

Occupational Licensing and Occupational Mobility in New England

By Osborne Jackson

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Staff

- Hope Bodenschatz
Mary A. Burke
Eli Inkelas
Osborne Jackson
Lucy McMillan
Matthew Sexton
Samantha Shampine
Riley Sullivan
Tanner Thering
Jeffrey Thompson
Pinghui Wu
Bo Zhao

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Table of Contents

Executive Summary3
I. Introduction.....4
II. Occupational Mobility and Occupational Licensing Patterns of Workers...7
III. Impact of Licensing Existence on Occupational Mobility..... 11
IV. Impact of Licensing Qualifications on Occupational Mobility..... 13
V. Policy Implications 15
References 21
Appendix 22

EXECUTIVE SUMMARY

Occupational licensing—mandatory credentialing that allows a worker to practice a particular profession—varies greatly throughout New England and the United States in terms of which occupations require a license in a given state and the scope of the necessary qualifications. Given a growing share of US workers who are licensed, it is increasingly important to understand how these differences in licensing policy affect markets. Such knowledge can then be used to guide how occupational licensing regulations are structured. The research in this report shows that a labor market implication of licensing policy existence is a 24 percent reduction in occupational mobility, and that effect is driven by licensing qualifications that stipulate fees and minimum thresholds for education and age. These qualifications likely differ in their connection to worker skills, which may help explain mixed findings in research on how licensing affects the safety and quality of goods and services. Policymakers considering occupational licensing to facilitate such product market benefits may also wish to assess labor market costs, such as reduced occupational mobility, using a joint evaluation of those markets to determine the form of licensing regulation, if any, that is most likely to improve societal welfare.

More specifically regarding policy recommendations, this report's findings have multiple implications for future occupational licensing policy in New England. For instance, for occupations in which labor market costs are likely high and product market benefits are likely low, policymakers should consider potentially eliminating licensing altogether and perhaps replacing it with less restrictive forms of regulation such as certification or public inspections. More nuanced assessment is required for occupations in which the labor market costs of licensure are likely low (or high) but the product market benefits of licensure are also likely low (or high). In these cases, policymakers should consider an arrangement of licensing qualifications that better amplifies product market benefits and mitigates labor market costs. Lastly, for occupations in which labor market costs are likely low and product market benefits are likely high, policymakers should consider retaining existing licensing policy or, absent a policy, remain open to establishing licensure or less restrictive policy alternatives if the case for improved consumer protection is sufficiently compelling.

I. Introduction

In 2022, running a business as a home entertainment installer in Connecticut meant being employed in one of only three US states that required a license to conduct such work. By contrast, all 50 states and Washington, DC, require a license to work as an emergency medical technician (EMT), but the qualifications needed to obtain the license vary notably across areas (Knepper et al. 2022).¹ An occupational license is a mandatory credential based on select criteria and issued by federal, state (typically), or local government that allows a worker to practice a particular profession.

Licensing regulations decrease the probability of switching into a different occupation by 2.2 percentage points, equal to 24 percent.

With occupational licensing having grown substantially more prevalent in the nation over the past several decades—from involving roughly 5 percent of US workers in the 1950s to 29 percent by 2008, according to one estimate (Kleiner and Krueger 2013)—it is increasingly important to understand how these differences in licensing policy affect markets. Such understanding can be used to structure occupational licensing regulations in a way that would best achieve the goals of the policy.

But what are the goals of occupational licensing policy? Advocates argue that such policy reduces potential safety risks to consumers and improves the general quality of goods and services. However, opponents of occupational licensing claim that, given mixed evidence about consumer benefits (Sweetland and Carpenter 2022), it creates an unnecessary barrier to entry for workers. Opponents note that licensing may even reflect rent-seeking behavior for personal gain by some advocates. Because many licensing regulations differ by state and occupation, some labor market research focuses on whether licensing reduces mobility across those dimensions, finding evidence of such effects (Johnson and Kleiner 2020; Kleiner and Xu 2022). Such limits to worker mobility may hinder the stabilization of markets following economic shocks, such as the COVID-19 pandemic, and could diminish welfare even in the absence of such shocks.

This report examines the impact of state-level occupational licensing on the occupational mobility of workers in New England and the United States from 2016 through 2022. The report is tied to underlying analysis in Jackson (2023) that builds on work by Kleiner and Xu (2022).² Descriptively, analyzed workers differ somewhat from the overall population due to the low-income occupations for which licensing policy information is available. For these workers, occupational mobility over a 15-month period is somewhat lower in the region than the nation (6.7 percent versus 8.7 percent). However, an equal majority of these workers in New England and in the United States are employed in a state and occupation that require licensing for the job (53.5 percent).

Using statistical analysis to determine a causal link between occupational licensing policy and occupational mobility in the United States, this study finds that the existence of licensing regulation decreases the probability of switching into a different occupation by 2.2 percentage points, equal to 24 percent. The prevalence of licensing varies across New England. It is highest in Rhode Island (involving 68.5 percent of analyzed state-occupation pairings) and Connecticut (64.8 percent). Both states exceed the national rate as well as the regional rate. A larger overall effect on occupational entry would be expected for states with a greater share of occupations that are licensed, and there is scope throughout the region to adjust the prevalence of licensing regulation.

The estimated reduction in occupational mobility due to licensing policy is driven by select

1 In 2022, California and Nevada also required a license to be a home entertainment installer. Among the qualifications to be an EMT, the minimum-age threshold in Maine requires a person to be at least 16 years old compared with 18 years old in Rhode Island (Knepper et al. 2022).

2 Geographic relocation is not explored in this report because information on migrating households is not available in the analyzed data.

licensing qualifications—namely, fees and minimum thresholds for education and age. Given different links to worker skills across those qualifications, this finding may help explain the mixed results among studies that research how licensing regulations affect the safety and quality of goods and services. Including licensing exams as well, the four assessed qualifications differ notably throughout the region. In terms of prevalence, licensing fees are the most common qualification in the region and nation (92.1 percent and 93.6 percent of analyzed licensed state-occupations, respectively, require a fee). The prevalence of fees is followed by exams, minimum age thresholds, and lastly, minimum school-grade thresholds. The last qualification is the only one of the four that is more common in New England than the United States (19.1 percent of analyzed licensed state-occupations versus 14.8 percent, respectively). Among the licensed state-occupations with positive values for each qualification, values are comparable in the region and nation. For instance, when required, average fees are \$170 in New England and \$188 in the United States (both in constant 1999 US dollars, to account for inflation), while the average minimum school grade is just below high school completion at 11.6 in New England and 11.5 in the country. Thus, as in the case of licensing prevalence, there is latitude for the adjustment of licensing qualifications in terms of both the set of qualifications and qualification levels.

This report uses its results on how occupational licensing reduces occupational mobility to extrapolate to the broader labor market. Such generalizing, when combined with licensing implications for the product market from other research, enables the outlining of a basic framework for cost-benefit analysis of occupational licensing in New England. Given the complexities and challenges of implementing licensing reform—for instance, in 2023, the New Hampshire legislature mostly rejected a proposed repeal of licensing regulations for 34 occupations—this framework is intended to support policy discussions, not prescribe policy decisions.

The findings of this report suggest three main implications for future policy in New England. First, for occupations in which labor market costs are likely high and product market benefits are likely low, policymakers should consider potentially eliminating licensing altogether and perhaps replacing it with less restrictive forms of regulation such as certification or public inspections. Second, in a more nuanced assessment of occupations where both labor market costs and product market benefits are likely low (or high), policymakers should consider a combination of licensing qualifications that better amplifies product market benefits and mitigates labor market costs. Lastly, for occupations in which labor market costs are likely low and product market benefits are likely high, policymakers should consider retaining existing licensing policy or, absent such policy, remain open to establishing licensure or less restrictive policy alternatives if the case for improved consumer protection is sufficiently compelling.

Licensing fees are the most common qualification in the region and nation; 92.1 percent and 93.6 percent of analyzed licensed state-occupation pairings, respectively, require a fee.

