Licensing Occupations
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Published by W.E. Upjohn Institute

Kleiner, Morris M.
Licensing Occupations: Ensuring Quality or Restricting Competition?
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The Emerging Labor Market Institution of Occupational Licensing

Not long ago the Governor of a Midwestern state was approached by a representative of a particular trade anxious to enlist the Governor’s support in securing passage of legislation to license their trade.

“Governor,” the man said, “passage of this licensing act will ensure that only qualified people will practice this occupation; it will eliminate charlatans, incompetents or frauds; and it will thereby protect the safety of the people of this state.”

The Governor, from long experience, was somewhat skeptical. “Gentlemen,” he asked, “are you concerned with advancing the health, safety and welfare of the people under the police powers of this state or are you primarily interested in creating a monopoly situation and eliminate competition and raise prices?”

The spokesman for the occupational group smiled and said, “Governor, we’re interested in a little of each.”

—Council of State Governments (1952, p.1)

As the above exchange illustrates, the potential conflict between enhancing quality and restricting competition has been at the core of the debate on the efficacy of occupational licensing during the post–World War II era. The goal of this concluding chapter is to provide a further rationale for the existence, impact, and potential policy implications of occupational licensing. This concluding analysis examines the issue of the benefits and costs of standardization, which licensing encourages through regulatory boards. I provide new evidence on how employment growth differs according to whether or not occupations are regulated by a state. I then summarize the other major empirical and theoretical contributions of the book. To conclude, I present policy implications of the analysis presented in this book, with an emphasis on different forms
of regulation that may provide most of the benefits of licensing but without many of the increased costs of this form of regulation.

The development of the regulation of occupations and trades has a long and varied history. Workers who do the same tasks have gotten together both to improve the quality of work and to restrict the number of workers who are available to work at the job since early civilization (Gross 1984). As Chapter 2 details, the development in Europe of the history of trades and guilds had the effect of limiting social mobility and restricting competition, yet it provided economic and social benefits of greater human capital investment (Scoville 1969). In the United States in the latter part of the nineteenth century, associations representing occupations were successful in getting the mechanism of the state both to establish minimum levels of education and other characteristics necessary for entry into occupations and to limit entry into the occupation. Although there is evidence to suggest that these policies were able to increase some measures of quality in the periods immediately following enactment of the laws, the long-term impact of these licensing laws was to give the occupations a monopoly on the tasks in the occupation (Law and Kim 2004). Occupational regulation has evolved largely as a state or local issue rather than a national policy, unlike the national preemption of most other labor laws.

As the opening quote of this chapter implies, there is often an implicit political economy trade-off occurring in the regulation of occupations. A precondition for licensing is the existence of a group of workers with a basic skill level, a commonality of tasks, work that has a level of substitutability with others, and a density of population that is organized in the political jurisdiction. The workers want higher wages and, because they are in skilled jobs, the consequences of those jobs being performed badly can be negative for the consumer or the community. The social deal that is struck between the workers and society is that there is some quality guarantee in return for restrictions on who can do the work, that is, weeding out the “charlatans, incompetents or frauds.” The restrictions on entry continue over time and, especially once the licensed occupation has coalesced, any pressure for substantial future increases in quality may be much weaker, but the restrictions on entry generate work and pay benefits.
EMERGENCE OF OCCUPATIONAL LICENSING

In contrast to the decline of labor market institutions and regulations, such as unions and the federal minimum wages during the latter half of the twentieth century and beginning of the twenty-first century, occupational licensing has seen a steady growth of coverage to at least one-fifth of the U.S. workforce. In contrast to unions, whose members work in industries that are declining while facing strong employer opposition, licensed occupations exist mainly in the service industries, which are growing much more rapidly than the overall economy and more rapidly than other industries, such as manufacturing (Eckstein and Nagypal 2004; Kleiner 2002). Occupation associations face little employer opposition in forming associations at work. Often employee associations are welcome within an organization because they bring about a sense of professionalism or emphasis on quality that may enhance workplace productivity. In some cases they serve as a “works council” for the members of the occupation, often discussing with management both how conditions could be improved at work and how the employees in the occupation can contribute to the economic success of the organization. By having an organized occupation group within an organization, employers can gain information about the enterprise from employees without the wage premium that unions exact at the establishment level (Freeman and Lazear 1995).

