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LICENSING, MARKET ENTRY REGULATION

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Abstract

Licensing describes the set of regulations that limit service provision to individuals or entities who meet state-established criteria. Despite claims that licensure increases service quality, the effect of licensure on consumption quality is ambiguous. That fact that service providers actively promote licensing has led to the suspicion that licensing benefits these groups at the expense of providers of competing services or consumers. Also at issue is whether information asymmetries or agency costs are strong enough to warrant government intervention. Many believe that, in the absence of government intervention, markets would generate sufficient information through reputation and other mechanisms to meet the needs of consumers.

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1. Introduction

Licensure fits into the broad category of public policy aimed at reducing stubborn agency costs in the marketplace. Where one individual or a group of individuals provides services to another, a divergence of interests is impossible to avoid. There is a fair amount of leeway for the provider (the 'agent') to fail to perfectly represent or serve the purchaser. Although several market mechanisms exist to improve the position of the procurer (also called the 'principal') - to reduce the likelihood that he will encounter an opportunistic agent, or one that purposely and systematically misrepresents her product - none is perfect. Market entry regulation or licensure is most often favored for its perceived ability to offer a layer of protection for consumers.

Licensing involves laws and regulations which limit service provision to individuals or entities authorized to practice by the state. There are three points at which constraints have been imposed. The first is at the point of initial entry. Providers are denied entry if they do not meet established criteria or if legal limits on supply have been met. Second, it is not uncommon to regulate the production process itself. Practitioners who fail to stay within the prescribed set

of permissible activities may have their license suspended or revoked. Finally, outcomes assessment can lead to the discipline of errant providers.

Despite claims that licensure increases service quality, there is a theoretical ambiguity as to the effect of licensure on consumption quality. If, under a system of licensure, the restrictions on service provision shift a sizable portion of consumers to do-it-yourself remedies or to the black market, average quality can decline.

Policy debates about licensure center on justifying entry restrictions and on whether or not the state can assure performance once individuals are granted entry. The identification of qualified personnel is not a sufficient justification for licensure, as this can be accomplished through certification. Certification, or 'voluntary' licensure identifies entities that meet entry standards or standards of performance, but does not restrict the practice of others. Under a system of certification, consumers have access to information about service providers, but they are not constrained from purchasing services from non-certified providers; competition is not limited.

That fact that service providers, trade associations and medical societies actively promote and support licensing has led to the suspicion that licensing benefits these groups at the expense of other providers or consumers (for example, see Rottenberg 1980). Critics of market entry restrictions note that service providers' earnings rise as competition declines and that consumers are left with fewer options and higher prices.

Also at issue is whether information asymmetries or agency costs are strong enough to warrant government intervention. Many believe that in the absence of government intervention, markets would generate sufficient information through reputation and other mechanisms to meet the needs of consumers.

Finally, there is the question of whether there is not some other, preferred form of public policy to insure product quality. Potential alternatives include increased civil and criminal penalties and other institutional arrangements which increase the consequences of malfeasance.

In addition to its purported value in reducing agency costs, two other justifications for licensure have withstood the test of time. One age-old justification for licensure is that it provides protection from external effects associated with the purchase of low quality goods and services. This is an externalities argument. The argument is, essentially, that licensure protects society from the side-effects of poor consumption decisions of its individual members. Another traditional defense of licensure is that some people need to be guided by the state in making choices.

To justify licensure, the benefits must outweigh the losses associated with reduced competition. Not one empirical study has attempted to calculate the net gain. Rather, the focus has been on testing observable implications of licensing restrictions - the effect on earnings, supply, mobility and quality.

Finally, not all licensing arrangements are alike; institutional arrangements that govern licensing boards are of consequence. For example, there is support for the idea that things such as a board's level of autonomy or its source of funding will affect its actions and decisions.

2. Basic Characteristics of Licensing Arrangements

Market entry restrictions can be very simple, an agency may set quantitative limits, precluding further entry once the designated limit has been reached. Quantitative controls are the least common, however. Instead, entry is most often limited by imposing costly barriers to entry. Potential entrants may be required to make specific capital investments, to pass an examination or complete course work in approved programs and to conform with certain personal criteria (age, character, citizenship, criminal record). Where examinations are the basis for licensing, they may be designed and administered by the board, or the board may require passage of an exam administered by another organization.

Filing fees and variations in application procedures affect entry to the profession as well. For example, the score required to pass an entry examination and other rules, such as the number of times an individual may re-take a required examination, may be modified to increase or decrease the difficulty of entry.

Only individuals who have received a license from the state may legally offer services. In health care, 'scope-of-practice' restrictions, which define the extent of the profession, make it illegal for non-licensed individuals to provide similar services.

Reciprocity and/or endorsement in licensing refers to situations where one jurisdiction accepts the license of another as a valid basis for licensure. Without such provisions, professionals must take licensing exams and meet other conditions of entry when they seek to practice in a new jurisdiction.

Once licensed, boards attempt to control service quality. License modification, suspension and revocation are the major tools of discipline available to boards. The state may revoke a license to practice for a variety of reasons including misconduct and incompetence. Standards of proof to which disciplinary hearings are held influence the ability of the board to affectively penalize practitioners, as does the amount of funding allocated to disciplinary functions. Continuing education requirements, which require licensed individuals to take classes or engage in training to maintain their skills, are mandated in some cases.

Although governing bodies have the ultimate power over licensure and discipline, the actual operations are often delegated to a public agency. Some boards are fairly autonomous, others are less so. 'Self-regulation' generally refers to a situation where the board is fairly autonomous and comprised of

representatives of the profession to be regulated.

Because self-regulation includes the potential for professional groups to restrict supply unduly to raise prices, it has been strongly criticized. Proponents of self-regulation argue its merits in circumstances where the skills to be assessed are unique to members of the profession and when consumers would be put at great risk by an incompetent or malfeasant service provider (see Tuohy and Wolfson, 1976).

3. A Brief History of Western Licensure

Rubin (1980) describes the historical patterns in western law that led to modern licensing laws in the United States and other western countries (also see Council of State Governments, 1952; Derbyshire, 1969). According to Rubin, vocational societies were first formed in Europe in the eleventh and twelfth centuries. By the thirteenth century, education became an important separating criteria of the professions. Crafts and trade associations turned to apprenticeship programs to set their members apart. By the fifteenth century, desire for economic security and prestige had resulted in detailed lists of qualifications for entry and practice in almost every vocation.

The private guilds of the Middle Ages - often thought of as the predecessors of modern state restrictions on occupational entry - actually served several purposes. Guilds served social, religious, insurance and trade functions. In exchange for monopoly positions, the private guilds provided a source of tax revenue for monarchs. Hickson and Thompson (1991) suggest that the establishment of guilds served to resolve defense externalities associated with overcapitalization and to connect military-aged youths to their communities in medieval times.

The decline of the feudal structure of the middle ages increased mobility, and led individuals to compete with private guilds. By 1410, Rubin explains that, in England, rules governing entry and practice had fallen to court challenges, reflecting the attitude of the English courts that individual rights to earn a livelihood should be protected. English guilds responded by seeking statutory protection. Over time, representatives of guilds were successful in England and other Western European countries in establishing state-controlled monopolies in many vocations, with social, economic and religious entry standards. Once again, competition was prohibited and control over practice and discipline was left to representatives of the guilds.

This system of public monopolies was overturned in the seventeenth and eighteenth centuries, as economic forces of the Industrial Revolution transformed Western Europe. According to Rubin, as power shifted from monarchs to democratic assemblies, direct licensing evolved. During the

nineteenth and twentieth centuries, many new professions emerged, leading to a resurgence in vocational regulation in Western Europe.

Efforts to license physicians are said to have begun in earnest in the United States with the formation of the American Medical Association in 1846. Up until that time, entry was virtually unrestricted (Hogan, 1983). Lack of support for national licensing left occupational regulation to the states (Rubin, 1980). The first state to pass licensing laws in the United States was Texas in 1873. A West Virginia law, passed in 1881, was challenged in the US Supreme Court in 1889, and the power of the state to license was upheld (Derbyshire, 1969).

The American Nurses' Association and the National League for Nursing launched a campaign to introduce public certification for nurses in the United States in 1900 (White, 1983). By 1923 all states had enacted certification laws for professional nurses. The first mandatory licensing laws were passed in New York and California in the late 1930s.

A 1952 study by the Council of State Governments lists the dates of initial state licensing legislation for occupations in the United States (see also Moore, 1961). Included are professionals in many groups, from accountants and architects to veterinarians and watchmakers. In 1994 the state of California Department of Consumer Affairs licensed more than three dozen classifications of professional and vocational personnel, the largest groups being accountants, automotive repair professionals, barbers and cosmetologists (by far the largest category), contractors, dental assistants, behavioral science professionals, physicians, nurses, professional engineers and land surveyors, and security and investigative service providers.

4. The Economics of Market Entry Regulations

The Simplest Case - Formal Quantity Controls

The simplest case of market entry restrictions is to set formal quantity controls which limit entry to a fixed number of service suppliers. Where more individuals apply for than are granted licenses, market entry restrictions reduce the stock of providers, pushing prices higher than in an unregulated market. Where entry is restricted in this manner, individuals who secure licenses (through random drawings, for example) will earn economic rents; they earn more than similarly skilled individuals in alternative professions. Examples of quantity controls include restrictions on entry in local taxi markets in the United States and restrictions on the number of pharmacists in Belgium (determined by the population and distance between pharmacies).

If sale of licenses is allowed (as is the case with taxi licenses (medallions) in many large US cities and pharmacies in Belgium), the present value of expected future profits will be capitalized in the sale price. The seller captures

all future profits, leaving new entrants with a normal return on their investment. (Frankena and Paulter, 1984, describe taxicab regulation in the United States; see also Gallick and Sisk, 1987. Van den Bergh and Faure, 1991, discuss the licensing of pharmacists in Belgium.)

Whether or not there is a deadweight loss associated with licensure depends on the benefits to consumers. In the extreme case, if there are no benefits to consumers, entry restrictions necessarily result in a deadweight loss to society. As with all restricted markets, resources with a higher value in the restricted market than elsewhere are prohibited from entering. Besides the potential for a deadweight loss from licensure, there may be a loss associated with rent-seeking behavior. If entry is restricted to arbitrarily chosen service providers, there will be a social loss associated with rent-seeking behavior. As potential entrants compete for licenses, real resources are consumed or lost in the rent-seeking process. A third loss may result, depending on conditions in the market, from the non-transferability of professional licenses. Despite not being the lowest cost provider, those who have made sunk, nontransferable investments to obtain a license will remain in the market as long as there is a positive rent on their investment (Lott, 1987, 1989; Gahvari, 1989; Zardkoohi and Pustay, 1989).

