

Teacher Licensure

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Introduction to teacher licensure

How (and to what extent) to regulate eligibility for teaching is arguably one of the most important areas of education policy, as a large empirical literature shows that teachers have profound and varied impacts on both short- and long-run student outcomes.

In the U.S., who is eligible to teach is governed by states through teacher licensure (also commonly referred to as certification) requirements. The purpose of states' regulation of teacher employment eligibility is to assure the public that individuals in the teaching profession have met at least a minimal standard of teaching competence before they begin teaching in public schools. While the specific requirements vary somewhat from state to state (see Background Section below), most states require prospective teachers who receive a standard or traditional license to graduate from an approved teacher education program, complete college-level courses in pedagogy and/or in the subject that they wish to teach, have student teaching experience (clinical practice), and pass one or more standardized licensure tests.¹ Many states also offer individuals the opportunity to begin teaching with an alternative license, without having met all these requirements. In general, however, individuals with such licenses must satisfy these requirements in their first couple of years in the profession and/or demonstrate competence through successful evaluations.

Teacher licensure, by design, makes individuals ineligible to teach if they do not satisfy licensure requirements. Hence, unsurprisingly, this type of state regulation is high stakes and often controversial. While most people would likely agree that there should be standards for what new teachers know and can do in the classroom, there are disagreements regarding what those standards should be. As a state function, licensure requirements entail state-level policymakers superseding the judgments of local (school district) hiring officials. State licensure guards against worries about nepotism or poor local decision-making, but local officials likely have more information about prospective teachers and the incentive to hire good teachers.

Licensure requirements are contentious because they restrict entry into the teacher labor market, which may exacerbate teacher staffing challenges. Licensure is also controversial because some licensure requirements have an adverse impact on who is eligible to teach, with underrepresented minorities being less likely to pass licensure tests. There is disagreement (and mixed empirical evidence) about the extent to which licensure requirements predict the capacities of in-service teachers and/or restrict the options for districts to hire individuals who would have been effective had they been eligible to teach. There are *multiple steps* between licensure requirements and who is employed as a teacher that could influence how requirements affect teacher quality. For example, requirements might affect who chooses to pursue a teaching career, e.g., who enrolls in a teacher preparation program. They may also influence the capacities of those who are preparing to teach. For example, knowing that a licensure test is required could affect studying, and student teaching experiences could improve teacher candidates' readiness to teach. Finally, licensure restricts the pool of potential teachers that can be hired by school districts.

Key findings

Key finding #1: *Licensure assessments (e.g., tests) tend to be positively correlated with future teacher value-added effectiveness.*

Licensure assessments differ across states and depending on a prospective teacher's area of specialization. Hence, there are many estimates of the magnitude of the relationship between them and teacher value added. The magnitude of the estimates vary depending on the test and type of students taught, but the estimates tend to be positive.

Key finding #2: *We have more limited evidence on the predictive validity of other types (non-licensure test) of licensure assessments.*

Over the last decade, a number of states have adopted passing the edTPA —a performance-based assessment undertaken during student teaching—as a requirement for teaching eligibility. There is growing but still limited evidence about the extent to which this assessment (or other non-licensure test assessments) predicts in-service teacher outcomes.

Key finding #3: *Consistent with their design, licensure systems limit teacher labor market eligibility and change the composition of who is eligible to teach.*

Much of what we know about eligibility is based on limits associated with individuals passing and failing licensure tests. Black and Hispanic test takers are far less likely to pass.

Key finding #4: *Licensure systems appear to limit cross-state teacher mobility.*

While there is no causal evidence on how licensure affects teacher mobility across states, a small body of research finds that teachers who are licensed and have experience in one state public school workforce are unlikely to teach as members of another, a finding that is likely related to the state-specific nature of teacher licensure.

Key finding #5: *We know little about the overall impact of licensure on the quality of teachers.*

Some of the debates about licensure are centered on whether having a licensure system (or its specific components) dissuades talented individuals from pursuing a career as a teacher or prevents people who might end up as very low-quality teachers from joining the teacher labor market. There is very limited evidence on this point because we do not directly observe what drives the career choices that individuals make and because we have only limited ability to predict who is effective based on preservice information.

Brief background on licensure

The history of teacher licensure dates back to the 19th century, when states began to develop and support the formalized training of teachers in “normal schools.” In the latter half of the 1800s, the idea that teachers needed specialized training spread from New England to Midwestern states.² By 1937, there were 41 states in which licenses were issued exclusively by the state, although the requirements varied across states. Some had minimal schooling requirements, while others had specific professional (e.g., pedagogical) training requirements.

The types of professional training requirements above tended to increase and become commonplace across states in the latter half of the 20th century. In some states, they required that prospective teachers graduate from an institution accredited by a professional organization, the National Council for the Accreditation of Teacher Education (which was created in 1954). Thus, for much of the 20th century, teacher licensure was based on some combination of years of education, specific training, and graduation from an approved program.

In some periods, there were states that required teachers to pass specified tests, but the testing of prospective teachers was hardly universal. For instance, in the 1987–88 school year, that prospective teachers pass basic skills tests was a requirement in only about 35% of the nation’s school districts. This requirement became more prevalent throughout the 1990s and was nearly universal after the No Child Left Behind Act of 2001 (NCLB) required all public-school teachers in core academic areas to be highly qualified and allowed the passage of a subject matter test as a demonstration of content mastery, one of the provisions required for teachers to be classified as highly qualified.³

NCLB also encouraged states to develop alternative routes to obtaining a teacher license.⁴ Prior to the enactment of NCLB, teachers employed without having graduated from a traditional college- or university-based teacher education program were considered to be “emergency” licensed. After the development of alternative routes, the term emergency license was no longer used, as teachers could, depending on the state, enter the profession through alternative routes that often entailed less formal college- or university-based preparation.

