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Testing Licensing and Consumer Satisfaction for Beauty Services in the United States
in **Grease or Grit?: International Case Studies of Occupational Licensing and Its
Effects on Efficiency and Quality**

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Grease or Grit?

International Case Studies of Occupational Licensing and Its Effects on Efficiency and Quality

Morris M. Kleiner
Maria Koumenta
Editors

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Testing Licensing and Consumer Satisfaction for Beauty Services in the United States

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Occupational licensing varies widely in the United States, with some occupations heavily licensed in one state and not licensed at all in others. The barriers to labor market entry created by licensing are often defended on the grounds of protecting public health and safety. However, because licensing is required for a multitude of occupations, it becomes more difficult to determine whether licensing achieves its intended objectives. Public health and safety also may be framed as quality, where licensing requirements protect consumers from dishonest or unqualified businesses. Consumer satisfaction, as measured through consumer ratings, provides a window into understanding the link between licensing and quality. This chapter examines licensing and quality for occupations in the beauty services industry using publicly available ratings data in the United States.

This chapter adds to the literature by examining licensing's effect on quality in two occupations related to beauty services: makeup artists and shampooers. Importantly, these occupations are not licensed in every state. This policy variation means we can study the effect of having more or fewer licensing requirements, such as the amount of licensing fees or licensing exams, and the effect of having licensing at all. Studying the depth of licensing is helpful when considering the effect of increasing (or decreasing) specific requirements, whereas studying the breadth of licensing is helpful when considering the effect of passing (or repealing) different licensing requirements.

To study the effect of licensing, I compare the ratings of businesses in licensed occupations (makeup artists and shampooers) with the ratings for an interesting but comparable unlicensed occupation (pet

groomers). Pet groomers also shampoo, cut, style, and alter their clients' appearance. Pet groomers may work with dogs, cats, other household pets, and even larger animals. Importantly, the pet has a proxy for reporting quality in the form of the person who paid for the pet grooming. Pet grooming certification is available in most states, but the occupation is not licensed in any of the states in this study. I use the publicly available business ratings from the Yelp Open Dataset and the License to Work licensing dataset (Carpenter et al. 2017) to estimate the effect of licensing on quality across these occupations.

BACKGROUND

Approximately one-fifth of the U.S. workforce now requires a license or certificate to work in their occupation, compared with 5 percent in the 1950s (Kleiner and Krueger 2013). Data from the 2019 U.S. Current Population Survey estimates that nearly 22 percent of all employed workers need a license, and nearly 23 percent of workers in the "Other services" category, which includes personal beauty services, require a license. Licensing is often associated with higher consumer prices, a fall in the labor supply, and higher profits for licensed providers (Dorsey 1983; Hogan 1983; Kleiner 2000; White House 2015).

Licensing also generates rents, which are earnings and revenue above the competitive market level, for workers in those occupations. Cosmetology licensing generates annual rents of about \$1.7 billion (Adams, Jackson, and Ekelund 2002), while barber licensing increases barber earnings between 11 and 22 percent (Timmons and Thornton 2010). Licensing also can have a strong effect on immigrant communities. For example, higher licensing for manicurists reduced the number of Vietnamese manicurists by nearly 18 percent and led to community dispersion during the end of the twentieth century (Federman, Harrington, and Krynski 2006).

Legislatures and courts cite quality and consumer safety rationales when passing and upholding occupational licensing, as in *Meadows v. Odom* (2003) and *Vong v. Sansom* (2009) (Theiss 2011). Research on the impact of licensing on quality remains an important field of study. Licensing could potentially lower quality as suppliers face less compe-

tion, especially if consumers face asymmetric information or if reputational effects are weak (Leland 1979). The benefits of higher licensing also may generate higher prices for consumers and greater returns to the licensed workers as competition is restricted (Pagliero 2011). These restrictions may come at the cost of pricing other consumers out of the market (Carroll and Gaston 1983; Shapiro 1986). A major barrier to empirical research testing the link between licensing and quality has been the lack of available quality metrics across the more than 800 occupations licensed in at least one state (Kleiner and Krueger 2013).

