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NBER Reporter

Provided in Cooperation with:

National Bureau of Economic Research (NBER), Cambridge, Mass.

Suggested Citation: Blair, Peter Q. (2022) : New frontiers in occupational licensing research, NBER Reporter, ISSN 0276-119X, National Bureau of Economic Research (NBER), Cambridge, MA, Iss. 1, pp. 5-8

This Version is available at:

<https://hdl.handle.net/10419/265483>

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New Frontiers in Occupational Licensing Research

Peter Q. Blair

When an occupation is licensed by the state, a worker must have a license to legally work for pay. For some occupations, obtaining a license can be as simple as filling out a form and paying a few hundred dollars. In other cases, obtaining a license could require passing an exam, completing years of training, or having a clean criminal record. In the United States and Europe, close to a quarter of the workforce is subject to occupational licensing requirements; by contrast only 11 percent of workers in the US are unionized.¹

Starting with Adam Smith,² then Simon Kuznets and Milton Friedman,³ economists have long theorized that licensing an occupation requires trading off a lower labor supply and higher prices against the potential for improved worker quality and customer satisfaction. Empirically quantifying the trade-offs introduced by licensing has been challenging for researchers due to a dearth of historical data linking licensing laws to labor market outcomes. In fact, it has been only seven years since the Current Population Survey began collecting data on occupational licensing.

In my work, I augment publicly available data from the Current Population Survey and the Survey of Income and Program Participation with new administrative data on licensing laws, along with proprietary data on customer transactions from a large online marketplace, to answer three empirical questions pertaining to occupational licensing. First, how much of a barrier to entry is occupational licensing? Second, how does occupational licensing impact the effectiveness of customer search on digital platforms? And third, does occupational licensing serve as a labor market signal that reduces racial and gender wage

gaps? By answering these three questions, I provide empirical results that quantify the trade-offs central to economic debate on licensing policy and licensing reform.

How Much of a Barrier to Entry is Licensing?

Because licensing laws by nature impose entry requirements, economists have long believed that licensing would reduce labor supply. Bobby Chung and I provide one of the first estimates of the impact of licensing on the supply of workers using representative national data.⁴

We start with a model of occupational choice in which workers choose their occupation based on wages, a measure of the occupation's quality, and whether the occupation is licensed. Intuitively, workers are drawn to jobs that pay higher wages, that are better quality, and for which there are lower barriers to entry. To estimate the model, we implement a benchmark in which we calculate the share of workers in each occupation in a state relative to the share of workers who choose teaching as a profession in the same state. We construct our measure of relative employment shares using the teacher benchmark because teaching is the largest occupation in most states, which eliminates the problem of benchmarking against an occupation with a tiny employment share. Ultimately, we show that the log of the relative share of workers in an occupation is a linear function of whether the occupation is licensed.

We focus our empirical analysis on adjacent counties in states that share a border. We can reasonably assume that counties sharing a state border belong to the same local labor market, such that



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In addition to his scholarly work, Blair served as a volunteer economist with the Council of Economic Advisers during the Biden-Harris presidential transition. He is an active member of his local church, where he mentors graduate students.

Blair received his PhD in applied economics from the Wharton School at the University of Pennsylvania, his master's in theoretical physics from Harvard, and his bachelor's degree in physics and mathematics from Duke University. He is the youngest of seven sons and got his start understanding markets by selling fruit and vegetables with his brothers in the Nassau Straw Market in the Bahamas.

variation in occupational licensing laws between the counties is not confounded with local labor market conditions. Since we have quasi-random assignment of licensing within a local labor market, we attribute any difference in the relative share of workers in each occupation across state boundaries between adjacent counties to the differences in licensing laws that pertain to the occupation. Using this boundary discontinuity research design, we find that when a profession is licensed, the relative share of workers in the profession declines by 27 percent, which is a large impact.

Does Licensing Cause Labor Shortages?

The reduction in the number of qualified service professions caused by occupational licensing could result in labor shortages. Alternatively, licensed professionals could take on more work. Or new technologies like digital platforms could make it easier for customers and service providers to find each other blunting the negative impact of licensing on the number of service providers. Using survey data alone, it is difficult to know which of these stories is right. Mischa Fisher and I explore these questions using proprietary data from Angi, a large online marketplace for home services.⁵

The home services industry is a fruitful setting to study the impact of occupational licensing for two key reasons. First, we observe 21 million real-time market transactions that involve customer search, which we take as a measure of consumer demand, and the identification of qualified service professionals on the platform who purchase the customer lead generated by the customer search, which we

take as a measure of labor supply. In standard survey data, one cannot typically observe supply and demand separately or in real time. Second, there is substantial variation across states in whether completing a given home service task requires an occupational license. In California, for example, north of 500 tasks require a licensed professional, whereas in Texas fewer than 100 require a licensed professional. The rich state-by-task variation in licensing requirements allows us to exploit two natural experiments to establish the causal effect of licensing on a measure of labor shortage.