Traditional and alternative licensed teachers are commonly lumped into two categories. However, because licensure is a state-level function, there are 50 different state systems for both traditional and alternative licensure, and these systems can differ substantially from one another. For example, some states require pedagogical training, whereas others prohibit a major in education. Some states allow teacher labor market eligibility after passing licensure tests, whereas others require specific types of preservice education.⁵ There is also significant variation across states in the share of individuals obtaining traditional or alternative licenses. For instance, there are many states in which (in the 2019–20 school year) the proportion of enrollment in programs designated by the state as alternative (i.e., non-college/university-based programs) is less than 1%, but in the state with the largest share, Texas, it is 75% of enrollees.⁶ Alternative licensure is controversial,⁷ but these complexities make treating licensure as if it is a nationwide phenomenon inappropriate, and they make researching and understanding the implications of licensure policies across states challenging.

Evidence

Key finding #1: *Licensure assessments (e.g., tests) tend to be positively correlated with future teacher value-added effectiveness.*

Most of the literature on licensure requirements relates licensure tests to the outcomes of inservice teachers and their students. Studies *tend* to find positive and often statistically significant relationships between the performance of prospective teachers on licensure tests and their subsequent value-added effectiveness as inservice teachers.⁸ Much of this evidence is based on assessments of teacher value added at the elementary level.⁹ Multiple studies find positive and significant relationships between teachers’ performance on *some* licensure exams and teacher value added (particularly in math) throughout the teacher test score distribution.¹⁰ For instance, according to one study, teacher candidates scoring in the top quintile of the test distribution rather than the bottom quintile are predicted to increase student test achievement by 3–4% of a standard deviation (s.d.), which is roughly

in line with the estimated difference of being assigned to a teacher with 1 or 2 years of experience rather than a novice teacher.¹¹

One concern is that the estimated relationships between teacher performance on licensure tests and teachers' subsequent value added may not be accurate in predicting the future value added of teacher candidates.¹² For example, there is ample evidence that teachers are inequitably sorted across different students,¹³ which could cause the estimates described above to be inaccurate (or statistically biased). The studies noted above, however, test for this issue in various ways and find little evidence of bias. Another concern relates to the use of licensure tests to predict the performance of *prospective* teachers. The fact is that for many individuals, performance in the profession is never observed because they do not do well enough on a test to make them eligible to teach. Here, however, we would expect the estimated relationships to be biased downward; hence, the estimated relationships noted above are likely to be lower-bound estimates. One reason for this is that individuals who initially fail to pass licensure tests can (and often do) retake them multiple times. Those who eventually pass and are hired are likely both to have low scores, and to be highly motivated to become teachers. The level of individual motivation is not observed, but it is likely that more motivated individuals will also become better teachers. By contrast, those who fail to pass licensure tests and do not retake them are not observed as teachers. These individuals are likely to be less motivated and would likely be poor teachers were they observed in the teacher labor market.¹⁴

There are fewer studies on the relationship between licensure test performance and teacher value added at the middle- and high-school levels, but these studies also tend to find positive relationships.¹⁵ Importantly, however, there are numerous types of licensure tests—basic skills, subject matter and pedagogical tests—and variation across states and depending on a prospective teacher's intended area of focus. Certainly not all tests are found to be significantly predictive of teacher value added. For example, one study finds that one required (in North Carolina) test but not the other predicts teacher value added and that the test that predicts teacher value added predicts value added more significantly in math than in reading.¹⁶ Another study finds that basic skills licensure tests in math are highly predictive of teacher value added to students' biology test score gains, but the same study finds they are far less predictive of 9th-grade math gains (the results are not statistically significant).¹⁷

Key finding #2: *We have more limited evidence on the predictive validity of other types (nonlicensure test) of licensure assessments.*

There is also only limited evidence on other (nonlicensure test) types of teacher candidate assessments and inservice teacher outcomes. The primary nontest performance assessment required in some states is the edTPA, a portfolio performance assessment that makes judgments about teacher candidates based on videotape and other teaching artifacts (e.g., classroom lessons, student work samples), typically prepared during student teaching. This performance assessment was rapidly adopted as a state licensure requirement during the 2010s, but it has recently been abandoned by some states.¹⁸

Qualitative work suggests that how preservice teachers and teacher educators experience performance assessments such as the edTPA depends a great deal on how they are implemented in teacher education programs. For example, one study that used survey and interview data to understand educator perceptions of the edTPA found both large differences in perceptions across programs and widely different levels of programmatic support for completing the assessment, with some preservice teachers reporting that their professors did not care or talk about the edTPA and others reporting that their entire program was oriented toward the performance assessment.¹⁹

The small number of studies that evaluate teacher performance assessments find insignificant or positive relationships between teacher performance assessments and future teacher outcomes. For instance, two small-scale studies find positive correlations between the Performance Assessment for California Teachers, a precursor to the edTPA, and the future value added of teachers.²⁰ Additionally, another study partnered with a university and found that teacher candidates who score better on parts of a teacher performance assessment (also a precursor to the edTPA) were significantly more likely to become public school teachers (in North Carolina) and had both better performance evaluation ratings and higher value added, although performance was not significantly related to teacher attrition.²¹ For instance, teachers with an overall assessment that was 2 s.d. above the mean (i.e., the very highest performers) were found to have only a 5% predicted probability of being rated as “developing” (the bottom category) and a 33% probability of rating as “accomplished” (2nd highest category). In contrast, those with an overall assessment that was 2 s.d. below the mean had a 30% predicted probability of receiving a developing rating and only a 6% probability of receiving an accomplished rating. A third study focuses on the edTPA performance of prospective teachers in Washington state before the assessment determined employment eligibility and considers both changes in performance and the predictive validity of using different edTPA cut scores to determine employment eligibility.²² This study also finds that higher-scoring teacher candidates are significantly more likely to ultimately be employed in the state’s public schools, and it reports generally positive and statistically significant relationships between performance and value added in both math and reading.