Box 1**Data Source and Sample Creation****Data Source**

This report (and related analysis in Jackson 2023) uses data on occupational licensing existence and qualifications at the state-occupation level from Carpenter et al. (2017) and Knepper et al. (2022). These data contain licensing policy information on 102 select occupations, chosen for being recognized by the US Bureau of Labor Statistics (BLS) and for having average earnings no greater than the national average earnings. The report also uses statistics on the labor force from the Current Population Survey (CPS) from 2015 through 2022 (Flood et al. 2022).^a These data are sponsored jointly by the US Census Bureau and the BLS. The Basic Monthly Survey (BMS) component of the CPS uses a rotating sample of 60,000 households. A household is in the CPS for four consecutive months, out for eight months, and then back in for four months before leaving the sample permanently. This 4-8-4 survey design allows the BMS to be used as a longitudinal survey, although it is usually used as a pooled cross section (US Census Bureau 2006).

Sample Creation

After imposing initial sample restrictions for data quality, this study links licensing policy data to CPS-sampled workers at the state-occupation-period level. Based partly on the timing of licensing policy data collection, I assign the 2017 policy data to correspond to 2015–2019 CPS data and assign the 2022 policy data to reflect the 2020–2022 CPS data. Matching states across the two data sources is straightforward. To match occupations, I rely on a self-generated crosswalk linking licensing policy occupations to occupations in the O*NET database. I also use existing crosswalks from the BLS that match O*NET jobs to Standard Occupation Classification (SOC) jobs and match SOC jobs to CPS jobs. Lastly, I link distinct occupation codes in the CPS (OCC and OCC2020) using existing matching by Flood et al. (2022). I impose match-quality criteria for the aforementioned stages to eliminate poor matches.^b The resulting sample of analyzed workers reflects 54 occupations and some disproportionate traits for analyzed workers compared with unanalyzed workers (see Table 1 and Figure 3).

Descriptive sample weights are created and applied so that resulting statistics reflect the full populations of interest. To study both occupation entry and exit, I distinguish licensing policy in the final and baseline (first) months-in-sample, respectively. For unweighted counts, the sample contains 12,004 workers, of which 6,230 are licensed at baseline and 5,774 are unlicensed at baseline, while 6,227 are licensed at final and 5,777 are unlicensed at final.

a The 2015–2022 period was chosen due to the timing of the licensing policy data and also the availability of self-reported licensing information in the CPS from 2015 onward, as the latter measure is used in some analyses. Sample counts are prohibitively small after 2022.

b See Jackson (2023) for additional details on sample restrictions.

Table 1

Analyzed Occupations
New England and United States, 2017 and 2022

Occupation Name	
Animal Control Officer	Insulation Contractor (Commercial)
Animal Trainer	Interpreter, Sign Language
Barber	Iron/Steel Contractor (Commercial)
Bartender	Locksmith
Bill Collection Agency	Log Scaler
Carpenter/Cabinet Maker Contractor (Commercial)	Mason Contractor (Commercial)
Childcare Home, Family	Massage Therapist
Coach, Head (High School Sports)	<i>Milk Sampler</i>
Conveyor Operator	Optician
Cosmetologist	Painting Contractor (Commercial)
Crane Operator	Paving Contractor (Commercial)
Dental Assistant	Pest Control Applicator
Door Repair Contractor (Commercial)	Pipelayer Contractor
Drywall Installation Contractor (Commercial)	Preschool Teacher, Public School
Earth Driller, Water Well	<i>Psychiatric Aide</i>
Emergency Medical Technician	Security Alarm Installer
<i>Farm Labor Contractor</i>	Security Guard, Unarmed
Fisher (Commercial)	Sheet Metal Contractor, HVAC (Commercial)
Floor Sander Contractor (Commercial)	Slot Supervisor
Forest Worker	<i>Still Machine Setter, Dairy Equipment</i>
Funeral Attendant	Taxi Driver/Chauffeur
Gaming Cage Worker	Teacher Assistant, Non-Instructional
Gaming Dealer	<i>Title Examiner</i>
Gaming Supervisor	<i>Travel Agency</i>
Glazier Contractor (Commercial)	Travel Guide
Home Entertainment Installer	Upholsterer
HVAC Contractor (Commercial)	Weigher

Source(s): Carpenter II et al. (2017) and Knepper et al. (2022) data and author’s calculations.

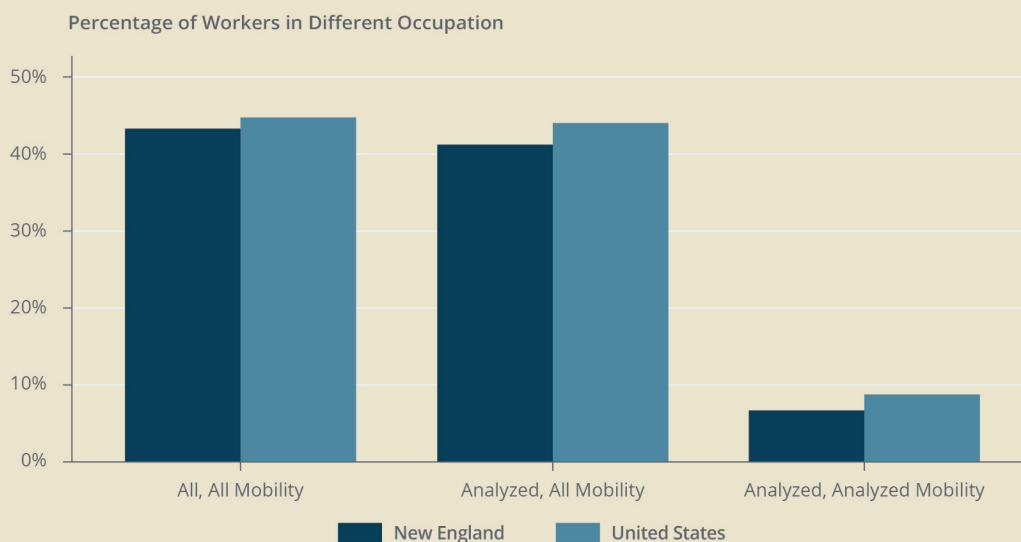
Note(s): Occupation names (54 in total) reflect job titles in Carpenter et al. (2017) and Knepper et al. (2022). Occupations not licensed in at least one New England state in 2022 are in italics (six in total), one of which was not licensed in any US state in 2022 (psychiatric aide).

II. Occupational Mobility and Occupational Licensing Patterns of Workers

This report examines the occupational mobility and occupational licensing patterns of workers in the United States and New England. The primary findings are that analyzed workers (1) have similar rates of occupational mobility in the nation and region, (2) face comparable prevalence of occupational licensing in the nation and region, and (3) can differ notably from unanalyzed workers in terms of their profession and educational attainment. This descriptive

Figure 1

Occupational Mobility for All Occupations and Analyzed Occupations New England and United States, 2016–2022



Source(s): 2015–2022 Current Population Survey data, Carpenter et al. (2017) and Knepper et al. (2022) data, and author's calculations.

Note(s): Referenced 2016–2022 period is based on timing of the last month-in-sample for each worker (there are 15 calendar months between the first and last months-in-sample).

analysis is conducted using data at the state-occupation level on occupational licensing policy in the United States matched to US labor force statistics. As described in the box on page 6, these data components allow for the creation of the main sample for analysis. The sample, used for both descriptive and causal analysis, is a “pooled cross-sectional” data set that combines multiple periods of information snapshots at a given point in time. However, information on occupational mobility in the sample reflects an underlying “longitudinal” data set in which each worker can be followed for eight months-in-sample that span 16 calendar months. Statistics estimated with the data set reflect the full populations of interest given the use of constructed sample weights.