Through the use of licensing at the local, state, or national level, employers’ decisions about hiring regulated employees are taken out of competition from unregulated groups who cannot do the work by the actions of the government. Consequently, employers who hire, for example, teachers, doctors, nurses, librarians, and electricians must only employ individuals with certain credentials to do certain tasks. This results in the elimination of other options or substitutes in the labor market. Licensed occupations have been able to achieve what very few unions (except those that are allowed to have “closed-shop” labor agreements) have been able to accomplish by restricting labor supply. Employers are required to hire only persons who are members of the licensed group. Consequently, it is not surprising that there are a licensing employment impact and a wage premium.
THE BENEFITS AND COSTS OF STANDARDIZATION

One of the potential benefits of regulation is to establish a common body of knowledge or skills within the occupation as well as provide consumers with a more homogenous service than would exist without regulation. Education levels, testing, and other forms of background checks provide this standardization of the job-related quality of human resources supplied to the occupation. More recently state boards, in cooperation with occupational associations, have proscribed standard procedures that are appropriate for the occupation, such as those for dentists and dental hygienists. This process further standardizes the type of service that is given to consumers. A major argument for the licensing of occupations is that it eliminates the downside risk of seeking services from an occupation. If testing and background checks “eliminate charlatans, incompetents or frauds,” as the opening lines of this chapter imply, then consumers may be willing to pay a higher price for the service offered by occupational licensing.

A review of the body of research from experimental economics and psychology shows that consumers value the reduction in downside risk more than they value the potential benefits of a positive outcome (Kahneman, Knetsch, and Thaler 1991). The preference by consumers of the status quo or reducing risk of a highly negative outcome has been called “loss aversion,” which is an element of “prospect theory” developed by Kahneman and Tversky (1979). For example, the utility to society may be greater by minimizing the likelihood of a poor diagnosis as a consequence of going to a poor doctor because the incompetents have been weeded out as a result of licensing. Consequently, the perceived benefits of a nonstandard but potentially highly positive outcome of going to an unlicensed biomedical research scientist still may not be worth it. Using the power of the state to both limit the downside risk of poor quality care and reduce the possibility of an upside benefit may be a trade-off that maximizes consumer utility or welfare. Evidence of the acceptance of this trade-off is the growth of licensing of occupations across virtually all states during the past century. Consistent with the experimental economics research on financial theory, the risk of a loss has much greater utility than the possibility of a large gain (Kahneman, Knetsch, and Thaler 1991). The results in this literature show that the
selling price of a product that is the “possession” of an individual is much greater than the auction price or the price for which a like possession could be purchased in the market as a replacement. The avoidance of loss may be a major reason for the persuasive arguments for licensing.

The gains from an unregulated service might include potential benefits from free market competition, such as lower prices and greater innovation, without the constraints of a regulatory body such as a licensing board. This upside potential gain can be through the use of nonstandard methods or new research that has not yet been approved by the licensing agency as appropriate for the service (Rottenberg 1980). Deviations from prescribed methods of providing a service are discouraged by licensing boards and may even be found to be illegal by a state board. For example, not having a dentist on site is illegal when providing a service such as teeth cleaning. Dental hygienists are not allowed to “practice” without a dentist on site, with the “site” being defined by statute or the dental board. Although this policy protects against downside losses of finding a major problem that may require immediate attention, it reduces the ability of the hygienist to provide only the service that is most useful to the patient. Moreover, there is little leeway for the dental service industry to provide new or innovative services without being found in violation of the state licensing laws. It may in some cases be an example of the labor relations concept of “featherbedding,” in which dentists are on the premises but do little work.

