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**Occupational licensing in the EU:
Protecting consumers or limiting competition?**

Mario Pagliero*

Abstract

Occupational licensing regulations require workers in many different professions to obtain a special permit to work legally in their chosen field. Although professional associations argue that the only goal of professional licensing is to protect the public, occupational regulation may also reduce competition: for example, by reducing entry. This paper reviews the recent literature and policy developments on the subject, with a focus on the European Union.

Key words: Occupational regulation, licensing

1. Introduction

Occupational licensing regulations require workers in many different professions to obtain a special permit to work legally in their chosen field. Examples include medical doctors, nurses, lawyers, teachers, engineers, hairdressers, and also smaller specialized professions such as skiing instructors, alpine guides, and farriers. In the EU, 22% of workers are subject to occupational licensing (Koumenta and Pagliero 2016).

Although professional associations argue that the only goal of professional licensing is to protect the public, economists have long held two opposing views on the subject: The first view is in the category of public interest theory. Building on the work of Akerlof (1970), Leland (1979) showed that professional licensing might serve to remedy market failure that follows from asymmetric information.

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Capture theory – which was pioneered by Stigler (1971) -- argues instead that “regulation is acquired by the industry and is designed and operated primarily for its benefit”. Hence, occupational regulation may reduce competition: for example, by reducing entry.

Occupational licensing is particularly common in the services sector (health and social work, public administration, education, transportation and communication industries), but less so in agriculture and manufacturing (Koumenta and Pagliero 2016). Since the service sector accounts for a large share of employment in the EU, reform of professional licensing regulations could have a significant impact on economic growth in the European Union. This paper reviews the recent literature and policy developments since the last comprehensive review on the subject (Kleiner 2000), with a focus on the European Union.

The paper is organized as follows: Section 2 describes the prevalence of licensing in the EU. Section 3 illustrates the importance of licensing for economic policy in the EU. Section 4 reviews its importance for wage determination, mobility, and the quality of services that are provided. Section 5 introduces the growing literature that investigates how licensing boards behave and interact. Finally, Section 6 argues that occupational regulation is important for researchers in industrial organization and discusses the applicability of competition policy to professional associations.

2. The prevalence of occupational licensing in the EU

Estimating the proportion of workers who hold a legally-required license to do their job has proven to be extremely challenging, owing mainly to the absence of questions on occupational licensing in large-scale surveys in the EU. Researchers are thus faced with the difficult task of imputing the regulation status of workers from their reported occupations (e.g., Gittleman and Kleiner 2016; Koumenta et al. 2014). This is problematic for three main reasons, which highlight three key characteristics of occupational regulation: First, the definitions of licensed occupations -- those activities that are reserved by law to licensed workers -- do not generally correspond to commonly used classifications of professions. This means that the occupations that are listed in labor force surveys -- classified with the use of International Standard Classification of Occupations (ISCO) codes or the like -- often do not match the few available sources of data on licensed occupations.² Second, licensing requirements can depend

² For example, farriers are licensed in the UK, but there is no ISCO code that is specific to farriers in labour force surveys. The European Commission maintains a rich data set of regulated professions in each EU member state (<http://ec.europa.eu/growth/tools-databases/regprof/>).