Like licensure tests, the value of the edTPA is contested, and the assessment is controversial. For instance, one recent study has raised questions on the reliability and scoring of the assessment,²³ and qualitative research on the impact of high-stakes performance assessments such as the edTPA has found that preservice teachers often report that the performance assessment detracts from their student teaching.²⁴ For example, they report that preparing for the assessment (analyzing videos of their own teaching, completing the written components, etc.) takes considerable time that would be better spent planning teaching with mentor teachers, assessing their students, etc. Surveys and interviews with mentor teachers corroborate some of these concerns,²⁵ and a recent study finds no positive impact on student test achievement associated with the implementation of the edTPA requirement.²⁶ Another reason why the assessment is controversial is that, similar to licensure tests, there is differential performance by race/ethnicity (discussed below).

One of the arguments in favor of performance assessments such as the edTPA is the *potential* for the information garnered from them to be used for teacher education program improvement. For example, some qualitative work describes how teacher educators in one teacher education program used the state mandate to implement the edTPA as an opportunity to build program coherence in line with local values.²⁷ However, there is also work suggesting variation in how programs use the edTPA, as one study that interviewed 19 teacher educators from 12 programs (within a single university) found a wide range of curricular changes as a result of the edTPA.²⁸ To the best of my knowledge, there is no quantitative work exploring whether the adoption of the edTPA (or other performance assessments) leads to programmatic change and improvement in teacher education that ultimately improves the capabilities of the teacher candidates who become teachers.

Key finding #3: *Consistent with their design, licensure systems limit teacher labor market eligibility and change the composition of who is eligible to teach.*

Licensure requirements are designed to keep individuals deemed unqualified from becoming teachers, and it is clear from empirical evidence that at least some licensure requirements, particularly licensure tests, change who is *eligible* to teach. Changing who is eligible to teach does not necessarily imply that licensure requirements change who actually ends up being employed as a teacher. The reason is that

while states determine who is eligible to teach, individuals decide whether to pursue a teaching career, and districts hire teachers. The evidence on how licensure requirements affect these aspects of the teacher pipeline is more speculative because data on career and district hiring decisions are limited.

However, we see that many of those who pursue a teaching position, as evidenced by taking a licensure test, initially fail such tests. There is no national evidence on licensure test pass rates (again, tests and test cut scores vary from state to state). However, consistent with evidence from individual states,²⁹ one report focusing on elementary-level first-time pass rates across 38 states (plus DC), finds that the average first-time pass rate varies by state and subject area but is in the range of 55–90%.³⁰ Importantly, these first-time pass rates overstate the extent to which licensure tests reduce employment eligibility among test takers. Prospective teachers may retake tests, and many do (sometimes multiple times), resulting in final pass rates that are higher than the first-time rates. For example, one study on test takers in Connecticut finds that 82% of the test takers who initially just pass (i.e., their scores are just above the state passing threshold) a required licensure test end up employed, whereas 74% of those who initially just fail also ultimately end up employed because they pass required tests on retakes.³¹

Importantly, licensure test requirements also clearly have adverse impacts on the diversity of prospective teachers, which is an important issue given the evidence on the value of teacher role models, especially for underrepresented minority students.³² Reports using large samples of licensure test takers across multiple states find that differences in first-time pass rates are in the range of 30–40 percentage points (p.p.) between Black and White test takers and in the range of 15–25 p.p. between Hispanic and White test takers.³³ Prospective teachers of color are also less likely than White teacher candidates to retake licensure tests that they have failed. For instance, one study of Massachusetts teacher candidates finds that, conditional on their first-time licensure test score, teachers of color are 7 to 13 p.p. less likely to retake a failed test within a year.³⁴

Several studies seek to understand how tests or other licensure requirements influence who ultimately becomes a teacher (not just eligibility based on test passing status) by leveraging state-level changes to requirements and assessing who and how many individuals progress on a trajectory that ultimately ends with those individuals as teachers in a classroom.³⁵ Another study focuses on changes in licensure test passing thresholds in 2013 and finds that for states using Educational Testing Service (ETS)-developed tests, a 1 s.d. increase in the difficulty in the testing pass threshold decreases enrollment in education programs by 23%, on average, with effects that are particularly concentrated in less selective higher education institutions.³⁶ One recent study finds similar results for states that introduced the edTPA as a requirement after 2014; the authors estimate that the edTPA requirement reduced teacher graduates by 6–9%, with reductions that were especially large in undergraduate programs and less selective and minority-concentrated universities.³⁷

Again, the idea behind licensure is to restrict who is eligible to teach to those who are deemed to be adequately prepared. Hence, the above findings that licensure requirements reduce the supply of prospective teachers are consistent with this idea. Several studies assess the extent to which variation in licensing requirements is related to the *characteristics* of who *becomes* a public school teacher. Two studies exploit differences in licensure test requirements (basic skills and subject matter tests) across states in selected years from the late 1980s and 1990s.³⁸ These studies find, on average, no significant effect of licensure test requirements on a measure of teachers' academic abilities (the selectivity of the college they attended), but one finds that test requirements are associated with a reduced share of Hispanic teachers.³⁹ A third study uses the same general approach but focuses on a longer time period and a broader set of 37 different licensure requirements, such as pedagogical training and specific coursework (more than just tests).⁴⁰ This study also does not find significant evidence of a relationship between licensure requirements and the academic ability of the *average* teacher. However, it finds that

states with more stringent licensing requirements are associated with the academic ability of teachers at the bottom of the distribution of academic ability, and this result is largely driven by teachers at the secondary level.⁴¹