Raising the Cost of Entry

The most common form of entry barriers do not arbitrarily assign licenses, but raise the costs of entry by requiring investments of one sort or another. Often, educational and training requirements are specified in detail. Entrants may be required to attend and complete an accredited program that has specific time and content characteristics. The explicit costs of this investment include payments for tuition and books, but the primary cost is usually implicit - the opportunity cost of the applicant's time.

Entry fees, passing marks on state-administered examinations and other requirements (such as citizenship) also make entry more costly. As costs rise, service providers are discouraged from entering the market. Supply declines through retirements, or as demand grows faster than supply, and the price of services rises. Not until earnings rise to offset the increase in costs of entry will new professionals be attracted to the market.

In this situation, although earnings are higher after regulation, new entrants are not earning profits. They earn only a normal return on their (higher) costs of entry. The new market equilibrium will be one with a lower stock of practitioners and higher prices than would have been observed in an unregulated market. Adjusted for entry costs, earnings will be no more or no less than those for similarly skilled individuals in alternative occupations.

A common practice is to 'grandfather' (exempt) existing service providers when entry requirements are made more stringent. This means that only new entrants must meet the stricter requirements; existing providers are not held to

new rules. As higher costs discourage new entrants and earnings and profitability rise, existing practitioners benefit. These gains create incentives for professional associations to lobby for increasingly strict entry requirements over time. It is also possible that 'grandfather' clauses are included to reduce the opposition of less-trained personnel to restrictions that will limit practice to a more elite set of professionals (see White, 1979).

Licensure necessarily results in a redistribution of wealth from consumers to providers as limits on entry cause product prices to rise. Also, there can be significant redistributive effects across consumer groups. For example, if there are economies of scale in producing higher quality services, consumers who desire higher quality services will benefit from licensing laws that require advanced training. In contrast, consumers who prefer lower quality care (due to taste and/or income constraints) are worse off, as the supply of lower skilled providers is reduced or eliminated altogether.

5. The Debate over Occupational Licensing

As may be obvious by now, the debate over occupational licensing is multifaceted. There is disagreement over whether information asymmetries are sufficiently great to justify government intervention, and whether the state can improve upon free consumer choice. Two theories of the role of licensure - that licensure eliminates a 'lemons' problem for consumers and that it decreases the marginal cost of producing quality - fail to justify licensure over certification. Two traditional arguments for licensure over certification - that it reduces the spread of disease and protects those too ignorant to protect themselves - remain. A third justification for licensure is that it creates incentives which mitigate agency costs. The following sections discuss these ideas in detail.

Information Asymmetries

Proponents of licensure argue that consumers have insufficient information to make an appropriate selection from the set of available suppliers. Information asymmetries are thought by some to be unusually strong in health care markets, justifying barriers to entry in medicine (Arrow, 1963; Trebilcock, 1976).

One way for consumers to acquire information about product quality is by direct observation. Also, providers develop reputations over time as their service is tested and re-tested by consumers. Arguments for licensure rest on the premise that, in some markets, direct observation is impractical and reputation fails to offer sufficient protection. If consumers lack information, and if the state (or its agent) can identify and enforce appropriate standards to which practitioners should be held, it follows that state regulation has the potential to improve conditions by limiting entry to professionals who meet those standards.

Writing about medical markets, Pauly and Satterthwaite (1981) suggest that reputation fails when there are so many providers, as would be the case in large cities, that the efficiency of consumer search declines. According to Pauly and Satterthwaite, as the number of physicians within a community increases, consumer information about each physician decreases and it is more difficult to search for a new physician.

Friedman (1962), Rottenberg (1980) and Havighurst (1982) resist the pressure to view consumers as incapable of making reasoned choices in medical markets. Friedman notes that licensure has never been a major source of assurance about physician quality to consumers. Consumers do not choose a physician blindly from the list of licensed physicians but, instead, make choices about physicians on the basis of advice and direction from others, including referring physicians, friends and family. This information, along with specialty board certification (offered by the profession, not the state), offers protection to consumers against physician malfeasance.

One empirical measure, the disparity in incomes among licensed physicians in the United States, supports the premise that consumers are capable of making judgements about physician quality unaided by state licensing regulations. Being licensed did not make International Medical Graduates the equal of US trained physicians in the US medical market (see Svorny, 1979).

Quality Assurance?

With respect to medical markets, critics point out how unfathomable it is that medical licensure provides consumers with useful information upon which to make informed decisions (see, for example, Goodman, 1980; Rayack, 1982; Young, 1987; Benham, 1991). Licensure does not restrict physicians to practice in a particular area of medicine. (In the United States, it is not against the law for an ophthalmologist to perform heart surgery.)

Furthermore, it is hard to argue that passing a standardized exam after graduation from medical school (perhaps after several sittings) offers much information about physician competence or success. Institutional accreditation can only insure that the quality of education meets a set standard, not that the program produces qualified practitioners. Consumers can only gain from licensure if it is possible to assess ability and if greater ability is reflected in higher service quality. Perhaps most important, a licensing exam cannot screen out individuals who might cheat or defraud patients.

Clearly, the case that a public agency can identify practitioners from whom customers may expect to receive the appropriate level of service quality is not convincing. Even Arrow, whose 1963 paper is probably the most-quoted as favoring government intervention to assist consumers, said 'insofar as this is possible' (p. 966).

Surveys of practitioner quality find large percentages of individuals in the market who do not meet standards set by researchers. These results are used to argue that licensure does not assure service quality (Hogan, 1983).

A further complaint is that disciplinary procedures fail to deal with incompetence in professional practice. In the United States, critics of medical licensure point out that the majority of disciplinary actions have nothing to do with competence but, instead, focus on inappropriate prescription of drugs or self-abuse of alcohol or drugs (US Department of Health and Human Services, 1986). A study of disciplinary cases handled by the Antwerp Bar in the 1980s found sanctions most often imposed for personal characteristics (drunk driving, nonpayment of debts) or for improper behavior towards the professional association (such as failure to provide immediate or truthful information).

Low rates of discipline by state boards are cited as evidence that improving quality for consumers comes second to protecting the interests of the licensed professionals. In contrast, Svorny (1987) shows that disciplinary procedures by state medical boards are as common as criminal penalties in the broader population.

Licensure as a Cartel

Many observers complain that licensure fosters cartel-like restrictions which raise prices, benefiting professionals at the expense of consumers (Friedman, 1962; Kessel, 1958; Rottenberg, 1962). The interests of professionals in licensure are seen as primarily self-serving, an attempt to establish monopoly power in an otherwise competitive industry.

Scope-of-practice restrictions, which limit paraprofessionals and others from providing services within the bounds of the licensed profession, contribute to the view that licensing rules are anticompetitive. In medical markets, for example, prohibiting nurse practitioners from prescribing drugs or offering treatment without physician supervision is thought to unduly restrict the potential for optimal division of labor and efficiency in resource use.

Some argue that licensure has been used to sustain hierarchical systems involving multiple occupations (see Glib, 1966; White and Marmor, 1982). In this context, licensure may be both a vehicle for imposing control over subordinate occupations (as when physicians attempt to limit the powers of other allied health personnel through support of strict scope of practice regulation) and for subordinate occupations to challenge the control of dominant occupations (as when nurse practitioners press for the right to provide services traditionally allowed only of physicians).

Where education and training standards are specified, critics lament the lack of opportunity for innovation and the bias toward existing methods of education and training. Why, they ask, should everyone be trained in the same method and with a similar philosophy? In medicine, the lack of competition is

seen as hindering the development of alternative treatments that might improve or prolong lives.

In his 1958 paper, Reuben Kessel painted a damning picture of state medical societies in the United States, suggesting that their actions to limit the supply of physicians were simply efforts to enforce cartel-like restrictions that would raise prices and benefit physicians. Kessel argued that the cornerstone of American Medical Association (AMA) monopoly power was its control over the accreditation of medical schools for the purpose of licensing.

In each state, medical society members had been successful in reserving the right to the AMA to determine what was an appropriate medical school for purposes of medical licensure. Based on this power, Kessel argued that the AMA could control both the number of schools and the rate of production of physicians - limiting the supply of physicians. Schools that did not heed the demands of state societies to limit enrollment could be sanctioned by excluding them from the list of acceptable schools for licensure. As further evidence of cartel behavior, Kessel pointed to AMA efforts to enforce price-fixing schemes (price discrimination) and medical society-enforced prohibitions on advertising.

Resolving a 'Lemons' Problem

One justification offered in support of licensure is that it solves a 'lemons' problem in markets where information about service quality is costly to obtain. Leland (1979, 1980) points out that when consumers cannot identify high quality physicians, all physicians must charge the same fee (equal to the average quality). As a result, the most talented individuals choose other professions (where their superior ability can be revealed). Only the low quality providers (the 'lemons') are left. Under these conditions, Leland shows that setting minimum quality standards will raise the average price and quality of the product. The intuition is that barriers not only exclude the least skilled, but they increase earnings, attracting more able individuals to the market.

Leland emphasizes that his work should be seen as a counter-example to the monopoly/cartel effects of limiting entry. His work shows that it is not true that minimum quality standards can *never* improve welfare. He does not conclude that licensure is desirable. In fact, he supports certification over licensure as a less intrusive way of achieving the same improvement in service quality.

Benefits to a Third Party

In the search for benefits from licensure, White (1987) notes that there may be benefits to firms that hire licensed providers, such as hospitals. He argues that, even if the firms are low-cost monitors of the skills of the service providers and, therefore, do not gain from licensure directly, they may benefit indirectly. First, if consumers' perceptions of service quality increase with licensure, large providers of services (such as health maintenance organizations) benefit from

the short-run profits that accompany an increase in demand for their services. Also, licensure may benefit employers of service providers if it limits their liability. In the case of nurses, White concludes that it does not, as employers of nurses (hospitals and physicians) have been the most active in lobbying against nurse licensing.

A Principle-Agent Framework

It is clear that attempts to justify licensure must rest on quality assurance. There are two issues associated with quality assurance, finding individuals who are qualified, and motivating them to perform in the interests of the individuals they serve. The second problem is a principal-agent problem. One individual (the principal) hires another (the agent) to do some work, but the disparity in their self-interests causes problems for the principal in getting the agent to do as he or she would like.