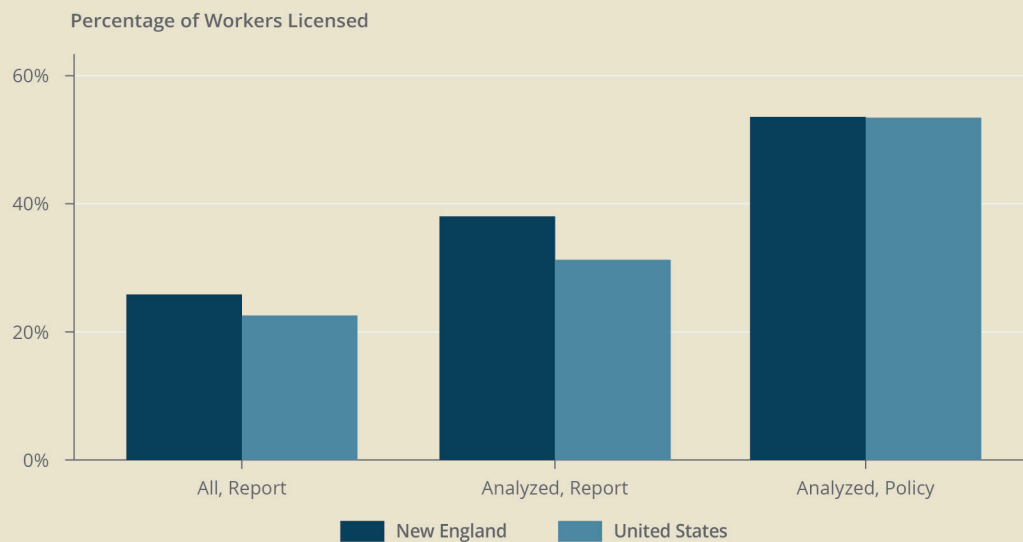
The 54 occupations in the analysis sample are displayed in Table 1. Although these jobs reflect diverse roles, the specificity of the list compared with a broader set of occupations motivates an exploration of how occupational mobility, occupational licensing, and worker characteristics differ between the analysis sample and a larger sample. Such an assessment will help determine the scope of the causal analysis and policy recommendations presented later in the report.

Figure 1 illustrates the share of workers in New England and the United States from 2016 through 2022 who were employed in an occupation that differed from their occupation of employment 15 months earlier.³ This five-quarter occupational mobility rate is examined for the analysis sample and also for a larger sample that imposes only initial data-quality sample restrictions (“Analyzed” and “All” in the figure, respectively). Additionally, the mobility rate is calculated based on all pairings of the occupation at “baseline” (first month-in-sample) and at “final” (last month-in-sample) across the 54 analyzed occupations and also across a larger sample of 442 occupations (“Analyzed Mobility” and “All Mobility” in the figure, respectively). The figure shows that the five-quarter mobility rate featuring a broad sample and a broad occupational network

3 As noted in the box on page 6, additional sample restrictions apply and are detailed in Jackson (2023). The 2016–2022 analysis period refers to the timing of the eighth (final) month-in-sample for a survey respondent; the first (baseline) month-in-sample occurs 15 months earlier, in the previous calendar year.

Figure 2

Licensing in All Occupations and Analyzed Occupations New England and United States, 2016–2022



Source(s): 2015–2022 Current Population Survey data, Carpenter et al. (2017) and Knepper et al. (2022) data, and author's calculations.

Note(s): Referenced 2016–2022 period is based on timing of the last month-in-sample for each worker (there are 15 calendar months between the first and last months-in-sample).

was 43.3 percent in the region over the 2016–2022 period, slightly trailing the corresponding 44.8 percent rate in the nation. This pattern closely mirrors the one observed when comparing the same mobility rate but for the narrower analyzed sample instead (41.2 percent in New England and 44.0 percent in the United States). This result suggests there are minimal effects on estimated occupational mobility from using the smaller analysis sample. However, narrowing the occupational network to just the analyzed occupations leads to a notable decrease in the mobility rate; it becomes 6.7 percent in the region and 8.7 percent in the nation. Still, for this preferred occupational mobility definition, the mobility rate remains slightly lower in New England versus the United States, and the US rate is similar to estimates from other work.^{4, 5}

Figure 2 examines the prevalence of occupational licensing in New England and the country according to the self-reported licensing status of a worker and according to the existence of licensing policy in a state-occupation (“Report” and “Policy” in the figure, respectively).⁶ The sample definitions used for Figure 1 (“All” and “Analyzed”) remain applicable. Self-reported licensing is assessed to allow a comparison of the analysis sample with the larger sample, as licensing policy information is not available in the latter case for all state-occupations. In the larger sample, the 2015–2019 share of workers who self-report as licensed in the region (25.8 percent) is larger than the national share (22.5 percent). A similar pattern appears in the analyzed sample (37.9 percent

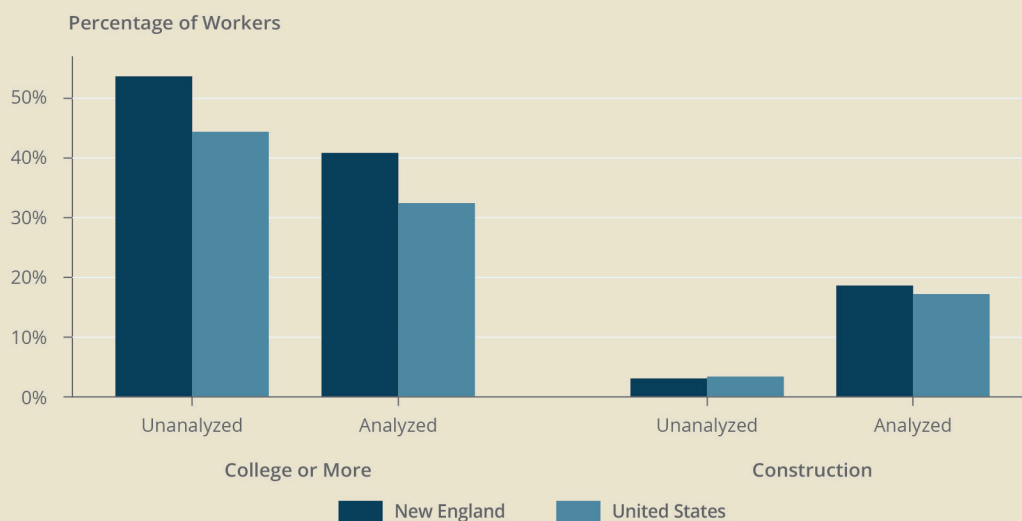
4 As discussed in Jackson (2023), the “analyzed mobility” definition is preferred since it facilitates joint exploration of the entry and exit effects of licensing. That paper also shows that for analysis focusing on entry effects and using the “all mobility” definition instead, the estimated effect of licensing on occupational mobility remains similar.

5 Shniper (2005) uses CPS data from January 2003 through January 2004 and detailed occupational categories to estimate the US occupational mobility rate and finds that 7.2 percent of employed workers aged 16 and older changed occupations within a year.

6 Figure 2, like all further analysis unless noted otherwise, focuses on licensing at the final month-in-sample rather than at the first month-in-sample since the former corresponds with effects of licensing on occupational entry rather than exit. Jackson (2023) shows that such entry effects have stronger theoretical predictions and empirical findings, with the latter evident in Figure 4 of this report.

Figure 3

Select Worker Traits in Analyzed Occupations and Unanalyzed Occupations New England and United States, 2016–2022



Source(s): 2015–2022 Current Population Survey data, Carpenter et al. (2017) and Knepper et al. (2022) data, and author's calculations.

Note(s): Referenced 2016–2022 period is based on timing of the last month-in-sample for each worker (there are 15 calendar months between the first and last months-in-sample).

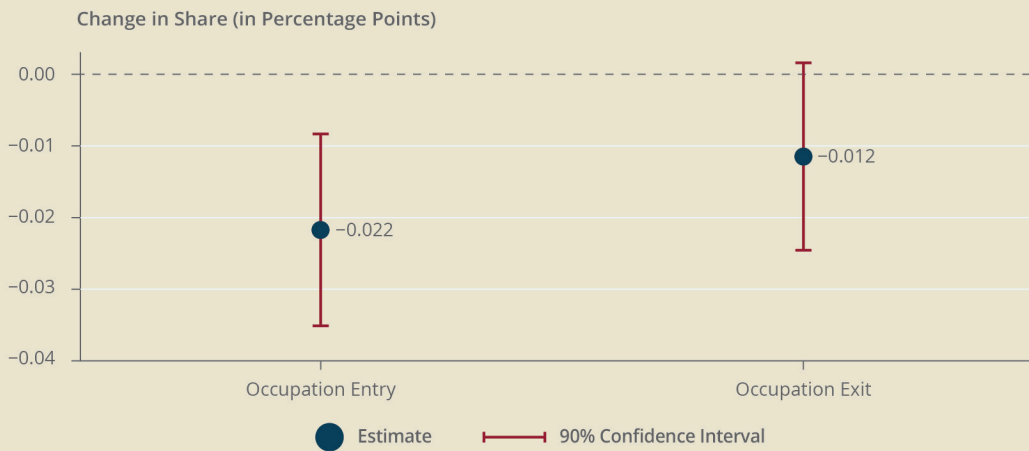
in New England and 31.2 percent in the United States), although the overall rate of self-reporting as licensed is higher. This result suggests that there may be limited effects on licensing prevalence from using the smaller analysis sample, especially regarding relative comparisons. Changing the metric of licensing existence in the analyzed sample from self-reported licensing to licensing policy raises the licensing rate even higher, to 53.5 percent in both the region and nation. Thus, more than half the workers were employed in a state and occupation that require licensing for the job.⁷