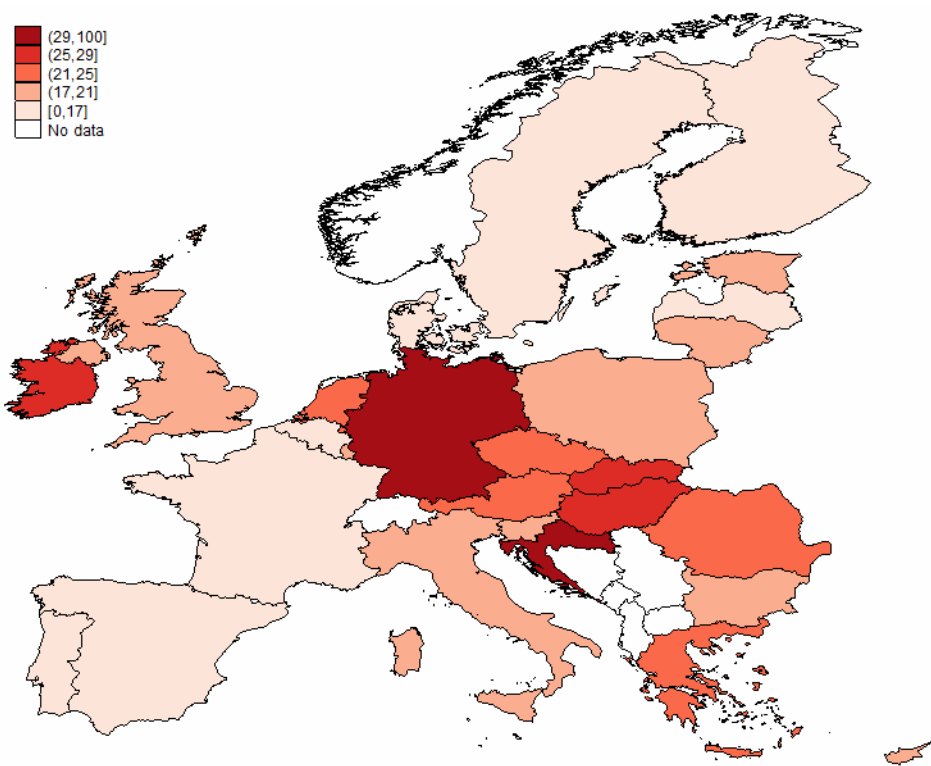
on a worker's individual circumstances. For example, an engineer may not need a license when employed by a company, but be required to obtain one when self-employed. Third, licensing requirements vary significantly across EU member states: licensing is typically implemented at the state level, and can sometimes even vary down to the regional or city level.³

A significant step forward in measuring the prevalence of licensing was the development of specific survey items that were intended to capture the licensing status of workers. Kleiner and Krueger (2010, 2013) pioneered this approach with the use of a telephone survey of a representative sample of American workers. Specific questions on occupational licensing are now included in the American Current Population Survey (CPS) and Survey of Income and Program Participation (SIPP) (Gittleman et al. 2017). In 2015, the EU Survey of Regulated Occupations (carried out by the European Commission) adopted a similar approach. Using this new data set, Koumenta and Pagliero (2016) estimate that 22 percent of workers in the EU are subject to licensing. They also document that the prevalence of licensing varies significantly across member states: ranging between 14 per cent in Denmark and 33 percent in Germany (Figure 1). In the US, the estimated prevalence of licensing ranges between 20 and 29 percent (depending on the data and definitions used). The variability across states is similar to that observed in the EU (Kleiner and Krueger 2010, 2013; Kleiner and Vorotnikov 2017).

Koumenta and Pagliero (2016) compute the prevalence of licensing by state and 1-digit ISCO code. They find that occupational licensing is least common in managerial occupations (e.g., managers, executives) and elementary occupations (e.g., food preparation, cleaners) and most common among plant and machine operators, technicians (e.g., electricians), and professionals (e.g., lawyers). There are also large differences across states in the prevalence of licensing for the same type of occupation. The proportion of licensed workers varies the most across states in occupations such as craft and related trades, plant and machine operators, and skilled agricultural occupations. For example, in the craft and related occupations, the proportion of licensed workers is 38 per cent in Germany and 7 per cent in Spain, while the average proportion of licensed workers at the state level is 33 and 17 per cent, respectively.

³ A necessary condition for licensing is the legal requirement to use the service of a licensed worker for a specific activity. This legal requirement may be embedded for in state or local laws and regulations.

Figure 1. The prevalence of occupational licensing in the EU.



2.1. The determinants of the prevalence of licensing regulations

Figure 1 shows the prevalence of licensing in the EU. The variability in the prevalence of licensing begs the question (so far unexplored) of what determines the importance of this type of regulation. In principle, occupational licensing might be a substitute for other types of institutions that are aimed at protecting workers, such as unions. Alternatively, it may be the outcome of different cultures and legal systems, or the product of different political ideologies that are more or less in favor of regulated markets. Finally, the prevalence of licensing might be correlated with the process of economic growth, which would lead to a cross-sectional correlation with GDP per capita.⁴

⁴ Efficient regulation might lead to economic growth, inefficient regulation to stagnation. Either way, a strong correlation with GDP per capita could be informative about the causes and consequences of occupational licensing.