I know of no studies that quantify how aspects of alternative routes into teaching, such as the cost and time to obtain a credential, influence teacher supply and composition. However, one might interpret the growth in alternative routes (or paths) into teaching as a response to state licensure requirements limiting the supply of prospective teachers. The reason is that alternative programs, operating in some states, allow teacher candidates to become teachers with less pedagogical training and more quickly than would be possible were they to receive a credential from a traditional teacher education program based at a college or university.⁴² Enrollment in alternative programs, particularly those not affiliated with a college or university, has increased over the last decade, and alternative programs enroll a larger share of teacher candidates of color than do traditional licensure programs.⁴³

Key finding #4: *Licensure assessments appear to limit cross-state teacher mobility.*

There is limited evidence on cross-state teacher mobility, but existing studies show that the proportion of individuals who are in the public-school teacher workforce in one state and who move to another geographically proximate state is limited, especially compared to other types of teacher turnover. One study focusing on Oregon and Washington and the mobility between these states finds that the average (across years in the study) proportion of teachers who move from a public school teaching position in Oregon and show up as employed as a teacher in a Washington school district in the next school year or vice versa is less than 0.1%.⁴⁴ The study also examines the cross-state mobility of teachers employed in districts directly on either side of a state border. Unsurprisingly, being employed in a state border district increases the likelihood of cross-state mobility, but approximately three times as many teachers make a long-distance (more than 75 miles), within-state move as cross from a district adjacent to a state border into the other state.

A similar study focusing on three Midwestern states (Iowa, Minnesota, and Wisconsin) also finds low rates of cross-state mobility.⁴⁵ Specifically, the study finds unsurprising evidence that the average annual between-state mobility is less than 0.1%.⁴⁶ Finally, there is some national evidence from surveys of teachers asking if they were employed as teachers in a different state in the prior year. Only approximately 1% of teachers report being employed in a different state, and less than half of 1% report being employed in a different state adjacent to their current state.⁴⁷

While all the studies above suggest that there are significant barriers to cross-state teacher moves, there is less certainty about the degree to which these barriers are causally connected to licensure policies. A lack of licensure reciprocity or unclear or hard-to-find requirements for teachers to transfer their licenses are likely contributors to the low rates of cross-state mobility, as there is good evidence from the broader labor market literature that occupational licensing limits interstate mobility due to licensure-related costs associated with an interstate move.⁴⁸ Nonetheless, licensure regulations are not the only potential sources of cross-state labor market frictions.⁴⁹ Teacher pensions are also typically state specific, which can mean that moving from a teaching position in one state to another has negative pension wealth implications. Teachers may also be disinclined to make cross-state moves because they sacrifice some tenure protections or would have to learn about curriculum standards or systems in a new state. However, it is clear that policymakers see the issue of state-specific licensure as an important barrier, as efforts are being made to reduce licensure-related barriers through an interstate teacher mobility compact.⁵⁰

Key finding #5: *We know little about the overall impact of licensure on the quality of teachers.*

The steps that an individual takes to become a licensed teacher vary across states, but the great majority of individuals who are preparing to teach do so in a traditional college- or university-based program (e.g., in 2019, this figure was approximately 75%).⁵¹ This means that, for most, moving from the idea of becoming a teacher to actually having employment as a teacher is a multiyear process. Unfortunately, there is little evidence other than that described above on the decisions that individuals are making on what might be thought of as the prospective teacher pipeline and how changes to licensure requirements might affect those decisions. At least in part, the reason is the very limited data on the progression of individuals toward a teaching credential (e.g., while in college).⁵²

Beyond the research and data limitations, one key issue is that knowing the *characteristics* of those who may opt into the pursuit of a teaching career and knowing which are hired by districts would provide only limited evidence about teacher quality, if quality is measured by the effects of teachers on their students. It is very difficult to predict who will be a successful teacher based on teacher characteristics and credentials, such as course work,⁵³ college selectivity,⁵⁴ and the program from which individuals received their teaching credential.⁵⁵ For example, one study finds that only approximately 10% of the variation in teacher value-added effectiveness can be explained by observable teacher characteristics.⁵⁶ While there is evidence that some of the information that districts collect about teacher applicants can also predict inservice measures of teacher performance, the bottom line is that it is very challenging to predict who will be a good teacher without observing their teaching.⁵⁷ This, in turn, means that it is very challenging to definitely know whether changes to licensure systems change the quality of the teachers—based on inservice performance measures—who are ultimately employed.

Conclusions: Understudied and unanswerable questions

As described above, there is a good deal that is known about the relationship between the licensure test performance of teachers and student test achievement, as well as growing evidence about the relationship between the edTPA and student achievement. Far less is known about how these (or other) licensure requirements are related to nontest student outcomes. This is an important area for work given the findings in the chapter on the importance of teachers showing that teachers have significant effects not only on students' test outcomes but also on nontest outcomes, such as students' attendance, course-taking, or high school graduation. A few studies have focused on the relationship between licensure test performance and these types of student outcomes, but while the relationships between licensure test performance and these types of outcomes tend to be positive, the existing empirical evidence is quite limited. For instance, one study finds that there is a positive but statistically insignificant relationship between teachers' performance on basic skills licensure tests in math and the *likelihood* that their students subsequently take advanced math or science courses. The same study finds somewhat stronger evidence that the basic skills test performance of teachers predicts the *number* of advanced math courses in high school.⁵⁸ Another study measures teacher performance using classroom observations as an outcome and finds that a 1 s.d. increase in performance on a licensure test predicts receiving a classroom evaluation that is 10% of 1 s.d. better,⁵⁹ which is roughly equivalent to the average gain on performance evaluations with an additional year of teaching experience.⁶⁰ At the time of writing, these are the only studies that appear to link licensure tests to nontest teacher outcomes.

