



Unintended Consequences of Expanding Teacher Preparation Pathways: Does alternative licensure attenuate new teacher pay?

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ABSTRACT

Texas reduced new teacher preparation requirements in 2001 to allow more alternate paths to licensure. Within five years, this policy change resulted in over half the state's new teachers being alternatively licensed. Using a series of first difference models, this study examines the relationship between the increased supply of new teachers in Texas and new teacher salaries prior to the policy change and in the fifteen years thereafter. We find that the policy change did increase the supply of new teachers via alternative licensing, but pay for new EC-6 teachers declined by 2 to 13 percent with differential effects based on the rate at which districts hired alternatively licensed teachers.

Context and Background

Teaching has historically been a licensed profession in which there were a limited number of schools of education, typically housed in universities, which offered a traditional path to certification (Kleiner, 2000). However, 30 years of documented teacher shortages in the United States resulted in federal and state policies which reduce barriers to teacher licensure (Cross, 2017). The goal of these policies is to create a larger pool of new teachers in less time than it typically takes schools of education to produce teachers. Non-union (also called right-to-work) states, where teacher union bargaining is prohibited by state constitutions, have consistently ratified policies which open new pathways to teacher licensure (Guthery, 2018).

In 2001, the Texas State Board for Educator Certification (SBEC), which establishes teacher preparation and certification requirements, reduced the mandatory number of contact hours for teacher candidates in order to generate more teacher licensure programs (May, et al., 2003). By reducing that number of required contact hours, the policy change facilitated the proliferation of alternative certification programs and has consequently increased the number of new teachers with alternative certification (Baines, et al., 2001; May et al., 2003; Walsh & Jacobs, 2007).

Previous studies have examined the effects of instituting teacher licensure exams and found that increased credentialing barriers resulted in higher wages for new teachers (Angrist & Guryan, 2008; Goldhaber & Hansen, 2010). These studies assert that, when states increase barriers to entering teaching, the number of new licensed teachers decreases, which generates more competition among districts to hire fewer available people and tends to drive up wages. This study considers consequences for wages when reduced preparation and licensure requirements make it easier—rather than harder—to enter the teaching profession. Specifically,

we investigate what happens when a teaching license becomes more obtainable and the profession less restrictive. Previous research on licensed professions found that licensed professionals were paid more for their skillset than were equivalent professionals in non-licensed fields because the institution of licensure serves as a barrier and regulates the number of people in the profession thus protecting the higher wage (Kleiner, 2000).

This study investigates the opposite phenomenon, whether reduced barriers to entry and the resultant increase in teacher supply influenced salaries for elementary Texas educators. We examine the implementation of a policy in 2001 (SBEC, 2000) which expanded alternative licensure and its effects for wages among new EC-6 teachers, the most commonly produced type of new teacher in Texas. We find that the 2001 Texas policy is associated with attenuated pay for all EC-6 new teachers. We also find that, before 2001 and prior to the implementation of the policy, districts which hired more than 50% of their new teachers with alternative licensure were paying higher salaries relative to other districts. However, following the institution of the policy, the districts which hired 50% or more alternatively licensed teachers (ALTs) experienced stagnated teacher pay in real dollars and districts which hired less than 20% ALTs increased teacher pay.

Purposes and Consequences of Alternative Teacher Licensure

Texas has established numerous forms of alternative licensure that expanded the supply of licensed teachers; by the 2016-2017 school year, 55% of new teacher licenses in Texas were issued through alternative pathways (Rubiera, 2018). In addition, Texas initiated several policies which deregulate teacher licensure and similar policies are now in effect in many states throughout the country (Feistritzer, et al., 2011; Walsh & Jacobs, 2007). The following section reviews the rationale for instituting alternative routes to teacher licensure, addresses changes in

the teacher supply attributable to alternative licensure, and concludes by discussing potential consequences of alternative licensure policies.

Meeting a need through alternative licensure

The practice of licensing and then certifying American teachers dates to the Colonial Era; however, the rise of compulsory schooling and the proliferation of schools of education resulted in teaching being a licensed profession by the 20th century (Tyack, 1974). Under this system, a limited number of preparation programs run by universities—now known as traditional schools of education—were grantors of teacher licenses (Kleiner, 2000). As in other licensed fields (e.g., medicine, law), teacher certifications and licenses aimed to achieve two interrelated objectives. First, it ensured the quality of teachers educating students, and the need for teacher quality was premised on the idea that teacher training was related to student outcomes. Second, licensure protected the profession of education from unfair competition and from “unethical, incompetent, or improperly prepared teachers” (LaBue, 1960, p. 148).

However, by the 1980s, critics argued that the certification rules which governed university teacher preparation programs also inhibited the overall production of new teachers. School districts which served minoritized and economically disadvantaged students reported particular trouble hiring and retaining qualified teachers (Heilig, et al., 2010). Moreover, teacher shortages became particularly acute in areas of critical need such as bilingual education, computer science, science, mathematics, and special education—some of these shortages had extended for decades (Cross, 2017). It is these longstanding critical shortages that were used as justification for the more rapid production of teachers (Texas Higher Education Coordinating Board, 2002). Traditional institutions of higher education were blamed for the bottleneck in teacher production, so in 1983 New Jersey created the first alternative licensing program which

was designed to license new teachers without requiring traditional university preparation (Walsh & Jacobs, 2008). Over the next two decades, alternative licensure was widely adopted throughout the United States.

By 2000, Texas permitted alternative teacher licensure but, in August of 2001, the Texas Higher Education Coordinating Board (THEBC) issued a memorandum stating that the number of contact hours for alternative licensure required by the SBEC were guidelines, rather than rules (Texas Higher Education Coordinating Board, 2001). That wording change was significant because it allowed alternative teacher licensure programs to reduce their program length while the length of traditional (university-based) preparation programs remained fixed. The subsequent 2001 legislative change made Texas one of three states which did not require a practical classroom component (e.g., student teaching) for teacher preparation toward licensure (Baines, et al., 2000). The reduced requirements for teacher preparation would have a profound effect on the teacher labor market in Texas; specifically, the policy change created the pathway for the majority of teachers to obtain an alternative license throughout the state (Smith, 2021).

