer a certain level of willingness to take a position. As such, we caution the reader that in line with many studies of teacher labor markets, interpretations are correlational rather than causal. Second, we use administrative data across many years and, thus, do not have data about school working conditions or teacher quality like many other studies on the subject. However, as the central aim of this study is to better understand large-scale observable patterns of teacher switching, we hope that more specific research regarding conditions and dispositions that help explain these major patterns can follow.

In a similar vein, our data also do not capture other important variables that several studies have used, such as where an educator grew up or attended college (e.g., Edwards et al., 2024; Reininger, 2012) or the relationship between an educator's current address and place of application or job offer (i.e., Killeen et al., 2015). Most often this was due to inconsistent reporting over the time period and/or data availability. We attempted to address unobserved heterogeneity with school fixed effects (and other specification checks), but specific features like those mentioned above cannot be observed with our data. Third, teacher designations are based on TEA role codes which assign an indicator for 'specific teaching subject' for each teacher-year observation. Some teachers cover more than one subject, and our data only captures the main teacher subject. We censored teachers that had inconsistent role assignments (>=50% subject changes; ~1% of our sample) across years to account for some of this, but this is a coarse

measure, and does not capture the nuances of teacher assignments. Fourth, there is undoubtedly a certain amount of endogeneity between geography and school switching patterns. For example, rural transfers are likely to be farther given rural districts' lower density of schools. Fifth, Texas has geographical, social, economic, historical, and policy features that may not generalize to other areas. As a high-growth state, as well as one with both large cities and considerable land mass, we ask readers to draw comparisons and inferences to other states with caution.

Results

RQ1: What trends define and differentiate SET switching?

We begin examining the composition of within career switches for SETs with Table 1, which presents the mean characteristics of SETs from 1995-2022, with those of CSTs to provide a comparison. Given the amount of information here, we only focus on the main trends regarding switching. Most notably, we see that SETs, on average, have a strikingly higher annual rate of switching than CSTs by roughly 6.8 percentage points. Similarly, SETs had a greater frequency of within-career switches, at 3.15, compared to CSTs at 2.12 per teacher; the average SET taught in one more school than the average CST. However, the average distance between switches was roughly 13 miles shorter for SETs than CSTs. Additionally, we see that SETs tend to switch to different districts much less frequently (29%) compared to CSTs (47%). In subsequent columns, we disaggregate by sex and race. Here, we see that male SETs and Black SETs have a higher annual switch rate, male and Hispanic SETs have a higher mean frequency of switches, and White SET switches tend to be longer distances.

[Insert Table 1 about here]

We now turn to within-career trends in teacher switching. Table 2 presents similar descriptive statistics broken down by switch number, with 1 being a teacher's first school switch,

2 their second switch, and so on, up to the fifth switch. In general, there is little variation regarding the average characteristics of teachers who switch more than others. However, a few slight trends bear out. SETs with more switches tend to move to schools with larger student populations and greater proportions of Hispanic students. Fewer of these higher frequency switchers teach in urban schools, and more are in rural schools.

[Insert Table 2 about here]

We now turn to longitudinal trends. Figure 1, Panel A displays SET and CST within-career-switching. Given we are not using some covariates that were only available from 1995 onward, we display a full 30 years of teacher switching patterns, enough to encompass some longer-term teachers' entire career durations. Here, we see that while close in overall trends, SETs have had a considerably higher annual switching rate than CSTs. Notably, whereas around 2014 CST switching rates roughly stabilized, SET switching rates have continued to increase. However, moving to Figure 1, Panel B, we see that these switching rates differ considerably by locale. Here, we see that rural SET teacher switching is generally higher than suburban and urban rates, and the period between roughly 2002 and 2011 held vast differences by locale. From Panels C and D, we see that male SETs have higher switching rates and that in recent years, Black SETs have had considerably higher switching rates than other SETs.

[Insert Figure 1 about here]

Considering the above longitudinal trends, we now turn to geospatial trends of the SET and CST switching. First, we look at the rates of teacher switching by school district. Figure 2 presents the switching rates for SET and CSTs, operationalized as the number of SET or CSTs that switched divided by the total number of SET or CSTs in the district. Notably, we see a wide range of variability across the state and over time. For example, West Texas and the Texas

Panhandle tend to have lower rates of SET switching, with higher rates in the major urban cores. However, for CSTs, the urban areas tend to have mid-level switching rates, while some areas, such as West Texas, have had higher rates as well as some sporadic high-switch districts in rural areas.

[Insert Figures 2 and 3 about here]

Next, we examine SET and CST switching with attention to the distance between switchers' departure and arrival schools. Figure 3 presents the activity spaces of SET and CST switches, broken down into decades and by race. In Panel A, we see that there has been an intensification amongst major metropolitan areas, such as Dallas, Houston, and San Antonio. However, simultaneously, there has been a slow but consistent reduction in the average distance between within-career switches, from an average of 33.99 miles in 1990 to 26.23 in 2021. Panel B shows unique trends in SET and CST within-career switches by race. Restricting just to 2020, we see that race significantly differentiates the switching spaces of SET and CSTs, with (1) Black SET and CSTs moving primarily between the central corridor of major urban cores of Dallas, Houston, and San Antonio; (2) Hispanic teachers more intensely along southern tracts including El Paso, Corpus Christi, and Laredo; and (3) White teachers switching around more northern regions around Amarillo, Lubbock, and Midland/Odessa. Notably, we also see a greater dispersion of Hispanic and White teachers around the state.