There is some empirical evidence on the link between licensing and quality. Dentistry historically is a licensed profession, but more stringent licensing requirements were not found to improve dental outcomes, as evaluated with statutory data on licensing from 1960 to 1994 (Kleiner and Kudrle 2000). Recent evidence from online platforms shows that more stringent licensing does not improve quality for residential home services, as measured by consumer ratings, but that it does reduce competition and increase prices (Farronato et al. 2020). Licensing also may not affect quality in the same way across income groups. Child care licensing reduced the number of providers in low-income neighborhoods, estimated with data from 1987 to 2000, while increasing the quality of providers in high-income neighborhoods (Hotz and Xiao 2011), which represents a welfare transfer from low-income to high-income neighborhoods. Floral licensing, with florists rating floral arrangements, also did not significantly affect product quality in a 2010 test (Carpenter 2011, 2012). Similarly, I find that higher licensing requirements generally do not have a positive association with higher ratings. Higher licensing fees are negatively associated with ratings, with statistically significant results. The association between ratings and higher requirements for more education and experience is negative and statistically significant, but not economically large. Requiring more licensing exams is statistically significant for some subsamples; the association is negative for makeup artist licensing but positive for shampooer licensing. I also find that the breadth of licensing generally has significant negative effects on ratings, ranging from the economically small to changes in whole ratings for a business. I find that makeup artist licensing has a positive effect on quality for businesses with the largest number of reviews, but shampooer licensing has a negative trend for all businesses.

USING THE RATINGS AND LICENSING DATASETS

Using the Yelp Open Dataset

The challenge to estimating quality for beauty services first arises from the availability of data on service quality. Unlike in education (teachers) and health care (doctors), there are few ways to check the quality in beauty service industries. This study employs the publicly available business ratings data from the Yelp Open Dataset to estimate the effects of licensing on quality, using business ratings as a measure of quality via customer satisfaction.

Publicly available Yelp business ratings have been used in studies on reputation, business responsiveness, and even hospital care. They have also been used to improve hospital care as a supplement to traditional patient surveys (Bardach et al. 2013; Ranard et al. 2016), as well as to evaluate the impact of local economic policy (Glaeser, Kim, and Luca 2017) and gentrification (Glaeser, Kim, and Luca 2018). Business ratings can signal expected quality to consumers and signal information about the quality of their competitors to firms (Luca 2016). Yelp ratings have also been found to accurately measure quality as estimated by other sources (Luca 2016). The social networks of Yelp users have been used to estimate the effect of in-network recommendations, with social network friends being 67 percent more likely to visit the same restaurant within a year (Teng 2019).

There is also evidence that businesses change their behavior in response to public ratings, suggesting that firms believe consumers rely on ratings (Gergaud, Storchmann, and Verardi 2015; Luca 2016). Yelp prohibits businesses from paying for reviews or removing reviews. However, businesses offering customers incentives in exchange for good reviews could potentially influence their rating, so I test the sensitivity of the results by restricting businesses by their number of reviews. It is important to account for how many reviews a business has because the number of reviews in the sample varies considerably. For example, some businesses have as few as 3 reviews and some have over 600. The average rating for a business with only 10 reviews would be more influenced by the removal of a particular review, or the presence of a single one-star or five-star review, than the average rating for a business with

600 reviews. The number of reviews by quartile groups for the analysis samples is also discussed later in the chapter.

Organizing the Ratings Data

The ratings data were downloaded in February 2020 and exported from Python to a CSV file. Stata 16 was used for all data analysis. The original dataset includes 209,379 unique businesses with information on the business ID, name, location, average rating, number of reviews, whether or not the business is open, and the industries in which it operates. There is one observation and rating for each business. Average ratings are coded on a scale of one to five stars with half-star points. Ratings cannot be broken down over time, although the number of reviews captures information about how established the business is, for example, by age or reputation. The data include businesses with at least 3 reviews. Location data include the business' address, city, state, postal code, and latitude and longitude. The industry data include a list of industries for the business; for example, a barbershop may be cross-listed under both hair salons and men's hair salons.