Teacher supply and sorting due to alternative licensure

The typical school context is also different for ALTs than for traditionally licensed teachers. Darling-Hammond et al. (2002) find that “based on their graduates’ feelings of preparedness, teacher education programs do differ in the quality of preparation they provide” and alternative route teachers rated their preparation lower than did traditionally prepared teachers (p. 297). ALTs are more likely to work in low-achieving, low-income, urban schools with a majority of nonwhite students in conditions that are usually categorized as high-needs or priority schools (Ballou & Podgursky, 2000; Boyd et al., 2007; Lankford et al., 2002). However, the higher rate of turnover among ALTs fuels an ongoing debate regarding whether they leave

the profession because they tend to teach in challenging school environments or because of a sorting effect associated with their alternative credentialing (e.g., Guthery & Bailes, 2022; Darling-Hammond, 2006; Redding & Smith, 2016).

While concerns about preparation quality and retention persist, the alternative route has produced a significant number of new teachers for districts with persistent shortages (Redding & Smith, 2016; Smith, 2021). Alternative licensure also increased some dimensions of diversity in the teaching field. Specifically, more individuals from historically underrepresented groups enter teaching through alternative than traditional licensure (Kane et al., 2008; Peterson & Nadler, 2009). The addition of teachers of color by ALT has been a positive addition for students, with recent efficacy studies affirming the benefits to students of color when they have teachers of color in their schools (Dee 2005; Grissom & Redding, 2015). Additionally, while male participation in the teacher labor force is shrinking overall (National Center for Education Statistics, 2020), alternative licensure constitutes the pathway by which the majority of men in the teaching profession obtain licensure. Men comprise 22% of all ALTs, compared with only 16% of traditionally prepared teachers (National Center for Education Information, 2011). Despite the large increase in numbers alternative licensure has produced, there are thousands of unfilled jobs every year, indicating the profession may be undesirable in other ways (THECB, 2002).

Teacher labor market and pay

The relative wage for an American teacher has been falling since the 1960s (Allegretto et al., 2008; Hanushek & Rivkin, 2007; Hoxby & Leigh, 2004). Lower teaching wages are attributable in part to the structure of teacher pay steps, which are typically negotiated through traditional union bargaining (Hanushek, 2007; Hoxby, 1996). The factors that tend to raise pay

among teachers are years of service and additional educational attainment such as advanced degrees (Hanushek, 2007). Teacher turnover, then, drives down the average aggregate salary for two reasons- lower average tenure pay and less time for teachers to get an advanced degree before they leave the profession.

As teacher pay has trended downward overtime, researchers have identified policy changes that have altered either teacher supply or district demand, resulting in changes to teacher wages. Theoretically, a professional's pay is tied to the barriers to entry for that profession and, specifically, the difficulty of obtaining a professional license (Kleiner, 2006). Angrist and Guryan (2008) illustrate this point within the field of education: they found that implementing a mandatory testing component for teacher licensure was associated with a smaller supply of teachers and a higher teacher wage of 3% to 5%. Another state policy which influences teacher pay is the rate at which states allow districts to merge. Taylor (2010) found that as school districts merged, these mergers suppressed market competition as well as teacher salaries. Increasing competition for new teachers by increasing independence among districts is therefore predicted to increase the base pay rate for 88% of the teachers in Texas (Taylor, 2010).

The institution of teacher licensure has had an observable effect on the profession. When barriers to entry change, both the supply and demography of new teachers also change. This relationship suggests that some features of the teaching pool are sensitive to policies which alter barriers to entry. As detailed above, state policies which increase the difficulty of obtaining a teacher license result in a marked decrease on the total number of licensed teachers as well as on the diversity of entrants into the profession. Wages, finally, are also malleable to both the number of teachers in the pool and the number of employees who compete for teachers in the labor force. According to market theory (Fama, 1970), as more teachers are licensed, and the

overall supply of teachers increases, each teacher's value in the market declines. We examine the effect of the Texas 2001 law change on the number of ALTs in Texas, and how that number relates to the pay rate for new EC-6 teachers. Previous studies have concluded that implementing licensure tests restricted supply of teachers thereby increasing teacher pay. We investigate whether the lower salaries in Texas may be associated with falling barriers to entry and the increasing supply of ALTs. As alternative licensure provided a less costly and time-consuming path to classrooms, did the supply shift influence new teacher pay in the state?

Research Questions

Extant literature supports the idea that increasing the entry demands for teaching through requirements like licensure exams decreases the teacher supply and increases teacher pay (e.g., Angrist & Guryan, 2008; Valenzuela, 2017). Applying Stigler's (1971) capture theory of regulation, professions use licensure as a barrier to entry for certain fields, thus raising the pay for everyone licensed within that field. This study examines an alternative proposition: the possibility that the 2001 easing of entry into the teaching profession in Texas resulted in reduced teacher pay. Specifically, we address the following research question:

Is the 2001 Texas policy, which reduced teacher licensure requirements and accelerated the production of alternatively certified teachers, associated with reductions in the starting salary of new teachers?

Data and Sample

Variable Definitions

Data were obtained and merged from the Texas state longitudinal administrative data system and the National Center for Education Statistics (NCES) Common Core of Data (U. S. Department of Education, n.d.). The full dataset includes approximately 1,282 districts with 15

years of observations at the district level. The number of new teachers hired by each district was calculated using teacher level data from approximately 1.5 million observations based on 786,724 unique teachers (defined below) from 2000-2015.

New teacher pay

The dependent variable, teacher pay, is the log of new EC-6 teacher base pay adjusted to 2015 dollars. Base pay is defined as all pay related to a teacher's main assignment (including bonuses), but excludes any pay related to extra duties like coaching or driving a bus. The outcome variable only measures changes to new teachers' salaries, and a new teacher is defined as a full-time teacher in a traditional or charter public school with zero years of prior experience. In Texas, a right-to-work state, districts are more likely to focus on raising new teacher salaries than on rewarding tenure, which results in an overall flatter pay structure (Hoxby, 1996). Thus, we only included new teacher salaries, since they are more sensitive to market changes of supply and unaffected by decreasing teacher tenure pay raises. However, the definition of pay employed in this study is limited in that it does not include any additional benefits like insurance or retirement. It is possible that, when including these benefits, the salary does not adequately capture total teacher compensation.