Voters, through the political process, often prefer to reduce the downside of any service. The outcome of “risk aversion” comes at the expense of having the upside of any service reduced. This preference provides consumers the benefit of perceived higher quality through higher levels of regulation (Leland 1979). However, from the evidence I was able to gather, there is no overall quality benefit (measured in a number of different ways) of licensing to consumers. Consequently, the cost of regulation to society is higher prices or longer waits for a service. An additional societal cost is the reallocation of income from consumers to practitioners of the licensed occupation as well as lost output. The cost of licensing is an element that consumers should take into account as part of their evaluation of this labor market institution relative to other forms of regulation.
EMPLOYMENT GROWTH OF THE SAME OCCUPATIONS IN REGULATED AND UNREGULATED STATES

Chapter 1 noted the overall change in employment of licensed occupations relative to the workforce in the United States. Overall, the values were similar, but with the more rapid growth of service employment during the 1990s, where most individuals in licensed occupations are employed, the expectation was that employment growth would have been much higher in the regulated occupations relative to overall employment. Based on the theory and evidence in the economics of regulation, occupational licensing can reduce employment in the occupation within a political jurisdiction such as a state or city. However, by reducing “lemons” in the market, regulation can also increase the demand for the service and thereby increase employment. A more straightforward way to analyze which impact is greater is to focus on occupations that are licensed in some states and not in others. This analysis would allow an examination of the ability of the regulated states to maintain employment restrictions and the effect of the increased perceptions of quality on employment in comparison to the unregulated states. Three occupations in the censuses for 1990 and 2000 meet the criteria of being regulated in approximately the same number of states and having about the same number of workers in regulated and unregulated states: librarians, respiratory therapists, and dietitians and nutritionists.

Table 7.1 gives estimates of the employment growth for librarians, respiratory therapists, and dietitians and nutritionists from 1990 to 2000 in those states that regulate these occupations relative to those who do not. In 2000, librarians were licensed in 19 states, respiratory therapists in 35 states, and dietitians and nutritionists in 36 states. The results in the table show that for occupations that experienced declines in employment during the decade, such as librarians and dietitians, those states that license the occupations saw employment for practitioners decline at an even faster rate than those that did not regulate them. For example, librarian overall employment declined by approximately 7 percent over the decade of the 1990s, but this decline was composed of a 5.3 percent decline in the unregulated sector and a 9.2 percent decline in the regulated sector. Similarly, the overall decline in employment for dietitians and nutritionists over the decade was 9.5 percent, but the
Table 7.1 Comparing Employment Growth of Occupations in Regulated and Unregulated States

<table>
<thead>
<tr>
<th></th>
<th>Librarians</th>
<th>Respiratory therapists</th>
<th>Dietitians and nutritionists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number in occupation</td>
<td>215,680</td>
<td>200,060</td>
<td>63,560</td>
</tr>
<tr>
<td>% licensed in occupation</td>
<td>50.2</td>
<td>49.2</td>
<td>49.8</td>
</tr>
<tr>
<td>Change in employment (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unlicensed states</td>
<td>−5.3</td>
<td></td>
<td>37.6</td>
</tr>
<tr>
<td>Licensed states</td>
<td>−9.2</td>
<td></td>
<td>35.9</td>
</tr>
</tbody>
</table>

decline was 5.2 percent in the unlicensed states and 13.7 percent in the licensed states. However, for respiratory therapists, an occupation that experienced rapid growth in employment, the differences in the growth rates between regulated and unregulated states was only 1.7 percentage points.

In order to provide additional statistical rigor to the analysis, I estimated a difference-in-difference regression analysis of the impact of licensing on the employment change within occupations that have an approximately even division between licensed and unlicensed practitioners based on the estimates in Table 7.1. The approach combines the three partially regulated occupations (librarians, respiratory therapists, and dietitians and nutritionists) from 1990 to 2000 and compares the percent employment change with both fully licensed occupations (lawyers, dentists, and cosmetologists) and unlicensed occupations (economists, computer programmers, and glaziers). These occupations were selected based on availability of data in the 1990 and 2000 censuses and the inclusion of high and relatively lower levels of educational attainment. The results are presented in Table 7.2. The difference-in-difference approach gives regression estimates and compares the percent employment growth due to licensing occupations in some states and not others with the growth rates of both fully licensed occupations and unlicensed ones for each state. The overall impact across all the occupations in the sample of regulated, unregulated, and partially regulated occupations shows that licensing reduces the percentage growth rate by a statistically significant 20 percent over the 1990 to 2000 period. One interpretation of this result is that an occupation that was licensed and grew at a 10 percent rate from 1990 to 2000 would have grown at a 12 percent rate without regulation. These estimates indicate that this form of regulation serves as a barrier to employment growth within an occupation rather than enhancing the perceived quality that generates more demand for the services within the occupation, which may in turn lead to gains in wages, as shown in Chapter 4.