To identify the businesses that face licensing requirements for makeup artists or shampooers, as well as businesses that offer pet grooming, I identified businesses using the industry string variable. Makeup artists may work independently or in salons, and the industry variable includes a separate identification for makeup artists. I did not include permanent makeup services, which is a separate service. Shampooers work in salons. To minimize potential errors from businesses that primarily provide hair styling, I restricted the sample for shampooer licensing to businesses listed under hair salons. Pet groomers may work in a variety of pet-service-related businesses, but the industry variable includes a separate identification for pet groomers.¹

In addition, I rescaled the five-star average rating variable to a nine-point ordinal scale for regression analysis, i.e., one star is equal to one on the ordinal scale, but one-and-a-half stars is equal to two on the ordinal scale, two stars is equal to three on the ordinal scale, etc.

OCCUPATIONAL LICENSING DATA

There is often frequent overlap in the services provided in beauty salons, all of which may face licensing requirements. For example, a beauty salon may employ a cosmetologist, an esthetician, a makeup artist, a shampooer, a waxing specialist, and an eyebrow threader. Workers in each of these specialized occupations can face licensing requirements, although some statutes are now being struck down on a state-by-state basis (Sibilla 2020). In other cases, states are trying to expand requirements (Herbert 2018; Ziv 2020). Although barbers and cosmetologists are universally licensed in the United States, makeup artists are licensed in 41 states and shampooers are licensed in 37 states (Carpenter et al. 2017). According to the 2017 U.S. Census, there are an estimated 78,887 beauty salon establishments in the United States, with \$22.6 billion in revenue and 432,037 employees.

This study uses state occupational licensing requirements from the License to Work dataset (Carpenter et al. 2017). The dataset includes licensing requirements for five categories across all 50 states and D.C. for 102 commonly licensed occupations. The five categories in the dataset are licensing fees, requirements for education and experience in days, the number of state-required licensing exams (both practical and written), the minimum school grade, and the minimum age requirement. I focus on the first three categories in this study, as minimum school grade and age requirements most often correlate with high school graduation and the age of majority. I also use the log licensing fees for the analysis.

Makeup artists apply cosmetics to the face or other exposed body areas in order to alter an individual's appearance; they are licensed in 41 states. The occupation is ranked as having the fifty-eighth most burdensome licensing requirements and as being the twenty-eighth most widely and onerously licensed occupation (Carpenter et al. 2017). Louisiana and Nevada specifically license makeup artists—the other 39 states license makeup application under the scope of licenses administered by cosmetology boards (Carpenter et al. 2017). On average, makeup artist licensing requires \$169 in fees, 134 days of education and experience, and successful completion of two licensing exams. Wisconsin requires

the most licensing fees in this sample, at \$391, and Illinois requires the most days of education and experience, with 175 days.

Shampooers shampoo and rinse customers' hair and are licensed in 37 states. The occupation is ranked as having the forty-fifth most burdensome requirements and as being the thirty-second most widely and onerously licensed occupation. Of the 37 states that license shampooers, Alabama, Louisiana, Nevada, New Hampshire, South Carolina, Tennessee, and West Virginia specifically license shampooers. The other 30 states license shampooing under the scope of licenses administered by barbering and cosmetology boards (Carpenter et al. 2017). On average, shampooer licensing requires \$130 in licensing fees, 248 days of education and experience, and successful completion of two licensing exams. Wisconsin requires the most licensing fees in this sample at \$391, and Ohio requires the most days of education and experience with 280 days.