To further assess the analysis sample, Figure 3 focuses on two worker characteristics that each exhibit a sizable difference between analyzed workers and unanalyzed workers. The share of workers with at least a bachelor's degree is lower for analyzed workers than unanalyzed workers, both in New England (40.7 percent versus 53.6 percent) and the United States (32.4 percent versus 44.3 percent). By contrast, the share of workers employed in construction (as reported in the CPS) is higher for analyzed workers than unanalyzed workers for both the region (18.6 percent and 3.0 percent, respectively) and the nation (17.2 percent and 3.3 percent, respectively). This pattern is likely at least partly due to occupations being selected for the licensing policy reports if they were sufficiently "recognized" as professions by the BLS and had average earnings no greater than the national average earnings (see box on page 6). Thus, selection of the analysis sample should be kept in mind when interpreting additional descriptive analysis on licensing policy prevalence later in the report. However, key traits are incorporated into causal analysis and therefore likely affect only how broadly one might consider applying the results when making policy recommendations (for example, whether the findings could reasonably apply to high-income occupations, which may not be advisable).

7 Imperfect alignment between the rate at which licensing is required according to policy and the rate at which workers self-report as licensed could reflect several factors, as noted by Jackson (2023). Such factors include differences in underlying phenomena captured (for instance, the self-reported measure also includes certification in its scope), measurement error, or limited policy enforcement. These factors, as well as methodological benefits such as the ability to analyze licensing qualifications, are reasons the study gives for using a licensing-policy measure for analysis rather than a self-reported-licensing measure.

Figure 4

The Impact of Licensing Existence on Occupational Mobility United States, 2016–2022



Source(s): 2015–2022 Current Population Survey data, Carpenter et al. (2017) and Knepper et al. (2022) data, and author's calculations.

Note(s): Referenced 2016–2022 period is based on timing of the last month-in-sample for each worker (there are 15 calendar months between the first and last months-in-sample). Results based on regression analysis of observations at the worker level. Each estimate represents the impact of being in a licensed state-occupation on the average change in the share of employed workers who have switched occupations. The 90 percent confidence interval displays the set of values that one can be 90 percent confident includes the true estimate.

III. Impact of Licensing Existence on Occupational Mobility

Having examined patterns of occupational licensing and occupational mobility from 2015 through 2022, this report now considers how the existence of licensing policy affects such mobility.⁸ The main findings are that the existence of licensing regulation (1) significantly reduces entry into an occupation, (2) has no significant effect on exit from an occupation, and (3) is comparable in the region and the nation but varies greatly across New England states. To obtain these findings, the report uses the statistical technique of regression analysis to conduct this causal investigation. For this study, the ability of such analysis to yield a causal interpretation of the resulting estimates relies on accounting for factors that are related to both licensing policy and occupational mobility. Key among such factors are measures of a worker's occupation and state of residence, as these attributes govern the licensing policy of interest and also likely affect occupational mobility.⁹

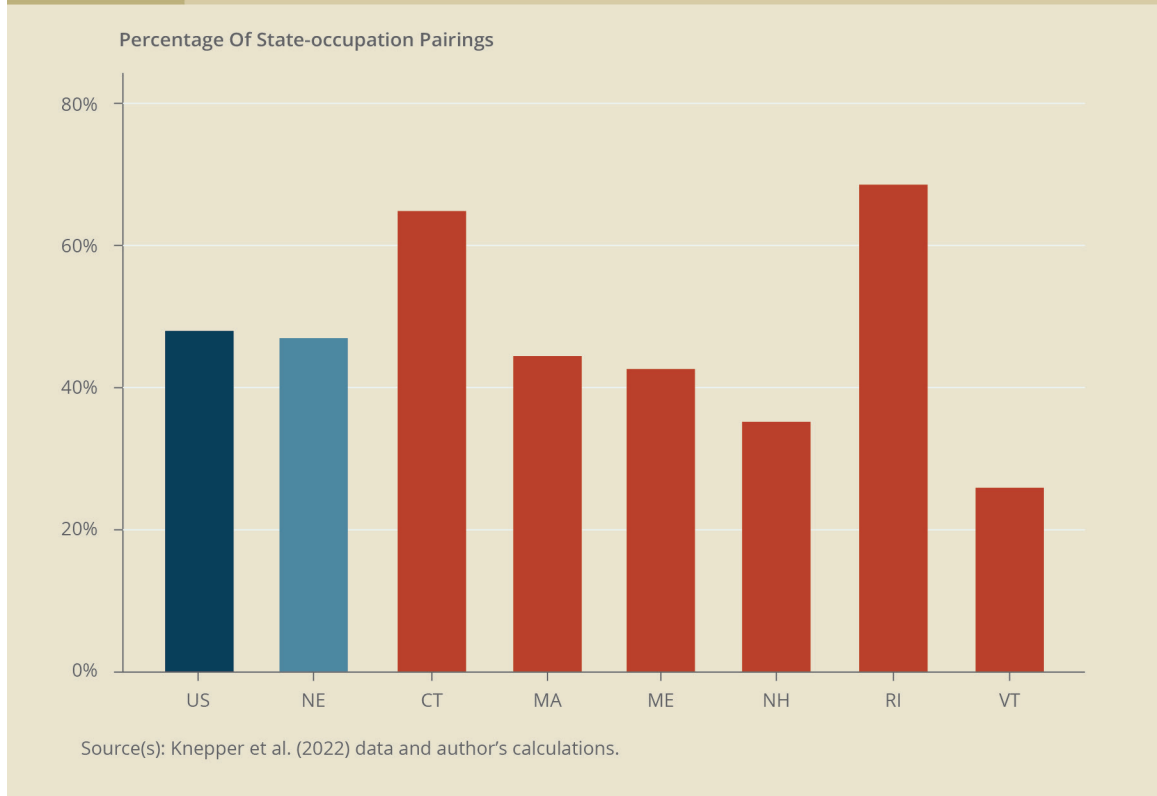
Figure 4 displays the impact of licensing policy existence on entry into an occupation and exit from an occupation. The figure shows that the licensing-mobility entry effect is strongly negative. Specifically, the probability of switching into an occupation decreases by 2.2 percentage points due to the existence of licensing regulation in the state-occupation of potential entry. This estimate reflects a 24 percent decline in occupational mobility given an average mobility rate of 9.2 percent for workers not in a licensed state-occupation ($2.2/9.2 \times 100 = 23.9$ percent). By contrast, the licensing-mobility exit effect is weakly negative. Namely, this effect is not statistically detectable and corresponds to a decline of 1.2 percentage points in the probability of switching out of

8 Although this analysis is conducted on a national sample, the comparability of the descriptive patterns for licensing policy and occupational mobility in New England and the United States allows the causal findings for the nation to be applied to the region more readily.

9 Other control variables are included in the estimation to account for additional relevant factors, as partly motivated by a theoretical model. Specifically, these variables are indicators for sex, being married, presence of any children or young children in the household, age, education, period, race/ethnicity, and industry. Heteroskedasticity-robust standard errors are included in the estimation (Jackson 2023).

Figure 5

Prevalence of Licensing Existence among Analyzed Occupations New England States, New England, and United States, 2022



an occupation due to the existence of licensing regulation in the state-occupation of potential exit. This weak effect corresponds to a 13 percent decrease in occupational mobility given an average mobility rate of 8.9 percent here for workers not in a licensed state-occupation ($1.2/8.9 \times 100 = 13.5$ percent). Jackson (2023) outlines a theoretical model that predicts licensing-mobility entry effects that are more negative than exit effects, consistent with the findings.

Figure 5 descriptively explores the prevalence of licensing policy in each New England state, the region as a whole, and the nation. The existence of licensing regulation in a state-occupation occurs at similar rates in New England and the United States (46.9 percent and 48.0 percent, respectively). However, there are notable differences in this licensing rate across the region. Rhode Island (68.5 percent) and Connecticut (64.8 percent) have the highest licensing-existence rates in New England, far above the regional and national rates. The remaining New England states have licensing-existence rates that are below both regional and national rates, with Massachusetts (44.4 percent) and Maine (42.6 percent) being distinctly trailed by New Hampshire (35.2 percent) and Vermont (25.9 percent). Thus, a larger overall effect on occupational entry would be expected for states with a greater share of occupations that are licensed, and there is scope for potential adjustment of licensing policy prevalence.