It is also important to recognize that while most people may think about teacher licensure in relation to the test requirements that states put in place for prospective teachers, licensure systems also typically include requirements such as graduation from a state-approved program, clinical practice/student

teaching, and course requirements. While there is evidence that the nature of some of these nonassessment licensure requirements are associated with teacher performance, we know very little about how these requirements influence the quality of the teacher workforce. The one study that assesses how nonassessment requirements influence the composition of the teacher workforce aggregates the many different licensure requirements into a few components to make the analyses of their impact feasible. Hence, we do not know how the different requirements might separately influence the prospective teacher pipeline and, ultimately, teacher quality.⁶¹ This is an important area for study since some of the requirements to be licensed, such as graduation from an approved program, entail a substantial time commitment and cost for prospective teacher candidates.

The popularity of alternative routes and licensure makes understanding their implications for students a high priority. Additionally, some observers point to studies of differences (or nondifferences) in the outcomes of students who are assigned to teachers who have different licensure statuses (traditional versus alternative) to draw conclusions about the value of teacher licensure to students. These studies reach different conclusions about how the assignment of students to teachers with different licensure statuses influence their outcomes.⁶² However, these studies *do not* shed much light on how the *requirement* itself (as opposed to the assignment of students to teachers) affects the quality of the teacher workforce, which, once again, is tied to the fact that there are *multiple steps* between licensure requirements and who is employed as a teacher that could influence how requirements affect teacher quality. The multiple steps and ways in which licensure systems might shape the pool of those who ultimately seek teaching jobs and who are hired make teacher licensure an area regarding which it is challenging to reach strong causal conclusions. In short, the findings on assignment of students to teachers with different licensure statuses cannot tell us anything definitive about the value of licensure requirements because they conflate the effects of the licensure requirement with the individuals who select into a type of pathway into the teaching profession.

However, it is clear that licensure requirements are more likely to have a positive impact on student outcomes if they are strongly predictive of teacher quality.⁶³ Here, though, it is important to consider the purpose of licensure, which is essentially a consumer protection argument in which states seek to protect students from being taught by individuals deemed unqualified, with school districts acting as intermediary agents in the process. Debates about licensure hinge to some extent on *what local school districts* would do if left unconstrained by state regulation, an issue that has received little empirical attention. We might expect that districts would act differently, given their contextual differences, such as political pressures and teacher applicant pools. This, in turn, implies that licensure systems might be expected to have different effects on students, given their distribution across different school districts.⁶⁴

All that said, the stronger the relationship between licensure requirements and inservice teacher outcomes is, the greater the likelihood that a teacher licensure system will make the right individuals eligible to teach. However, even licensure requirements that are good at predicting which individuals will make for successful teachers necessitate tradeoffs. Regardless of what the requirements actually are, if they make at least some individuals ineligible to teach, then there are likely to be cases where a requirement excludes (or discourages) individuals who would have been successful teachers had they been eligible (“false negatives”). Conversely, having requirements does not guarantee that those who satisfy them will be successful (“false positives”).⁶⁵

Given the multistep complexities of studying the effects of licensure on the teacher workforce and inevitable tradeoffs above, research on licensure systems is unlikely to answer the common question of whether licensure systems work. However, for those who believe that there is a state role in trying to guarantee a minimum level of teacher competence, research linking preservice licensure requirements

to the inservice outcomes of teachers and their students is essential for informing the nature of the tradeoffs that exist.