MERGING THE DATASETS

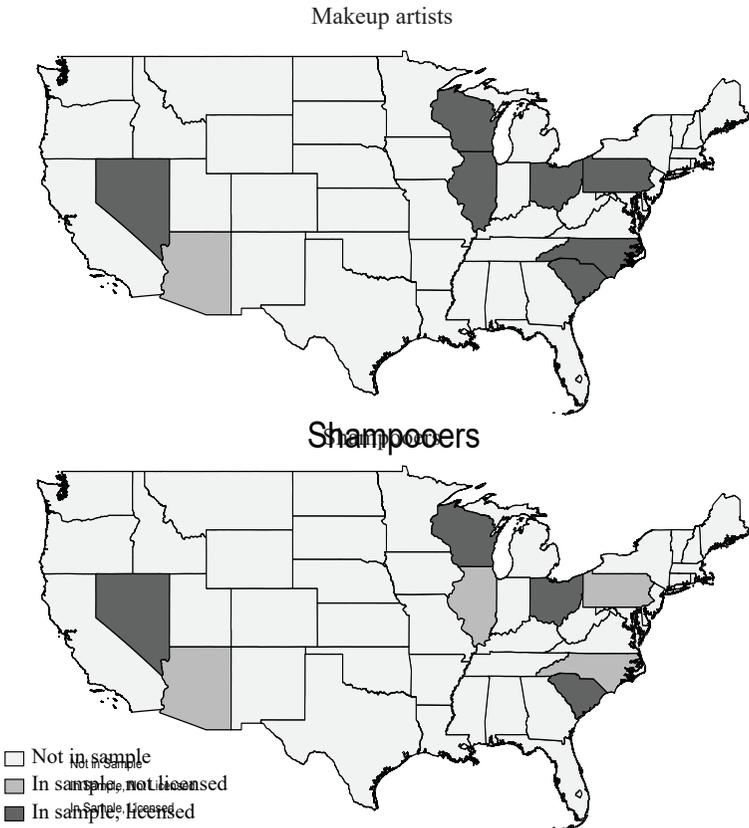
I first restricted the ratings data to observations that included all variables used in this analysis. I then identified the county for each business using the latitude and longitude variables and the 2019 TIGER county shapefiles and merged in the estimated 2019 county population data, all from the U.S. Census Bureau. State identifiers from the Census Bureau were then used to merge the consumer ratings data with the Carpenter et al. (2017) licensing requirements data. Separate files were created for the makeup artist and shampooer samples. In the second part of the analysis, which includes a modified difference-in-difference regression approach, I included pet groomers as an unlicensed comparison occupation for both makeup artists and shampooers. The final panel dataset of all three occupations included 7,224 businesses in eight states (Arizona, Illinois, North Carolina, Nevada, Ohio, Pennsylvania, South Carolina, and Wisconsin).²

METHODOLOGY

Identifying Treatment and Comparison States

After the sample of ratings and licensing requirements were merged, I identified the states that require any licensing for makeup artists and the states that require any licensing for shampooers. Figure 7.1 shows

Figure 7.1 States by Sample and Licensing



NOTE: There are 1,430 observations in states which require licensing for makeup artists and 574 observations in states which do not. There are 2,117 observations in states which require shampooer licensing and 4,197 observations in states which do not.

the state licensing maps for makeup artists and shampooers. The eight states in the sample are located across the four U.S. Census Regions. There is one state in Census Division 2 – Middle Atlantic (Pennsylvania); three states in Census Division 3 – East North Central (Illinois, Ohio, and Wisconsin); two states in Census Division 5 – South Atlantic (North Carolina and South Carolina); and two states in Census Division 8 – Mountain (Arizona and Nevada). Although the original dataset does not include all 50 states, and states are further restricted to businesses in the study occupations, the final dataset still includes a dispersion of states across the country.