Our primary outcome of interest is the “accept rate,” which measures the probability that a customer-initiated search for a service provider yields a search result in which there is at least one service professional who is willing to

unexplored margin in the literature and one that directly maps onto labor supply, since having at least one service professional who can perform the work is a necessary condition for all downstream interactions between customers and providers — e.g., choice of a provider to hire, negotiating price, customer rating of service quality.

Using a boundary discontinuity research design like the one in the first study, we find that licensing of a task reduces the accept rate by 16 percentage points from a baseline of about 60 percent. In the presence of licensing, the accept rate can drop either because the number of accepted service requests stays the same while the volume of customer search increases, or the volume of customer search stays the same and the number of service providers accepting requests declines. We find that licensing a task has no impact on the search volume for the task on the platform, but it has a large negative impact on the number of service providers who accept requests. We conclude that the reduction in the number of workers in the presence of licensing is not offset by workers taking on more work to alleviate the labor shortage.

This first research strategy can be thought of as an exploration of the impact of licensing on a labor market

that is in equilibrium. We have a second natural experiment in which we exploit a change in a licensing law covering swimming pool contractors in New Jersey. We trace the accept rate in New Jersey for service requests for pool tasks before and after the passage of the law and compare it to the accept rate for service requests in the pool category for all other states. As shown in Figure 1, in the four years prior to the passage of the law, there was no dif-

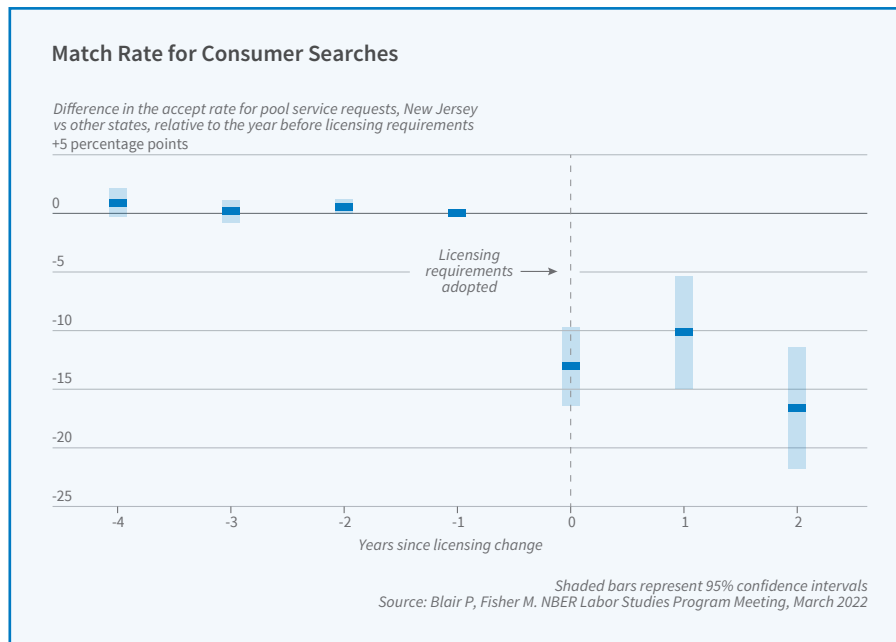


Figure 1

purchase the customer lead. We measure how much the accept rate changes in the presence of a licensing requirement. There are three excellent studies in online markets that explore the impact of licensing on outcomes that are downstream from the service provider acceptance decision; they find that licensing does not appreciably change service quality, as measured by customer ratings, or the price paid for the work.⁶ The accept rate, however, is also an

ference in the accept rate for New Jersey relative to other states. In the year the law passed there was an instantaneous reduction of 13 percentage points in the accept rate for New Jersey. In the two years after this event, this reduction persists.

Taken together with our first study, we find clear evidence that licensing both reduces the number of service professions and makes it harder for customers to find qualified workers who can provide them with service. More broadly, we find that licensing laws reduce the effectiveness of technology to improve the success of online search.

Is Licensing a Labor Market Signal That Reduces Wage Inequality?

While my prior two papers demonstrate the substantial economic costs of licensing, the next two papers in my research program explore whether the high cost of licensing contains information about licensed workers that is priced into wages in ways that reduce longstanding racial and gender wage gaps. We know from theoretical models of education as a job market signal that education is an effective labor market signal precisely because it is costly.⁷ Since licensing is also costly, it could function as a labor market signal—particularly one that reduces firms’ reliance on race and gender as proxies of a worker’s ability.