Shapiro (1986) describes how licensure might be seen as a means to resolve the incentive problem associated with the agency relationship in medical markets. In Shapiro's model, entry restrictions magnify physicians' incentives to acquire reputation by reducing the marginal cost of producing quality. The premise is that physicians who have made investments in medical education can produce high quality services with less effort. Because it is easier for them to do a good job, they do so more often.

The value of licensure in Shapiro's model is predicated on their being some market value to professional reputation (due to imperfectly observable outcomes), but insufficient production of reputation in an unregulated market. Shapiro justifies standardized training requirements (often seen as evidence of AMA control) on the basis that it is otherwise costly to reveal training levels to consumers.

Licensure vs. Certification

Like that of Heyne, Shapiro's model provides a theoretical justification for licensure in response to complaints that licensure is motivated by self-interest on the part of practitioners who want to limit competition. But, both authors explicitly state that a system of certification would produce the same results, and neither argues for licensure over certification.

Economists have long favored certification over licensure (see Friedman, 1962). Economists favor certification because consumers can use certification as a guide, but may purchase care from non-certified practitioners if they so choose. As Leland notes, under certification 'buyers have a wider range of choice ... they can buy low-quality goods or services if they wish' (p. 283).

Support for licensure over certification comes from two traditional arguments. First, there may be significant externalities associated with the consumption of physician services. If the bad care that one person receives

makes someone else worse off - as is the case if infectious disease is not treated properly - then it might be desirable to constrain the sale of physician services (through licensure) to those individuals who have been trained to keep infectious disease from spreading.

Of course, if the higher cost of licensed professionals shifts large numbers of consumers into do-it-yourself remedies, infectious disease may spread even more under a system of licensure than without it. Or, if the high price of licensed electricians causes consumers to attempt electrical repairs themselves, the result may be an increase in externalities - home fires that threaten adjacent properties.

A second common justification for licensure is paternalistic. Society may, as a whole, decide that some people are not smart enough to make their own choices and that the government should decide for them. However, a counter argument is that if this not-smart-enough group of individuals is also poor, the higher prices under licensure may lead them to even poorer choices in the black market than they would have made in an unregulated market.

Theoretical Support for Licensure over Certification

Is it possible to justify licensure over certification on grounds other than externalities and the need to make choices for others? Svorny (1987, 1992) suggests that licensure is useful in reducing agency costs in the market for physician services, an objective that certification is unable to accomplish.

Licensure's barriers to entry result in (1) abnormal profits and (2) investments in medical training that are lost when malfeasance leads to license suspension or revocation. Profits and the return on investments are accessible to the physician as long as he or she acts in ways deemed appropriate by the state medical board. Svorny argues that the profits created by simple restrictions in supply may serve as a premium stream to discourage agent malfeasance.

Similar to an 'efficiency wage' arrangement which pays workers a wage above their value elsewhere, licensure produces an earnings stream that is lost upon license suspension or revocation. The higher earnings and potential for loss create incentives for agents to act in the interest of the principle, to self-monitor. Such arrangements are thought to prevail when monitoring costs are high (see Lazear, 1981). Along the same lines, Van den Bergh and Faure (1991) suggest that a 'confidence premium' in price fixing arrangements may be justified on the basis that trust of a professional economizes on information costs.

By requiring internships and apprenticeships, licensing can steepen professional earnings profiles, creating strong penalties for malfeasance. Wages are depressed initially, but then rise above market values later in professional careers to compensate for the initial investment. This means that, as they enter the profession of their choice, new entrants to a licensed profession earn less than they would earn elsewhere. For example, those who wish to be certified

public accountants in California must work for two years in jobs that pay very low wages and require long hours to qualify for licensure. Once licensed, wages rise above what could be earned elsewhere. Fear of losing this return through the revocation of one's license discourages malfeasance.

In medicine, a malfeasant physician loses not only the return to his or her required investment in training, but also the profits generated by restricting entry. Discipline results in a substantial loss. Blair and Kaserman (1980) and Gellhorn (1956) emphasize the incentive effects of disciplinary sanctions, but do not emphasize the potentially valuable role of licensure in increasing those losses by making medical practice more profitable. Under a system of certification, non-certified individuals would compete with certified practitioners, making it impossible to maintain abnormal profits to discourage physician malfeasance.

Svorny proposes that the value of licensure rests on the inability of alternative methods of government intervention to provide a severe enough penalty for opportunistic behavior. Because agents can avoid civil and criminal fines (through asset flight or bankruptcy), the maximum penalty that can be assessed through alternative methods may not be sufficient (see also Eaton and White, 1983). Similarly, if it is not feasible to fully bond agents because of concerns about moral hazard by principals (Shapiro and Stiglitz, 1984), licensure may be preferable to bonding arrangements.

Taking the view that profits in the market for physician services are welfare-enhancing, one can argue that restrictions on advertising (often mentioned as evidence of cartel activity) are desirable as they protect the abnormal profitability generated by restrictions on entry. Following the same logic, state requirements that physicians be US citizens (now illegal) may have served the purpose of maintaining profitability in the market for physician services.

The physician price fixing schemes that Kessel found so offensive may actually have been socially useful. In contrast to profits created by limiting the quantity of services provided, price discrimination raises physician income in an efficient way. Price discrimination transfers wealth from consumers (consumer surplus) to physicians without affecting resource allocation. At the extreme, perfect price discrimination (where each consumer is charged the most he or she is willing to pay), allows large wealth transfers with no social cost or deadweight loss. Quantities sold are as they would be in a competitive market.

Barriers to Taxicab Entry

Barriers to entry can similarly benefit consumers of taxicab services. In many cities, restrictions on entry to taxi markets result in substantial profits. Only taxicab drivers that own medallions issued by the government are allowed to offer taxi services, making the medallions very valuable. Gallick and Sisk

(1987) describe how the profits associated with ownership of a medallion benefit consumers. They argue that regulating taxi rates makes consumers better off by reducing redundant search, allowing riders to cheaply estimate the price of any particular trip without searching among alternative drivers. One problem is that average pricing encourages drivers to seek out trips to locations where the probability of finding a return fare is relatively high. To mitigate this negative effect of average pricing rules, incentives must exist to encourage drivers to accept trips randomly, to reject no one. Gallick and Sisk suggest that the potential loss of a valuable asset, the taxi medallion, discourages drivers from violating the law that requires drivers to accept all trips, assuring all riders of access to average priced service.

The 'Value' of Licensure Falls when Incentives of Other Actors Change

Changes in institutional arrangements can increase or decrease the societal value of licensure arrangements. For example, in the United States, where the courts have shifted liability for physician malfeasance to hospitals and health maintenance organizations, incentives have surely changed. Coupled with growing concern over reputation in increasingly competitive markets, hospitals and HMOs have moved toward serious internal peer review. Also, record keeping has progressed to the point that profiling physician practice and maintaining disciplinary databases is possible, making it possible to identify physicians who practice outside of professional norms. This includes physicians who inappropriately dispense narcotics, a large share of disciplined physicians in the United States. Under these circumstances, the argument for licensure to assure quality in medical markets is weakened significantly (see Haug, 1980; Stevens, 1986; Ginsberg and Moy, 1992, Svorny, 1992,).

6. Evidence

Much of the discussion of the value of licensure includes arguments that are not empirically testable. For example, the fact that licensure has existed in many parts of the world and for many years is used to suggest that it must have some value to society (Leffler, 1978).

Empirical Problems

Where researchers do attempt to empirically test for the consequences of licensure, or the factors that lead to licensure, they run into problems. Researchers often use licensing examination pass rates to proxy the strictness of licensing regulations in a particular jurisdiction. The problem with this is that pass rates are not exogenous, they are determined by both the supply of

potential entrants and the degree of strictness of the regulatory authority. Similarly, attempts to assess the wage impacts of licensing regulations may be hindered by a relationship between wages and the ability of a professional group to lobby for entry regulation. If the passage of licensing laws is endogenous to market conditions, then attributing high wages to licensing laws may be inappropriate.

Another empirical problem that seems to pervade much of the literature is that of potentially spurious correlation. A researcher who finds an inverse relationship between licensing exam pass rates and service provider earnings often concludes that there is causality between these two variables. It is not uncommon to draw the conclusion that licensing boards manipulate pass rates to benefit service providers at the expense of consumers. However, where consumers are relatively wealthy, there may be a relatively high demand for quality that results in both strictness of licensing criteria and high service provider earnings.

This literature is not alone in having to deal with problems of spurious correlation by any means. As always, researchers must be careful in assigning causality to observed empirical relationships.

A caveat is appropriate as well for the empirical studies that examine the effect of licensure on quality. Because quality is very hard to measure, researchers must use proxies whose connection to service quality can only be presumed. The studies of Carroll and Gaston (discussed below) have used innovative measures to proxy for quality. But, clearly, the usefulness of these studies in assessing the outcomes of licensure depend critically on the ability to find good proxies for quality.

The Demand for Licensure

Examining the market for physician services, Leffler (1978) finds licensing laws to be most restrictive (he uses examination pass rates and other proxies) in states where consumer demand for quality would be expected to be relatively great, suggesting that consumer interests influence the political decision-making process.

Proxies for the demand for service quality have been empirically studied to see if they are associated with licensing in two other studies. A study of Certified Public Accountants by Donabedian (1991) finds stricter licensing requirements in states having high concentrations of large businesses, his proxy for a demand for quality. In a study of nurse licensing, White (1987) finds adoption of mandatory licensing for nurses to be positively related to a relatively high demand for the services of registered nurses (the nursing category that involves the most training). Whether it is easier to get licensing laws through in these states because consumers have fewer objections, or whether the laws actually improve consumer welfare, cannot be determined from these results.

Professional Influence

Although individual service providers have much to gain from licensing restrictions, their ability to control the regulatory arena depends on several factors. As Stigler (1971) and Peltzman (1976) note, the odds of passage of market entry regulations are greatest where gains are concentrated among a small group of service providers, where the costs of professional organization are relatively low, and where costs are spread across a large segment of the population (this reduces organized consumer opposition).

Looking at self-regulating professions in Illinois, Moore (1961) concludes that the set of licensed professions reflects the relative advantage of certain occupations in lobbying the legislature. In his view, self-interest has played a large part in the establishment of licensing restrictions.