Endnotes and references

- ¹ Goldhaber, Dan. 2011. *Licensure: Exploring the Value of This Gateway to the Teacher Workforce*. In *Handbook of the Economics of Education*. Edited by Eric Hanushek, Stephen Machin, and Ludger Woessmann. Elsevier. 315–339; Larsen, Bradley, Ziao Ju, Adam Kapor, and Chuan Yu. 2020. *The effect of occupational licensing stringency on the teacher quality distribution* (NBER Working Paper 28158). National Bureau of Economic Research.
- See Walsh and Putman (2021) for more information about individual state requirements: <https://files.eric.ed.gov/fulltext/ED611532.pdf>.
- ² Prior to state licensure of teachers, individuals wishing to become teacher in “common” or public schools generally had to be approved by local officials, who would make judgments about competence based on local exams and inquiries about moral character. New York was one of the first states (1843) to authorize its state superintendent to develop exams for prospective teachers and issue teaching credentials that were valid statewide. For a more comprehensive discussion of the history of teacher licensure, see Angus, David L. 2001. A brief history of teacher certification: <https://files.eric.ed.gov/fulltext/ED449149.pdf>.
- ³ U.S. Department of Education, Office of Postsecondary Education. 2005. *The Secretary’s Fourth Annual Report on Teacher Quality: A Highly Qualified Teacher in Every Classroom*. Washington, DC. Accessed online 10/07/2024 at: <https://files.eric.ed.gov/fulltext/ED485858.pdf>.
- ⁴ Alternatives to completing a traditional college- or university-based teacher education program.
- ⁵ See the discussion in Goldhaber (2011).
- ⁶ U.S. Department of Education, Office of Postsecondary Education. 2023. *Preparing and credentialing the nation’s teachers: The Secretary’s 13th Report on the teacher workforce*. Washington, DC.
- ⁷ See, for example, Darling-Hammond, L., and G. Sykes. 2003. Wanted, A National Teacher Supply Policy for Education: The Right Way to Meet The “Highly Qualified Teacher” Challenge. *Education Policy Analysis Archives* 11: 33; Guthery, S., and L. P. Bailes. 2023. Unintended Consequences of Expanding Teacher Preparation Pathways: Does Alternative Licensure Attenuate New Teacher Pay? *AERA Open* 9.
- ⁸ A recent review of evidence shows that 11 out of 15 studies find significant positive relationships between teacher licensure test performance and future effectiveness in the classroom. See Putnam and Walsh (2021): https://www.nctq.org/dmsView/NCTQ_Driven_by_Data_Appendix_B.
- ⁹ [Value added](#) <HYPERLINK TO CORY KOEDEL CHAPTER> is a measure of a teacher’s contribution to student learning (usually measured by student year-to-year test gains).
- ¹⁰ See, for example, Clotfelter, Charles T., Helen F. Ladd, and Jacob L. Vigdor. 2007. Teacher Credentials and Student Achievement: Longitudinal Analysis with Student Fixed Effects. *Economics of Education Review* 26(6): 673–682; Goldhaber, Dan. 2007. Everyone’s Doing It, But What Does Teacher Testing Tell Us about Teacher Effectiveness? *Journal of Human Resources* 42(4): 765–94; Cowan, James, Dan Goldhaber, Zeyu Jin, and Roddy Theobald. 2023. Assessing Licensure Test Performance and Predictive Validity for Different Teacher Subgroups. *American Educational Research Journal* 60(6): 1095–1138.
- Note that states use cutoff (pass/fail) thresholds for determining employment eligibility. This method is distinct from the way that studies tend to model the relationship between teacher licensure performance and student achievement. For more discussion of this as well as evidence of the predictive validity of licensure tests for different thresholds, see Goldhaber (2007).
- ¹¹ These estimates are from Goldhaber (2007).
- ¹² Note that the concern here is about prediction, rather than whether the estimates are causal, as we do not think that doing better on a licensure test causes changes in teacher performance.
- ¹³ See, for example, Goldhaber, Dan, Lesley Lavery, and Roddy Theobald. 2015. Uneven Playing Field? Assessing the Teacher Quality Gap between Advantaged and Disadvantaged Students. *Educational Researcher* 44(5): 293–307; Kalogrides, Demetra, and Susanna Loeb. 2013. Different Teachers, Different Peers: The Magnitude of Student Sorting within Schools. *Educational Researcher* 42(6): 304–316.
- ¹⁴ For a more expansive discussion of potential biases, see Cowan, James, Dan Goldhaber, Zeyu Jin, and Roddy Theobald. 2020. *Teacher licensure tests: barrier or predictive tool?* (CALDER Working Paper No. 245-1020). CALDER..
- ¹⁵ See, for example, Clotfelter, Charles T., Helen F. Ladd, and Jacob L. Vigdor. 2010. Teacher Credentials and Student Achievement in High School: A Cross-Subject Analysis with Student Fixed Effects. *The Journal of Human Resources* 45(3): 655–681; Goldhaber, Dan, Trevor Gratz, and Roddy Theobald. 2017. What’s in a Teacher Test? Assessing the Relationship between Teacher Licensure Test Scores and Student STEM Achievement and Course-Taking. *Economics of Education Review* 61:112–129.
- ¹⁶ This is from Goldhaber (2007). Note that these findings are from quite old (1990s) ETS tests that have been modified.
- ¹⁷ This is from Goldhaber et al. (2017).



