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Liberalizing Professional Services: Evidence from Italian Lawyers*

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Abstract

This paper presents a new model of occupational licensing, where producers are heterogeneous both in their ability or productivity and in the level of the barriers to entry in the profession that they face. The model bears important implications on the effects of liberalization policies that differ dramatically from those implied by the standard model, where heterogeneity is unidimensional in productivity. Specifically, we find that liberalization policies induce higher quality of services if barriers to entry are high for the most able agents. The opposite if such a correlation is low.

We test these implications using detailed microdata on Italian lawyers and find a strong effect of the 2006 Italian liberalizing reform on the composition of the outflows from the legal profession. While higher ability lawyers are more likely to leave the profession before the reform, the opposite happens in its aftermaths, consistently with the idea that monopoly power selects high-productivity lawyers out of the profession.

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1 Introduction

Occupational licensing is a widespread labor market institution that has received surprisingly little attention by economists, despite its sharp diffusion over the past one or two decades in many industrialized countries. Kleiner and Krueger (2010) document that almost one third of all workers in the United States are employed in occupations that require some kind of government licensing.¹

Such a regulation may improve consumer welfare in markets affected by asymmetric information leading to the buyer not being able to acquire sufficient information about the seller or not being able to do so at reasonable costs. In such instances, occupational licensing reduces the heterogeneity of producers by guaranteeing that only the best operators eventually enter the market (Fridman and Kuznets, 1945; Leland, 1979; Maurizi, 1974; Shapiro, 1986; Stigler, 1971). In this sense, occupational licensing is viewed as a standard barrier to entry.

Despite its potential positive effects on the quality of producers, occupation licensing may also limit competition in the market and, thus, reduce welfare, by limiting supply and increasing prices (Fridman and Kuznets, 1945; Leland, 1979; Maurizi, 1974). Anticompetitive effects of occupational regulations are stronger when the institution that defines and enforces them is connected to the market incumbents, such as professional associations (Broscheid and Teske, 2003; European Commission, 2004; Leland, 1979). Some studies document that in such instances the set of market regulations that is eventually implemented may artificially rise demand by, for example, imposing the assistance of a professional in certain market activities or by forbidding the use of highly substitutable services (Harrington and Krynski, 2002).

Interestingly, most of the extant empirical evidence investigates the detrimental effects on competition without considering the potential positive selection of producers. Federman, Harrington, and Krynski (2006), for example, look at manicurists and relate differences in im-

¹*Occupational licensing* is normally defined as the requirement to hold a government-issued license in order to be able to offer services in a particular market (Kleiner and Krueger, 2010). This is often contrasted with *certification*, which does not prevent a non-certified person to operate but advertises a register of certified operators, who have typically passed some kind of exam or test that is supposed to certify their ability or qualification. This is also different from *registration*, which simply requires operators to be registered, so that their names and contact details are known with certainty.

migrants who are qualified for such occupation - namely Vietnamese - to variation in licensing requirements across states in the US. A long list of other empirical studies documents higher prices or lower supply in regulated professions using a variety of data and identification strategies: driving schools in France (Avrillier, Hivert, and Kramarz, 2010), optometrists (Haas-Wilson, 1986), dentists (Kleiner and Kudrle, 2000; Wanchek, 2010), lawyers (Pagliero, 2010a,b), barbers (Thornton and Weintraub, 1979; Timmons and Thorton, 2010), radiologists (Timmons and Thornton, 2008) and physicians (Kugler and Sauer, 2005) in the USA. To the best of our knowledge, there is no study of the potential positive impact of occupational licensing on the outcomes of any profession.

All these studies are based on a rather simplified view of the economy, where producers are heterogeneous and are subject to a homogeneous barrier to entry. In such a simple setting, lowering barriers to entry increases supply and reduces prices (unless they are themselves regulated), while at the same time lowering the average quality or productivity of producers.

In this paper, we adopt a slightly different view and assume that agents are heterogeneous in both their productivity and the level of the barrier to entry. This view is motivated by the observation that in many professional markets effective entry barriers are heavily affected by individual traits, such as whether one has a relative who already operates in the profession. In fact, in many occupations such as lawyers, architects or doctors, the strongest barrier to entry is time required to establish a sufficiently large portfolio of clients. Operating in such markets normally imposes various fixed costs and a sufficiently high flow of revenues is necessary to make profits or, at a minimum, avoid losses.² Having older relatives in the profession is a clear advantage in these situations, as one can more easily access their network of clients.

In a model with two-sided heterogeneity in both productivity and entry barriers, the effect of liberalizing access to the profession depends on the shape of the joint distribution of such heterogeneity. In Section 3, we show that, under some simplifying assumptions about the shape of the joint distribution, lower barriers to entry lead to higher-quality operators if the correlation between ability and the idiosyncratic component of the barrier is positive, i.e. if high-quality

²The initial investment necessary to obtain the license can also be seen as a fixed cost.

professionals have high barriers. The opposite holds if such a correlation is negative.

In Section 4 we take the implications of our simple model to the data using information on the universe of registered lawyers in one region of Italy (Veneto), which we were able to link with their social security and fiscal records. This particularly rich dataset allows us to analyze the out-flows from the legal profession, additionally looking at where such flows are located along the distribution of earnings. The registers' data are fully public and, thus, include the actual names and surnames of all lawyers, which permits us to construct individual measures of the concentration of one's surname, that we use as proxies for the idiosyncratic component of the barrier to entry.

We also analyze the effects of a regulatory reform, that was implemented in July 2006 and that reduced the effective level of the barriers to entry by eliminating price floors and various other anti-competitive norms. In the intentions of the policy makers, the reform was expected to raise competition, lower prices and improve the quality of legal services.

Consistently with the interpretation that family connections within the profession lower barriers to entry, we find that one is less likely to leave the market for legal services if one's surname is particularly frequent in the local register. This result is robust to the inclusion of a host of covariates among which, most notably, the overall frequency of the surname in the province of work. Furthermore, we make use of the distribution of taxable earning to infer the underlying ability of professionals and our results indicate that prior to the 2006 reform, out-flows from the profession originated primarily from the upper part of the distribution, whereas this pattern fully reversed after the liberalization policy.

Quantitatively, our estimates suggest that an increase in ability of one standard deviation raises the probability of an outflow by 0.1 percentage points before the reform and lowers it by 0.7 percentage points after the reform. This, in turn, implies a percentage change in outflows of 7.7% in the pre-reform period and of as much as -52% after the reform. These results suggest that the reform had a very strong short-run impact on the composition of the outflows. Notice, however, that the short-run effect also includes the adjustment to new steady state, as professionals who would have never entered the market under the new institutional setting leave

the market. Hence, the long-run effect of the reform is likely to be significantly smaller.

The paper is organized as follows: Section 2 briefly describes the institutional arrangements of Italian lawyers, Section 3 presents our theoretical framework, Section 4 describes our data, how they have been assembled and some descriptive statistics, Section 5 reports the results of our empirical analysis. Finally, Section 6 concludes.

2 Institutional arrangements of Italian lawyers

The legal profession in Italy, like in many other countries, is heavily regulated, also in comparison with other professional services, like accountants, architects or engineers (Nicoletti, 2001). In order to be formally qualified to represent clients in any type of legal proceeding, one first needs to graduate from a law school, which normally takes 4 years, and then pass a qualification exam, similar to the bar exam in the US or the UK. Moreover, before one can sit the qualification exam, two years of compulsory practice are required. During such two years the apprentice lawyer is attached to a qualified lawyer - i.e. someone who has already passed the qualification exam - who mentors her and certifies her regular attendance of legal proceedings.³ Normally, the apprentice works as an assistant for her mentor, although the specific arrangements vary considerably both over time and across geographical areas. For example, some local lawyers' councils (e.g. Milan) require mentors to pay their apprentices a minimum amount (around 500 euros per month). Very often, however, apprentices are not paid on a regular basis.

Qualification exams are organized by the courts of appeals, and there is one such court in approximately each of the 20 regions in the country.⁴ The exam involves both a written and an oral test. In the written exam, candidates are asked to prepare a formal brief for a hypothetical case and/or a legal advice for a client. The exam normally takes place towards the end of each calendar year, simultaneously in all courts of appeals, and the text, prepared by a ministerial commission, is identical in all courts. The results of this first written test are published usually during the following spring and oral interviews are held from the late summer till late autumn.

³The apprentice is required to attend a minimum number of legal proceedings during her training period.

⁴In total there are 24 courts of appeal in Italy).

The examination commission, which marks the written papers and holds the oral interviews, includes both local lawyers and judges. Eventually, after the two years of practice it may well take more than one full additional year to complete the examination procedure. In case of failure, it is possible to retake the exam and there is no limit to the number of times one can do so.