White (1987) notes that state nursing associations have uniformly led local efforts to pass licensing laws. But a nursing lobby variable in his regressions on the introduction of mandatory licensing of registered nurses (RNs) is not significant. Nor do Svorny and Toma (forthcoming) find evidence that numerically strong state medical societies influence either board structure or the number of physicians in a state.

In contrast, Begun, Crowe and Feldman (1981) find evidence of professional influence over the degree of state regulation of optometry. Work by Graddy (1991) suggests that a range of organized interest groups influence occupational regulation, and that the public interest also plays a role. Noether (1986) interprets evidence of increased competition in medical markets in the United States since 1965 as suggestive of declining professional influence over physician licensure.

Paul (1984) examines the effect of state medical society lobbies on the onset of licensure. He finds a positive relationship between AMA membership and the early onset of licensing. However, AMA membership per capita is highly correlated with the physician/population ratio in a state, which is not included in the regression. Paul's results may simply confirm what the demand for licensure studies have found; where consumers already purchase large quantities of physician services relative to other health care services, licensure restrictions on practice face less opposition from consumers.

Evidence Relating to Cartel Restrictions

Attempts have been made to use measured profitability to provide evidence of cartel-like supply restrictions on the part of the medical profession. Early studies found a medical career to be profitable (Friedman and Kuznets, 1945; Sloan, 1970; Fein and Weber, 1971). Lindsay (1973) argued that there were a variety of issues in measuring returns that these papers failed to address. Differences in work hours and non-pecuniary benefits make direct comparisons of professional income less than perfect in assessing physician profitability. Also, Lindsay suggests that the appropriate rate to use to discount future

earnings should include a risk premium, as investments in medical education leave the individual undiversified. Lindsay's recalculation of the returns to training estimated in previous studies produced no evidence of above normal returns to medical training.

Psacharopoulos (1975) reviews the literature and concludes that the evidence does not fully support the existence of monopoly incomes. Of course, normal returns for new entrants can be consistent with above-normal returns for those members of the profession 'grandfathered' as entry barriers are increased.

Two studies challenge the premise in Kessell (1958) and elsewhere that the supply of physicians is constrained through the ability of the AMA to limit enrollment in medical schools. Leffler and Lindsay (1981) find that a traditional market model, focusing on supply and demand, is sufficient to explain the relationship between the market for care and the market for medical education. Hall and Lindsay (1980) examine enrollment in medical schools in the United States. They find medical school output positively related to donor and applicant demand. These results are inconsistent with the hypothesis that medical school enrollments are controlled by organized medicine.

Earnings

Empirical evidence supports the premise that earnings rise with restrictive licensing policies, that supply declines, that mobility is restricted, that inputs are combined inefficiently, and that consumers lose access to low quality services. Studies by Benham and Benham (1975) (the optometric profession), Benham, Maurizi and Reder (1968) (physicians and dentists), Pfeffer (1974) (insurance agents and brokers, real estate brokers and salesmen, plumbers), Shepard (1978) (dental care), White (1978) (clinical lab personnel), Perloff (1980) (the construction industry), Pazderka and Muzondo (1983) (Canadian licensure), Haas-Wilson (1986) (optometry) and Van den Bergh and Faure (1991) (Belgian attorneys, architects, physicians, and pharmacists) have shown measures of licensing strictness to be positively associated with costs, prices or earnings.

Efficient Division of Labor

Two studies have looked at the effect of licensure on the efficient division of labor. Examining the eyewear industry, Maruizi, Moore and Shepard (1981) find a low representation of opticians where restrictive regulations favor optometrists. Devany et al. (1982) examined dental firms in the United States. They find evidence that state legal restrictions on the use of parodontals have resulted in dentist-paradental labor input ratios higher than would be observed in unregulated markets.

Labor Market Mobility

Licensing may be used to limit mobility of service providers across political jurisdictions. For example, the costs of preparing for unique state exams has the potential to deter movement across state borders. But limited mobility does not necessarily accompany licensure. In medical markets in the United States, the trend has been to move away from state-specific toward standardized exams, which then allows almost perfect mobility across states.

Holen (1965), Pashigian (1979), Pratt (1980), and Kleiner, Gay and Greene (1982) examine the effect of entry restrictions on professional mobility. Pratt examines sixteen occupations in the United States and finds that the more states that license a profession, the less mobile are its workers. Kleiner, Gay and Greene look at fourteen occupations and find that where rules are the most strict, mobility is limited and earnings enhanced by licensure. Both Holen and Pashigian find mobility restricted for dentists and lawyers.

That earnings are higher and professionals less mobile should come as no surprise. Restrictions on entry, by definition, reduce mobility, raise professional incomes, and shift the sale of low quality services to the black market, reducing their availability. The real question is whether consumers gains are sufficient to offset the negative effects of licensure.

Svorny (1987) suggests a test for the relative influence of consumer and professional interests over licensure. If licensure benefits consumers (by lowering search and monitoring costs), licensure should cause the demand for services to increase, increasing consumption despite higher costs of entry. If there are no benefits to consumers, there will be no increase in demand, and the equilibrium quantity of services will be lower where barriers are the most strict. Finding this, she is led to conclude that physician interests dominate the regulatory process. This, however, assumes homogeneity among consumers. Licensure may have redistributive effects, so that benefits accrue to some groups of consumers and practitioners (for example, those in the high quality sector of the market), but make other members of both groups worse off.

Service Quality

Despite claims that licensure enhances service quality, it is possible that high prices shift some consumers to do-it-yourself remedies. Aggregate quality may rise or fall, depending on the extent and consequences of such shifts (Carroll and Gaston, 1983). Attempts to measure the effects of licensure on product quality are limited by the difficulty in measuring quality.

Carroll and Gaston (1981a) identify variables likely to proxy poor quality in seven licensed occupations. For example, in the market for electricians the number of accidental deaths by electric shock is used as a proxy for quality. Electrical shock deaths could result when ill-skilled professionals provide services or when consumers turn to do-it-yourself repairs. Carroll and Gaston

find a negative association between proxies for strict licensing regulations and the number of licensed professionals, from which they conclude that licensing restricts entry. Also, where there are fewer licensed professionals, their proxies for quality suggest lower quality services are being consumed. They conclude that licensure reduces quality. Turning to real estate markets, Carroll and Gaston (1979) find lower quality (proxied by the proportion of vacant houses on the market for more than six months) where licensing restrictions were the most strict.

Maruizi (1980) looked at contractor licensing in California. Over the period from 1954 to 1975, he found average quality (measured by the number of complaints) declined. He attributes this decline to the rapid growth in exam-preparation schools, which allowed relatively poorly trained individuals to pass the exam.

Other results suggest that entry barriers are quality enhancing. Carroll and Gaston (1981b) found measures of attorney quality to be higher in those states with the most restrictive licensing policies. Johnson and Loucks (1986) find licensing in real estate improves quality; a reduction in licensees results in a decrease in complaints per transaction. Using length of eye exams, office equipment and examination complexity as proxies for service quality, Begun (1981) found quality to be positively related to optometry standards. McChesney and Muris (1979) provide evidence that eliminating barriers (in this case on advertising) does not reduce the quality of legal services provided to consumers and appears to increase it.

The empirical work on quality suggests the effect of licensure on service quality varies across occupations. The need to proxy quality, with what are clearly imperfect measures of how consumers view a product, makes it hard to draw strong conclusions about the effects of licensure on quality.

7. Licensure vs. Discipline

Where markets fail to protect consumers, it is possible to view licensure and discipline as substitutes in the production of service quality. Dollars spent on licensing could be shifted to efforts to identify and discipline incompetent and malfeasant practitioners, with a potential loss or gain, depending on the relative incentives generated. Guntermann and Smith (1988) address this issue, but with very weak data. They find that dollars spent on compliance and enforcement efforts reduce complaints against licensed real estate agents. Finding no evidence that prelicensing education requirements reduce complaints, they conclude that state governments are best off allocating more of their dollars to enforcement efforts and less to efforts to assure prelicensing educational attainment. (See also Phelan's 1974 examination of TV repair in three cities.)

8. The Choice

Despite years of debate, there is no clear agreement on whether state licensing improves consumer welfare. Where consumers can easily buy low quality services on a black market, there will be little impact on consumer welfare. But where black market provision of services is costly (as, perhaps, with surgical procedures, where the consumer must travel to another country), consumers seeking to purchase low quality services are worse off. Because they restrict the supply of professional services available to consumers, market entry restrictions can be welfare enhancing only if the gains to consumers offset the welfare loss associated with the reduction in supply.

Because service providers tend to be more organized than consumers and individual service providers have much to gain from restricting licensure, economic theory tells us that a democratic political process will overshoot the optimal/socially desirable level of entry restrictions. (Ramseyer, 1986), however, discusses the lack of success lawyers have had in Japan in furthering their own interests.)

Only where consumers are well-organized or jointly represented by larger entities, as is increasingly the case in health care markets in the United States, will service providers have problems in securing protective regulation that goes beyond socially optimal levels of control (Stigler, 1971). What this means is that our choice is not between socially optimal regulation and an unregulated market, but between sub-optimal regulation and an unregulated market.

Horowitz (1980) suggests that the persistence of self-regulation suggests a deal between society and the profession. Consumers can be sure of a minimal level of competence in exchange for allowing self-serving licensing restrictions to persist.

Finally, an attraction of licensure to politicians is that its costs are hidden to consumers. Stigler (1971) makes the point that politicians prefer regulation whose primary cost is indirect and hard to identify over regulation involving public funds and tax expenditures. Licensing arrangements are attractive because their costs are off-budget, they are generally funded through the assessment of periodic fees on service providers. With a licensing scheme, all consumers - those who find value in regulation, and those who do not, pay a hidden cost of regulation in the form of higher priced services.

9. Institutional Issues

Given the incentive for the regulated profession to lobby for rules which benefit the profession at the expense of consumers, a corollary question is whether it is politically possible to achieve an institutional structure which will reduce or

eliminate the major imperfections associated with state regulation.

Institutional arrangements have the potential to influence the regulatory outcome by affecting the costs special interest groups face in lobbying the agency (see Svorny and Toma, forthcoming). For example, in the United States, variations in institutional arrangements across states include differences in board autonomy in the nomination and selection of members, the ratio of professional to public or lay members on the board, standards for disciplinary procedures, and whether the board is self-funded, through fees, or receives an allocation of funds from the state legislature. The challenge is, first, to identify institutional arrangements that lower the costs of special interest lobbying and, second, to reach a political equilibrium where such arrangements are precluded. This is not a simple task, as interest groups will fight to protect arrangements that increase their influence over public policy.