Teacher licensure

In teacher licensure research, there is a variety of ways to define teacher preparation paths because the paths are not always mutually exclusive (Guthery & Bailes, 2022). The following is a definition of each variable as well as the exact specifications for measurement in this study. Traditionally prepared teachers are those who were trained in a university-based program with a field placement. Their preparation is inclusive of requirements for hours in reading, math and special education instruction as well as a supervised teaching placement in a

K-12 school classroom. A teacher is counted as traditionally certified if their degree is standard and their program is classified as a traditional preparation program (university-based).

For ALTs, the state awards a standard licensure but identifies that teacher in the state database as having taken an alternative path to licensure. Examples of this path are online programs, community college programs, district-run programs, and university alternative programs. The state designates as teacher as alternatively certified when that person has completed an initial teacher-training program and passed the state tests which are used in Texas for licensure. Since traditional schools of education also run alternative programs, the state counts a teacher as alternatively certified if their preparation path is classified as alternative, even if their program code is traditional. We therefore define an ALT as one who has completed a teaching program classified by the state as an alternative licensure program. In the process of coding entrance paths, many teachers overlapped categories. Appendix A lists the priority order in which each entrant was assigned a single licensure path.

Data Descriptives

The average district in Texas has 256.4 teachers and hires about 20 novice teachers each year. The average district turnover rate for all teachers is 19.9%. The average district is comprised of 78.8% white teachers and 36.9% of the teachers have less than five years of experience. Over the course of this study, the average district in Texas hired 31.6% of their novice teachers with an alternative licensure. We divided districts into quartiles based on the percentage of novice ALTs they hired relative to other districts. Districts in the highest quartile hired more than 50.2% of their new teachers with alternative licensure and, by contrast, districts in the lowest quartile hired less than 10% of their novice teachers with alternative licensure.

Table 1 illustrates the descriptives for all districts and then districts which are in the highest and lowest quartiles for hiring ALT novice teachers.

Table 1

District Demographics

Table 1. District Descriptives

	All District Model		Districts High ALT		Districts Low ALT	
	Mean	SD	Mean	SD	Mean	SD
Number of Campuses	6.60	15.49	9.78	27.80	2.92	4.31
Total Teachers	256.41	745.92	404.32	1,242.31	69.94	170.85
N Beginning Teachers	20.93	60.66	34.46	103.75	4.56	11.17
Teacher Turnover Rate	19.89	14.13	21.55	14.03	14.38	15.5
% Black Teachers	7.19	17.47	9.76	18.97	5.00	15.44
% Hispanic Teachers	12.62	21.64	19.44	27.99	8.20	17.17
% Caucasian Teachers	78.75	27.53	68.88	31.97	85.86	23.11
% Teacher < 5 yrs Exp	36.89	19.57	42.22	21.13	33.13	18.5
% Alt Cert New Teachers	31.56	25.63	71.65	17.18	0.77	2.4
Dollars per Student	12,146.02	9,470.94	12,033.23	4,835.16	12,740.83	13,442.80
% Black Students	11.30	18.42	12.93	20.05	8.92	16.53
% Hispanic Students	34.86	28.2	42.41	31.81	29.04	25.5
% Caucasian Students	51.97	29.82	42.45	32.54	60.79	27.12

There is a statistically significant difference in the racial composition of districts which are hiring the largest and smallest percentages of ALTs as their new teachers. Districts in the top quartile (hiring the most novice ALTs) are comprised of 42.5% white students while districts in the lowest quartile of hiring ALTs are comprised of 60.8% white students (sig. $p < .01^{***}$).

Additionally, districts which hire a majority of new ALTs also hired 29.9%*** more beginning teachers than districts who were hiring the least number of ALTs. Further, districts which were hiring in the highest quartile of ALTs, were retaining fewer teachers than districts hiring the least number of ALTs. Districts in the lowest quartile for hiring ALTs tend to have characteristics associated with better working conditions (e.g., smaller schools, less teacher turnover), while districts in the highest quartile tend to have characteristics associated with less desirable working conditions (e.g., larger schools, more teacher turnover). The data show that districts which are

hiring the most ALTs are larger than average, have more diverse staff and students, have higher average annual teacher turnover, and a third of their teaching corps are novice teachers.

Methods

This study tests the extent to which reducing barriers to a teaching license is associated with changes to new teacher pay. To do this, we examined pay in the year preceding the Texas policy change as well as the fourteen years thereafter. Due to the longitudinal panel structure of the data, each observation is dependent upon an observation in a previous time period, which violates a key assumption of independence in Ordinary Least Squares regression (Allison, 2009). Thus, we chose to use a first difference regression model to account for unobserved sources of heterogeneity among districts and the likely dependence of errors on the prior time period. Although we do control for time invariant predictors like geographic locale in our models, estimates cannot be generated for invariant observations within districts across years.

Models Defined

Using the first difference regression model, we estimated the relationship between the percentage of new teachers hired that are alternatively certified and new teacher pay. Specifically, we estimated the change in the log of new teacher pay measured at the district level from one year to the next while controlling for differences in districts and including other predictor variables by constructing the following model.

$$\text{Model 1: } \Delta Y_{it} = Y_{it} - Y_{it-1} = \beta_{1:8}(\chi_{it} - \chi_{i(t-1)}) + \beta_9(v_i) + \varepsilon_{it} - \varepsilon_{it-1}$$

$$\text{for } i = 1:N \text{ and } t = 1:15$$

The outcome variable ΔY_{it} is change in the log of new EC-6 teacher pay for district i in year t minus the previous year $t-1$ (in 2015 real U.S. dollars). $\beta_{1:8}$ is the estimate generated from a host

of district-level time-varying controls including the percentage of all new teachers who are novice, number of students, per pupil expenditure, teacher turnover rate, the racial composition of the students and teachers, the percentage of students in special education, and the percentage of students eligible for free and reduced lunch. β_9 is added as a time invariant control for the urbanicity of each district, however, no estimate will be generated since there is no difference over time. $\Delta \varepsilon_{it}$ represents the error term for district i in time t minus the previous year.