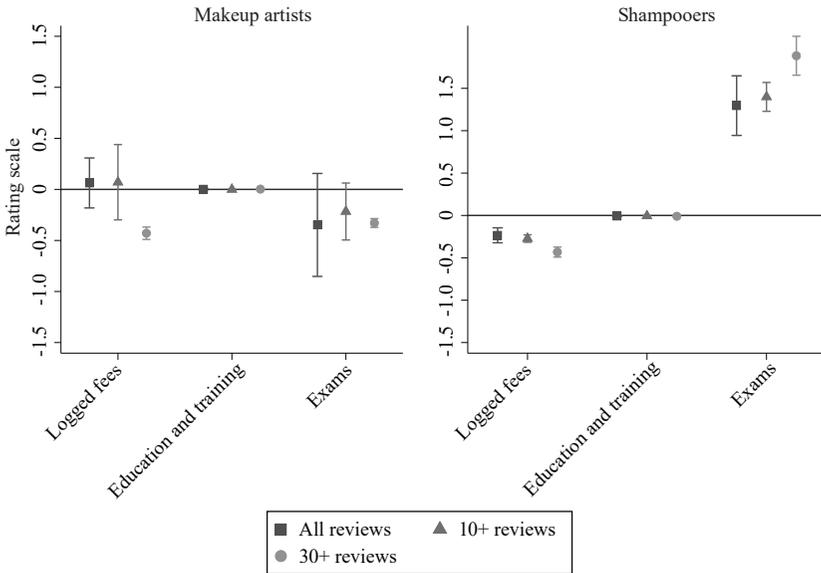
Identifying the Distribution of Ratings by the Number of Reviews

The ratings data also report the number of reviews for each business. As the number of reviews may capture unobserved information about a business, such as the size of the customer base and whether the business is new, I restrict samples of businesses by the number of their reviews. I first compared the results of using all businesses to the results of those with at least 10 reviews, and then at least 30 reviews.³ I also split the businesses into quartile groups with both lower and upper bounds based on the number of reviews. This method organizes businesses into similar groups by the number of their reviews, relative to everyone else in the sample.

THE EFFECT OF THE DEPTH OF LICENSING AND RATINGS

I first use a linear regression to estimate the relationship between ratings and the depth of licensing requirements. I only consider makeup artists and shampooers in this analysis and analyze each occupation separately. I estimate the relationship between the outcome of the scaled rating and the independent variables of logged licensing fees, education and experience requirements in days, and the number of licensing exams.⁴ Figure 7.2 reports the results for the relationship between licensing requirements and ratings. Smaller confidence interval bands around the coefficient estimate represent higher degrees of statistical significance.

Figure 7.2 Estimates for the Level of Licensing on Ratings



NOTE: Estimates were calculated using basic linear regression with standard errors clustered by county.

SOURCE: Data are publicly available business ratings from the Yelp Open Dataset and the 2017 License to Work dataset.

Requiring more licensing does not have a positive significant association with higher business ratings for makeup artists. When the sample is restricted to businesses with at least 30 reviews, there is a significant negative association for higher logged licensing fees of (-0.43 ± 0.02) and for more licensing exams (-0.33 ± 0.02) . The estimates for education and experience were positive and significant but not economically different from zero. This suggests that licensing imposes costs on makeup artists and their customers without increasing quality. For example, increasing licensing fees by 5 percent would be associated with about a whole star reduction in a business rating, such as from three stars to two stars.⁵

The estimates for the association between ratings and shampooer licensing indicate a significant negative association between higher logged licensing fees for all three samples, with estimates between

$-0.23 (\pm 0.04)$ and $-0.43 (\pm 0.03)$. In contrast, there is a positive significant association for licensing exams for all three samples, with estimates from $1.3 (\pm 0.17)$ and $1.89 (\pm 0.10)$. The estimates for education and experience were negative and significant but not economically different from zero. In this case, the costs from licensing are partially offset by the quality gains from licensing exams, although there are still quality losses from higher licensing fees.