10. Who Should be Licensed?

Given the lack of clear evidence that licensure benefits consumers, some areas of practice are clear targets for eliminating state regulation over entry. Where services are characterized by repeat purchases and where outcomes are clearly observable, as is the case with the services of barbers or hair stylists, it seems hard to justify state controls.

Similarly, the benefits of licensing dental and physician assistants may outweigh the costs. The employing professional or the employing facility has the ability (through observation, reputation and knowledge of professional training) to ascertain the quality of an assistant. Where there is also a strong legal incentive to assess quality, licensing professional assistants appears redundant.

In the case of physicians, a system of certification would work as well in most circumstances. The only suggested theoretical value of licensure over certification is in creating a profit stream that discourages malfeasance.

In the United States, because physicians practicing in hospitals and working for health maintenance organizations are subject to peer review (with teeth added by the increased liability assigned to such institutions by the courts), perhaps it is only physicians working in sole practice, or in small communities with no institutional liability and no professional peer oversight, for whom continued licensure is desirable.

The ironic part is that states with disproportionate rural or medically underserved communities have been the first to innovate *away* from physicians, extending the legal scope of practice for physician assistants (Jones and Cawley, 1994). Shortages of medical doctors in rural areas have led governments to be more flexible, allowing greater latitude for paraprofessionals

to offer services. If existing law shifts from licensure in areas where, theoretically, it can be of value relative to certification, it is hard to argue the benefits of licensure's restrictions on entry for the population as a whole.

Institutional licensure has been proposed to reduce the burden of licensing on state agencies. Hershey (1969) proposed replacing licensing with a system that invests health services institutions and agencies with the responsibility of regulating the provision of services. He argues that the rigidity of the current system deters hospitals from grouping skills and capabilities in ways that best serve patients. Replacing the current system with one of institutional licensure would allow a greater degree of flexibility in assigning personnel, reducing the cost of providing services.

Each market is different and broad prescriptions about licensure just do not apply. For example, the licensing of taxicabs may be of value where taxicabs primarily service travelers. The lack of repeat customers, and the externalities associated with treating travelers well (that is, more tourism), may call for large penalties for malfeasance, exactly what a medallion system can supply. Although it is not clear that a national or international brand name would not be established to provide quality assurance at airports and other tourist locations if local taxi monopolies were to be eliminated, the externalities with respect to tourism may justify local control.

Taxicabs operating within a community, serving the needs of those who do not drive, are subject to repeat purchases, so that licensure is an unnecessary expense. On the other hand, if taxis serve a very elderly population, one that may have greater than average difficulty in protecting itself from unscrupulous providers, then penalties offered by the medallion system for malfeasance take on value (and perversely, given the population, raise prices). The potential for large losses if malfeasance is caught creates incentives for licensed individuals to behave in ways that benefit their clientele, even if that clientele is not a good monitor of quality.

Future Research

One area that has received little attention is the allocation of public funds between licensing and discipline. Clearly substitutes for one another, it would be interesting to see if most jurisdictions allocate their spending efficiently, equating the marginal product of both activities at the margin.

Also useful would be research assessing the net value of licensure to society. Ad hoc presumptions that licensure benefits consumers are clearly challenged by researchers that have studied regulated occupations. Trading an imperfect regulatory solution for an imperfect market solution may not be worth the cost.

Bibliography on Licensing, Market Entry Regulation (5120)

- Arrow, Kenneth J. (1963), 'Uncertainty and the Welfare Economics of Medical Care', **53** *American Economic Review*, 941-973.
- Arruñada, Benito (1992), 'Profesionales del Monopolio (Professionals of Monopoly)', **14** *Revista de Economía*, 95-101.
- Arruñada, Benito (1995a), *Análisis Económico del Notariado* (Economic Analysis of the Notary), Madrid, Consejo General del Notariado.
- Arruñada, Benito (1995b), 'Colegios Profesionales y Diseño Institucional (Professional Corporation and Institutional Design)', **63** *Economistas*, 86-90. Reproduced in J. Velarde et al. (eds) (1995), *Regulación y Competencia en la Economía Española*, Madrid, Cívitas, 65-75.
- Arruñada, Benito (1996a), 'Liberalización de Servicios y Colegios Profesionales (Liberalization of Professional Services and Associations)', in several authors, *Reforma de estructura*, Barcelona, Sociedad de Estudios Económicos, 49-71.
- Arruñada, Benito (1996b), 'The Economics of Notaries', **3** *European Journal of Law and Economics*, 5-37.
- Baron, C.H. (1983), 'Licensure of Health Care Professionals: The Consumer's Case for Abolition', **9** *American Journal of Law and Medicine*, 335-356.
- Barron, John F. (1961), 'Restrictive Hiring Practices in Institutions of Higher Learning in California', **4** *Journal of Law and Economics*, 186-193.
- Beales, J. Howard, III (1980), 'The Economics of Regulating the Professions', in Blair, Roger D. and Rubin, Stephen (eds), *Regulating the Professions: A Public-Policy Symposium*, Lexington, MA, Lexington Books.
- Begun J.W. and Feldman, R. (1990), 'Policy and Research on Health Manpower Regulation: Never Too Late to Deregulate?', **11** *Advances in Health Economics and Health Services Research*, 79-110.
- Begun, J.W. (1981), *Professionalism and the Public Interest: Price and Quality in Optometry*, Cambridge, MA, MIT Press.
- Begun, J.W. and Lippincott, R.C. (1982), 'A Case Study in the Politics of Free-Market Health Care', **7** *Journal of Health Politics, Policy and Law*, 667-685.
- Begun, J.W., Crowe, E.W. and Feldman, R. (1981), 'Occupational Regulation in the States: A Casual Model', **6** *Journal of Health Politics, Policy and Law*, 229-254.
- Benham, L. (1980), 'The Demand for Occupational Licensing', in Rottenberg, Simon (ed.), *Occupational Licensure and Regulation*, Washington, DC, American Enterprise Institute, 13-25.
- Benham, Lee (1991), 'Licensure and Competition in Medical Markets', in Frech III, H.E. (ed.), *Regulating Doctors' Fees: Competition, Benefits, and Controls Under Medicare*, Washington, DC, American Enterprise Institute for Public Policy Research, 75-90.
- Benham, L. and Benham, A. (1975), 'Regulation Through the Professions: A Perspective on Information Control', **18** *Journal of Law and Economics*, 421-47.
- Benham, L. and Benham, A. (1978), 'Prospects for Increasing Competition in the Professions', *The Professions and Public Policy*, University of Toronto Press, 41-45.
- Benham, Lee, Maurizi, Alex R. and Reder, Melvin W. (1968), 'Migration, Location and Remuneration of Medical Personnel: Physicians and Dentists', **50** *Review of Economics and Statistics*, 332-347.
- Berlant, J.L. (1975), *Profession and Monopoly*, Berkeley, University of California Press.

- Blair, Roger D. and Kaserman, D.L. (1980), 'Preservation of Quality and Sanctions within the Profession', in Blair, R.D. and Rubin, Stephen (eds), *Regulating the Professions: A Public Policy Symposium*, Lexington, MA, Lexington Books, 185-198.
- Bond, R.S., Kwoka, J.E., Jr, Phelan, J.J. and Whirren, I.T. (1983), 'Self-Regulation in Optometry: The Impact on Price and Quality', *7 Law and Human Behavior*, 219-234.
- Boulier, B.L. (1980), 'An Empirical Examination of the Influence of Licensure and Licensure Reform on the Geographical Distribution of Dentists', in Rottenberg, Simon (ed.), *Occupational Licensure and Regulation*, Washington, DC, American Enterprise Institute for Public Policy Research, 78-97.
- Brinig, Margaret F., Holcombe, Randall G. and Schwartzstein, Linda A. (1993), 'Public Choice and Lobbying Regulation', *74 Public Choice*, 377-384.
- Carpenter, E.S. (1987), *The Health Occupations Under Review: An Update on State Sunrise Activities, 1985-1987*, Lexington, KY, Council of State Governments.
- Carroll, Sidney L. and Gaston, Robert J. (1979), 'State Occupational Licensing Provisions and Quality of Service: The Real Estate Business', *1 Research in Law and Economics*, 1-13.
- Carroll, Sidney L. and Gaston, Robert J. (1981a), 'Occupational Licensing and the Quality of Service Received: Some Evidence', *47 Southern Economic Journal*, 959-976.
- Carroll, Sidney L. and Gaston, Robert J. (1981b), 'A Note on the Quality of Legal Services', *3 Research in Law and Economics*, 251-260.
- Carroll, Sidney L. and Gaston, Robert J. (1983), 'Occupational Licensing and the Quality of Service: An Overview', *7 Law and Human Behavior*, 139-146.
- Cohen, Harris S. (1980), 'On Professional Power and Conflict of Interest: State Licensing Boards on Trial', *5 Journal of Health Politics, Policy and Law*, 291-308.
- Cohen, H.S. and Milke, L.H. (1974), 'Toward a More Responsive System of Professional Licensure', *4 International Journal of Health Services*, 265-272.
- Conrad D.A. (1981), 'State Dental Practice Acts: Implications for Competition', *5 Journal of Health Politics, Policy and Law*, 610-629.
- Conrad D.A. and Sheldon, G.G. (1982), 'The Effects of Legal Constraints on Dental Care Prices', *19 Inquiry*, 51-67.
- Corgel, John B. (1987), 'Occupational Boundary Setting and the Unauthorized Practice of Law by Real Estate Brokers', *10 Research in Law and Economics*, 161-175.
- Corgel, J.B. and Jaffe, A.J. (1984), *Should Real Estate Appraisers Be Licensed?*, Society of Real Estate Appraisers.
- Council of State Governments (1952), *Occupational Licensing Legislation in the States: a Study of State Legislation Licensing the Practice of Professions and Other Occupations*, Council of State Governments.
- Curran, Christopher (1993), 'The American Experience with Self-regulation in the Medical and Legal Professions', in Faure, Michael, Finsinger, Jörg, Siegers, Jacques and Van den Bergh, Roger (eds), *Regulation of Professions*, Antwerpen, Maklu, 47-87.
- Davis, Anthony and Thiessen, Victor (1988), 'Public Policy and Social Control in the Atlantic Fisheries', *14 Canadian Public Policy*, 66-77.
- Devany, Arthur S., Gramm, Wendy L., Saving, Thomas R. and Smithson, Charles W. (1982), 'The Impact of Input Regulation: The Case of the U.S. Dental Industry', *25 Journal of Law and Economics*, 367-381.
- Derbyshire, R.C. (1969), *Medical Licensure and Discipline in the United States*, Maryland, Johns Hopkins University Press.