IV. Impact of Licensing Qualifications on Occupational Mobility

Given the negative impact of licensing policy existence on entry into an occupation, this report now examines which licensing policy qualifications drive the licensing-existence effect. The key findings are that among the analyzed qualifications (1) high licensing fees and high minimum-age requirements both significantly reduce occupation entry, and (2) the prevalence (and average value) of each qualification is similar in the region and nation but differs notably from the other qualifications. This report focuses on four qualifications given the measures available in Carpenter et al. (2017) and Knepper et al. (2022): licensing fees (in constant 1999 thousands of US dollars, to account for inflation), the number of licensing exams, and the minimum thresholds for a licensed worker's school grade and age.¹⁰

The two subfigures of Figure 6 display the results. Regarding the first subfigure, the licensing measures each reflect the value of the given qualification in a state-occupation rather than the existence of licensing in a state-occupation. Increasing licensing fees by \$1,000 (about seven times the sample average amount) decreases the probability of occupation entry by 1.8 percentage points. There is no statistically detectable effect of the number of licensing exams on switching into an occupation. Raising the minimum school grade required by one level (roughly the sample average value) decreases the probability of entering an occupation by 0.2 percentage point. Lastly, increasing the minimum-age threshold by one year (approximately one-sixth of the sample average value) decreases the probability of occupation entry by 0.1 percentage point.

The fees qualification has an uncertain connection to worker skills and, in turn, the safety and quality of goods and services. By contrast, the minimum-grade and minimum-age qualifications have more discernible links to worker skills and, consequently, product safety and quality. Thus, this mixed finding may help clarify the absence of a consensus among studies that research how licensing regulations affect the safety and quality of goods and services (Sweetland and Carpenter 2022).

The second subfigure of Figure 6 focuses on the three qualifications in the first subfigure with statistically detectable effects. The positive values of each measure are split into two bins: a below-median bin and an at-or-above-median bin, each of which contains roughly half the measure's positive data values.¹¹ The licensing measure in each bin reflects the existence of licensing policy in a state-occupation. This analysis approach, relative to the previous subfigure, allows for an easier comparison of results because qualifications are similarly measured using the bins, and the licensing measure is the same for all the bins. Aligning with the first subfigure, the second subfigure shows that statistically detectable effects occur for licensed state-occupations with qualifications that are at or above the median for fees and a minimum-school-grade threshold. Having at-or-above-median licensing fees decreases the probability of occupation entry by 2.6 percentage points, and having at-or-above-median minimum-age thresholds reduces the probability of occupation entry by 1.6 percentage points. Additionally, Jackson (2023) finds that those statistically detectable effects for fees and minimum age are also present for New England specifically.¹²

Licensing fees have an uncertain connection to worker skills and, in turn, the safety and quality of goods and services.

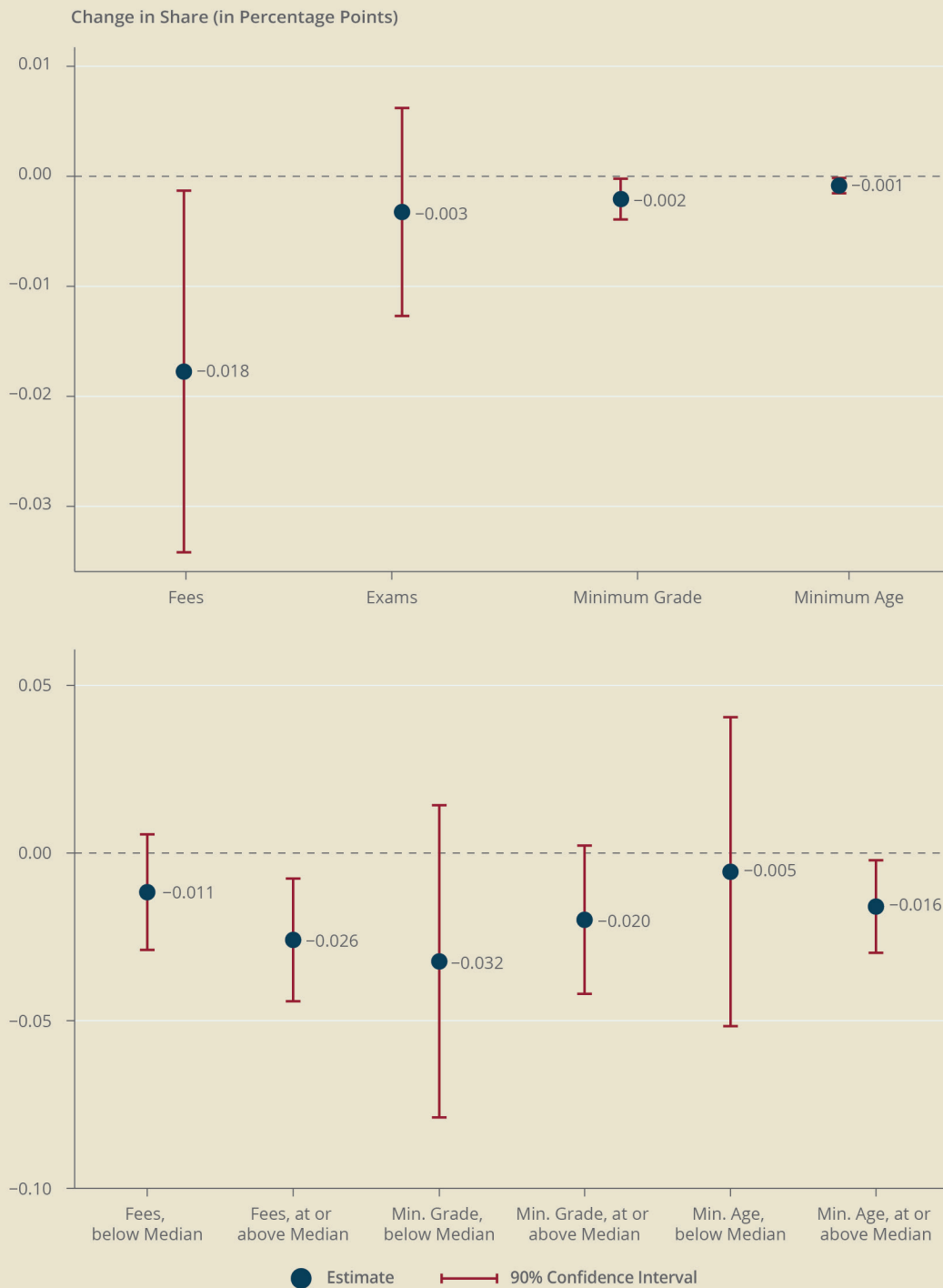
10 Licensing fees are converted to constant 1999 thousands of US dollars using the Consumer Price Index for All Urban Consumers from the BLS.

11 The median values are \$139 for fees (in 1999 US dollars), 12th grade for the minimum grade, and 18 years old for the minimum age.

12 Having at-or-above-median licensing fees decreases the probability of occupation entry by 10.6 percentage points in the region, and having at-or-above-median minimum-age thresholds reduces the probability of occupation entry by 6.9 percentage points in the region (Jackson 2023). Because the regional effects are estimated less precisely than the aggregate effects for the nation, 90-percent confidence intervals for the regional estimates contain the national estimates. Thus, the larger effects for New England are not statistically detectable from the effects for the United States.

Figure 6

The Impact of Licensing Qualifications on Occupation Entry
United States, 2016–2022



Source(s): 2015–2022 Current Population Survey data, Carpenter et al. (2017) and Knepper et al. (2022) data, and author’s calculations.

Note(s): Referenced 2016–2022 period is based on timing of the last month-in-sample for each worker (there are 15 calendar months between the first and last months-in-sample). Results based on regression analysis of observations at the worker level. In the first subfigure, each estimate represents the impact of a one-unit change in the relevant measure on the average change in the share of employed workers who have switched occupations (entry). Fees are measured in constant 1999 thousands of US dollars. In the second subfigure, each estimate represents the impact of being in a licensed state-occupation on the average change in the share of employed workers who have switched occupations (entry). The 90 percent confidence interval displays the set of values that one can be 90 percent confident includes the true estimate.