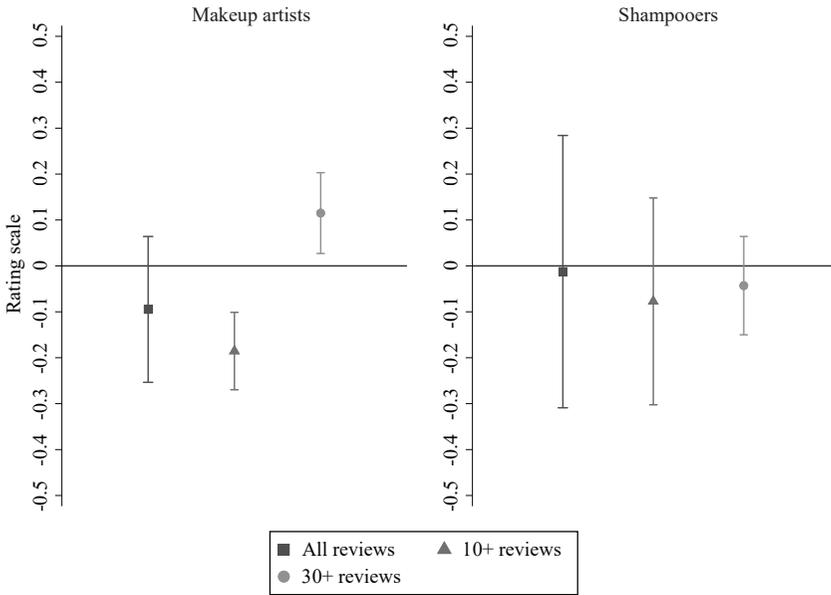
THE EFFECT OF ANY LICENSING ON RATINGS

Next I estimate the relationship between ratings and the presence of licensing requirements. I estimate the effects of licensing by comparing the ratings for makeup artists (both licensed and unlicensed) and shampooers (both licensed and unlicensed) with the ratings for pet groomers, who face no licensing requirements in the sample. I identify whether businesses are in states that require licensing for their occupation and estimate the effect of licensing on ratings using these characteristics.⁶

Figure 7.3 reports the effect of licensing on quality, presented by the minimum number of reviews for businesses. The effect of licensing on ratings for makeup artists is negative for the sample with all businesses and those with at least 10 reviews, at which point it becomes significant (-0.19 ± 0.04). In contrast, the effect of licensing on ratings for businesses with at least 30 reviews is positive (0.12 ± 0.04). However, both of these effects are economically small, such that requiring any licensing affects the rating by less than a full point on the ordinal scale. The effect of licensing on ratings for shampooers is similarly small, negative, and not significant across all three samples. At best, this suggests that licensing has no general positive effect on quality.

Figure 7.4 reports another test on the effect of licensing on quality, presented by quartile groups for the number of reviews for businesses.⁷ I include results for the full sample as before, as well as the results of a restricted sample. The full sample for makeup artists includes the following number of reviews by group: Group I (3–5 reviews); Group II (6–11); Group III (12–28); and Group IV (29–646). The full sample for shampooers includes the following number of reviews by group: Group I (3–5 reviews); Group II (6–9); Group III (10–23); and Group

Figure 7.3 The Effect of Licensing on Ratings, by Number of Reviews

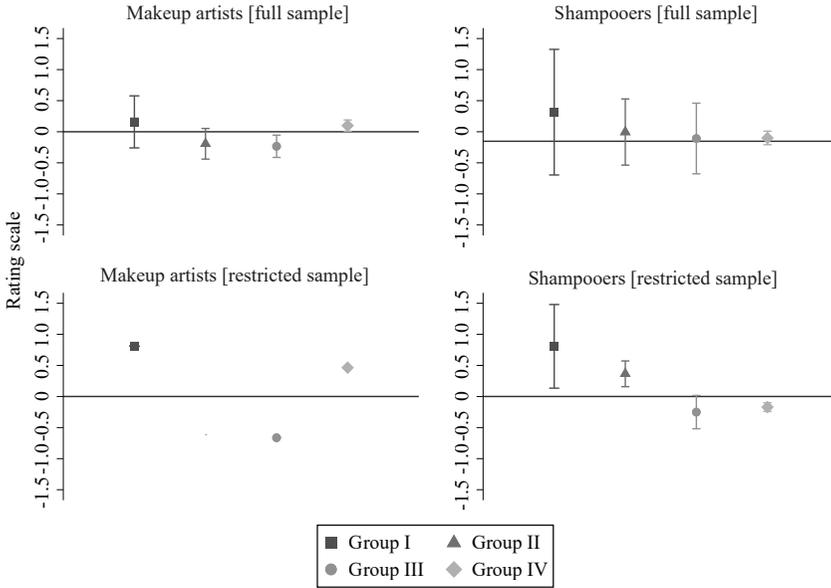


NOTE: Estimates were calculated on the scaled rating using a difference-in-differences linear regression with standard errors clustered by county.
 SOURCE: Data are publicly available business ratings from the Yelp Open Dataset and the 2017 License to Work dataset.