The basic means presented in Table 7.1 show that, for those occupations where there is a decline in the demand for their services and employment is in decline, licensing barriers may serve to further discourage new entrants into the occupation. The commonly viewed barriers to entry (e.g., additional years of schooling, licensing exams, and residency requirements) can serve to further discourage individuals
from choosing to enter an occupation in a state. Conversely, when an occupation is growing and there are higher expected returns in the form of higher pay and job security, then the licensing barriers appear to be a lesser constraint. For persons who are considering entering an occupation, these licensing barriers may be perceived as a fixed cost to be overcome by meeting the initial barriers. As occupations are growing, trade schools and universities also expand their educational programs to accommodate the growing demand for individuals in the occupation, and they are likely willing participants in the drive to regulate occupations as long as there are formal education requirements. Nevertheless, licensing seems to dampen employment growth as well as accelerate decline in employment in regulated states.

**MAJOR FINDINGS**

In this book, I have identified how occupational regulation impacts both the quality provided to consumers and the major labor market effects of this institution. Licensing usually emerges from occupational associations, like the American Bar Association, when they have the political clout and the organizational skills to lobby a state legislature and present a strong enough case for regulation. In general, this has been the trend for occupations seeking to become regulated. Occupa-

### Table 7.2 Difference-in-Difference Estimate of the Impact of Licensing on Percent Employment Change for Partially Licensed Occupations, 1990–2000

| Licensed state (percentage growth rate) | −0.20 (0.07) |
| State controls | Yes |
| All nine occupation controls | Yes |
| $R^2$ | 0.34 |
| Number of state level observations | 450 |

**NOTE:** Partially licensed occupations included are librarians, respiratory therapists, and dietitians and nutritionists. Controls included percent employment changes for universally licensed occupations: lawyers, dentists, and cosmetologists, and unlicensed occupations: economists, sociologists, and glaziers. Standard error is in parentheses.
tional licensing started to expand in the United States during the 1880s and then accelerated during the twentieth century. Following World War II, there was strong growth in the number of occupations that became licensed, but that growth has diminished as legislatures are requiring new occupations to present stronger cases on how licensing versus certification or registration of the occupation can protect the public from poor or substandard services. Legislatures are also requiring justification of the potential impact of regulation on the number of practitioners. Nevertheless, the occupations that have recently become regulated, such as crane operators in Minnesota, are not necessarily ones that will benefit the public through greater public safety.

Table 7.3 provides the key findings of this book in a summary format. A key theoretical issue is that licensing can initially provide benefits to a profession and consumers through standardization of the service by increasing the likelihood that the individuals delivering the service meet certain standards. Consequently, through their elected representatives, consumers have determined that licensing provides the highest standard to ensure that “charlatans, incompetents or frauds” will not be allowed to provide the service. The result is that other lower-quality and lower-priced services are precluded from the market.

A key numerical value provided in this book is the basic estimate of the percentage of the workforce that is covered by licensing laws. About 20 percent of the workforce is covered by licensing laws in the United States. However, this value understates the actual value because the estimate only includes occupations listed by the Department of Labor and the U.S. Census Bureau. Many states have their own occupational titles that were not included in the general listing. Further, it fails to include city and county licenses, which impact workers in the construction trades and the public safety and health fields. Nevertheless, these estimates do give a consistent measure of licensing when comparing licensing coverage across states and over time.

Using generally available sources on complaints to regulatory boards, malpractice insurance rates, and other direct quality measures, I find that there is no clear impact of licensing on overall quality, although there is some evidence that tougher licensing requirements may benefit individuals who have lower point-of-sale prices through insurance or greater access to the service. In contrast, there appears to be a positive impact for those persons working in a regulated occupation.
### Table 7.3 Major Findings of the Impact of Occupational Licensing on the Enhancement of Quality and the Restriction of Competition