Historically, there has always been very large differences in the pass rates of the qualification exam between the northern and the southern areas of the country, to the point that some apprentices from the north migrated to the south for their practice in order to be able to sit the exam there.⁵ After a highly publicized scandal in the early 2000, when in one exam location in the south of the country (Catanzaro) all written papers were found to be exactly identical, the rules were changed and, since 2003, courts of appeals are randomly paired (conditional on population size) with one another and one marks the written papers of the other. Prior to this reform each court marked its own papers. Oral interviews are still held and marked locally. Apparently, this intervention did reduce the variation in pass rates to more reasonable levels, although some differences still remain.⁶

Once the apprentice passes the qualification exam, she is allowed to register with one of the 109 local councils, approximately one for each province in the country. Only lawyers who are registered with the local council can represent clients in legal proceedings held at the local court. For example, if a lawyer in Milan needs to assist a client for a trial that is held in Rome, she needs to seek the assistance of a colleague who is registered in Rome. These types of exchanges are, in fact, very frequent. Registration with the council costs a fee of around 200-300 euros per year (the exact amount varies across local councils) and also gives access to the professional pension fund, although contributing to such fund is not compulsory.

Importantly for our empirical analysis, registration with a lawyers' council is incompatible with dependent employment, which implies that all lawyers are formally self-employed

⁵Formally, one is required to take the exam in the court of appeal corresponding to the province (or council) where one has spent the last 6 months of practice. In the 1998 exam session, the pass rate was 16% in Milan, which is located in the North of the country, and 83% in Messina, in the south (II Sole 24 Ore, 2001).

⁶In 2008 the pass rate was 21.2% in Milan (north) and 69.3% in Messina (south) (II Sole 24 Ore, 2008).

workers. Originally this requirement was, and still is, aimed at avoiding potential conflicts of interest between the lawyer and her clients, in case, for example, the opposite party is somehow related to the lawyer's employer. Nevertheless, such a rule is normally interpreted in a strict sense, meaning that lawyers can, and often do, collaborate with other organizations, including private firms, although in forms that do not fall into the category of dependent employment. For example, they may work as consultants for private (or public) firms and institutions and they can also sit in company boards, where they can take part in (or head) specific committees. The only formal exception to this rule is for lawyers working as dependent employees in the public administration, who are listed in a specific section of the council's register.

Local councils monitor the correctness of the practices of their members and can sanction illegal, incorrect or unethical behaviors with monetary fines, suspensions or even permanently expelling their members.⁷ For a large part, this monitoring activity is based on compliance with a formal code of conduct in the profession, the so-called *Codice deontologico*. Until July 2006, the code included, among several other provisions, price caps and price floors for each legal service, a ban on price bundling (which would, in fact, be incompatible with the price caps and floors) and a ban on commercial advertising, as it was supposed to be against the *dignity* of the profession. In practice, only the price floors are binding, as the code allows prices above the caps if these are agreed with the client.

In July 2006 a policy change was implemented, which forbade price floors and lifted the ban on both price bundling and commercial advertising. The reform was aimed at facilitating the entry of young workers into the profession, though a combination of lower prices (perhaps on simple kind of services, like assistance with trials related to car accidents) and advertising. The reform faced strong opposition by incumbent lawyers to the point that the national association issued a formal document advising their members that pricing below the price floors, despite their abolition, would still be considered to be against the code of conduct of the profession and would, thus, potentially lead to a disciplinary sanction (Autorità Garante della Concorrenza e

⁷Such sanctions are very rare. According to a recent survey by the Council of Europe 408 disciplinary cases were initiated in Italy in 2008, when the total number of registered lawyers in the country was 198,000 and 148 sanctions were eventually pronounced (European Commission for the Efficiency of Justice (CEPEJ), 2010).

del Mercato, 2009, pg. 17).

3 Theoretical framework

In this section we present a simple model of occupational choice that allows us to examine the effect of regulatory constraints on the quality of professional lawyers. For expositional simplicity and coherence with the empirical application, we limit our analysis to a partial equilibrium setting. Specifically, we keep the prices of legal services fixed. This is mainly motivated by the fact that prices are themselves regulated. Allowing for general equilibrium effects on prices would not change the qualitative results of the analysis.

Before we present the basic features of our theory, it is worth emphasizing that, although we will frame it in the context of the legal profession and we will use a specific terminology for such a setting, the model is much more general and can be directly applied to any other market for professional services, such as medical doctors, architects or accountants.

Moreover, we are not covering issues related to asymmetric information, which are usually at the heart of arguments in favor of regulations, such as occupational patenting or other forms of barriers to entry in the markets for professional services. In particular, we are not explicitly investigating the welfare implications of such regulations. Nevertheless, one may assume that increasing the quality of professionals in the market is good for consumers and our model will have implications on this dimension.

Given that in our data we only observe individuals who have entered the profession at some point in their working lives (see Section 4), we do not model regulatory barriers as sunk entry costs but rather as impediments to the accumulation of clients over one's career. The model could easily incorporate also a standard entry cost, paid once and for all at the time of entering the profession. In a such a model, the qualitative predictions on outflows from the profession would remain unchanged, while the additional implications on inflows could not be tested empirically.

Consider a worker i who is qualified to operate as a professional lawyer, i.e. she is entitled

to represent clients in a legal proceeding. Workers are heterogeneous in their productivity p_i , which measures the amount or quality of professional services that agent i is able to produce for each client per unit of time or per period. More able lawyers are characterized by higher p_i 's. Professional services are remunerated with a fixed price, which we normalize to 1. Assume that workers are active on the market for a fixed number of T periods and that clients are accumulated over time according to a simple Bernoulli stochastic process with per-period probability $\lambda \in (0, 1)$, i.e. every period a new client is added to one's portfolio with probability λ . The parameter λ measures the degree of regulatory restrictions in the market. For example, price floors or advertisement restrictions both reduce the arrival rate of clients. For the moment we consider λ as a fixed parameter and later we will allow it to vary across individual lawyers, thus adding a second dimension of heterogeneity. In this setting a liberalization of the profession can be represented by an increase in λ .

For simplicity, we assume that once a client is added to the lawyer's portfolio, she never leaves and she buys legal services every period. Alternatively, one could assume that only a fraction of existing clients buy services every period and, as long as such a fraction is fixed for all lawyers, all the results of the model would remain unchanged.

A qualified lawyer always has the option of working as a regular dependent employee (or in any other job that is not the legal practice) where she can earn a fixed amount w per period. Importantly, w is independent of individual productivity p_i , an extreme assumption that simplifies the model but that can be easily relaxed. As long as outside earnings are not perfectly correlated with productivity as a professional lawyer, an assumption that can be easily rationalized with the existence of occupation-specific skills, the qualitative results of our analysis remain valid.

Given the above assumptions, each lawyer decides whether to enter the profession at time $t = 0$ by comparing the full stream of expected future earnings as a professional with the

outside option:

$$\begin{aligned}
\lambda T p_i + \lambda(T-1)p_i + \lambda(T-2)p_i + \dots + \lambda p_i &> Tw \\
\lambda p_i [T + (T-1) + (T-2) + \dots + 1] = \lambda p_i \frac{T(T+1)}{2} &> Tw \\
\lambda p_i \frac{T+1}{2} &> w
\end{aligned} \tag{1}$$

Equation 1 defines the following participation constraint:

$$p_i > \frac{2w}{\lambda(T+1)} \tag{2}$$

which shows that only individuals whose productivity is large enough to bear the cost of the slow process of portfolio building are willing to enter the profession. Notice that, in this simple version of the model, a liberalization (higher λ) leads to an inflow of individuals with lower productivities into the profession.

Since our data cover exclusively individuals who have been registered as professional lawyers at some point over their working lives, we will not be able to study the effect of a liberalization on the participation decision described by equation 2. Nevertheless, we do observe individuals who leave the profession some time after they entered.

Optimality requires that, every period t each lawyer decides whether to stay in the profession or to leave based on the actual number of clients accumulated until then (N_t) and on the expected future earnings. Lawyers i leaves the profession at time t if:

$$\begin{aligned}
N_{it} p_i (T-t) + \lambda p_i \frac{(T-t)(T-t+1)}{2} &< (T-t)w \\
N_{it} p_i + \lambda p_i \frac{T-t+1}{2} &< w
\end{aligned} \tag{3}$$

$$N_{it} < \frac{w}{p_i} - \lambda \frac{T-t+1}{2} \tag{4}$$

where N_{it} represents the number of clients accumulated by lawyer i until period t and it is a random variable distributed according to a binomial distribution with parameters t (number of

trials) and λ (success probability). Hence,

$$\begin{aligned} Pr(i \text{ exits the profession at time } t) &= Pr\left(N_{it} < \frac{w}{p_i} - \lambda \frac{T-t+1}{2}\right) \\ &= \sum_{k=0}^{\lfloor c_{it} \rfloor} \binom{t}{k} \lambda^k (1-\lambda)^{t-k} \end{aligned} \quad (5)$$

where $c_{it} = \frac{w}{p_i} - \lambda \frac{T-t+1}{2}$ and $\lfloor c_{it} \rfloor$ indicates the *floor* of c_{it} , i.e. the largest integer smaller than c_{it} .