Figures 7 and 8 descriptively examine the prevalence and average, respectively, of licensing policy qualifications in New England and the United States. In Figure 7, the prevalence rates are calculated for licensed state-occupations where licensing qualifications could potentially be imposed. The figure shows that licensing fees are by far the most common qualification among the four measures examined in this report, with comparable prevalence in the region and nation (92.1 percent and 93.6 percent, respectively). Exams are the second-most common qualification, with the New England rate (50.7 percent) below the US rate (61.8 percent). The third-most common qualification is the minimum-age threshold, which is similarly lower in the region (48.0 percent) than the nation (55.4 percent). The least common qualification is the minimum-school-grade threshold, which is the only measure of the four examined that is more prevalent in New England than the United States (19.1 percent versus 14.8 percent).

Figure 8 displays average values of licensing policy qualifications among the licensed state-occupations with positive values of each qualification. Stated differently, the figure displays the average value of a qualification when the qualification is imposed. Fees are lower on average in the region than the nation (\$170 versus \$188), while the average number of required exams is slightly higher in the region than in the nation (1.9 versus 1.8). The average minimum threshold for school grade is 11.6 in New England and 11.5 in the country, while the average minimum threshold for age is 18.0 years old in New England and 18.2 years old in the United States. Collectively, the range of shares and averages in Figures 7 and 8, respectively, shows that there is scope for the possible adjustment of licensing qualifications, whether in terms of prevalence, average values, or both.

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V. Policy Implications

Overview and Policy Matrix

This study's findings have three main implications for future policy in New England. First, for occupations in which labor market costs are likely high and product market benefits are likely low, policymakers should assess whether it is worthwhile to have any form of licensing policy in existence and perhaps consider alternatives. Second, for occupations in which both labor market costs and product market benefits are likely high or likely low, policies should consider a combination of licensing qualifications that better amplifies product market benefits and mitigates labor market costs. Lastly, for occupations in which labor market costs are likely low and product market benefits are likely high, policymakers should consider whether it is worthwhile to have some form of licensing policy in existence—introducing it or perhaps alternatives if such policy is absent, or retaining it if a policy is present.¹³

However, public policy related to occupational licensing in New England and the nation can be challenging to assess. For instance, states infrequently remove licensing regulations for an occupation.¹⁴ In February 2023, New Hampshire Governor Chris Sununu called for the repeal of licensing for

13 Ideally, the relevant labor market and product market medians that divide the matrix quadrants would be recalculated as the occupation sample changes. That said, the rounded median values used in this report are 25 states for the labor market (reflecting roughly half the nation plus Washington, DC) and a vacancies-to-unemployed ratio of 1 (reflecting one job vacancy for every unemployed worker). These values seem substantively reasonable to use in the absence of thresholds tailored to a given sample of occupations.

14 In the 40 years preceding their article, Thornton and Timmons (2015) found only eight instances of the successful removal of licensing at the state level. For the 2017–2022 period, Knepper et al. (2022) measure a gross removal of licensing for 26 occupations and a net removal of licensing for 10 occupations across the 102 occupations the report analyzes. They note that the net removal of licensing for 10 occupations reflects a reversal of the previous five-year trend.

Figure 7

Prevalence of Licensing Qualifications among Analyzed Licensed Occupations
New England and United States, 2022

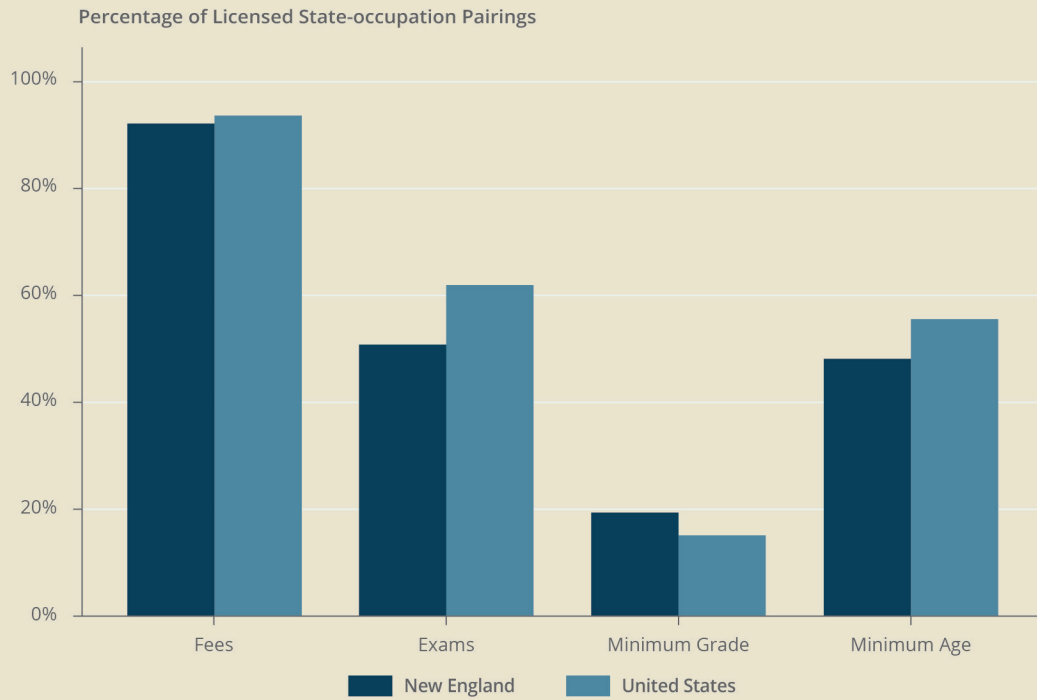
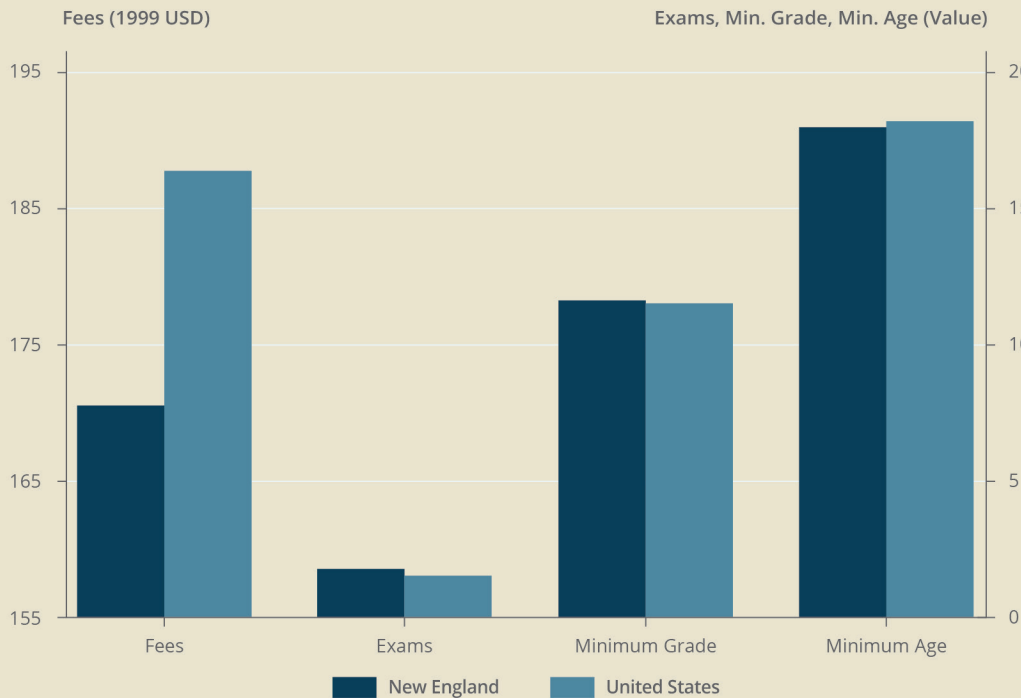


Figure 8

Average Licensing Qualifications among Analyzed Licensed Occupations
New England and United States, 2022



34 occupations and the elimination of 14 state regulatory boards.¹⁵ However, the New Hampshire House of Representatives largely rejected the proposal.¹⁶ But whether the removal of licensing regulations would be beneficial for a state, as compared with the addition of such regulations or adjustments to licensing qualifications, relies on having a conceptual framework that defines “beneficial” and outlines a method for measuring benefits and costs.