To test whether there was a differential effect on new teacher pay based on the rate at which districts hired ALTs, we subsetted districts into the highest and lowest quartiles of rates at which they were hiring ALTs. Districts which hired 50% or more of new teachers alternatively licensed each year were in the highest quartile of hiring rates and we classified as High ALT districts. Model 2 (m2) estimates the main effect on new teacher pay for districts which hired at least 50% of their new teachers with alternative licensure and is specified the same as m1, but only comprised of High ALT districts. Model 3 (m3) estimates the main effect on new teacher pay for districts in the lowest quartile of hiring ALTs. We termed districts which hired less than 20% of their new teachers with alternative licensure as Low ALT districts.

Results

The results from m1 show that the average district pay for new EC-6 teachers declined by 2% to 13% within 15 years after the policy change. There is a noticeable separation over time between High ALT districts (m2) and Low ALT districts (m3).

Table 2*New Teacher Pay Main Effect for EC-6 New Teachers*

Table 2. New Teacher Pay Main Effect for EC-6 New Teachers

Covariates	(m1) All Districts			(m2) New Teachers > 50% Alt Cert			(m3) New Teachers < 20% Alt Cert		
	B	exp(B)	SE	B	exp(B)	SE	B	exp(B)	SE
2001	-0.02***	0.985	0.005	-0.03*	0.97	0.02	0.003	1.00	0.01
2002	-0.02***	0.978	0.006	-0.02	0.98	0.02	-0.01	0.99	0.01
2003	-0.03***	0.969	0.007	-0.04	0.96	0.02	0.002	1.00	0.01
2004	-0.06***	0.945	0.010	-0.07	0.93	0.02	-0.02	0.98	0.02
2005	-0.09***	0.917	0.012	-0.09***	0.91	0.02	-0.04**	0.96	0.02
2006	-0.12***	0.899	0.015	-0.11***	0.90	0.02	-0.03*	0.97	0.02
2007	-0.04**	0.961	0.018	-0.05**	0.95	0.02	0.04	1.04	0.03
2008	-0.06***	0.946	0.021	-0.08***	0.92	0.02	0.01	1.01	0.03
2009	-0.03	0.968	0.023	-0.04*	0.96	0.03	0.03	1.03	0.03
2010	-0.03	0.969	0.025	-0.05*	0.95	0.03	0.05	1.05	0.04
2011	-0.6**	0.938	0.031	-0.08***	0.92	0.03	0.01	1.01	0.03
2012	-0.11***	0.895	0.036	-0.11***	0.90	0.03	0.03	1.03	0.02
2013	-0.13***	0.882	0.035	-0.14***	0.87	0.03	-0.01	0.99	0.03
2014	-0.13***	0.882	0.037	-0.12***	0.89	0.03	0.03	1.03	0.03
Observations	11,256			2,086			1,755		

*p<0.1; **p<0.05; ***p<0.01

For Low ALT districts (m3), pay was stagnant in real dollars while other districts lowered pay in real dollars over time (m2). In 2005, High ALT districts paid teachers 9% less than they did in 2000. By contrast, Low ALT districts paid teachers 4% less in 2005 than they did in 2000. As the policy had time to diffuse and take full effect, there were differential effects for districts depending upon the rate of ALT hire. Figure 1 shows the changes in EC-6 new teacher pay over time in all districts (m1), High ALT districts (m2), and Low ALT Districts (m3).