[Insert Figure 2 about here]

Overall, for Research Question 1, we can see that SETs have a much higher rate of within-career switching than CSTs but tend to switch more often and within shorter distances within their current district. Notably, male, Black, and rural SETs tend to have higher switching rates. The switching patterns of SETs tend to have intensified amongst core urban areas and are

differentiated by race, with Black teachers transferring amongst the core urban areas, Hispanic transferring moving more intensely along border regions, and White teachers transferring amongst urban and northern rural regions.

RQ2: Which individual, school, and district features explain SET switching?

We now seek to understand which factors explain the above trends in within-career-switching. To do so, we first focus on the risk of a school switch event. Table 3 presents the results of our discrete time hazard models, estimating the risk of a switch event based on teacher characteristics and the change in characteristics from the departure to the arrival position. Model 1 includes both SET and CSTs and is used to test if the risk of a switch is significantly different between SET and CSTs. Model 2 is restricted to SETs, and Model 3 is restricted to CSTs for comparison. As noted before, school characteristics are operationalized as a change score of the difference between the departure and arrival school, given this approach yielded the best model fit.

From Model 1, we see that from 1995-2021, SETs have indeed been more likely to have a within-career school switch at a given time interval, with a nearly 4 percentage point increase in the odds ratio of a turnover event as compared to CSTs overall. Moving to Model 2, we see that a given SET switch was less likely to occur for female or Asian SETs, as well as those with less teaching experience. However, the magnitude of the effects are very small, generally less than a 1 percentage point difference in odds ratio. Moving to the change scores between the departure and arrival locations, a few differences bear out. SETs were slightly more likely to move to schools with higher salaries, smaller enrollment numbers, and higher proficiency levels. They were slightly less likely to switch to larger schools and schools with higher levels of students eligible for FARM. Notably, SET switches were not as statistically sensitive to changes

in the percentage of LEP students and students of color, as compared to CSTs. Finally, SETs were less likely to transfer to an urban, town, or rural school as compared to suburban schools.

[Insert Table 3 about here]

We next compare the distance moved by SET and CST switchers, as a means to assess if there are particular amenities that teachers tend to switch farther distances towards. Table 4 presents the results of OLS regression models with year and school fixed effects, with distance traveled between positions as the dependent variable. While the structure of Table 4 is similar to Table 3 above, regression coefficients in units of miles are presented instead of odds ratios for ease of interpretation. Notably, we see a lower r-squared, suggesting that individual and school factors are less effective at explaining switch distance. From Model 1, which has both SET and CSTs included, we see that SETs move roughly 9 fewer miles than CSTs in a switch. In Model 2, interestingly, we see there are no significant differences in SET teacher movement distance by sex, although Black SETs and those with increased age or experience tend not to switch as far from their departure schools. SETs switch farther distances to schools with higher proportions of FARM and LEP students, but shorter distances to those with higher proportions of Hispanic students.

In terms of Research Question 2, results from DTH and OLS regression models further support the earlier results that SETs have a higher risk of switching schools but that SETs also tend to switch to schools shorter distances away. These patterns hold across sex, race, and locale. Additionally, these trends are consistent in our robustness check restricting the sample to just the last five years of data (2017-2022), presented in the appendix.[5] Notably, the risk of switching is

[5] See the Appendix for models comparing SETs and CSTs by sex, race, and locale, as well as models restricted to the last five years of 2017-2022.

more effectively explained by individual and school characteristics than switch distance, as noted by r-squared and BIC.

Discussion

This study examined the patterns of within-career switching to gain further insight into SET mobility and define areas where policy may help address SET shortages. In the interest of building upon prior work (e.g., Billingsley & Bettini, 2019), this study has broadly sought to address the call to isolate subject area differences in teacher mobility patterns, particularly in areas of the most need (e.g., Bettini et al., 2023; Goldhaber et al., 2023). Indeed, we find considerable differences between SETs and CSTs in terms of the frequency, distance, and geography of switching, suggesting the need to specialize and localize recruitment and retention strategies for SETs. More specifically, we find that (1) SETs exhibit more locally bounded churn, with higher rates, shorter distances, and more in-district instances of switching than CSTs; (2) male SETs switch more frequently and farther than female SETs; (3) SETs switch to suburban schools with higher salaries, lower enrollment, and lower proportions of students classified as coming from low-income households; (4) SET switching varies considerably between districts and regions, and demonstrates differential transfer spaces by race, moving along different locational corridors within the state. Below we address these main findings, as well as what they imply for research and practice moving forward.

Our results add considerably to our understanding of the SET labor market, as well as pointing to the overall complexity and specific, content-based idiosyncrasies of teacher switching. To start, these results echo concerns about the difficulties of addressing teacher shortages, especially in terms of the broad trend of increasing rates of turnover (Bastian & Fuller, 2023; Camp et al., 2024; Goldhaber & Theobald, 2023). The rate of SET switching is not only

significantly higher than that for CSTs across the board but the SET switching rate is also slowly increasing. This is generally alarming given that high teacher churn has been shown to be detrimental to student learning and well-being, specifically due to the disruption in connections, consistency, and integration of teaching practices within a school and community (Carver-Thomas, 2019). However, our results also showed that SET switching was more locally bound than other teacher switching patterns. SETs more often stayed in-district when switching and moved shorter distances. This may signal two possible—but intertwined—trends. On one hand, it may denote that out-of-district SETs are less likely to be hired and therefore less mobile, echoing findings that nearby teacher applicants are more likely to be favored in hiring (e.g., Jacob et al., 2018; Killeen et al., 2015). On the other hand, many teachers tend to prefer to move towards more 'familiar' settings (e.g., Boyd et al., 2005; Engel et al., 2014). In some sense, this localized churn may serve to offset some of the negative disruptions of higher turnover rates, if teachers are shuffling within a district and community context they are familiar with. This switching tendency seems to align with and potentially explain part of Edwards, Kraft, and colleagues' (2024) findings that teacher shortages in Tennessee were often disproportionately experienced across schools within the same districts.