Table 1. Correlation between prevalence of licensing and country characteristics.

	Prevalence of licensing	Labor Laws	Collective Relations Laws	Social Security Laws	GDP per capita	Historical center or left political orientation
Labor Laws	-0.366* (0.078)	1				
Collective Relations Laws	-0.029 (0.891)	0.440** (0.031)	1			
Social Security Laws	-0.492** (0.014)	0.218 (0.306)	0.116 (0.589)	1		
GDP per capita	-0.047 (0.819)	-0.000 (0.999)	-0.273 (0.197)	0.156 (0.467)	1	
Historical center or left political orientation	-0.098 (0.646)	0.066 (0.758)	-0.064 (0.765)	0.305 (0.147)	-0.485** (0.016)	1

Note: Table reports correlation coefficients and P-values (in parentheses), N=24. GDP per capita is the GDP per capita in each member state in 2015 (current euros). The variables labor laws, collective relations laws, and social security laws measure the intensity of labor regulations and the generosity of the social security laws (Botero et al. 2004). *** p<0.01, ** p<0.05, * p<0.1

Table 1 reports the correlation coefficients between the prevalence of licensing and three measures of the intensity of labor market regulations in the EU (taken from Botero et al. 2004). The first index (Labor Laws) captures the importance of regulation in individual employment relations. The second (Collective Relations Laws) measures the intensity of regulation of the balance of power between labor unions, employers, and employers' associations. The third (Social Security Laws) measures the generosity of the social security system in terms of old-age pensions, sickness and health care coverage, and unemployment insurance. The prevalence of licensing is negatively correlated with regulation of employment relations and the generosity of the social security system. Table 1 also shows that the prevalence of licensing is not significantly correlated with GDP per capita or the dominant political ideology during the 20th century.⁵

While these correlations do not clearly imply any causal relation, they do seem to suggest the peculiarity of occupational licensing regulations in relation to other labor market regulations. The table

⁵ I use the measure of the historical power of centrist or left-wing governments in each country from Botero et al. (2004). This variable measures the percentage of years between 1928 and 1995 when the chief executive and the legislature were of left or centrist orientation. Although this variable is admittedly outdated and does not capture recent changes in political attitudes, it does reflect the dominant political ideology dichotomy during most of the 20th century.

suggests that occupational licensing might be a substitute for other types of labor protection and social security regulations.

Table 2. Occupational licensing and legal origins.

VARIABLES	(1)	(2)	(3)	(4)
	Prevalence of licensing	Prevalence of licensing	Prevalence of licensing	Prevalence of licensing
GDP per capita	-0.000271 (0.000758)	0.00102 (0.00157)	-0.000577 (0.000877)	0.000915 (0.00160)
English legal origin		-0.0413 (0.0477)		-0.0494 (0.0497)
French legal origin		-0.0767* (0.0401)		-0.0803* (0.0410)
Scandinavian legal origin		-0.128*** (0.0421)		-0.0885 (0.0699)
Socialist legal origin		-0.0236 (0.0542)		0.0118 (0.0744)
Historical center or left political orientation			-0.0305 (0.0423)	-0.0728 (0.103)
Constant	0.218*** (0.0225)	0.236*** (0.0685)	0.242*** (0.0404)	0.259*** (0.0769)
Observations	24	24	24	24
R-squared	0.006	0.423	0.030	0.440

Note: Table reports OLS regression coefficients. German legal origin dummy is omitted. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Another potential explanatory variable is the country's legal origin, which tends to be correlated with labor market regulations. Following Botero et al. (2004), EU member states are classified as having French, English, Scandinavian, German, or Socialist legal origins. Table 2 reports OLS regressions where the dependent variable is the prevalence of licensing and the independent variables are GDP per capita, legal origin indicator variables, and the historical political orientation. GDP per capita and the historical influence of the left have no explanatory power, while the legal origin indicators explain about 40 percent of the variability in the prevalence of licensing. Countries with Scandinavian and French legal origins have a smaller proportion of licensed workers. These results seem to suggest the importance of the long-term relation between institutions and licensing.⁶

⁶ Similar results are obtained including data for the US.