Figure 1

Model Estimates for Percent Change to New Teacher Pay

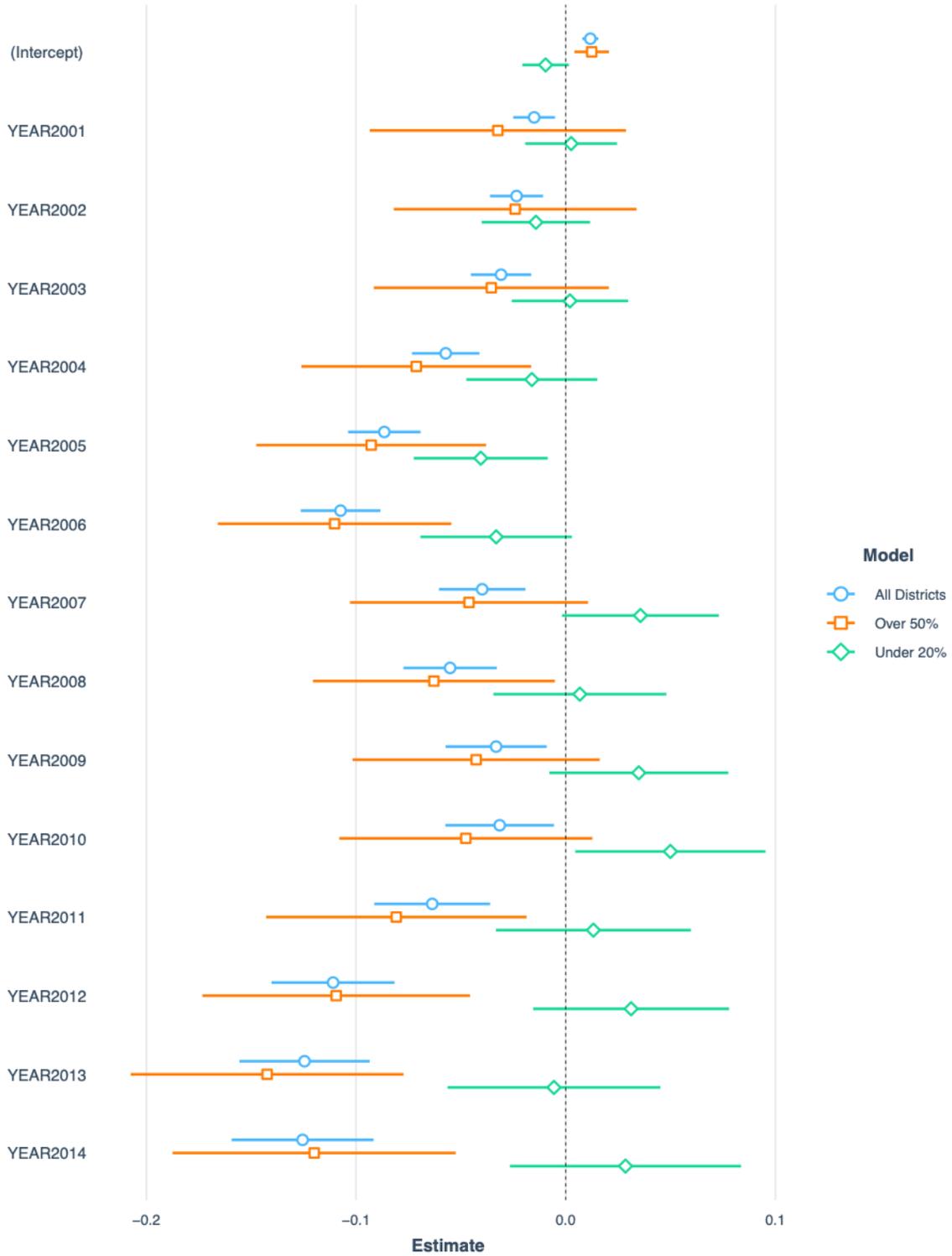


Figure 1 illustrates how hiring varying levels of ALTs had a differential effect on district pay by comparing the main effects on new teacher pay from m1, m2 and m3. In the year prior to policy implementation, the average district offered higher pay which fell over time. Conversely, Low ALT districts initially offered lower wages, but increased pay over time. The districts which sought and hired a greater proportion of ALTs offered higher teacher wages in the year prior to the policy change (2000). However, as the rate of hiring ALT teachers increased in these districts, the pay models reversed and they offered significantly lower wages (Figure 1).

Discussion and Implications

This study examines the association between an increased supply of ALTs and attenuated pay of novice teachers, specifically, EC-6 general education teachers. Easing licensure requirements to rapidly produce more teachers, then, is associated with at least one possible unintended consequence: decreasing new teacher pay. We find that the proliferation of alternative licensure programs drives down the pay of some novice teachers. Our findings contribute to the growing number of studies that associate ease of entry to the teaching profession with changes in teacher pay (Angrist & Guryan, 2008; Kleiner, 2000). Policies that aim to increase the supply of teachers may also lower teacher pay and thereby perpetuate the cycle of teacher shortage. In this section, we discuss these findings as well as their implications for research, policy, and practice.

Reductions in teacher pay and teacher quality

Certifying and licensing teachers are of critical importance because low-quality practitioners comprise significant financial and relational costs in terms of human resource expenses and poor job performance (Ballou & Podgursky, 2000). Previous research finds that the quality of a teacher preparation program does matter (e.g., Darling-Hammond, 2006). An

extensive review of teacher preparation and student achievement concludes that reduced barriers to entry do not result in the same quality of entrants (Darling-Hammond, 2000). By reducing the barrier to entry in the licensed teaching profession, according to the theory of protected occupations, the shift is likely detrimental to the quality of the field.

The United States Department of Education continues to support alternative licensure programs in order to fill ongoing teacher shortages. As such, the degree to which changes to the difficulty of teacher licensing acts as a lever for teacher pay is of increasing importance. If the 2001 policy change in Texas resulted in teacher salaries that are too low to attract traditional candidates and the teacher pool is dominated by ALTs, then the quality of ALTs is crucial to school improvement efforts. A further concern is that traditionally certified teachers may be dissuaded from remaining in the profession or advancing their instructional practice because fewer incentives are available to them in light of the competition from ALTs. A person in a protected occupation—that is, a profession bounded by rigorous credentialing—is incentivized to invest in their own professional development because they will not face competition from low quality substitutes (Kleiner, 2000). Federal and state agencies, then, must attend to the quality of ALTs in order to ensure that those teachers possess the capacity to support improvement efforts in their typically challenging placement schools.

This study constitutes an important next step in analyzing the composition of new teacher pipelines. There are several important questions raised in this study which merit further attention. The quality of teachers from different programs is a pressing issue. If there is an observable difference in the quality of teacher from different types of preparation programs, the rate at which the highest and lowest quality teacher is being produced is significant. One area for future research may be centered on K-12 districts that certify their own teachers in schools that are not

performing well. How likely is it, for example, that a persistently failing school can train effective teachers?

Changes to teacher licensure pipelines

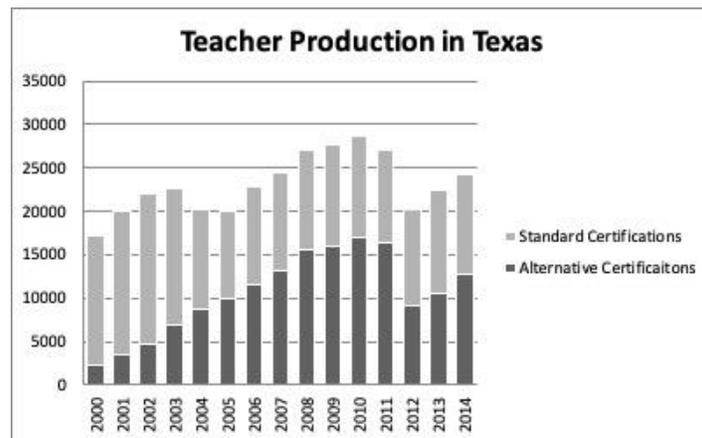
Over the course of the decade following the 2001 policy change, the number of ALTs who were credentialed has increased fivefold in Texas. In 2000, the year prior to the policy change, there were 88 programs providing initial teacher licensure in Texas. In the subsequent decade, the number of programs training and credentialing new teachers almost doubled. The number of programs peaked in 2010- 2011 when there were 161 separate programs licensing teachers in the state of Texas (Texas Education Agency, n. d.). In 2005, alternative licensure became the preferred preparation route for the majority of Texas teachers (Figure 2). Thus, deregulating program requirements allowed innovation in types of new teacher programs as evidenced by the fact that for-profits, online programs, community colleges, traditional schools of education, and K-12 school districts all launched teacher licensing programs. This policy change increased the number of teacher preparation programs, and thus the state's capacity to license new teachers.