Equation 5 shows that the most productive lawyers are the ones with the lowest probability of leaving the profession, as a large p_i lowers the threshold c_{it} for any t . Moreover, a liberalization reduces the probability of exiting the profession, as a larger λ increases the average number of clients accumulated at any period t and for any worker i and it also lowers the threshold c_{it} .

Figure 1 plots equation 5 over time and for three levels of productivity using simulated data.⁸ The probability of leaving the profession increases initially and then declines over time. The intuition for this result is best understood by looking at equation 3. The term on the right hand side of the inequality does not vary over time while the term on the opposite side does. In other words, as time passes, the average number of clients in one's portfolio (N_{it}) increases (or, does not decrease), thus reducing the likelihood of leaving the profession. At the same time, expected future earnings decrease, as there is less time remaining before the end of one's career to accumulate new clients. Notice that the average number of accumulated clients is equal to λt , so that it increases at the rate λ , while expected future earnings increase at rate $\frac{\lambda}{2}$, hence over time the first effect dominates on the second, leading to the decreasing patten described in Figure 1.

Figure 1 also shows the evolution of the probability to leave the profession for three different levels of productivity: the solid line refers to a lawyer with average productivity, the short-dashed line to a high productivity and the dashed line to a low productivity person.⁹ Con-

⁸ The figure has been produced using a simulated sample of 10,000 workers over 100 periods with $w = 100$ and $\lambda = .085$. Productivity is assumed to be distributed uniformly over the interval $[\bar{p}, 2\bar{p}]$ where $\bar{p} = \frac{2w}{\lambda(T+1)}$.

⁹The three lines are constructed considering either all simulated observations (solid line) or only those in the

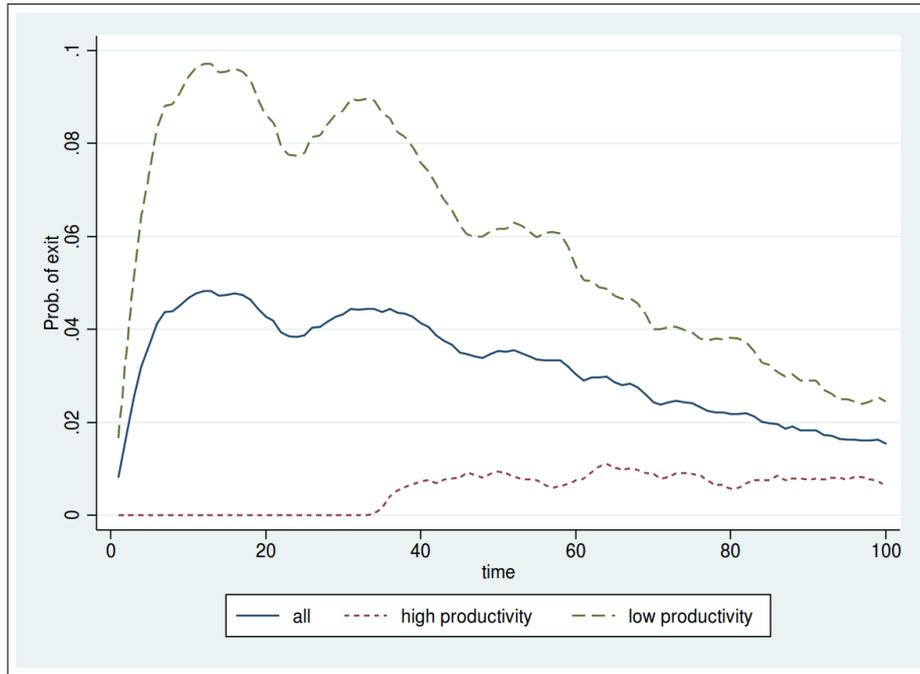


FIGURE 1: *Probability of leaving the profession over time and by productivity*

sistently with equation 5, the figure indicates that low productivity workers are more likely to leave the profession than high productivity ones.

In this simple version of the model, a liberalization reduces the average quality of professionals in the market, supporting the argument in favor of occupational licensing or other forms of regulation. Figure 2 shows the average level of productivity of those who leave the profession over time and for two levels of λ , lower (0.08) for the solid line and higher (0.09) for the dashed line. In this setting a liberalization consists in a shift from the solid to the dashed line, indicating that under the more liberal system only the very unproductive agents leave, thus reducing the average quality of active lawyers. Notice additionally, that this selection effect takes place mostly in the very initial phases of one's career, as the two lines become closer and closer over time. Consistently with this result, our empirical analysis concentrates on exits from the profession within the initial 10 (or 5) years since entry.

As anticipated earlier on, a simple extension of the model, which assumes that the arrival rate of new clients is also heterogeneous, allows us to derive more interesting results. Let us upper (short-dashed line) or the lower (dashed line) half of the distribution of productivity.

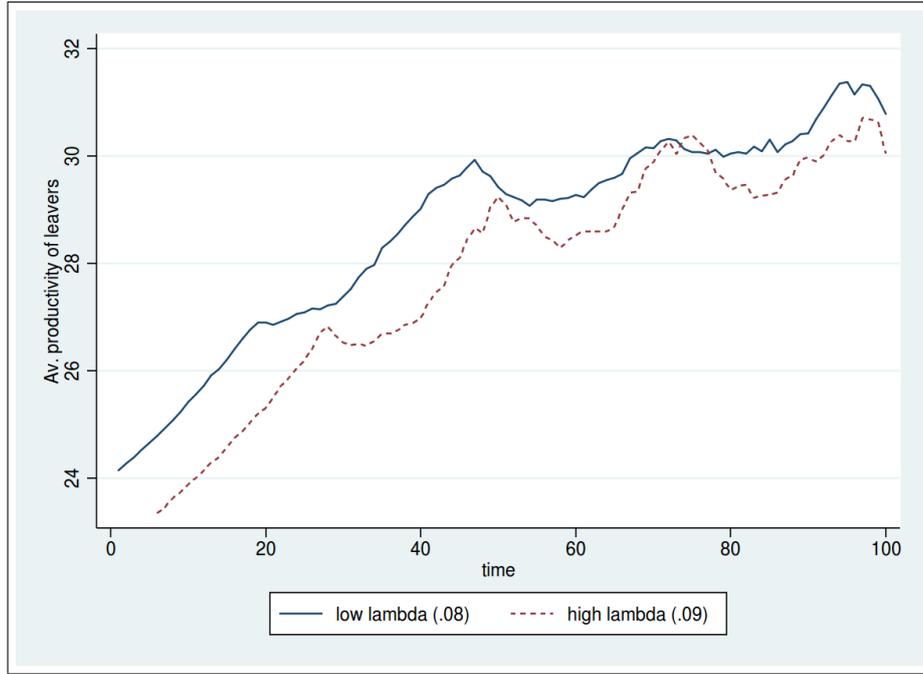


FIGURE 2: *Average productivity of leavers over time*

now assume that the per-period probability of acquiring a new client is the product of two terms, a fixed parameter λ and an individual specific shifter x_i :

$$\lambda_i = \lambda x_i \tag{6}$$

Now, the implications of the model all depend on the assumptions about the joint distribution of p_i and x_i . Theoretically, one can think of various reasons why individual productivity and the idiosyncratic component of regulatory barriers can be either positively or negatively correlated.

Perhaps the most obvious justification of a positive correlation is the production of occupation specific human capital within the family, a possibility that has already attracted the attention of several researchers to explain the high degree of intergenerational transmission of occupations (Laband and Lentz, 1985, 1992; Lentz and Laband, 1989) or even employers (Corak and Piraino, 2010a,b; Kramarz and Norstrom Skans, 2010). Parents can, either formally or informally, provide information about their occupations or even offer occupation specific training to their sons, thus reducing their costs of entry in the profession and increasing their

productivity. In the legal profession parents can certainly help their children by providing contacts with their clients, especially around the time of their retirement. In the terminology of our model, this corresponds to a lower x_i for those who have (at least) a relative in the profession compared to the others. At the same time, it is very plausible to think that one can learn a great deal from a more senior person who works on the same issues (high p_i).¹⁰

Alternative and equally plausible models may easily lead to a negative correlation between p_i and x_i . For example, one may have a preference or a talent for a specific occupation, which might not be the one in which, through social connections (e.g. a parent or relative already employed in the sector), one may enjoy lower entry costs relative to others. In such a situation one may face a trade-off between easier access into a profession where one is less productive and a more difficult access into a profession where one lacks social connections but is more productive, due to either occupation specific talents or preferences and motivation. Only those with a sufficiently high comparative advantage in a profession may choose to forgo the benefits of social connections and enter the occupation they like best (Bentolila, Michelacci, and Suarez, 2010).