3. Does occupational licensing regulation matter for economic policy?

The services sector accounts for over 70% of the EU's GDP and an equal share of its employment. Starting from this premise, over the past decades the European Commission has aimed at removing barriers for companies that seek to offer cross-border services. This long-term policy originates from the fundamental freedoms that are granted under EU law: the freedom of establishment (article 49 TFEU); the freedom of provision of services (article 56 TFEU); and the free movement of goods, workers, and capital (articles 28, 45, and 63 TFEU).

Two directives that play an important role in the application of these principles are related to occupational licensing, which can restrain workers and service firms from providing services abroad or moving across member states: The aim of the Services Directive (Directive 2006/123/EC) was to make it easier to establish a business or deliver a service in another country. However, authorizations for control of access to a service activity may still be requested by member states, provided that the restrictions: are not discriminatory; are justified by an overriding reason relating to the public interest; and are proportionate (the objective pursued cannot be attained by a less restrictive measure). Hence, workers who are authorized to provide a service in one state are not necessarily authorized in a different state. The Professional Qualification Directive (Directive/2005/36/EC) created rules to facilitate the mutual recognition of professional qualifications between EU countries and the process of obtaining such authorizations. Rules vary depending on the profession and level of qualification.⁷

In 2017, the Service Package initiated a process of mutual evaluation of existing regulations in the service sector, including professional licensing regulations. The purpose was to introduce common criteria across member states for the evaluation of existing and new legislation in this area. The Commission is also developing new restrictiveness indicators to compare regulations across member states.

Overall, occupational licensing is becoming an important policy issue at the EU level, as it touches on the fundamental principles of the EU Treaty. At the state level, occupational licensing regulations are also subject to significant debate. For example, the entry of Uber into European markets sparked outcry from professional taxi drivers, who were in some cases successful in limiting or impeding entry. In any case, the debate on the desirability of occupational licensing regulations made headlines across the continent.

⁷ The directive provides for a general system for recognition of evidence of training and a system of automatic recognition for some specific professions. There are also exceptions and profession-specific directives -- for example, for lawyers -- that deal with the right of establishment in another EU country and the cross-border provision of services.

In the US, occupational licensing is becoming an important and bipartisan topic in the policy debate. For example, in 2015, a report that was published by the Obama White House (The Department of Treasury 2015) called for a review of the costs and benefits of occupational licensing regulations. In July 2017, Alexander Acosta, US Secretary of Labor in the Trump administration, also recommended a thorough review of occupational licensing regulations. Moreover, over the past few years, the Federal Trade Commission has been active in applying antitrust legislation to occupational licensing boards. This has led to the most relevant policy developments in this area, which are described in Section 6.

4. Three classic research themes

4.1. The licensing wage gap

Occupational licensing has a significant impact on the economy. A large number of studies document a wage premium that is associated with professional licensing, even after accounting for education, age, work experience, type of occupation, industry, and other worker characteristics. Wage premiums are typically estimated using reduced-form wage regressions with individual data (cross-sectional or panel).⁸ A number of studies have also investigated the impact of changes in licensing regulation on wages with the use of a difference-in-difference approach; these studies generally find a positive impact of more stringent licensing regulations on wages.⁹ While most studies tend to find a positive wage premium, there is significant heterogeneity in the size of the premium. Using the EU Survey of Regulated Occupations, Koumenta and Pagliero (2019) document that wage premiums vary across professions -- even when holding constant the type of data and estimation methodology.

Why do licensed workers earn higher wages? Perhaps because of entry restrictions that create monopoly rents, or because the workers collude on prices, or coordinate their actions in some other way.¹⁰ However, it could also be that the licensing process compels workers to acquire greater human capital than their unlicensed peers, and/or it may provide a credible signal of competence in the profession. Distinguishing the two potential effects of licensing -- entry restriction and signaling -- can be difficult. Koumenta and Pagliero (2019) approached the problem by identifying workers whose professional certification is a signal of specific skills without being a legal job requirement.¹¹ Their findings show that

⁸ See for example Pagliero (2010), or Kleiner (2000) for a review of the literature.