- Dolan, A.K. (1980a), 'Occupational Licensure and Obstruction of Change in the Health Care Delivery System: Some Recent Developments', in Blair, Roger D. and Rubin, Stephen (eds), *Regulating the Professions: A Public-Policy Symposium*, Lexington, MA, Lexington Books.
- Dolan, Andrew K. (1980b), 'The Potential of Institutional Licensing and Brand-Name Advertising in the Medical Care System', **9** *Journal of Contemporary Business*, 35-43.
- Donabedian, Bairj (1991), 'The Economic Rationales of CPA Licensing', **10** *Journal of Accounting and Public Policy*, 85-103.
- Dranove, D. and White, W.D. (1987), 'Agency and the Organization of Health Care Delivery', **24** *Inquiry*, 405-415.
- Duggan, A.J. (1984), 'Occupational Licensing and Related Forms of Control', in Galligan, D. (ed.), *Essays in Legal Theory*, Melbourne, Melbourne University Press, 51-73.
- Eaton, B. Curtis and White, William D. (1983), 'The Economy of High Wages: An Agency Problem', **50** *Economica*, 175-181.
- Edwards, Linda N. and Edwards, Franklin R. (1974), 'Measuring the Effectiveness of Regulation: The Case of Bank Entry Regulation', **17** *Journal of Law and Economics*, 445-460.
- Evans, R.G. (1976), 'Does Canada Have Too Many Doctors? - Why Nobody Loves an Immigrant Physician', **11** *Canadian Public Policy*, 147-159.
- Evans, R.G. (1978), 'Universal Access: the Trojan Horse', in Slayton, Philip and Trebilcock, Michael J. (eds), *The Professions and Public Policy*, Toronto, University of Toronto Faculty of Law.
- Evans, R.G. (1980), 'Professionals and the Production Function: Can Competition Policy Improve Efficiency in the Licensed Professions?', in *Occupational Licensure and Regulation*, American Enterprise Institute, 225-264.
- Faith, Roger L. and Tollison, Robert D. (1983), 'The Supply of Occupational Regulation', **21** *Economic Inquiry*, 232-240.
- Faure, Michael, Finsinger, Jorg, Siegers, Jacques and Van den Bergh, Roger (eds) (1993), *Regulation of Professions*, Antwerpen, Maklu.
- Fein, Rashi (1967), *The Doctor Shortage: An Economic Diagnosis*, Washington, DC, The Brookings Institution, 199 ff.
- Fein, R. and Weber, G. I. (1971), *Financing Medical Education, An Analysis of Alternative Policies and Mechanisms*, Carnegie Commission on Higher Education and the Commonwealth Fund, New York.
- Feldman, R. and Begun, J.W. (1978), 'The Effects of Advertising: Lessons from Optometry', **13** *Journal of Human Resources*, 247-262.
- Feldman, R. and Begun, J.W. (1985), 'The Welfare Costs of Quality Changes Due to Professional Regulation', **34** *Journal of Industrial Economics*, 17-32.
- Feldstein, P.J. (1977), *Health Associations and the Demand for Legislation*, Cambridge, MA, Ballinger Publishing.
- Feldstein, P.J. (1988), *The Politics of Health Legislation: An Economic Perspective*, Ann Arbor, MI, Health Administration Press.
- Fenn, Paul T., Rickman, Neil and McGuire, Alistair (1992), 'Professional Liability and the Licensed Profession', **12** *International Review of Law and Economics*, 479-496.
- Frankena, Mark W. and Paulter, Paul A. (1984), 'An Economic Analysis of Taxicab Regulation', *Bureau of Economics Staff Report*, U.S. Federal Trade Commission.
- Fraundorf, K.C. (1984), 'Organized Dentistry and the Pursuit of Entry Control', **8** *Journal of Health*

- Politics, Policy and Law*, 759-781.
- Frech, H. Edward III (1975), 'Occupational Licensure and Health Care Productivity: The Issues and the Literature', in Rafferty, John A. (ed.), *Health, Manpower and Productivity*, Lexington, MA, D.C. Heath and Company, 119-142.
- Frech, H. Edward III (1982), 'A Hard Pill to Swallow, Review of Taking Your Medicine: Drug Regulation in the United States by Peter Temin', **13** *Reason*, 51-52.
- Frech, H. Edward III (1988), 'Review of the Health Economy by Victor Fuchs', **95** *Journal of Political Economy*, 1337-1340.
- Freund, D.A. and Shulman, J.D. (1984), 'Regulation of the Professions: Results from Dentistry', in Sheffler, R.M. and Rossiter, L.F. (eds), *Advances in Health Economics and Health Services Research (Vol. 5)*, Greenwich, CT, JAI Press, 161-180.
- Friedman, Milton (1962), *Capitalism and Freedom*, ch. 9, Chicago, IL, University of Chicago Press.
- Friedman, Milton and Kuznets, S. (1945), *Income from Independent Professional Practice*, New York, National Bureau of Economic Research.
- Gahvari, Firouz (1989), 'Licensing and Nontransferable Rents: Comment', **79** *American Economic Review*, 906-909.
- Gallick, Edward C. and Sisk, David E. (1987), 'A Reconsideration of Taxi Regulation', **3** *Journal of Law, Economics, and Organization*, 117-128.
- Garcia Gallego, Aurora and Georgantzis, Nikolaos (1996), 'Competition Intensity vs. Service Quality: On the Distribution of Para-Pharmaceutical Products in Spain', in Martin, Stephen (ed.), *Interaction of Member State and EU Competition Policy*, Amsterdam, forthcoming.
- Gaumer, G.L. (1984), 'Regulating Health Professionals: A Review of Empirical Literature', **62** *Milbank Memorial Fund Quarterly/Health and Society*, 380-416.
- Gellhorn, Walter (1956), *Individual Freedom and Governmental Restraints*, Baton Rouge, Louisiana State University Press.
- Gellhorn, Walter (1976), 'The Abuse of Occupational Licensing', **44** *University of Chicago Law Review*, 6-27.
- Gerstle, J. and Jacobs, G. (1976), *Professions for the People*, Cambridge, MA, Schenkman.
- Ginsberg, P.B. and Hammons, G.T. (1988), 'Competition and the Quality of Care: The Importance of Information', **25** *Inquiry*, 108-115.
- Ginsberg, Paul B. and Moy, Ernest (1992), 'Physician Licensure and the Quality of Care', *Regulation*, 32-39.
- Glib, Corinne L. (1966), *Hidden Hierarchies: The Professions and Government*, New York, Harper and Row.
- Goodman, John C. (1980), *The Regulation of Medical Care: Is the Price Too High?*, San Francisco, The Cato Institute.
- Graddy, Elizabeth (1991), 'Interest Groups or the Public Interest---Why Do We Regulate Health Occupations?', **16(1)** *Journal of Health Politics, Policy and Law*, 25ff.
- Graddy, Elizabeth and Nichol, Michael B. (1989), 'Public Members on Occupational Licensing Boards: Effects on Legislative Regulatory Reforms', **55** *Southern Economic Journal*, 610-625.
- Graddy, Elizabeth and Nichol, Michael B. (1990), 'Structural Reforms and Licensing Board Performance', **18** *American Politics Quarterly*, 376-400.
- Grembowski, D., Conrad, D.D., Weaver, M. and Milgrom, P. (1988), 'The Structure and Function of Dental-Care Markets: A Review and Agenda for Research', **26** *Medical Care*, 132-147.

- Gross, Stanley J. (1978), 'The Myth of Professional Licensing', **33** *American Psychologist*, 1009-1016.
- Gross, S.J. (1984), *Of Foxes and Hen Houses: Licensing and the Health Professions*, Westport, CT, Quorum Books.
- Guntermann, Karl L. and Smith, Richard L. (1988), 'Licensing Requirements, Enforcement Effort and Complaints Against Real Estate Agents', **11** *The Journal of Real Estate Research*, 11-20.
- Haas-Wilson, Deborah (1986), 'The Effect of Commercial Practice Restrictions: The Case of Optometry', **29** *Journal of Law and Economics*, 165-186.
- Hailey, G., Latsey, C., Klurfeld, S.P., Hilder, E.R., Summers, E.L., Kinscheck, R. and Latanich, T.S. (1980), *State Restrictions on Vision Care Providers: The Effects on Consumers*, Staff Report, Bureau of Consumer Protection, U.S. Federal Trade Commission.
- Hall, Thomas D. and Lindsay, Cotton M. (1980), 'Medical Schools: Producers of What? Sellers to Whom?', **23** *Journal of Law and Economics*, 55-80.
- Haug, Marie (1980), 'The Sociological Approach to Self-Regulation', in Blair, Roger D. and Rubin, Stephen (eds), *Regulating the Professions*, Lexington Books, Lexington, Massachusetts, 61-80.
- Havighurst, Clark (1982), *Deregulating the Health Care Industry: Planning for Competition*, Cambridge, MA, Ballinger Publishing.
- Hazelkorn, H.M. and Christoffel, T. (1984), 'Denturism's Challenge to the Licensing System', **5** *Journal of Public Health Policy*, 104-117.
- Hershey, Nathan (1969), 'An Alternative to Mandatory Licensure of Health Professionals', *Hospital Progress*, 71-74.
- Hickson, Charles R. and Thompson, Earl A. (1991), 'A New Theory of Guilds and European Economic Development', **28** *Explorations in Economic History*, 127-168.
- Hogan, Daniel B. (1983), 'The Effectiveness of Licensing: History, Evidence, and Recommendations', **7** *Law and Human Behavior*, 117-138.
- Holen, Arlene S. (1965), 'Effects of Professional Licensing Arrangements on Interstate Labor Mobility and Resource Allocation', **73** *Journal of Political Economy*, 492-498.
- Horowitz, Ira (1980), 'The Economic Foundations of Self-Regulation in the Professions', in Blair, R.D. and Rubin, S. (eds), *Regulating the Professions: A Public Policy Symposium*, Lexington, MA, Lexington Books, 3-28.
- Jaffe, Austin J. and Corgel, John B. (1984), 'Should Real Estate Appraisers be Licensed?', **50** *Real Estate Appraiser and Analyst*, 21-26.
- Johnson, Linda L. and Loucks, Christine (1986), 'The Effect of State Licensing Regulations on the Real Estate Brokerage Industry', **14** *AREUEA Journal*, 567-582.
- Johnson, S.B. and Corgel, J.B. (1983), 'Market Intervention by the Courts: The Economics of Occupational Boundary Settings', **6** *Harvard Journal of Law and Public Policy*, 197-218.
- Jones, P. Eugene and Cawley, James F. (1994), 'Physician Assistants and Health System Reform', **271** *Journal of the American Medical Association*, 1266-1272.
- Julin, J.R. (1980), 'The Legal Profession: Education and Entry', in Blair, Roger D. and Rubin, Stephen (eds), *Regulating the Professions: A Public-Policy Symposium*, Lexington, MA, Lexington Books.
- Kessel, Reuben A. (1958), 'Price Discrimination in Medicine', **1** *Journal of Law and Economics*, 20-53.