<table>
<thead>
<tr>
<th>Issue</th>
<th>Key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimate of percent of workforce covered by licensing</td>
<td>Department of Labor and U.S. Census Bureau data indicate the percent of workforce covered by licensing is approximately 20 percent, a growth of 11 percent over the past 15 years.</td>
</tr>
<tr>
<td>Hypothesized benefits of licensing</td>
<td>Increased standardization of services and reduction in the perceived “loss aversion” by consumers due to poor quality service.</td>
</tr>
<tr>
<td>Evidence of the benefits of licensing</td>
<td>Some evidence that the insured and higher-income individuals gain from stricter licensing, but no measurable impact on overall quality.</td>
</tr>
<tr>
<td>Price and wage effects of licensing</td>
<td>Licensing drives up prices, and the overall wage effect relative to unlicensed occupations in cross-section data is 10 to 12 percent, but impacts differ widely based on methods, occupations, and toughness of restrictions.</td>
</tr>
<tr>
<td>Licensing and employment growth</td>
<td>Within an occupation, the employment growth rate is approximately 20 percent higher in states that do not require licensing, but impacts differ widely based on the methods and occupations.</td>
</tr>
<tr>
<td>State variations in licensing</td>
<td>Much variation in the number of occupations licensed by states and the percent of the workforce covered by licensing laws. Case studies show political spending by the occupational associations to be an important factor for who gets regulated.</td>
</tr>
<tr>
<td>Redistribution and lost output due to licensing</td>
<td>Estimated redistribution effects to regulated occupations of between $116 billion and $139 billion in 2000 dollars and lost output of $34.8 billion and $41.7 billion per year, which is less than 0.1 percent of total consumption expenditures.</td>
</tr>
<tr>
<td>U.S. and EU comparisons</td>
<td>Both the economies regulate entry, but there is often no exam beyond university or trade school to obtain a license for many of the professions in the EU. EU nations regulate prices charged and the organizational structure of the professions to a greater extent than in the United States. Wage effects for licensing are around 1 percent using cross-section estimates, but the impacts vary widely based on methods, occupations, and toughness of restrictions.</td>
</tr>
</tbody>
</table>
For example, switching to a licensed occupation from an unregulated one raises wages by 17 percentage points in comparison to switching to an unregulated occupation from a regulated one. Working in a regulated occupation raises hourly wages to about 10 to 12 percent relative to similar unregulated occupations. This value is at the lower end of the range of the union wage premium in the United States. Working in the same occupation, but in a state that does not require licensing, raises hourly wages by 4 percent relative to an unregulated state. However, working in a state with tougher licensing requirements than other states within the same occupation appears to offer no statistically significant wage premium for the occupations that were examined. Since there was no finding of overall benefits, but there were increased costs of licensing, the impact of licensing on the redistribution of earnings toward regulated occupations is approximately $116 billion and $139 billion in 2000 dollars, and lost output is between $34.8 billion and $41.7 billion per year. However, this is less than 0.1 percent of total consumption expenditures annually. This may help explain why occupations are successful in lobbying for regulation but see little public opposition.

Table 7.3 also provides summary findings of the impact of licensing in the UK, France, and Germany with comparisons to the United States. The results show that licensing has a smaller impact in the EU than in the United States. A comparison of licensed occupations with similar unlicensed ones shows that the greater the regulation of the occupations in the three EU countries, the lower the wage gap between regulated and unregulated purveyors of the service. Using a large number of occupations for the analysis in the EU, I find that there is a 1 percent wage gap between licensed and unlicensed occupations. In Europe, unlike the United States, there are many more constraints on prices charged as well as in the organizational structure of licensed occupations. In the UK this results in complaints over the wait time to get medical attention, whereas the complaints in the United States are over the prices of health care services. However, nations such as Germany are deregulating many of their previously licensed occupations, suggesting that the regulation of occupations can be reversed (Miller 2004).
PUBLIC POLICY IMPLICATIONS