- ¹⁸ For more on the policy adoption of the edTPA, see Hutt, Ethan L., Jessica Gottlieb, and Julia J. Cohen. 2018. Diffusion in a Vacuum: edTPA, Legitimacy, and the Rhetoric of Teacher Professionalization. *Teaching and Teacher Education: An International Journal of Research and Studies* 69(1): 52–61.
- ¹⁹ See Cohen, Julia J., Ethan L. Hutt, Rebekah L. Berlin, Hannah M. Mathews, Jillian P. McGraw, and Jessica Gottlieb. 2020. Sense Making and Professional Identity in the Implementation of edTPA. *Journal of Teacher Education* 71(1): 9–23.
- ²⁰ See Darling-Hammond, Linda, Stephen P. Newton, and Ruth Chung Wei. 2013. Developing and Assessing Beginning Teacher Effectiveness: The Potential of Performance Assessments. *Educational Assessment, Evaluation and Accountability* 25(3): 179–204; Newton, Stephen P. 2010. *Preservice Performance Assessment and Teacher Early Career Effectiveness: Preliminary Findings on the Performance Assessment for California Teachers*. Stanford, CA: Stanford Center for Assessment, Learning, and Equity. Darling-Hammond et al. (2013) was based on a sample of 53 teachers, and Newton (2010) was based on a sample of 14 teachers.
- ²¹ Bastian, Kevin C., Gary T. Henry, Yi Pan, and Diana Lys. 2016. Teacher Candidate Performance Assessments: Local Scoring and Implications for Teacher Preparation Program Improvement. *Teaching and Teacher Education* 59: 1–12. In this study, the performance assessment was locally scored (as opposed to the edTPA, which is scored by Pearson), and 181 out of 249 teacher candidates were observed as employed public school teachers.
- ²² Washington state is an example of a state that adopted the edTPA as a requirement and later eliminated the requirement.
- ²³ Gitomer, Drew H., José F. Martínez, Dan Battey, and Nora E. Hyland. 2021. Assessing the Assessment: Evidence of Reliability and Validity in the edTPA. *American Educational Research Journal* 58(1): 3–31. However, see also https://edtpa.org/resource_item/ResearchOnTeacherEd for information on the development of the assessment and support for it.
- ²⁴ Clayton, Christine D. 2018. Voices from Student Teachers in New York: The Persistence of a Subtractive Experience of the edTPA as a Licensure Exam for Initial Certification. *Education Policy Analysis Archives* 26: 27. In this study, Clayton collected closed- and open-ended survey results from 82 preservice teachers and interviewed nine preservice teachers about their experiences with the edTPA. While these preservice teachers reported feeling prepared to take the assessment, they also explained that the requirements of the edTPA made them feel as though they could not be themselves in their fieldwork classrooms and took up time and energy that they thought would have been better spent on course or fieldwork. See also Okhremtchouk, Irina, Patrick Newell, and Rebecca Rosa. 2013. Assessing Pre-Service Teachers Prior to Certification: Perspectives on the Performance Assessment for California Teachers (PACT). *Education Policy Analysis Archives* 21: 56.
- ²⁵ See Burns, Barbara A., Julie J. Henry, and Jeffrey R. Lindauer. 2015. Working Together to Foster Candidate Success on the edTPA. *Journal of Inquiry & Action in Education* 6(2): 18–37; Chandler-Olcott, Kelly, and Sarah Fleming. 2017. Multiple Perspectives on the State-Mandated Implementation of a High-Stakes Performance Assessment for Preservice English Teacher Candidates. *Action in Teacher Education* 39(1): 22–38.
- ²⁶ Chung, Bobby W., and Jian Zou. 2023. *Teacher Licensing, Teacher Supply, and Student Achievement: Nationwide Implementation of edTPA* (EdWorkingPaper: 21-440). Annenberg Institute at Brown University.
- ²⁷ Peck, Charles A., Chrysan Gallucci, and Tine Sloan. 2010. Negotiating Implementation of High-Stakes Performance Assessment Policies in Teacher Education: From Compliance to Inquiry. *Journal of Teacher Education* 61(5): 451–463.
- ²⁸ Ledwell, Katherine, & Celia Oyler. 2016. Unstandardized Responses to a “Standardized” Test: The edTPA as Gatekeeper and Curriculum Change Agent. *Journal of Teacher Education* 67(2): 120–134.
- ²⁹ See, for example, Cowan et al. (2023); Goldhaber (2007); Goldhaber et al. (2017).
- ³⁰ Putman, H. 2021. *Digging Deeper: Which Subjects Pose the Greatest Challenges to Aspiring Elementary Teachers?* Washington, DC: National Council on Teacher Quality.
- ³¹ Orellana, Alexis, and Marcus A. Winters. 2023. *Licensure Tests and Teacher Supply in Connecticut*. Wheelock Educational Policy Center.

³² Gershenson Seth, Michael J. Hansen, and Constance A. Lindsay. 2021. *Teacher Diversity and Student Success: Why Racial Representation Matters in the Classroom*. Cambridge: Harvard Education Press; Gershenson, Seth, Cassandra M. D. Hart, Joshua Hyman, Constance Lindsay, and Nicholas W. Papageorge. 2018. *The Long-Run Impacts of Same-Race Teachers* (Working Paper No. 25254). National Bureau of Economic Research.

³³ Nettles, Michael T., Linda H. Scatton, Jonathan H. Steinberg, and Linda L. Tyler. 2014. *Performance and Passing Rate Differences of African American and White Prospective Teachers on PRAXIS Examinations: A Joint Project of the National Education Association (NEA) and Educational Testing Service (ETS)*. Tyler, Linda. 2011. *Toward Increasing Teacher Diversity: Targeting Support and Intervention for Teacher Licensure Candidates*. Educational Testing Service.

These differences by themselves should not necessarily be interpreted as evidence of bias in the tests themselves, as they may reflect subgroup differences in measures of readiness to teach that the tests seek to measure. For more on this issue, see Cowan et al. (2023).

³⁴ Cowan et al. (2023).

³⁵ One study, for instance, finds that college students in states with licensure exams (many did not have them in the 1990s) are less likely to choose an education-related BA major. See Hanushek, Eric A. and Richard R. Pace. 1995. Who Chooses to Teach (and Why)? *Econ. Educ. Rev.* 14(2): 101–117.

³⁶ Law, Marc T., Mindy Marks, and Tomer Stern. 2024. Teacher Testing Standards and the New Teacher Pipeline.

³⁷ Chung and Zou (2023).

³⁸ Angrist, Joshua D. and Jonathan Guryan. 2004. Teacher Testing, Teacher Education, and Teacher Characteristics. *American Economic Review Papers and Proceedings*, 241–246; Angrist, Joshua D. and Jonathan Guryan. 2008. Does Teacher Testing Raise Teacher Quality? Evidence from State Certification Requirements. *Economics of Education Review* 27(5): 483–503.

³⁹ From Angrist and Guryan (2008).

⁴⁰ Larsen et al. (2020).

⁴¹ Unlike the earlier studies, this study does not find that licensure requirements have effects on the demographic makeup of individuals employed as public school teachers.

⁴² See chapter 4 of National Academies of Sciences, Engineering, and Medicine. 2020. Changing Expectations for the K-12 Teacher Workforce: Policies, Preservice Education, Professional Development, and the Workplace. Washington, DC: The National Academies Press.

⁴³ See Figures 1 and 8 in Yin, Jessica and Lisette Partelow. 2020. An Overview of the Teacher Alternative Certification Sector outside of Higher Education. American Progress.