⁹ Examples include Thornton and Timmons (2013) and Kleiner et al. (2016).

¹⁰ For example, Italian lawyers used a common scale of fees for legal services, which was proposed by the Italian National Council (*Arduino*, 2002, Case C-35/99). They were also subject to a strict ban on commercial advertising.

¹¹ The legal requirement to hold a license is the defining characteristic of professional licensing.

there are positive wage premiums for both licensing and certification. Hence, the licensing wage gap can be partly attributed to signaling and partly to entry restrictions.¹²

A related topic of growing interest is the impact of licensing on wage dispersion. Papers on the topic so far tend to find either no effect or a positive effect on wage dispersion.¹³ This is not surprising, given evidence from the wage gap literature and the fact that licensing often affects workers with medium-to-high education. It is interesting to note that the impact of licensing regulations on wage dispersion is very different from that of unions, which tend to compress the wage distribution. This highlights the specificity of occupational licensing.

In line with the evidence on wages, a few studies show positive impacts of licensing on prices (Kleiner 2006), although data on prices are less widely available than are data on wages. For example, Kleiner and Kudrle (2000) calculate the average fees charged by dentists for various dental procedures. They find that tougher licensing is associated with higher prices. Kleiner et al. (2016) show that stricter regulations for nurses increase the price of a well-child visit by 3–16 percent.

4.2. Licensing and worker mobility

In the EU, hundreds of professions are licensed in accordance with country-specific local laws. At the same time, mobility of workers is one of the cornerstones of the EU treaty. To the extent that local licensing regulations impose different standards for entry into a profession, labor mobility may be severely limited. In fact, harmonization of requirements and mutual recognition of professional licensing qualifications is high on the policy agenda in the EU.

The study of the impact of occupational licensing on mobility has a long tradition in the literature on licensing (Kleiner 2000). More recently, Federman et al. (2006) estimate the effects of licensing regulations on migration patterns for foreign manicurists in the US. In line with most papers in this literature, they find that migration is impeded by the existence and restrictiveness (in terms of minimum entry standards) of state licensing regulations. In particular, they estimate that the requirement of 100 additional hours of training reduces the likelihood of a foreign manicurist migrating by 4.5 per cent, while ~~states that require some level of English proficiency were 5.7 percentage points less likely to have a foreign~~

¹² The distinction between certification and licensing is clearly important for policy, since the former signals the quality of the worker without restricting entry into the profession. Using data on the US, Thornton and Timmons (2013), Kleiner and Krueger (2013), and Gittleman et al. (2018) make this distinction and find a positive premium for certification and licensing.

¹³ Kleiner and Krueger (2013), Koumenta and Pagliero (2019).

manicurist. Johnson and Kleiner (2017) show that lawyers, teachers, and barbers/hairdressers move at a lower rate across state lines (where regulatory arrangements are different) than within states in the US, as compared to similar individuals in other occupations.

Koumenta and Pagliero (2016) find that the proportion of foreign-born workers is about one-third lower among licensed workers in the EU, while there is no significant difference in the proportion of foreign-born workers among unregulated workers and those who hold some form of optional professional certification.¹⁴ This is in line with occupational licensing restricting access to foreign-born workers, while certification is not a significant obstacle. They also find that the negative effects of occupational licensing vanish for licensed professions that are subject to automatic recognition of the title according to EU rules (nurses, midwives, doctors, dental practitioners, dentists, pharmacists, architects, veterinary surgeons).¹⁵ This suggests that current policies aimed at reducing mobility costs are effective in promoting mobility; it is also consistent with most of the existing literature that suggests that licensing reduces labour mobility.