Globalization and Licensing

One of the immediate implications of different licensing laws in the United States and Europe is the impact of the globalization of labor markets. Trade agreements like the North American Free Trade Agreement (NAFTA) and the international General Agreement on Trade in Services (GATS) often have labor side agreements which call for the free mobility of labor across boundaries. Since most licensing laws in the United States are focused at the state level, international agreements can be voided or at least contested through state licensing laws. On the other side of the Atlantic, the nations in the EU have national laws that provide legal mobility across countries for most occupations, except attorneys. With EU expansion, member states have instituted temporary regulations to address mobility for regulated occupations to and from the 10 additional member states (Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia) that joined the EU on May 1, 2004. Given the generally lower mobility in the EU, as well as the language barriers to moving across countries, having relaxed licensing standards across countries is not the same threat to reduced competition among regulated services that it is in the United States. As barriers to trade and financial exchanges are reduced through regional and international trade agreements, it is not surprising to also have stated policies that focus on reducing barriers to services among more-developed nations. If this is the case, then the United States will need to modify its state-focused licensing regime to provide greater consistency with the national policies for the regulation of service providers in other Organisation for Economic Co-operation and Development (OECD) nations as well as for less-developed nations.

One example of an occupation that has much at stake in international agreements is accounting, which has been a lead occupation in the GATS negotiations to reduce barriers to trade in professional services (White 1999). Many argue that the only real benefit to being a Certified Public Accountant (CPA) is that the charter allows a CPA to sign an audit opinion. Nevertheless, as large business enterprises generally have become more international, their need for more international account-
ing services has grown. Despite the considerable international presence of the major accounting firms, virtually all countries maintain various types of restrictions that impede the flow of accounting services across borders. The consequences have been higher costs, poorer service to clients, and reduced efficiency, as well as lower-quality accounting and auditing standards in many countries (White 1999).

**Policy Alternatives to Occupational Licensing**

A common refrain heard from the public upon the discussion of policy alternatives to licensing is, “I would never go to an unlicensed . . .” Licensing has evolved as the preferred option to deal with issues of the quality of service rendered by individuals in the occupations. From the public’s perspective, this means having the toughest form of regulation to protect against individuals who are potentially incompetent to perform specific tasks. If consumers have a high level of “loss aversion” relative to potential gains, then having a policy such as licensing may be optimal to avoid negative outcomes. On the other hand, weaker forms of regulation may provide consumers with many of the benefits of licensing, such as confidence that the provider of the service has met minimal levels of education and skill to perform the task, but with fewer of the restrictions on competition associated with licensing.

One such policy option is certification. It is now the second largest form of regulation in the United States, with more than 200 occupations being certified by at least one state agency (Brinegar and Schmitt 1992; Smith-Peters and Smith-Peters 1994). As detailed in Chapter 2, certification grants title (occupational right-to-title) protection to persons meeting predetermined standards. Those without certification may perform the duties of the occupation but may not use the title. This process maintains the incentives for individuals to invest in human capital but allows substitutes if consumers of the service perceive the prices rising relative to what consumers want. Another even less restrictive form of regulation is registration, which usually requires individuals to file their names, addresses, and qualifications with a government agency before practicing in the occupation. This form of regulation may include posting a bond or filing a fee with a state agency. Also, for occupations with clear employer oversight and control, such as loan officers, many occupations could move from being regulated to being unregulated.
One of the benefits of certification is that it allows consumers to choose whether to go to a practitioner who has the appropriate qualifications to call themselves a practitioner in a particular field. In addition, it provides a monitor, the government, to police the individuals in the occupation who may not have the appropriate credentials to call themselves “certified.” Unlike licensing, work can be performed by individuals who do not meet all the requirements of certification, and uncertified individuals may work in the industry without penalty from the state. This gives consumers greater choice, and if the limited case study evidence from Minnesota and Wisconsin can be generalized, this form of regulation provides similar quality benefits but may help to keep prices of services lower than with the tighter barriers to entry and mobility imposed by licensing. For those purveyors of a service who receive repeat business, and where information is shared with potential customers, licensing, certification, or registration may be unnecessary because the information about the service is widely available. Consequently, these occupations are regulated by market forces.