Unfortunately, our administrative data do not allow insights into SET teachers' intentions or hiring committee aims when switching, opening a call for further investigation into why we observe such patterns. From a policy standpoint, however, our results underscore the importance of targeted retention strategies. School leaders concerned about SET shortages may want to look at the conditional and structural factors that differentiate SETs from CSTs as leverage points for retention. This may include the number of caseloads and workload, the amount of collaboration, social support, and integration between general and special education teachers, the climate of

collective responsibility for student success, and clarity of role definitions (e.g., Mason-Williams et al., 2023; Ondrasek et al., 2020; Peyton et al., 2021). Importantly, given that SETs are more often moving within a local area, it will be important for school leaders to pay attention to neighboring school and district conditions to gain insight into where they may foster a comparative advantage.

Underneath the overall trend of increased teacher switching lay localized trends in shortages and surpluses that differ considerably by school characteristics, subject area, (e.g., Edwards et al., 2024), and geography (e.g., Goldhaber et al., 2020; Nguyen, 2020). We find male SETs switch more often and farther, which echoes similar research on teacher job application choices (Killeen, 2015), as well as patterns for school principal transfers (Perrone et al., 2022). Some of this may be part of the fact that more female SETs are in elementary schools which tend to be less dispersed than high schools.[6] This also comports with longstanding labor market research that females tend to prefer positions closer to their home residences (Zolnik, 2010). Similar to prior research on overall teacher switching patterns (e.g., Hanushek, 2005; Feng & Sass, 2017), we also find that SETs were more likely to switch towards suburban schools with higher salaries and lower proportions of students eligible for free and/or reduced meals. However, we do see a somewhat unique trend amongst SET switching—that there was statistical significance regarding switches towards schools with higher proportions of LEP, Asian, Black, or Hispanic students. It is possible that SETs follow the CST population (and prior research findings) of switching away from schools with higher populations of low-income and students of color (e.g., Nguyen et al., 2020). However, this trend may be counteracted by an increased prevalence of job opportunities for SETs in schools with higher proportions of these students,

[6] For example, in our sample nearly 90% of SETs in elementary schools are female, compared with 67% in secondary schools.

given the well-documented phenomenon of over-identification of students of color and those of limited English proficiency in special education (e.g., Ahram et al., 2021).

Yet, even the demographic trends do not unfold uniformly within the SET labor market. We find considerable geographical differences in switching behaviors, which are not only highly differentiated by school district but also by region. Following Nguyen and colleagues' meta-analysis (2020), heterogeneity in switching rates between schools can be largely influenced by school differences in administrative support, classroom, autonomy, effectiveness ratings, and professional development opportunities, which may be artifacts of larger district economic and policy environments. These, too, are couched in the socioeconomic context of an area, including housing opportunities, community amenities, and social climate that impact teacher mobility decisions (e.g., Bacolod, 2007; Feng, 2017. While the heterogeneity across Texas in terms of teacher switching is not surprising (e.g., Edwards et al., 2024), the finding that geographic switching patterns are different between SETs and CSTs does add emphasis to the notion that there are specific policy and socioeconomic conditions that may impact and incentivize teachers differentially by content specialty. This suggests that district-level supports, such as induction, professional development, and coaching specific to special education can have a considerable impact (e.g., Gersten et al., 2001). In addition, locally competitive salaries, administrative support for navigating and advancing licensure requirements, and clear legal support can also help improve district attractiveness and facilitate improved SET retention (e.g., Billingsley & Bettini, 2019; Ondrasek et al., 2020). As above, our data can only take us so far in understanding trends, and we hope for future research to look at identifying municipal policies and preferences affecting teacher mobility by subject area to gain further insight.

Beyond the inter-district differences in switching patterns, we also saw considerable regional differences by teacher race. Notably, there were clear distinctions in switching corridors between Black, Hispanic, and White SETs that follow the general racial geography of Texas. As noted above, the explanation behind this may either be on the side of biased hiring practices that narrow available opportunities (e.g., Bailes & Guthery, 2023), or teachers' preferences for 'familiar' school demographics and locations (e.g., Cannata, 2010); likely it is a combination of both. What this does emphasize is that efforts to diversify the SET pool may require extra targeted efforts to attract candidates from different movement regions of the state, as well as to provide additional support to retain minority teachers in areas where they are less represented (Carver-Thomas, 2018). This may entail strategic recruiting and targeted position advertising in other switching corridors (Perrone et al., 2022), and, if possible, identifying racially and/or culturally matched mentors that can help support underrepresented SETs in both professional and pastoral transitions (Khalifa, 2016). Overall, by highlighting how SET mobility and switching patterns are unique, we hope to underscore the importance of surpassing one-size-fits-all teacher recruitment and retention approaches and emphasize school, district, and policy strategies that are highly sensitive to the local environment.