Setting up an appropriately complex framework to assess licensing reform comprehensively is beyond the scope of this report. However, it is feasible to create a more basic guiding framework by extrapolating from the report’s findings on occupational mobility to the broader labor market costs of licensing and by considering detailed welfare analysis that helps quantify the potential benefits of licensing in the product market. Reduced occupational mobility due to licensing could contribute to challenges filling job openings for some professions. Such difficulties might be especially costly for occupations with “tight” labor markets, as reflected by the ratio of job vacancies to unemployed workers. Conversely, diminished occupational mobility due to licensing could contribute to the improved safety and/or quality of goods and services associated with some professions. One study shows that such benefits in the product market, as indicated by increased demand from consumers, are more likely to occur for occupations that are more commonly licensed (Kleiner and Soltas 2023). The proposed basic framework in this report, a 2x2 “policy matrix of occupations” that uses the extent of labor market costs and product market benefits as its two dimensions, can be employed when considering policy implications for licensing policy.

A “Most Costly” or “Least Costly” designation of labor market costs in the matrix is determined by which industries at the national level have at-or-above-median or below-median, respectively, values of the ratio of job vacancies to unemployed workers (the median is 1.04). Using the analysis sample for entry effects, this report links occupations to industries based on which industry reflects the majority or plurality of workers in the occupation.¹⁷ A “Least Beneficial” or “Most Beneficial” designation for the product market reflects which occupations at the national level are licensed in an at-or-above-median or a below-median number of states (plus Washington, DC), on average, based on licensing policy data for 2017 and 2022 (the median is 24.75). Kleiner and Soltas (2023) find that consumers appear to value licensing as a more credible signal of quality in more commonly licensed occupations, perhaps indicating that those are indeed the professions in which such regulation is more likely to prevent consumer harm. Occupations are allocated to the relevant policy matrix quadrant based on their assignments to the labor market and product market. Any occupation that was not licensed in at least one New England state in 2022 is omitted from the matrix, resulting in 48 of 54 analyzed occupations receiving a matrix designation. Given the 2x2 structure of the matrix, median values would seem to be a reasonable choice to divide the labor and product markets into “most” and “least” categories. An alternative choice to determine those divisions—for instance, average values—would potentially result in a different allocation of occupations across the policy matrix quadrants. Thus, the matrix should be viewed as a framework that supports policy discussions, not a framework that prescribes policy decisions.¹⁸

15 See Annmarie Timmins, “Sununu’s Sweeping Licensing Overhaul Could Fail with Both Parties,” *New Hampshire Bulletin*, March 28, 2023.

16 A different reform was passed, however, although it is unrelated to the licensing policy discussed in this report. House Bill 594 was signed into law in June 2023 and allows any profession licensed in the state to be practiced by a worker with an out-of-state license if the state requirements are deemed “substantially similar.” See Annmarie Timmins, “It Just Became Easier for Out-of-State Professionals to Work Here,” *New Hampshire Bulletin*, June 28, 2023.

17 Due to data availability and preferred methodology, the ratio of job vacancies to unemployed workers is industry-specific rather than occupation-specific.

18 Accordingly, the cost-benefit analysis and considerations underlying the policy matrix are shared by other studies that touch upon additional factors not discussed here, including the effects of licensing on specific subpopulations and the regulatory oversight of licensing boards (Boesch et al. 2022; Kleiner 2015; Knepper et al. 2022; National Conference of State Legislatures 2012; US Department of the Treasury Office of Economic Policy et al. 2015).

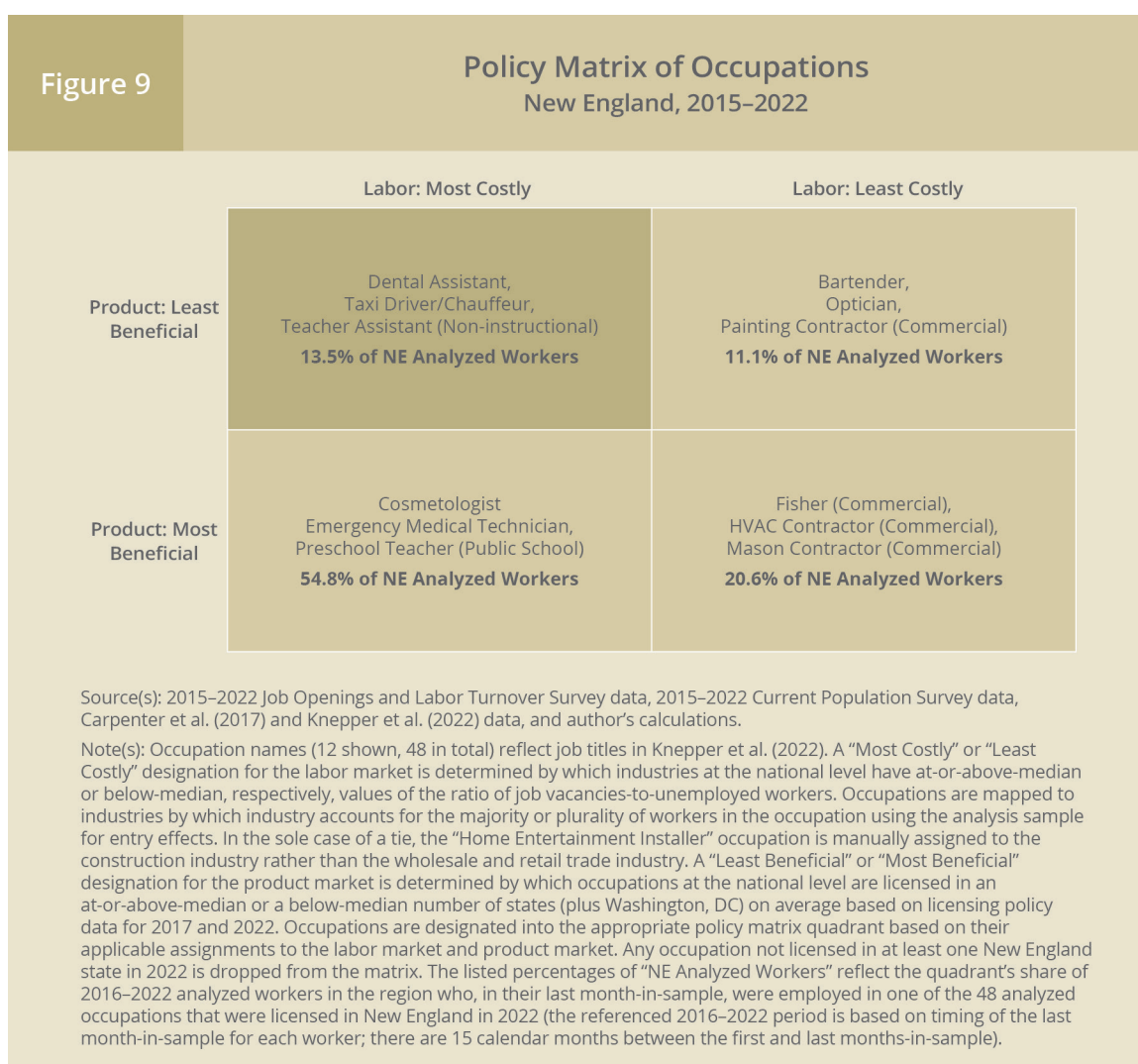


Figure 9 shows a visual representation of the policy matrix with 12 of 48 analyzed occupations listed. The full set of 48 occupations and their matrix designations can be found in Appendix Table A1. The “Labor: Most Costly, Product: Least Beneficial” quadrant of the matrix contains 10 occupations accounting for 13.5 percent of analyzed workers in the region across the applicable occupations (for example, dental assistant). The “Labor: Least Costly, Product: Least Beneficial” quadrant of the matrix contains 12 occupations accounting for 11.1 percent of the analyzed workers in the region across the applicable occupations (for instance, bartender). The “Labor: Most Costly, Product: Most Beneficial” quadrant of the matrix contains 16 occupations accounting for 54.8 percent of the analyzed workers in the region across the applicable occupations (for instance, cosmetologist). Lastly, the “Labor: Least Costly, Product: Most Beneficial” quadrant of the matrix contains 10 occupations accounting for 20.6 percent of the analyzed workers in the region across the applicable occupations (for example, fisher [commercial]). The report now turns to using the policy matrix to discuss policy implications for licensing policy existence and licensing qualifications.