In the model with double heterogeneity the derivation of equations 2 and 5 does not change substantially, with the only exception that λ now appears with a subscript i , as in equation 6. Nevertheless, the model now yields an additional important empirical implication: the effect of a liberalization (i.e. an increase in the common parameter λ) varies depending on the level of productivity p_i . Moreover, the direction of such heterogeneity depends on the correlation between x_i and p_i .

More specifically, if the most productive lawyers also enjoy a high arrival rate of clients, then a liberalization (i.e. a higher λ) benefits more the least productive workers, who, then, become relatively less likely to leave the profession, eventually leading to a worsening of the average productivity in the industry. On the contrary, if p_i and x_i are negatively correlated, then a liberalization benefits relatively more the most productive lawyers and improves average productivity in the profession.

¹⁰Laband and Lentz (1992) argue that this is particularly true for lawyers.

Figure 3 describes these results using simulated data, where we generated x_i as a linear combination of a uniform random variable over the interval $[-1, 1]$ and a transformation of p_i that is also uniformly distributed over the same interval $[-1, 1]$.¹¹ The parameter of the linear combination determines the sign of the correlation between x_i and p_i .¹²

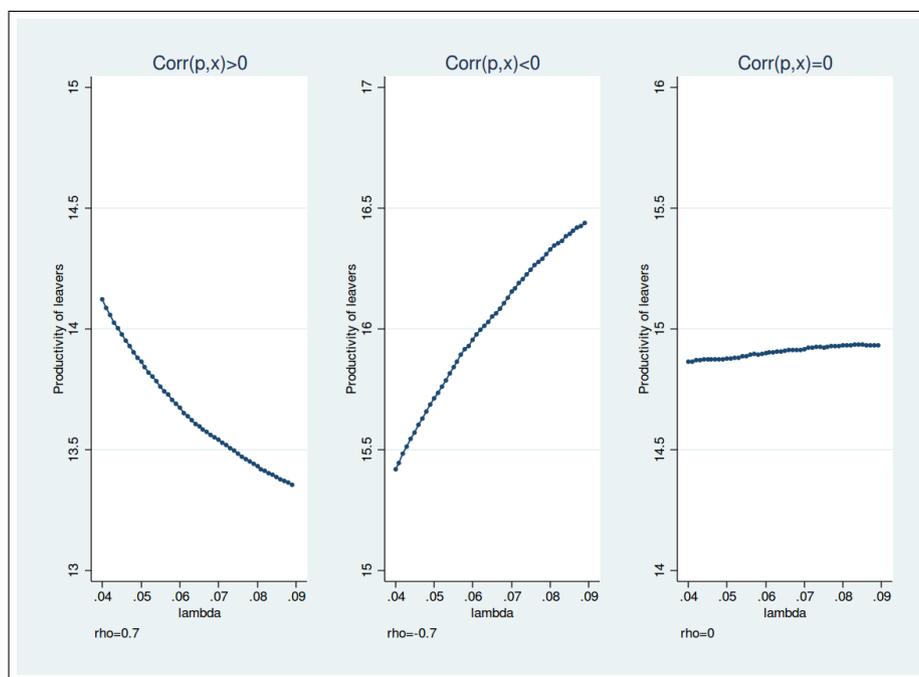


FIGURE 3: Average productivity of leavers by λ

The left panel of Figure 3 describes the average productivity of those who leave the profession (within the first 50 periods) for different levels of λ when p_i and x_i are positively correlated. In this case, it is evident that a liberalization (i.e. an increase in λ) reduces the probability of leaving the profession for the least productive lawyers more than for the highly productive and, thus, lowers the average productivity of active professionals. The opposite occurs in the middle panel of Figure 3, where p_i and x_i are negatively correlated.

¹¹Namely, the transformed version of p_i , which is uniformly distributed over the interval $[\bar{p}, 2\bar{p}]$ (see footnote 8), is computed as follows:

$$\tilde{p}_i = \frac{p_i - E(p_i)}{\sqrt{3SD(p_i)}} \quad (7)$$

¹²Eventually x_i is defined as follows:

$$x_i = (1 - \rho)x_0 + \rho\tilde{p}_i \quad (8)$$

where x_0 is a purely random variable uniformly distributed over the interval $[-1, 1]$ and ρ is the parameter of the linear combination. In the simulation reported in Figure 3 we assume $\rho = 0.7$ in the left panel, $\rho = -0.7$ in the middle panel and $\rho = 0$ in the right panel.

Figure 3 provides the basis for our empirical investigation in Section 5, where we exploit a reform that can be interpreted as an increase in λ and our data allow us to investigate the outflows from the profession across the distribution of productivity. Namely, the simple model of this section suggests that, if the liberalization leads to a higher probability of leaving the legal profession for the most productive lawyers, than this is consistent with a negative correlation between p_i and x_i . The opposite if the outflows increase mostly for the least productive agents.

Obviously, the implications of the model also depend to some extent on the actual functional form of the joint distribution of x_i and p_i and our simulations are derived under very specific assumptions about such a joint distribution. Although, we acknowledge that there might exist a specific set of parameters that leads to different implications, the main intuition of the results in Figure 3 is quite general.

4 Data collection and descriptive evidence

Our empirical analysis focuses on the Italian region of Veneto (located in the north east of the country) and it exploits three data sources. The first – described in section 4.1 – is the set of publicly available registers of self-employed lawyers in the region. The registers contain information on the name and surname of each lawyer, qualification date, apprenticeship status, qualification to represent clients in the Supreme Court (*Cassazionista*), office address and demographics (sex, date of birth and place of birth). The second data source, the *PLANET* dataset presented in section 4.2, contains information on all hirings of dependent workers in the Veneto region since 2000. Finally, we collect income data for year 2004 from fiscal records (section 4.3).

By combining data from all these sources we are able to accurately identify qualified lawyers who, at some point, decide to leave the profession and move into regular dependent employment (recall that registered lawyers cannot take up jobs as dependent employees). In other words, we compute outflows from the legal profession.

Unfortunately, our data do not allow us to measure inflows. In order to investigate entry into

the profession one would need information on potential entrants, whose definition is already quite problematic. Ideally, one would like to have information on all law school graduates but there is no comprehensive archive for this and such data would have to be collected from each school separately. Alternatively, we could use apprentices but only a few registers publish their names. For these reasons our analysis focuses exclusively on exits from the legal profession.

4.1 Lawyers data

The lawyers' associations are formally required to make the lists of registered members publicly available. Hence, they normally publish the most updated lists on their internet websites and also print it in a book-like format at regular intervals (usually once every two years), so that one can also check individual membership in the past.

We collected and digitalized all the paper published lists of the 7 registers located in Veneto since the year 2000 and downloaded from the web the most updated versions in the spring of 2008 and in the autumn of 2009.¹³

	Year											
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	
Bassano	-	283	-	319	-	360	-	392	-	265	293	1912
Belluno	-	147	-	168	-	-	239	-	275	237	242	1308
Padova	-	-	1788	-	-	2113	-	2518	-	2272	2447	11138
Rovigo	-	-	-	-	-	-	-	527	-	-	-	527
Venezia	989	-	1119	-	1287	-	1530	-	1747	1847	1927	10446
Verona	1957	2125	2188	2415	2599	2755	2917	2905	-	2038	2175	24074
Vicenza	-	806	-	952	-	1107	-	1246	-	1119	1189	6419
Total	2946	3361	5095	3854	3886	6335	4686	7588	2022	7778	8273	55824

TABLE 1: *Number of observations available per year and register*

Lawyers registers are typically printed every other year, with some exceptions. For example, the register of Verona is printed every year, while Rovigo has issued only the 2006 register

¹³The Veneto region has seven provinces: Belluno, Padova, Rovigo, Treviso, Venezia, Verona and Vicenza. Each province plus the small town of Bassano del Grappa has its own register. This gives a total of eight registers but it has been impossible to collect the data for Treviso (see Table 1).

over our period of analysis. Table 1 illustrates the availability of the different registers, together with the number of lawyers present in each register.

The number of lawyers markedly differs across registers. Verona has the largest number of lawyers followed by Padova, Venezia and Vicenza. Bassano, Belluno and Rovigo are relatively tinier towns and have a lower number of registered lawyers. The full sample contains 55824 observations on 8905 lawyers.

Table 2 presents descriptive statistics. Almost half of the lawyers in our dataset (43%) are females. The average lawyer is 40 years old, has obtained her formal qualification at age 30 and has therefore been in the profession for about ten years. About one fifth of them have the *Cassazionista* (Supreme Court) abilitation.