IV (24–649). The restricted sample for makeup artists includes the following number of reviews by group: Group I (3–6 reviews); Group II (7–15); Group III (16–43); and Group IV (44–646). The restricted sample for shampooers includes the following number of reviews by group: Group I (3–5 reviews); Group II (6–10); Group III (11–26); and Group IV (27–649).

Of the 41 states that license makeup artists, Nevada grants a specific license for the occupation, and of the 37 states that license shampooers, Nevada and South Carolina similarly grant a specific license (Carpenter et al. 2017).⁸ Because the cross-licensing from cosmetology may affect the results, I tested the findings by restricting the samples to states that either did not license the occupation and those that specifically grant a

Figure 7.4 The Effect of Licensing on Ratings, by Review Quartile Group



NOTE: Groups I to IV represent the quartile groups by the number of reviews for businesses. The restricted sample drops states which license makeup artists or shampoos under cosmetology from the treatment group. Estimates were calculated on the scaled rating using a difference-in-differences linear regression with standard errors clustered by county.

SOURCE: Data are publicly available business ratings from the Yelp Open Dataset and the 2017 License to Work dataset.

license to the occupation. Pet groomers are still used as the comparison occupation. The results are similar to the previous tests of the effect of licensing on quality, with significant positive effects for makeup artists with few (Group I) and many (Group IV) reviews and negative effects for those in the midrange (Groups II and III). The results for shampoos follow the same trend as in the full sample; however, the results are statistically significant for Groups I, II, and IV.

DISCUSSION

I find that licensing requirements, either by depth or breadth, do not significantly increase quality through the ratings measure of consumer satisfaction. I do find evidence that licensing sometimes has a negative effect on quality—this result is clearer when businesses are separated by the number of reviews. At best, licensing does not seem to measurably increase quality across the board or for all businesses, even within the same occupation. At worst, licensing barriers reduce quality while also imposing entry barriers for workers and higher costs for consumers.

The number of reviews for a business can significantly affect its average rating, especially when comparing businesses with very few reviews to those with many. Therefore, the number of reviews serves as a useful way to differentiate and group businesses by review size. This study finds that licensing increases quality for makeup artists with very few or very many reviews. The results for shampooer licensing also follow a negative trend across the distribution, which is even more interesting when considering that shampooers are often licensed with cosmetologists, who are universally licensed. Considered together, licensing may be reducing average quality for the average licensed business.

However, not all types of licensing requirements had the same effect. Licensing exams may verify that applicants actually meet a quality threshold, whereas licensing fees would instead impose a financial threshold. Education and experience surprisingly seem to have no economically significant effect on quality, because although the results are statistically significant, the magnitude effect on ratings is indistinguishable from zero. Despite makeup artists and shampooers having to complete hundreds of days of education and experience, it has not led to measurably higher quality. Pet groomers, after all, similarly stand on their feet much of the day and shampoo and style their client's appearance. If licensing requirements for human beauty services are not leading to higher-quality services than those of unlicensed pet beauty services, it is perhaps worth evaluating the costs of licensing against its promised benefits.

Ultimately, the major finding is that licensing does not seem to reliably increase quality, as measured by consumer ratings. This result may not be surprising, given that many businesses are grandfathered

into new licensing requirements (Han and Kleiner 2021), which raises further questions about the efficacy of licensing in raising quality or protecting public health and safety. However, the results for beauty service occupations are new, and given the prevalence of beauty service licensing requirements, relevant to policy reform. Further research on this subject is warranted as more data on changes in licensing over time becomes available.

There are some limitations to this study. Businesses were matched as closely as possible with occupational licensing requirements, but given cross-licensing within beauty service occupations, the estimates in this study may underestimate the effects of licensing on quality. The study also cannot control for unobservable changes over time, either from changes in a business' rating over time or changes in licensing requirements. I also cannot tell if there are unlicensed businesses in my sample that are evading licensing requirements in their state. However, there are strong incentives for producers outside the legal market to avoid publicity. Also, there is no way to determine if businesses select on licensing requirements in a state based on the quality of service they intend to produce. Some of these challenges are common to licensing studies and studies that use the Yelp Open Dataset.