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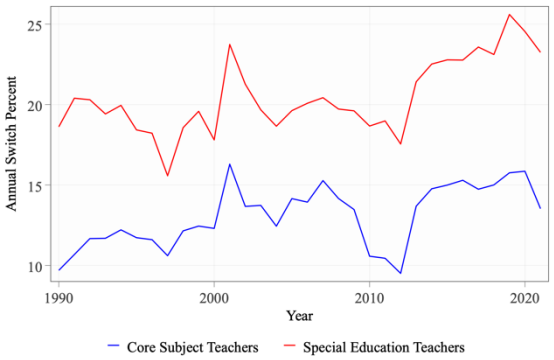
Figures

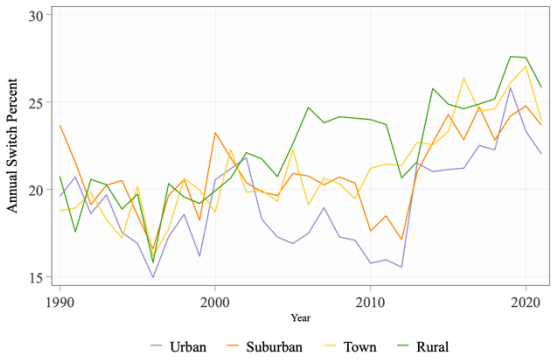
Figure 1

Special Education Teacher switching rates, 1990-2022

A) SET vs. CST switching rates

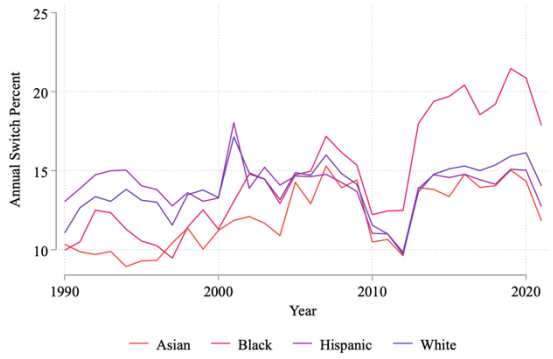


B) SET switching by Locale



C) SET Switching by Gender

D) Set Switching by Race



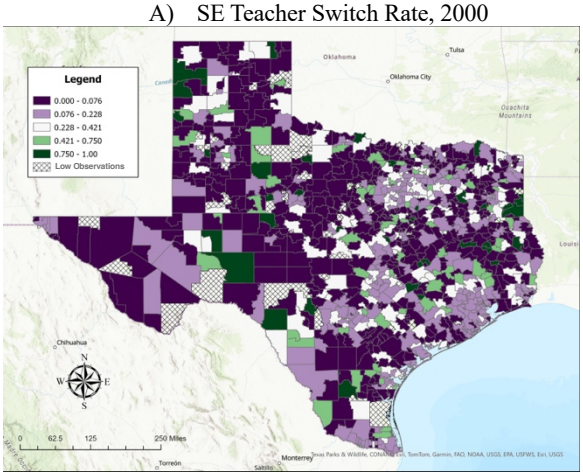
Note: Trend lines represent the percentage of special education teachers (SETs) and core subject teachers (CSTs) switching each year. Y-axes are unstandardized to better illustrate trends.

Figure 2

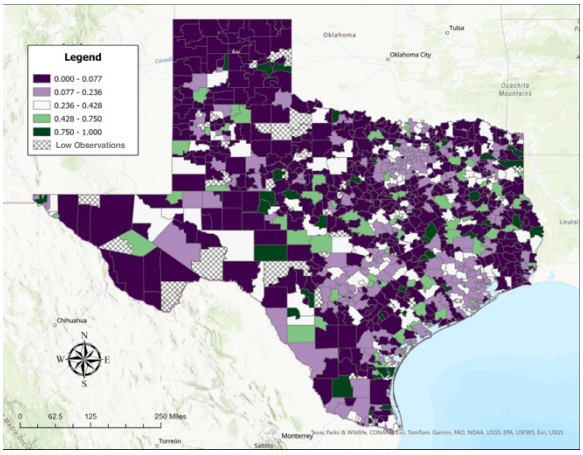
School District SET and CST Switch Rate by Decade