4.3. Licensing and service quality

The quality effect of occupational licensing is the third classic theme in the literature on occupational licensing. Supporters of occupational licensing -- often professional organizations -- typically argue that licensing guarantees minimum quality standards and improves quality. Indeed, minimum quality standards can remedy some of the problems that are generated by asymmetric information when consumers cannot acquire information on the quality of the service that they intend to buy. However, a self-regulated occupation will also generally tend to set standards that are too high from a social perspective (Leland 1979) and take advantage of its monopoly power, thus reducing social welfare (Shaked and Sutton 1981).¹⁶

Another issue pertains to the social desirability of high quality standards: Stringent regulation benefits consumers who are willing to pay a high price for a high-quality product, but might induce consumers with a lower willingness to pay not to consume at all (Shapiro 1986), or resort to do-it-yourself solutions, which

¹⁴ These results come from linear probability models where the dependent variable is an indicator that is equal to one for foreign-born workers and a rich set of individual-level covariates is included.

¹⁵ These professions are listed in the Professional Qualification Directive (Directive/2005/36/EC).

¹⁶ A more recent strand of theoretical literature discusses optimal regulation in markets with asymmetric information and reputation concerns (Atkeson et al. 2015).

are generally worse in terms of quality and potentially unsafe (Carroll and Gaston 1983). Kleiner and Kudrle's (2000) study on dentists, for example, finds no effect of licensing on dental health.

Real-world observation suggests that licensing examinations measure competence, not job performance (Kleiner 2006). Unfortunately, there is little evidence on the relationship between performance on licensing exams, the ability to perform on the job, and the actual quality of the service that is provided. Although disciplinary procedures -- which are common in licensed professions -- arguably make misbehavior more costly, even skilled professionals might still have an incentive to underprovide quality, after having obtained the right to practice in an occupation.

Measuring quality is not a simple task. In the literature, researchers have focused on many different proxies: such as number of customer complaints, consumer ratings of practitioner behavior, malpractice insurance rates, number of malpractice cases, and number of disciplinary actions (Maurizi 1980; Maurizi 1974; Holen 1978). All measures of quality are subject to criticism: For example, recorded complaints depend on consumer marginal cost and benefit of filing a complaint, and consumer perception of the likely outcome of the process. Moreover, transaction costs are large, and some consumers might not even be aware of the complaint procedures.

An interesting strand of the literature has focused on the impact of teacher licensing on the quality of teachers and student outcomes. For example, Angrist and Guryan (2004) study the effect of state teacher testing requirements. They find that mandated testing is associated with higher wages, but not with higher quality (measured by educational background). More recently, Larsen (2013) studies the impact of licensing regulations on the quality distribution of teachers (measured by their qualifications) and the performance distribution of students (measured by their test scores). As a result of more stringent licensing, some high-quality teachers may not enter the teaching profession. Moreover, the effects on student performance are heterogeneous, which leads to an increase in the variability of outcomes.

5. Three new areas of research

5.1. What do licensing boards maximize?

The implementation of occupational licensing regulations is typically delegated by the state to professional associations. Economists have long held opposing views on what the objectives of these associations are: public interest theory, and capture theory. Most of the empirical analysis that was described in the previous sections is driven by these two alternative views. According to capture theory, occupational

licensing is expected to increase the wages of insiders (through higher prices of the services provided) and reduce supply -- just as a textbook monopolist would do. To the extent that entry restrictions occur through a licensing examination, the quality of the service provided might increase; but this is more a byproduct of rent extraction than an aim of the licensed profession in itself. On the other hand, public interest theory rests on the idea that occupational licensing screens for the best candidates and improves the quality of the service with the objective of improving social welfare.

In practice, licensing boards operate within a network of rules and regulations and not necessarily in pursuit of a single goal, which makes it hard to infer the objective function of licensing boards in an empirical analysis. Pagliero (2011) estimates a model in which licensing boards assign a positive weight to social welfare and rent extraction. He estimates a weight of 0.7 to rent extraction (not statistically different from one). The methodology draws from the industrial organization literature on the estimation of market power. Since the main implication of capture theory is the exercise of market power, estimating market power in a regulated profession provides information on the degree to which a profession is captured. Pursuing this analogy further may open the way to the use of a large set of tools that are common in the field of industrial organization.