Policy Implications for Licensing Existence: Potential Removal

For occupations in which labor market costs are likely high and product market benefits are likely low, policymakers should consider potentially eliminating licensing altogether and perhaps adopting less restrictive forms of regulation such as certification or public inspections.

For such occupations, there may be insufficient justification to warrant the existence of licensing regulations given moderate or poor outcomes in both of the markets that are key to assessing policy efficacy. Within New England recently, some licensing reforms were adopted for occupations in this quadrant of the policy matrix. For instance, as of 2019, applicants for animal control officer licenses in Maine are required to complete an online course/exam.¹⁹ In Massachusetts, effective as of 2014, dental assistants are required to be licensed.²⁰ In contrast to policy matrix guidance for these occupations, licensing regulation was introduced in the latter case and additional qualifications were introduced in the former case, rather than the policy being repealed. While case-specific circumstances could support the observed increase in licensing regulation, such cases would still seem to be suitable for further policy assessment.

Additionally, as other studies note (for instance, Hemphill and Carpenter 2016), alternative forms of regulation that are less restrictive about employment may prove to be beneficial in the absence of licensing policy. Such alternatives include certification, registration, other government regulation (for example, public inspections or laws prohibiting deceptive trade practices), or private options (for example, consumer review websites or market competition). However, a decision to opt for alternative regulation would ideally be informed by analysis that helps assess the benefits and costs of the alternative(s), such as that conducted by this report and other studies.

Policy Implications for Licensing Qualifications: Potential Addition and/or Removal

For occupations in which both labor market costs and product market benefits are likely low (or high), policies should consider a combination of licensing qualifications that better maximizes product market benefits and minimizes labor market costs.

For these occupations, while there is arguably enough reasoning to justify the existence of licensing policy, it is unclear whether the chosen set of licensing qualifications is best suited to maximize product market benefits and minimize labor market costs. Thus, consideration of an alternative set of qualifications seems applicable. For instance, it may be advisable to pursue greater use of qualifications with likely links to worker skills (such as minimum thresholds for school grade) and pursue lesser use of qualifications with questionable links to worker skills (such as fees).

Within New England, there are a few recent examples of licensing policy reforms that were adopted for occupations in these two quadrants of the policy matrix. In Connecticut before 2019, massage therapists needed 500 classroom hours. But in 2019, the qualifications were changed to require 750 classroom hours and 60 hours of unpaid supervised clinical/internship work.²¹ Likewise regarding massage therapists, the successful passage in 2020 of Vermont Senate Bill 220, Act No. 178, introduced licensing in the state for that occupation. In Rhode Island in 2017, an Act of Senate Bill 194 was passed to reduce the hours requirement for cosmetologists from 1,500 hours to 1,200 hours. Lastly, in New Hampshire prior to 2017, the cost of an emergency medical

19 "Animal Control Officer Trainings," Maine Department of Agriculture, Conservation, and Forestry, accessed August 28, 2023.

20 "Memo of Clarification: Dental Assistant Letter of Intent," Massachusetts Bureau of Health Professions Licensure, accessed August 30, 2023.

21 Connecticut Substitute House Bill No. 5163: Public Act No. 18-168.

technician license was \$70. However, in 2017, applicants in the state were required to submit to a criminal background check that costs \$48.25. Combined with higher national fees, the resulting total fee is currently \$146.25.²²

The reform in Connecticut is aligned with policy matrix guidance for that occupation, as a qualification likely related to worker skills was increased. However, the New Hampshire and Vermont reforms are not aligned with matrix guidance, as a qualification with an unclear link to worker skills was increased in one case, and licensing policy was introduced in the other case. The Rhode Island reform decreased a qualification that is likely linked to worker skills; thus, it does not align with matrix recommendations either. Again, case-specific circumstances could support the policies that were pursued even though they do not align with policy matrix guidelines. Nevertheless, such cases would seem to be appropriate for additional policy assessment.

Policy Implications for Licensing Existence: Potential Addition

For occupations in which labor market costs are likely low and product market benefits are likely high, policymakers should consider retaining existing licensing policy or, absent such policy, remain open to establishing licensing or less restrictive policy alternatives if the case for improved consumer protection is sufficiently compelling.

For such occupations, there may be sufficient justification to warrant the existence of licensing policy or, if comparably evaluated, alternative forms of regulation (for instance, certification, registration, other government regulation, or private options) given good outcomes in both of the markets that are key to assessing policy efficacy. Within New England, no recent applicable licensing policy reforms have been adopted for occupations in this quadrant of the policy matrix. However, there remains scope for future reforms that could be guided or assessed using the matrix.

22 "New or Lapsed/Re-applying Licensing Process," New Hampshire Bureau of Emergency Medical Services, accessed August 29, 2023. *NREMT 2015 Fall Newsletter* and "NREMT Part 3—Certification Process," National Registry of Emergency Medical Technicians, accessed August 29, 2023.

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Appendix

Table A-1

All Designations for the Policy Matrix of Occupations
New England, 2015–2022

Labor: Most Costly Product: Least Beneficial	Labor: Least Costly Product: Least Beneficial	Labor: Most Costly Product: Most Beneficial	Labor: Least Costly Product: Most Beneficial
Animal Control Officer	Animal Trainer	Barber	Carpenter/Cabinet Maker Contractor (Commercial)
Dental Assistant	Bartender	Bill Collection Agency	Drywall Installation Contractor (Commercial)
Door Repair Contractor (Commercial)	Conveyor Operator	Childcare Home, Family	Earth Driller, Water Well
Forest Worker	Crane Operator	Coach, Head (High School Sports)	Fisher, Commercial
Funeral Attendant	Floor Sander Contractor (Commercial)	Cosmetologist	Glazier Contractor (Commercial)
Interpreter, Sign Language	Home Entertainment Installer	Emergency Medical Technician	HVAC Contractor (Commercial)
Locksmith	Insulation Contractor (Commercial)	Gaming Cage Worker	Iron/Steel Contractor (Commercial)
Taxi Driver/Chauffeur	Log Scaler	Gaming Dealer	Mason Contractor (Commercial)
Teacher Assistant, Non-Instructional	Optician	Gaming Supervisor	Pipelayer Contractor
Upholsterer	Painting Contractor (Commercial)	Massage Therapist	Sheet Metal Contractor, HVAC (Commercial)
	Paving Contractor (Commercial)	Pest Control Applicator	
	Weigher	Preschool Teacher, Public School	
		Security Alarm Installer	
		Security Guard, Unarmed	
		Slot Supervisor	
		Travel Guide	

Source(s): 2015–2022 Job Openings and Labor Turnover Survey data, 2015–2022 Current Population Survey data, Carpenter et al. (2017) and Knepper et al. (2022) data, and author’s calculations.

Note(s): Occupation names (48 in total) reflect job titles in Knepper et al. (2022). A “Most Costly” or “Least Costly” designation for the labor market is determined by which industries at the national level have at-or-above-median or below-median, respectively, values of the ratio of job vacancies-to-unemployed workers. Occupations are mapped to industries by which industry accounts for the majority or plurality of workers in the occupation using the entry-analysis sample. In the sole case of a tie, the “Home Entertainment Installer” occupation is manually assigned to the construction industry rather than the wholesale and retail trade industry. A “Least Beneficial” or “Most Beneficial” designation for the product market is determined by which occupations at the national level are licensed in an at-or-above-median or a below-median number of states on average based on licensing policy data for 2017 and 2022. Occupations are designated into the appropriate policy matrix quadrant based on their applicable assignments to the labor market and product market. Any occupation not licensed in at least one New England state in 2022 is dropped from the matrix.

About the Author



Osborne Jackson is a senior economist with the New England Public Policy Center. Jackson's research focuses on labor economics and urban and regional economics, with particular interest in immigration, discrimination, education, and crime. His work has covered topics such as the impact of immigration on native college enrollment and how discrimination might operate on the supply side of the labor market. Jackson has also given presentations at various academic meetings, including annual conferences of the American Economic Association and the Society of Labor Economists. Before joining the Federal Reserve Bank of Boston in 2015, he was an assistant professor of economics at Northeastern University. Jackson earned his AB in economics from Harvard University and his MA and PhD in economics from the University of Michigan.

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New England Public Policy Center
Federal Reserve Bank of Boston
600 Atlantic Avenue
Boston, MA 02210

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