SET

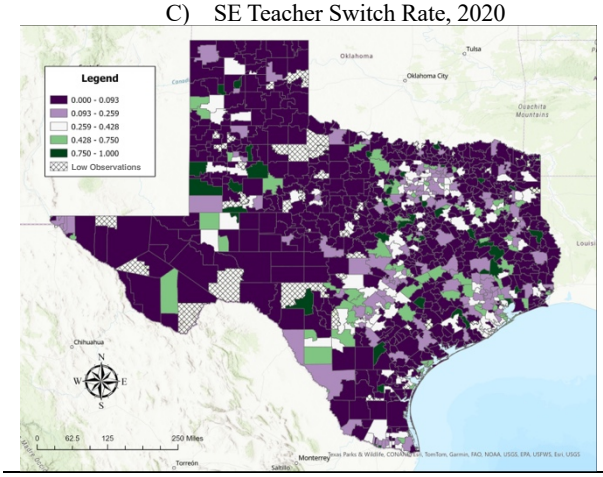
A) SE Teacher Switch Rate, 2000



B) SE Teacher Switch Rate, 2010

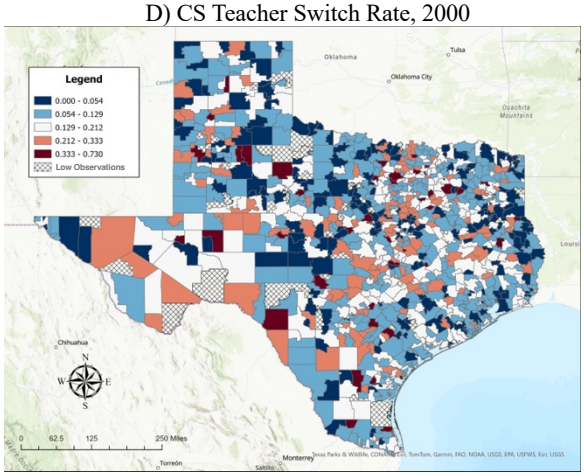


C) SE Teacher Switch Rate, 2020

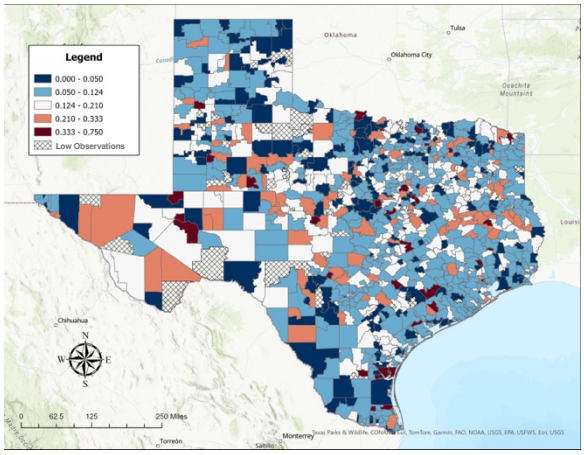


CST

D) CS Teacher Switch Rate, 2000



E) CS Teacher Switch Rate, 2010



F) CS Teacher Switch Rate, 2020

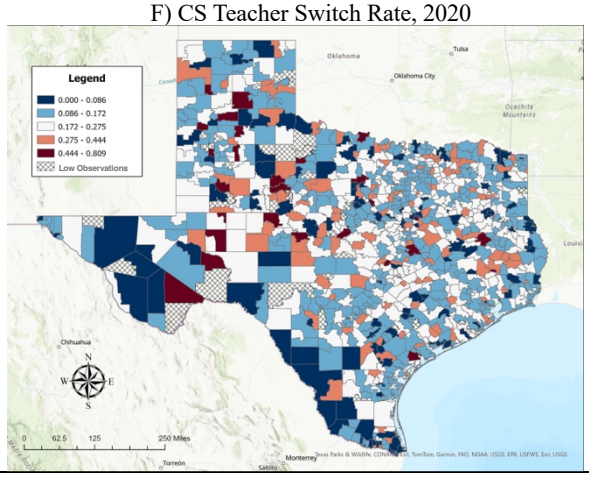
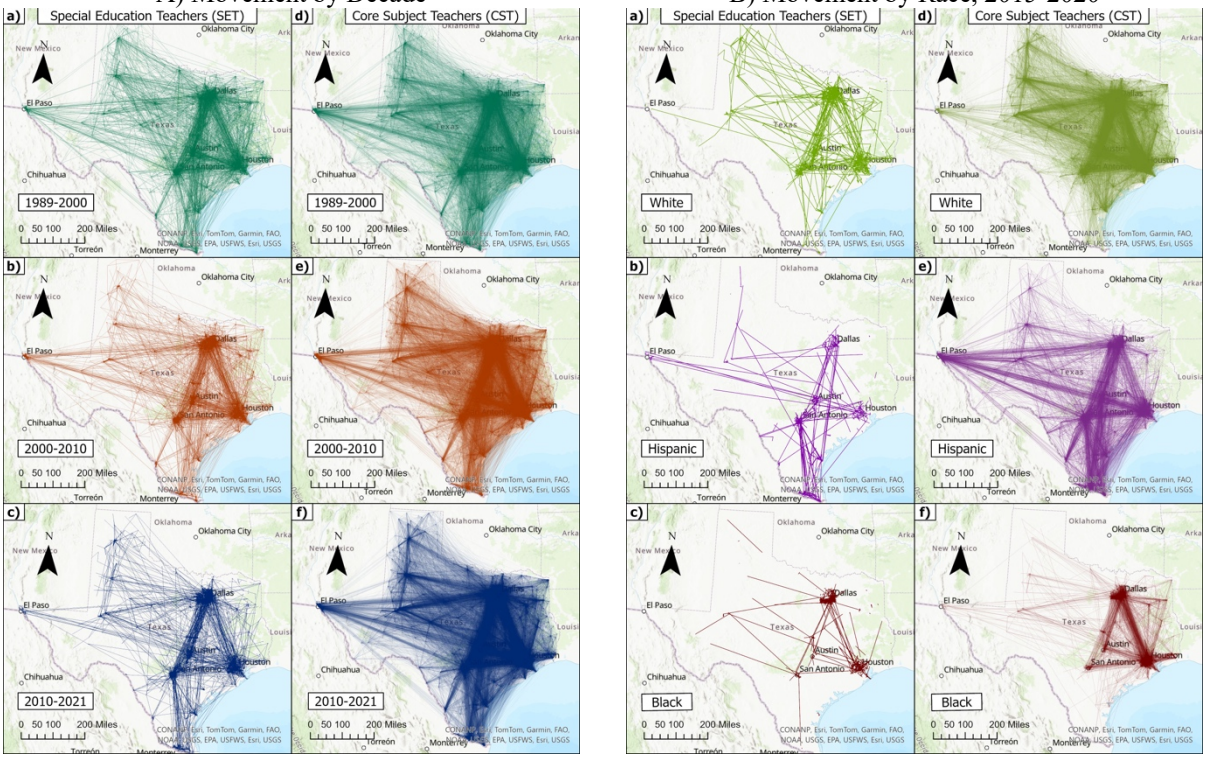


Figure 2

SET and CST switching patterns by Decade and Teacher Race



Tables

Table 1

Characteristics of Special Education Teachers (SET) and Core Subject Teachers (CST) in Texas, 1995-2022