My first paper in this research agenda, which is also joint work with Chung, starts with a simple model of a labor market with two sectors—one sector with a licensing requirement and the other without.⁸ In each sector, firms set wages to maximize profits, which is the difference in expected worker output and wages. Workers choose a sector based on

the wages net of the licensing cost, which is lower for workers with higher ability. In contexts where firms have imperfect information about workers’ abilities and engage in statistical discrimination by

Our sharpest empirical test of the theory comes from showing that Black men have a larger license premium than White men only in occupations that preclude individuals with felony convictions from obtaining a license. This suggests that firms are using the license to screen Black men on felony status, given the racial disparity in felony rates. Further, we show that the license premium for Black men in occupations with felony restrictions is larger in states with ban-the-box (BTB) laws than it is in non-BTB states, as shown in Figure 2. Since these laws make it illegal for firms to inquire about a worker’s criminal past early in the hiring process, this finding is further evidence that licenses that preclude felons from gaining licenses are being used to screen Black men for a criminal past.

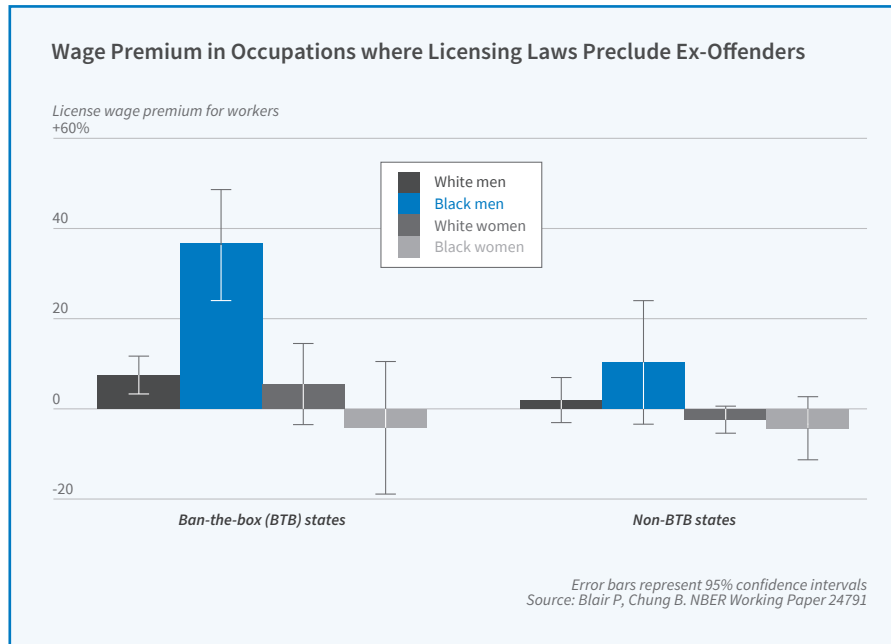


Figure 2

using demographic characteristics such as race and gender as proxies of ability, the model predicts that the wage premium for the license will be higher for workers from demographic groups that face a higher cost of licensing or face more statistical discrimination in the labor market.

In the second paper, we empirically test predictions of our theoretical model that the license premium varies by race and gender because the licensing signal is informative of worker quality and reduces the value of engaging in statistical discrimination based on race and gender.⁹ First, we create a new administrative dataset of all licensing laws in each state that preclude workers with felony convictions from being licensed. We pair this data with survey data on licensing from the Survey of Income and Program Participation that captures wage and demographic information, in addition to information on licenses without restrictions on workers with felony records. As predicted by our model, we find that the license premium is larger for Black men and women and White women than for White men.

Conclusion

Conclusion

The study of occupational licensing provides a fertile context for testing theories of how the labor market functions. The informational content of occupational licenses also makes them a useful probe of the extent to which labor market discrimination exists and explains income inequality. Work with my coauthors on licensing suggests that it has a profound impact in reducing labor supply in both online and offline markets and creating persistent labor shortages. Licensing can function as a labor market signal, playing an analogous role to education, precisely because it is costly to obtain. My work is part of a growing literature that measures the trade-offs inherent in the policy conversation on licensing reform.

Further progress in understand-

ing the impact of occupational licensing laws on labor markets will require building more linked datasets that map out real-time changes in licensing laws and making them publicly available to all researchers. Morris Kleiner, Jason Hicks, Edward Timmons, and I are doing some of this work by collecting historical time series on licensing laws in the US. Maria Koumenta and Mario Pagliero are spearheading this effort in Europe. As a profession, we need more licensing data and studies from other parts of the world, including South America, Africa, Asia, and Australia to measure the cost and benefits of licensing in many more markets. In addition to measuring the theorized impacts of licensing on labor supply in a global context, this effort will help us to understand how licensing couples to other features of a labor market to either impose greater costs on consumers and producers or to serve as an equalizing force in the presence of other labor market frictions.

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