- Kessel, Reuben A. (1970), 'The A.M.A. and the Supply of Physicians', **35** *Law and Contemporary Problems*, 267-283.
- Kirp, David L. and Soffer, Eileen M. (1985), 'Taking Californians to the Cleaners', **9** *Regulation*, 24-26.
- Kitch, Edmund W., Isaacson, Marc and Kasper, Daniel (1972), 'The Regulation of Taxicabs in Chicago', **14** *Journal of Law and Economics*, 285-350. Reprinted in Brookings Institute Reprint No. 255, 1972.
- Kleiner, M.M., Gay, R.S. and Greene, K. (1982), 'Barriers to Labor Migration: The Case of Occupational Licensing', **21** *Industrial Relations*, 383-391.
- Kwoka, J.E., Jr (1984), 'Advertising and the Price and Quality of Optometric Services', **74** *American Economic Review*, 211-216.
- Larson, M.S. (1977), *The Rise of Professionalism*, Berkeley, University of California Press.
- Leffler, Keith B. (1978), 'Physician Licensure: Competition and Monopoly in American Medicine', **21** *Journal of Law and Economics*, 165-186.
- Leffler, Keith B. (1980), 'Commentary on Leland's Minimum-Quality Standards and Licensing in Markets with Asymmetric Information', in Rottenberg, Simon (ed.), *Occupational Licensure and Regulation*, Washington, DC, American Enterprise Institute, 1238-1246.
- Leffler, Keith B. and Lindsay, Cotton M. (1981), 'Markets for Medical Care and Medical Education: An Integrated Long-Run Structural Approach', **16** *The Journal of Human Resources*, 20-40.
- Leland, Hayne E. (1979), 'Quacks, Lemons, and Licensing: A Theory of Minimum Quality Standards', **87** *Journal of Political Economy*, 1325-1346.
- Leland, Hayne E. (1980), 'Minimum-Quality Standards and Licensing in Markets with Asymmetric Information', in Rottenberg, Simon (ed.), *Occupational Licensure and Regulation*, Washington, DC, American Enterprise Institute for Public Policy Research, 264-284.
- Leunis, J. and De Vos, G. (1986), 'De Wet betreffende de Handelsvestigingen: De Eerste 10 Jaar (The Licensing Law: The First 10 Years)', **31** *Tijdschrift voor Economie en Management*, 309-333.
- Levin, Harvey J. (1962), 'Federal Control of Entry in the Broadcast Industry', **5** *Journal of Law and Economics*, 49-67.
- Lewisch, Peter (1989), *Erwerbsfreiheit und Bedarfsprüfung (The Freedom to Earn one's Living as Subjected to Regulations Concerning Needs)*, Vienna, Marktwirtschaftliche Schriften des Carl Menger Institutes, 47 p.
- Lewisch, Peter (1991), 'The Political Economy of Barriers to Entry: The Example of the Amendment for Taxicab Regulation in Austria', in Weigel, Wolfgang (ed.), *Economic Analysis of Law - A Collection of Applications*, Vienna, Österreichischer Wirtschaftsverlag, 222-234.
- Lindsay, Cotton M. (1973), 'Real Returns to Medical Education', **8** *Journal of Human Resources*, 331-348.
- Lott, John R., Jr (1987), 'Licensing and Nontransferable Rents', **77** *American Economic Review*, 453-455.
- Lott, John R., Jr (1989), 'Licensing and Nontransferable Rents: Reply', **79** *American Economic Review*, 910-912.

- Lueck, Dean, Olsen, Reed and Ransom, Michael (1991), 'Why Do States Regulate Admission to the Bar? Theories and Empirical Evidence', **14** *George Mason Law Review*, 253-286.
- Lueck, Dean, Olsen, Reed and Ransom, Michael (1995), 'Market and Regulatory Forces in the Pricing of Legal Services', **7** *Journal of Regulatory Economics*, 63-83.
- Massaguer, Josep María (1994), 'La Regulación de Servicios Profesionales (un Análisis de Racionalidad Económica y Legitimidad Antitrust) (The Regulation of the Profession's Economic Rationality and Antitrust Legitimacy)', **3** *Iuris*, 85-120.
- Mathewson, G. Frank and Winter, Ralph A. (1989), 'The Economic Effects of Automobile Dealer Regulation', **15-16** *Annales d'Economie et de Statistique*, 409-426.
- Maurizi, Alex R. (1974), 'Occupational Licensing and the Public Interest', **82** *Journal of Political Economy*, 399-413.
- Maurizi, A. (1980), 'The Impact of Regulation on Quality: The Case of California Contractors', in *Occupational Licensure and Regulation*, Washington, DC, American Enterprise Institute, 399-413.
- Maurizi, Alex R., Moore, Ruth L. and Shepard, Lawrence (1981), 'Competing for Professional Control: Professional Mix in the Eyeglasses Industry', **24** *Journal of Law and Economics*, 351-364.
- McChesney, Fred S. and Muris, Timothy J. (1979), 'The Effect of Advertising on the Quality of Legal Services', **65** *American Bar Association Journal*, 1503-1506.
- McCleery, R.S., Keelty, L.T., Lam, M., Phillips, R.E. and Quirim, T.M. (1971), *One Life-One Physician: An Inquiry into the Medical Profession's Performance in Self-Regulation*, Public Affairs Press.
- McGee, Robert W. (1982), 'Into the Accountants Hands', *Management Accounting*, 83ff.
- Mennemeyer, S.T. (1978), 'Really Great Returns to Medical Education?', **13** *Journal of Human Resources*, 75-90.
- Moore, Thomas G. (1961), 'The Purpose of Licensing', **4** *Journal of Law and Economics*, 93-117.
- Muzondo, Timothy R. and Pazderka, Bohumir (1983), 'Income-Enhancing Effects of Professional Licensing', **28** *Antitrust Bulletin*, 397-415.
- Noether, Monica (1986), 'The Effect of Government Policy Changes on the Supply of Physicians: Expansion of a Competitive Fringe', **29** *Journal of Law and Economics*, 231-262.
- Pashigian, B. Peter (1977), 'The Market for Lawyers: The Determinants of the Demand for and Supply of Lawyers', **20** *Journal of Law and Economics*, 53-85.
- Pashigian, B. Peter (1979), 'Occupational Licensing and the Interstate Mobility of Professionals', **22** *Journal of Law and Economics*, 1-25.
- Pashigian, B.P. (1980), 'Has Occupational Licensing Reduced Geographical Mobility and Raised Earnings?', American Enterprise Institute, 299-333.
- Pastor, Santos (1990), 'El Análisis Económico del Acceso a la Justicia (The Economics of Access to Justice)', **687** *Información Comercial Española*, 23-42.
- Paul, Chris (1984), 'Physician Licensure Legislation and the Quality of Medical Care', **12** *Atlantic Economic Journal*, 18-30.
- Pauly, Mark V. and Satterthwaite, Mark A. (1981), 'The Pricing of Primary Care Physicians' Services: A Test of the Role of Consumer Information', **12** *The Bell Journal of Economics*, 488-506.

- Pazderka, B. and Muzondo, T. (1983), 'The Consumer Costs of Professional Licensing Restrictions in Canada and Some Policy Alternatives', **23** *Journal of Law and Economics*, 55-75.
- Perloff, Jeffrey M. (1980), 'The Impact of Licensing Laws on Wage Changes in the Construction Industry', **23** *Journal of Law and Economics*, 409-428.
- Pfeffer, J. (1974), 'Some Evidence on Occupational Licensing and Occupational Incomes', **53** *Social Forces*, 102-111.
- Phelan, J.J. (1974), *Regulation of the Television Repair Industry in Louisiana and California: A Case Study*, US Government Printing Office.
- Prasad, Ravi (1991), 'Pay TV: Why Regulate', *Office of Regulation Review*.
- Pratt, Leila J. (1980), 'Occupational Licensing and Interstate Mobility', **15** *Business Economics*, 78-80.
- Psacharopoulos, G. (1975), *Earnings and Education in OECD Countries*, Paris, OECD.
- Ramseyer, J. Mark (1986), 'Lawyers, Foreign Lawyers, and Lawyer-Substitutes: The Market for Regulation in Japan', **27** *Harvard International Law Journal*, 499-986.
- Rayack, Elton (1967), *Professional Power and American Medicine: The Economics of the American Medical Association*, New York, World Publishing Company.
- Rayack, Elton (1976), *An Economic Analysis of Occupational Licensure*, US Department of Labor.
- Rayack, Elton (1982), 'The Physician Services Industry', in Adams, Walter (ed.), *The Structure of American Industry*, New York, Macmillan Publishing Co., Inc., 188-226.
- Rayack, Elton (1983), 'Medical Licensure: Social Costs and Social Benefits', **7** *Law and Human Behavior*, 147-56.
- Rose, Jonathan (1979), 'Occupational Licensing - A Framework for Analysis', *Arizona State Law Journal*, 189.
- Rose, Jonathan (1983), 'Professional Regulation: The Current Controversy', **6** *Law and Human Behavior (Special Issue)*, 103-116.
- Rosenstein, D.I., Joseph, L.P., Mackenzie, L.J. and Wyden, R. (1980), 'Professional Encroachment: A Comparison of the Emergence of Denturists in Canada and Oregon', **70** *American Journal of Public Health*, 614-618.
- Rottenberg, Simon (1962), 'The Economics of Occupational Licensing', in Alchian, Armen A. and Kessel, R., *Aspects of Labor Economics (Competition, Monopoly and the Pursuit of Money)*, Princeton, Princeton University Press.
- Rottenberg, S. (ed.) (1980), *Occupational Licensure and Regulation*, Washington, DC, American Enterprise Institute for Public Policy Research, 354p.
- Rovin, S. and Nash, J. (1982), 'Traditional and Emerging Forms of Dental Practice: Cost, Accessibility, and Quality Factors', **72** *American Journal of Public Health*, 656-662.
- Rubin, Stephen (1980), 'The Legal Web of Professional Regulation', in Blair, Roger D. and Rubin, Stephen (eds), *Regulating the Professions: A Public-Policy Symposium*, Lexington, MA, Lexington Books, 29-60.
- Schifrin, L.G. and Rich, W.J. (1984), *The Contact Lens Industry: Structure, Competition, and Public Policy*, Washington, DC, U.S. Congress, Office of Technology Assessment.
- Schreiber, Chanoch (1975), 'The Economic Reasons for Price and Entry Regulation of Taxicabs', **9** *Journal of Transport Economics and Policy*, 268-279.
- Schutz, Howard G. (1983), 'Effects of Increased Citizen Membership on Occupational Licensing Boards in California', **11** *Policy Studies Journal*, 504-516.
- Shaked, Avner and Sutton, John (1981a), 'The Self-Regulating Profession', **47** *Review of Economic*