			SETs		SETs		
	SET All	CST All	Female	Male	Black	Hispanic	White
Annual Switch Rate	20.39%	13.60%	19.94%	23.17%	18.87%	21.49%	20.48%
# Switches per Teacher	3.15	2.12	3.11	3.38	2.80	3.44	3.16
Distance of Switch	30.92	43.52	30.83	31.48	21.55	28.08	32.98
Out-of-District Switch	28.81%	46.80%	28.60%	30.17%	28.69%	23.67%	29.91%
Female	85.97%	77.15%	1	-	81.11%	79.34%	88.12%
Male	14.03%	22.85%	-	1	18.89%	20.66%	11.88%
Asian	1.11%	1.52%	1.10%	1.21%	-	-	-
Black	11.89%	9.39%	11.22%	16.01%	1	-	-
Hispanic	13.85%	19.99%	12.78%	20.39%	-	1	-
White	72.38%	68.23%	74.19%	61.29%	-	-	1
Age	43.12	41.93	43.01	43.75	43.81	40.81	43.44
Years of Experience	12.18	10.39	12.49	10.42	11.63	10.95	12.58
Salary (adj.)	$58,197	$53,284	$58,612	$57,654	$62,871	$60,497	$56,252
Urban	46.27%	40.78%	45.81%	49.12%	65.01%	59.08%	40.53%
Suburban	26.85%	29.01%	27.47%	23.14%	22.25%	21.50%	28.61%
Town	12.70%	11.82%	12.75%	12.37%	6.18%	10.15%	14.39%
Rural	14.18%	18.40%	13.97%	15.37%	6.56%	9.28%	16.47%
N	113,109	1,160,888	97,240	15,869	13,449	15,666	81,868

Table 2

Characteristics of Special Education Teacher (SET) and Core Subject Teacher (CST) School Switches

	SET Switch Number					CST Switch Number				
	1	2	3	4	5	1	2	3	4	5
Distance	37.3	32.36	28.53	25.43	24.84	45.01	42.34	41.24	41.68	42.42
Female	85%	85%	84%	84%	84%	76%	76%	75%	74%	71%
Male	15%	15%	16%	16%	16%	24%	24%	25%	26%	29%
Asian	1%	1%	1%	1%	1%	2%	1%	1%	1%	1%
Black	11%	12%	12%	11%	10%	11%	11%	11%	11%	11%
Hispanic	14%	14%	15%	15%	15%	20%	20%	19%	19%	19%
Other	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
White	73%	72%	72%	73%	73%	66%	67%	67%	68%	68%
Age	38.51	41.32	43.69	45.41	47.11	36.66	39.94	42.56	44.74	46.6
Experience	10	11.04	11.95	12.63	13.57	7.67	9	10.1	11.04	11.9
Salary (adj.)	$55,488	$56,610	$57,379	$58,437	$58,228	$53,148	$53,519	$53,896	$54,368	$54,122
Elem.	79%	80%	79%	79%	80%	52%	54%	55%	55%	55%
Secondary	18%	17%	18%	17%	16%	48%	45%	44%	44%	44%
All Grades	2%	2%	2%	3%	4%	0%	0%	0%	0%	0%
School Size	731.94	725.99	742.28	773.52	768.98	998.14	973.99	951.53	930.9	915.99
% FARM	52%	52%	52%	53%	53%	54%	53%	53%	54%	55%
% LEP	17%	16%	16%	16%	16%	15%	14%	14%	13%	13%
% AIAN	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Asian	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
% Black	14%	14%	14%	14%	14%	15%	14%	14%	14%	14%
% Hispanic	40%	41%	42%	44%	45%	45%	44%	44%	45%	45%
% Other	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
% White	42%	40%	39%	38%	37%	36%	36%	36%	36%	36%
Urban	45%	44%	43%	42%	41%	40%	37%	36%	34%	32%
Suburban	28%	28%	27%	27%	27%	30%	29%	28%	27%	26%
Town	13%	13%	13%	13%	14%	11%	12%	13%	14%	14%
Rural	15%	16%	17%	17%	18%	19%	21%	24%	26%	27%
N	33,578	21,715	13,138	8,108	5,111	232,212	135,583	76,491	43,085	24,446

Table 3

Risk of Special Education Teacher (SET) Within-Career Switching, 1995-2022

	1 All	2 SET	3 CST		1 All	3 SET	2 CST
SET	1.037**			*School Characteristics*			
	(0.001)			Δ Enrollment	1.002**	0.982**	1.005**
Teacher Characteristics					(0.000)	(0.002)	(0.000)
Female	0.992**	0.988**	0.992**	Δ % FARM	0.995**	0.989**	0.994**
	(0.000)	(0.002)	(0.000)		(0.001)	(0.002)	(0.002)
Asian	0.998	0.986**	0.999	Δ % LEP	0.986**	0.986	0.974**
	(0.001)	(0.005)	(0.001)		(0.003)	(0.010)	(0.003)
Black	1.005**	0.997	1.006**	Δ % Asian	0.960**	0.994	0.947**
	(0.001)	(0.002)	(0.001)		(0.010)	(0.003)	(0.011)
Hispanic	1.003**	1.001	1.003**	Δ % Black	0.972**	0.998	0.972**
	(0.000)	(0.002)	(0.000)		(0.008)	(0.013)	(0.008)
White	0.948**	1.001	0.997**	Δ % Hispanic	0.923**	1.004	0.921**
	(0.007)	(0.002)	(0.000)		(0.007)	(0.002)	(0.008)
Age	1.010**	1.018**	1.011**	Δ % White	1.001	1.002	1.011**
	(0.000)	(0.001)	(0.000)		(0.001)	(0.002)	(0.000)
< 4 yr Experience	0.998**	0.982**	1.000	Δ % Proficient	1.003**	1.003**	1.004**
	(0.000)	(0.002)	(0.000)		(0.000)	(0.001)	(0.000)
> 12 yr Experience	1.005**	1.030**	1.001**	Urban	0.995**	0.993**	1.007
	(0.000)	(0.002)	(0.000)		(0.001)	(0.001)	(0.004)
Δ Salary (adj.)	0.998**	1.004**	0.998**	Town	0.979**	0.979**	0.964**
	(0.001)	(0.002)	(0.000)		(0.001)	(0.001)	(0.005)
				Rural	0.967**	0.966**	0.959**
					(0.001)	(0.002)	(0.004)
				Constant	1.360**	1.472**	1.359**
					(0.001)	(0.005)	(0.002)
Baseline Hazard	X	X	X				
School Fixed Effects	X	X	X	McFadden's Adj. R^2	0.219	0.294	0.217
Observations	2,610,046	212,991	2,396,676	BIC	2612045	229126	2368462

** p<0.01, * p<0.05. Coefficients in Odds Ratios. Standard errors in parentheses. Reference categories set as Male, White, Suburban. White run in separate models due to interdependency of school demographic proportions, with reference categories changed to Hispanic Urban. Groups of AIAN or Other not included due to low observations. Locale is for arrival school.