Variable	Observations	Mean	Std. Dev.
female	55824	0.4364	0.4959
Age	55823	41.49	26.93
Age of qualification	51834	31.04	28.56
Years in the profession	51834	10.98	17.86
Apprentice	55824	0.1956	0.3966
<i>Cassazionista</i>	55824	0.1778	0.3823
Surname frequency within lawyers and province	55824	0.0011	0.0012
Surname frequency within province	53022	0.0004	0.0008

TABLE 2: *Lawyers descriptive statistics*

The availability of actual names and surnames of all lawyers permits to construct measures of concentration of surnames within the profession in each register, which we will use as proxies for the idiosyncratic component of the regulatory barrier (x_i in the model). The underlying idea of such a proxy is that having relatives who are already in the profession can greatly help in improving the arrival rate of clients. Given the current rules of surname inheritance in Italy (which are similar to most Western countries), the vast majority of the population hold surnames that are very infrequent, so that the likelihood that any two persons who share the same surname would be linked by some kind of family tie is extremely high (Güell, Mora, and

Dependent Variable	Age of qualification
Surnames frequency in the province	0.00477*** (0.00069)
Surnames frequency among lawyers	-0.0237*** (0.00237)
N	12215
R^2	0.1711

Additional controls: age, age squared and dummies for gender, nationality, apprentice and register.

TABLE 3: *Age of qualification and surname frequency*

Telmer, 2007).

Table 2 shows that the frequency of the surname among the lawyers present in the same register is on average equal to 0.11% while the overall frequency in the province is a smaller 0.04%, suggesting that lawyers are not randomly drawn from the population.¹⁴

This result is confirmed in Table 3 that reports evidence from a cross-sectional regression of the (log) of the age of qualification on the (log of the) surname frequency among lawyers registered in the same province, controlling for the (log of the) overall surname frequency in the province, a quadratic in age and dummies for gender, nationality, apprentice and register. The Table shows that the age of qualification is negatively related to frequency of the surname between lawyers, with an elasticity of about 2 percent (Basso, 2009). From the consumer's perspective, this conditional negative association may be either good or bad depending on whether having relatives in the profession is positively or negatively correlated with one's professional quality, as discussed in the theory of Section 3.

4.2 Data on Dependent Employment

To identify outflows from the legal profession one could simply exploit the fact that lawyers associations forbid their members to work as dependent workers and should drop them from

¹⁴To ease comparison between the lawyers' surnames distribution and the overall distribution of surnames in each province we aggregate the Bassano and Vicenza registers, given that Bassano belongs to the province of Vicenza. The overall distribution of surnames in each province is taken from fiscal records, i.e. it is the distribution of surnames of the taxpayers.

the register whenever this happens. Thus, those who have been registered as lawyers in the past and then disappear from the register could potentially be identified as individuals who left the profession. This approach delivers a stable average yearly outflow of about 10%, as shown in Table 4.

Year	Outflows
1999	0.1005
2000	0.0995
2001	0.1108
2002	0.0946
2003	0.0885
2004	0.0863
2005	0.1121
2006	0.1380
2007	0.0836
2008	0.0561
Total	.0969

TABLE 4: *Yearly outflows from the lawyers' registers*

However, it turns out that cancellations from the register happen with substantial delay. Additionally, not all the individuals disappear from the registers to take up jobs as dependent employees, as they may also retire or be inactive. Hence, in order to identify job outflows more accurately, we exploit a second dataset which provides information on all hirings of dependent workers in the Veneto region since 2000 (PLANET), specifying the type of contract (permanent/temporary/apprentice) of each new hire. We construct outflows from the legal profession counting all the individuals that appear in one of the registers at a point in time and subsequently sign a contract as dependent workers.

We focus on all individuals that enter the profession after the initial date of availability of the registers. For example, in the registers of Padova we drop all lawyers that enter the profession before 2001 (see Table 1). Also, given that we look at the effects of a reform that was implemented in July 2006 we drop all lawyers that obtain their qualification after the reform, i.e. from 2006 onwards. By doing so we avoid compositional effects due to the effect of the

Variable	Obs	Mean	Std. Dev.
Female	19934	0.537	0.49867
Age	19934	35.205	6.2824
Age of qualification	19934	31.589	5.659
Years in the profession	19934	3.616	2.5743
Apprentice	19934	0.099	0.29864
Surname frequency within province	19274	0.00044	0.00098
Surname frequency within lawyers and province	19934	0.00092	0.00099
Outflows	19934	0.025	0.15668
Duration	19934	8.9288	1.9845

TABLE 5: *Descriptive statistics on the sample of lawyers entering after the initial date of availability of the registers*

reform on entry, as our purpose is to identify its effects on outflows exclusively. Additionally, we drop the year 2005 as we have no income data for individuals that started working after 2004 (see section 4.3). Further, once we observe an individual transiting to dependent employment, we disregard any subsequent occurrence of the same individual in the lawyers' registers, i.e. we do not consider the individual as a self-employed lawyer any longer even if she appears in one of the registers. The reason, as recalled above, is that cancellation from the registers in case of dependent employment occur with delay. Finally, we drop individuals with varying qualification dates or with qualification dates posterior to the current year, which are obviously coding errors. Eventually, we end up working with a final dataset of 19934 observations on 2732 lawyers that spans from 2001 to 2009.

Table 5 presents descriptive statistics on the resulting sample. The percentage of females is higher than in the full sample of lawyers and reaches 56%. Conversely, age and number of years in the profession are lower, as we are selecting young entrants into the profession.¹⁵ The age of qualification is on average 31.

On average the frequency of the surname in each province is a tiny 0.044%, while the frequency of the surname among the lawyers present in the same register is a more than twice

¹⁵For the same reason, almost nobody is a *Cassazionista* (not reported).

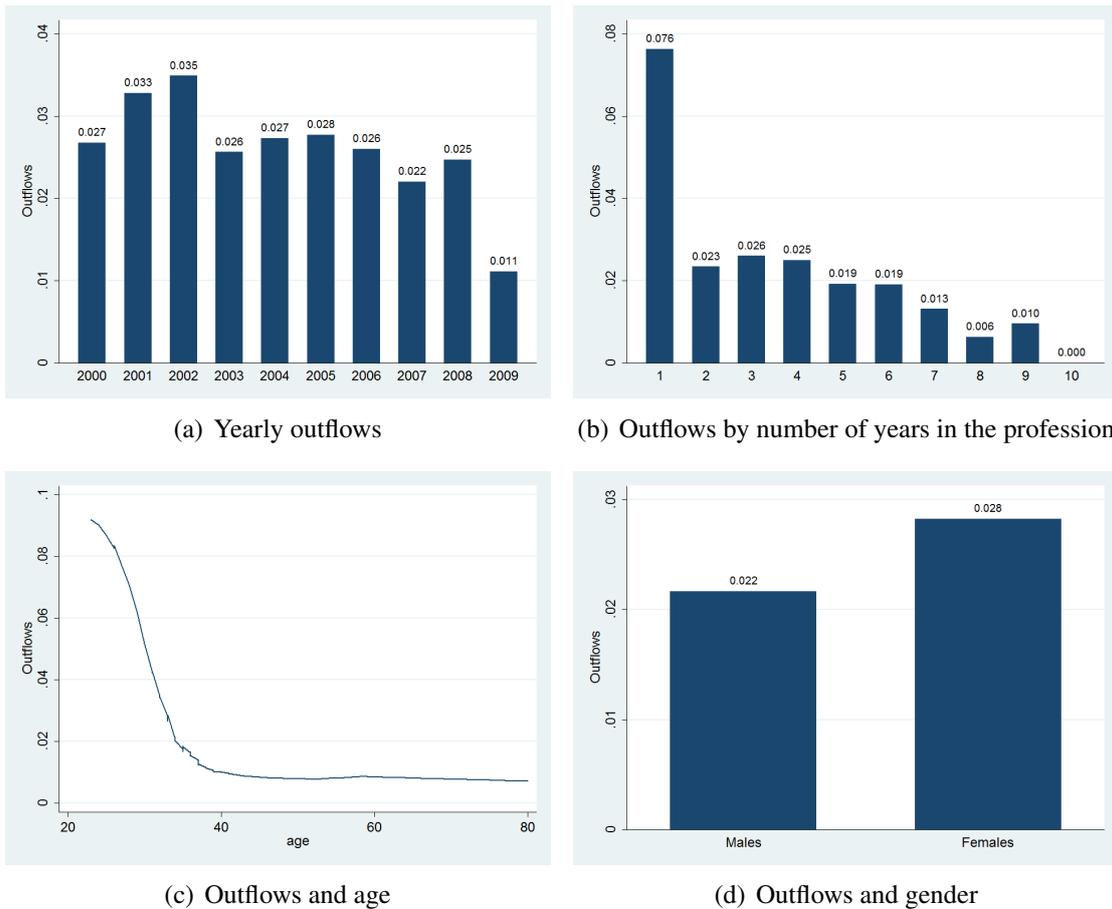


FIGURE 4: *Lawyers outflows*

as large (0.092%), suggesting that lawyers are not randomly drawn from the overall distribution of surnames.