⁴⁴ Goldhaber, Dan, Cyrus Grout, Kristian L. Holden, and Nate Brown. 2015. Crossing the Border? Exploring the Cross-State Mobility of the Teacher Workforce. *Educational Researcher* 55(8): 421–431. A prepublication version of this study is available here: <https://files.eric.ed.gov/fulltext/ED619926.pdf>.

⁴⁵ Podgursky, Michael, Mark Ehlert, Jim Lindsay, and Yinmei Wan. 2016. An Examination of the Movement of Educators within and across Three Midwest Region States (REL 2017–185). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Midwest. Retrieved from <http://ies.ed.gov/ncee/edlabs>.

⁴⁶ As a comparison, the annual within-state mobility rates for teachers were in the 5% to 10% range.

⁴⁷ These findings are reported in Goldhaber et al. (2015).

⁴⁸ Johnson, Janna E. and Morris M. Kleiner. 2017. Is Occupational Licensing a Barrier to Interstate Migration? (NBER Working Paper w24107). National Bureau of Economic Research. <https://www.nber.org/papers/w24107>

⁴⁹ Johnson and Kleiner (2017).

⁵⁰ See <https://teachercompact.org>.

⁵¹ See Yin and Partelow (2020).

⁵² Goldhaber, D. and Kristian L. Holden. 2021. The Early Teacher Pipeline: What Data Do—and Don't—Tell Us. *Kappan* 103(3): 13–16.

⁵³ Harris, Douglas and Tim Sass. 2007. Teacher Training, Teacher Quality and Student Achievement. (CALDER Working Paper No. 3). CALDER.

⁵⁴ Kane, Thomas J., Jonah E. Rockoff, and Douglas O. Staiger. 2008. What Does Certification Tell Us about Teacher Effectiveness? Evidence from New York City. *Economics of Education Review* 27(6): 615–631.

⁵⁵ von Hippel, Paul T., and Laura Bellows. 2020. How Much Does Teacher Quality Vary across Teacher Preparation Programs? Reanalyses from Six States (EdWorkingPaper: 20-330). Annenberg Institute at Brown University.

⁵⁶ This is based on a rich set of characteristics, including credentials such as the degree level and major, as well as other measures of cognitive and noncognitive skills. See Rockoff, Jonah E., Brian A. Jacob, Thomas J. Kane, and Douglas O. Staiger. 2011. Can You Recognize an Effective Teacher When You Recruit One? *Education Finance and Policy* 6(1): 43–74.

⁵⁷ Staiger, Douglas O., and Jonah E. Rockoff. 2010. Searching for Effective Teachers with Imperfect Information. *Journal of Economic Perspectives* 24(3): 97–118. Retrieved here: https://business.columbia.edu/sites/default/files-efs/pubfiles/3839/staiger_rockoff_final_version_for_jep.pdf.

⁵⁸ In some model specifications, the magnitude of the point estimate suggests that middle-school math teachers performing 1 s.d. better on a basic skills licensure test in math predicts their students taking 20% (over the mean baseline) more advanced math courses in high school. See Goldhaber et al. (2017).

⁵⁹ This is from Cowan et al. (2023).

⁶⁰ As with value added, the benefits of additional years of teaching experience for performance evaluations are steeper early in a teacher's career than later. See Bell, Courtney, Jessalynn James, Eric S. Taylor, and James H. Wyckoff. 2023. Measuring Returns to Experience Using Supervisor Ratings of Observed Performance: The Case of Classroom Teachers (EdWorkingPaper: 23-715). Annenberg Institute at Brown University.

⁶¹ See Section 5.5 of Larsen et al. (2020).

⁶² See, for example, Boyd, Donald, Pamela Grossman, Hamilton Lankford, Susanna Loeb, and James Wyckoff. 2006. How Changes in Entry Requirements Alter the Teacher Workforce and Affect Student Achievement. *Education Finance and Policy* 1: 176–216; Constantine, Jill, Daniel Player, Tim Silva, Kristin Hallgren, Mary Grider, John Deke, and Elizabeth Warner. 2009. *An Evaluation of Teachers Trained through Different Routes*. National Center for Education Evaluation and Regional Assistance; Decker, Paul T., Daniel P. Mayer, and Steven Glazerman. 2004. The Effects of Teach For America on Students: Findings from a National Evaluation. Available from: <https://www.mathematica-mpr.com/-/media/publications/pdfs/teach.pdf>; Goldhaber, Dan and Dominic J. Brewer. 2000. Does Teacher Certification Matter? High School Teacher Certification Status and Student Achievement. *Educational Evaluation and Policy Analysis* 22(2): 129; Sass, Tim R. 2015. Licensure and Worker Quality: A Comparison of Alternative Routes to Teaching. *Journal of Law and Economics* 58(1): 1–35.

⁶³ For a more comprehensive discussion of this, see Goldhaber (2011).

⁶⁴ Boyd, Donald, Dan Goldhaber, Hamilton Lankford, and James Wyckoff. 2007. The Effect of Certification and Preparation on Teacher Quality. *The Future of Children*, 45–68.

⁶⁵ For a more comprehensive discussion of these tradeoffs, see Goldhaber, Dan and Susanna Loeb. 2013. *What Do We Know about the Tradeoffs Associated with Teacher Misclassification in High-Stakes Personnel Decisions?* Report for the Carnegie Knowledge Network. Accessed at <http://www.carnegieknowledge.org/briefs/value-added/teacher-misclassifications/>.

Suggested citation

Goldhaber, Dan (2025). "Teacher Licensure," in *Live Handbook of Education Policy Research*, in Douglas Harris (ed.), Association for Education Finance and Policy, viewed MM/DD/YYYY, <WEB LINK>.