Table 4

Distance of Special Education Teacher (SET) and Core Subject Teacher (CST) Teacher Switching in Texas, 1995-2022

	1 All	3 SET	2 CST
SET	-9.362**		
	(0.516)		
Teacher Characteristics			
Female	-4.830**	0.286	-5.122**
	(0.356)	(1.114)	(0.380)
Asian	3.796**	8.497*	3.350**
	(1.217)	(3.679)	(1.300)
Black	-7.458**	-4.032**	-7.885**
	(0.561)	(1.499)	(0.609)
Hispanic	0.747	1.028	0.804
	(0.468)	(1.384)	(0.505)
White	-1.217	-1.246	-0.476
	(1.527)	(1.416)	(0.511)
Age	-6.604**	-5.271**	-6.689**
	(0.170)	(0.458)	(0.184)
< 4 yr Experience	2.169**	1.665	2.215**
	(0.337)	(0.954)	(0.362)
> 12 yr Experience	-0.428	-2.133*	-0.055
	(0.420)	(1.050)	(0.460)
Salary (adj.)	0.344	1.931**	-0.139
	(0.196)	(0.361)	(0.230)
Baseline Hazard	X	X	X
School Fixed Effects	X	X	X
Observations	2,610,046	212,991	2,396,676

	1 All	2 SET	3 CST
School Characteristics			
Size	-0.528**	0.973	-0.548**
	(0.187)	(0.574)	(0.200)
% FARM	12.153**	7.336**	12.737**
	(0.966)	(2.404)	(1.063)
% LEP	27.486**	13.312**	29.932**
	(1.345)	(3.445)	(1.481)
% Asian	2.128	7.715	-6.038
	(6.474)	(12.912)	(7.534)
% Black	-19.442**	-20.563	-27.321**
	(5.808)	(10.515)	(6.852)
% Hispanic	-57.561**	-44.573**	-67.016**
	(5.684)	(10.229)	(6.716)
% White	-28.132**	-15.824	-36.783**
	(5.760)	(10.196)	(6.812)
% Proficient	-0.824**	-1.105*	-0.923**
	(0.196)	(0.514)	(0.214)
Urban	0.830	0.424	0.557
	(1.040)	(2.391)	(1.166)
Town	-6.758**	-6.060	-7.119**
	(1.390)	(3.853)	(1.520)
Rural	-6.819**	-9.297**	-6.489**
	(0.978)	(2.517)	(1.081)
Constant	68.988**	68.438**	47.570**
	(1.284)	(1.435)	(1.498)
R^2	0.051	0.048	0.066
BIC	2612176	2368833	349768

** p<0.01, * p<0.05. Standard errors in parentheses. Dependent variable is the distance between school locations. Coefficients in miles. Reference categories set as Male, White, Suburban. White run in separate models due to interdependency of school demographic proportions, with reference categories changed to Hispanic Urban. Groups of AIAN or Other not included due to low observations. Locale is for arrival school.

Appendix A

Table A5

Difference in Risk of Switching and Switching Distance between Special Education Teachers (SETs) and Core Subject Teachers (CSTs)

Panel A. Risk of Switching Event by Gender, Race, and Locale. Coefficients in Odds Ratios.

		Gender		Race/Ethnicity			Departure Locale			
	Overall	Female	Male	Black	Hispanic	White	Urban	Suburb	Town	Rural
SET v CS	1.037**	1.032**	1.036**	1.009**	1.041**	1.035**	1.025**	1.041**	1.033**	1.037**
	-0.001	-0.001	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	-0.002	-0.001
Teacher & School Controls	X	X	X	X	X	X	X	X	X	X
Baseline Hazard	X	X	X	X	X	X	X	X	X	X
School Fixed Effects	X	X	X	X	X	X	X	X	X	X
N	2,610,046	1,753,157	479,899	204,639	456,374	1,519,270	902,444	667,335	250,525	413,090
R^2	0.219	0.207	0.267	0.282	0.216	0.220	0.221	0.221	0.245	0.245
BIC	2612147	276747	290282	293954	278830	279508	279967	280257	285471	285240

Panel B. Distance between Switches by Gender, Race, and Locale. Coefficients in Miles

		Gender		Race/Ethnicity			Departure Locale			
	Overall	Female	Male	Black	Hispanic	White	Urban	Suburb	Town	Rural
SET v CS	-9.362**	-10.423**	-13.276**	-4.184**	-10.580**	-12.608**	-9.594**	-8.977**	-18.926**	-13.362**
	(0.516)	(0.560)	(1.413)	(1.047)	(1.480)	(0.630)	(0.859)	(0.846)	(1.689)	(1.228)
Teacher & School Controls	X	X	X	X	X	X	X	X	X	X
Baseline Hazard	X	X	X	X	X	X	X	X	X	X
School Fixed Effects	X	X	X	X	X	X	X	X	X	X
N	2,610,046	1,753,157	479,899	204,639	456,374	1,519,270	902,444	667,335	250,525	413,090
R^2	0.051	0.106	0.163	0.187	0.170	0.122	0.098	0.094	0.155	0.142
BIC	351252	448493	471609	481339	474447	454981	445249	443619	468362	463090