As teacher licensure options proliferated in Texas, so too did the ways that certified teachers were categorized in Texas administrative datasets. Thus, the defined licensure pathways in this study's data were not always mutually exclusive and that feature of the data proved to be a limitation of the study. It was possible for an entrant to be classified as traditionally prepared and, in the same year, classified as alternatively certified by exam. While we detail in Appendix A the process by which we categorized teachers, there are not clear lines in new teacher licensure.

We can be certain, however, that as the number of teacher preparation programs increased in the state, that proliferation was not equally distributed between standard and alternative licensure pathways. The 2001 policy allowed for innovation in alternative licensure, but maintained requirements for a standard licensure. As a result, the dramatic increase in programs occurred only where the regulations were lifted. Our data do not allow us to distinguish among candidates who chose alternative pathways in lieu of traditional ones, nor the ways in which the proliferation of alternative licensure precluded candidates from entering traditional programs or from entering the teaching profession altogether. Our findings do show that the 2001 policy and the resultant changes to teacher licensure fundamentally altered how the average novice teacher in Texas was trained and certified (Figure 2). At present, the modal novice teacher in Texas is alternatively certified.

Figure 2

Teacher Production in Texas



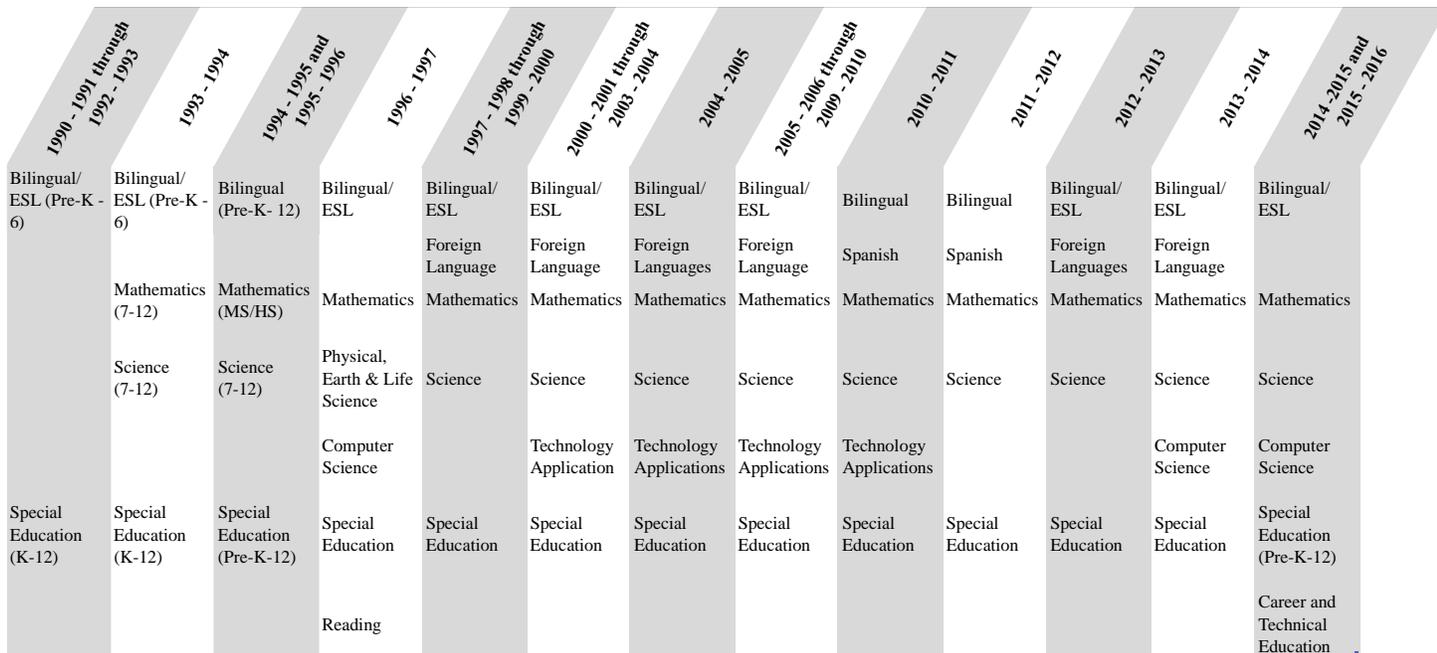
As depicted in Figure 2, the total number of initial teacher licensure has increased when compared to the amount produced annually prior to the policy change in 2001. The number of teachers licensed by traditional programs did not hold constant regardless of the number of teachers entering through alternative licensure. The data on teacher preparation reveal that

although the number of alternative preparation programs increased, the licensing by standard programs simultaneously decreased.

Texas implemented the focal policy in 2001 with the intention of addressing persistent teacher shortages in Texas. Teacher shortage is self-reported by each state’s secretary of education (or equivalent office) and chronicles teacher shortage areas both geographically and by subject. Unfortunately, the way the shortage areas are reported makes it impossible to measure the severity of the shortage or quantify change in shortage areas over time. However, it is possible to identify patterns of continuous teacher shortage. In Texas, the shortage areas do not appear to indicate major changes after 2001 and the advent of the alternative teacher licensure policy (Figure 3).