To what extent does either certification or registration provide the protection against “loss aversion” that many consumers and politicians say licensing gives and which may be worth the costs of granting monopoly power to an occupation? In other words, consumers respond more to knowledge about bad services than good conditions, which suggests that they respond more to information that reduces their utility than to information that increases it and is consistent with prospect theory (Kahneman and Tversky 1979). To illustrate, for an uninformed consumer that is considering brain surgery, licensing provides the guarantee that the provider of a service has at least finished medical school and taken a licensing exam. Nevertheless, a doctor who specializes in pediatrics, and had never performed major surgery, could legally perform brain surgery under most state licensing laws. Under certification, anyone who is not a certified brain surgeon could not argue that they have completed the course and passed the appropriate exams and claim to be the specialist. If they claimed to be certified and were not, they would face legal penalties determined by the state. They could, however, legally perform the operation with the patient’s consent. Under a regime of certification, the consumer of the service could have the surgery completed by either a certified brain surgeon, pediatrician, or a medical technician who has access to the latest technology on brain sur-
gergy. Information on all alternatives would be available to the consumer of the service, but medical insurance companies could put constraints on consumer decisions based on their knowledge of the procedure and legal liability issues. A central policy question for occupational licensing is to what extent the government should protect the consumer against bad decisions.

A further example involves the construction business in Minnesota, where crane operators are licensed. Construction firms that need a crane operator must use a licensed one or none at all. Under certification, only properly credentialed individuals could call themselves certified crane operators, and the state would be responsible for maintaining the list of individuals who have the appropriate skills and current knowledge for the job. However, the construction company would have the ultimate responsibility of assessing the appropriate level of skill required to do the job, and whether to choose a certified operator or someone with lesser skills. This is analogous to construction companies choosing whether or not to hire a union worker on a construction project. The union worker usually has greater skills through the attendance at union-sponsored training programs. Nevertheless, the construction company may choose to go with a nonunion worker, who has lesser skills but may work for substantially less money. The likelihood that a construction company would have the resources to search for the kind of skills required to perform the position is high. Although the question of asymmetric information is important and relevant for individuals who may not have access to the kinds of skills required to do a job, organizations like hospitals, schools, and construction firms are likely to be able to gather the kind of information to make economically rational decisions about the type of labor they require. Finally, under a regime of certification, individuals who misrepresented their education or skills still would be subject to legal penalties under fraud statutes. Yet, the consumer would have greater freedom to choose the appropriate level of skills needed to perform the task. Legal constraints on dental offices, such as mandating that dentists be on site for a dental cleaning or having dental assistants perform different work than hygienists, would not be required by law.

Organizations such as universities can use certification rather than licensing in their hiring decisions, unlike public schools. This gives universities the option of hiring non-PhDs, which is the general educational entry requirement for positions such as faculty or administrators.
Professional schools, such as business schools or schools of public policy, have the ability to hire individuals without the generally accepted qualifications because university professors are not licensed. In contrast, public schools, which require licensing for all teachers and most administrators, do not allow for the flexibility of having unlicensed "professionals."

If certification provides more choices than licensing for consumers, then why not provide just a list of qualified applicants through registration, which is the most lenient form of regulation? Although registration provides the greatest number of choices, it gives only minimal protection for consumers of services where incompetence may lead to major financial or health losses. A list of practitioners similar to those maintained by the Better Business Bureau provides some protection but has little enforcement powers beyond moral suasion. A central monitoring authority like the state, which screens potential applicants, provides greater assurance about the abilities of the individual. Without enforceable costs to violators for "title protection," little quality assurance could be provided to the public on this listing of practitioners. The cost of being removed from the list of registered practitioners without the additional legal penalties for having "inappropriate skills" or for incompetence may lead to insufficient consumer knowledge of the quality of the skill for important services. Without the legal costs imposed by "title infringement," there would be little economic incentives for honesty among service providers. Furthermore, registration may not provide sufficient protection for providers of the occupation to undertake the investments that are required to advance the field. If low-quality practitioners can claim to have the skills and expertise to perform a task, then optimal investments in human capital acquisition may not take place. Unlike registration, certification allows consumers to select only those persons who have met the "certification requirements" established by the profession or any other services, and it allows for the purchase of lower-quality service but without the "brand." The market-based alternative under certification can serve as an incentive for the professions to keep barriers to entry minimal, but meet quality standards. Certification also allows the members of the occupation input into setting entry requirements and continuing education but with the discipline established by the service market.
Recently the solar power industry debated whether to seek licensure or certification for the purveyors of its engineering services for solar powered energy. The report for the industry came to the following conclusion:

The evidence leads to the conclusion that voluntary national certification for practitioners represents the most beneficial option for the solar industry. Of the various regulatory options, only certification maintains freedom of choice for both consumers and practitioners and has the potential to provide the same quality of installation benefits as state-by-state licensure without imposing the restrictions and higher costs inherent in mandatory licensure (Parker, Bower, and Weissman 2002).