Finally, Table 5 shows that outflows computed according to appearance in PLANET now range between two and three percent. This compares to the naive outflows of Table 4 based merely on registers, which were about 3-4 times larger as they presumably included transitions into retirement or other activities different from dependent employment. Consequently, the average time spent in the profession is now almost 9 years. Consistently with the model in Section 3 (namely Figure 1), Figure 4(a) shows that outflow rates range between 0.011 in 2009 and 0.035 in 2002 and that exits tend to take place relatively soon in one's career (figure 4(b)): the outflow rate is above 7% in the first year after qualification, drops to slightly above 2% thereafter and keeps decreasing over time. Outflows also decrease with age (Figure 4(c)) and

are slightly higher for females (Figure 4(d)).

4.3 Income data from fiscal records

We complement our data with fiscal records to obtain a measure of lawyers' earnings. We use the universe of all Italian tax payers for the year 2005, which refer to incomes earned during 2004 and include names and surnames, place and date of birth and fiscal residence of each individual, together with declared incomes and the amount of paid taxes.¹⁶

Note that these data do not necessarily cover the entire population. People with incomes below a certain level (2840.51 per year in 2005) are not required to file a tax report and are thus excluded from our data. Additionally, capital incomes are taxed separately and do count towards personal taxable income. Overall, we match 2220 individuals out 2733. Average income is 12343 Euros with a standard deviation of 39119.51.

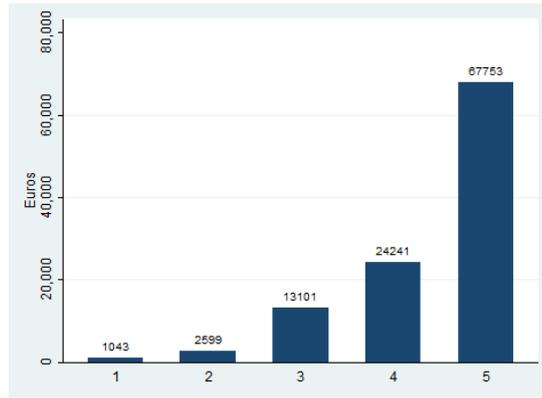
Figure 5(a) shows the distribution of income. Individuals in the first quintile report zero income, individuals in the second declare on average 4621 euros per year, up until 99417 euros per year in the fifth.¹⁷ Figures 5(b) and 5(c) plot outflows and surname frequencies (both in the population of the province and in the local register of lawyers) against income quintiles, suggesting only minor and insignificant differences in both variables across different income levels, at least unconditionally.

5 Empirical Specification and Results

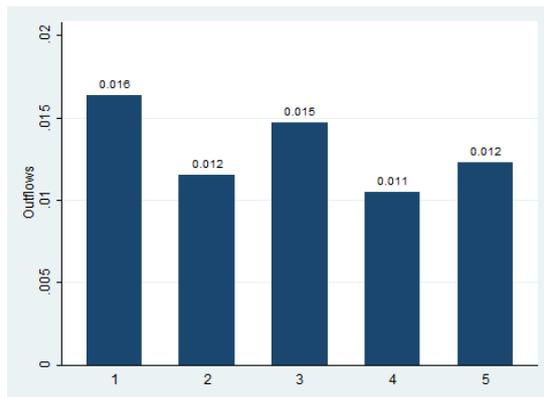
The model presented in Section 3 relates the probability of leaving the legal profession to two key individual characteristics, i.e. productivity (p_i) and the idiosyncratic component of the regulatory barrier (x_i). In the empirical application that we present in this section we need to

¹⁶For confidentiality reasons, names and surnames have been recoded with numeric identifiers (both in lawyers registers and the fiscal records), the exact date of birth has been replaced with just the year and the month and records with unique surnames by province have been erased (i.e. surnames that appear only once in the entire province).

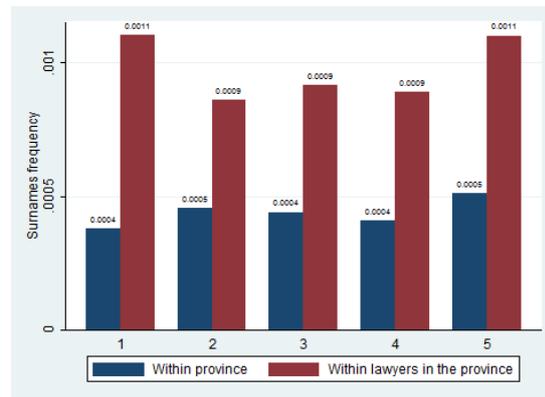
¹⁷Most of the records with zero incomes result from deductions. For example, self-employed workers who incur losses declare zero taxable income while other people may benefit from quite large deductions compared to their income, due to, for example, medical expenses, dependent children and/or spouse, mortgages, et.



(a) Quintiles of income



(b) Outflows by quintiles of income



(c) Frequency of surnames by quintiles of income

FIGURE 5: *Income, outflows and surnames*

construct proxies these two variables.

We use the relative frequency of one's surname to proxy x_i under the assumption that having a relative already in the profession greatly improves the arrival rate of clients. For example, relatives may share contacts with clients, especially when they specialize in different sub-fields, or they may pass on their contacts to younger relatives in the profession as they retire, similarly to what families normally do with inheritance. Consistently with this interpretation, we will use alternative measures of lawyers' surname frequency by either considering the overall frequency of one's surname in the local register (conditioning on the frequency of the surname in the local population) or concentrating exclusively on registered lawyers who are at least 25 years older, so as to capture surname frequency among older generations.

Unfortunately, our data do not include an equally obvious proxy for productivity. We do,

however, have information on earnings as derived from the tax records that we were able to merge with the lawyers' registers. According to our simple theoretical framework of Section 3, lawyers' earnings are determined by two factors, i.e. productivity (p_i) and the stock of clients, with the latter being, in turn, affected by seniority and the level of regulatory barriers (λ_i). Hence, once conditioning on these two factors (seniority and regulatory barriers), the residual variation in earnings should be due exclusively (or mainly) to differences in productivity or ability across professionals.

In Table 6 we present evidence that support our choice of proxies for p_i and x_i . Specifically, we estimate models that relate the probability of success in the lawyer profession, as captured by the probability of leaving the lawyer profession, to the lawyers' surname frequency, the frequency of the surname in the local population, the number of years in the profession and the income level, on top of the additional covariates described next:

$$P(y_{it} = 1 \mid Z_{it}) = G(\alpha_0 LawSur_{it} + \alpha_1 AllSur_i + \alpha_2 exp_{it} + \alpha_3 income_i + \beta X_{it}) \quad (9)$$

where y_{it} is an indicator variable that equals 1 when the lawyer leaves the profession; $LawSur_{it}$ is the frequency of the surname of individual i among lawyers present in the same register in year t (standardized by province and year); $AllSur_i$ is the frequency of the surname of individual i in the province where s/he is registered (standardized by province and year); exp_{it} denotes the number of years in the profession and $income_i$ the level of income earned in year 2004 (standardized by province and year). The vector X_{it} includes a quadratic in age; dummies for gender, for nationality, for being born in the same province in which the individual is registered as lawyer, on top of a full set of year and province dummies. We estimate equation (9) as a logit model, which corresponds to a standard duration model with constant duration dependence.

The first column of Table 6 relates the probability to leave the profession to the level of income earned in 2004, without controlling for seniority (exp_{it}) and for the idiosyncratic component of the regulatory barrier as captured by the lawyers' surname frequency ($LawSur_{it}$). The coefficient of income in column 1 is negative, though not significant, implying that higher

TABLE 6: Impact of surnames and income on the probability to leave the lawyer profession

	(1)	(2)	(3)	(4)
Overall surname frequency	-0.016 (0.087)	0.240** (0.105)	0.239** (0.105)	0.242** (0.105)
Income	-0.037 (0.083)	0.003 (0.072)	0.006 (0.073)	0.012 (0.082)
Age	-0.137 (0.084)	-0.019 (0.111)	-0.020 (0.111)	-0.023 (0.112)
Age squared	0.001 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)
Female	0.134 (0.155)	0.145 (0.155)	0.146 (0.155)	0.149 (0.155)
Foreign born	0.475 (0.485)	0.318 (0.505)	0.314 (0.499)	0.295 (0.516)
Local	-0.063 (0.177)	-0.018 (0.178)	-0.018 (0.177)	-0.014 (0.178)
Lawyers surname frequency		-0.410*** (0.145)	-0.409*** (0.144)	-0.414*** (0.146)
Experience		-0.170*** (0.062)	-0.170*** (0.062)	-0.172*** (0.062)
Income × lawyers surnames			0.038 (0.121)	-0.050 (0.207)
Income × overall surnames				0.122 (0.190)
Constant	-1.570 (1.842)	-4.222* (2.305)	-4.212* (2.301)	-4.146* (2.319)
R-squared	0.037	0.048	0.048	0.048
N	14215	14215	14215	14215

Note: All specifications include province and year dummies. One star denotes significance at the 10% level, two stars denote significance at the 5% level, and three stars denote significance at the 1% level.

income lawyers are less likely to leave the profession, a result that is perfectly consistent with our model.