OPPORTUNITIES FOR LICENSING REFORM

In spring of 2020, as states began shutting down social and economic activity in an effort to curb the spread of COVID-19, they also began waiving requirements and expanding scope of practice for healthcare workers (Timmons, Bayne, and Norris 2020). Proponents of licensing argue that the regulation protects the public health and safety, and yet during a pandemic, states prioritized fast-tracking and waiving licensure requirements, expanding scope of practice, and recognizing out-of-state licenses for health care services. Regulatory reforms to other sectors also emerged, such as allowing customers to order alcohol with their food delivery, as states recognized businesses were struggling to stay open (Gonzalez 2018). At the same time, many beauty salons, including hair salons and nail salons, waited months longer to reopen (Sandler 2020).

Licensing reform for beauty services is not a minor undertaking or one without high stakes for practitioners. In 2020, New York State legislators advanced a bill that would mandate a new shampoo assistant certificate. Prospective shampooers would have to complete a minimum of 500 hours of the required 1,000 hours in a licensed school, pay a fee, and would be subject to a civil penalty of \$500 for the first violation and \$1,000 for subsequent violations (Ziv 2020). The bill also includes the fiscal impact and notes that the licensing requirement would generate revenue for the state in the form of licensing fees and civil penalties, which may raise questions about the motivation behind such requirements. State regulatory agencies are being presented with new opportunities to reform occupational licensing and increase access to labor markets, which many states did for health care workers early on in the COVID-19 pandemic.

Instead of increasing licensing requirements, states could recognize licenses that were granted by other states. States could also engage in licensing reciprocity agreements, which allows for mutual recognition of licenses from other states. These reforms could facilitate labor mobility and encourage new business at a time when such opportunities are desperately needed. State policy reform could also address the stringency of the occupational licensing requirements for beauty services, including makeup artists and shampooers. States could delicense the occupation or relax the requirements. Forty-one states license makeup artists and 37 states license shampooers, including those that license the occupations as part of cosmetology. The extent of beauty service licensing across states also represents the potential for large gains from policy reform in the way of increased access to labor markets without sacrificing consumer quality.

Conventional wisdom holds that occupational licensing protects public health and safety and thus raises quality. However, research has indicated small to neutral effects of licensing on quality, and in other cases, distributional effects between low- and high-income groups (Anderson et al. 2020). The analysis here suggests that licensing can, in contrast to expectations, lower quality, especially as measured by consumer satisfaction via ratings. State policy reform that reduces licensing barriers does not have to come at the cost of lower quality for consumers. Reforming licensing requirements could encourage greater labor mobility and economic opportunity for workers while also maintaining—or even improving—the quality of services for consumers.

Notes

1. I dropped Yelp pet groomer businesses cross-listed under “Veterinarians,” as veterinarians are licensed separately. I also dropped observations that had potential mistakes in the list of the businesses’ industries, such as “Entertainment” or “Jewelry.” These cross-listings may occur because businesses are located in shopping centers or are otherwise cross-listed.
2. The original Yelp Open Dataset sample included 27 states. I restricted the sample to states that had at least 30 observations and included observations for both the licensed and unlicensed occupations.
3. Kernel density estimates for ratings were calculated using the Epanechnikov kernel function.
4. In the scaled rating, a rating of 5 stars is equal to 9 points, a rating of 4.5 stars is equal to 8 points, etc. I control for the county population and cluster standard errors by county. Estimates are reported at the 95 percent confidence level.
5. This model assumes a linear monotonic relationship between ratings and licensing. There may be diminishing marginal returns to level changes in licensing requirements that are not tested here.
6. I control for the county population and cluster standard errors by county. Estimates are reported at the 95 percent confidence level.
7. The model follows the same format as in the previous set of regressions.
8. Additional states grant specific licenses but are not in the sample.

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