- Studies*, 217-234.
- Shaked, Avner and Sutton, John (1981b), 'Heterogeneous Consumers and Product Differentiation in a Market for Professional Services', **15** *European Economic Review*, 159-177.
- Shapiro, C. (1983), 'Premiums for High Quality Products as Returns to Reputations', **98** *Quarterly Journal of Economics*, 659-679.
- Shapiro, Carl (1986), 'Investment, Moral Hazard, and Occupational Licensing', **53** *Review of Economic Studies*, 843-862.
- Shapiro, Carl and Stiglitz, Joseph E. (1984), 'Equilibrium Unemployment as a Worker Discipline Device', **74** *American Economic Review*, 433-444.
- Shedd, P.J. (1981), 'Real Estate Agents and the Unauthorized Practice of Law', **10** *Real Estate Law Journal*, 135-142.
- Shepard, Lawrence (1978), 'Licensing Restrictions and the Cost of Dental Care', **21** *Journal of Law and Economics*, 187-201.
- Shimberg, B. (1982), *Occupational Licensing: A Public Perspective*, Princeton, Princeton Educational Testing Service.
- Shimberg, B., Esser, B. and Kruger, D.H. (1973), *Occupational Licensing*, Public Affairs Press.
- Shryock, R.H. (1967), *Medical Licensing in American, 1650-1965*, Maryland, Johns Hopkins University Press.
- Slayton, Philip (1978), 'Professional Education and the Consumer Interest: a Framework for Inquiry', in Slayton, Philip and Trebilcock, Michael J. (eds), *The Professions and Public Policy*, Toronto, University of Toronto Faculty of Law.
- Sloan, Frank A. (1970), 'Lifetime Earnings and Physicians' Choice of Specialty', **24** *Industrial and Labor Relations Review*, 47-56.
- Sloan, Frank and Lindsay, Cotton M. (1976), 'Real Returns to Medical Education: Comment and Reply', **11** *Journal of Human Resources*, 118-30.
- Smith, Janet Kiholm (1982), 'An Analysis of State Regulations Governing Liquor Store Licensees', **25** *Journal of Law and Economics*, 301-320.
- Smith, Janet Kiholm (1982), 'Production of Licensing Legislation: An Economic Analysis of Interstate Differences', **11** *Journal of Legal Studies*, 117-137.
- Stacey, Meg (1997), 'The Case for and Against Medical Self-Regulation', **84** *Federal Bulletin: The Journal of Medical Licensure and Discipline*, 17-25.
- Stevens, Rosemary A. (1986), 'The Future of the Medical Profession', in Ginzberg, Eli (ed.), *From Physician Shortage to Patient Shortage: The Uncertain Future of Medical Practice*, Second Conference on Health Policy, Cornell University Medical College, Boulder, CO, Westview Press.
- Stigler, George J. (1971), 'The Theory of Economic Regulation', **2** *Bell Journal of Economics*, 3-21.
- Svorny, Shirley (1979), *Foreign-Trained Physicians and Health Care in the United States*, Ph.D. Dissertation, University of California, Los Angeles.
- Svorny, Shirley (1987), 'Physician Licensure: A New Approach to Examining the Role of Professional Interests', **25** *Economic Inquiry*, 497-509.
- Svorny, Shirley (1991), 'Consumer Gains from Physician Immigration to the U.S.: 1966-1971', **23** *Applied Economics*, 331-337.
- Svorny, Shirley (1992), 'Should We Reconsider Licensing Physicians?', **10** *Contemporary Policy Issues*, 31-38.

- Svorny, Shirley (1993), 'Advances in Economic Theories of Medical Licensure, Federation Bulletin', **80** *Journal of Medical Licensure and Discipline*, 27-32.
- Svorny, Shirley and Toma, Eugenia Froedge (1996), 'Entry Barriers and Medical Board Funding Autonomy', *Public Choice*, forthcoming.
- Swan, Peter L. (1982), *Human Tissue Transplants*, Law and Economics, Canberra, Australian National University.
- Taman, L. (1978), 'The Emerging Legal Paraprofessionals', in Slayton, Philip and Trebilcock, Michael J. (eds), *The Professions and Public Policy*, Toronto, University of Toronto Faculty of Law.
- Tuohy, Carolyn J. and Alan D. Wolfson (1976), 'Self-regulation: who qualifies?', in Slayton, Philip and Trebilcock, Michael J. (eds), *The Professions and Public Policy*, Toronto, University of Toronto Press, 111-124.
- Trebilcock, Michael J. (1976), 'The Professions and Public Policy: The Nature of the Agenda', in Slayton, Philip and Trebilcock, Michael J. (eds), *The Professions and Public Policy*, Toronto, University of Toronto Press, 3-14.
- Ulrich, Alvin, Furtan, William H. and Schmitz, Andrew (1987), 'The Cost of a Licensing System Regulation: An Example from Canadian Prairie Agriculture', **95** *Journal of Political Economy*, 160-178.
- US Department of Health and Human Services (1986), *Medical Licensure and Discipline: An Overview*, Boston.
- Van den Bergh, Roger (1986), 'Belgian Public Policy Towards the Retailing Trade', in Graf Von Der Schulenburg, J.-Matthias and Skogh, Göran (eds), *Law and Economics and The Economics of Legal Regulation*, Dordrecht, Kluwer, 185-205.
- Van den Bergh, Roger (1986), 'De Economische Reguleringstheorie en de Belgische Vestigingswetgeving voor Kleine en Middelgrote Handels- en Ambachtsondernemingen (The Economic Theory of Regulation and the Belgian Licensing Law for Small and Middle Size Companies)', in Van den Bergh, Roger (ed.), *Verslagboek Eerste Werkvergadering Recht en Economie*, Antwerpen, Handelshogeschool, 38-49.
- Van den Bergh, Roger and Faure, Michael G. (1991), 'Self Regulation of the Professions in Belgium', **11** *International Review of Law and Economics*, 165-182.
- Weingast, Barry R. (1980), 'Physicians, DNA Research Scientists, and the Market for Lemons', in Blair, Roger D. and Rubin, Stephen (eds), *Regulating the Professions: A Public-Policy Symposium*, Lexington, MA, Lexington Books.
- Wertz, Dorothy (ed.) (1988), *Turf Battles and the Theory of Professional Dominance, Research in the Sociology of Health Care (Vol. 7)*, Greenwich, CT, JAI Press, 203-225.
- White, William D. (1978), 'The Impact of Occupational Licensure of Clinical Laboratory Personnel', **13** *Journal of Human Resources*, 91-102.
- White, William D. (1979a), 'Dynamic Elements of Regulation: The Case of Occupational Licensure', **1** *Research in Law and Economics*, 15-33.
- White, William D. (1979b), *Public Health and Private Gain: The Economics of Licensing Clinical Laboratory Personnel*, Chicago, Maaroufa Press.
- White, William D. (1983), 'Labor Market Organization and Professional Regulation: A Historical Analysis of Nursing Licensure', **7** *Law and Human Behavior*, 167-170.
- White, William D. (1987), 'The Introduction of Professional Regulation and Labor Market Conditions Occupational Licensure of Registered Nurses', **20** *Policy Sciences*, 27-51.
- White, William D. and Marmor, Theodore R. (1982), 'Old Demands, New Occupations: The Public

- Regulation of Paraprofessionals', **1** *Journal of Public Policy Analysis and Management*, 243-256.
- Wolfson, A.D., Trebilcock, M.J. and Tuohy, C.J. (1980), 'Regulating the Professions: A Theoretical Framework', in Rottenberg, S. (ed.), *Occupational Licensure and Regulation*, Washington, DC, Washington, American Enterprise Institute for Public Policy Research, 354 p.
- Wright, D.T. (1978), 'The Objectives of Professional Education', in Slayton, Philip and Trebilcock, Michael J. (eds), *The Professions and Public Policy*, Toronto, University of Toronto Faculty of Law.
- X. (1974), 'Note: Restrictive Licensing of Dental Paraprofessionals', **83** *Yale Law Journal*, 806-826.
- Young, S. David (1987), *The Rule of Experts: Occupational Licensing in America*, Washington, DC, Cato Institute.
- Zardkoohi, Asghar and Pustay, Michael W. (1989), 'Does Transferability Affect the Social Costs of Licensing?', **62** *Public Choice*, 187-190.

Other References

- Begun, J. et al. (1981), 'Occupational Regulation in the States: A Causal Model', **6** *Journal of Health Politics, Policy and Law*, 229-54.
- Eaton, B. Curtis and White, William D. (1983), 'The Economy of High Wages: An Agency Problem,' **50** *Economica*, 175-181.
- Faure, Michael, Jorg Finsinger, Jacques Siegers, and Van den Bergh, Roger (eds) (1993). *Regulation of Professions*, Antwerpen, Maklu.
- Glib, Corinne L. (1966), *Hidden Hierarchies: The Professions and Government*, New York, Harper and Row.
- Lazear, Edward P. (1981), 'Agency, Earnings Profiles, Productivity, and Hours Restrictions', **71** *American Economic Review*, 606-620.
- Peltzman, Sam (1976), 'Toward a More General Theory of Regulation', *Journal of Law and Economics*, 211-240.
- Stacey, Meg (1997), 'The Case for and Against Medical Self-regulation', **84** *Federation Bulletin: The Journal of Medical Licensure and Discipline*, 17-25.