However, as recalled above, the model outlined in section 3 suggests that income is determined not only by productivity but also by seniority and the level of regulatory barriers. Thus, income does not correctly proxy for productivity if one fails to control for seniority and for the frequency of the surname among lawyers. In column 2 we add those controls and find that the

coefficient of income becomes positive (though still not significant) suggesting now that more able lawyers are more likely to leave the profession. Additionally, the table shows that both having a high-frequency surname among lawyers and higher experience reduce the probability of leaving the profession, which conforms with the effect of x_i on outflows as predicted by our model.

Results are robust to the inclusion of the interaction term between income and the frequency of lawyers surnames in column 3, and the addition of the further interaction between income and frequency of the surname in the local population in column 4. Notice that in the latter specification income enters positively while the interaction between income and the frequency of lawyers surnames negatively (though, in both cases, not significantly so). Insofar as income is a good proxy for ability, this indicates that high ability individuals are more likely to leave the profession and that this effect grows larger the lower the frequency of their surnames among lawyers. Thus, high-ability but poorly connected lawyers seem to leave the profession with higher probability.

5.1 Effects of the 2006 Italian Deregulatory Reform

We next exploit a regulatory reform that was implemented in Italy in July 2006. The law change (*decreto legge 223/2006*, also called *decreto Bersani*) aimed at lowering entry barriers and increasing competition in liberal professions, such as lawyers or architects. In particular, the reform abolished price floors and lifted the ban on advertising previously imposed by self-regulatory professional codes. The reduction in the effective level of the barriers to entry should be expected to foster competition. Indeed, unconditionally, the proportion of lawyers leaving the profession increases dramatically after the 2006 reform, moving from 1.16% to 1.53%, about a 30% increase.

As shown in the model outlined in section 3, lower barriers lead to higher-quality operators if the correlation between ability and the idiosyncratic component of the barrier is positive, i.e. if high-quality professionals have high barriers. The opposite holds if such a correlation is

negative.

In order to test this prediction, we estimate the following model:

$$P(y_{it} = 1 | Z_{it}) = G(\alpha_0 LawSur_{it} + \alpha_1 AllSur_i + \alpha_2 exp_{it} + \alpha_3 income_i + \alpha_4 income_i \times Post2006 + \beta X_{it}) \quad (10)$$

where y_{it} , $LawSur_{it}$, $AllSur_i$, $income_i$ and the vector X_{it} are exactly as in equation (9) and $Post2006$ is a dummy that take the value of 1 from 2007 onwards. Thus, α_3 measures the effect of income on the probability to leave the profession in the pre-reform years, while the coefficient α_4 measures the differential effect of income on the probability to leave the profession in the post-reform years relative to the pre-reform period.

Table 7 shows results from the estimation of equation (10), with additional controls progressively added in columns 1 through 5. The effect of the frequency of surnames among lawyers is negative and significant in all specifications. The effect of income is positive in the pre-reform years, with a coefficient of about 0.1; its interaction with the post-reform dummy is instead negative, with a coefficient of about -0.7 . This suggests that, while prior to the reform outflows from the profession took place primarily from the upper part of the ability distribution, after the policy intervention of 2006 the pattern reversed and least able workers became more likely to move out of the legal profession into other activities.

From a quantitative point of view, the coefficients imply a marginal effect respectively of 0.001 and -0.007, i.e. an increase in income of one standard deviation raises the probability of an outflow by 0.1 percentage points before the reform and lowers it by 0.7 percentage points after the reform. This, in turn, implies a percentage change in outflows of 7.7% in the pre-reform period and of as much as -52% after the reform. These results suggest that the reform had a very strong short-run impact on the composition of the outflows. Notice, however, that the short-run effect also includes the adjustment to new steady state, as professionals who would have never entered the market under the new institutional setting leave the market. Hence, the long-run effect of the reform is likely to be significantly smaller than suggested by the estimates

TABLE 7: Effects of the 2006 reform (linear income)

	(1)	(2)	(3)	(4)
Lawyers surname frequency	-0.412*** (0.146)	-0.499** (0.216)	-0.500** (0.218)	-0.499** (0.217)
Overall surname frequency	0.243** (0.105)	0.321** (0.130)	0.312** (0.128)	0.314** (0.128)
Income	0.105** (0.049)	0.106** (0.049)	0.131** (0.061)	0.129** (0.063)
Income after 2006	-0.698** (0.321)	-0.699** (0.321)	-0.723** (0.327)	-0.720** (0.326)
Age	-0.037 (0.105)	-0.036 (0.106)	-0.042 (0.106)	-0.042 (0.106)
Age squared	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)
Female	0.134 (0.155)	0.135 (0.155)	0.140 (0.155)	0.140 (0.155)
Foreign born	0.336 (0.498)	0.296 (0.514)	0.271 (0.526)	0.271 (0.527)
Local	-0.027 (0.178)	-0.027 (0.178)	-0.022 (0.178)	-0.021 (0.178)
Experience	-0.149** (0.062)	-0.150** (0.062)	-0.152** (0.063)	-0.151** (0.063)
Lawyers surnames after 2006		0.207 (0.279)	0.197 (0.287)	0.212 (0.275)
surnames after 2006		-0.202 (0.197)	-0.165 (0.194)	-0.170 (0.193)
Income × lawyers surnames			-0.048 (0.192)	-0.073 (0.213)
Income × overall surnames			0.130 (0.161)	0.131 (0.161)
Income × lawyers surnames after 2006				0.105 (0.218)
Constant	-3.911* (2.232)	-3.966* (2.245)	-3.850* (2.231)	-3.848* (2.232)
R-squared	0.051	0.051	0.052	0.052
N	14215	14215	14215	14215

Note: All specifications include province and year dummies. One star denotes significance at the 10% level, two stars denote significance at the 5% level, and three stars denote significance at the 1% level.

in Table 7.

We analyse this issue further by replacing the linear measure of income in equation 10 with income decile dummies to pin down the exact section of the ability distribution from which the outflows originate before and after the reform. In the regression, the coefficient of the j^{th} decile, thus, measures the differential effect of belonging to such decile (relative to the excluded fifth decile) on the likelihood of an outflow in the pre-reform years. Analogously, the coefficient on the interaction between the j^{th} decile and the post reform dummy measures the differential effect of belonging to such decile on the probability to leave the profession in the post-reform years, relative to the pre-reform period.

Results are shown in Table 8. In columns 1 and 2 we look at the average effect of income over the whole period. Columns 3 to 5 introduce the interaction term between income and the post-reform dummy. The coefficient on the frequency of the surname among lawyers of the same register is negative and significant in all columns. As for income, the coefficients of the first four income deciles are negative and non significant in columns 1 and 2 (consistently with the results for the whole period shown in Table 6). Differently, in columns 3-5 of Table 8 we find that the coefficients of the first and second deciles are negative and significant, whereas their interactions with the post-reform dummy are positive and significant.

This confirms the previous evidence from Table 7 and suggests that, on average, in the pre-reform years outflows from the profession take place predominantly from the upper end of ability distribution. A pattern which is reversed afterwards. These results are consistent with the idea that monopoly power forced high-productivity lawyers out of the profession prior to the reform and that the liberalization episode helped high-ability individuals to remain in the profession.

Finally, Table 9 and Table 10 show that our results are robust to conditioning to leave the profession within 5 years from qualification and to conditioning on the frequency of one's surname in the local register among lawyers who are at least 25 years older.

6 Conclusions

This paper presents a new model of occupational licensing where producers are heterogeneous both in their ability or productivity and in the level of barriers to entry in the profession that they face. The model bears important implications on the effects of liberalization policies that differ dramatically from those implied by a more standard model, where heterogeneity is unidimensional in productivity.

We test our model on data for Italian lawyers, who are not allowed to take jobs as dependent employees during their active practice, a peculiar institutional requirement that allows us to clearly identify out-flows from the profession. To do so, we exploit a unique dataset that matches information from the publicly available registers of lawyers for the Veneto region with data on all hirings of dependent workers since 2000. Outflows from the legal profession are identified as those individuals who appear in one of the registers at a point in time and subsequently sign a contract as dependent workers.

Our results show that outflows from the legal profession are lower if one's surname is particularly frequent in one's local register. This result is robust to the inclusion of a host of covariates among which, most notably, the frequency of the surname in the province of work. More importantly, we find a strong effect of the 2006 Italian liberalizing reform on the composition of the outflows from the legal profession. In 2006 a policy change forbid price floors and eliminated the ban on both price bundling and commercial advertising, aiming at facilitating young professional. Our results show that while higher ability lawyers were more likely to leave the profession before the reform, the opposite seems to happen in its aftermaths. This is consistent with the idea that monopoly power forced high-productivity lawyers out of the profession prior to the reform and that the liberalization episode helped them to stay in the profession.