Figure 3

Critical shortages



While the number of ALTs increased, the pattern of reported shortage in Texas has remained constant. Additionally, alternative programs are still producing a majority of EC-6

teachers, and do not produce enough teachers to eliminate the reported shortage areas (Figure 3). The policy change in 2001 was designed to encourage rapid production of new teachers outside of traditional schools of education. Alternative licensure programs did not in fact exclusively produce in shortage specialty areas, but instead circumvented the requirements for General Education and mass-produced in a non-shortage area. While introducing a large number of new teacher preparation and licensure programs represented a net gain in the number of new licenses, the increase in new teacher preparation volume was not wholly in addition to the standard programs that already existed. And, despite the increased supply of new teachers, there is no evident change in the number of shortage areas.

Incentivizing traditional teacher licensure with pay

One way to compensate traditionally certified teachers for their lengthier preparation in teacher training would be to pay traditionally certified teachers more than ALTs. However, in 2008, *Renee v. Spellings* (later *Renee v. Duncan*) codified alternative licensure in two notable ways. First, it officially recognized both traditionally and alternatively certified teachers as highly qualified (Schuster, 2012). This effectively made the two pathways indistinguishable in terms of qualification because ‘highly qualified’ then applied to both traditionally and alternatively certified teachers. Thus, teachers currently have no financial incentive to invest their time or finances into a traditional preparation program because the highly qualified distinction now applies to alternative preparation pathways—some of which were faster and less expensive (Fenstermacher, 1990).

Second, the legislative change codified equal recognition of the two credentialing pathways and thereby standardized a single salary schedule for all teachers regardless of licensure type. This precludes states, districts, or schools from financially incentivizing

traditional licensure. *Renee v. Duncan* continues to shape the ways in which traditionally and alternatively certified teachers are promoted and paid. Specifically, this case law eliminates some incentives in terms of pay and prestige that were previously associated only with traditional licensure.

This study identifies a link between the increased production of ALTs in Texas and reduced pay for new EC-6 teachers. As the quantity of new teachers surged, the valuation of each individual teacher fell, and new teachers' salaries decreased on average. This association has the potential to instigate a vicious cycle of turnover: teachers may exit the classroom because reduced wages make the profession unsustainable, and districts must scramble to recruit each successive round of rapidly-certified teacher replacements using lower salaries. Focusing only on the point of teacher production has not alleviated the state's shortage of teachers. Texas districts may, in this regard, provide a useful illustration to other states which aim to fill shortages solely through increased access to alternative teacher licensure. As the U.S. struggles nationwide to fill vacant teaching positions, we must consider the possibility that expanding alternative licensure programs alone may not be an efficient solution to mitigating teacher shortages.

References

- Allegretto, S. A., Corcoran, S. P., & Mishel, L. (2011). The Teaching Penalty: An Update through 2010. EPI Issue Brief# 298. *Economic Policy Institute*.
- Allison, P. D. (2009). *Fixed effects regression models* (Vol. 160). SAGE publications.
- Angrist, J. D., & Guryan, J. (2008). Does teacher testing raise teacher quality? Evidence from state certification requirements. *Economics of Education Review*, 27(5), 483-503.
- Baines, L., McDowell, J., & Foulk, D. (2001). One step forward, three steps backward: Alternative certification programs in Texas, Georgia, and Florida. *Educational Horizons*, 80(1), 32-37.
- Ballou, D., & Podgursky, M. (2000). Reforming Teacher Preparation and Licensing: What is the Evidence? *Teachers College Record*, 102(1), 5-27.
- Boyd, D., Goldhaber, D., Lankford, H., & Wyckoff, J. (2007). The effect of certification and preparation on teacher quality. *The Future of children*, 45-68.
- Carver-Thomas, D. (2017). Diversifying the Field: Barriers to Recruiting and Retaining Teachers of Color and How to Overcome Them. Literature Review. *Equity Assistance Center Region II, Intercultural Development Research Association*.
- Cohen-Vogel, L., & Smith, T. M. (2007). Qualifications and assignments of alternatively certified teachers: Testing core assumptions. *American Educational Research Journal*, 44(3), 732-753.
- Cross, F. (2017). 2017 TSA nationwide listing comprehensive compendium. U.S. Department of Education/OPE/PPI/PAFG. Retrieved from <https://www2.ed.gov/about/offices/list/ope/pol/teacheshortageareasreport2017>
- Darling-Hammond, L. (2000). How teacher education matters. *Journal of teacher*

education, 51(3), 166-173.

Darling-Hammond, L. (2006). Reforming teacher preparation and licensing: Debating the evidence. *Teacher education. Major themes in education. Globalisation, standards and teacher education*, 5, 95-124.

Darling-Hammond, L., Chung, R., & Frelow, F. (2002). Variation in teacher preparation: How well do different pathways prepare teachers to teach? *Journal of teacher education*, 53(4), 286-302.

Dee, T. S. (2005). A teacher like me: Does race, ethnicity, or gender matter? *American Economic Review*, 95(2), 158-165.

Fama, E. (1970). "Efficient Capital Markets: A Review of Theory and Empirical Work". *Journal of Finance*. 25 (2): 383–417. doi:10.2307/2325486.

Feistritzer, C. E., Griffin, S., & Linnajarvi, A. (2011). Profile of Teachers in the U.S. 2011. Retrieved from <https://www.edweek.org/media/pot2011final-blog.pdf>. September 21, 2021.

Fenstermacher, G. D. (1990). The place of alternative certification in the education of teachers. *Peabody Journal of Education*, 67(3), 155-185.

Goldhaber, D., & Hansen, M. (2010). Race, gender, and teacher testing: How informative a tool is teacher licensure testing? *American Educational Research Journal*, 47(1), 218-251.

Grissom, J. A., & Redding, C. (2015). Discretion and disproportionality: Explaining the underrepresentation of high-achieving students of color in gifted programs. *Aera Open*, 2(1), 2332858415622175.