The large weight that is attributed to rent extraction is in line with the existing evidence on the positive impact of licensing on wages, the negative impact on mobility, and the mixed evidence on quality. This entire body of work is consistent with the view that professional associations promote the interests of their members. Taking a broader perspective, the debate on the objectives of professional associations is reminiscent of the debate among economic historians on the objectives of medieval guilds, which are the historical antecedents of professional licensing associations. Recent work in the area provides strong evidence that guilds essentially pursued the interest of their members (Ogilvie 2014).

5.2. **How do licensing boards operate?**

Members of professional associations typically vote for representatives on licensing boards (self-regulatory bodies) and pay annual fees to cover the costs of the association (for example, organizing entry examinations, monitoring the moral character and conduct of members, and lobbying at the national and EU level). Systematic evidence on the internal functioning of licensing associations is largely missing.

Pagliero (2013) shows that licensing boards are responsive to changes in economic conditions. An increase in the number of candidates at the bar exam is associated with increases in the difficulty of the exam. This contrasts with the view that licensing boards select those who are good enough to practice a

profession only on the basis of the type of tasks to be performed, independently of supply and demand considerations. Persico (2014) describes a model in which a self-regulated profession might choose to expand or contract, depending on the competition-enhancing effect of new entrants and the potential complementarity among different types of workers in the profession. In general, professional associations need to account for the potentially conflicting interests of their members. How this process occurs is an important and understudied topic at the boundary between political economy and industrial organization.

5.3. How do licensing boards interact?

A commonly held assumption -- in both empirical and theoretical analysis -- is that licensing boards act in isolation. This greatly simplifies the analysis, as it allows us to ignore any strategic considerations, and to study national (or regional) markets as independent observations. Still, the actions that are taken by licensing boards can have consequences in other professions. Kleiner (2013) shows that disputes can occur at the boundaries between professions with respect to the exact definition of the tasks that are reserved for each profession. Moreover, stricter regulation in a profession might benefit professionals in a different industry, if services are substitutes. For example, Kleiner et al. (2016) show that less stringent regulations for nurses were associated with lower salaries for medical doctors. Timmons (2019) reports that cosmetologists (a licensed profession in Alabama) supported licensing regulations for barbers, a competing un-licensed profession that provides a close substitute service.

Pagliari and Buonanno (2018) provide evidence that licensing boards interact strategically: In the Italian market for lawyers, regional bar exams that are graded by regional licensing boards allow access to a single national labor market, with lawyers moving freely across regions. Hence, grading standards that are chosen in one region can affect employment and wages in others. The evidence shows that grading standards are extremely heterogeneous throughout Italy, and that this can be explained as the equilibrium of a game in which grading standards are chosen strategically. This new line of research shows that-- at least in some situations-- the behavior of licensing boards cannot be studied in isolation. Interestingly, the empirical analysis of strategic interactions is an area in which industrial organization has much to offer to researchers interested in occupational licensing.

6. Does occupational licensing regulation matter for industrial economists?

Entry regulation is not the only reason that occupational licensing is important for competition in the service industry. Occupational licensing regulations often come together with minimum and maximum prices, geographical market segmentation, and other behavioral regulations. For example, architects in

Germany need to comply with minimum and maximum prices -- in addition to strict entry regulation, mandatory insurance, and other regulations (Rostam-Afstar and Strohmaier 2019). Moreover, licensing regulations often involve restrictions on the internal organization of firms: for example, by limiting opportunities to form partnerships with members of different professions. In Italy, the number, location, and fees of notaries are regulated, as are the number, location, and ownership of pharmacies; these restrictions reduce competition in local markets.¹⁷ These regulations potentially affect competition, economies of scale, and efficiency. More broadly, extensive regulation in the service industry might affect the productivity of industries that use services (such as legal and auditing) as inputs of production.

6.1. Licensing and competition policy

Finally, occupational licensing matters for competition policy. In the US, there have been significant developments that followed the 2015 *North Carolina Board of Dental Examiners v. Federal Trade Commission* case. The case originated from the North Carolina Board of Dentists' reacting to the sale of non-dentist teeth whitening kits, which were sold in shopping malls and salons for on site use. The Board issued cease-and-desist letters that threatened teeth whiteners with criminal liability for practicing dentistry without a license; these threats deterred entry into the market.