TABLE 8: Effects of the 2006 reform (deciles of income)

	(1)	(2)	(3)	(4)	(5)
Overall surname frequency	0.233** (0.106)	0.220** (0.109)	0.231** (0.104)	0.232** (0.105)	0.213** (0.108)
Lawyers surname frequency	-0.410*** (0.147)	-0.312 (0.220)	-0.408*** (0.147)	-0.434** (0.204)	-0.300 (0.263)
Decile 1 of income	-0.272 (0.246)	-0.331 (0.256)	-0.896*** (0.330)	-0.898*** (0.330)	-1.017*** (0.373)
Decile 2 of income	-0.376 (0.266)	-0.365 (0.266)	-0.835** (0.360)	-0.835** (0.360)	-0.852** (0.369)
Decile 3 of income	-0.042 (0.240)	-0.054 (0.242)	-0.042 (0.281)	-0.042 (0.282)	-0.060 (0.284)
Decile 4 of income	-0.394 (0.261)	-0.430 (0.281)	-0.281 (0.308)	-0.282 (0.307)	-0.604 (0.424)
Age	-0.013 (0.116)	-0.011 (0.116)	-0.042 (0.101)	-0.041 (0.101)	-0.035 (0.102)
Age squared	-0.001 (0.001)	-0.001 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)
Female	0.161 (0.155)	0.162 (0.156)	0.168 (0.155)	0.168 (0.155)	0.170 (0.156)
Foreign born	0.281 (0.521)	0.292 (0.513)	0.308 (0.527)	0.311 (0.526)	0.308 (0.509)
Local	-0.009 (0.179)	0.004 (0.179)	-0.014 (0.178)	-0.014 (0.178)	0.006 (0.178)
Experience	-0.187*** (0.066)	-0.189*** (0.066)	-0.176*** (0.065)	-0.176*** (0.065)	-0.182*** (0.065)
Decile 1 of income post 2006			1.367*** (0.484)	1.370*** (0.484)	1.440*** (0.518)
Decile 2 of income post 2006			0.982* (0.520)	0.985* (0.521)	0.961* (0.531)
Decile 3 of income post 2006			-0.019 (0.505)	-0.020 (0.505)	-0.007 (0.509)
Decile 4 of income post 2006			-0.303 (0.556)	-0.301 (0.556)	0.003 (0.636)
Constant	-4.186* (2.358)	-4.186* (2.350)	-3.504 (2.151)	-3.519 (2.154)	-3.623* (2.170)
R-squared	0.050	0.051	0.059	0.059	0.064
N	14215	14215	14215	14215	14215
Income deciles × surname	NO	YES	NO	NO	YES
Surnames × post 2006	NO	NO	NO	YES	YES
Income deciles × surname × post 2006	NO	NO	NO	NO	YES

Note: All specifications include province and year dummies. One star denotes significance at the 10% level, two stars denote significance at the 5% level, and three stars denote significance at the 1% level.

TABLE 9: *Effects of the 2006 reform on the probability to leave the lawyer profession within 5 years*

	(1)	(2)	(3)	(4)	(5)
Overall surname frequency	0.269** (0.124)	0.259** (0.124)	0.266** (0.122)	0.266** (0.122)	0.251** (0.124)
Lawyers surname frequency	-0.446** (0.179)	-0.424 (0.327)	-0.442** (0.179)	-0.435** (0.208)	-0.295 (0.286)
Decile 1 of income	-0.701** (0.292)	-0.710** (0.302)	-1.134*** (0.375)	-1.134*** (0.375)	-1.228*** (0.416)
Decile 2 of income	-0.272 (0.287)	-0.255 (0.288)	-0.667* (0.341)	-0.667* (0.341)	-0.666* (0.342)
Decile 3 of income	0.041 (0.266)	0.036 (0.271)	0.048 (0.287)	0.047 (0.287)	0.025 (0.289)
Decile 4 of income	-0.161 (0.275)	-0.241 (0.296)	-0.202 (0.301)	-0.202 (0.301)	-0.438 (0.357)
Age	0.013 (0.095)	0.017 (0.095)	0.004 (0.095)	0.004 (0.095)	0.012 (0.096)
Age squared	-0.001 (0.001)	-0.001 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)
Female	0.175 (0.181)	0.175 (0.182)	0.189 (0.181)	0.189 (0.181)	0.190 (0.182)
Foreign born	-1.192 (1.029)	-1.164 (1.003)	-1.169 (1.028)	-1.170 (1.023)	-1.146 (0.958)
Local	-0.181 (0.198)	-0.173 (0.198)	-0.177 (0.198)	-0.176 (0.198)	-0.157 (0.199)
exp	-0.181** (0.088)	-0.185** (0.088)	-0.196** (0.090)	-0.196** (0.090)	-0.202** (0.089)
Decile 1 of income post 2006			1.440** (0.661)	1.436** (0.665)	1.888** (0.758)
Decile 2 of income post 2006			1.244* (0.643)	1.242* (0.645)	1.534** (0.735)
Decile 3 of income post 2006			-0.084 (0.681)	-0.087 (0.682)	0.277 (0.769)
Decile 4 of income post 2006			0.154 (0.707)	0.151 (0.711)	0.738 (0.804)
Constant	-4.638** (2.104)	-4.738** (2.102)	-4.416** (2.107)	-4.415** (2.107)	-4.589** (2.123)
R-squared	0.042	0.043	0.049	0.049	0.055
N	10389	10389	10389	10389	10389
Income deciles × surname	NO	YES	NO	NO	YES
Surnames × post 2006	NO	NO	NO	YES	YES
Income deciles × surname × post 2006	NO	NO	NO	NO	YES

Note: All specifications include province and year dummies. One star denotes significance at the 10% level, two stars denote significance at the 5% level, and three stars denote significance at the 1% level.

TABLE 10: *Effects of the 2006 reform conditioning on the frequency of one's surname in the local register among lawyers who are at least 25 years older*

	(1)	(2)	(3)	(4)	(5)
Overall surname frequency	-0.020 (0.100)	-0.026 (0.099)	-0.017 (0.098)	-0.017 (0.099)	-0.029 (0.095)
Lawyers surname frequency 25 plus	-0.120 (0.075)	-0.105 (0.148)	-0.121 (0.075)	-0.164* (0.096)	-0.191 (0.207)
Decile 1 of income	-0.497* (0.259)	-0.556** (0.265)	-1.195*** (0.363)	-1.198*** (0.363)	-1.259*** (0.380)
Decile 2 of income	-0.483* (0.265)	-0.477* (0.265)	-0.929*** (0.360)	-0.933*** (0.361)	-0.933*** (0.360)
Decile 3 of income	-0.161 (0.241)	-0.160 (0.241)	-0.149 (0.286)	-0.150 (0.286)	-0.147 (0.287)
Decile 4 of income	-0.520** (0.262)	-0.524** (0.263)	-0.407 (0.312)	-0.409 (0.312)	-4.582 (3.648)
Age	0.109 (0.165)	0.110 (0.165)	0.045 (0.137)	0.043 (0.136)	0.049 (0.139)
Age squared	-0.002 (0.002)	-0.002 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.002 (0.002)
Female	0.223 (0.161)	0.222 (0.161)	0.230 (0.161)	0.230 (0.161)	0.231 (0.161)
Foreign born	0.056 (0.715)	0.079 (0.720)	0.070 (0.710)	0.072 (0.713)	0.088 (0.719)
Local	0.004 (0.184)	0.018 (0.184)	-0.003 (0.183)	-0.004 (0.183)	0.013 (0.183)
exp	-0.193*** (0.068)	-0.194*** (0.068)	-0.181*** (0.067)	-0.181*** (0.067)	-0.185*** (0.067)
Decile 1 of income post 2006			1.451*** (0.506)	1.454*** (0.505)	1.480*** (0.524)
Decile 2 of income post 2006			0.953* (0.523)	0.960* (0.523)	0.936* (0.524)
Decile 3 of income post 2006			-0.042 (0.506)	-0.039 (0.507)	-0.041 (0.508)
Decile 4 of income post 2006			-0.288 (0.558)	-0.288 (0.558)	3.803 (3.697)
Constant	-6.817** (2.959)	-6.852** (2.961)	-5.529** (2.559)	-5.500** (2.551)	-5.671** (2.589)
R-squared	0.046	0.047	0.055	0.055	0.061
N	13740	13740	13740	13740	13740
Income deciles × surname	NO	YES	NO	NO	YES
Surnames × post 2006	NO	NO	NO	YES	YES
Income deciles × surname × post 2006	NO	NO	NO	NO	YES

Note: All specifications include province and year dummies. One star denotes significance at the 10% level, two stars denote significance at the 5% level, and three stars denote significance at the 1% level.

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