- Guthery, S. (2018). The influence of teacher unionization on educational outcomes: A summarization of the research, popular methodologies and gaps in the literature. *The William & Mary Educational Review* 5(1), 124-136.
<https://scholarworks.wm.edu/wmer/vol5/iss1/14>
- Guthery, S., & Bailes, L. P. (2022). Patterns of teacher attrition by preparation pathway and initial school type. *Educational Policy*, 36(2), 223-246.
- Hanushek, E. A. (2007). The single salary schedule and other issues of teacher pay. *Peabody Journal of Education*, 82(4), 574-586.
- Hanushek, E. A., & Rivkin, S. G. (2007). Pay, working conditions, and teacher quality. *The future of children*, 69-86.
- Heilig, J. V., Cole, H. A., & Springel, M. A. (2010). Alternative certification and the Teach for America: The search for high quality teachers. *Kan. JL & Pub. Pol'y*, 20, 388.
- Hoxby, C. M. (1996). How teachers' unions affect education production. *The Quarterly Journal of Economics*, 111(3), 671-718.
- Hoxby, C. M., & Leigh, A. (2004). Pulled away or pushed out? Explaining the decline of teacher aptitude in the United States. *American Economic Review*, 94(2), 236-240.
- Kane, T. J., Rockoff, J. E., & Staiger, D. O. (2008). What does certification tell us about teacher effectiveness? Evidence from New York City.
- Kleiner, M. M. (2000). Occupational licensing. *Journal of Economic Perspectives*, 14(4), 189-202.
- Kleiner, M. M. (2006). *Licensing occupations: Ensuring quality or restricting competition?* WE Upjohn Institute.
- LaBue, A. C. (1960). Teacher certification in the United States: A brief history. *Journal of*

Teacher Education, 11(2), 147-172.

Lankford, H., Loeb, S., & Wyckoff, J. (2002). Teacher sorting and the plight of urban schools:

A descriptive analysis. *Educational evaluation and policy analysis*, 24(1), 37-62.

May, P. B., Katsinas, S. G., & Moore, L. (2003). Alternative Teacher Certification Programs

and Texas Community Colleges. *New Directions for Community Colleges*, 121, 67-78.

National Center for Education Statistics, (n.d.). Common Core of Data. <https://nces.ed.gov/ccd/>

Peterson, P. E., & Nadler, D. (2009). What happens when states have genuine alternative certification? We get more minority teachers and test scores rise. *Education Next*, 9(1), 70-75.

Redding, C., & Smith, T. M. (2016). Easy in, easy out: Are alternatively certified

teachers turning over at increased rates?. *American Educational Research Journal*, 53(4), 1086-1125.

Rubiera, C. (2018). *Teachers by preparation route*. Retrieved

from: <https://www.tasb.org/services/hr-services/hrx/recruiting-and-hiring/teachers-by-preparation-route.aspx>. September 21, 2021.

Schuster, B. S. (2012). Highly qualified teachers: Moving forward from *Renee v. Duncan*. *Harv.*

J. on Legis., 49, 151.

Smith, T.G. (2021). Newly Certified Teacher Demographics by Preparation Route 2014-15

through 2019-20. Data Source: ECOS. Texas Education Agency.

<https://tea.texas.gov/sites/default/files/newly-certified-teacher-demographics-by-preparation-route-tgs210603.pdf>

Stigler, G. J. (1971). The theory of economic regulation. *The Bell journal of economics and management science*, 3-21.

Taylor, L. L. (2010). Competition and teacher pay. *Economic Inquiry*, 48(3), 603-620.

Texas Higher Education Coordinating Board (THECB). (2001). History of Selected Actions.

<http://reportcenter.highered.texas.gov/sites/docid/cache/file/AEE3C62B-E75B-D2BB-CFE5F262D94B6753.pdf>

Texas Higher Education Coordinating Board (THECB), (2002). Texas Strategic Plan to

Address the Teacher Shortage. <http://www.thecb.state.tx.us/DocID/PDF/0510.PDF>

Texas H. Bill 1842, Session 84, (2015).

<https://capitol.texas.gov/flodocs/84R/billtext/html/HB01842F.HTM>

Tyack, D. B. (1974). *The one best system: A history of American urban education* (Vol. 95).

Harvard University Press.

U.S. Department of Education. Institute of Education Sciences, National Center for Education

Statistics.

Valenzuela, A. (2017). Grow Your Own Educator Programs: A Review of the Literature with

an Emphasis on Equity-Based Approaches. Literature Review. Equity Assistance

Center Region II, Intercultural Development Research Association.

Walsh, K., & Jacobs, S. (2007). Alternative Certification Isn't Alternative. *Thomas B. Fordham*

Institute.

Appendix A

Out of State is calculated first because it is the most distinct category. A separate decision rule was also used to reverse the order of alternative and traditionally certified teachers to check the sensitivity to categorization order. The ‘Teacher Aide’ category is for an aide assigned with the job code of a teacher and assigned to class in a district. A teacher aide is categorized after the training programs so that the highest certification program is Aide and does not count people who worked as an aide and then trained to be a teacher in a program. ‘No Program’ is categorized last because a majority of teachers have added a credential by exam at some point in their career, so if they have any other path, it is not the most indicative of how they were trained. This path includes teachers who were certified by exam with no preparation program or given credit through work experience. Teachers certified through the Jamison Bill (which was discontinued in 2013-14) are included here. If a teacher has classroom assignment in a district but was not listed anywhere in the certification database for any year, they were designated ‘no data’.

Appendix A

New Teacher Preparation Path Decision

Out of State	If a teacher ever was OOS, regardless of appearing in any other category
Alternative Prep	If a teacher was not OOS, and was Alternative Prep
Traditional Prep	If a teacher was not OOS, not Alternative and was Traditional Prep
Educational Aide	If a teacher was not OOS, not Traditional Prep, not Alternative Prep and was an Educational Aide
No Program	If a teacher was not OOS, not Traditional Prep, not Alternative Prep, not an Educational Aide, anyone else in the certification data with exam only

No Data	If a teacher was not located at all in the teacher certification data
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The *alternative certification* category will be used first because it is less likely to be applied to a certification outside the conventional meaning. The label *traditional* is used more liberally than *alterative certification* when Texas Education Agency (TEA) assigned a path to their certification. For example, Visiting International Teachers are typically assigned the label *traditional* in the TEA database as their preparation path, even though the label does not necessarily mean a traditional school of education.