The FTC investigated the case as an unreasonable restraint of trade; but the Board claimed to be immune from antitrust laws, as it was acting in accordance with specific state licensing regulations ("state-action immunity"). However, the U.S. Supreme Court determined that state licensing boards that are controlled by market participants and are not directly supervised by the state (as in the case of the North Carolina Board of Dentists) are not immune from federal antitrust scrutiny. This decision clarified the distinction between actions that are taken by the state, local authorities such as regulators, and other private parties. While all of them might be displacing competition according to some state law, only the first two are subject to state-action immunity, while the third needs to be actively supervised by the state to claim immunity. The key economic issue in the case was the attempt of dentists to collude in order to exclude alternative providers from their market (Kwoka and White, 2019, chapter 11).

This decision forced many states to rethink their occupational licensing regulations in order to protect licensing boards from antitrust liability.¹⁸ Although the consequences of the decision are still not clear, the states have three main alternatives: First, they might reassess the composition of licensing

¹⁷ Calzolari et al. (2018) study price competition in the Italian pharmacy market. Schaumans and Verboven (2008) study the pharmacy market in Belgium.

¹⁸ For a summary of recent developments in antitrust enforcement in this area, see the American Antitrust Institute (2017).

boards to avoid any conflict of interest between regulators and regulated professions (licensing boards are typically controlled by members of the profession). Second, they might resort to supervising the profession directly, rather than delegating supervision to largely independent licensing boards, as is typically the case. These first two alternatives would help guarantee immunity. The last alternative is to remove specific regulations that violate competition policy, which would leave licensing boards subject to competition policy. However, this would substantially limit the power of licensing boards to regulate entry, mobility, fees, and educational requirements, and to interfere with price determination. Either way, all three routes might imply the end of the self-regulating profession, as it is now commonly understood.

In the EU, competition rules apply to individuals and firms that provide services, as they qualify as undertakings within the meaning of competition rules.¹⁹ However, member states have the right to regulate a profession as long as they maintain sufficient control mechanisms and do not delegate regulation to private economic operators, which are not necessarily concerned with the public interest. In *Arduino*, the Court of Justice ruled that a scale of fees for legal services that were proposed by the Italian National Council of the Bar *and approved by the government* was compatible with competition law.²⁰ The Court also ruled that some regulations with anticompetitive effects might be allowed, if they are inherent, or essential, to the provision of some type of service. In *Wouters*, the Court recognized that the prohibition of multidisciplinary partnerships with accountants in the Dutch legal profession produced anticompetitive effects.²¹ However, the Court ruled that this restriction was a necessary condition for the proper practice of the legal profession, which required guarantees of complete independence and strict secrecy. Accountants in the Netherlands were not bound by comparable rules; hence multidisciplinary partnerships could not guarantee proper practice of the legal profession.

Overall, it seems that the application of competition policy to professional associations in the EU is generally less stringent than in the US. The key issue seems to be the extent to which restriction of competition could be justified by direct *state intervention* or *inherent characteristics* of specific industries. The recent histories of antitrust enforcement on the two sides of the Atlantic diverge on this point.

¹⁹ Moreover, professional bodies are associations of undertakings when taking decisions in the economic sphere (*Italian Custom Agents* 1993, Case 93/438/EEC). In this case, the mandatory tariffs for services that were provided by customs agents and that were adopted by the professional association were considered an infringement of Article 85 of the EEC Treaty.

²⁰ *Arduino*, 2002, Case C-35/99.

²¹ *Wouters* 2002, Case C-309/99.

7. Conclusions

Occupational licensing is an important -- and understudied -- topic for researchers in industrial organization. It affects prices, the quality of services, the internal organization of firms in the service industry, mobility of workers, and the potential for firms and workers to operate across state boundaries. There is an intense policy debate on these issues: For example, the recent entry of Uber into European markets highlights the importance of entry regulations in the service industry, which are often implemented as part of licensing regulations. Moreover, recent antitrust cases in the US show that the application of competition policy in this area can have far-reaching consequences. In light of such events, reassessment of EU competition policy in this area is probably needed. Finally, from a methodological point of view, industrial economists could leverage their long experience in the analysis of strategic interaction, entry, and competition to shed new light on the effects of occupational licensing.

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