With the recent research on the institution of occupational regulation, policymakers would do well to reconsider the toughest form of regulation that creates monopolies. At the other end of the continuum, just providing a list of potentially qualified individuals with no ratings of their skill level (registration) does not provide enough information to consumers from a perceived impartial monitoring source like the government. The middle-ground of certification gives consumers more information about the training and skill of the practitioner and encourages individuals to seek greater investment in occupation-specific human capital. Moreover, it gives the consumer the ability to choose the appropriate level of expertise they require for the task, and it avoids the issue of finding the proper venue for one occupation over another in performing a task. As in the story of Goldilocks and the Three Bears, where the first one was too hot, the second too cold, and the third one was just right, certification may provide the optimal policy choice of regulation of occupations.

Nevertheless, if occupational licensing is the choice of the public as the optimal way of regulating the workforce, what are the methods to ensure that the occupations are less likely to show the monopoly face of regulation? Shimberg (1982) developed several guides both for the public and for legislators on minimizing the monopoly effects of licensing. He initially proposed many of the questions presented in Appendix A that are now central for any occupation seeking regulation in Minnesota and many other states. However, many of his recommendations on publicizing the complaint rates to licensing boards and the disposition of the complaints to include whether individuals lose their license form
a low-cost method of informing the public of the effectiveness of this institution. Moreover, Shimberg’s conclusion that licensing has “more bark than bite” is consistent with several of the findings in this book. Just as public universities have only public members on their boards of directors and generally no faculty to oversee the activities of the enterprise, it is important that licensing boards have public members nominated who have been given wide publicity as to their potential appointment so that they are open to “blogger” scrutiny. This would allow interested parties to comment on their suitability for board membership. Members of the profession would then advise the board regarding technical issues within the occupation (Broscheid and Teske 2003). Providing more public involvement, monitoring, and control of licensing may be a second best alternative to certification.

**Prospects for Further Research**

Although the estimates in this book provide an empirical examination of occupational licensing, there is a greater need to track the growth of regulated and unregulated occupations. Much like the current data effort that is used to track union membership, similar data are needed to follow the growth of occupational licensing. Asking questions in monthly or yearly samples in the CPS and NLSY would enhance analysts’ abilities to track the labor market effects of government regulation.

If one of the key issues for the public acceptance of licensing is its ability to avoid “loss aversion,” then experiments such as those in the development of prospect theory should be implemented. To what extent are consumers willing to pay for licensing if there is a perception that it reduces downside risks? How many consumers are unwilling to go to an unlicensed practitioner at a discounted price? If certification were a policy option, would there be a regulatory wage or quality premium? Evidence from experimental economics may be helpful in explaining the continuing growth of this labor market institution.

At the international level, even though the data from the United States could use much improvement, the access to EU licensing data would greatly improve the ability of analysts to examine whether labor market regulation matters across international borders. The ability to have international trade in services the way goods are traded may have
similar benefits to consumers. Moreover, can occupations move from being regulated to unregulated in the United States similar to what has occurred in Germany (Miller 2004)?

For any of these changes to take place in public policy and data collection and analysis, licensing has to appear on the radar screen of both academics and policymakers. Unlike unions, whose strike or lock-out activity engages local and national attention, policies passed by legislatures on occupational licensing are back-burner issues. Until this form of labor market regulation is shown to have large effects on public expenditures, private sector purchases, or a visible political champion in the policy arena, much of the data that are needed to further gauge and monitor this public policy issue will not be forthcoming, to the detriment of many practitioners, workers, consumers, and the public.

Notes

1. A closed-shop labor agreement means that the employer can only hire employees who are members of the union. These agreements are illegal outside the construction industry under the Taft-Hartley amendments to the National Labor Relations Act, amended (1960).

2. The Public Policy School at the University of Minnesota hired its dean in 2002 without any graduate degrees and granted him full professor status with tenure. In contrast, the Minneapolis Public Schools made its superintendent, who had a PhD in education, take required education classes in Minnesota to become a fully licensed teacher/administrator in the state in order to remain in her position (Brandt 2005).