Table A6

Risk of Special Education Teacher (SET) and Core Subject Teacher (CST) Transfer in Texas, 2017-2022

	1 All	2 CST	3 SET		1 All	3 CST	2 SET
SET	1.053**			*School Characteristics*			
	(0.001)			Size	1.009**	1.011**	0.994
Teacher Characteristics					(0.001)	(0.001)	(0.004)
Female	0.989**	0.990**	0.973**	% FARM	1.020**	1.018**	1.041
	(0.001)	(0.001)	(0.005)		(0.004)	(0.004)	(0.022)
Asian	0.995**	0.996*	0.986	% LEP	1.008	0.999	1.131**
	(0.002)	(0.002)	(0.024)		(0.005)	(0.005)	(0.031)
Black	1.006**	1.007**	1.005	% Asian	0.999	0.988	1.202**
	(0.001)	(0.001)	(0.006)		(0.011)	(0.012)	(0.069)
Hispanic	1.000	1.000	0.988*	% Black	0.966**	0.970**	0.908**
	(0.001)	(0.002)	(0.005)		(0.006)	(0.006)	(0.031)
White	1.010**	1.000	1.011*	% Hispanic	0.917**	0.918**	0.889**
	(0.001)	(0.001)	(0.006)		(0.005)	(0.005)	(0.027)
Other	1.006	1.007	0.988	% White	1.060**	1.055**	1.069*
	(0.004)	(0.004)	(0.032)		(0.003)	(0.005)	(0.034)
Age	1.016**	1.013**	1.031**	% Proficient	0.998**	0.998**	0.996
	(0.000)	(0.000)	(0.002)		(0.001)	(0.001)	(0.002)
< 4 yr Experience	0.992**	0.993**	0.977**	Urban	0.999	1.001	0.974
	(0.001)	(0.001)	(0.004)		(0.005)	(0.005)	(0.034)
> 12 yr Experience	0.999	0.998*	1.007	Town	0.987	0.990	0.905
	(0.001)	(0.001)	(0.005)		(0.010)	(0.010)	(0.068)
Salary (adj.)	0.996**	0.995**	1.004**	Rural	1.005	1.005	1.006
	(0.000)	(0.001)	(0.001)		(0.007)	(0.006)	(0.053)
				Constant	1.061**	1.060**	1.159**
					(0.003)	(0.002)	(0.023)
Baseline Hazard	X	X	X				
School Fixed Effects	X	X	X	R^2	0.158	0.154	0.391
Observations	784,941	748,923	35,290	BIC	308905	285672	285298

** p<0.01, * p<0.05. Coefficients in Odds Ratios. Standard errors in parentheses. Reference categories set as Male, White, Suburban. White run in separate models due to interdependency of school demographic proportions, with reference categories changed to Hispanic Urban. Locale is for arrival school.

Table A7

Distance of Special Education Teacher (SET) and Core Subject Teacher (CST) Switch in Texas, 2017-2022

	1 All	3 SET	2 CST		1 All	2 SET	3 CST
SET	-11.964**			*School Characteristics*			
	(1.004)			Size	-0.833**	-0.815*	-1.290**
					(0.321)	(0.339)	(0.343)
Teacher Characteristics				% FARM	12.727**	13.586**	11.439**
Female	-4.218**	-4.590**	-4.979**		(1.979)	(2.088)	(2.107)
	(0.605)	(0.637)	(0.644)	% LEP	28.734**	30.804**	31.273**
Asian	1.739	2.245	1.013		(2.079)	(2.208)	(2.230)
	(1.880)	(1.967)	(2.047)	% Asian	-110.739**	-111.473**	53.329**
Black	-6.598**	-7.199**	-7.731**		(14.506)	(15.294)	(4.809)
	(0.871)	(0.925)	(1.058)	% Black	-122.814**	-124.318**	38.806**
Hispanic	1.049	0.744	-0.681		(13.856)	(14.612)	(2.110)
	(0.711)	(0.749)	(0.757)	% Hispanic	-155.748**	-159.169**	-104.287*
White	-4.100	-2.924	-6.829		(13.431)	(14.163)	(51.583)
	(7.823)	(3.095)	(3.938)	% White	-135.097**	-137.061**	24.794**
Age	-6.084**	-6.221**	-6.526**		(13.850)	(14.602)	(2.261)
	(0.291)	(0.307)	(0.311)	% Proficient	-0.751*	-0.907*	-0.558
< 4 yr Experience	3.491**	3.375**	3.791**		(0.343)	(0.362)	(0.365)
	(0.529)	(0.558)	(0.564)	Urban	-7.648	-7.645	-7.986
> 12 yr Experience	0.288	0.572	0.088		(5.366)	(5.611)	(5.675)
	(0.863)	(0.919)	(0.929)	Town	0.217	1.563	9.089
Salary (adj.)	0.591	0.120	-0.022		(9.212)	(9.555)	(9.661)
	(0.321)	(0.372)	(0.369)	Rural	-8.587	-6.614	0.384
					(6.104)	(6.316)	(6.385)
				Constant	62.818**	62.712**	49.169**
					(3.238)	(3.373)	(3.431)
Baseline Hazard	X	X	X				
School Fixed Effects	X	X	X	R^2	0.041	0.038	0.015
Observations	784,941	748,923	35,290	BIC	114823	107038	107056

** p<0.01, * p<0.05. Coefficients in Odds Ratios. Standard errors in parentheses. Reference categories set as Male, White, and Suburban. White was run in separate models due to the interdependency of school demographic proportions, with reference categories changed to Hispanic Urban. Groups of AIAN or Other not included due to low observations. Locale is for arrival school.